University of Leeds Car Park

Abhishek Sharma

Institute for advanced architecture of Catalonia

Student: Abhishek Sharma





Situated at the principle approach to the University and adjacent to the Innovation City Leeds building, this high profile project will be highly visible from the City Centre and major inner road network. To meet environmental needs the building approach focuses on maximising passive ventilation and daylighting which combined with renewable energy technologies and a natural ‘green wall’ provides a truly environmentally responsive car park.

Tutors: Rodrigo Aguirre, Mohamad Elatab

Assistant: Ivan Marchuk, Oana Taut

[University of Leeds Car Park]

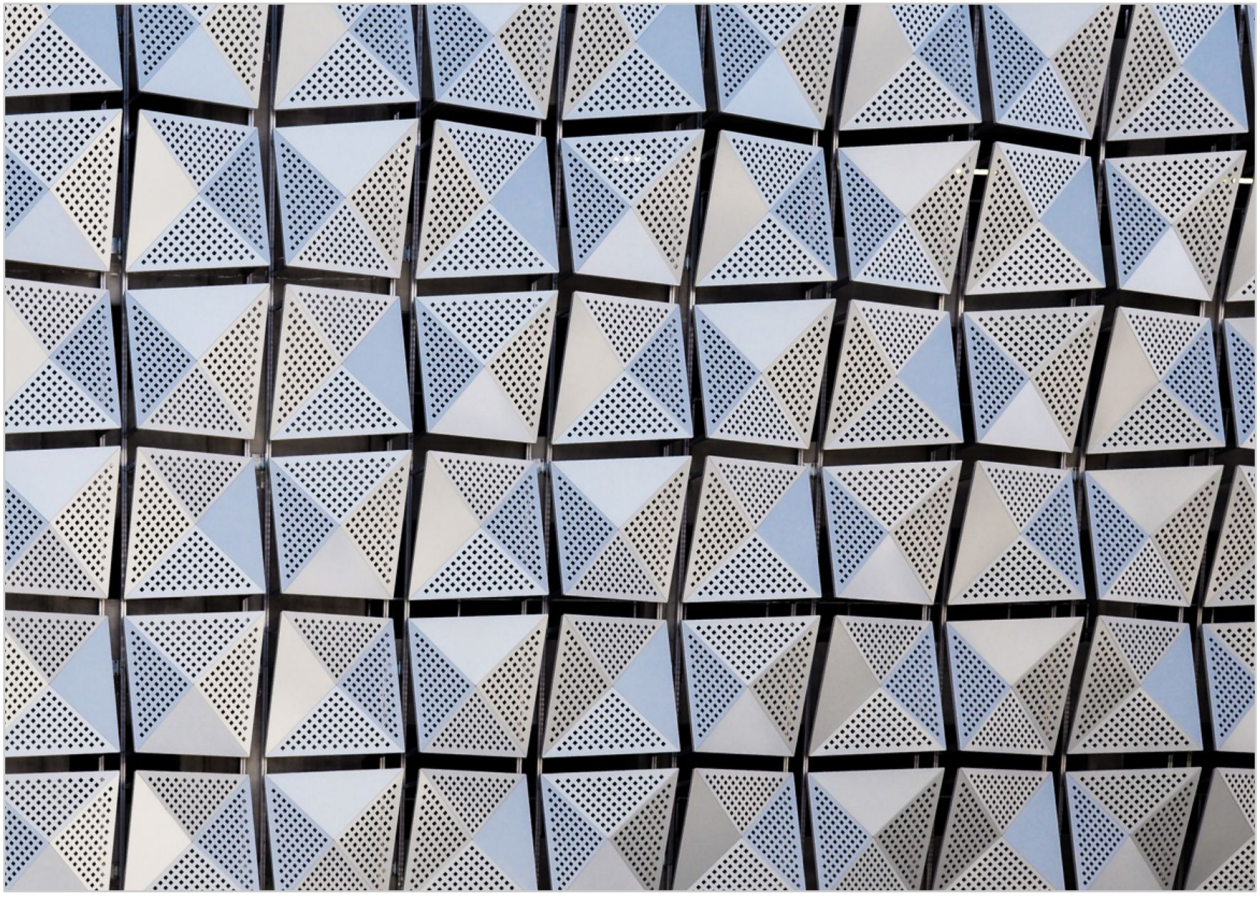
[Abhishek Sharma]

