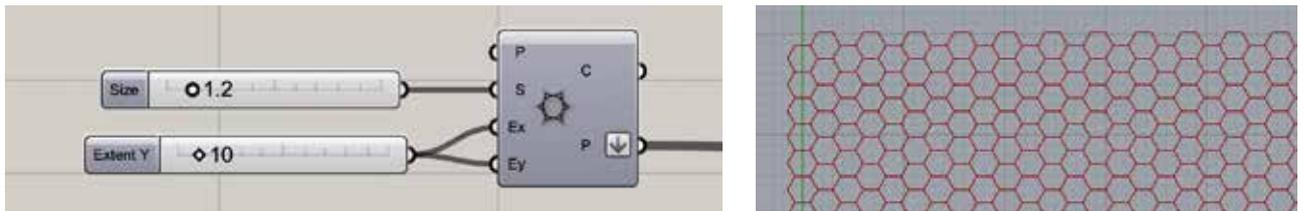# HOW TO CREATE AN
HEXAGONAL 3D STRUCTURE

1. The first step to do this structure, is first to create an hexagone and then repeat it an "x" number of time to obtain a grid.

I used the "Hexagonal" tool for that, which allow you to create a 2D grid with Hexagonal cells. One slider is connected to the input "Size" to define cells size, and another one is used to define the number of grid cells extent in Y and X direction.

2. The grid is then repeated on the axis Z to create a 3D grid, thanks to the tool "serie" connected to a Z vector.
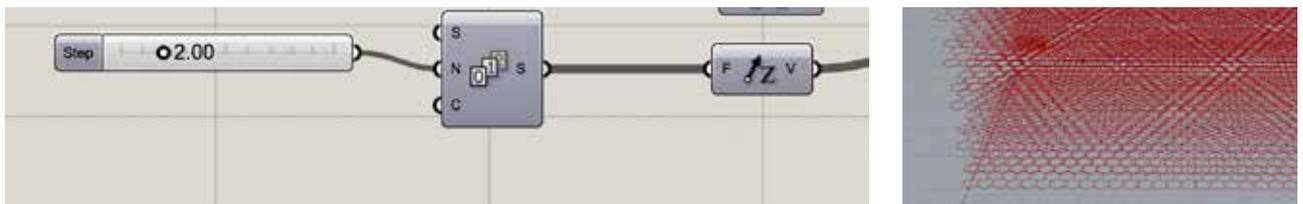

3. For aeasthetic purpose, I decided to move of one cell one grid out of two so they don't exaclty overlapse. I used the "Move" tool associated with the "Dispatch" tool to do that. It created two different groups : one is moving of 1 in the X and Y direction, and the other one is staying still.
