

# TOUGHER AND SAFER THERMOPLASTIC COMPOSITES

**IDEAL JACOBS** CORP.

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515 Valley Street • Maplewood, New Jersey 07040 USA  
T: (877) 873-4332 • [www.idealjacobs.com](http://www.idealjacobs.com) • F: (973) 275-5161

Whether it be for safety, medical, automotive, marine or telecom, our new line of ultra-tough thermoplastic composites can prove to be better than steel.

Our composite materials can give the benefits of steel but are:

- Stronger and more flexible than sheet steel
- Moldable to customer specific geometry
- Parts consolidation, easier to work with
- Vandal Resistant
- Lighter than steel assemblies
- Non-Corrosive, weatherable
- Developed to not need painting or plating
- Available with few size limitations
- Less expensive than metal weldments
- Easier to transport and assemble
- Recyclable materials
- More Ductile than thermoset products
- Excellent fire resistance
- Very low smoke and toxicity

## Drop Test Project

In order to test the strength of our thermoplastic composite material, Ideal Jacobs custom built an apparatus that would enable us to drop a 50lb weight from various heights. The following video shows this test and its results.

Our 50lb steel impactor was elevated to 70ft in order to achieve a high speed of impact. Our shielding material was then secured to the test holder on the ground and the weight was dropped onto it.

Testing was performed internally by Ideal Jacobs Corp. on our hybrid composite material (thin composite layers with an energy absorbing material core) and thicker structural panels. Both tests were successful! Download a video of this test at [www.idealjacobs.com](http://www.idealjacobs.com).

Potential applications range from boat, automobile and motorcycle components to outdoor enclosures and barriers for protection for high-pressure vessels. Besides conventional applications, Ideal Jacobs is exploring ways to integrate communication devices, sensors and smart circuits into the thermoplastic composites. Ideal Jacobs' technologies are not simply emerging, they exist and they can all be made recyclable!



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Our newest area - Hurricane / Cyclone / Tornado resistant material for door and window coverings and building panels.



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## **Hurricane Resistant Material Test**

Ideal Jacobs' composite panels provide protection against wind pressure and airborne projectiles for buildings and building apertures.

The following video shows missile impact testing at Ideal Jacobs per ASTM E1886-05 Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials standards.

All testing was done internally by Ideal Jacobs Corp. Download a video of this test at [www.idealjacobs.com](http://www.idealjacobs.com).

## **Tornado Resistant Material Test**

Ideal Jacobs' premium composite panels provide protection against higher wind loads and high velocity projectiles from severe storms.

The following video shows missile impact testing at Ideal Jacobs per ASTM E1996-09 Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes standards.

All testing was done internally by Ideal Jacobs Corp. Download a video of this test at [www.idealjacobs.com](http://www.idealjacobs.com).

# Thermoplastic Composite Window Shade

*Fully Closed*



*Overmolded  
Custom Colored Exterior*

*Shade Retracted in Standard Location*



*Molded Thermoplastic Composite Insert*

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# Thermoplastic Composite Hurricane Room



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## Outdoor Equipment Enclosures

Weatherable and structural composites enable forming of enclosures designed to protect critical assets such as communications gear, control circuits and infrastructure equipment. The materials Ideal Jacobs uses are non-conductive, non-corrosive and impact and vandal resistant.



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## Boiler and High-Pressure Vessel Protection

Ideal Jacobs combines high-strength composites with energy absorbing materials (EAMs) to create structures or enclosures that provides protection from high pressure vessel failure and flying debris. The rigid composites compress EAMs during an event to erode the kinetic energy of flying debris.



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## Barrier Protection

Thermoplastic composite barriers offer adjustable positioning with up to 30 degrees of full protection from debris and impacts. They can be mounted to molded barriers and are stackable for simplified shipment and transportation. Molded barriers can also be filled with any material (sand, water, stone, etc.) to weigh down barriers for temporary or permanent placement.



