Cameron Sherrodd

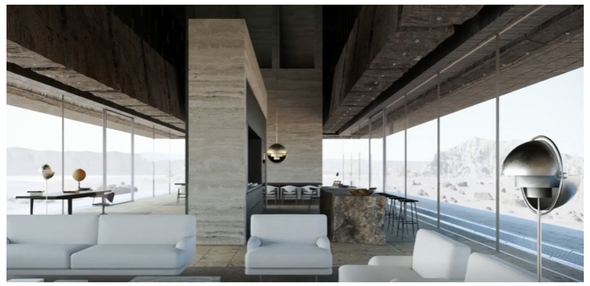
Adaptive Shelter for Coastal Storm Events

05-02-2025

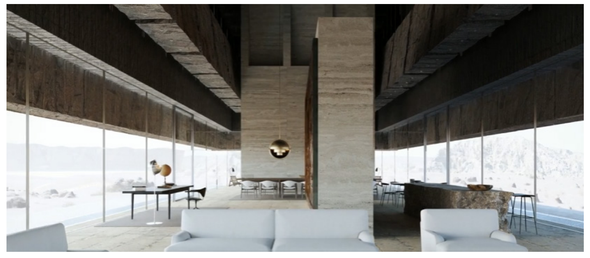
Arch 565 - Chris Schwalbe

Project Inspiration

In the summer I saw this rendered video of a house inspired by the Dune series. It would be able to adapt to the weather conditions of the harsh desert. When sand storms came, walls would come down and protect the fragile glass.



Open

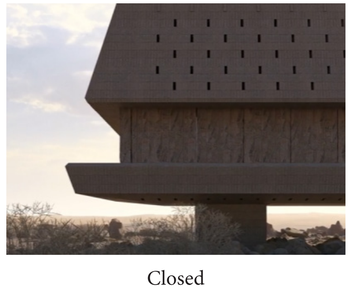


Closed

The overall concept is to have a small space that would be used as a place to stop and take a moment to enjoy the scenery. Then when weather hits such as rain, snow, wind or hail, the small space would be able to shut down like the Dune precedent. I believe the first installment should be in Puerto Rico since it has a mild climate so this space would get used year round however Puerto Rico is known for having some of the most aggressive and quickly developing storms, allowing it to become a place of safety and possibly even an observation of the storm.