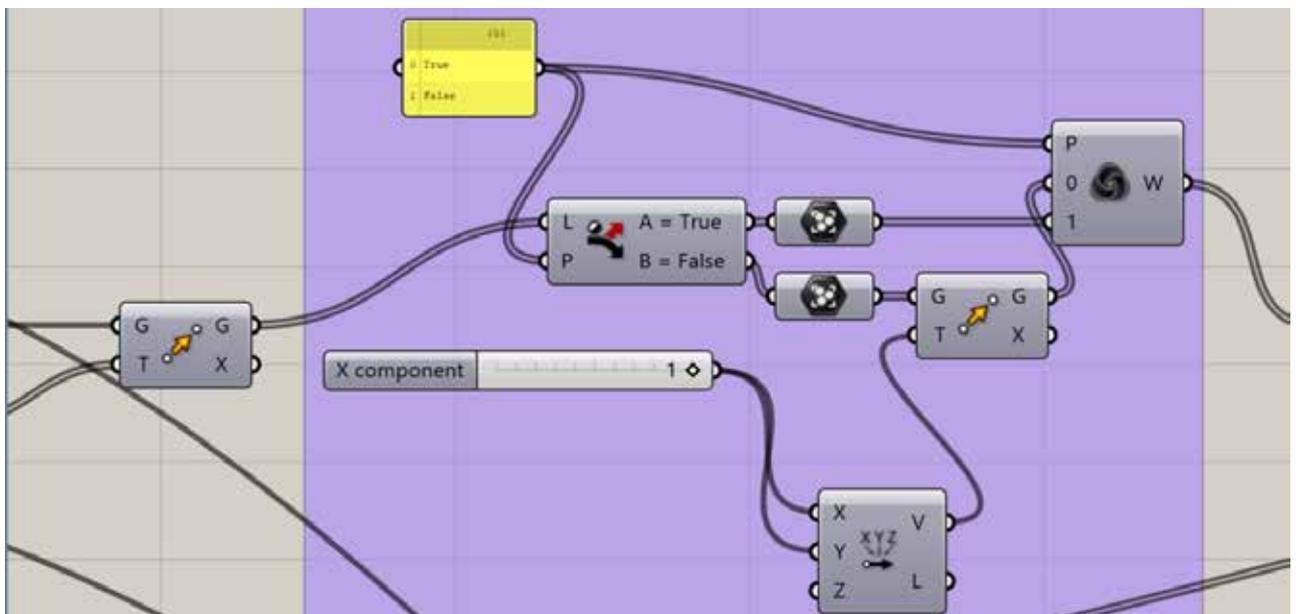
4. Now that this structure is created, I can create attractors to excavate it, and made it look like my honeycomb bar.

I created two points links to two different Spin Forc, then merged together. By connecting sliders to the input "Decay" and "Strenght" I can play with them to modify the inside void
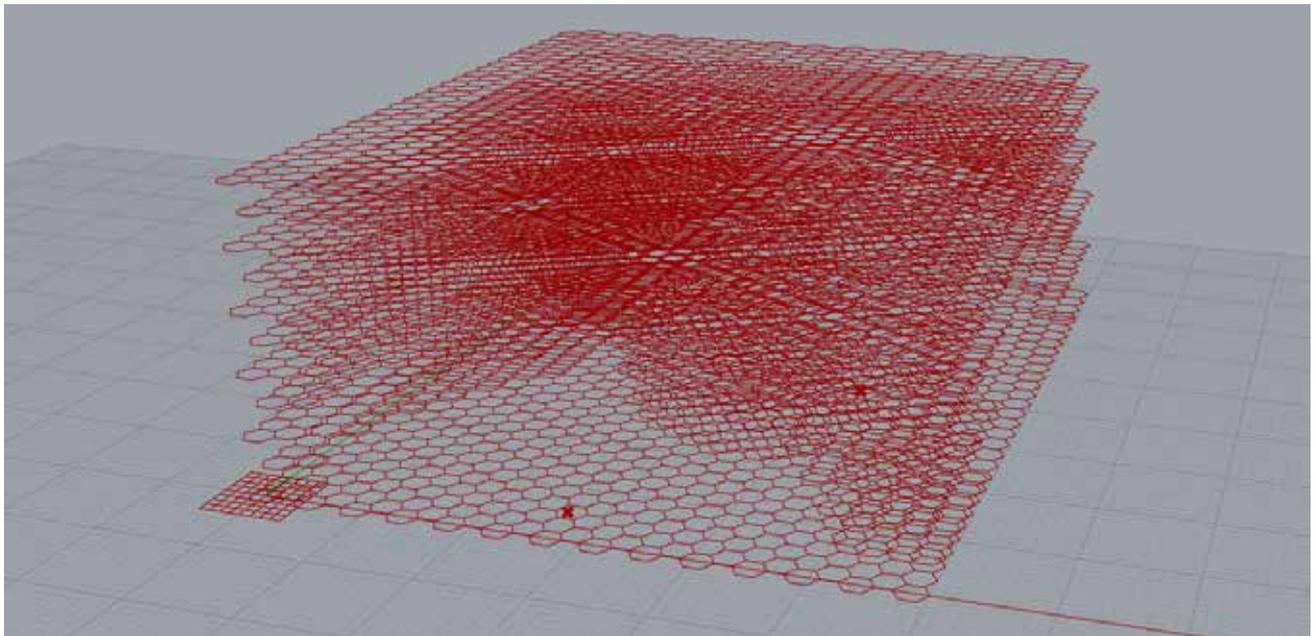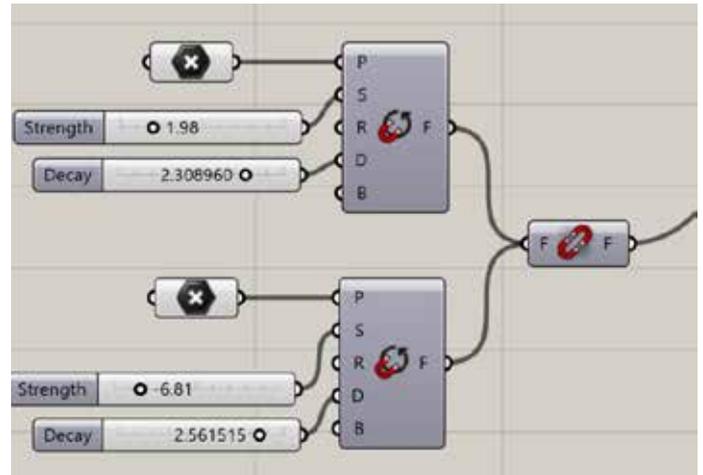

5. I then used the tool "larger than" preceed by the creation of a domain, and its remap. "Evaluate field" evaluate the field of the attratrocs (previously merged together) and the points resulting from the 3D structure. The tool "Larger Than" decide on which points the attractors will have an effect on, and make them disappear.