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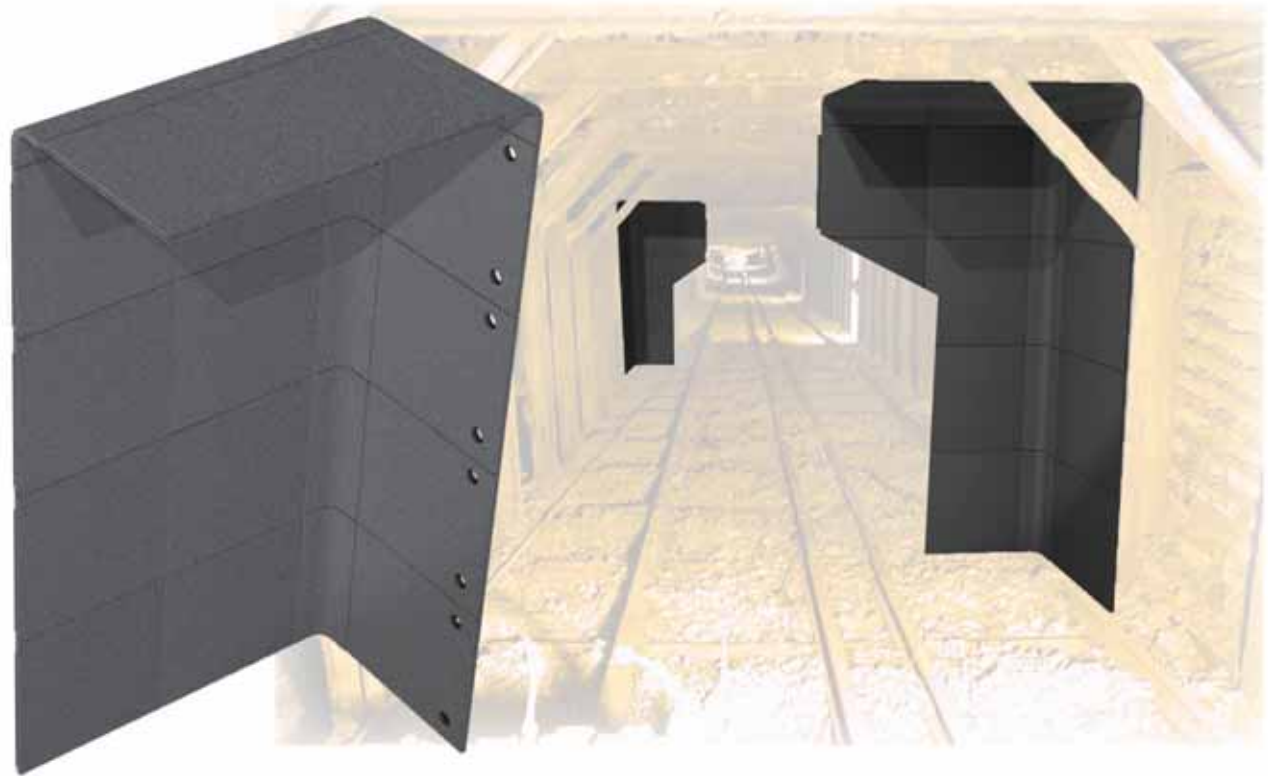
## Marine Applications

Thermoplastics offer an alternative to epoxy fiberglass parts. The thermoplastic based composites do not chip or crack like the harder, more brittle fiberglass predecessors. Reinforced thermoplastic composites can be formed into hull liners, pilot houses, engine covers and a variety of shield applications.



