

MIAMI FLORIDA: ENVISIONING LIFE ON THE EDGE

BY GAIL GREET HANNAH



Miami and Miami Beach are, by virtue of their exposed location on the edge of the Florida peninsula, subject to extreme vulnerabilities. High temperatures, humidity and ever-present ocean, rain, and groundwater heighten the value of even minimal shade or a cooling breeze. Climate change threatens increasingly frequent and extreme weather events and destructive sea-level rise. But South Florida also boasts extremes of great strength. The area is one of the more culturally and ecologically diverse destinations in the world. Its subtropical climate attracts and supports life of all kinds, from the colorful coral ecosystems of Biscayne Bay to the subtle grandeur of the Everglades' 'river of grass' that spills into it. Demographically and linguistically, Miami and Miami Beach are home to a broad and complex tapestry of people with immediate connections to Latin America and, increasingly, to all corners of the world. The region's diversity is its strength and an ever-generous source of inspiration and wonder for designers and denizens alike who flock to South Florida for a unique appeal that is at once indoors and outdoors, familiar yet exotic.

On November 6 -8 2018, Landscape Forms, North America's leading designer and manufacturer of high-design site furniture and advanced LED lighting, sponsored its tenth Extreme Landscape Architecture (Xtreme LA) challenge at Miami Beach Urban Studios (MBUS), the downtown campus of Miami's Florida International University (FIU). Xtreme LA 2018 was funded by Landscape Forms and co-hosted by Kirt Martin, Landscape Forms Chief Creative Officer and Vice President of Design and Marketing; David Rifkind, Chair, Department of Landscape Architecture at the College of Communications, Architecture + The Arts, FIU; and Barbara Deutsch, Executive Director of the Landscape Architecture Foundation. The 36-hour event, designed to foster creative thinking, team building, and facility of expression, brought fresh thinking to an issue of critical importance to the local community. Fifteen young design professionals identified by their firms as potential leaders and sixteen students from FIU's landscape architecture graduate program worked in two teams under the mentorship of two distinguished landscape architects: Roberto

Rovira, Principal of Studio Roberto Rovira, and Associate Professor in the Department of Landscape Architecture + Environmental and Urban Design at FIU; and Richard Hindle, ASLA, Assistant Professor of Landscape Architecture and Environmental Planning at the University of California, Berkeley.

THE CHALLENGE

The focus of the fast-paced charrette was the design of resilient landscape solutions for a culturally, architecturally and economically significant part of the city. While a much smaller area of interest was considered in early planning, the project was expanded to encompass a site bounded by the intersection of Washington Avenue, a central north/south artery between the ocean and the city, and Lincoln Road, an east/west connector between beach and bay, and extending two full city blocks down Lincoln to the beachfront. The site offers close proximity to major attractions including New World Symphony, an acclaimed hall designed by Frank Gehry, Soundscape Park, a public park and outdoor entertainment destination designed by West 8, and the 10-block Lincoln Road Mall (west of Washington), a pedestrian mall designed by Morris Lapidus in the 1950s and now the fourth most expensive retail strip in the country. And it is home to some of the most iconic Art Deco architecture in the city. For this highly visible and highly-trafficked site, Xtreme LA participants were challenged to:

Design a resilient landscape with the capacity to respond to both immediate and incremental effects of extreme weather events; develop a culturally-inclusive plan that creates a sense of place, draws on the distinctive qualities of the neighborhood, and provides resiliency for the immediate area as longer-term municipal strategies are developed and implemented; propose concepts for innovative site furniture elements that can withstand and adapt to extreme climate conditions and weather events; and offer educational opportunities to expand public understanding of extreme weather and resilient response.

“Public space holds much promise in a place like this. In the face of clear and imminent extremes, design, and landscape architecture in particular, hold incalculable potential as catalysts for a resilient public realm that provides comfort, enjoyment and protection, as mediators among diverse peoples who come here to live, work and play, and as advocates for expanded dialogue around nature and culture that nurture a better quality of life.”

Roberto Rovira, ASLA,
Associate Professor, Department of Landscape Architecture + Environmental and Urban Design, Florida International University



Above
Team One leader Richard Hindle (center) and charrette participants assemble for a walking tour of the project site, sketch pads and smart phones at hand.