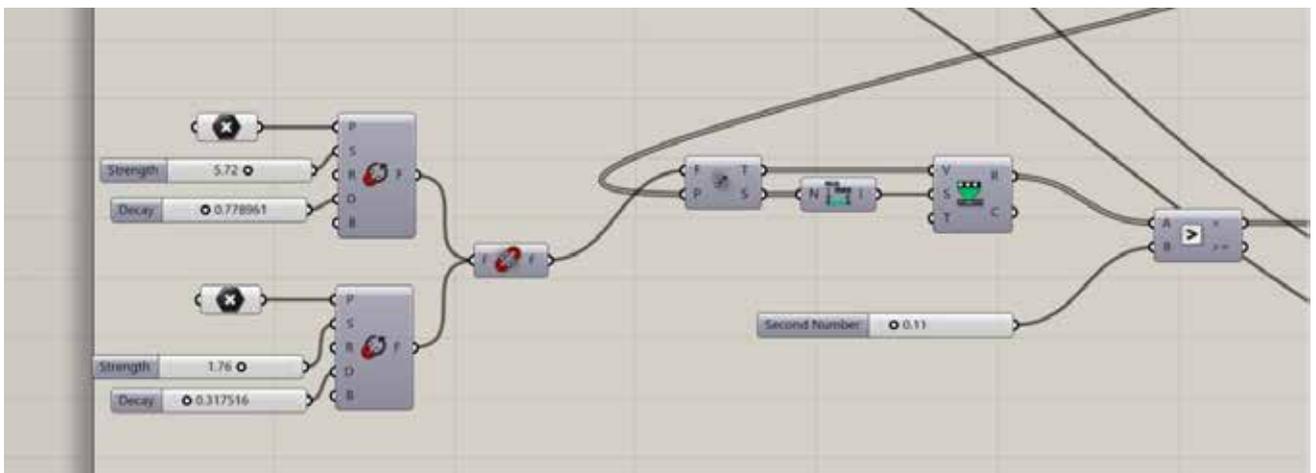
6. I then used this tool associated with the Z vector, to create a vertical line that has for starting point the middle of each polygone. I connected the input "Lenght" to the first slider defining the height of the polygone, so it is the same.
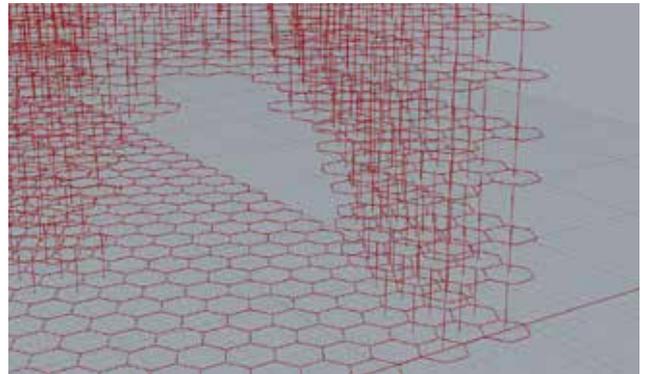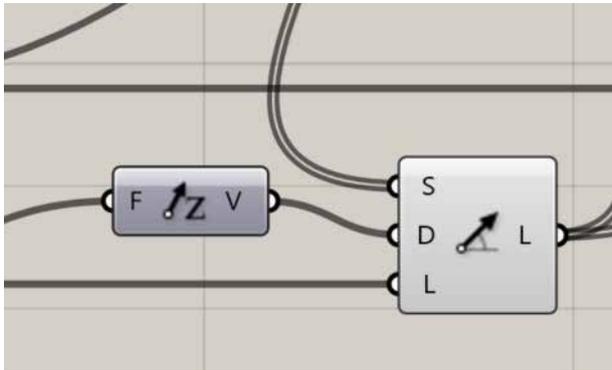
6. The Mesh Pipe tool allows me to create a surface around each vertical segment previously added. The 3D hexagones aren't anymore just lines but now also have surfaces.