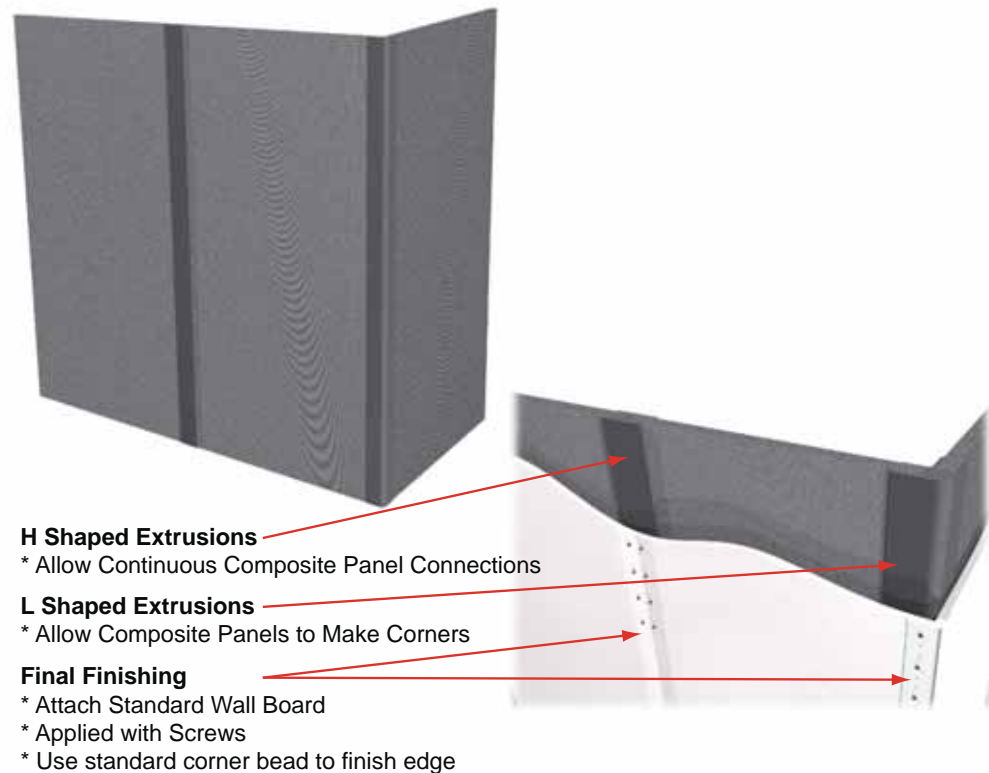
## Mine Safety Applications

Structural panels including curved, angled and corrugated shapes which offer personnel a safer area in case of emergencies.



## Architectural Applications

Composite panels can be molded thin to serve as added shielding for existing building structures or thicker to be free standing. The molded product is “ideal” for offering building occupants protection against threats such as flying debris.



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## Protective Clothing

Molded inserts can be strategically placed in athletic apparel and protective race gear to shield against impact, falls or accidents. Inserts can be molded rigid or from elastomers to protect the torso, specific bones or joints and even protect the skin from abrasion.



## Shipping Containers

High impact resistant collapsible containers can be assembled for transport and then deconstructed for storage. Impact liners can be molded for existing containers.



## Vehicle Components and Impact Protection

Ideal Jacobs' thermoplastic composites offer a wide range of custom vehicle components and impact protection solutions. Our material provides high strength impact protection and can be formed into floor pans, shields, strength members or passenger cabin protection beams. Structural platforms or glass mats can be separated from plastic resin at the end of product life for recyclability.



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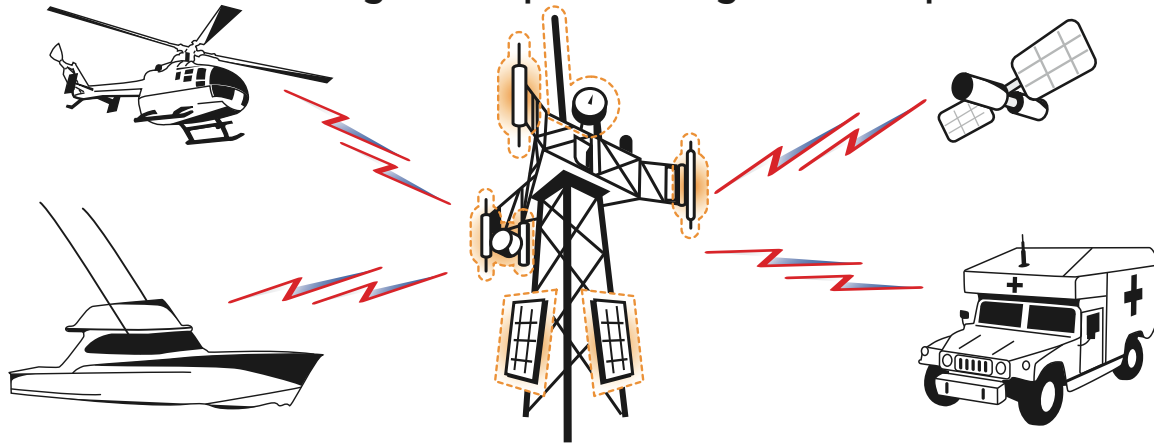
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# **ANNOUNCING A BREAKTHROUGH IN CUSTOM PACKAGING FOR RF & ANTENNA EQUIPMENT**