Left
Team Two leader Roberto Rovira (left) briefs participants on historic and landscape features of the project site.



John Stuart, Executive Director of MBUS, welcomes participants to the downtown design studio of FIU, the fourth largest university in the US.



Rogelio Madan, AICP, Chief of Community Planning and Sustainability for the City of Miami Beach, provides background on the history, economy and municipal Vision and Master Plans for the area under study.



Tiffany Troxler, Director of Science for the Sea Level Solutions Center (SLSC) and Assistant Scholar/Scientist at FIU, outlines 100-year sea level rise projections and impacts on the landscape and people in the city.



Timothy Schmand, Executive Director of the Lincoln Road Business Improvement District, provides a brief history of the Lincoln Road district and its importance to Miami's economic, cultural and social prosperity.

GETTING UP TO SPEED

Upon arrival, participants gathered at MBUS where John Stuart, AIA, Professor, and Associate Dean for Cultural and Community Engagement and Executive Director of Miami Beach Urban Studios welcomed them and described the educational setting in which they would be working. The fourth largest university in the US, FIU is renowned for the diversity (majority minority) of its students and faculty, its research excellence, and its cutting-edge facilities, including the International Hurricane Research Center and the CARTA Innovation Lab at MBUS, one of the largest 3D printing labs in the country. “We are a model for interdisciplinary learning and process-based thinking in higher education,” stated Stuart. Among its twenty-one faculty members are architects, landscape architects, designers, scientists, political scientists, artists and musicians who collaborate on creative projects, some intriguing examples of which are exhibited in MBUS galleries.

Three experts from the university and the community gave brief presentations as context for the challenge at hand. Rogelio Madan, AICP, Chief of Community Planning and Sustainability for the City of Miami Beach, stated, “The site area is a very important part of Miami – a gateway to the city.” It is situated within a historic district in which Art Deco and Mid-Century Modern architecture are protected, restoration of many 30s, 40s and 50s-era buildings is underway, and new construction must respect the character of existing structures. He noted that the city has put in place a Washington Avenue Vision and Master Plan, and in 2018 created a BID that encompasses 12 Washington Avenue blocks and relaxes height and density restrictions, allowing developers to invest in more expensive projects (several new hotels are now underway.) Madan also pointed to a master plan for updating the Lincoln Road Mall by James Corner Field Operations that includes preserving the Lapidus follies that have become a signature of the place and adding a trellis structure and garden with seating at the Washington Avenue entry. On the ecological front, Madan described an ongoing scheme in the western part

of the city to raise street levels by up to two feet and, during flooding events, pump water out of the sidewalks (he showed images of raised pump arrays employed for the purpose.) He then noted that Miami is also raising its sea wall to address the 3.7’ 2060 projected high water mark.

Tiffany Troxler, Director of Science for the Sea Level Solutions Center (SLSC) and Assistant Scholar/Scientist at FIU, showed the projections for sea level rise over the next 100 years upon which the street elevation plan is based, and enumerated the multiple factors that affect flooding in the city: changes in sea level, natural tidal variations, a high ground water table, wet times of the year, and the underlying porous limestone aquifer on which the city sits. In considering the challenge before them, she outlined the extreme conditions for the landscape that participants should consider as they work: direct exposure to salt water, storm surge and standing water, high winds, high daytime temperatures, and higher than usual rainfall events. “If we understand the conditions, we can design for them, working across disciplines to improve landscapes and life for people

in the area,” she stated. She detailed the importance of mangroves for trapping and filtering water, sequestering CO₂, and providing habitat, and advocated, “... bringing coastal wetlands and natural systems back into the urban environment.” Finally, Timothy Schmand, Executive Director of the Lincoln Road Business Improvement District, related Lincoln Road’s origins in the determination of developer Carl Fisher in the 1920’s to create “The Fifth Avenue of the South,” and emphasized the importance of the district to Miami’s economic, cultural and social prosperity. His goals going forward, he said, are to grow street life, preserve architectural integrity and expand cultural attractions so that the BID blossoms, “... from a great shopping district to a great creative disruptive district.”

