Hampton Resilient House

The location of our building would be located in Hampton, New Hampshire. This house could be located slightly inland of the marsh and off the coastline. This is a relatively large structure but is very sustainable in the sense that it can produce its own food, water, energy and doesn't rely on heavy fossil fuel use. Hampton has a climate that is slowly changing. The sea is slowly rising which can create some hazards to local buildings and the area. As the sea rises flooding increases, the marsh is pushed back and slowly destroyed and this creates some really bad problems for creating sustainable long term architecture in the area. Not only is flooding an issue but we must also consider the range in weather and temperatures in New England through the seasons. Harsh winters with ice and frost create issues with insulation in the house. We expect this house to be able to last a substantial amount of time and be able to withstand both climate change and the seasonal weather changes of Hampton. We plan in 2100 where the sea could rise a potential of 6 ft that this house will still be able to live in the climate.

To combat the rising sea levels we built a seemingly natural elevation point for the house to be built on. The house is built on a very stable structurally sound hill which we decided would be a step up from the engineered dunes. As the water keeps rising it is no way a threat to our home design. It keeps the natural appeal and interconnectedness of the house to the environment while ensuring safety and durability. It also allows us to plant in this area to increase soil integrity. The house has a very deep foundation to prevent ground water seepage and so it is built below the frostline to prevent it from cracking. We will use bio-concrete to make the foundation. Bio-concrete is made from cyanobacteria. Cyanobacterias processes absorb carbon and can use ground glass as aggregate instead of fresh sands. We also have a lot of solar panels all around the roof of the house to be sustainable and provide energy instead of just using the energy from the nuclear power plant. We also have a rainwater catchment system that we can use for our gray water source. This reduces water costs and also allows us to run our fountain and water our lawn and small farm through any irrigation restrictions there may be due to water security. We also have a green roof area which generates less heat which improves air quality and reduces the effect of the Urban Heat Island. Green roofs also absorb rain water and create natural insulation for the home. It also creates an area for plants and animals to live. Our house is also mainly built out of mass timber which can be used in big buildings that typically need steel beams. These beams contain tons of carbon which basically makes our house a giant carbon sink.