

Jonathon Harris
James Renda

ARCHITECTURAL CERAMIC ASSEMBLIES WORKSHOP
ARC 404 | OMAR KHAN
SPRING 2020

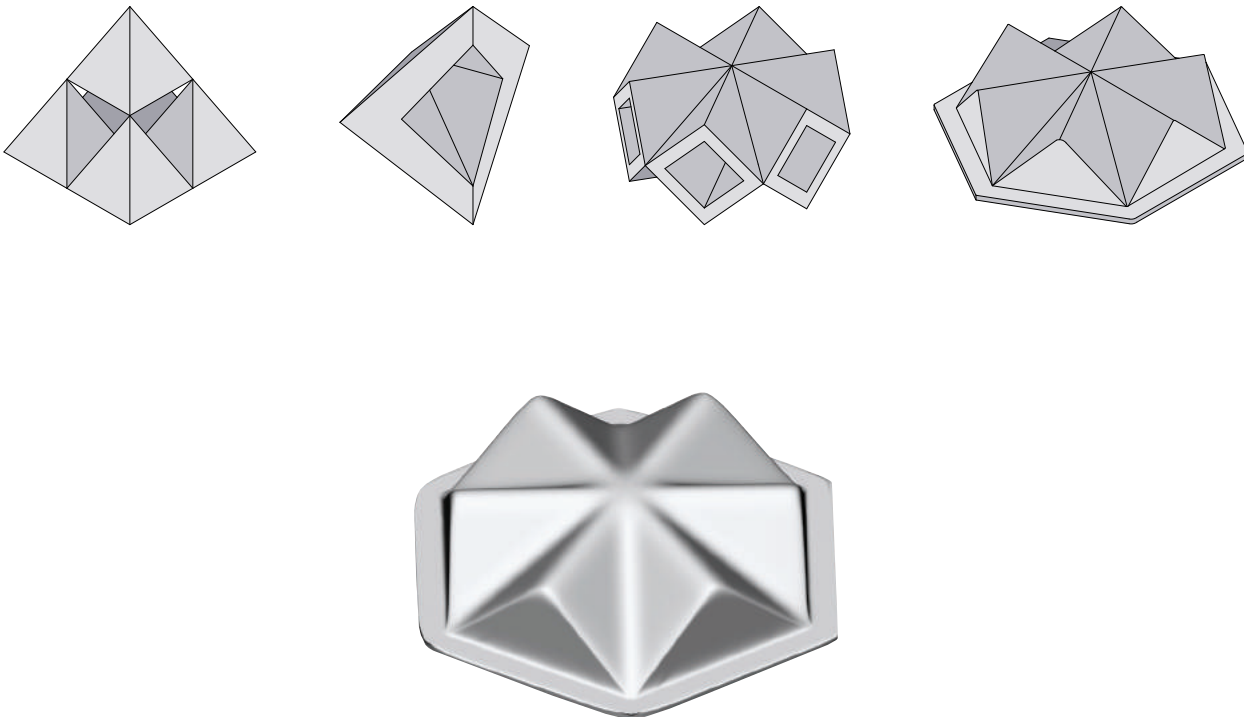
The Struere Panel

Jonathon Harris

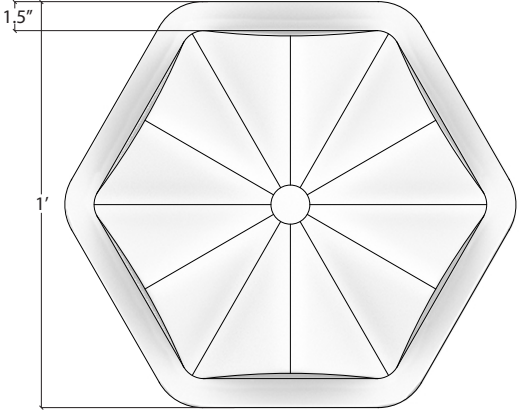
James Renda

The Struere Panel is a project prototype that begins the practice of architectural terracotta design. The Panel began by examining the triangle, one of the strongest geometries we know. The triangulation of the Panel and strategically thickening portions of the backside of the panel, we can remove the traditional webbing found on other larger Terracotta Panels. This project attempts to passively respond to the geographic location of the project. In the Summer more self-shading is required, and these panels allow for that to happen, and contrarily in the Winter the shallow profile of the panel allows for it to capture the maximum sunlight possible. The compact design of the panels lends to easier construction and maintenance on the exterior facade of a building application.

