

**Year 12 Design & Technology Major Work:**

***Design Proposal –***

It is strikingly evident that our planet's water levels are gradually rising, as a result of global warming, thus severely impacting on coastal, and waterside communities. Likewise, the livelihoods of these communities may be harshly affected due to flooding as a result of the immense torrential rain, for instance, the intense rainfall witnessed along the South Coast of NSW, throughout early February in 2020, which resulted in the severe flooding of numerous family homes. Furthermore, nearly 200 million people worldwide live in high-risk coastal flooding areas, signifying that a sudden ocean swell can prove to be catastrophic.

Within low lying communities subject to flooding and severe torrential rain, architectural design and planning has been focused predominantly on separating and maintaining the division between land and water by salvaging land from the sea through the construction of dams and heightening conduits. However, the need to construct safe, practical and economic houses where two-thirds of the population lives below sea-level, is forcing architects and engineers abroad to start exploring and developing new innovative systems, in order to make use of water as a resource itself, opposed to fighting against it. Moreover, the issue has become increasingly serious within the last decade due to the effects of global warming, resulting in the rising levels of our oceans. Thus, the sea level is estimated to have risen by 20 centimetres within the last century and is expected to rise by three times that amount in the 21st century. Henceforth, water buoyant houses are emerging as the most practical, as well as providing a rather unique solution toward this situation, and may present itself as a necessity in the future.

Therefore, my design idea's primary design intent will be primarily focused on combating, and providing a practical, yet innovative solution towards flooding in flood-zone and coastal areas. I intend to create a **3D scaled model** of the structure, as well as also providing the viewer, with various **rendered images and animations of the concept**, in order to **thoroughly support and communicate my design ideas being presented.**

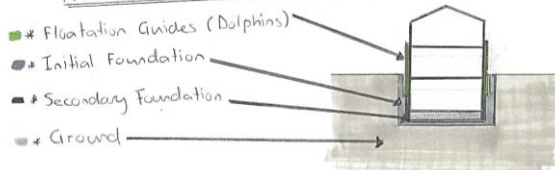
**Software used for corresponding components of the project:**

- CAD - Autodesk Revit
- Architectural Renders - Twinmotion

## Graphic Illustrations & Concept Drawings relating to my Design Proposal:

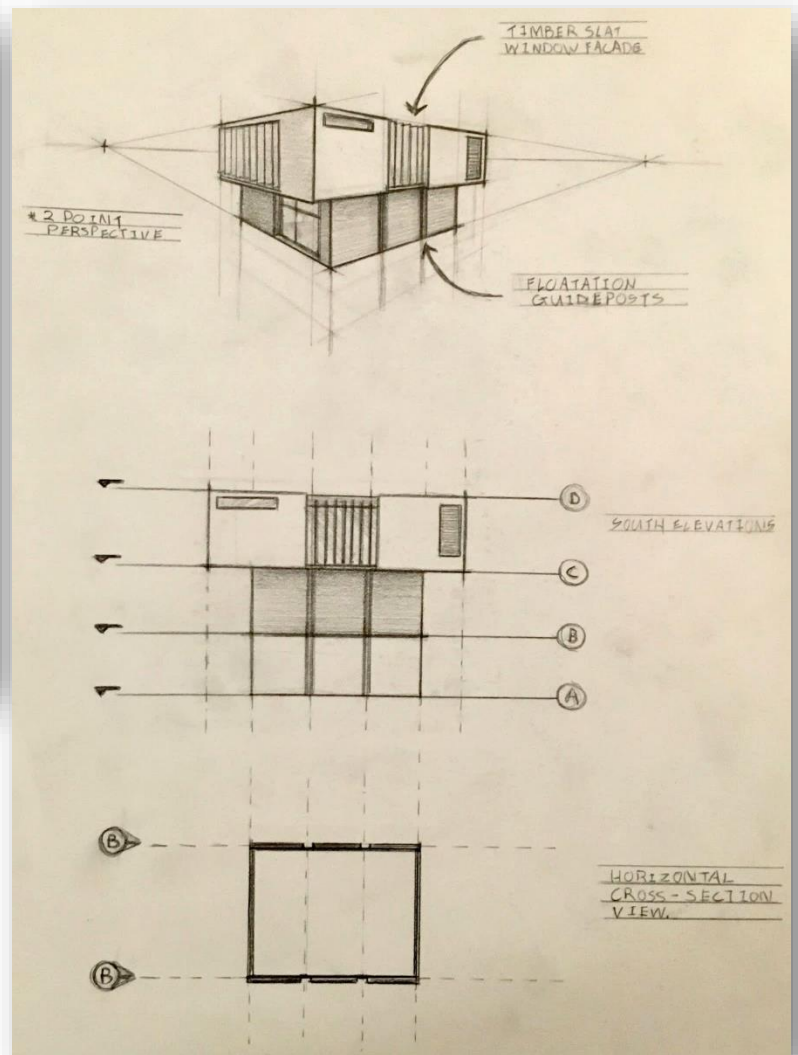
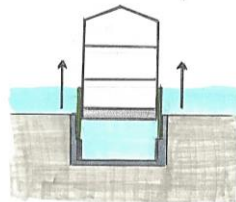
Floating House - Concept Sketch:

### REGULAR CONDITIONS:



### DURING FLOOD EVENT:

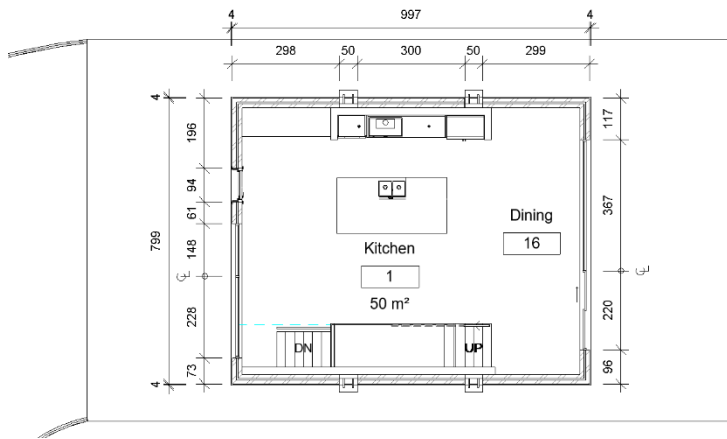
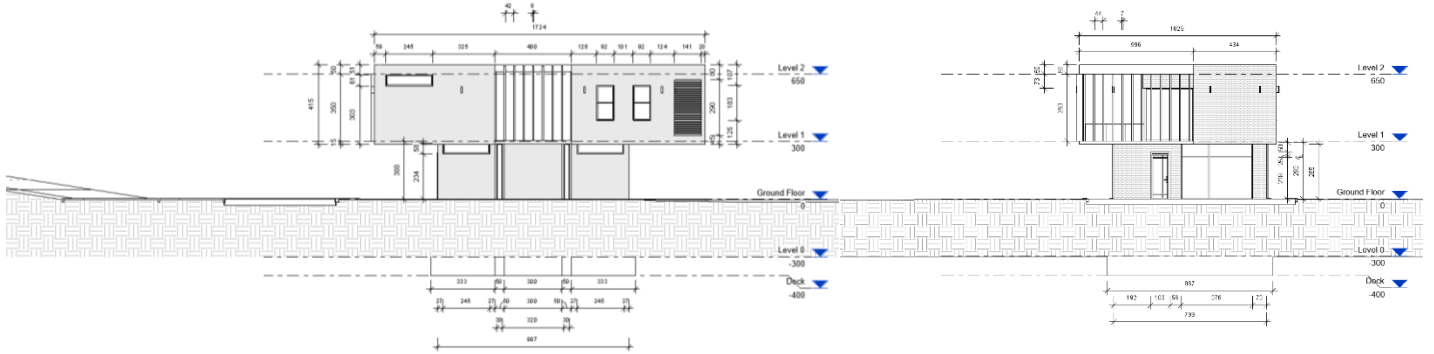
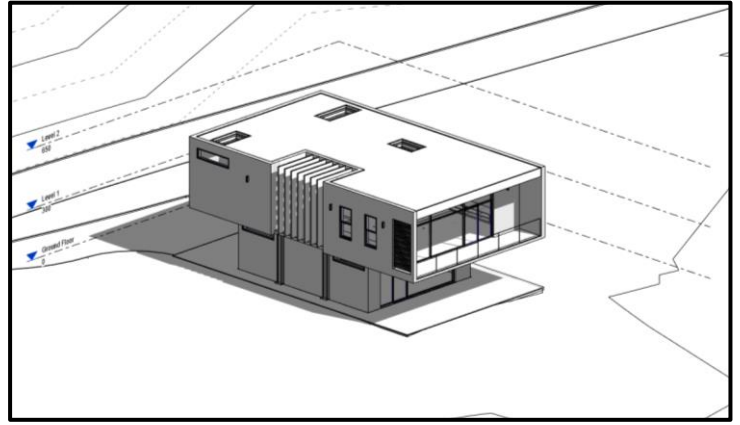
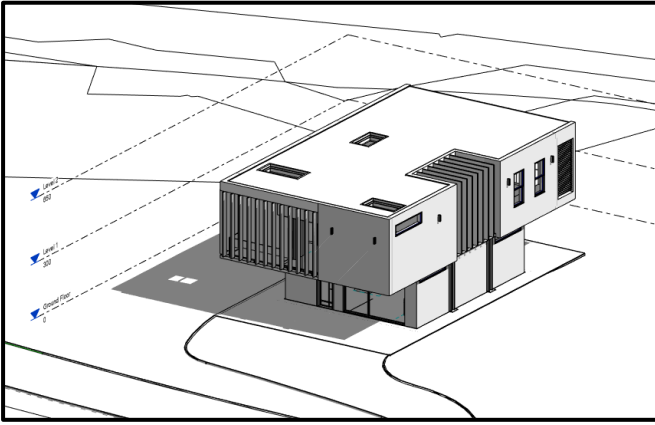
- \* The building rises as a result of the water, due to the buoyant design.
- \* The structure is held in place by the dolphins, which act as a guide so the building remains straight & secure within its dock.



