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Built on Stilts

Homes reach new heights to defy high wind and waves. Tough construction codes add design challenges; move-in with a forklift

By CANDACE JACKSON

A just-finished waterfront vacation retreat in Longboat Key, Fla. has a contemporary style, is energy efficient and sits on 14-foot-tall stilts, putting its living area 17 feet above sea level.



In the wake of powerful storms and redesigned flood zones, some homeowners are turning to elevated, or stilt, homes as a way to protect property. Candace Jackson joins Lunch Break. Photo: Mary Sloan.

Homeowners building in flood-prone and coastal areas are increasingly revisiting elevated stilt houses, one of the oldest styles of coastal home design. Following several brutal storm seasons, insurers and regulators are pressing homeowners in vulnerable areas to build sturdier homes that meet updated codes or exceed them. Three of the costliest storms in U.S. history, superstorm Sandy, Hurricane Rita and Hurricane Katrina, occurred in the past eight years. According to the American Association of Architects 2013 Home Design Trends Survey for the second quarter of 2013, 37% of architects reported a general increase in

requests for hurricane-resistant design, compared with 25% who reported an increase during the same period in 2012.

"It's a huge design challenge," says Chris Leader, the Sarasota, Fla. based architect who says the Longboat Key home is the highest he's ever tackled. The owners, who live primarily in Sweden, paid about \$1 million for the lot and an additional \$500,000 to build the structure, which was elevated to meet local building codes. During construction, the concrete home was hit by a tropical storm that raised water levels by 5 feet with little impact, says Mr. Leader.

Up by the Water

The resurgence of the elevated home leaves many architects grappling with new challenges. Flights of stairs can be difficult for aging homeowners, and from a design standpoint, architects say it can be tricky to make very highly elevated homes have a visual relationship with the ground below, as opposed to looking like just a big box hoisted up on stilts. And then



Olivier Koning for The Wall Street Journal

Maui, Hawaii: Roger Claypool spent nine years and roughly \$11 million building a 3,250-square-foot North Shore house that's 17 feet above sea level.

there's what to do with the often unattractive unused open space left below.

In June, architect Jody Beck of Traction Architecture completed a beachfront home for her extended family in Anna Maria, Fla., about an hour south of Tampa. Made of poured concrete reinforced with steel rebar, the home cantilevers over stilts that are about 12 feet off the ground and 15 feet above sea level.

Ms. Beck says her home's modernist design is intended to accentuate the fact that it is on stilts, drawing cues from early elevated homes by the famed architect Le Corbusier. Exposed materials emphasize the home's structure, and the space underneath the home has been

outfitted with an outdoor shower and swing for her kids. The home's elevation prompted her and her relatives to decide against insuring it for floods

On Maui's North Shore, Roger Claypool spent nine years and roughly \$11 million building a 3,250-square-foot structure on top of 11-foot concrete columns, elevating the house 17 feet above sea level—high enough to withstand tsunami surges and allow a semi-truck to drive underneath. The elevation meets local building codes, which were updated shortly after he bought the property.

Completed last year, its living space is reachable by a long set of African mahogany and teak stairs designed by a woodworking craftsman to look like a curved philodendron plant. Mr. Claypool also decorated the concrete underside of his home with organic patterns "so it didn't feel like a type of parking garage," says builder Brent Williams. The covered entertainment area has an outdoor kitchen and a hot tub. After an injury shut down his windsurfing hobby, Mr. Claypool, a retired doctor and commercial pilot, put the property on the market with Island Sotheby's International Realty for \$8.3 million.

Some of the highest elevation requirements in the country are in Galveston, an island community in Texas about an hour from Houston that has been hit by hurricanes over the years, including a 1900 storm that still holds the record for the nation's deadliest natural disaster. Homes there often rise nearly 20 feet above sea level, or more than two full stories. This created a challenge for Tofigh Shirazi, the founder of Beachtown, a New Urbanist-style community on the island where homes are laid out in walkable neighborhoods with front porches meant to foster interactions with neighbors. Yet Beachtown's houses are elevated even higher, including some with primary living spaces more than 25 feet above sea level.