The real work began as designers, students and team leaders took to the streets, walking the site, taking notes and sharing observations, making sketches and snapping photos that would set the agenda for the day and a half to follow.

ALL IN A DAY'S WORK

On the morning of the second day the group met, divided into two teams of approximately equal numbers of professionals and students, and retired with a team leader to their respective meeting rooms. Team 1, led by Richard Hindle, focused on the Lincoln Ave. block between the intersections of Washington Avenue (to the west) and Collins Avenue (to the east). Team 2, led by Richard Rovira, took on the block of Lincoln Road between Collins and the ocean. (image 1) Team members worked alone and in twos and threes getting big ideas on the table (drawings) and on the wall (post-its). Team leader Richard Hindle explained

the arc of the two-day process as “elemental, iterative, incremental, tactical and prototypical.” The teams created a library of elements, a menu of environmental conditions (“modifiers”), and a list of aspirational programmatic moves - ecological, cultural and educational. They reconvened as one body to share concepts and directions, then divided again into secondary teams of, in Hindle’s terms, “unnatural partners” to foster “combinatory ideas” that might integrate thought strains in unexpected design solutions. It worked. In long afternoon and after-dinner work sessions, teams developed their concepts, and, at noon of the third day, presented their results to an audience of students, faculty, community members and municipal representatives.



Image 1



Student and professional participants work together in teams to brainstorm, gather information, write, post, sketch, draw, propose, revise and finalize concepts and solutions.

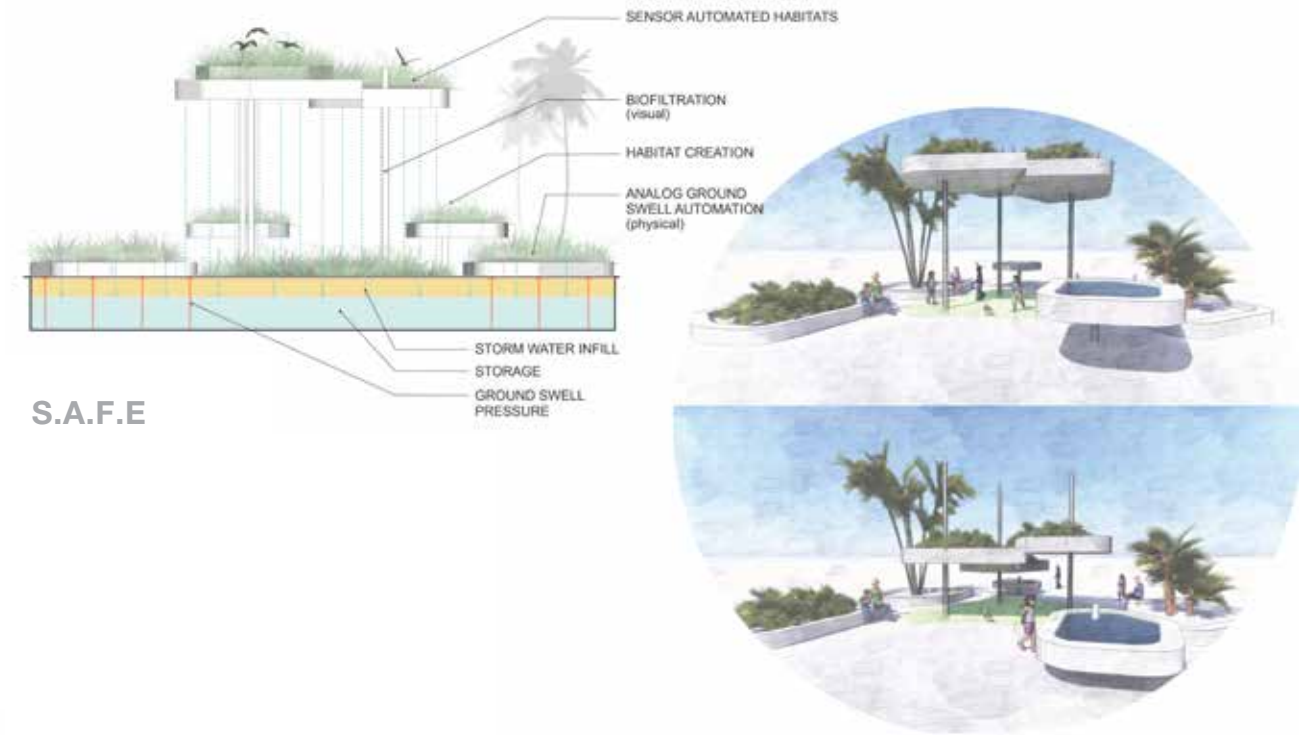
FUNCTIONAL FOLLIES (Washington to Collins)