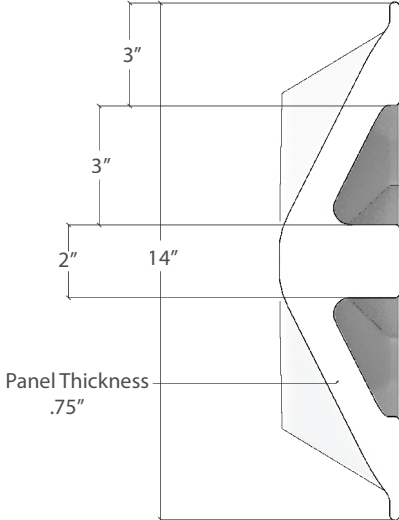
Project Evolution and Final



Panel Design

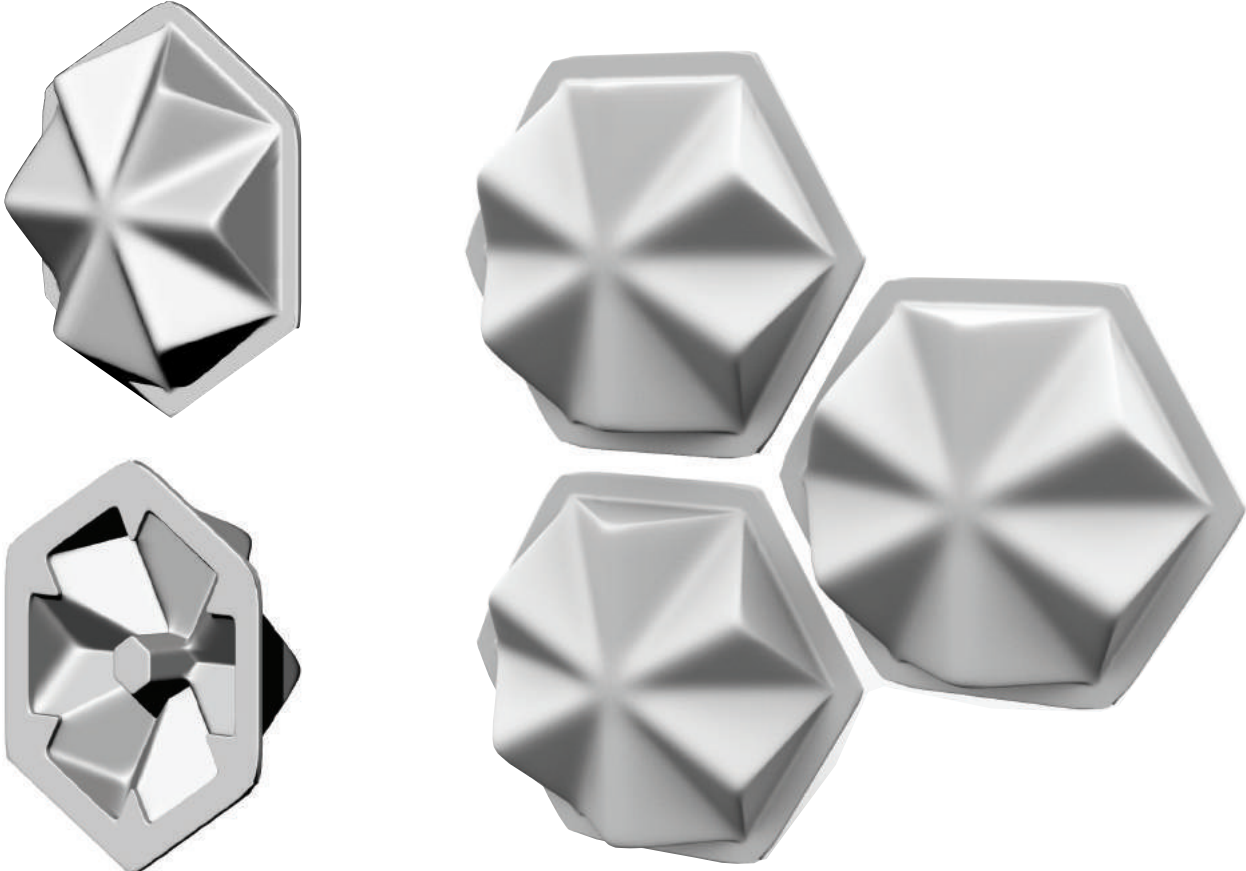


Plan



Section

Isometric of one panel and multiple panels aggregated



Manufacturing Technique



Mold Bottom



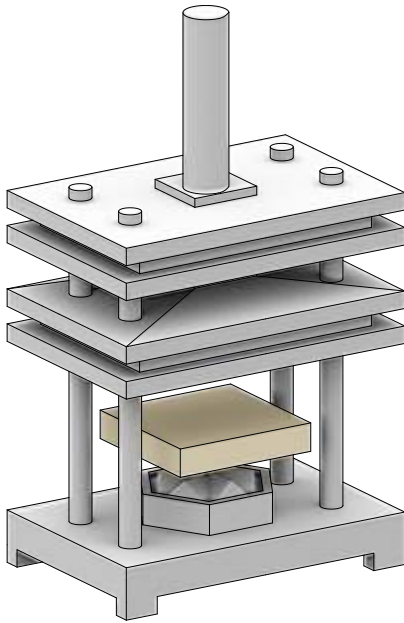