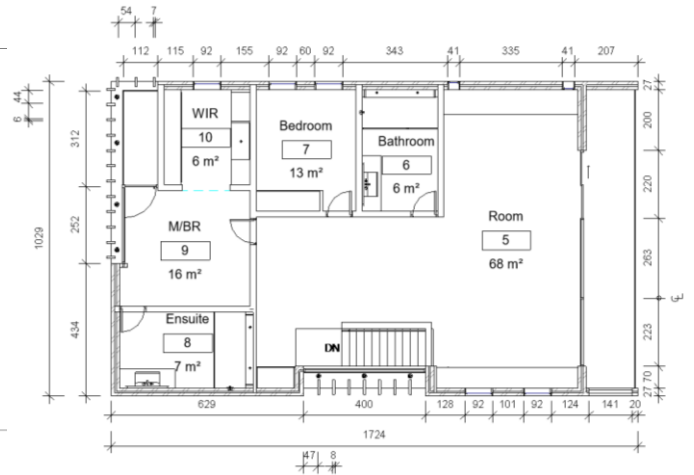
- The house is a building that rests in the ground but whenever a flood occurs, the **entire building rises up in its dock**, where it **floats, buoyed by the floodwater**. Therefore, this innovative construction brings together standard components from the construction and marine industries to create an **intelligent solution to flooding**. The house itself sits in the ground and the floating base is almost invisible from the outside.



