Context

The following excerpt comes from a scientific report investigating potential solutions to flooding. The report was a group effort, but the writing below is mine. The report had three methods for reducing the impacts of flooding, mine being method B. Multiple sections were omitted for brevity. Still, I believe these sections highlight my ability to report on research. These sections will explain my method and the results of implementing it.

Solutions for Flooding Concerns in New Orleans

Method B: Flood Resistant Housing

One of the more devastating effects of flooding is damage or loss of housing. Naturally, communities prone to such effects have been forced to develop solutions. They often attempt to minimize damage to housing through flood-resistant designs. Two approaches to flood-resistant housing are floating houses and elevated houses.

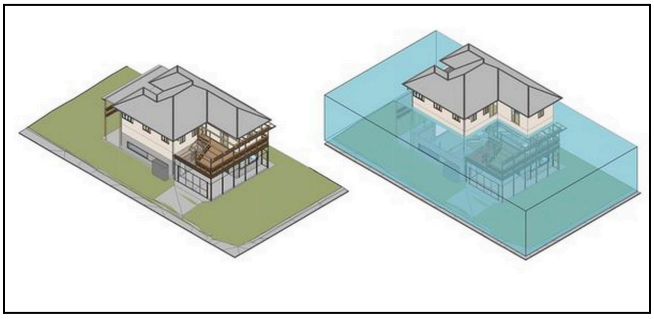

Figure 3: Australian Flood Resistant House Design

Floating houses are designed exactly as one would imagine: they can float as water level rises. The picture above demonstrates this technique, sometimes called ‘amphibious housing’. One appealing feature of this design is that it works in harmony with nature, rising and falling with sea level. The design has become popular around the world, with usage in Australia, the United States, the UK, Ghana, and many more coastal countries.

Figure 4: Elevated Housing in North East India

Elevated housing opts to keep housing structures above ground level at all times. One strategy is to build the house at a constant height, with strong supporting stilts beneath. Bangladesh uses this practice, where houses are built on concrete stilts standing two meters high. Another strategy, pictured above, is to build houses with lightweight materials that can be quickly rebuilt to be higher or lower.

Results

In this section, we will present the results found in our research and testing methods.

Method B: Flood Resistant Housing

We chose different areas to compare the two common design techniques. In each area, 10 new houses were constructed to be put on the market. One area featured elevated housing, while the other favored amphibious housing. We also tracked a third area, in which housing took no preemptive measures for flooding. Metrics for success were user satisfaction and cost to restore housing post-flood.

After five years of tracking these locations, there were two significant flooding events. To qualify these floods, we measured them using the DFO flood magnitude scale. The rating is calculated based on the ratio between flood runoff and record flood runoff. On this scale, the first flood received 6, and the second received an 8.

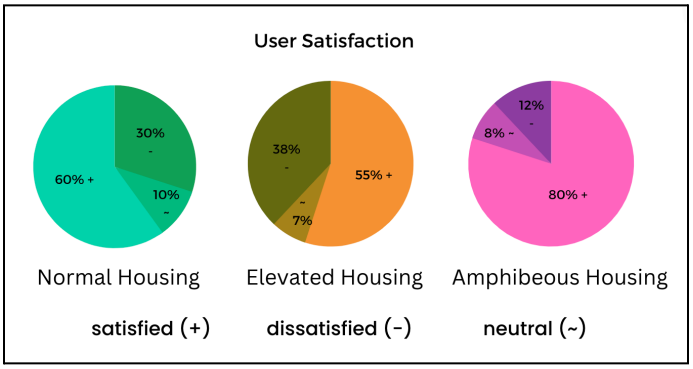

Figure 10: User Satisfaction for Housing Designs

User satisfaction was measured by continually polling residents in each area over the five-year period. In the end, the results were compiled and averaged. The charts above illustrate these satisfaction rates.

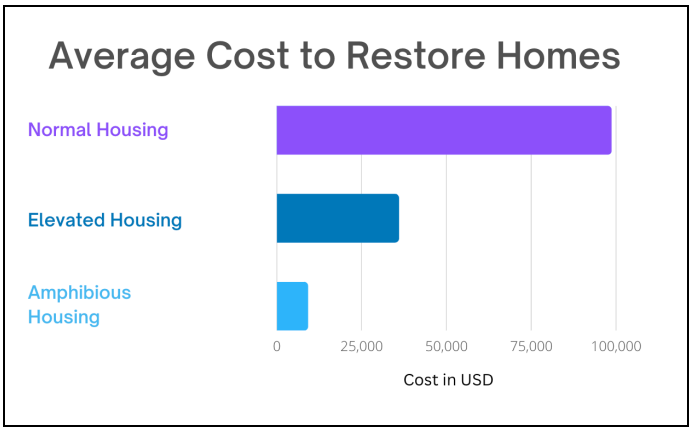

Figure 11: Average Cost to Restore Homes

After each flooding event, the average cost to restore each type of home was measured. The costs to restore each type of home are compared in the graph above.

Recommendation

After testing and analyzing each method, our team recommends that we use French pipes to solve the majority of the flooding issues. When looking at the results of all three methods, adding French pipes will be the most efficient and effective way to decrease flooding for housing in New Orleans. French pipes reduce cost and invasiveness. They also had the most overall customer satisfaction.

French pipes are a quick and easy solution, using slope to discharge a large amount of water. They do not have many moving parts that cause them to not fail easily and also require little maintenance once installed. This is the best resolution for New Orleans to reduce flooding for housing.