Ideal Jacobs Corp. is proud to announce a new line of plastic composite materials that are virtually RF transparent ideally suited for fixed and rotating beam antenna enclosures, radomes for parabolic dishes and electronics housings. Not only are they frequency transparent but they can also be:

- Impact Resistant
- Blast Resistant
- Recyclable
- Flying Debris Resistant
- Weather Resistant
- Moldable

**Protect critical assets from impacts, flying debris, and natural disasters while allowing transmit and receive signals to pass through the composite shielding.**



## **MULTIPLE COMMERCIAL APPLICATIONS AVAILABLE**

Ideal Jacobs recently tested transmit and receive frequencies between XX GHz and XX GHz with less than .5 of 1 dB loss.

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# Global Warming Floating House Community



## Global Warming Floating House Community

As water levels rise around our country, shore line areas will change from beaches to lagoons to partially and then totally submerged areas. This gradual process could take decades and building in these areas has to become "adjustable" to the ever changing landscape. The Floating House with the reinforced levee system in front of it will accept the changing conditions and offer protection against storm surges.

**\* Two Story Home Construction**

**\* Telecom Dish for weather warnings and satellite communications**

**\* Solar Panel Electricity**

**\* Solar Hot Water Heater**

**\* Solar Water Purification**

**\* Rainwater Collection System**

**\* Daylight Tubes and Large Windows let in Natural Light**

**\* Floating Base**

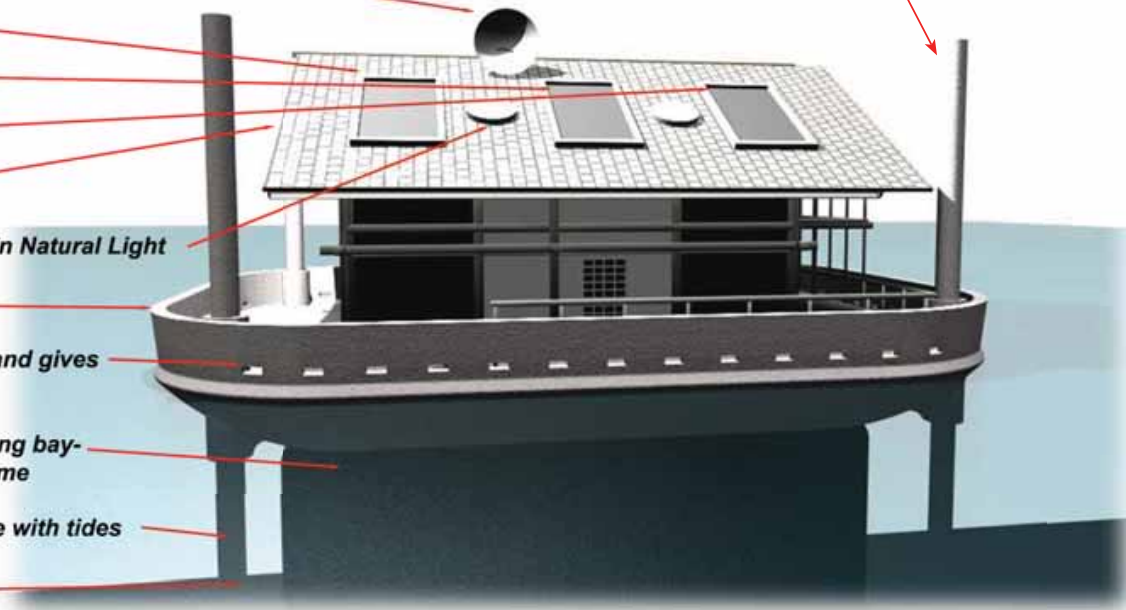
**\* Molded cutouts allow water to escape and gives tie up points.**

**\* Ballast Flotation- Also works as recycling bay- produces Methane gas to help power home**

**\* Piling Guide Tubes allow home to move with tides**

**\* Pilings embedded into Cement Base**

**Water Level Adjustment Pilings  
Allows the house to rise and fall**



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## Global Warming Floating House Community