folly... an ornamental structure, often fantastical or whimsical, build solely for the purpose of pleasure

Team One took inspiration from the follies in the Lincoln Road Mall, creating an oxymoronic hybrid that employs folly form to improve landscape function. The multifunctional follies respond in a variety of ways to sun, shade, storm water and sea level rise and would be placed along the new pedestrian street that the team proposes to create by transforming the existing four-lane Lincoln Road vehicular thoroughfare between Washington (west) and Collins (east) into a welcoming, walkable, resilient urban space. A center-block street that currently feeds into Lincoln mid-block on the north is envisioned as a pocket park. The follies are installed in four zones: more formal at the western perimeter becoming increasingly looser and more whimsical near the east end. The focal point of the new pedestrian space is a central node with its distinguishing tilted plane.

S.A.F.E. (Sensor Activated Floating Ecosystem) is a multi-functional educational element that responds to changes in environmental conditions – storm water infiltration, salt water intrusion, ground swell pressure – and human interaction within the urban environment. Sensor-driven S.A.F.E. communicates the importance of storm water management through visual, physical and imaginative processes. Moisture sensors in the ground activate the follies, moving them up as moisture levels increase and down as levels decrease, providing real-time experience of what is happening in the ecosystem. Two aspects of the system – analog and digital -- function in different ways. In the analog situation, the follies are lifted by ground water pressure from grade to 24" above ground, causing changes to occur once a day. In the digital situation, embedded sensors that respond to moisture content in the ground, similar to those used in irrigation systems, elevate the follies by means of motors above head height and down to eye level, where observers can see and hear water drip through the system in a close-up experience of ground water processes. When the follies are in raised position, they would offer shade and visual interest. When lowered, people can meander throughout the installation that reveals what is happening with extreme weather and sea level rise throughout the city of Miami.

GROUND SHIFT is the central element and focal point of the new Lincoln Road pedestrian street. Located mid-way between the Washington and Collins Avenue intersections, it is composed of two elevated planes rising from the ground, connecting people to place in a folly that is both functional and playful. It is an elevated play structure and an overhead canopy for people and site furnishings. From above, GROUND SHIFT offers views to Lincoln Road Mall in one direction and opposite to the ocean. From below, it offers shade and communal gathering and dining spaces. This smart folly shows what happens to water in and on the ground, providing resiliency by harvesting rain water collected from its surface and storing it in holding tanks for use in irrigating and cleansing salt-saturated vegetation along the streetscape.



