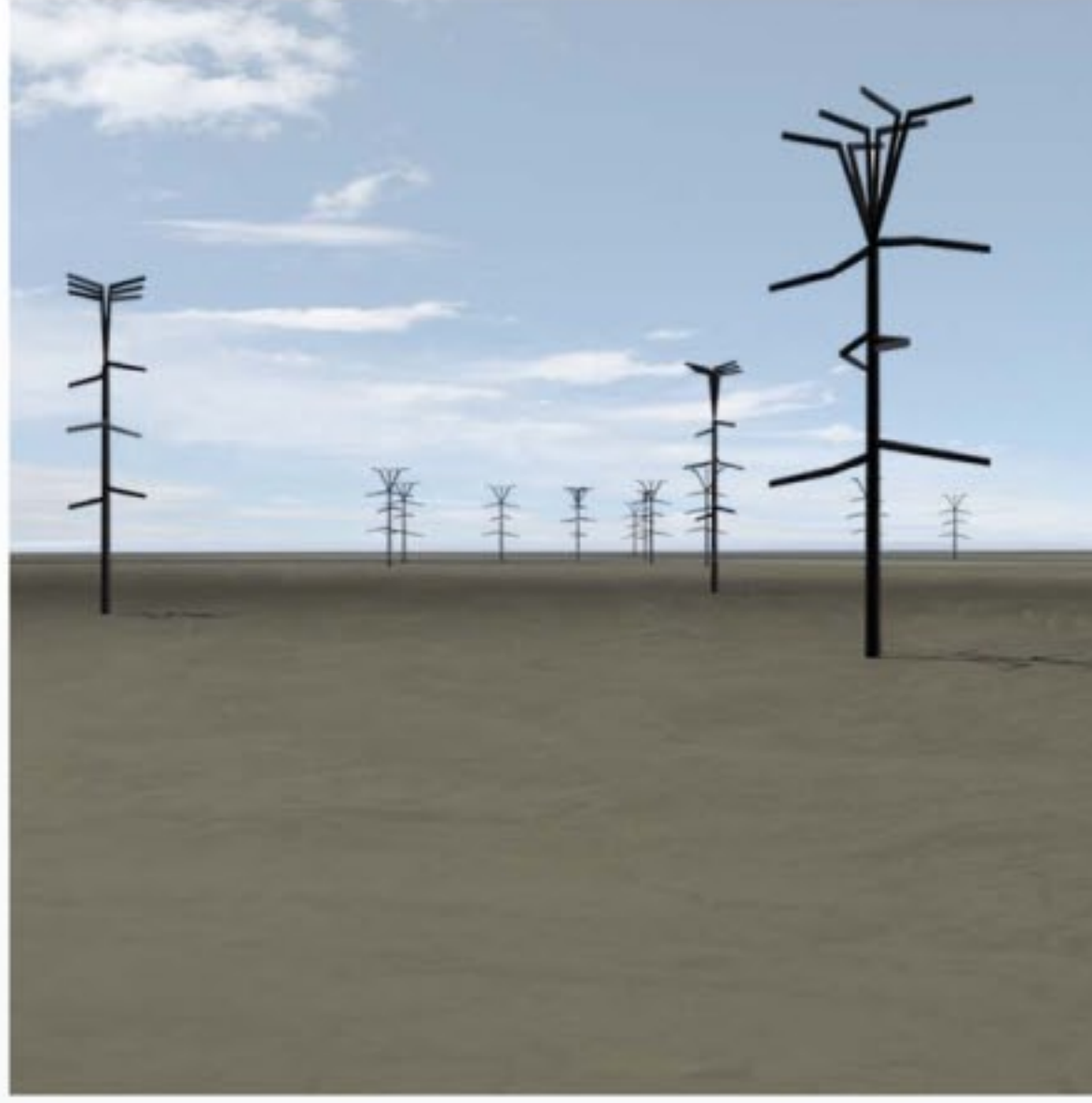


# HABITAT HOUSE

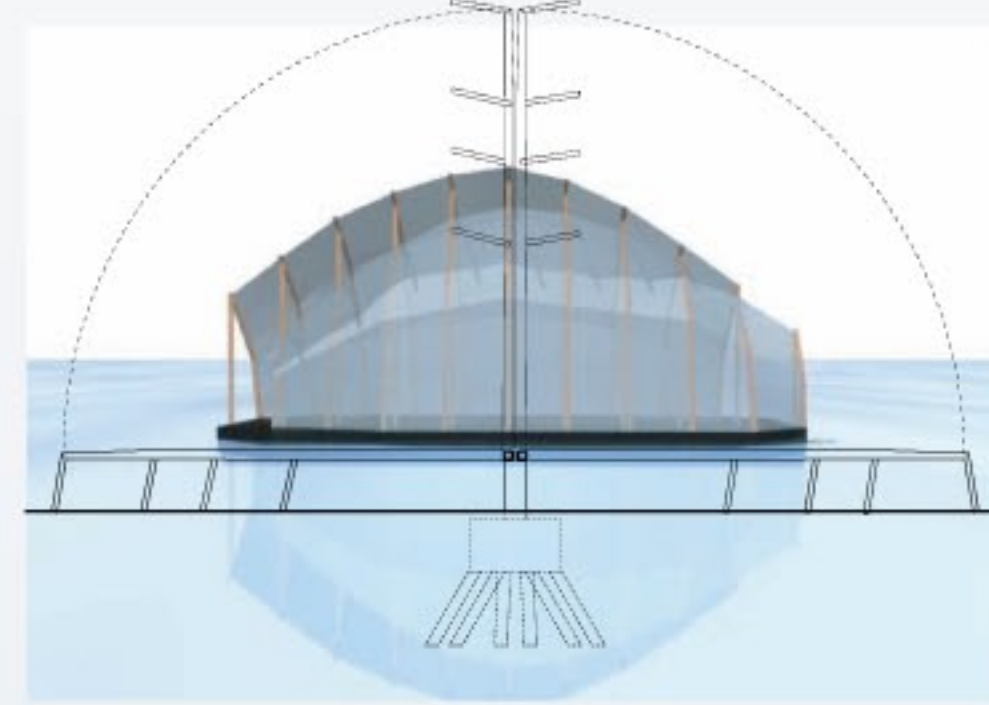
## CONCEPT

Almost all the global environmental impact problems of humans can be reduced to one architectural concept: space. There are too many people. Even if every single person on this planet lived as sustainably as possible there would still be massive pollution, ecosystem disruption, and species extinction. Humans reduce the diversity of their environment simply by their presence, creating areas of monoculture that support only humans and a few other species. The space left over is simply not enough for a healthy global ecosystem. Current architecture doesn't adequately address this problem—it relies on conventionally anthropocentric practices, an architecture that is becoming outdated as science demonstrates the interconnectedness of humans and nature. This project takes a simple but innovative approach using architecture, technology, natural processes and the kindergarten concept of 'sharing' as a catalyst to resolve this spatial challenge. This house is not designed primarily to house humans, it is designed to be a functioning component of an ecosystem. It creates diverse habitat opportunities, both within its own form, as well as by interacting with its environment. Rather than a house that adapts the environment to humans, this architecture allows humans, one of the more adaptable species on the planet, to adapt to a shared habitat.



