# An Architectural Approach to Coastal Infrastructure

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*Coastal suburbia has a complicated relationship with the ground. While public life and public infrastructure exist on the ground plane, the coastal home must be elevated from the ground on stilts to be a legal, livable space. These stilts, or columns, are dual-functioning. They are structure, but they are also infrastructure. They serve as structure for the home above, but also as a device to protect the home from climate change and rising sea levels. Their place resides within the architect's realm of specialty—the single-family home's structure—but are also a stepping stone for the architect to have a larger presence within infrastructural decision making, specifically decisions surrounding infrastructure tied to climate change and sea level rise. Since the beginnings of postmodernism, the architect has stood on the fringes of the infrastructural design world. City infrastructure issues are first a policy issue and second, a problem of efficiency—a problem given to engineers to solve. While this is not inherently a bad thing, the opportunities for the architect to create infrastructure that is better integrated into the ways we live are few and far between. In order to bring the architect back into discussions surrounding city infrastructure, the architect must first repurpose and exhaust the uses of the humble column. In approaching the coastal home's structural columns as pieces of an expanded infrastructural system, climate change becomes the impetus for the reassertion of the architect's agency, and an architectural approach to designing infrastructure begins to surface.*

The American coastal home lives its life on stilts. Some of these homes try their best to mask this, while others boast their elevated status. While homes living on the ground plane benefit from existing infrastructure (streets, pedestrian pathways, green spaces, etc.), the raised nature of these homes removes any interaction with ground-level infrastructure or the homes around them. This condition is a direct result of building codes that dictate the base flood elevation line, the height at which these odd suburban living spaces must rest above the ground. As one views a plan cut through the elevating structural members of these homes, a free plan emerges. The elevated structures are among the only architectural connection to the terrain below, yet these terrains oddly operate in the same ways that neighborhoods otherwise would.[1]

Considering this, these elevated columns could serve as evidence of the architect's future role in designing infrastructure. Architects have long been excluded from the infrastructural issues that today's cities face. Since early modernism, infrastructure has been the realm of engineers and policymakers.[2] Still, the dual nature of the stilts that keep a home elevated offer an opportunity for architects to reintroduce their