University of Leeds Car Park
CJCT Architects

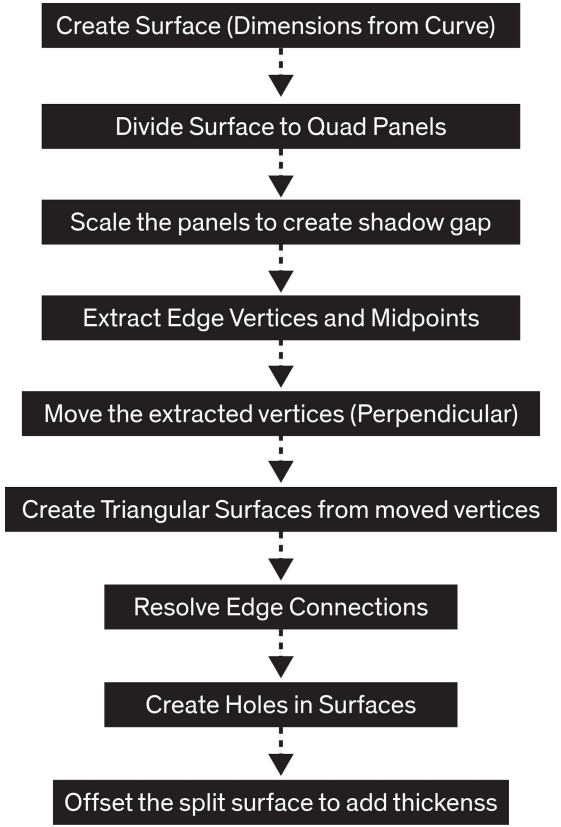
The facade is composed of triangular panels composed in rectangular arrays which are variably moved at the vertices as well as the center

Material: Perforated Aluminium Panels

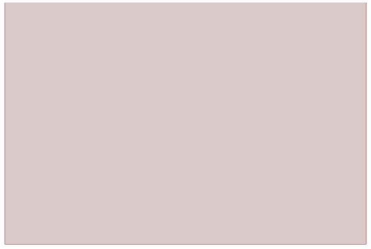
Array Grid: Quad Grid subdivided into Triangles



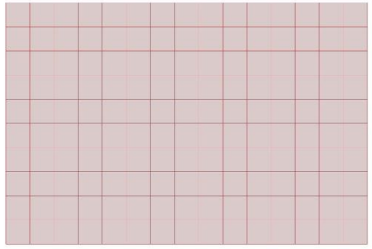
Pseudo Code


Create Surface (Dimensions from Curve)
Divide Surface to Quad Panels
Scale the panels to create shadow gap
Extract Edge Vertices and Midpoints
Move the extracted vertices (Perpendicular)
Create Triangular Surfaces from moved vertices
Resolve Edge Connections
Create Holes in Surfaces
Offset the split surface to add thickenss

