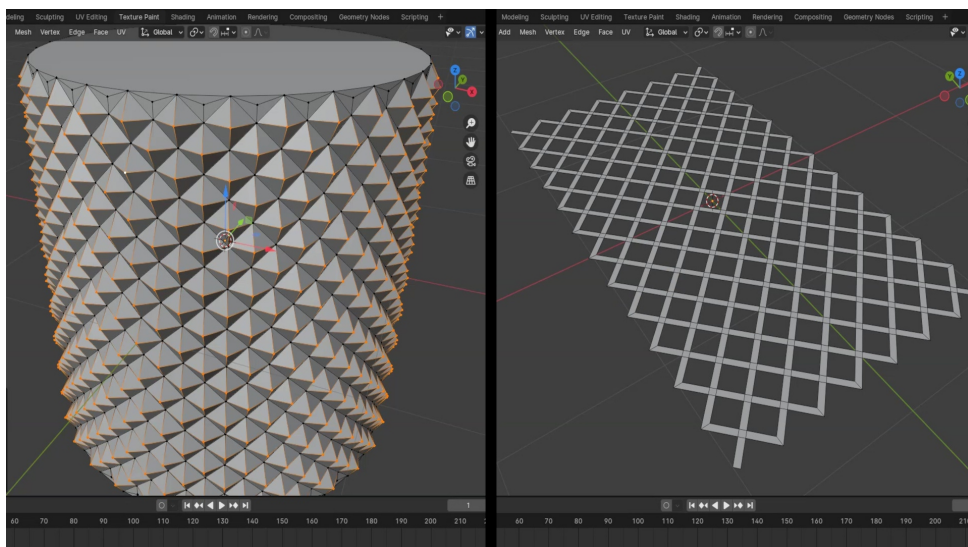


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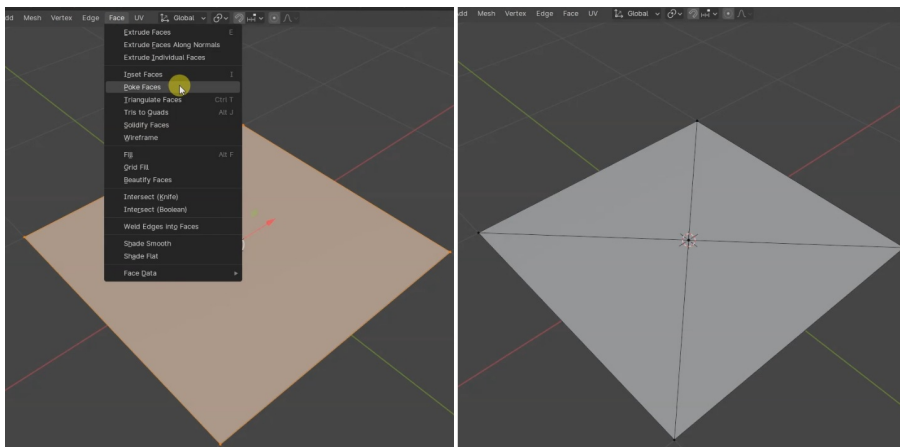


Hello everyone!

In this tutorial, made with Blender 4.1, we will see some basic operations for **modeling geometries** in Edit Mode; specifically, we will discuss the **Poke Faces** and **Tris-to-Quads** operators, especially when used in succession, with some practical examples.

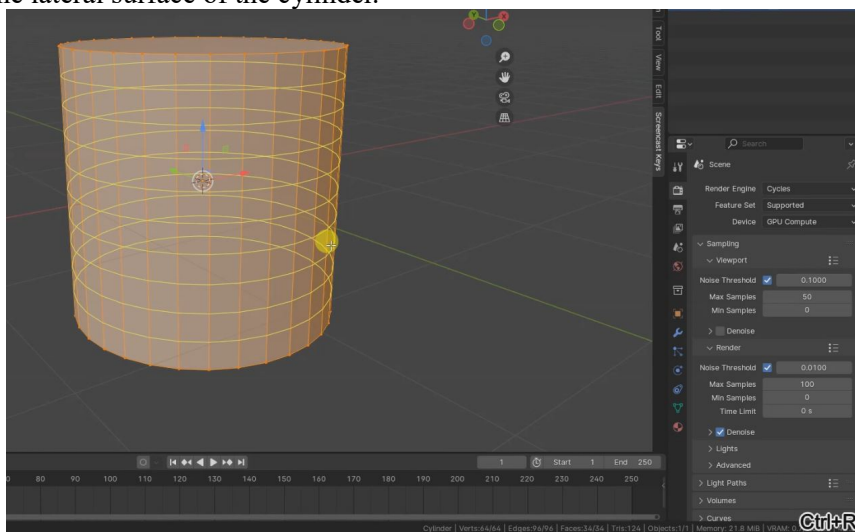
This tutorial is for beginners; in it, I'll show you how to use the operators mentioned in the title and other basic tools in Edit Mode, to show you how to achieve different results **starting from simple quadrilateral faces** and a few simple operations, hoping that they can help you in other situations, too.