Open

Closing



Closed

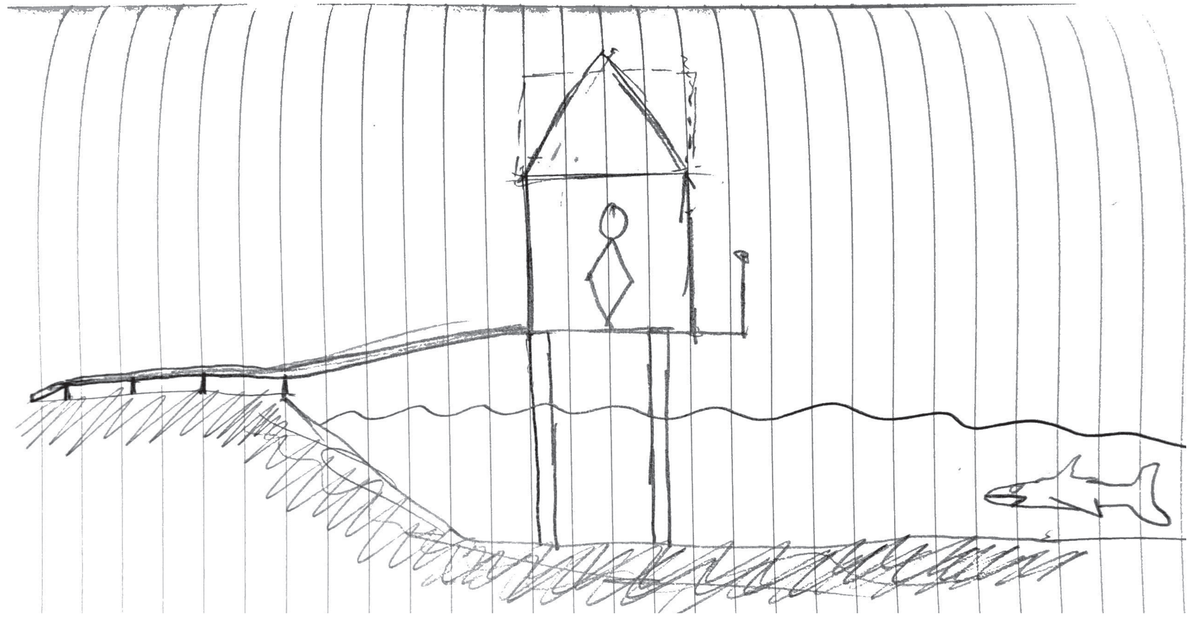
Adaptable

Site

Location : Puerto Rico - Coco Beach

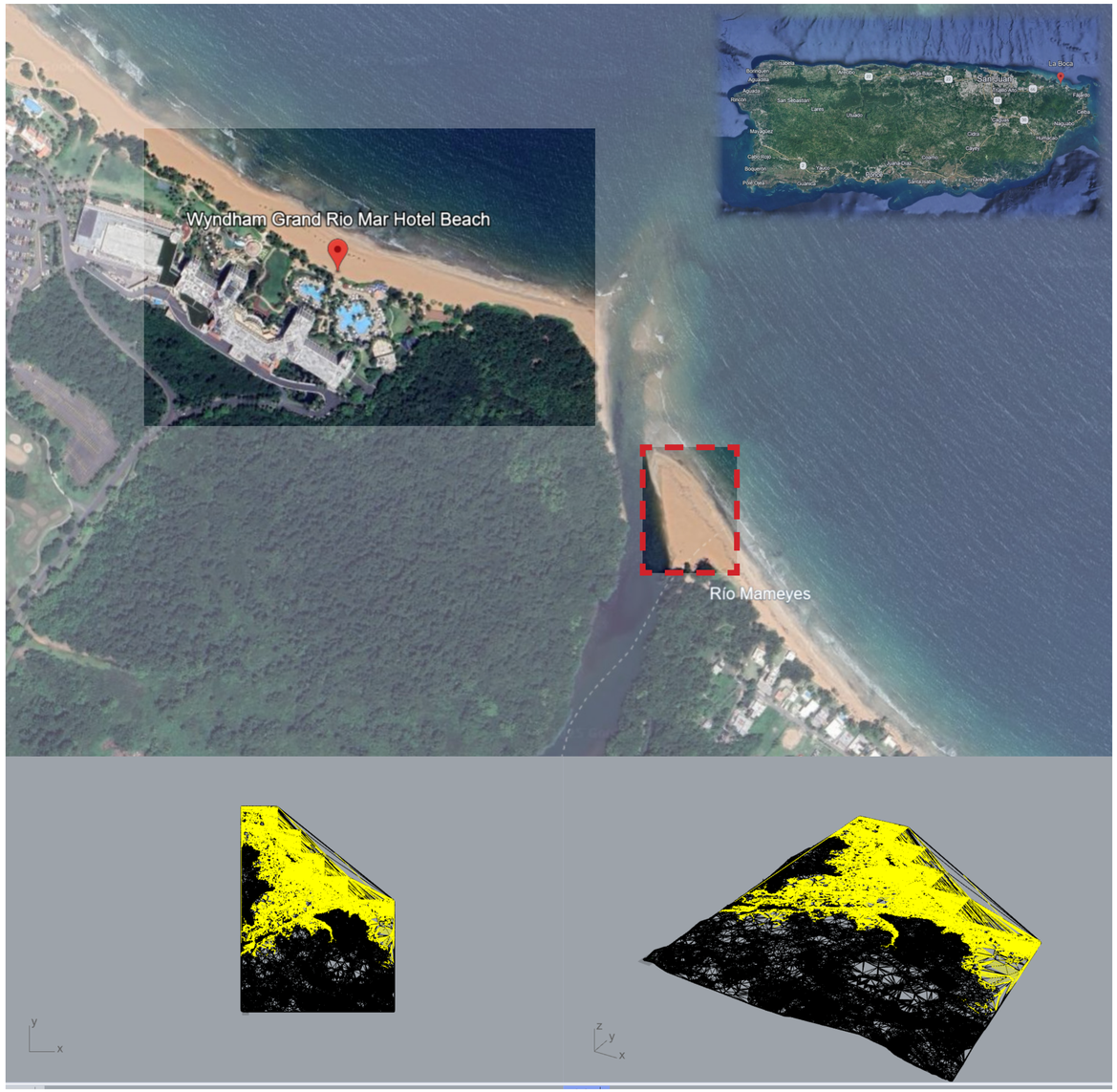
Form Exploration

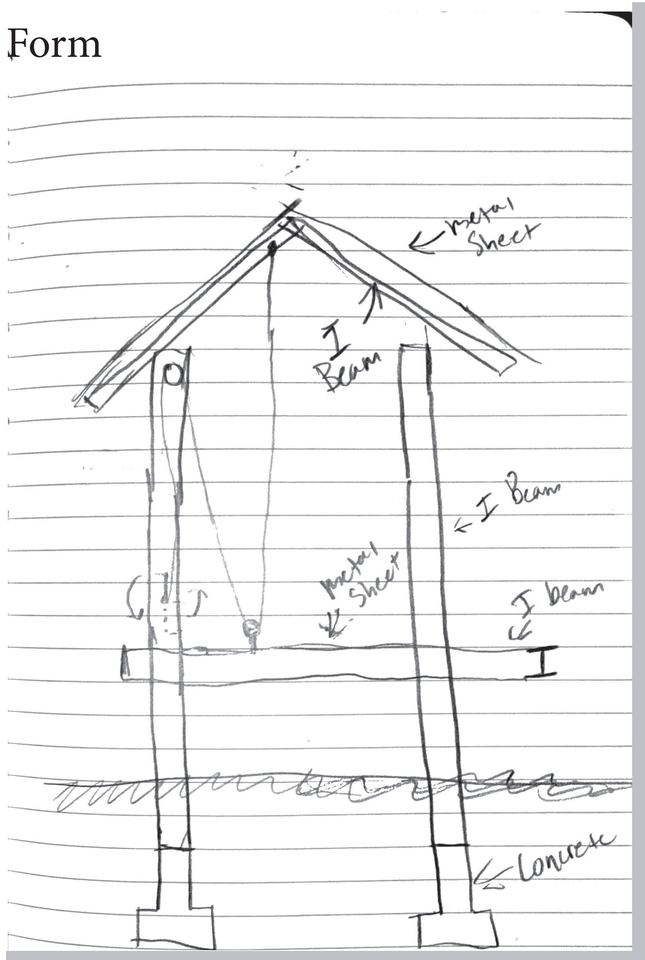
A way I imagined this working is ike the “impossible cone”. Impossible cones are able to create an occupiable space within the absence of themselves (orange piece). They are than able to perfectly go back together. If I could create something similar to this it would be like the Dune precedent but may allow for the design to possibly be simpler.

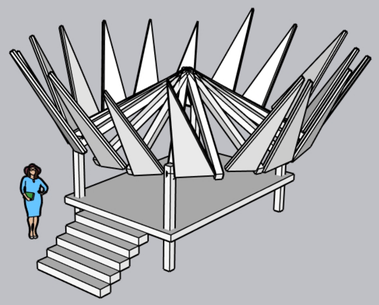


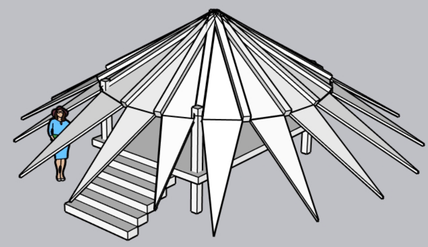
With my location being in Puerto Rico, I looked into where storms were most likely going to hit in regards to the island. I found that the North East portion of the island is hit the most during storms. From there I looked into popular beach locations within the NE corner of the island. I found a very interesting river delta that was near some private homes and a resort. Being that my program is a storm shelter for people who get caught in storms with nowhere else to go I decided this peninsula near the delta was perfect.

