Great White: A Plastic Folded Plate Structure

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The "Great White" is an installation piece embodying specific developments within fabrication processes to aid in material research. This research seeks to extend the limit of traditional notions of folded plate structures by exploring the capacity of thick gauge plastic. Utilizing CNC technology to machine High-Density Polyethylene planar stock material, the project explores the aggregation of units and assemblies of component parts. Amidst the increasing automation and digital fabrication processes, the research project explicitly situates itself within the territory of technology and material research. Algorithmic modeling allows for a complex exploration of form finding, while digitally fabricating each piece introduces direct tacit knowledge through rigorous hands-on material investigation. This methodology expands the cyclical nature of design research toward a built prototype.

Great White leverages the ubiquitous qualities of surface description in tangent with specific material characteristics of plastic in tandem with fabrication and assembly constraints. The research analyzes and balances the precision of digital fabrication with the elastic properties of plastics, while demanding processes and methods of designing precisely, imprecisely. The interior space of the installation capitalizes on the translucency of the HDPE plastic. The folding and creasing of the material simultaneously expands and contracts creating a dynamic space allowing for the interplay of light with the plastic. Great White revisits folded plate structures to reactivate a dialogue and research trajectory through contemporary and analog means, and also pursues the unique spatial qualities made possible by this geometry.
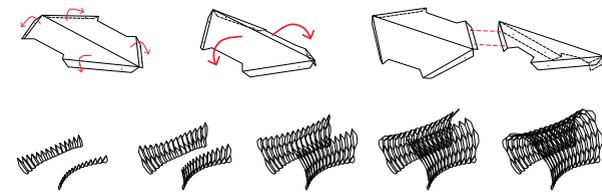
Assembly Diagrams
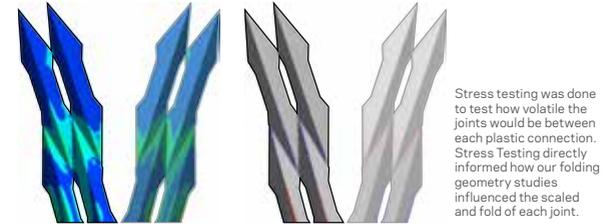
Digital Stress Testing

Stress testing was done to test how volatile the joints would be between each plastic connection. Stress Testing directly informed how our folding geometry studies influenced the scaled and fold of each joint.

- min stress
- 25%
- 50%
- 75%
- max stress
- compression
- tension
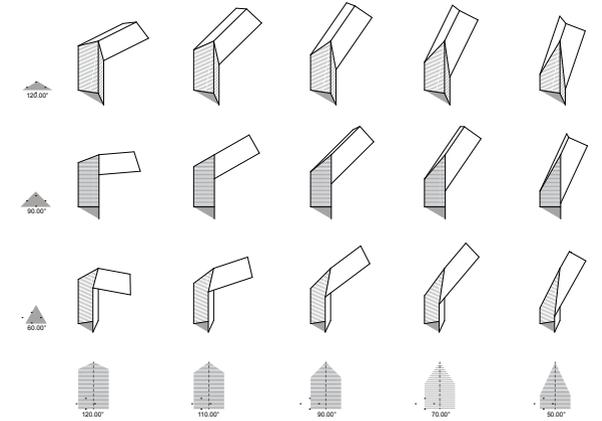
Folding Geometry Studies

Scripted Morphologies

New CPlane
Non-Planar Geometry
Planar Geometry
Mirror Face

Even   Odd
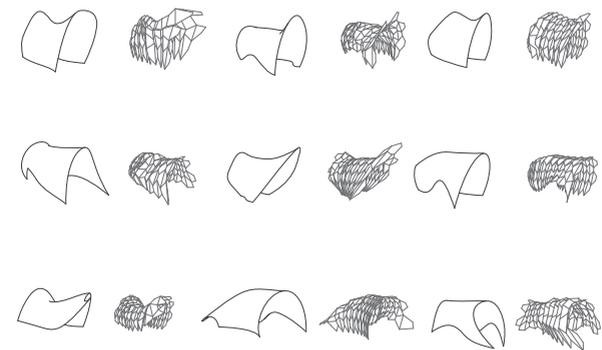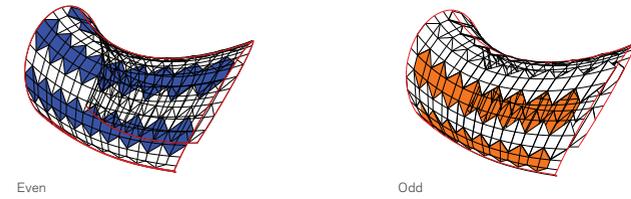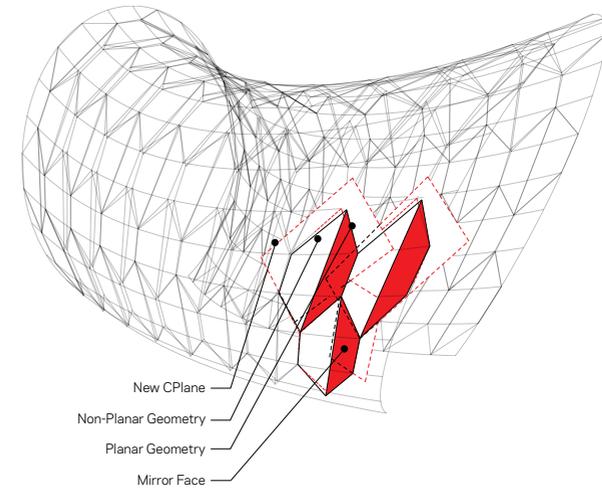
Pseudo Script Diagram

Details

5'- 8"