The **Poke Faces** operator creates a **new center vertex** in a face and **connects** this vertex to the other vertices of the face; so, starting from a square, we get a **fan of 4 triangular faces** that share the central vertex.

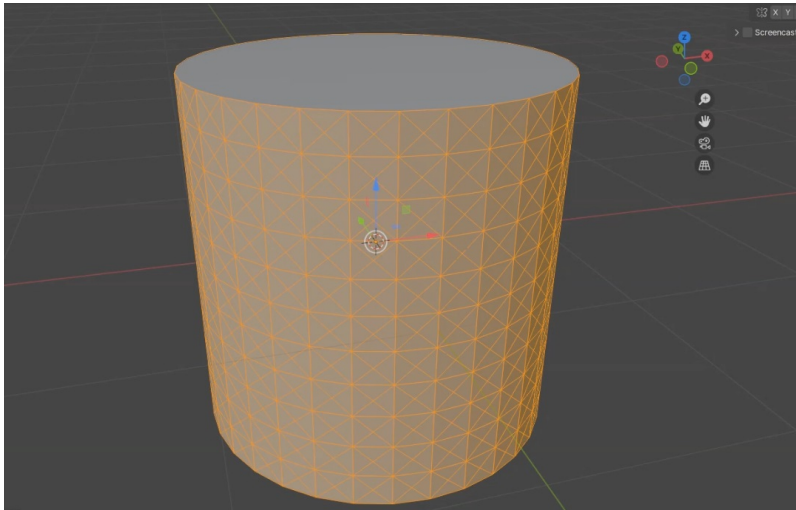


From here, we can go on by creating various geometries; for example, we can select **the new vertices** and move them away from those to which they are connected using **Grab along the Normals**, individually, thus obtaining small pyramids on the object, useful, for example, for creating **Knurled or Diamond Grip Patterns**.

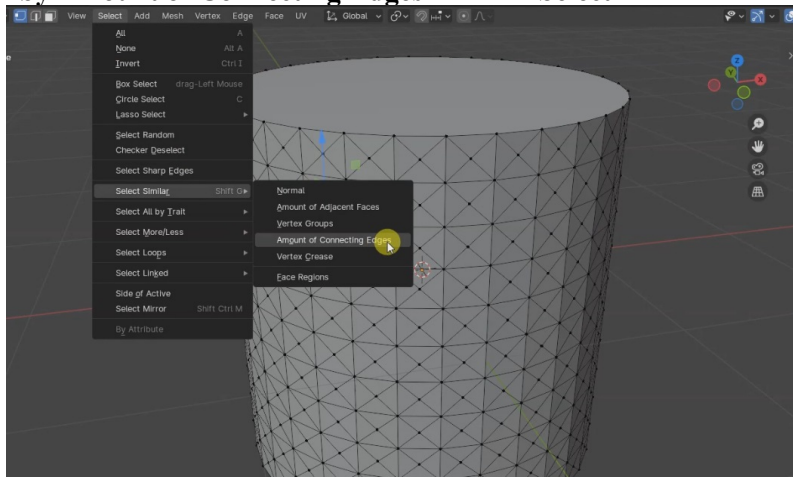
To show you an example with multiple faces, I'm adding a **Cylinder** into the scene and, in Edit Mode, I'm making **horizontal cuts with CTRL R** and the mouse wheel, using the **Loop Cut and Slide** operator to obtain quadrilateral faces on the lateral surface of the cylinder.