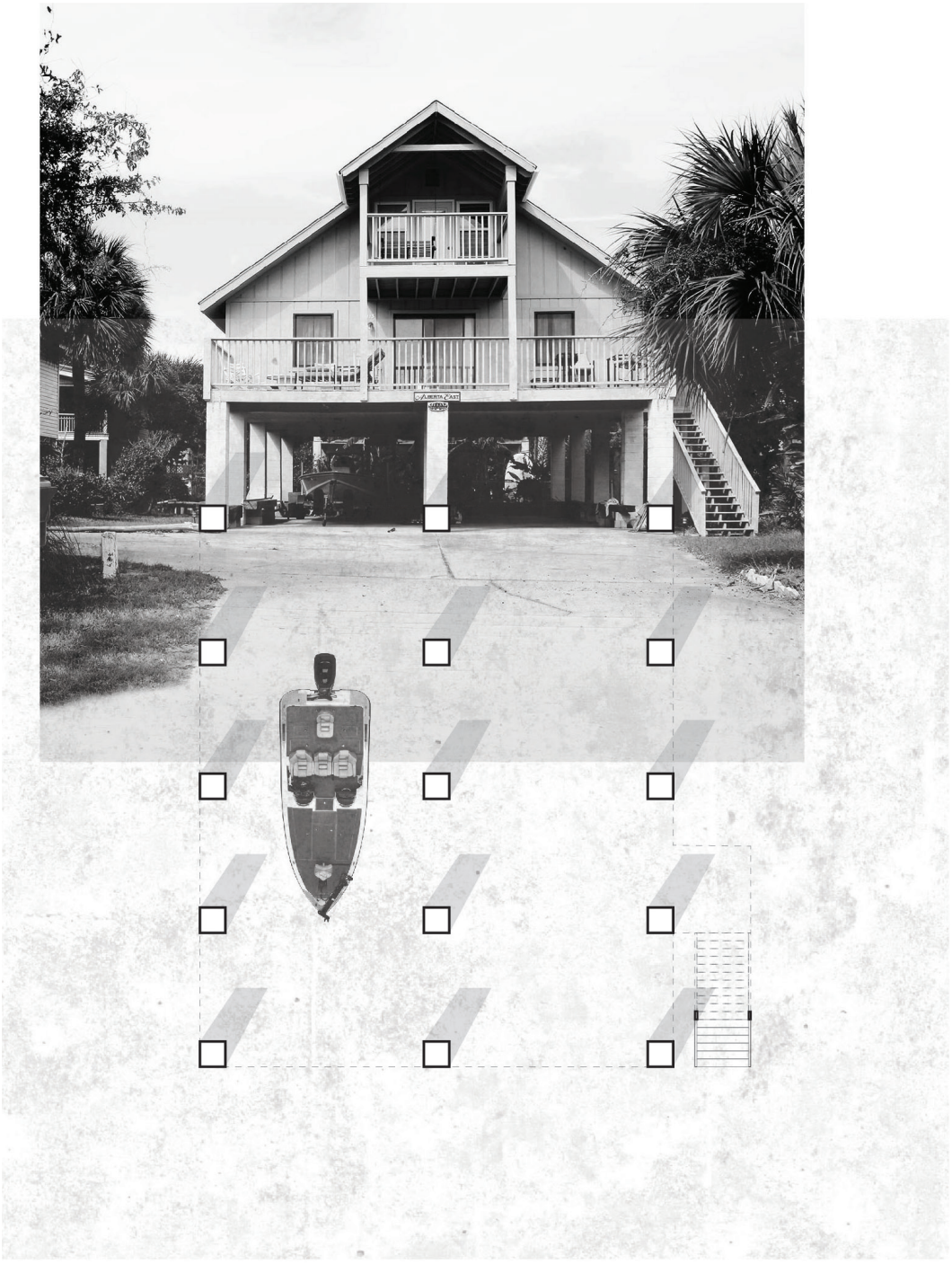

**Figure 1** *Floor plan of Tybee Island Home.*

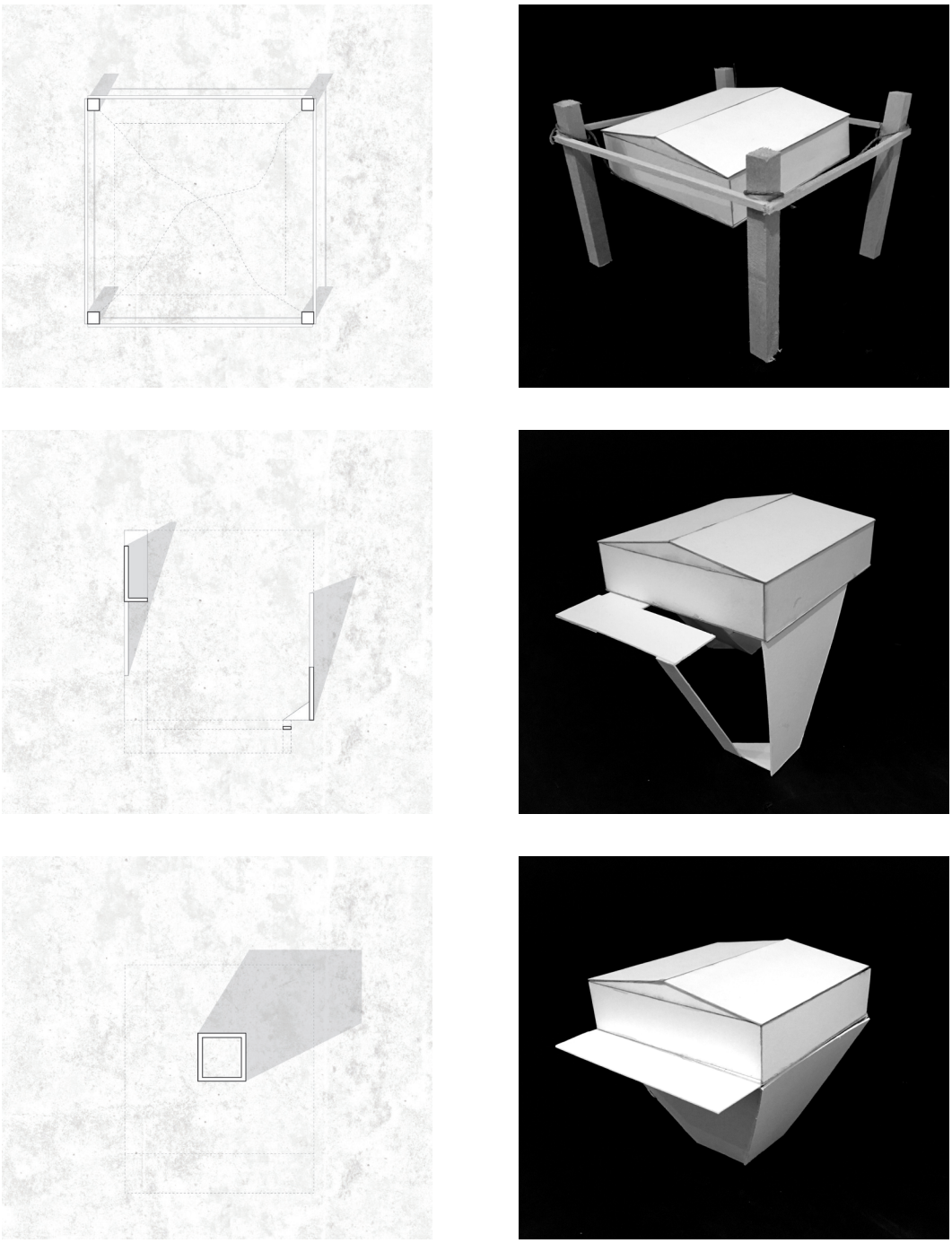

**Figure 2** *Three homes, each with a different structural language.*

own expertise to infrastructural design and decision making. These stilts are structure, but they are also infrastructure. They are structure in that they work locally to anchor the home above into the ground below, and infrastructure in that their expanded network works to provide homes with a basic operational necessity: the need to stay safe from water. Their place resides within the architect's realm of specialty—the single-family home structure—but they are also a stepping stone for the architect to have a larger presence within infrastructural decision making, especially decisions tied to climate change and sea level rise.

The architectural column is among the most rudimentary facets of architectural thinking. Easily understood by all, its basic, unassuming nature also may contribute to its versatility. A single column as an object in a field may suggest a monument or a point of demarcation. A grid of columns may suggest a framework for structure or a piece of a larger whole. But what happens when a column breaks its regulating grid lines and moves past simply serving as structure for the multitude of loads that lie within? They may group together to read as a mass of columns, or continue linearly and read as a line. Within a coastal housing context, the column reads both as structure and as a fleeing device from rising flood waters. If these columns began to reorganize outside of their usual gridlines, along the coast a mass of columns may perform as a sluice, or a line of columns may begin to perform as a seawall. If one reimagines how the column may be represented as a field condition, its performative capabilities may also expand beyond its traditional understanding, and a new, elevated urbanism with increased infrastructural capacity may emerge.

Given the possibility of the architectural column breaking its typological understanding and