Panel



Mold Top

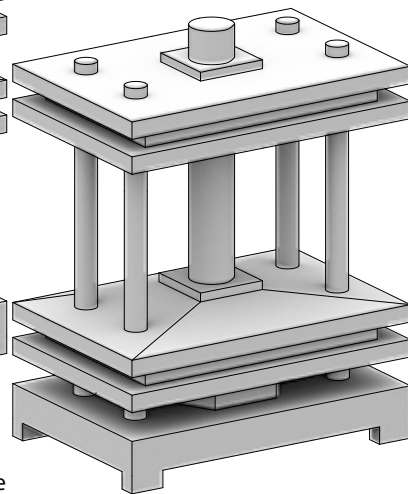
Isometric Mold Design

Isometric Manufacturing Technique

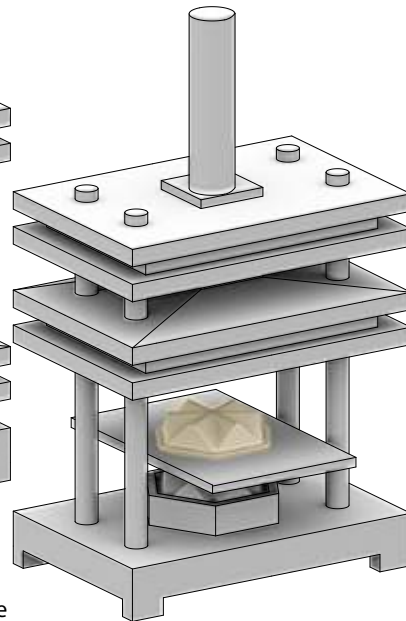


1. Negative casts of the panel are made into metal molds that are then attached to the top and bottom of the hydraulic press.