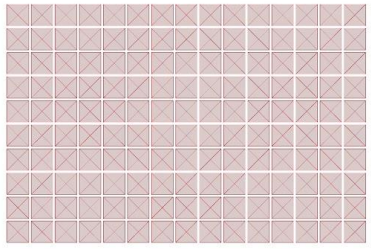
Code Development



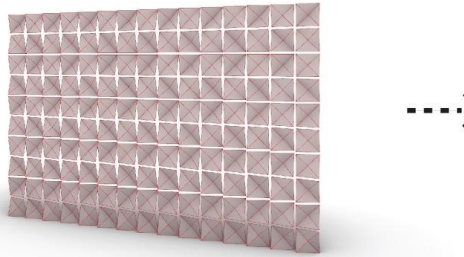
Rectangular Surface



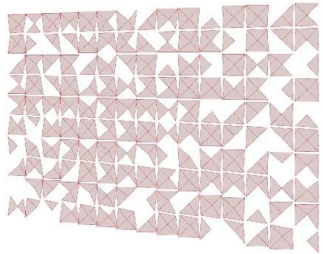
Subdivided into quad panels



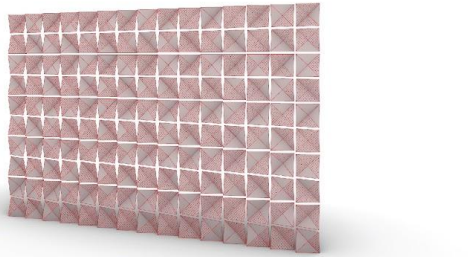
Scale and Rebuild as Tri Panels



Move Vertices and Midpoint



Select Random Faces

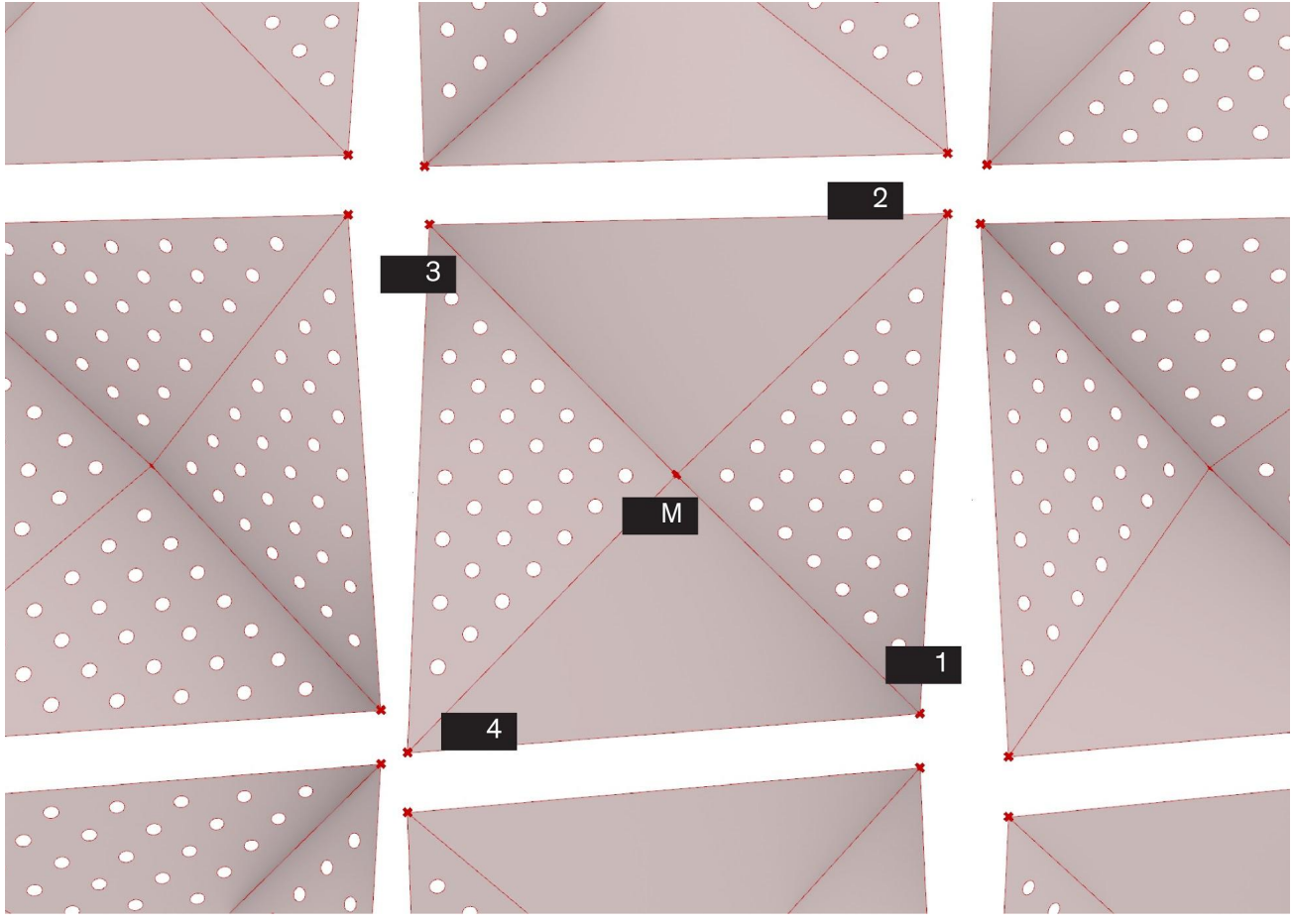