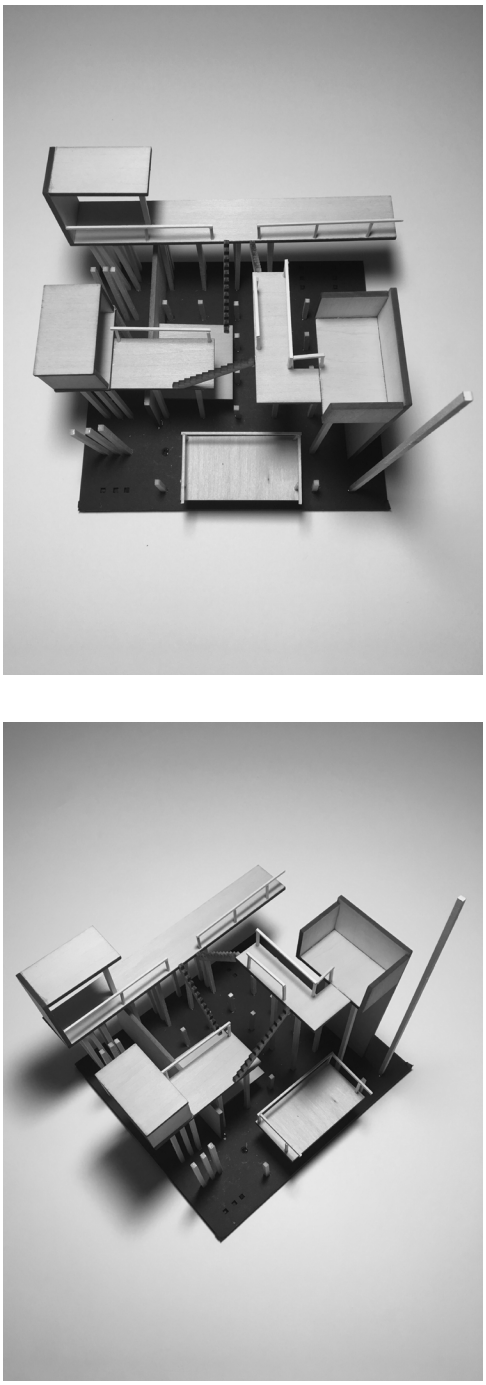

**Figure 3** *Models exploring an expanded column framework.*

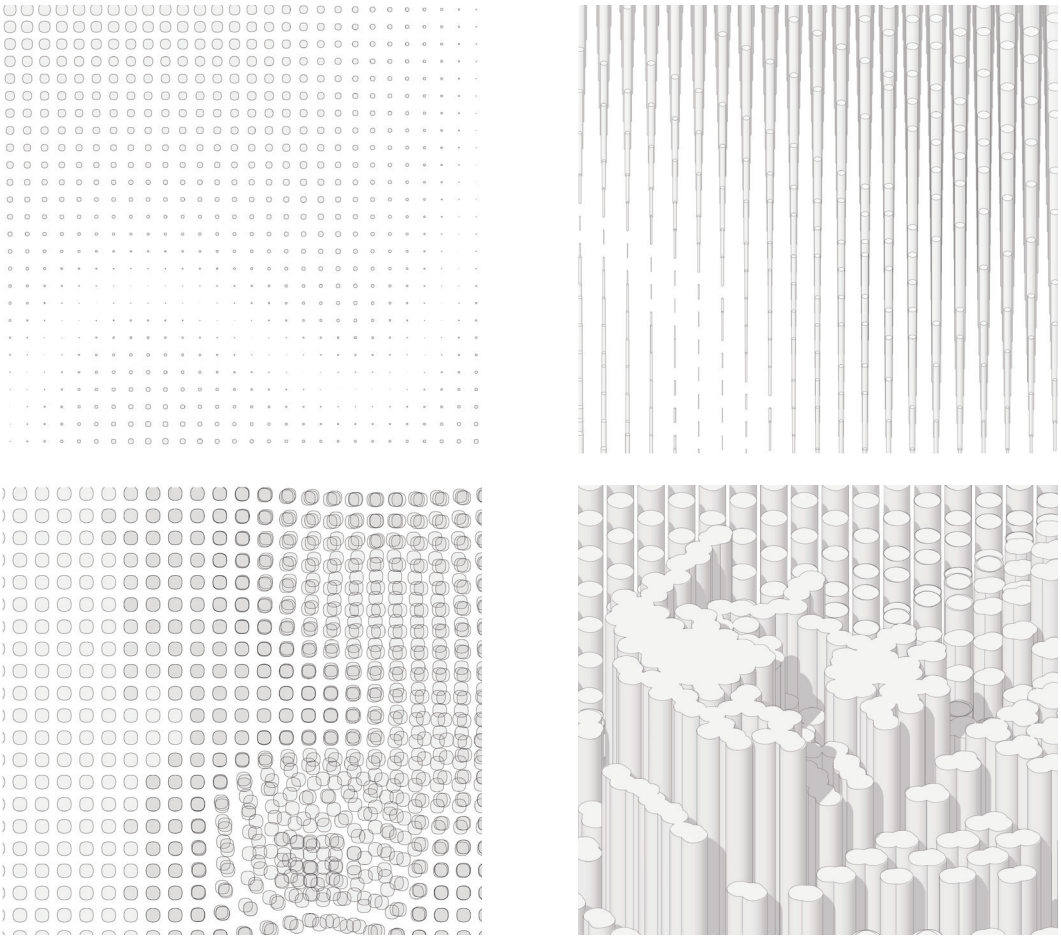

**Figure 4** *Scripted mutations of the column grid, with density informing column height.*

becoming a field of infrastructure, the housing and program that they support may also become a field condition. This field condition, involving an expanded column grid and its anomalies, may be reimagined to form new infrastructures. Dense groupings of the column may support larger public functions or larger housing projects, while expansive, less dense groups of columns may support streets or pedestrian infrastructure. In the context of climate change architecture, these expanded column grids may influence pieces of location-specific infrastructure (sluices, canals, dunes, etc.) as well as more general neighborhood infrastructure (streets, greenspaces).