S.A.F.E



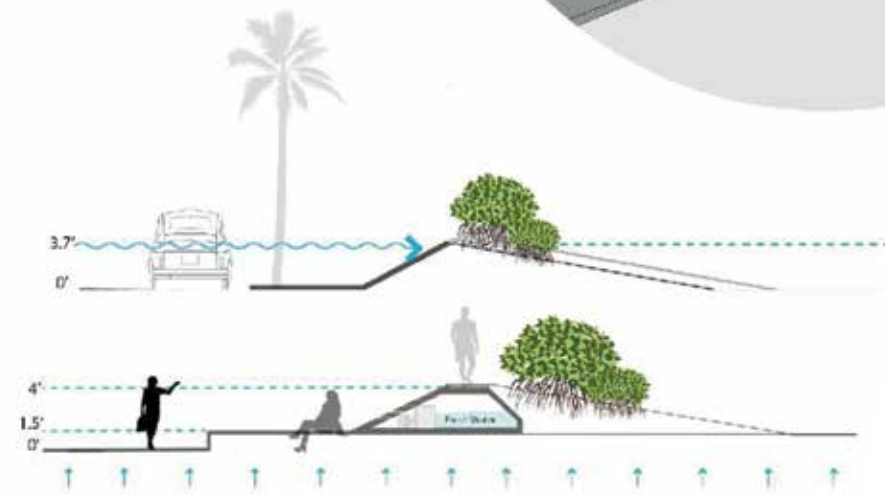
GROUND SHIFT



UMBRELLA RAIN TREE

UMBRELLA RAIN TREE is an array of colorful, inverted umbrella forms on “limbs” connected to a tree trunk and surrounded by a low seating wall. Its purpose, beyond simple delight, is to educate about where water goes during a storm event. Rain is captured in the upside-down umbrellas and funneled through limbs and trunk to a collection basin – a process that can be observed as the folly performs its function. Water also drains through the

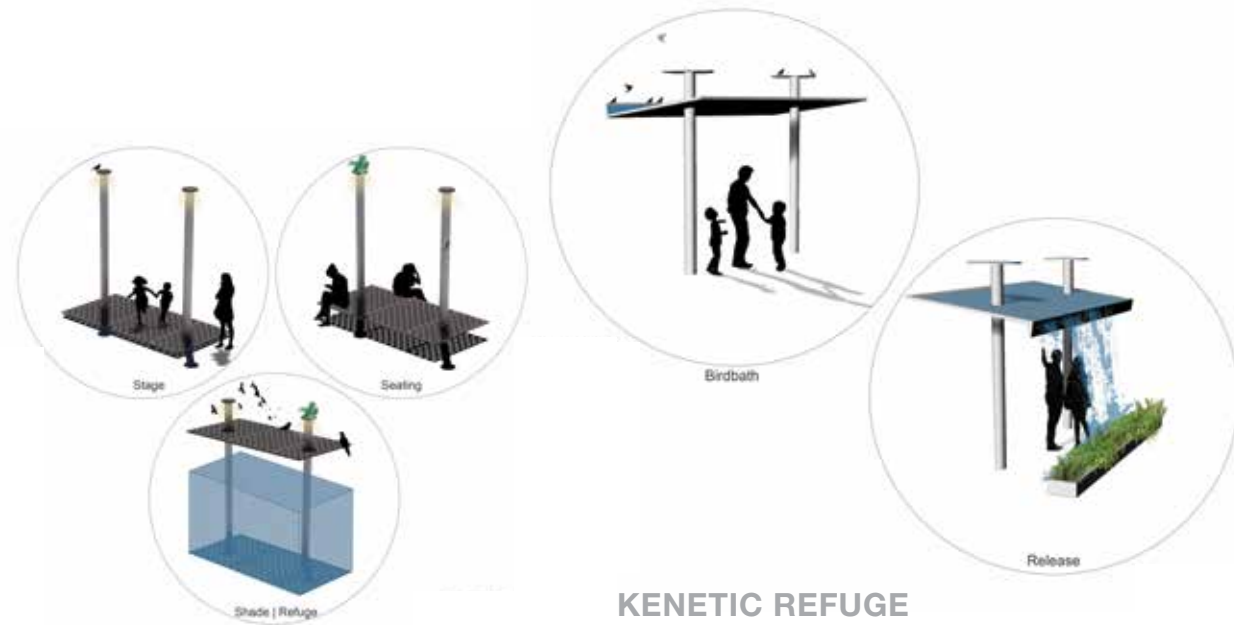
bottom of the seating wall into a garden planted with native plants and grasses that can tolerate standing water. When it’s not raining, Umbrella Rain Tree provides shade and an interactive aesthetic experience. By pulling on the vine-like cords hanging from the forms, people in the space can make the umbrellas move, dappling the shade and changing the color of light shining through vari-hued umbrella panels.



THE BLOCK

THE BLOCK is a modular multi-functional system of elements designed to respond to the vertical and horizontal movement of water and adapt to sea level rise at various levels. A constructed berm provides protected pedestrian areas and, while not capable of stopping surges, would mitigate the force of water during such events. Blocks provide seating, house utilities, store fresh water, and catch and store surging water and water coming up from underground.