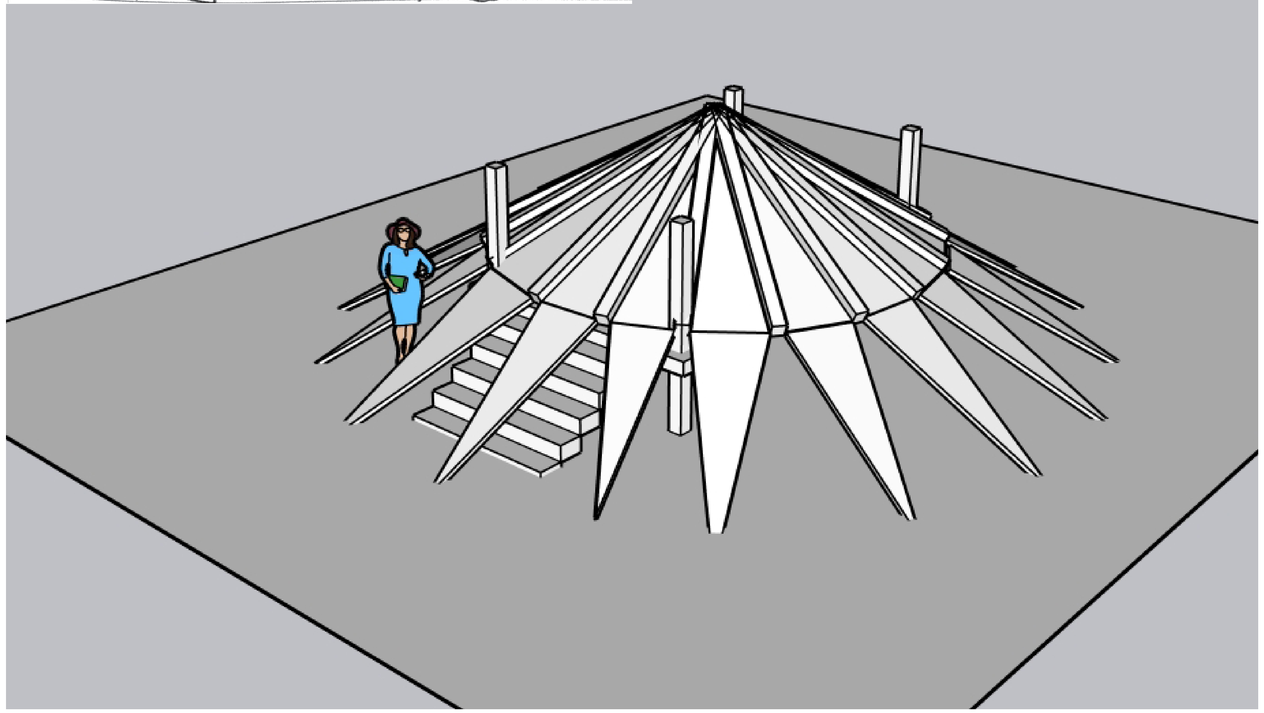
My idea for this location is that people may be snorkeling near this delta and unaware of the changing weather conditions. If you are caught on the East side of the delta on the beach away from the resort your only option is to cross the wide river or swim back in the ocean. Instead you would be able to take refuge within my storm shelter, once the storm passes you would then be able to make your way back to the resort.