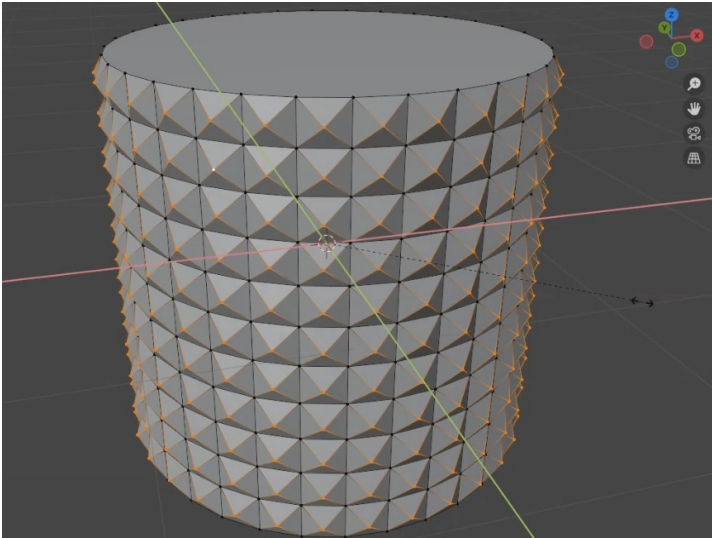
Regarding Poke Faces, we can proceed as follows: select the **quadrilateral faces** that we want to transform, then **use the Poke Faces operator**, which we can choose from the **Face menu**.



To select only the new vertices, we can **select just one of them** and then choose **Similar by Amount of Connecting Edges** from the **Select** menu.

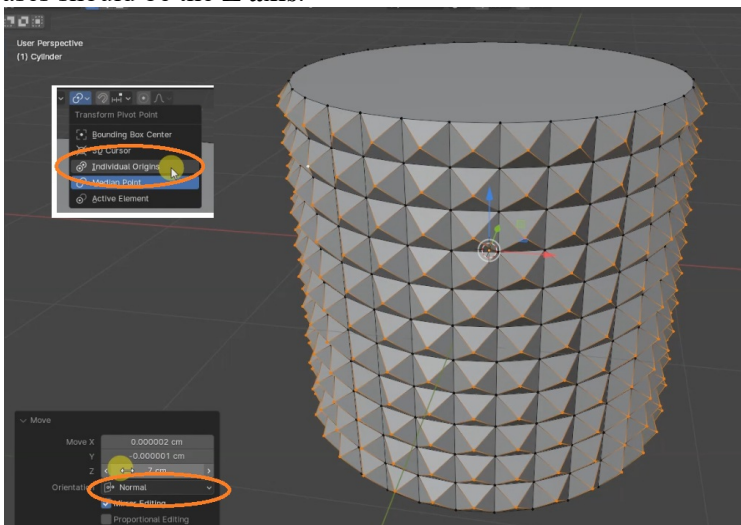


To **move the selected vertices outward**, in the specific case of the geometry I'm using, we can proceed with **Scaling** while locking the vertical axis, by pressing **S SHIFT Z** in Global mode.



In other situations, with non-symmetric geometries or in general more complex ones, you can proceed with **moving along the Normal of each vertex** as follows:

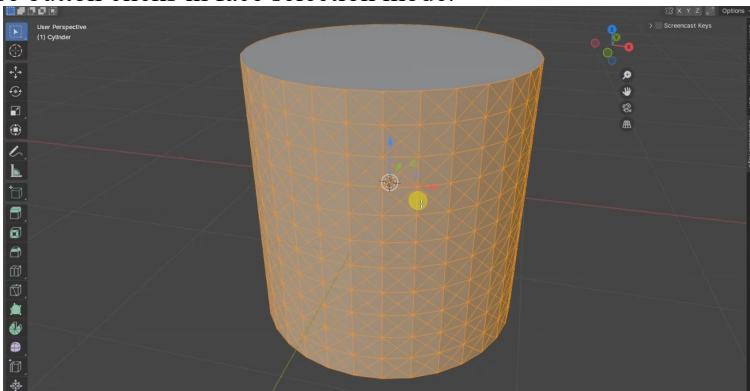
- switch to **Individual Origins** transformation mode;
- press the **G** key and, immediately after, press Enter, to bring up the **Move operator panel**;
- in that panel, change the **Orientation** mode to **Normal**;
- then, modify the value associated with the movement axis, which in these cases should be the **Z axis**.