Agencies such as the Federal Emergency Management Agency could build awareness of the advantages of a combined column and infrastructural framework. They could help to educate builders, planners, developers, and architects in coastal communities on the benefits of combining coastal infrastructure with the stilts that support various buildings. For new developments, planners could enter the equation by implementing zoning that emphasizes interplay between neighboring properties. With this new, elevated landscape, the "properties" that they support could be valued by leveraging relationships to organize a stream of experiences

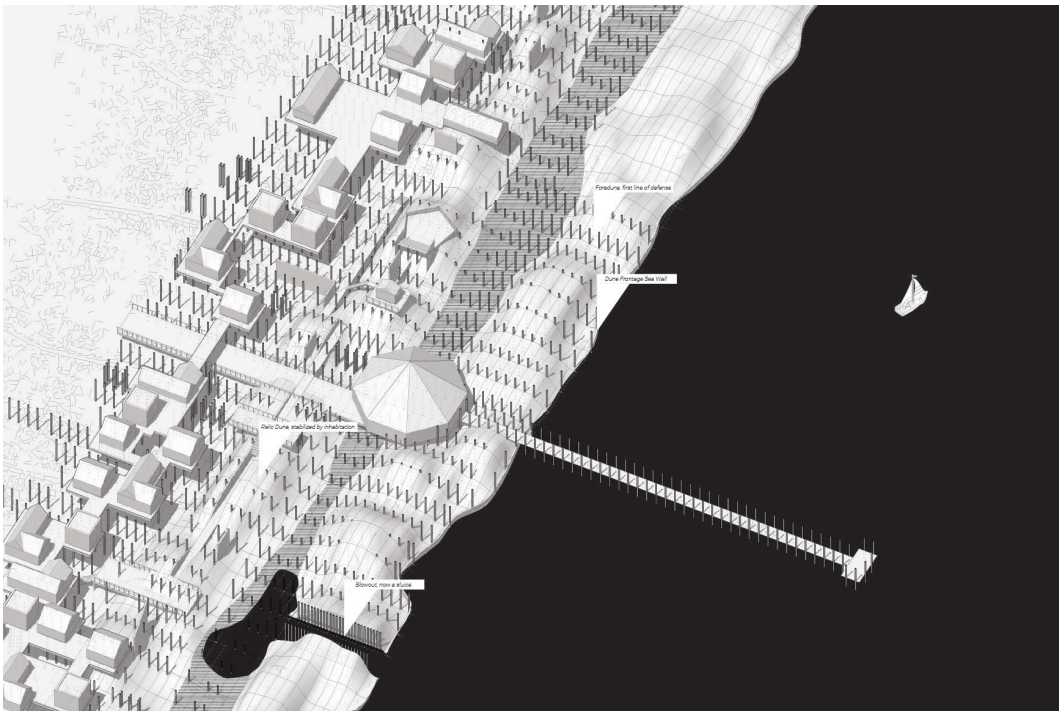


**Figure 5** *An expanded column system influencing both structure and infrastructure within a barrier island beach context.*

rather than traditional "intangibles" such as mineral resources, wind, or aquifers.[3]

Considering this, the architecture of climate change will be the catalyst for the architect's intervention within infrastructure. Since the rise of postmodernism in the late 1960s and early 1970s, architects have sat along the margins of infrastructural design. Still, as Stan Allen notes, "While architects are relatively powerless to generate new investment in infrastructure, they can redirect their own imaginative and technical efforts toward the question of infrastructure."[4] The architect existing within their own domain is no longer a possibility. The conception of the pre-modernist architect who embraced landscapes, infrastructure, and architecture must gain prominence again as climate change continues to affect the country in greater and more visible ways. If one approaches the coastal home's structural columns as pieces of an expanded infrastructural system, climate change becomes the impetus for the reassertion of the architect's agency, and an architectural approach to designing infrastructure begins to surface. ■

## Endnotes

1. Michael Jefferson, Personal Discussion, December 9, 2016.

2. Scott Lloyd and Katrina Stoll, "Performance as Form," in *Infrastructure as Architecture: Designing Composite Networks*, (Berlin: Jovis, 2010), 4-7.

3. Keller Easterling. "Interplay," *Harvard Design Magazine* 39 (2014): Accessed February 1, 2017, http://www.harvarddesignmagazine.org/issues/39/interplay.

4. "Infrastructural Urbanism" in *Center 14: On Landscape Urbanism*, ed. Dean Almy (Austin, University of Texas at Austin, 2007) pp. 174-181.