ARGOS

MGP Arquitectura y Urbanismo

Institute for advanced architecture of Catalonia

Deniz Akyürek

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Argos is building for an electrical generator at a cement factory. Designed by Felipe Gonzalez-Pacheco & Juan Ignacio Muñoz, MGP Arquitectura y Urbanismo,





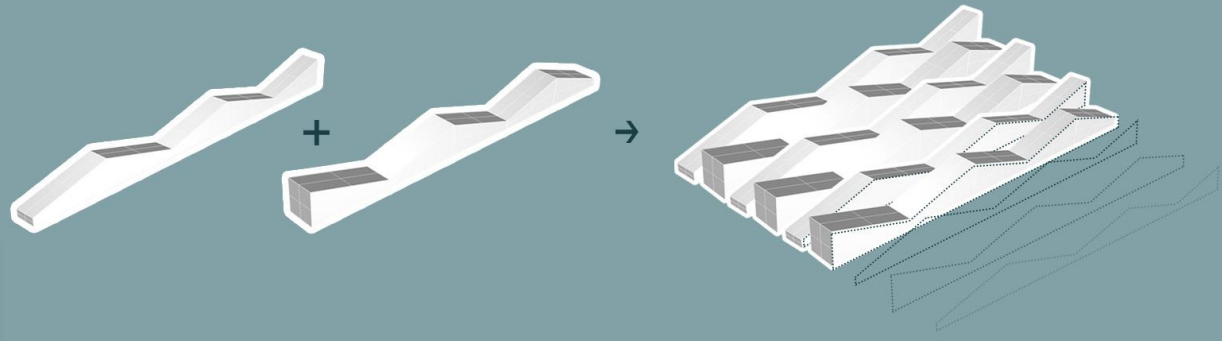




All Images: https://www.archdaily.com/68511/argos-building-for-an-electrical-generator-at-a-cement-factory-felipe-gonzalez-pacheco

ARGOS

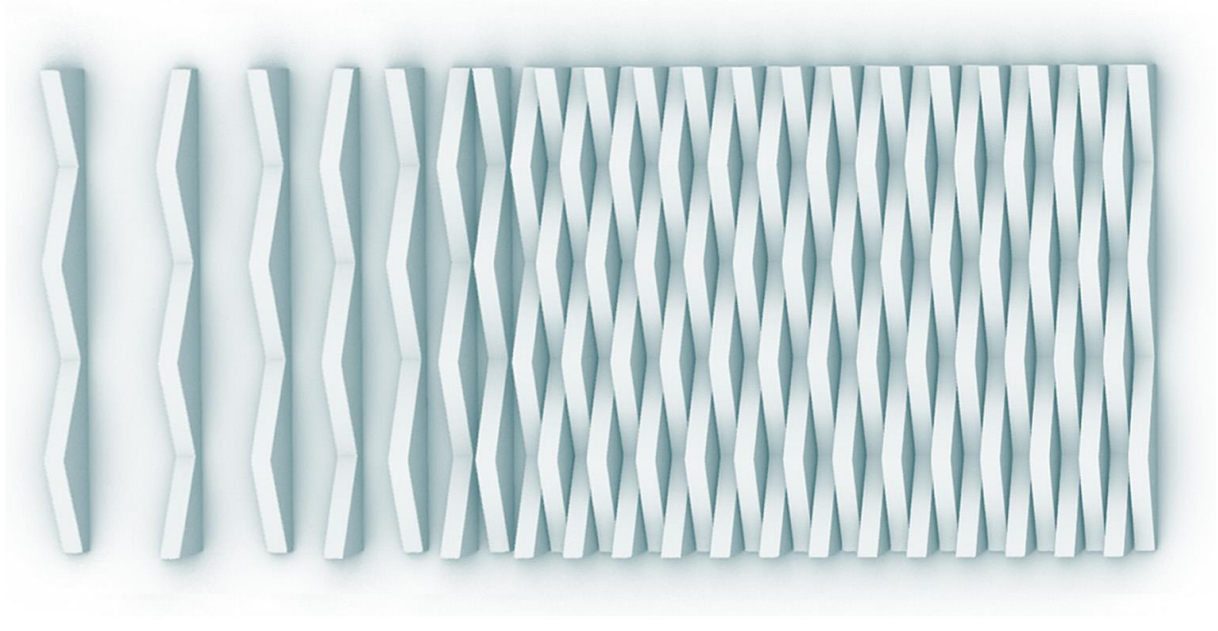
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- The facade is made constructed by pre-fabricated strips of concrete.