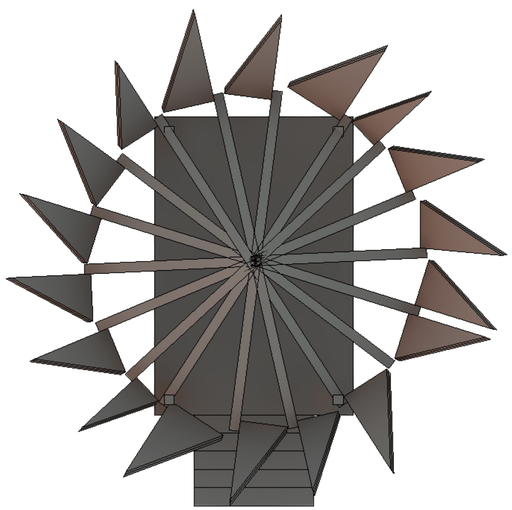




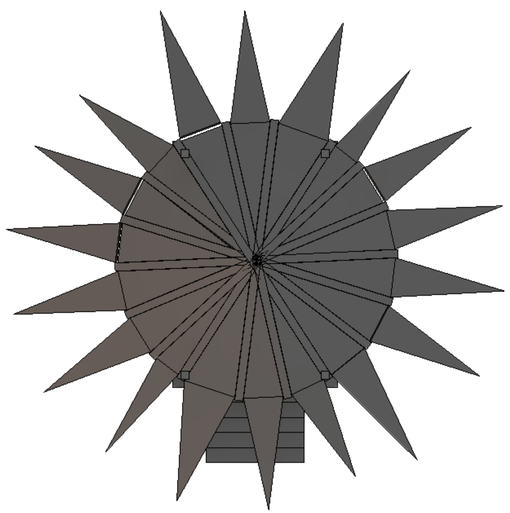




Plan

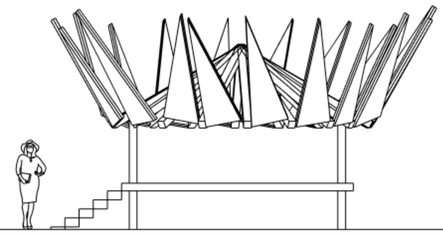


Natural State - Plan

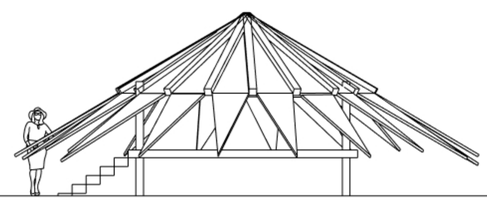


Full Protection - Plan

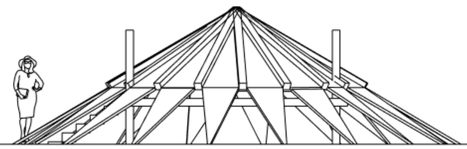
Elevation



Natural State - Elevation

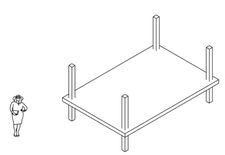


Closing - Elevation

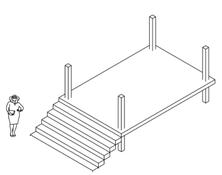


Full Protection - Elevation

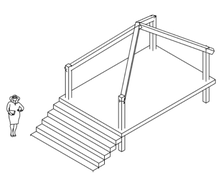
Construction Process