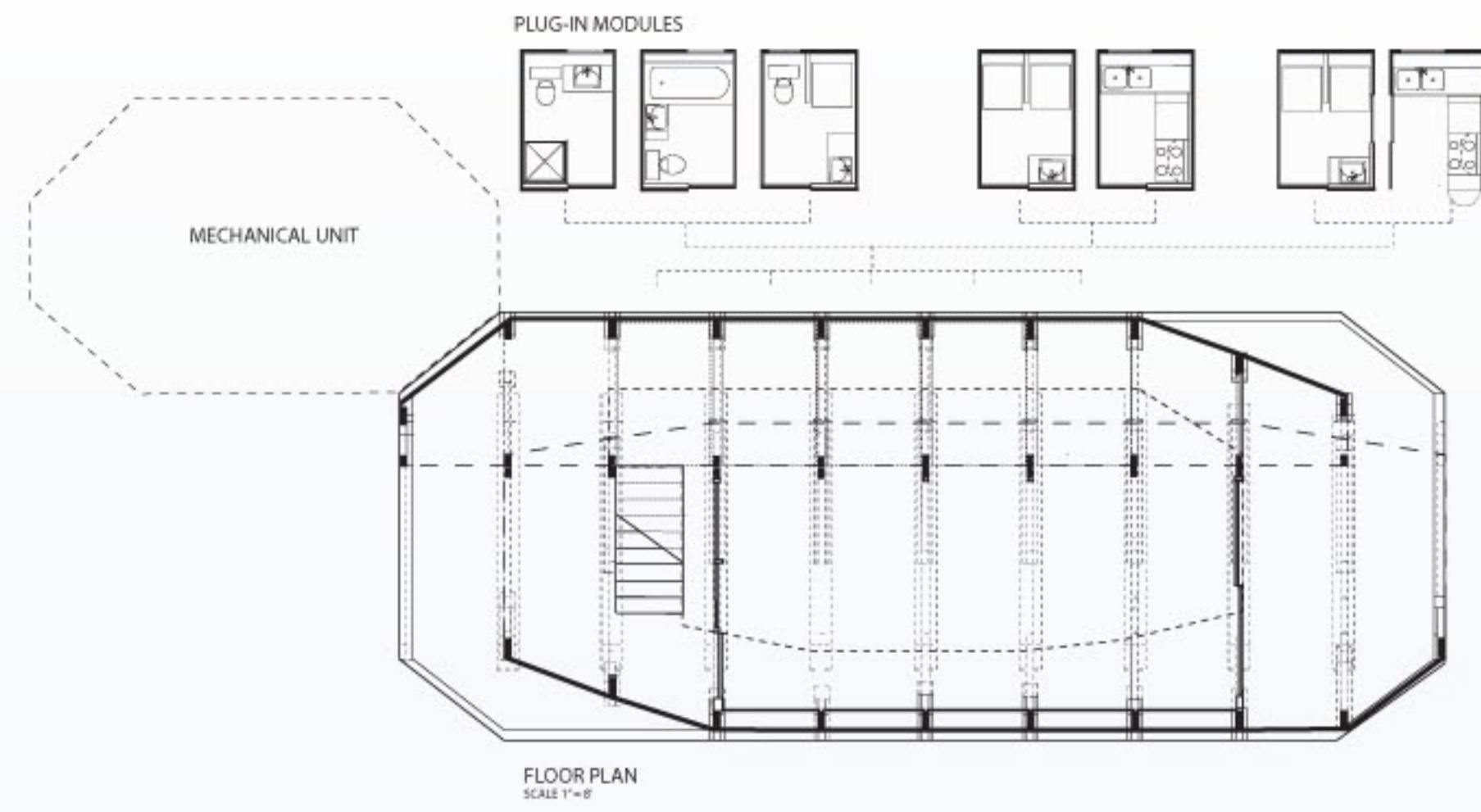
### SITE

The focus in this project is on sites located where global environmental degradation is most extreme and its impacts greatest—in the coastal areas. Most of the world's population lives in these areas, and as a result coastal ecosystems undergo extreme perturbances in order to accommodate human habitation. Wetlands are filled in, mangroves removed, natural drainage and water flow is permanently altered. All these impacts and more occur in the most productive ecosystems on the planet. Low-lying areas are especially prone to alteration, and with global warming and predicted sea level rise, this situation will only become exacerbated. This project focuses on these areas and they are global. New Orleans, Mumbai, the Netherlands, the California Delta. These sites, and many others as sea level rises, have all been significantly altered and are in need of restoration and a new way for humans to live in them.



