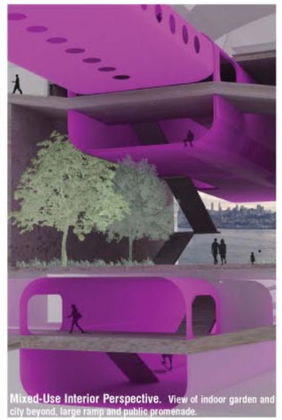
Sea Change and the Urban Float.

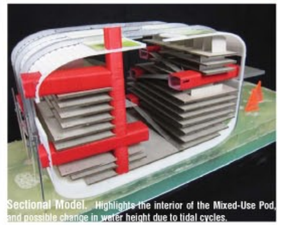
"While impelled by necessity, the first Venetians did not go to those marshes settling against empty handed, without the benefit of civilization. They brought with them three things: ideas, techniques, and a perspective of the world, how nature works, how people might change nature, and how the world in the future might be different from the world they had known in the past. Today, we are in a position in relation to the environment of our entire planet similar to that of the ancient settlers of Venice in relation to the marshes of the Adriatic. We see problems shifting before us whose solutions are unclear." (Discordant Harmonies, Botkin 9).

Urban Float Construction Alameda Shipyard. The historic shipping industry in Alameda is reinvigorated; cranes are rapidly assembling the modular structures.



Mixed-Use Interior Perspective. View of indoor garden and city beyond, large ramp and public promenade.

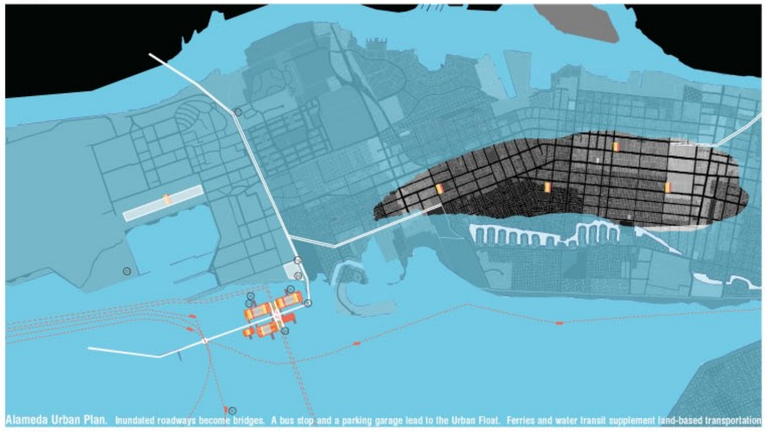
Interior Perspective. Public space below the water level shows relics of the past world.



Sectional Model. Highlights the interior of the Mixed-Use Pod, and possible change in water height due to tidal cycles.

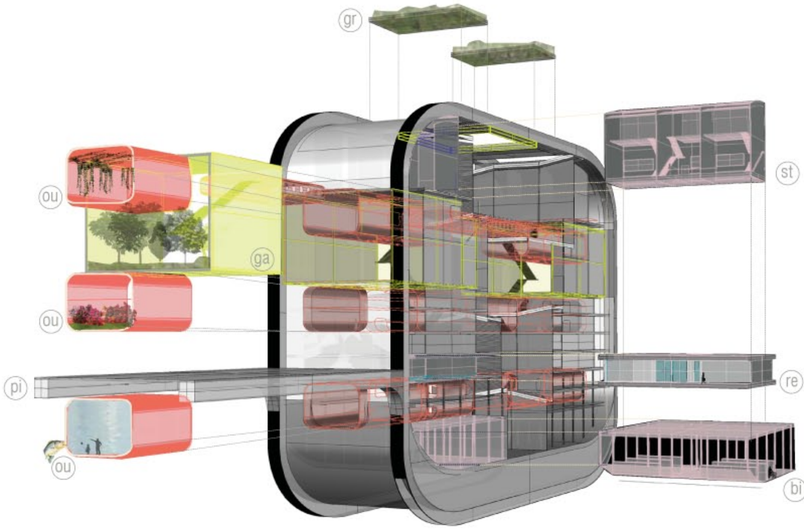
Urban Scale Alameda Model. perspective view at night.

