

## **VSAIA: student design competition 2012**

### **Temporary Permanence: Emergency Housing on the Outer Banks of North Carolina**

#### **Issues:**

Temporary architecture has a long history, from the wagon trains of the early west to contemporary kiosks and food trucks. Sometimes the “temporary” even “settles in” and transforms into the “permanent”. Movements such as Occupy Wall Street question how we interact with our cities. Recent natural disasters—including Hurricane Katrina, earthquakes, and tsunamis—have highlighted our ability, or lack of ability, to provide temporary emergency housing. This competition asks that you propose a “temporarily permanent” intervention in one of the region’s most naturally vulnerable locations.

#### **Permanence:**

Most emergency housing (from FEMA trailers to Shigeru Ban’s paper log houses) is brought after the fact. In recognition of the frequency of hurricanes on the east coast’s Outer Banks, and of the isolation that results when storms hit the area, you are being asked to design “Temporary Permanence”.

Housing on barrier islands is built not “on” or “in” the ground, but rather on wooden pilings or stilts. This allows sand and storm flooding to pass beneath the structure. Such construction techniques mean that houses can be moved with relative ease. In fact, many of the old oceanfront Nags Head cottages have been moved away from the encroaching ocean at least once.

The Cape Hatteras Lighthouse was chosen as the site for this project partly because the 208 foot tall lighthouse is itself “temporarily permanent”. In 1999 the lighthouse was moved one-half mile inland to avoid being undermined by the Atlantic. Your site will be the area near the Cape Hatteras Lighthouse and its nearby Keeper’s Quarters.

#### **Site/History:**

The Northern Outer Banks of North Carolina are a series of barrier islands stretching over 100 miles from Back Bay (at the Virginia border) southward to Ocracoke Island. They are comprised of the northern banks and Bodie, Pea, Hatteras, and Ocracoke Islands. These narrow strips of land shelter the Currituck, Albemarle and Pamlico Sounds (as well as innumerable marshes and estuaries) from forces of the Atlantic Ocean. The islands are punctuated by the Oregon, Hatteras, and Ocracoke inlets, which provide maritime access between the ocean and the sounds.

These islands are essentially ribbons of sand; they have always been vulnerable to tides and weathering. They jut into the Atlantic near the meeting point of the Gulf Stream and the Labrador Current. Shipwrecks in these treacherous waters resulted in the area being nicknamed “the Graveyard of the Atlantic,” a term that is sometimes attributed to the young Alexander Hamilton. Due to the danger, a series of lighthouses were built in the 19<sup>th</sup> century: Ocracoke Island in 1798, Hatteras Light in 1803/1870, Bodie Island Light in 1847/1872, and Currituck Light in 1875.

Hurricanes are a constant on the Outer Banks, with the area experiencing a glancing brush with the storms once every 1.3 years on average. Cape Hatteras experiences a direct hit by a hurricane every 4.3 years on average. Such hurricanes literally move the islands, destroying and rebuilding sand dunes and cutting, forming, and reforming the inlets between the Islands. The hurricane of 1846 was responsible for the formation of both the Hatteras and Oregon inlets.

The original population of the banks was Native American, with the Croatan tribe dating to around 500 CE. English settlers arrived in 1587, but true settlement did not occur until the early 1700s. The northern banks (Nags Head, Kill Devil Hills, and Kitty Hawk) are connected to the Virginia mainland, and currently have a year-round population of approximately 35,000. The southern portion (Cape Hatteras) is the most isolated, with the 1850 census showing the population of Bodie, Pea, Hatteras, and Ocracoke Islands at 1185. The 2000 census showed that this number had only grown to 4001.

The state of isolation and disconnection for residents cannot be overestimated. Vehicle access was limited to driving either down the beach or on inland sand trails until North Carolina Highway 12 was fully

paved in 1952. Travel across the inlets occurred by ferry until the Herbert H. Bonner Bridge was completed Oregon Inlet in 1963. Ocracoke Island is still accessible only by ferry. The southern islands were without electricity until the 1930s, when Hatteras Village first received service. The remainder of the Islands did not receive electricity until the 1950s.

Despite the isolation of the area (or perhaps because of it) the Cape Hatteras National Seashore Park was proposed in 1937. World War II intervened shortly after, however, and National Seashore Park was not realized until 1953. Since then, the impact of the automobile and technology on this fragile landscape has rivaled that of weather and geography. The Cape Hatteras National Seashore now hosts 2.5 million visitors each year.

**Problem:**

In the end, the power of natural forces is relentless. Each significant hurricane threatens to alter existing or create new inlets, and to reshape landmasses. In August 2011, Hurricane Irene forced a new inlet through Highway 12 on Pea Island—isolating 2500 residents to the south for six weeks until the US Navy constructed a temporary bridge.

In response, you are asked to design a small house (or set of houses) that can be used as emergency shelter after hurricanes or severe storms occur in the area of Cape Hatteras, North Carolina. Because these naturally occurring events arrive with great frequency, your designs are to be semi-permanent, and should be reusable. With regard to permanence, these structures should be envisioned as housing for special events during non-catastrophic times. They are to be located in proximity to the Cape Hatteras Lighthouse (i.e., Hatteras Light) in the Cape Hatteras National Seashore in Buxton, North Carolina.

You are to design one prototypical unit, not to exceed 600 Square Feet, and capable of housing up to 4 individuals. You are also to develop a site plan, demonstrating how four of these prototypical units can be arranged to form the embryo of a community.

Your proposal must include:

- :: a site plan showing the relationship between four prototypical units, and the outdoor spaces between them
- :: a landscape strategy
- :: floor plans
- :: sections, including a site section
- :: elevations
- :: a perspective, and other drawings as desired

**Schedule:**

The competition begins on Friday, January 27 at 5pm and concludes on Monday, January 30 at 9am. Each school will select up to ten finalists to go on to the final jury in Richmond. Each submittal must be the work of one single author. Mount your work on a single 20"x30" board. Securely fasten an unlabeled sealed envelope on the back that contains your name, school, and email address. The author's name and/or school affiliation may not appear anywhere on the board.

The Prize award for 2012 will be \$2,000 and will be presented at the Virginia Design Forum, to be held March 16-17 at the University of Virginia.

**References:**

For photographs of the lighthouse and the keepers quarters, and HABS drawings of the lighthouse, the Library of Congress website:

<http://www.loc.gov/pictures/search/?q=cape+hatteras+lighthouse&sp=1&sg=true>  
<http://www.loc.gov/pictures/search/?q=cape+hatteras+lighthouse&sp=1&sg=true>

Site photograph from Google Maps: <http://g.co/maps/39b78>

Site photograph from Mapquest: <http://mapq.st/zp8SX8>