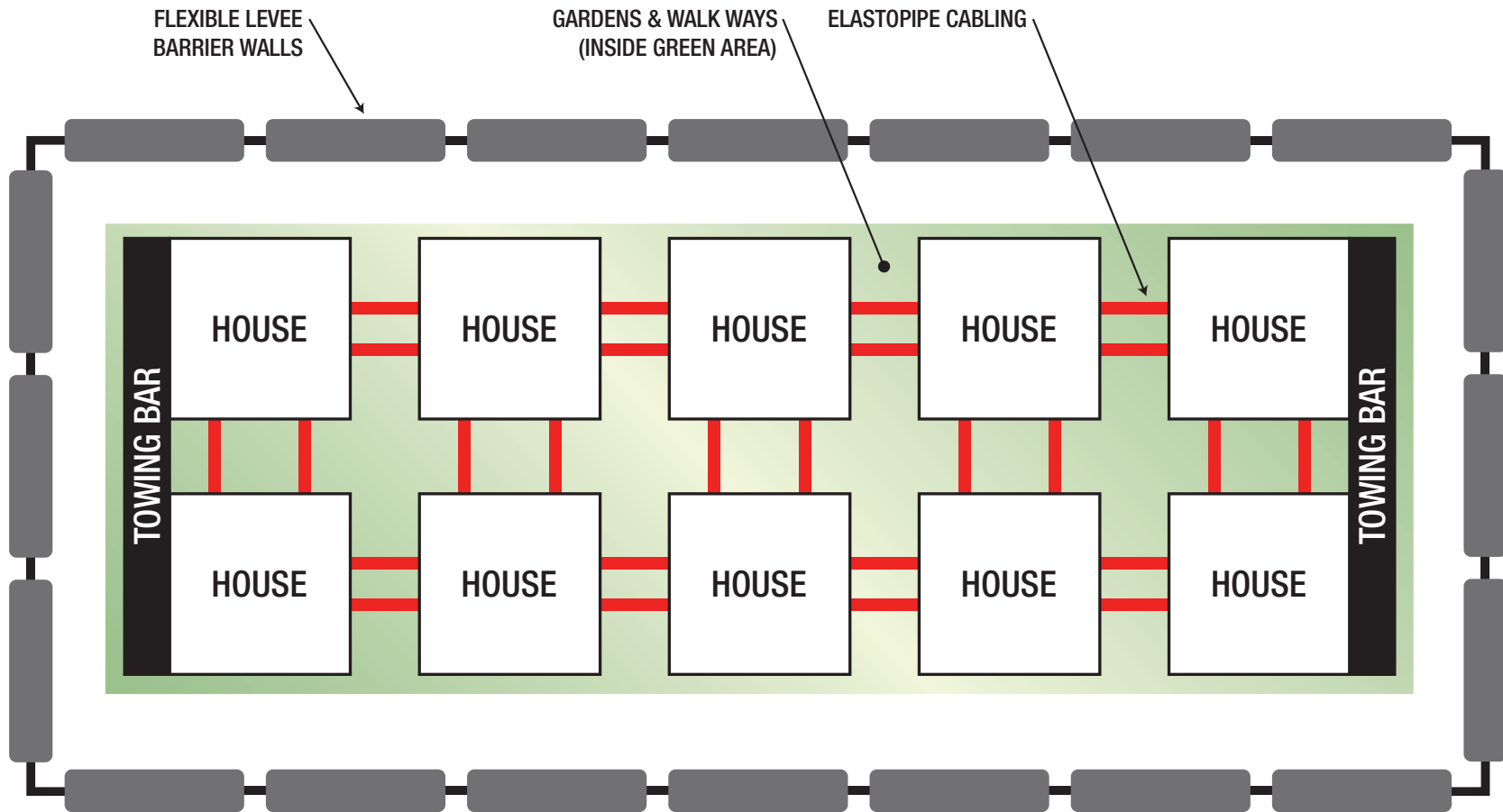


- Individual units floated to final location then cabled together on site to form large community
- Enhances stability and allows for mass migration in exceptional circumstances