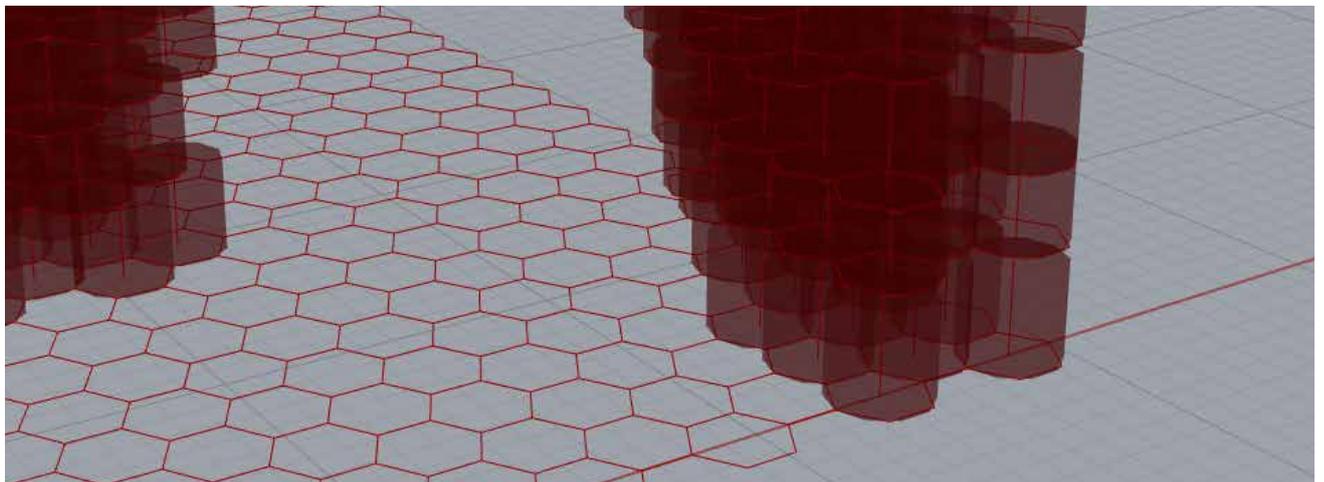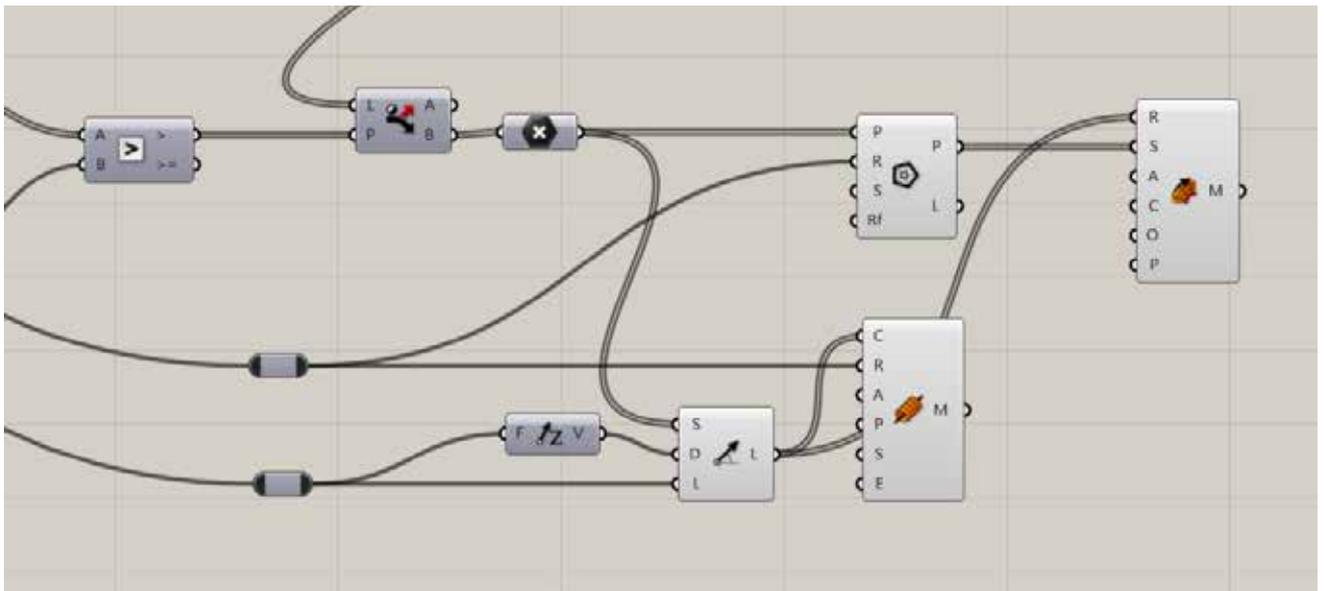
7. The last step to get to my final object is to bake the mesh, to built it to have the model in Rhino. Here is the final result. Many different outcomes are possible thanks to the attractors. I can play with sliders to modify the excavation in the structure, the bar can have many an infitnity of different shapes thanks to these different parameters.