Make Holes in the Surface

Facade main element

[Quad Aluminium Panel]

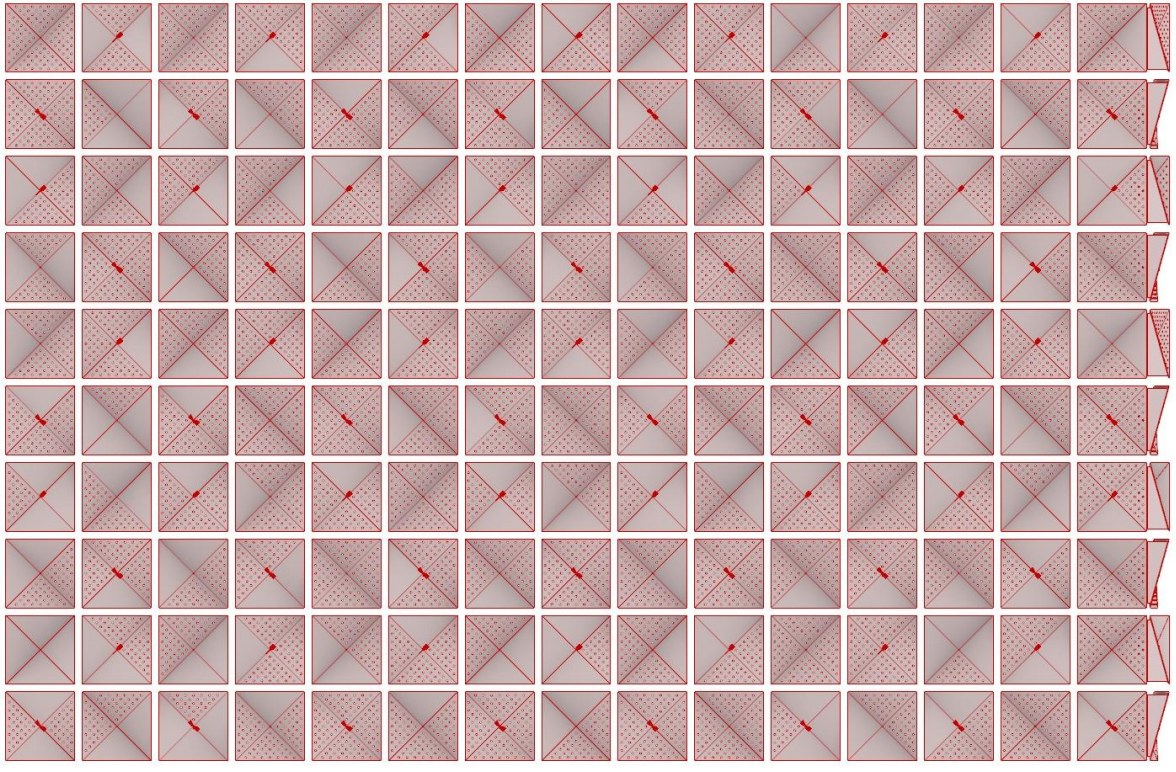
- Created using Quad Panels (Lunchbox)
- Movement of Vertices is a parametric component which can be manipulated later
- Holes and Random Faces are also a variable component and can be manipulated to change the facade pattern



