

# The Gradient Tower

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Academic Work | 2019

School | University of Toronto

Professor | Nicholas Steven Hoban

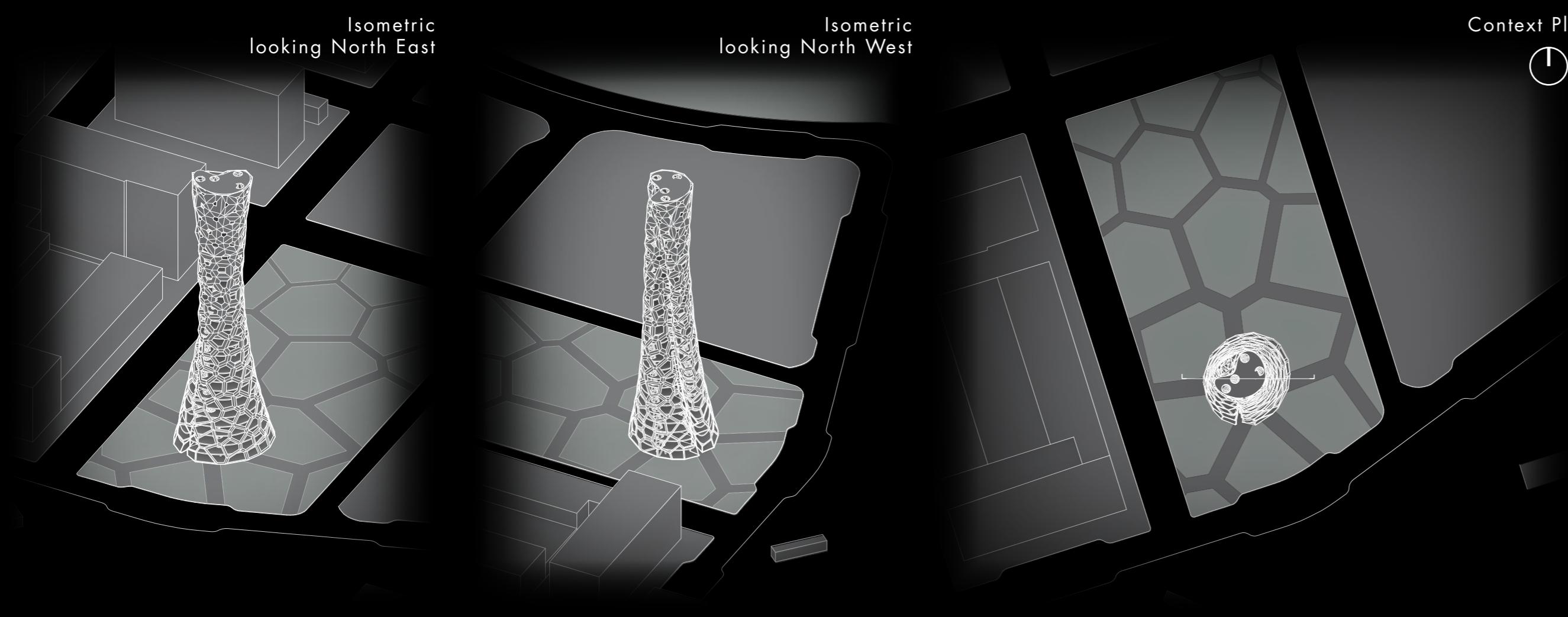
Location | Empty Plot on the South of 475 Front St E, Toronto

Area | 6637 m<sup>2</sup>

Levels | 32 Floors

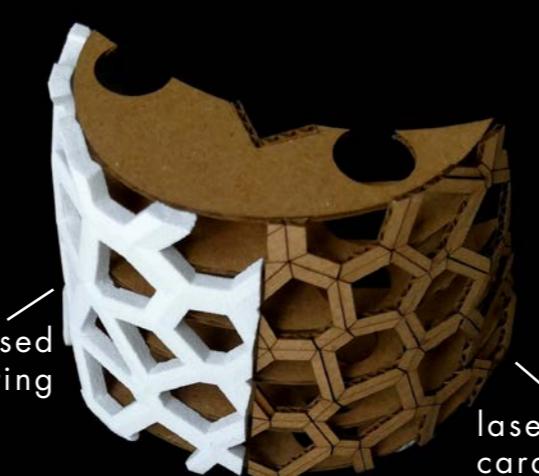
In this project, I explored with the parametric designs and the fabrication of multiple gradients: the gradient of the size of the Voronoi openings of the facade, the gradient of the twisting form of the tower, and the gradient rotation of the void-structures. I mainly used Grasshopper for the generation of these gradients. Furthermore, I explored with multiple fabrications methods including laser cutting and 3D printing, as well as various materials such as corrugated cardboard, plywood, and paper.