- The design has two main pieces that repeat one after another. The logic behind the main element is a strip that bends inwards and outwards in opposite direction on one surface.

- The repeating pattern of strips are arrayed in x axis in order to create the facade.



SECTION of the STRIPS

1

Creating the Base

- Creating a grid.
- Creating polylines, for each strip on the grid.

2

Creating the Strips' Outlines

- Separating every strip on odd and even numbers into two different lists.
- Dividing new strips in each group according to the design of the facade.

3

Creating the Zig-Zag Pattern

- Moving some points in Z direction in order to create the zig-zag pattern.
- Lofting the new zig-zag line with the base polylines to create the section surfaces of the strips.

EXTRUSION

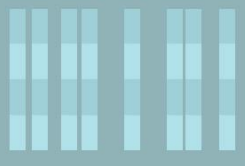
4

Creating the Final Strip Geometry

- The final geometry is reached by extruding the lofted surface made from strips outlines.

VARIATION 1

Altering the distances between the strips.



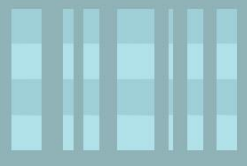
VARIATION 2

Changing the sections of the strips acording to an atractor point

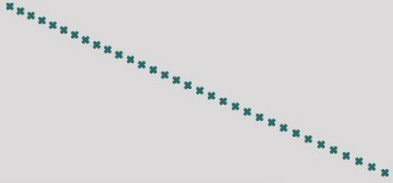


VARIATION 3

Changing the widht and height of the strips to create an uneven pattern

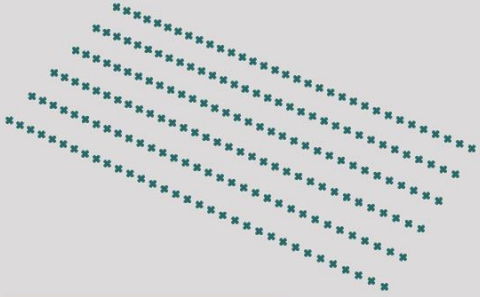


Pseudo Code



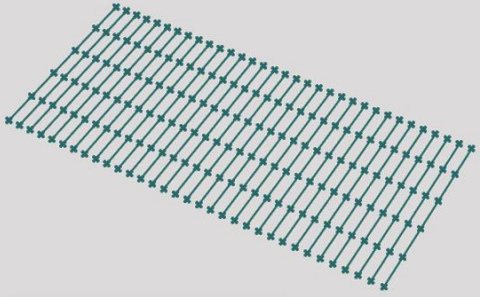
Constructed points for the each strip on the facade.



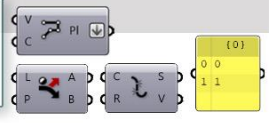


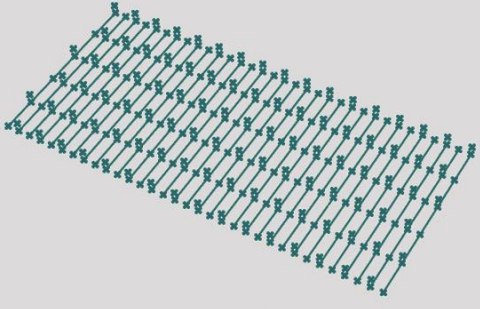
Arrayed the points acording to the places where the strips will bend.



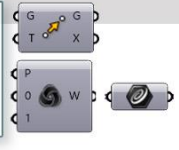


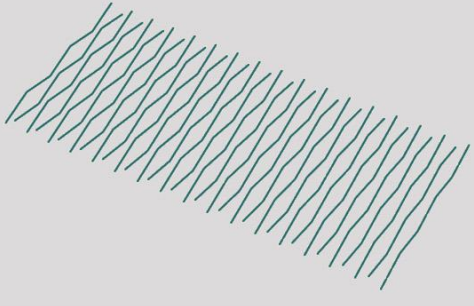
Constructed a polyline by using the point columns in Y direction as a first step for creating the concrete strips sections.





