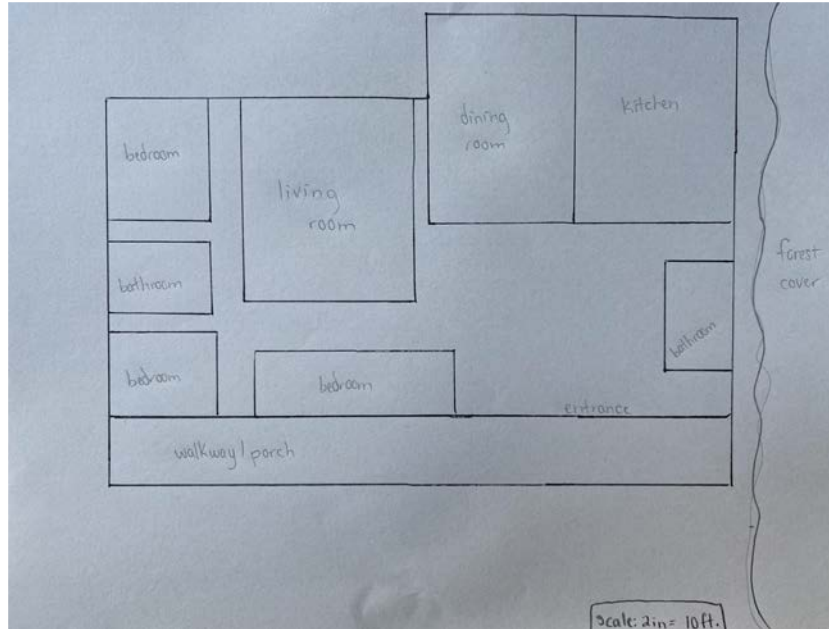


# Hampton Falls Resilient House Design

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# Our Design

Plan view



Street View



# The location of our building

(The climate scenario, time frame and flood risk tolerance for our location)

- Our building will be placed in the southwest portion of Hampton Falls
- The area is surrounded by both lush forests and fields
- For two feet, there is no risk of sea level rise which causes intense flooding.
- The flood risk tolerance is high.



# Design features we included that specifically address resiliency:



Insulation is wood fiber



Green roof



Skylights



Rain garden



Raised on stilts



Bioconcrete

# Purpose - Skylights

The skylights will be on the west side of the house. This side of the house is where there are the least amount of trees. This will allow the sun to come in through the skylight and not be blocked or shaded by trees. The sun will come through and warm the house.

The rest of the windows in the house will be regular panes. They will be made of double glazed and have a very low U-factor. They will also have a high solar grain to protect against the colder climate.





# Purpose - Green Roof

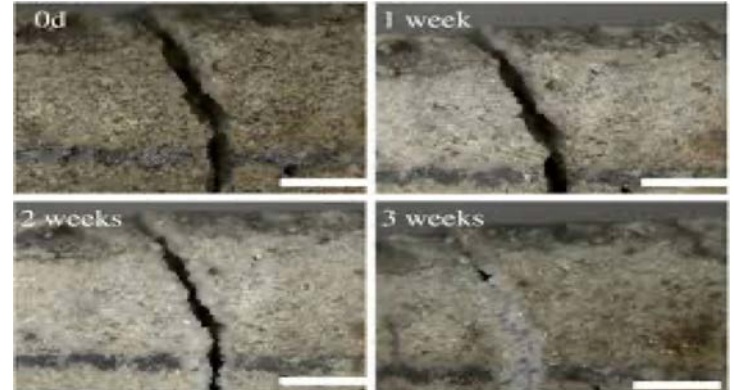


We included a green roof on the peak of the west side of the house. We also included a green roof on the flat peak of the west side of the house where there is optimum sunlight.

The green roof will provide a rainwater buffer, purify the air, reduce the ambient temperature, regulate the indoor temperature, and save energy. Also for gardening in the summer season, since many homegrown plants can't survive in saltwater.

# Purpose - Bio concrete

We decided to use bioconcret for the bottom section of the house. The bio concrete will allow the house to be waterproof and help against possible flooding impacts. The bioconcre is a form of concrete that will absorb as much carbon and is more sustainable than regular concrete.



# Purpose - Stilts



We choose to raise our house on stilts up to 5 feet. This will help avoid flooding when there is sea level rise and even when there is a 1% storm surge. Stilt houses are also a great way to construct a home on unstable ground. Since the house is built up, off the ground, it's up to the stilts themselves to give stability rather than the ground underneath. Also because stilt houses are off the ground, cool air is allowed to circulate beneath the house, which can help in keeping the house cooler in the summer.



# Purpose - Wood Fiber

We also chose wood fiber as the type of insulation in our house since it is already a byproduct. However, there are also many benefits of wood fiber insulation. Wood Fiber Provides Sun Protection on Lightweight Buildings, Wood Fiber insulation offers a tight thermal envelope and improved indoor air quality. Wood fiber is Fire Safe, Wood fiber has a low thermal conductivity, Wood Fibre is Breathable, and Wood Fibre is Eco Friendly



# Purpose - Rain Garden

Lastly, we decided to have a rain garden. The rain garden can collect water and be used for various things throughout the house. The rain garden allows for the house to use less water from the town and reuse the water collected. A few things we could use it for would be toilet water, garden water and laundry.



# Why these solutions?

This house is most reliable within all of the environmental impacts it may endure in Hampton Falls.

- **The skylights** will allow the sun will come through and warm the house.
- **The green roof** will provide a rainwater buffer while also purifying the air, reducing the ambient temperature, regulating the indoor temperature, and overall saving energy.
- **The bioconcrete** will allow the house to be waterproof and help against possible flooding impacts.
- **The stilts** will help avoid flooding when there is sea level rise, and protect against a storm surge. As well as cool air being allowed to circulate beneath the house, which can help in keeping the house cooler in hotter months.
- **The wood fiber** insulation offers a tight thermal envelope and improved indoor air quality.
- **The rain garden** allows for the house to use less water from the town and reuse the water collected, saving money.