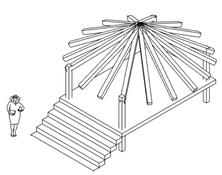
1. Base / Elevated Floor



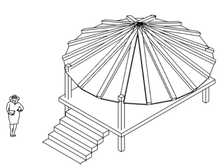
2. Stairs



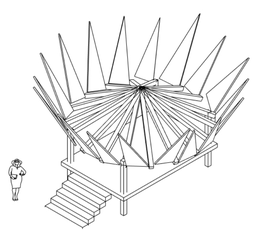
3. Roof Structure



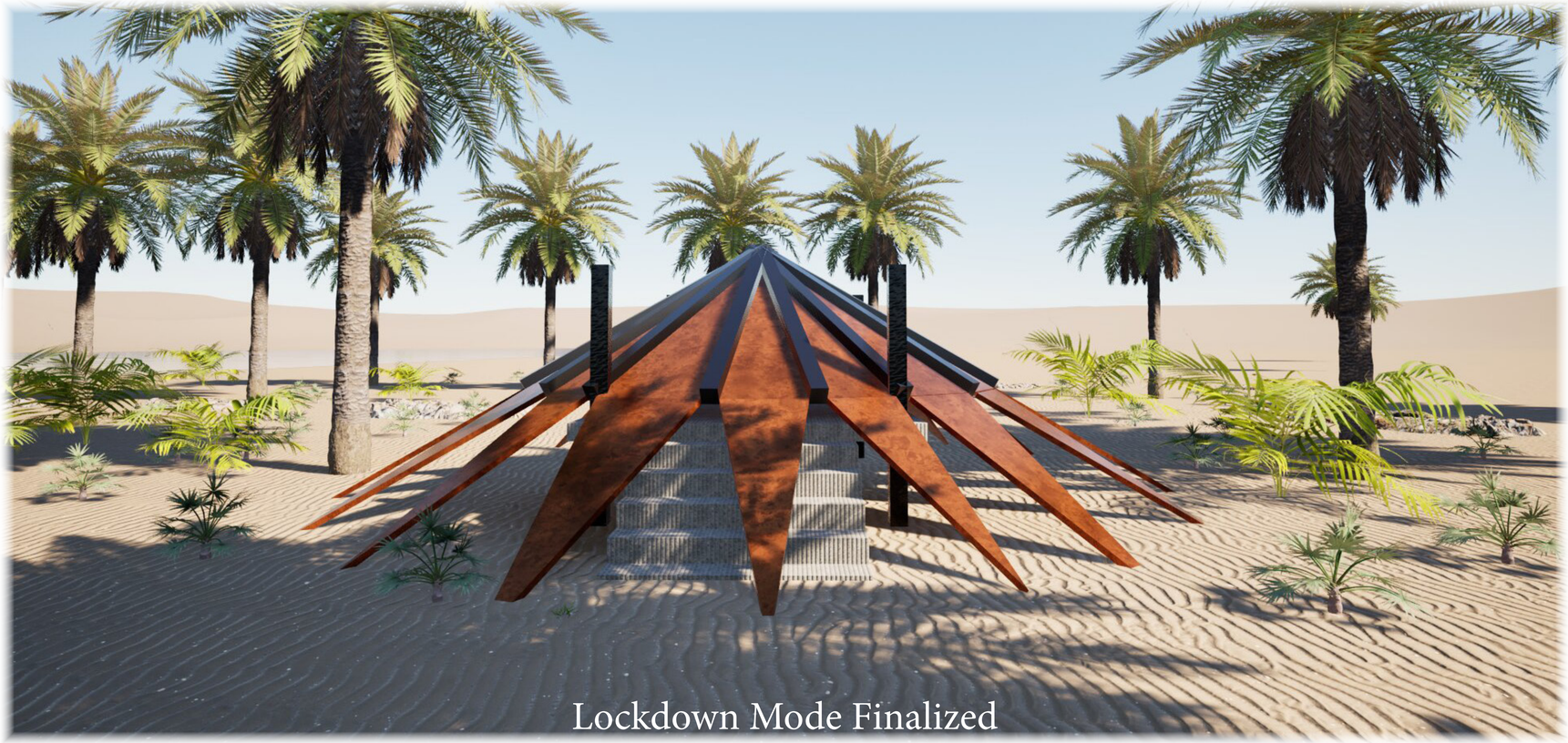
4.Creating the Void



5. Fill



6. Position Panels to their Natural State



Lockdown Mode Finalized

Lockdown Mode Finalized - Interior

Starting Lockdown Mode- Interior

Starting Lockdown Mode

Position panels to their natural state

Position panels to their natural state- Interior