The central concept is about controlling the amount of light that reaches the usable space. I started with the horseshoe-shaped floor plates to create an ambiguity between what is inside and what is outside. I also used hollow structures to allow more sunlight to go through the tower. In addition, the gradient of the facade also considers the variation of the amount of sunlight on each level.



Context Plan

Exploded Axometric of form generation / structure generation / facade generation



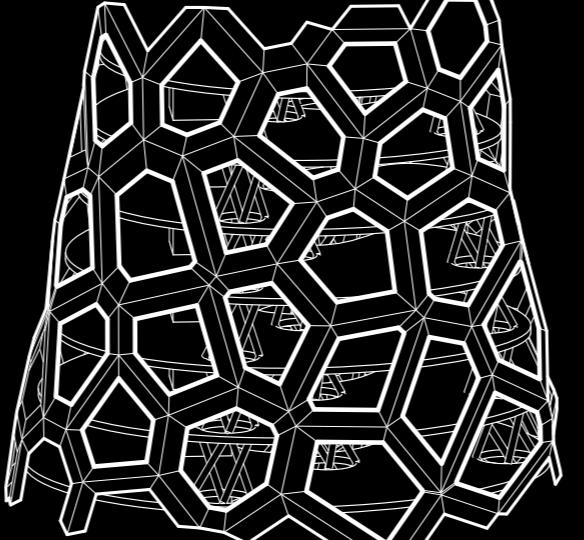
Sectional Model exploration of the fabrication methods