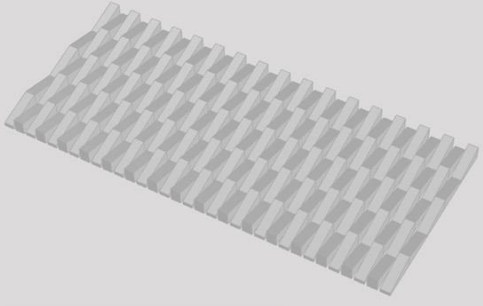
In order to create the two different pattern of strips I used dispatch and for separating both lines in Y direction and selecting points that I want to move in Z direction



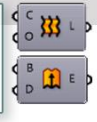


By using polyline again I created the sections of every strip. By using the edges of the strips I used loft component to create a section of each piece as a surface.

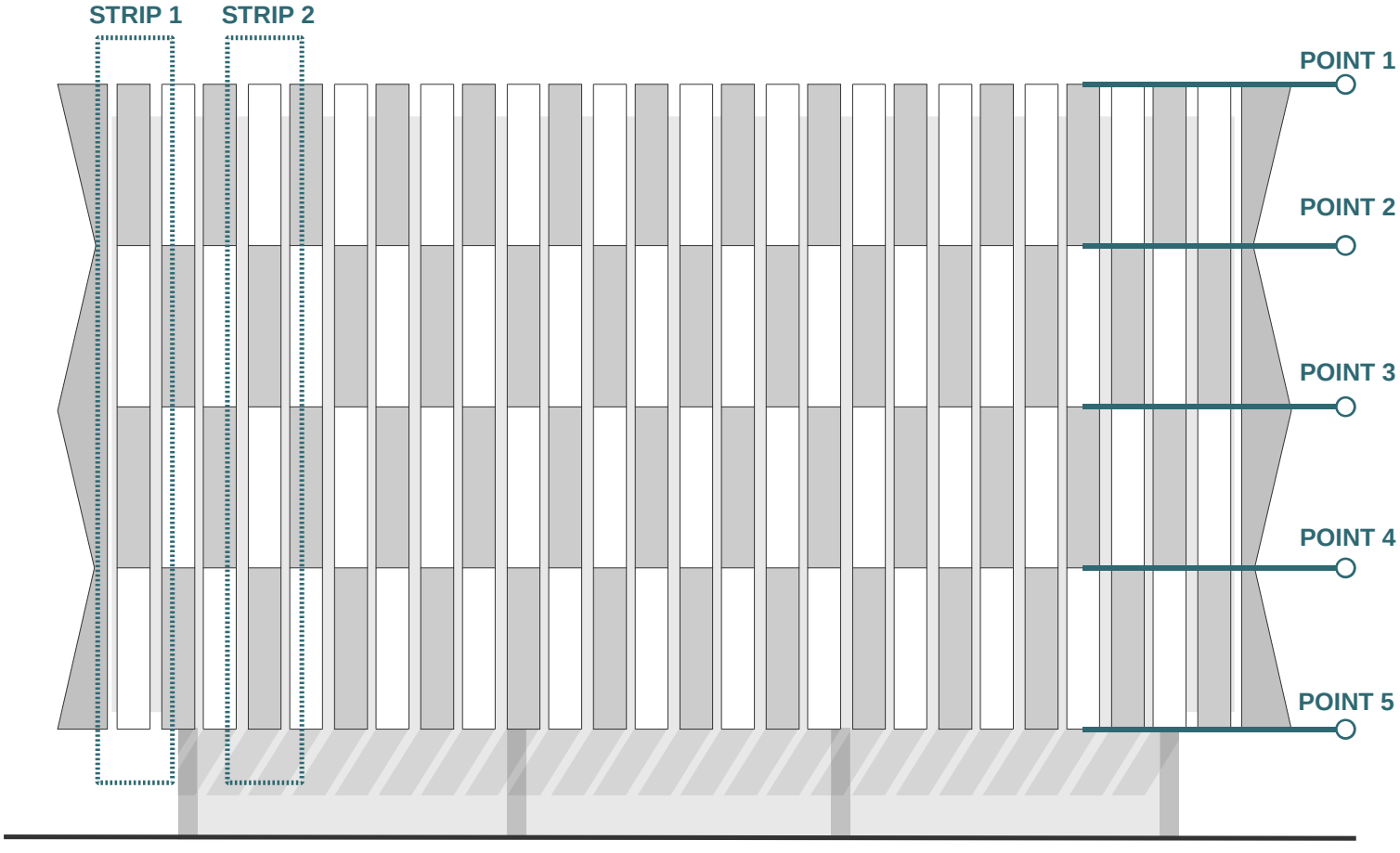




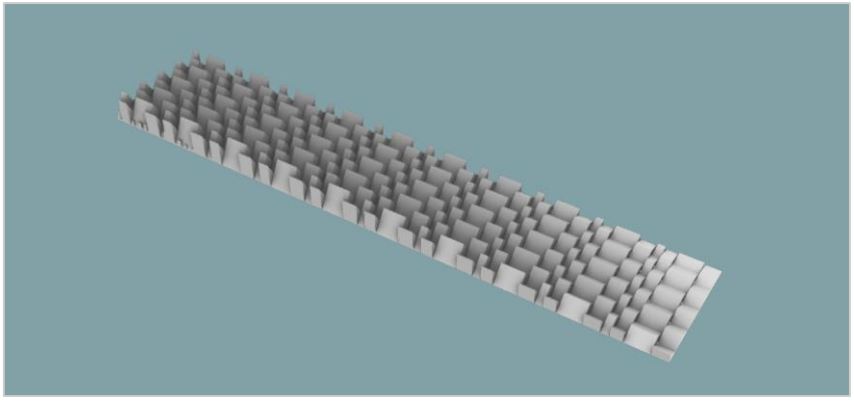