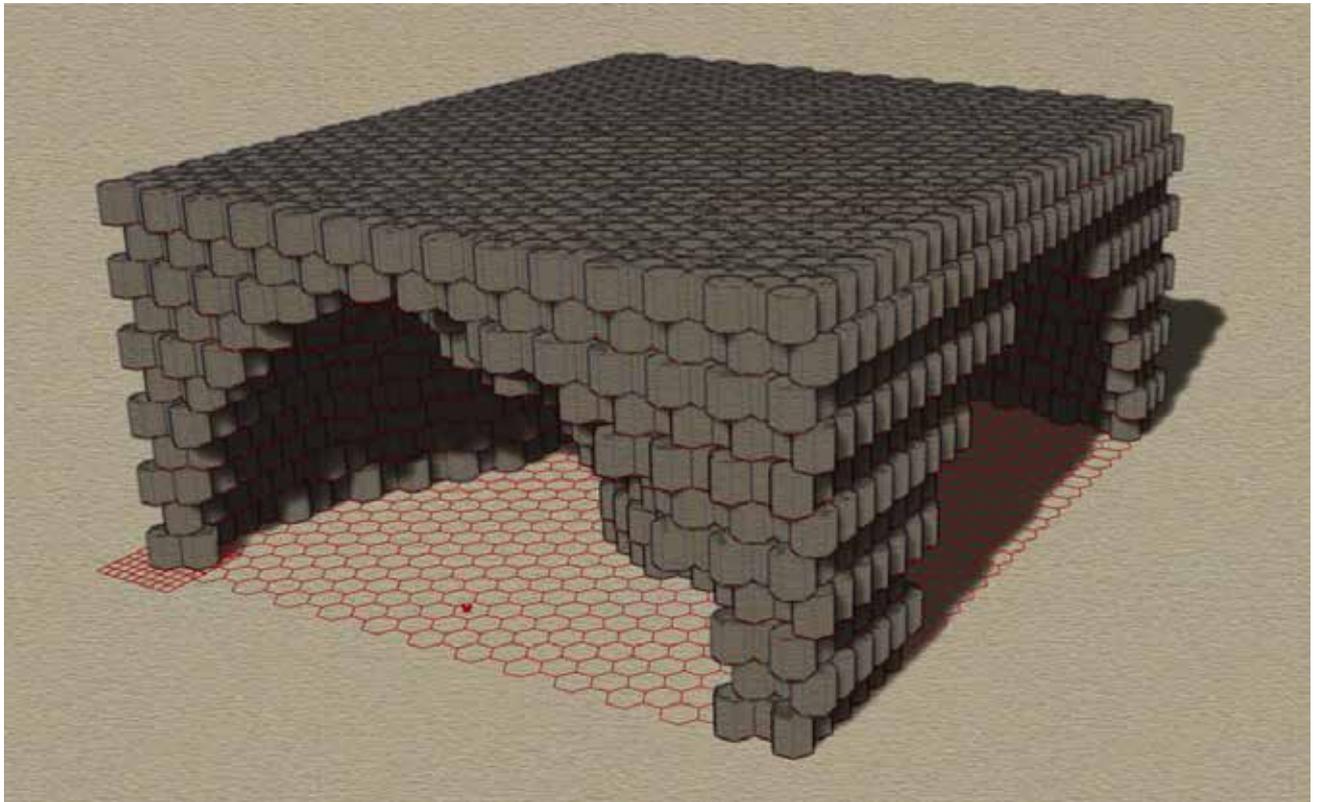
You can see here the script in its totallity if some points aren't clear to you.