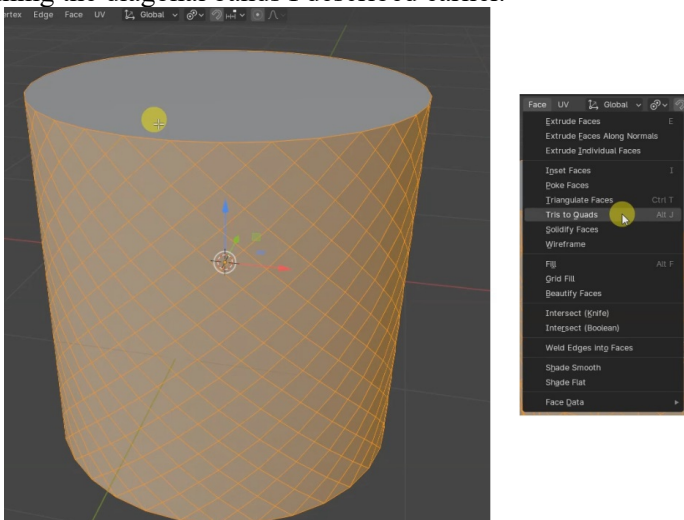
The operations seen up to this point are interesting, but that's not all: used in combination with the **Tris-to-Quads operator**, the Poke Faces operator allows us to obtain **knurlings rotated by 45 degrees**, resulting in pyramids arranged on **diagonal bands** rather than vertically and horizontally aligned.

To show you how to achieve this result, I reverted the movement along Normal Z and expanded the selection, starting from the tips of the pyramids, using the **Select More operator**, whose shortcut is **CTRL + NumPad Plus**.

Then, I removed the two bases of the cylinder from the selection with SHIFT and left mouse button clicks in face selection mode.

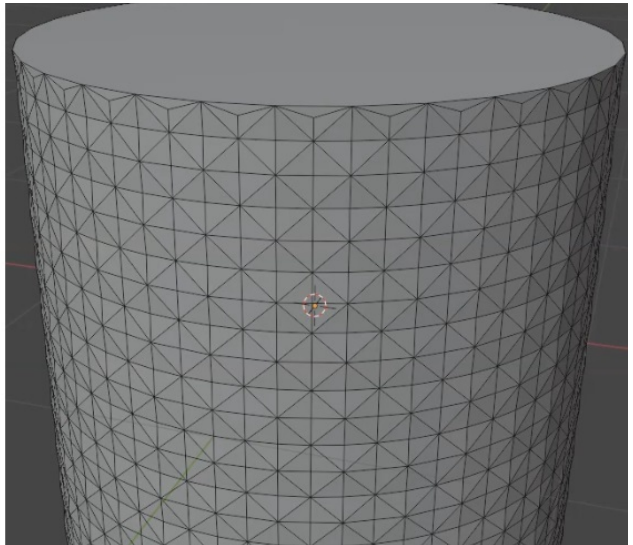
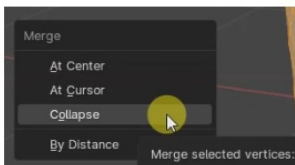
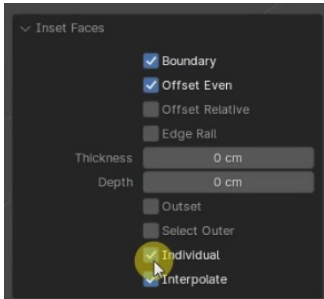


With these elements selected, I use the **Tris-to-Quads operator** from the **Faces** menu, obtaining the diagonal bands I described earlier.



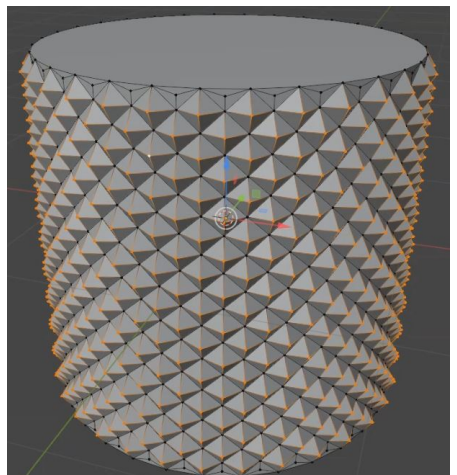
Starting from this selection, you can obtain the pyramids in the following way:

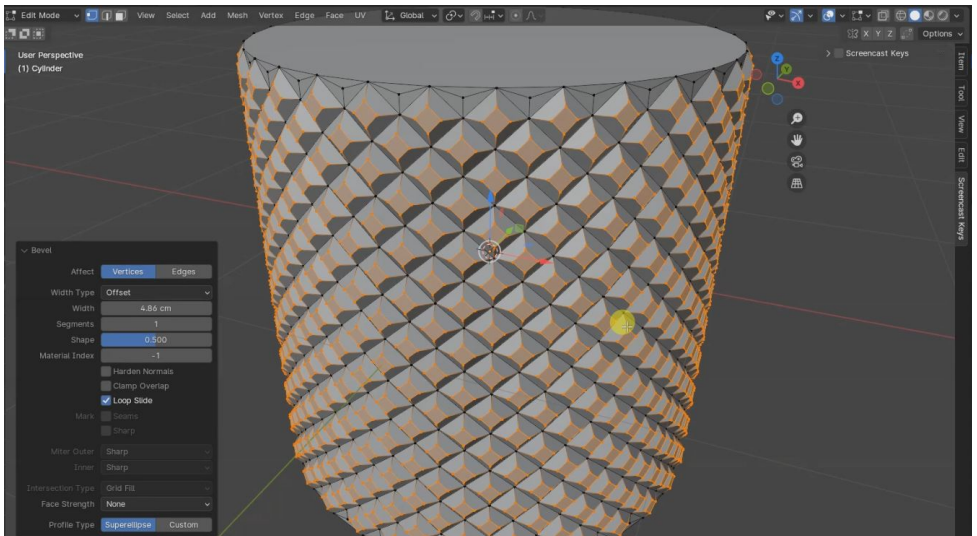
- press **I** and immediately after, press Enter to use the **Inset** operator and bring up its panel;
- then, in the operator's panel, select the **Individual** checkbox;
- finally, press the **M** key to call the **Merge** operator and choose the **Collapse** option.



This way, you will have regained **vertices with 4 edges**, which you can select using **Select Similar by Amount of Connecting Edges** and move away using move along Normals or other techniques, as I showed you before.

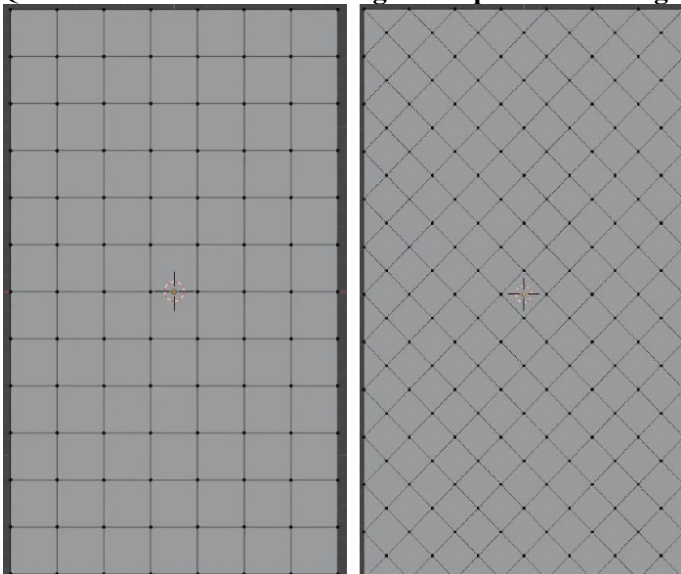
If you want to obtain **square faces on top of the pyramids** thus obtained, you can select the vertices and press **CTRL SHIFT B**, which is the shortcut for the **Bevel** operator applied to **vertices** instead of edges, as usually happens.





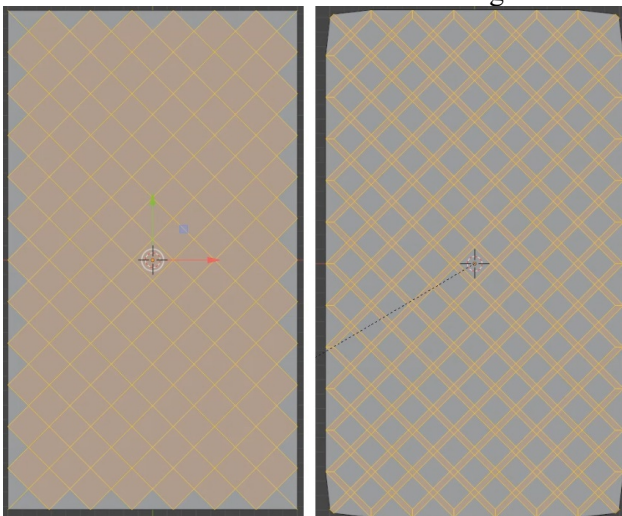
The use of Poke Faces, both alone and in combination with Tris-to-Quads, can help you achieve many other types of results, even very different from the one just shown. For example, I'll show you how to create **a grid** starting from a simple Plane.