2. Semi wet Terracotta with leather like consistency is formed into blocks which are place between the mold halves.

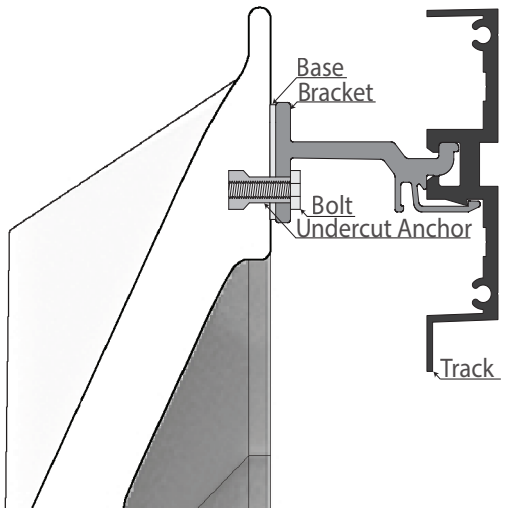


3. The molds halves compress within 1/16" from one another to allow for the excess Terracotta to be collected and recycled into another batch for Ram Pressing. The immense pressure vacuum seals the fresh piece to the mold.



4. Water lines are installed into the molds and turned on from the bottom and top halves respectively to lift then release the piece onto a board that catches the piece for transportation.