To avoid creating streets of stilts, Beachtown homes have front doors that rise 3 to 5 feet from the street level, above stoops. In some homes, stairs to the main living space are hidden internally, says Michael Imber, a San Antonio-based architect who has designed several homes there. Most of the homes have at least one bedroom on the first raised level, more easily reachable to older residents, as well as an elevator. Front porches closer to ground level also anchor the homes to the street, and stilts covered with louvers give the homes a more traditional look. The underneath areas of many homes are set up as outdoor living rooms with fireplaces and pools.

Last spring, Charlie Elder, the retired owner of an oil field service company, paid just over \$2

million for a 3,000-square-foot vacation home in Beachtown with a primary indoor living space that's elevated about 18 feet above street level, or 25 feet above sea level. Three or four steps lead to a front porch. There's also an elevator at ground level, which Mr. Elder's 91-year-old mother-in-law uses when she visits. To move mattresses and other furniture into the house, he used a forklift. (The community provided the forklift.)

Mr. Elder says the height of the home and the sturdy design were part of what prompted him to feel comfortable investing in a home on the picturesque, but frequently storm-battered, island. "There's going to be a storm, that's just part of living there and the risk of living on the beach," he says. Mr. Shirazi says homeowners within the community typically pay between \$4,000 and \$6,000 per year in flood insurance. He says because homes in Beachtown are built to standards stricter than the ones issued by the Federal Emergency Management Agency, some owners forego insurance altogether.

Michael Halflants, a Sarasota, Fla. based architect, designed a home on Anna Maria Island that includes elevated outdoor living areas. "You can open a door and step outside without going down a flight," he says. A raised swimming pool several feet off the ground has a glass cutout along its side, so people on the ground can peer in. Construction is set to begin soon.

Rene Gonzalez, an architect who designed the most expensive home ever sold in Miami-Dade County, says he is designing four different high-end homes with significant elevations. One, in New York's Hamptons, has 10,500 square feet of elevated living space and a glass louver facade designed to reflect the surrounding landscape. Another in the Miami area will be perched about 8 feet off the ground and is designed with a shaded outdoor living area with whirlpools and a barbecue surrounded by vegetation. To break up the look of a large mass hovering off the ground, the house will be divided into several different raised pavilions connected by walkways.

"Most people generally take the approach of just building a few steps up to the house and then build a standard traditional house," says Mr. Gonzalez.

Historically, waterfront communities tended to build homes on higher ground. Indigenous tribes in coastal South Florida and the Caribbean often built homes on plots that were naturally elevated, or raised the homes themselves, says Anthony Abbate, a professor at the Florida Atlantic University School of Architecture. Early modern residential beach structures were often wooden fishing shacks, or villages perched on stilts or with bridge-like structures connecting them to a road. But by the mid-20th century, ground-level structures became more popular, reflecting the advent of air-conditioning, cars and the introduction of FEMA flood-insurance subsidies.

There are 5.6 million property owners in flood-prone areas. Over the past several years, FEMA has been redrawing the country's flood maps to better predict the probability of storm surges in certain geographic areas. Homeowners in some vulnerable areas whose homes aren't elevated above the potential flood levels in the new maps risk being hit with much higher premiums for flood insurance, or not being able to get insurance at all.

The 2012 Biggert-Waters Flood Insurance Reform Act, which requires that the government-subsidized insurance premiums be set at levels that better reflect the actual risk of flooding, may also result in dramatically increased insurance rates in some places. The law also requires some owners to retrofit or raise existing homes to better safeguard against flooding, or, again, pay much higher insurance rates.

How much higher: A single-story house built 4 feet below the base flood elevation that now costs \$3,600 for an annual policy, for example, could see rates jump to \$10,723 per year, according to FEMA. Some non-elevated homes in the high-risk coastal areas could see premiums jump to more than \$20,000 per year.

Marietta and Hyman Bielsky recently built a 1,500-square-foot guesthouse on stilts for their Sullivan's Island, S.C., summer home. Located in a "VE Zone," one of the most serious FEMA flood-risk designations, the home sits on stilts 12 feet above sea level. Stephen Yablon, the architect, says he designed the home with steel framing and concrete columns partly to keep the number of stilts required to hold up the structure at just eight, partly to provide an open outdoor living space below.

Ms. Bielsky, who spends most of the year in London, says the 1,000-square-foot outdoor space underneath their elevated guest wing, adjacent to their pool, has quickly become their favorite place to hang out. Decorated with modular furniture, "it is really an extension of the house," she says. "And there's an amazing breeze under our house."

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