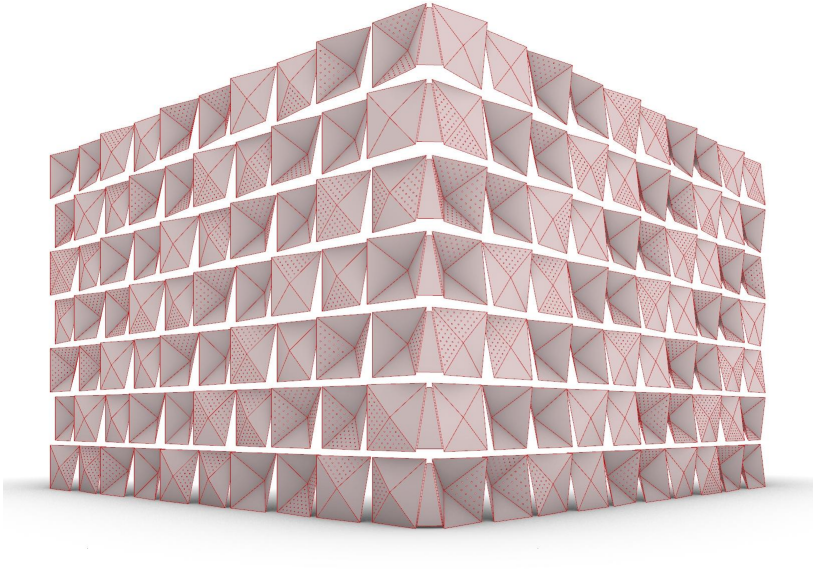
Facade array

[Square Grid]

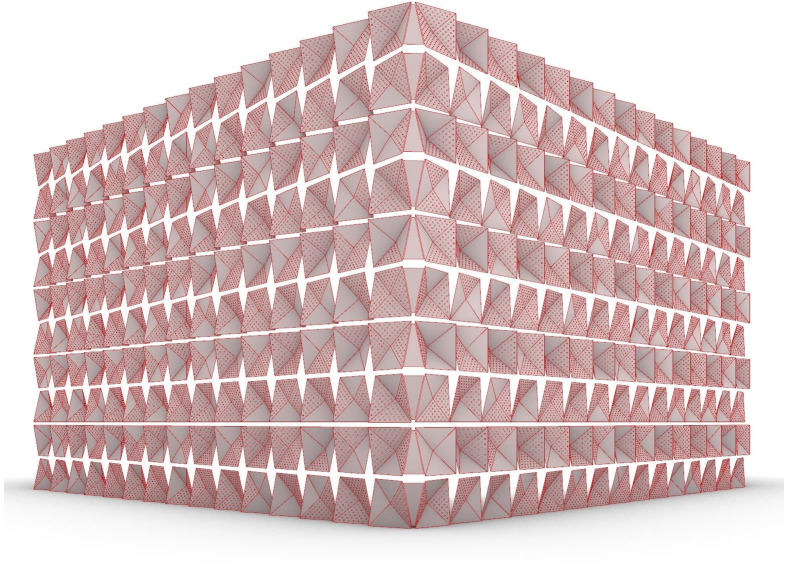
- Created using Quad Panels (Lunchbox)
- Vertices moved in variable steps
- Holes added using Edge Surface component



Facade iterations



[Depth of Facade Panels]