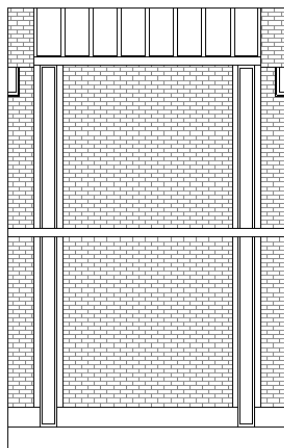
A few of the CAD Drawings & Architectural Renders of my finished Design:



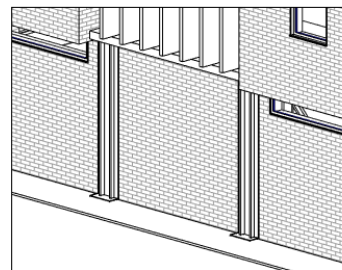
Ground Floor



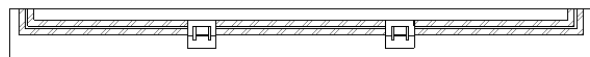
Second Floor



1 South Guidepost (Model)  
1 : 62



3 Guidepost 3D View (Model)

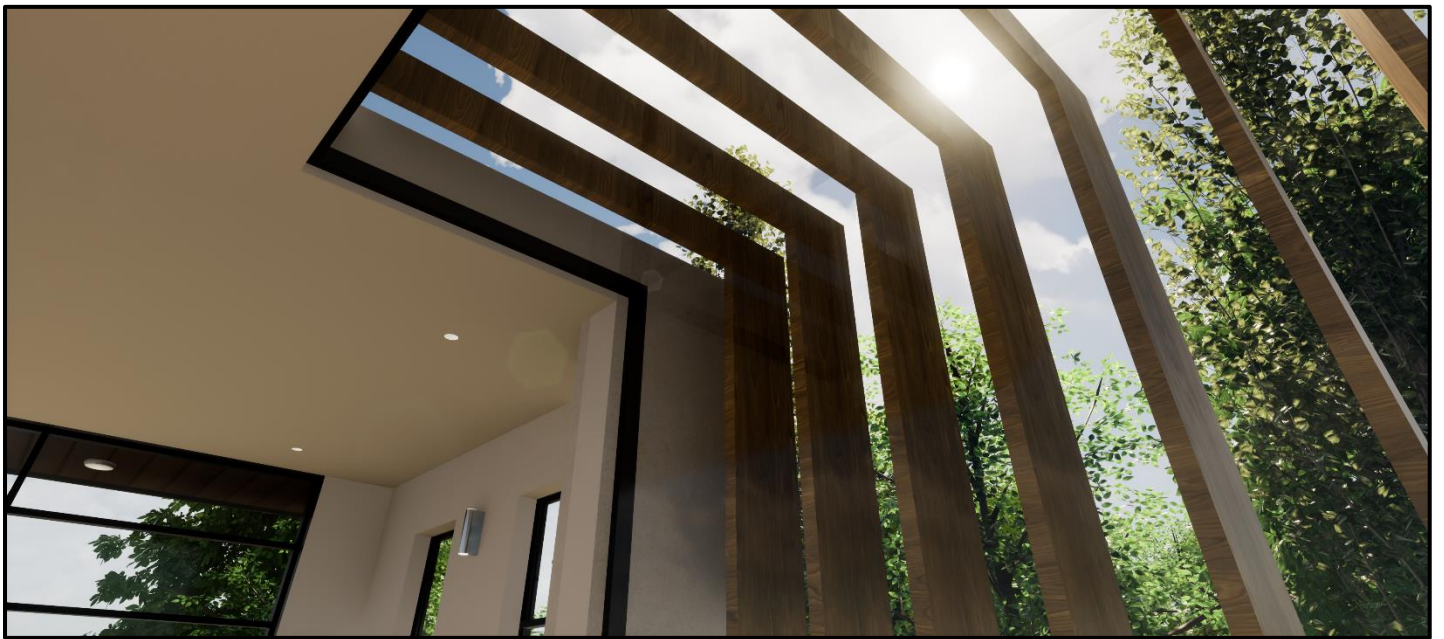


2 Guidepost Ground (Model)  
1 : 62













Here, I have completed the architectural scaled model (*Scale = 1:62*) of the house concept which I had previously designed in CAD, and then rendered in Twinmotion. In doing so, I was able to create the model through the blueprints I had developed, as I then constructed it out of balsa wood, for the building, and foam board for the topographic base.