After subdividing the Plane to obtain **a grid structure**, it's sufficient to use Poke and Tris-to-Quads in succession **to rearrange the square faces diagonally**.

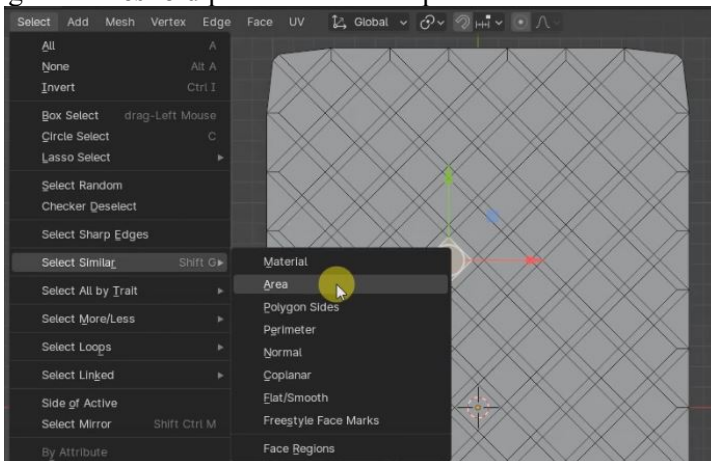


Now, in **Edge selection mode**, select all the geometry, then **exclude the perimeter** edges from the selection by pressing SHIFT ALT and left-clicking on one of the perimeter edges.

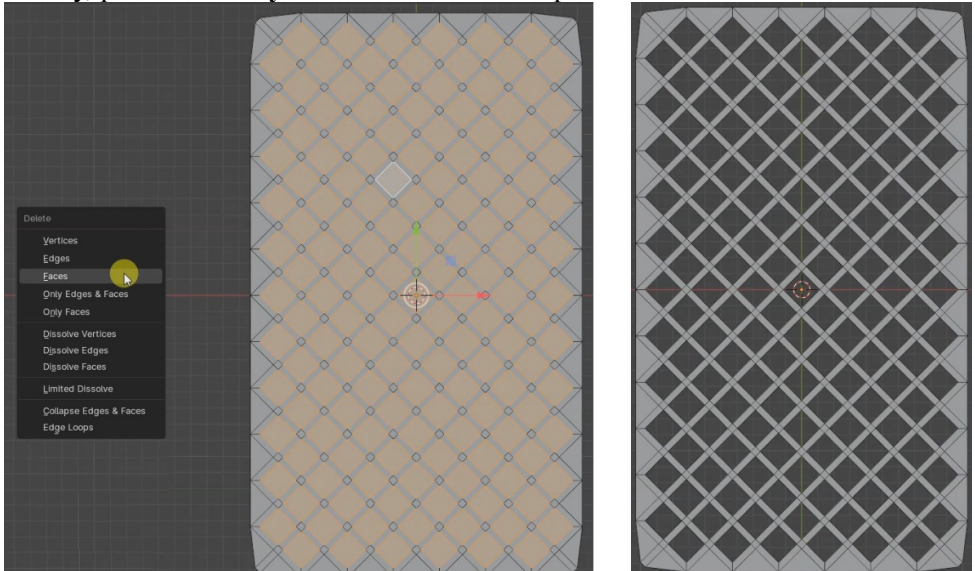
Next, press **CTRL B** to perform a **Bevel** on all selected **edges** and move the mouse until you achieve the desired thickness for the edges.