## INTRODUCTION

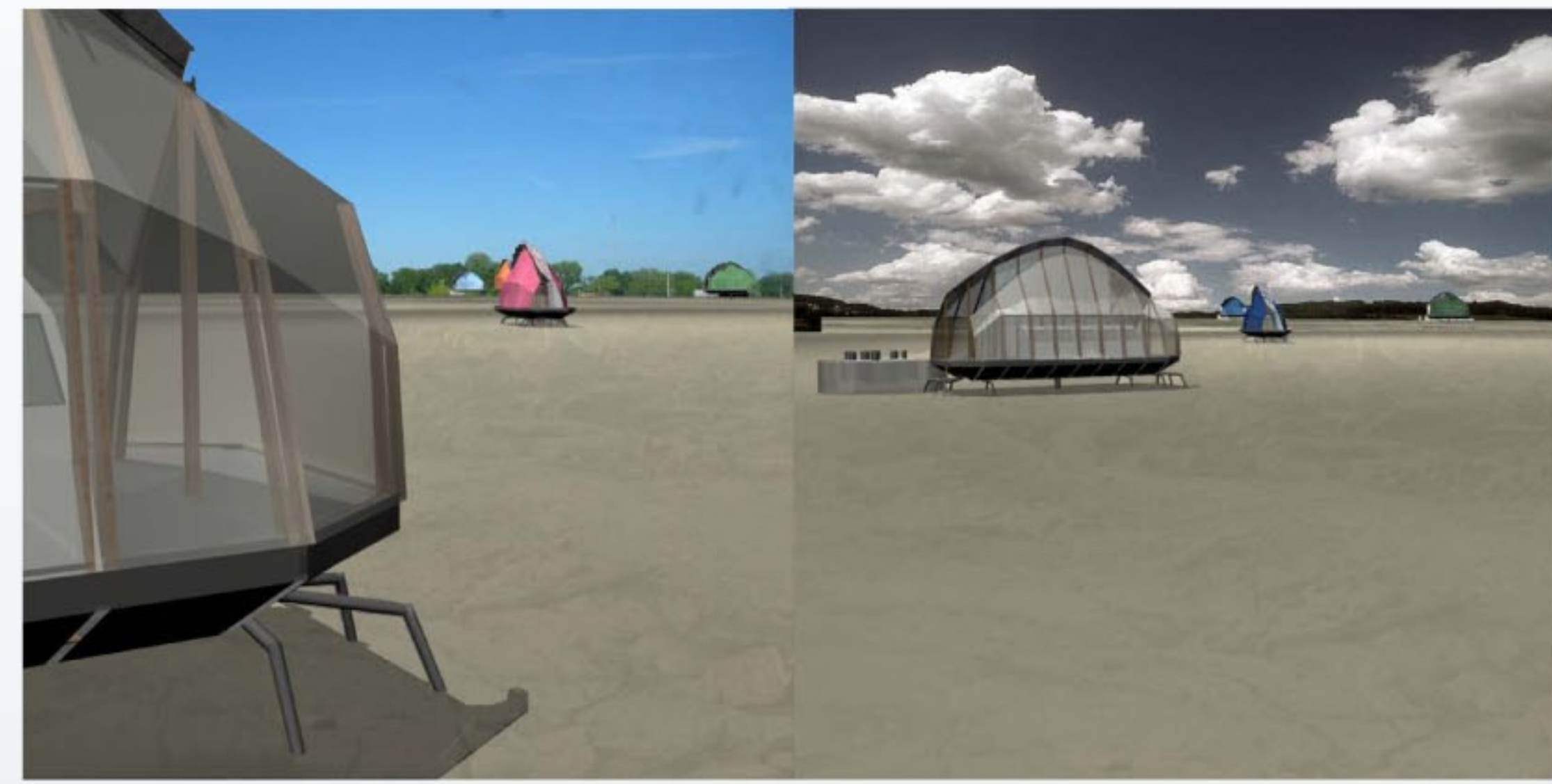
These are housing units that accommodate the changes necessary to restore an ecosystem to its natural functions, which means that in low-lying coastal areas they operate under flooded conditions. While the design—both form and function—is primarily intended for restoration and habitat, they can also be occupied by humans during any phase of water level. Infrastructure in the form of poles is initially phased into an area that is to undergo restoration. These poles act as a base for the habitat/house unit during the dry phase, a mooring during a wet phase, and as surrogate trees for fauna during habitat and restoration modes.