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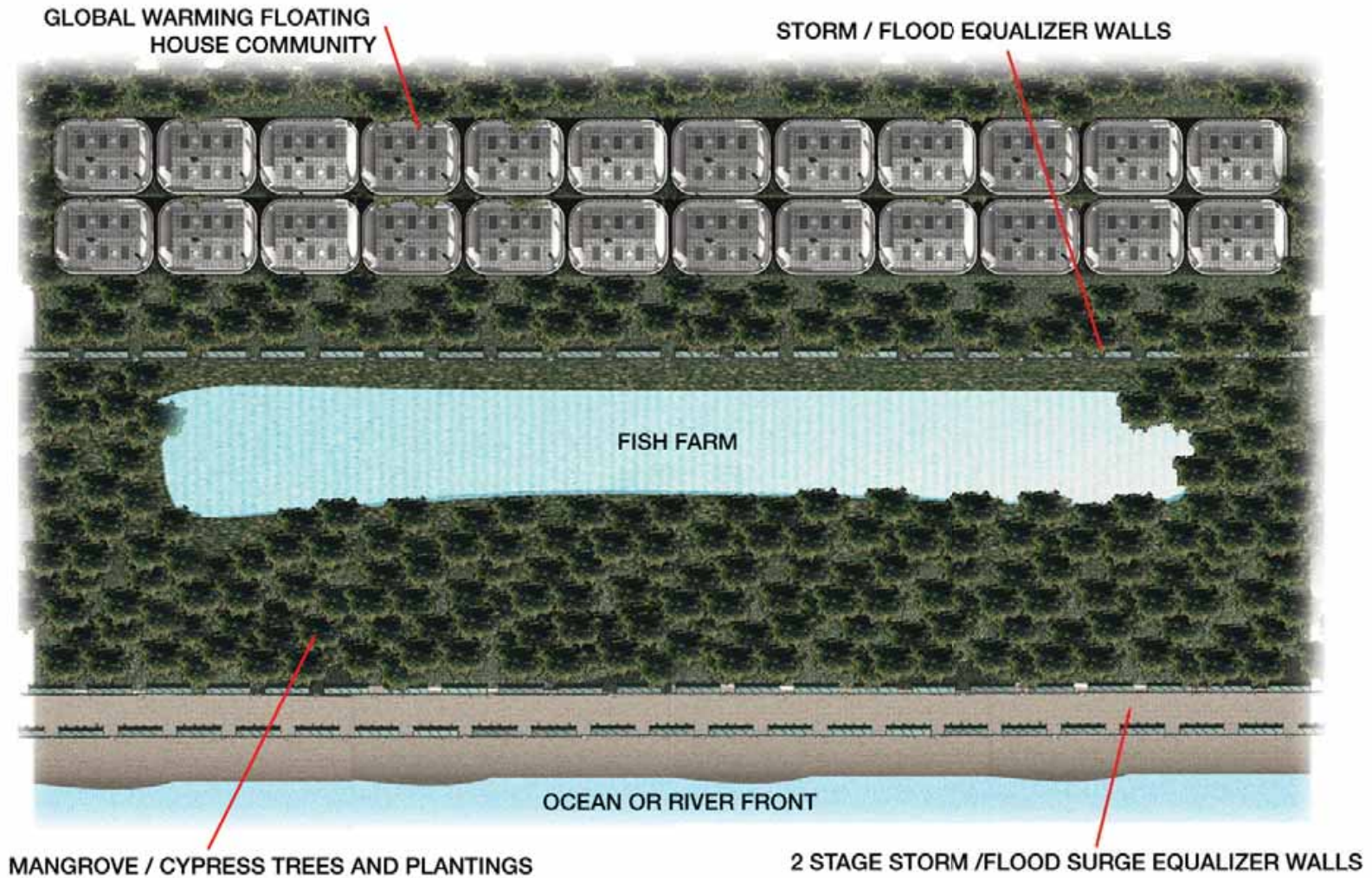
# Global Warming Floating House Community Layout