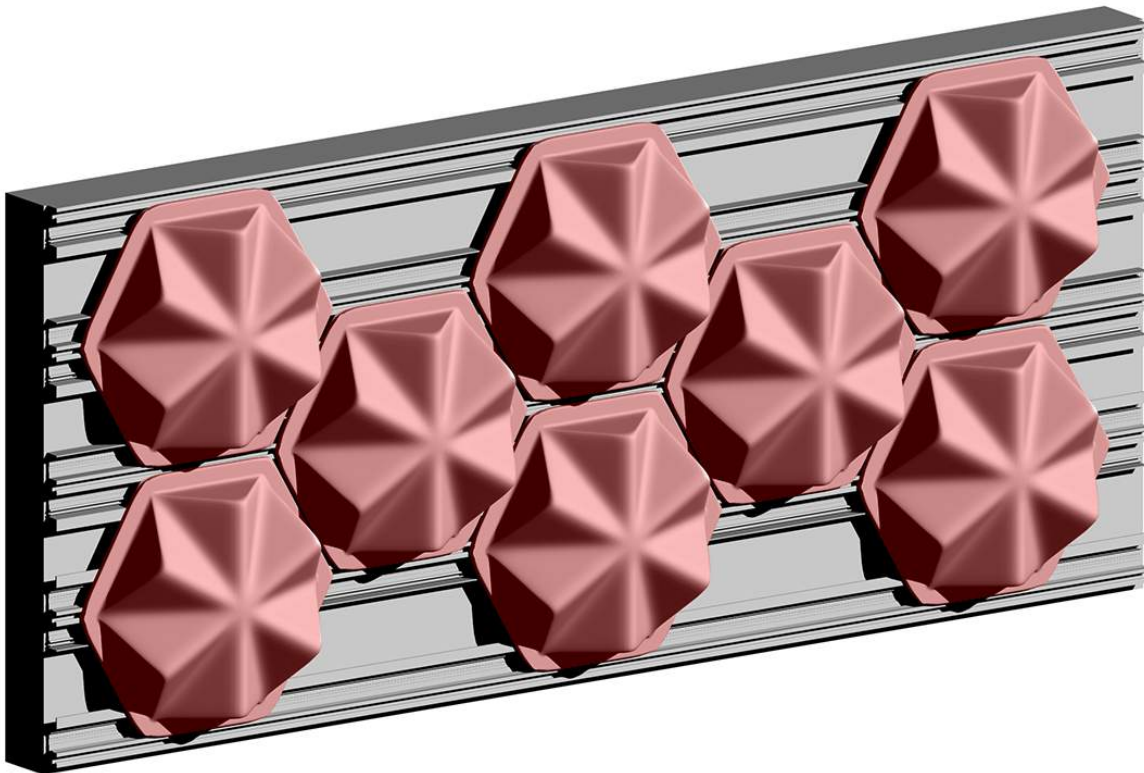
Construction Details



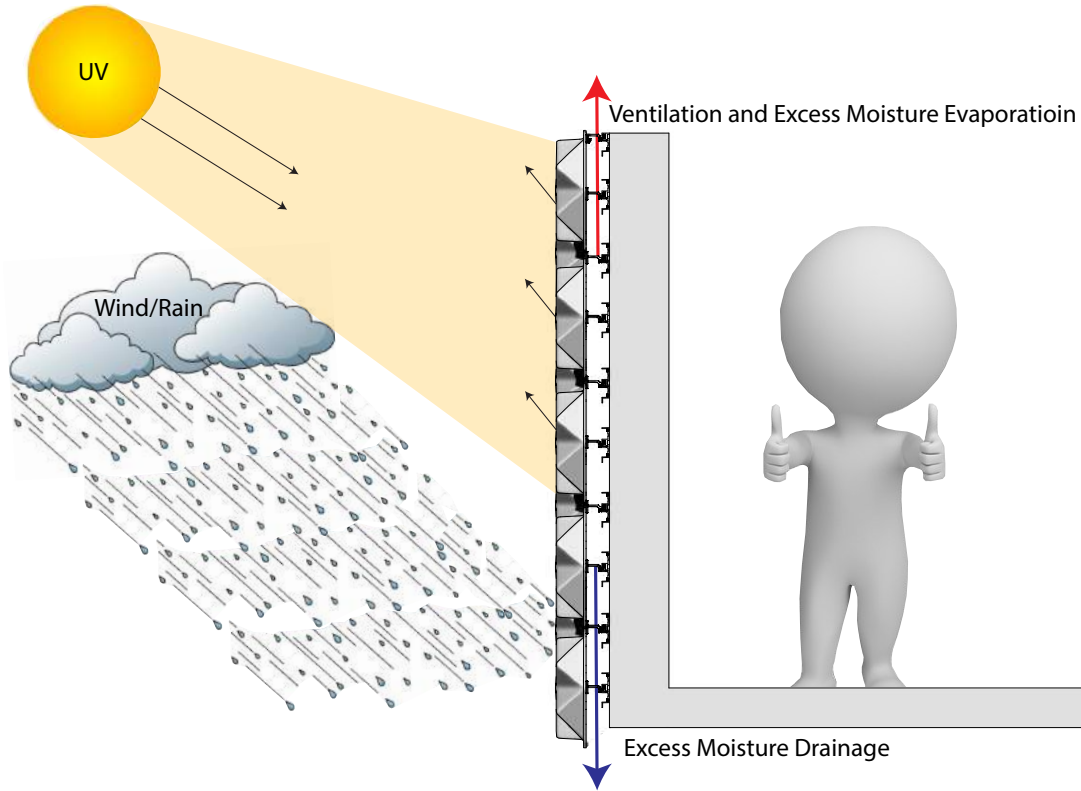
Section of attachment

The KEIL undercut technique was utilized to anchor the panel to the wall. This system drills a blind hole with an expanded base into the back of the panel. A positive locking anchor is placed into the hole which is free of expansion/compression forces. Once the panel is bolted to the bracket the entire thing can be mounted directly onto the exterior substructure of the building.

Isometric of construction detail with multiple panels



Performance Diagrams



Buffalo, NY Southward Facing
December 20



9:00 AM



12:00 PM



4:00 PM

The triangular shape of the panel attempts to provide self-shading qualities along with structural. The design in the winter months when the sun is lowest in the sky utilizes the maximized surface area to allow for the most heat to be captured. While in the summer due to the sun being higher in the sky the angles of the panel provide more shade during these months.

June 20



9:00 AM



12:00 PM



4:00 PM

Rendering