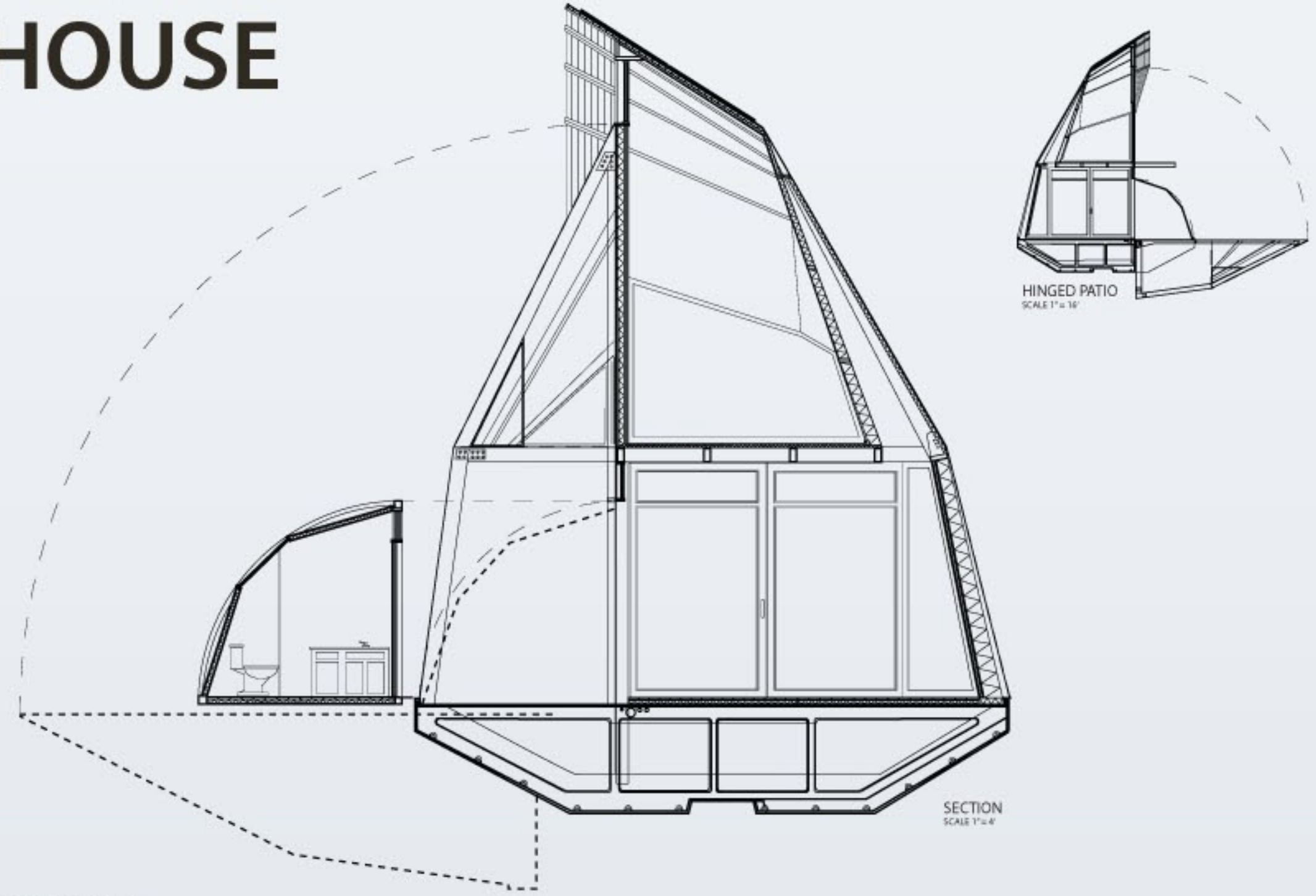
## MATERIALS

### DEVELOPMENT AND RESTORATION PROCESS

It is assumed that meaningful ecological restoration can occur in many coastal areas only with the return of natural water flow to the area. The development of housing initiates the process by providing financial resources for restoration. Restoration occurs through the architectural design of habitat/restoration units augmented by mechanical restoration measures and natural processes (such as controlled levee breaks and return of natural water flow/fluctuation). These habitat/restoration units are retroactively designed to serve as the housing units. Once water is restored to an area they will serve as a catalyst for ecosystem restoration by interacting physically with the environment to provide habitat diversity. Initially the units themselves will provide a number of habitats, and gradually over time they will interact with water flow and the natural processes of sediment accretion to create topographic variability, or natural habitat diversity.



## HOUSE



### THE BASIC UNIT

The architecture is intended to operate functionally in three different modes by utilizing a basic form and structure that is adaptable to each function with a minimum of reorganization. They are:

1. ecosystem restoration
2. human habitat (housing)
3. habitat for other species

These functions are set within distinct time frames/environmental phases, although consideration is given to the fact that these may not be temporally linear. Ecosystem restoration is approached adaptively and holistically—the intention is to restore whole ecosystems rather than specific habitat, and this goal is the primary influence in the formal architectural design. The housing mode is both the necessary economic catalyst through which restoration takes place, as well as the way humans live in a coastal area with minimal impact. Since ecosystem restoration is a long-term prospect, the architectural design of the unit also accommodates interim habitat creation.

The basic unit structure is constructed of inert, non-toxic, and biodegradable materials. The units are not intended to have a long lifespan, especially once in prolonged contact with water. They are, like other natural phenomena, intended to be ephemeral.