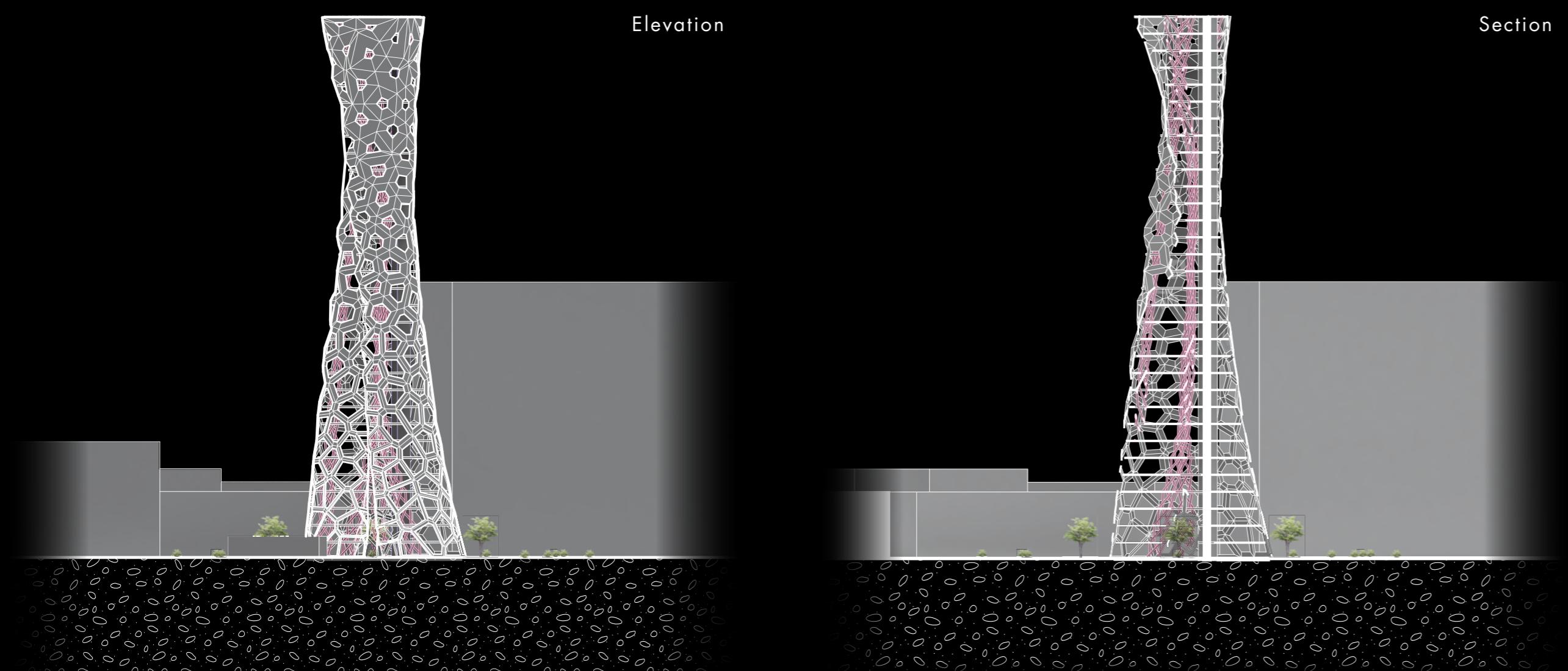
Structural Details



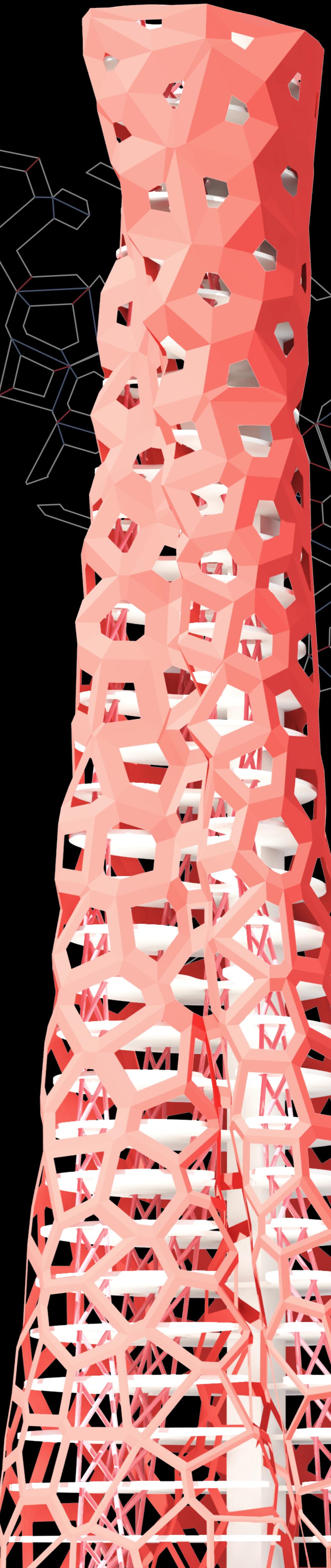
Facade Details



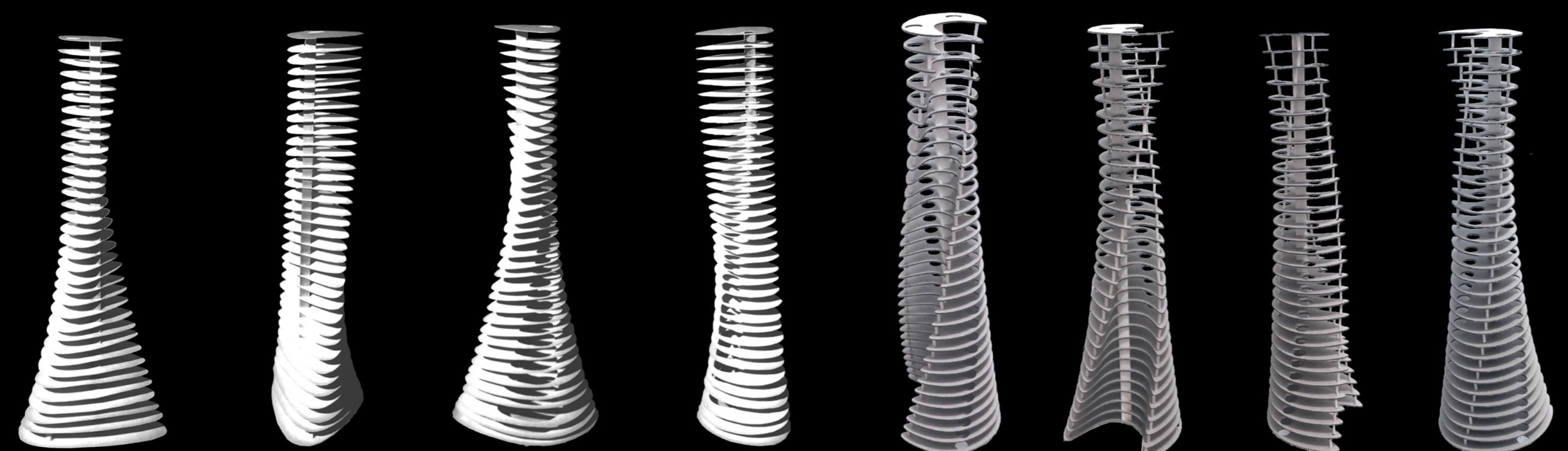
Elevation



Section



Physical Models form finding / structure exploration



Physical Models final model