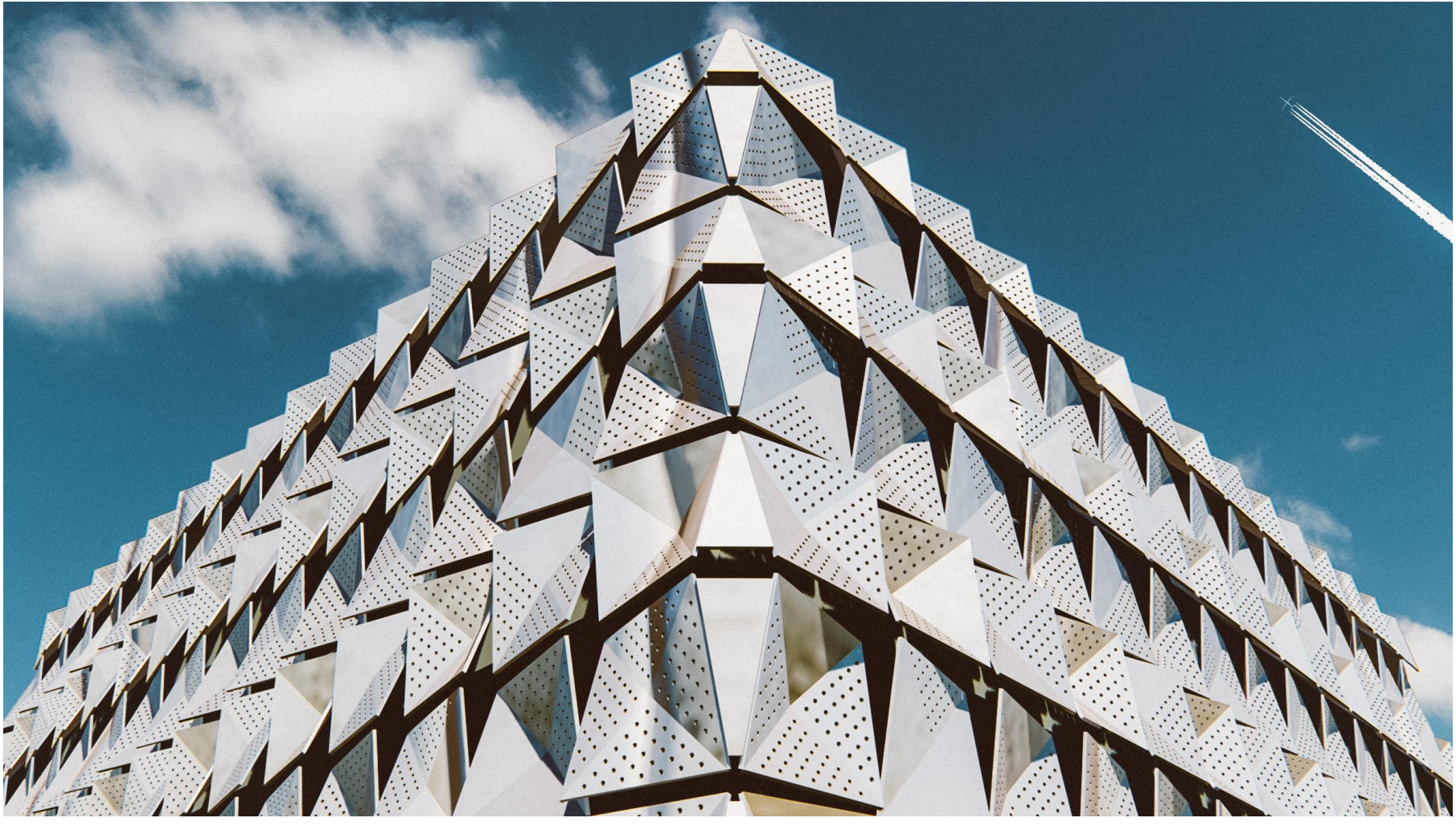
[Quad Panel UV Density]