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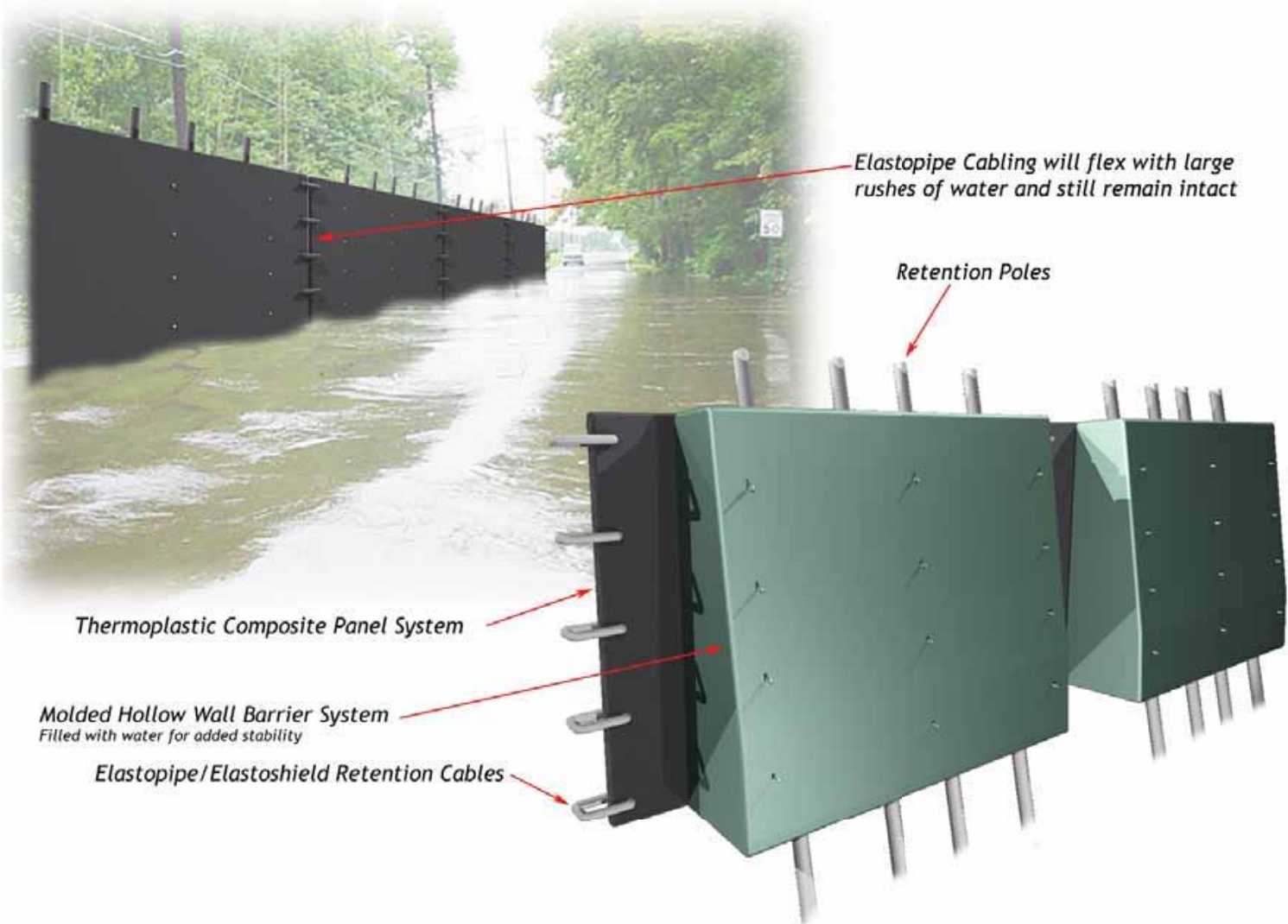
# Global Warming Floating House Community Layout