By xtruding the surface lofted from the edge curves I reached the final shape. The next step was applying variations to the foundation script.



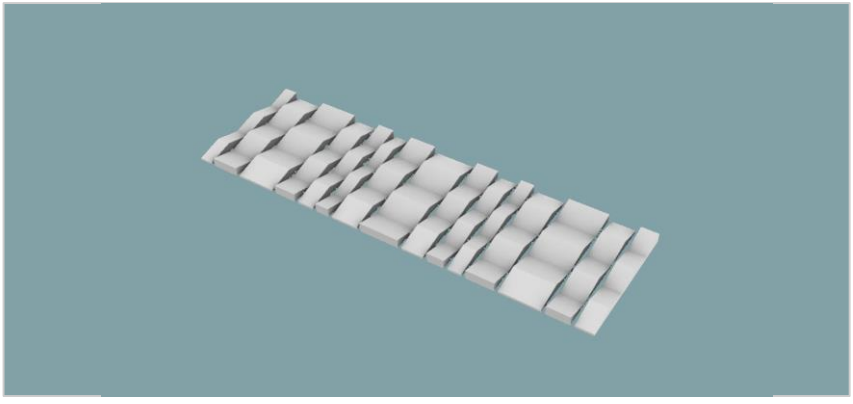
FACADE MAIN ELEMENT



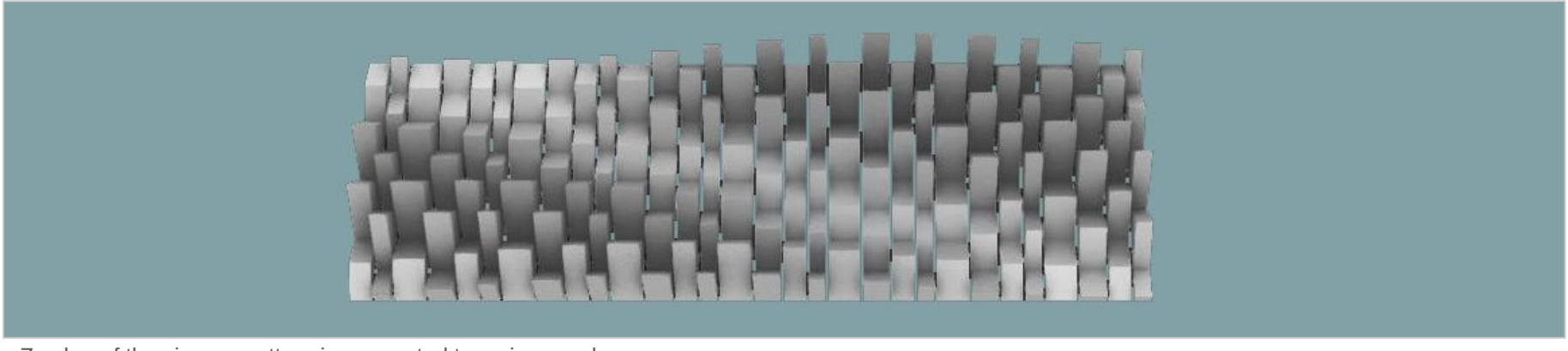
FACADE ITERATIONS



Z value of the zig-zag pattern is connectted to an atractor point



Grid distances and extrusion value



Z value of the zig-zag pattern is connected to a sine graph



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