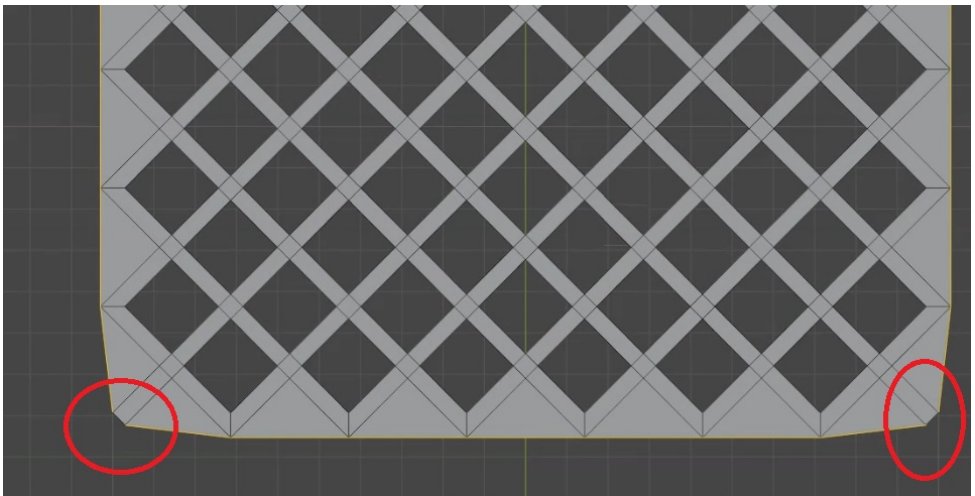
Now switch to **Face selection mode**, select one of the square faces to remove, then choose the **Area** option from the **Select Similar** menu. If the selection also includes faces different from those similar to the selected face, you can improve it by adjusting the **Threshold** parameter of the operator.



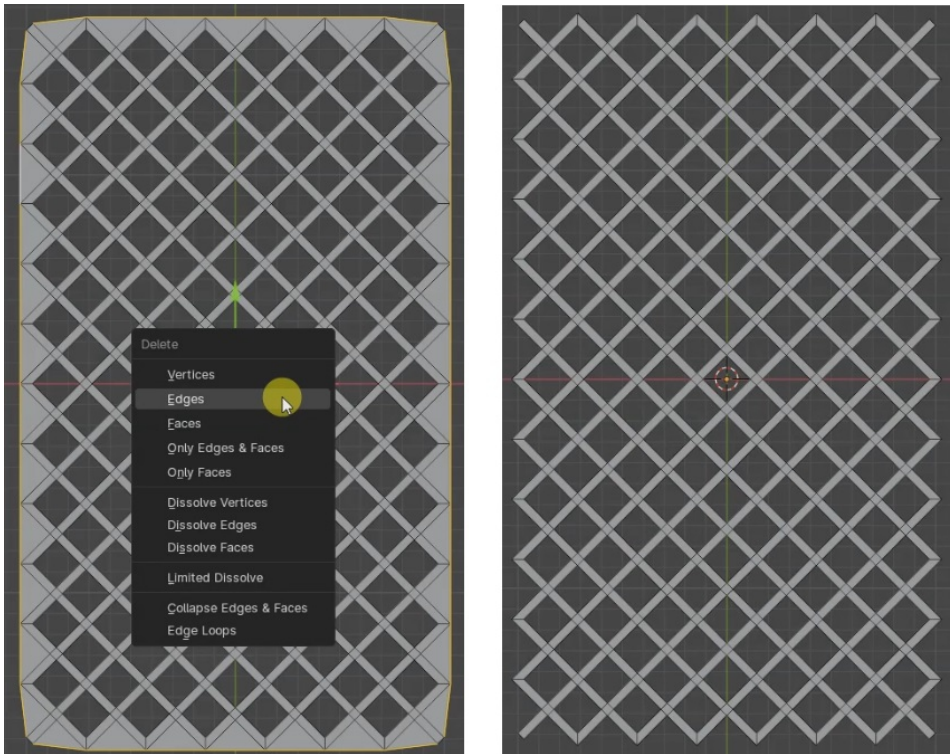
Finally, press the **X** key and choose the **Face** option from the **Delete** menu.



The remaining faces can be easily eliminated by selecting the perimeter edges, using ALT and clicking on one of these edges, **excluding only the corner edges** from this selection (with SHIFT and click)...



... and then **deleting the edges** with **X** and **Edges**.



As I mentioned at the beginning of the tutorial, these are just a few simple examples of the results that can be achieved both with **Poke Faces** alone and with its use in combination with **Tris-to-Quads**.

I hope this tutorial has been helpful to you! See you soon!