Evolution: Flexible Home

Introduction
In this project we were tasked with designing a modular home that can be easily expanded, contracted, or split at the owner’s convenience.

Budget Estimate

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Frame</td>
<td>100</td>
<td>$200</td>
</tr>
<tr>
<td>Roofing</td>
<td>100</td>
<td>$400</td>
</tr>
<tr>
<td>Line Loads</td>
<td>100</td>
<td>$500</td>
</tr>
<tr>
<td>Expansion/Additional Dead Load</td>
<td>100</td>
<td>$300</td>
</tr>
<tr>
<td>Shipping Container</td>
<td>100</td>
<td>$100</td>
</tr>
</tbody>
</table>

Location
We chose Houston as the location of our site because the entire team was inspired by the catastrophic damage Hurricane Harvey left to try and figure out a way to restore the Houston community in a creative and innovative way. With fertile soil and tolerable weather, Houston is the perfect location to implement our creative thinking into a project that is meant to change lives.

2508 Gray Street is the address that we chose because it’s in a quiet neighborhood undergoing intensive urban planning and growth. It is a decently sized lot that is only minutes to the businesses and amenities downtown has to offer. This plot of land is a great choice for any couple wanting to grow their family.

Modular Expansion
As the needs of the owners changes, so can their home. Modules will be available for homeowners to buy separately if they need to add extra bedrooms, living rooms, bathrooms, etc. These modules will be prefabricated in a factory to keep the quality control high, while still being affordable. There will be a variety of modules that will be available to purchase, allowing a large range of customizability. Each module will have ports that will allow them to be easily connected to the central module for utilities like electricity and water. These modules are the key component to the flexibility of the house.

Loads

Gravity Load
- Live Load
  - Wood Frame Construction
  - Roof Category A
  - Gravity Load
  - Wood Frame Construction
  - Roof Category A

Gravity Load
- Wind Load
  - Wood Frame Construction
  - Roof Category A
  - Lateral Load
  - Wood Frame Construction
  - Roof Category A

Gravity Load
- Dead Load
  - Shipping Container
  - 53 Kips/160 ft²
  - 31.25 PSF

Schedule
Besides being eco-friendly, we will have a rain garden and native plants to prevent runoff, and won’t affect other environments.