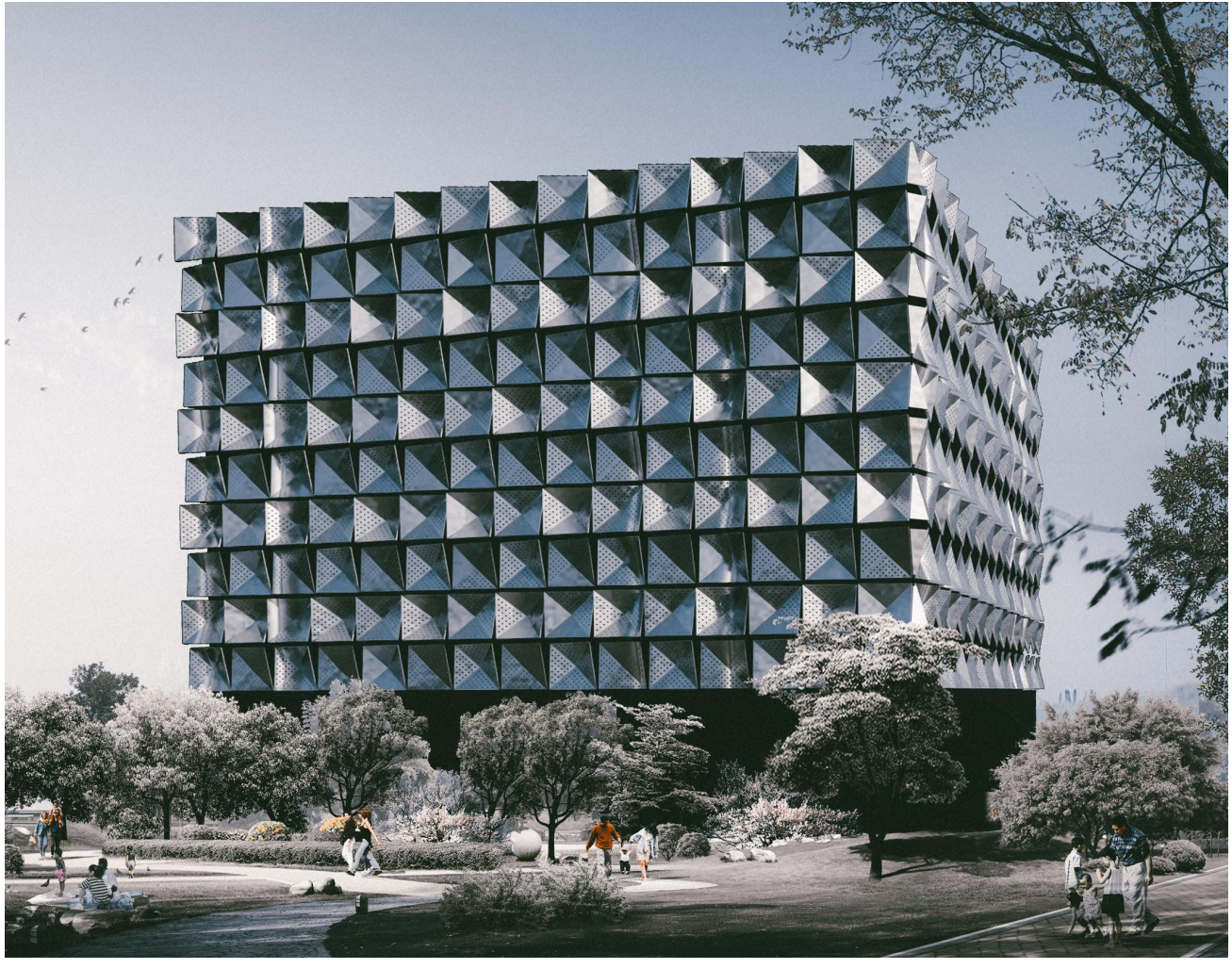
[Amplitude of Midpoint Movement Vector]

[UV divisions for the facade surface]

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