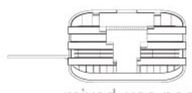
2010



Alameda Urban Plan. Inundated roadways become bridges. A bus stop and a parking garage lead to the Urban Float. Ferries and water transit supplement land-based transportation

2020





mixed-use pod

(ou) outside lobbies. these lobbies create double heighted spaces that allow interface with the outdoors.
(pi) pier. pier becomes a docking station for sailboats, windsurfs, canoes, motorboats, etc. for residents and visitors.
(ga) garden space. large public gardens.
(gr) green roof. for recreation.
(st) studio apartment.
(re) retail space. clothing stores, banks, pharmacies, daycare, banks, restaurants, can locate here.
(bi) big box space. big box retail, groceries, book stores, churches, schools, theaters, aquariums, can locate here.

San Francisco Bay.

Drawing of Reber Plan of 40s.

Incremental Adjustment to sea-rise.

This competition entry begins with the premise that sea level rise is a global problem affecting coastal conditions universally and therefore is not isolated to individual cities. Moreover, it assumes that cities should not be relocated due to complex social, political, environmental, and economic factors. Taking these premises as a starting point, site selection becomes a method of testing a sea-rise solution. The selected site becomes a platform to hypothesize on a global phenomenon.

In this case, I began by studying the local example of the Oakland Estuary and how it would be affected by water rising. The current geography of Alameda is one that has been highly manufactured. Much of the land is infill for the Naval Base. Wetlands are replaced by housing. A projection of incremental sea level rise shows that these land augmentations will be the first to be depleted. Moreover, Alameda is at a risky elevation. In an executive summary by the California Climate Change Center, the report estimated that a 1.4 meter rise in sea level will put 66,000 residents at risk in Alameda County (3). Alameda's vulnerability made it an ideal site to test a design solution for a global condition of sea change.

The Problem

Disaster. Catastrophe. Some say apocalypse. The ice caps have melted with no warning, except for the now dated and dismissed predictions of Al Gore. The year is 2020. Sea levels have risen by twenty feet. The problem is felt globally. 707,324,638 people are displaced (http://cegis.usgis.gov/sea_level_rise.org). What now? Houses that can be salvaged are propped on old car tires and drift as they bob up and down. Cruise ships are overridden with the new homeless. Others quickly seek safety by squatting on higher ground. Dredging boats work around the clock to attempt to provide precious soil to augment the depleting boundary. Levees cannot be built quickly enough to supply the demand. There is an overall state of panic…except in the small city of Alameda, California.

Beginning in 2009, the economically suffering city of Alameda, once the prosperous home to the Alameda Works Shipyard—one of the largest and best equipped shipyards in the country—and a decommissioned Naval Air Station decided to participate in a new industry. Inspired by the houseboat communities across the bay in Sausalito, and fearful and aware of its own low-lying flood-prone ground, Alameda undertook a new construction endeavor. Reinstating its forgotten shipbuilding facilities, the city initiated the development of the Urban Float.

The Design

This competition entry begins with the premise that water is rising. This is an undeniable fact. The only thing that remains unknown about this phenomenon is the rate that the change will occur. This thesis positions itself in the extreme scenario that sea-level rise happens rapidly and necessitates radical re-thinking at the urban and building scale. To address this condition I have developed the Urban Float, a modular system that uses the currently available ship-building industry technologies to create a high density floating community that can exist independently from land, yet still maintain land interaction. The design project is one that operates at both the urban and the building scale.

The Urban

The design proposition at the urban scale must deal with connecting the new and the old. This entry addresses these issues through infrastructure, transportation, and public space. Infrastructure implementation requires coordination between the newly developed water and the surviving city fabric. Transportation must also address both land and water conditions, and their dual presence. The inhabitation of water suggests the reconsideration of public space.