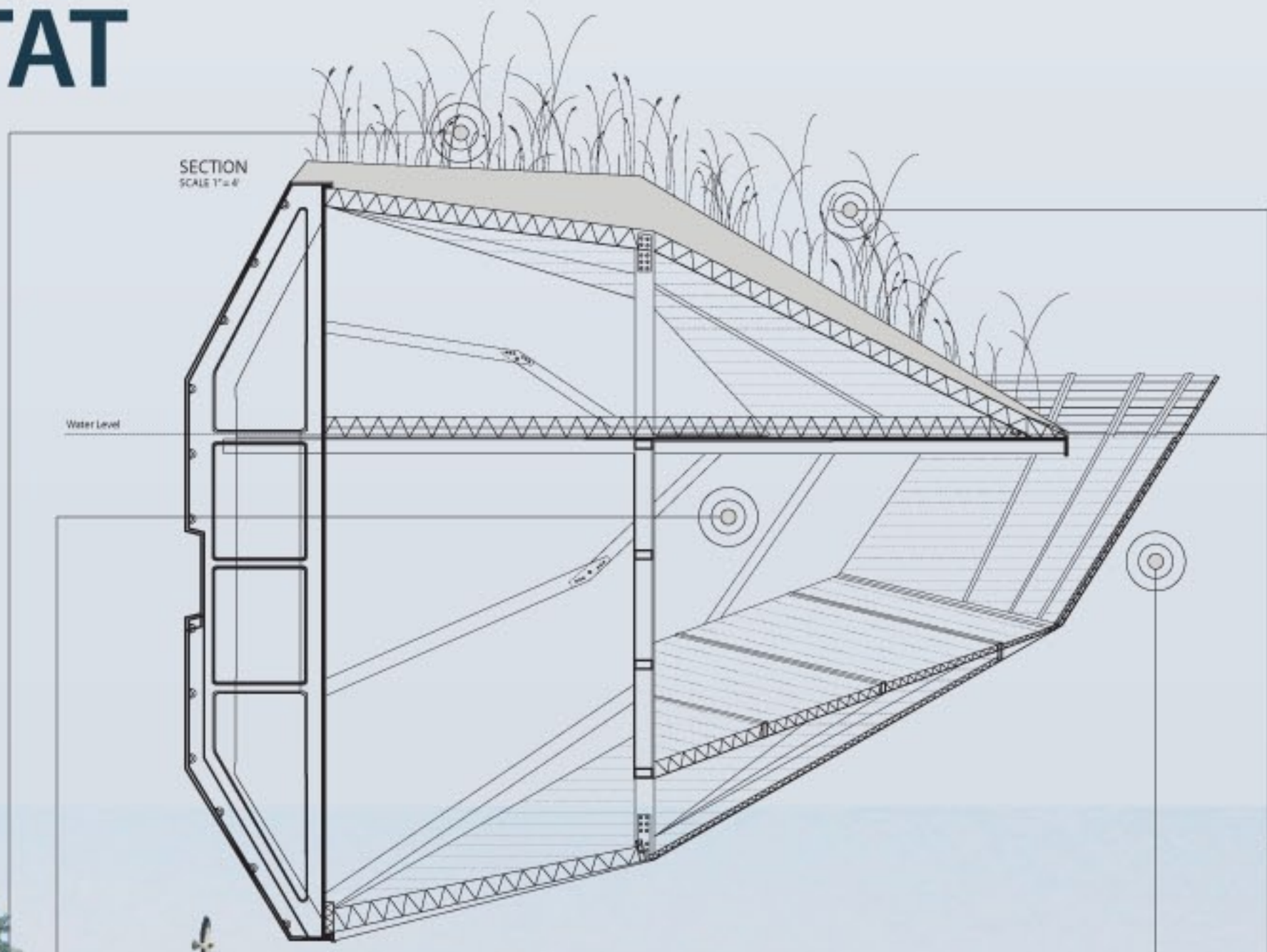


### As Habitat

The habitat and ecosystem modes are activated by the presence of water and water flow, respectively. The activation to habitat and restoration occurs with a 90° vertical rotation and submersion, as well as an appropriate horizontal rotation oriented to the prevailing water flow. The unit, rotated and sunk, serves as a substrate for submerged, shallow water, tidal and some upland vegetation. It also provides shelter for fish and other aquatic fauna. When water flow is present and it is properly oriented in conjunction with other units, it acts as baffles and becomes a modified sediment trap, resulting in sediment accretion and eventual topographic variability.

Once a unit is dedicated to the habitat or restoration mode, it is likely to remain in that mode until eventual disintegration by natural processes, which is to say decay is a part of the design process.

## HABITAT



RIPARIAN  
SHADED RIVERINE  
INSTREAM

MIDCHANNEL ISLAND AND SHOAL

TIDAL PERENNIAL AQUATIC  
(submerged, shallow water, tidal flats)

PERENNIAL GRASSLAND

TIDAL MARSH  
(fresh brackish saline)