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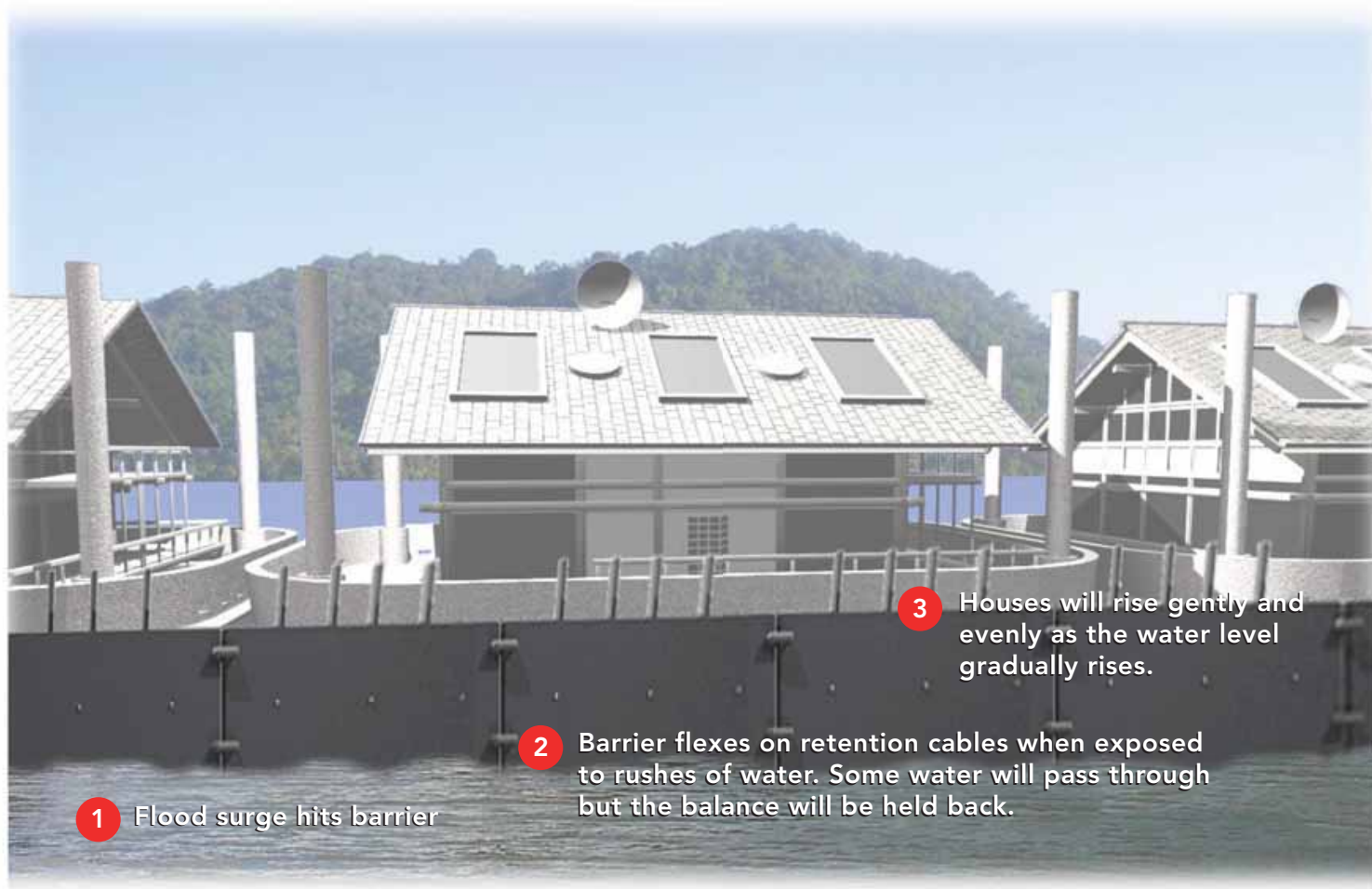
# Portable Flexible Levee



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## Global Warming Floating House Community Flexible Levee System



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## Acoustic Buoy Tsunami Warning System

The Acoustic Buoy will utilize our RF clear material enabling the electronics ("guts") of other manufacturers to be utilized at depths up to 200 feet fresh or salt water. Initial prototypes will be built using a 2-stage material construction. The final design concept is for a molded one part unit that will enable these buoys to be programmed, sealed and either dropped or "shot" into position via long range cannon.



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Ideal Jacobs' new composite material is customized by polymer, reinforcement and process to satisfy your application specifications and environment of use. Product is available in various thicknesses for indoor or outdoor use and matched to the needed level of protection.

## **Panels**

- From frequency transparent shielding to EMC shielded structural sheets

## **Hybrid Composites**

- Combining polymers and fiber with energy absorbing materials for increased protection

## **Customer Specific Geometry**

- Molded shapes to fit given structures or to protect personnel and air, land or sea vehicles

Please email us your specifications and we will custom design a solution.

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