The agglomeration of urban floats positions itself on an extension of an existing road, Webster Street, in Alameda. This road existed prior to inundation. In a manner reminiscent of many historic European cities, where the roads that once carried horse-drawn carriage now hold cars, the ***infrastructure*** with sea level rise will follow the pre-existing roadways. The reasons for this are twofold: first, publicly owned property will continue to be publicly owned, even if covered by water, and secondly, this method becomes a mode to commemorate the old city as an artifact. Roadways that are inundated become replaced by bridges. They will connect the urban floats to the city blocks.

Transportation for this amphibious urbanization needs to address land and sea. Buses, BART, cars, and bicycles will continue their use. They will be augmented by ferries, sailboats, windsurfs, kayaks and canoes. The agglomeration of urban floats will be pedestrian oriented, and as in the case of Venice, will have parking garages before entering the water community to hold residents' cars. No cars will be on the Urban Floats. Bus stops offer public transit to the water-based dwellings. The Urban Floats will come equipped with bridges that attach to the roadways, and piers that allow the water-oriented transit options a place to dock. The reintroduction of ferries will provide another form of mass-transit in addition to the BART.

With the introduction of the inhabitation of water, ***public space*** can take on an entirely new form. In this scenario, certain public spaces become cyclical and migratory. Adopting a similar strategy to the Brooklyn Pool Barge project, the Urban Float contains a public pier designated for different barges of public activity to dock daily. For example, the pool can come on Monday and Wednesday, the library on Tuesday and Thursday, the amphitheater on Friday and Saturday, and so on. These public programs will move to other Urban Float communities around the Bay. This system of moving public spaces also makes financial sense, insofar that there is often not enough demand to support the use of space in one static location. For example, libraries around the Bay Area open on different days of the week in order to appropriately supply the demand for their use. In this case, the public barges move to other stations as needed and requested.

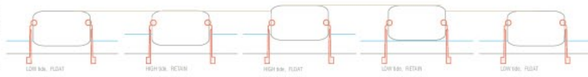
The urban condition of both water and land habitation creates opportunities for other types of infrastructure, transportation and public space. Infrastructure bridges land and water. Transportation benefits from additional means of commuting that avoid greenhouse gases. Public space moves according to the needs of the San Francisco metropolitan region.

The Urban Float

The Urban Float is a system of mass-produced modular pieces that can be reconfigured in multiple ways using currently available ship-building technology. Each modular piece—"pod"— has a different land use. These pods can be stacked and configured according to needs and desires. They become a good that is manufactured and exported around the Bay and the world. This is favorable because as the world moves into a state of global depression there will be less international trade and therefore less need for ships. This position reinvigorates the industry by producing housing. Unlike houseboat communities that are entirely dependent on the land for goods and services, these floats can exist independently of the land, while still maintaining a strong connection and access. Moreover, their modularity emulates the current ship-manufacturing techniques. They have been designed as the following types: mixed-use pod, single family home pod, townhouse pod, apartment pod, and energy pod.

The whole composite structure works to provide its own ***energy***. The Urban Float independently floats, however it is cradled by a system of legs and gears which delay its displacement in respect to the changing tides in order to provide tidal power. In a rough calculation, this energy is enough to power the entire structure and sell some back to the grid. It also uses its alternate legs for access to other forms of infrastructure like cable, phone, and internet through a plug-in system. This plug-in system is currently used in the LAX Port to provide power to container ships. Moreover, photovoltaic cells cover over 30% of the roof. The area that is not covered by solar panels becomes green-roof to reduce urban heat island affect. The Urban Float is not only a solution to inhabiting water, but an opportunity to use other resources to provide energy.

The modular system creates efficiency insofar that it can be mass-manufactured and exported using ship-manufacturing technologies. Its density and connection to existing infrastructure emulates the Tokyo Bay project by Kenzo Tange. Moreover, its flexibility in composition allows for Urban Floats to be coordinated according to the needs of a community. These stackable units allow for variation. Each pod has been designed in a manner that takes land-use types and rearranges them in a way that takes advantage of living on the water. It uses the structure, tides, and sun, to generate energy. Its land-uses and self-generated power remove its dependence on land. People can live on the Urban Float with the same goods and services they have in the city, while reaping the benefits of water urbanism.



Tidal Power Generation through system of legs and gears. Rising and falling of the Urban Float is delayed in relation to the tides to generate energy.