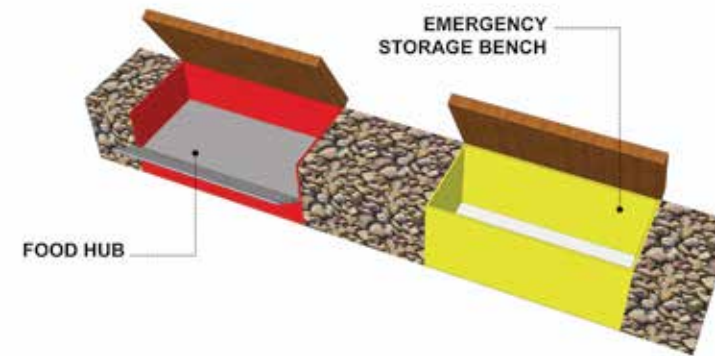
A micro-hydro energy system (to be developed) would enable the harnessing and distribution of built-up energy as water pressure rises and, with lighting, could offer educational opportunities about what’s going on under the surface. The Block was envisioned by the team as a folly that could be used in other parts of the city and the berm as a built structure that could be mirrored on the back side to provide “islands” and expand storage and collection functions.



KINETIC REFUGE

KINETIC REFUGE employs bollards, typically used to protect pedestrians from vehicular traffic, in adaptive ways. Outfitted with platforms in various configurations, they create three typologies: stage, seating and tables, and animal/bird refuge. During extreme weather events and storm surges the platforms float, providing refuges in the air.

In light rain, they become birdbaths or can be tilted to irrigate the ground below. In dry weather they can be cranked up to provide refuge from the hot sun or left at ground plane to provide staging areas for play. Seating and tables become technology refuges that enable users to pedal a bicycle-like mechanism or foot pump to charge electronic devices.

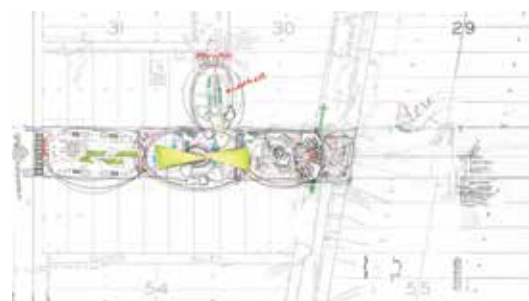


MEETING PLACE

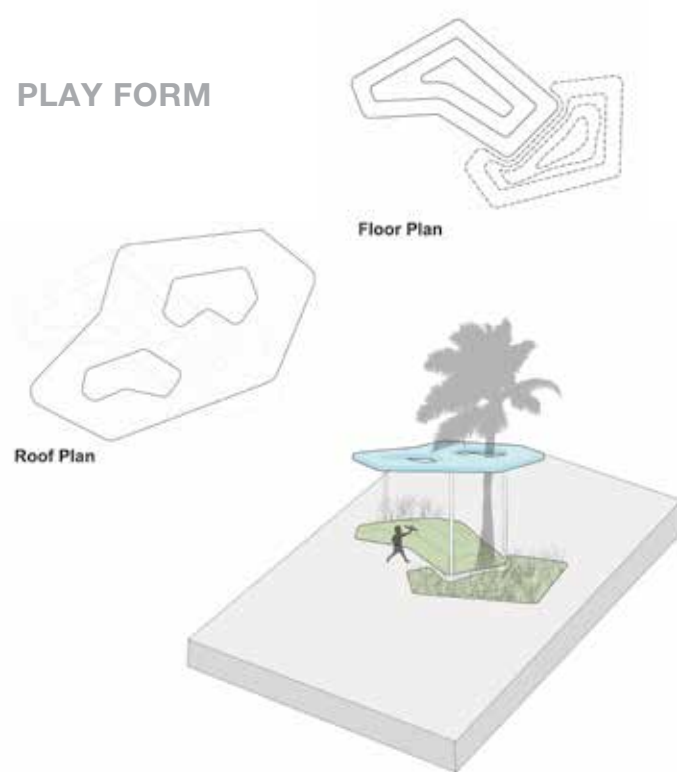


MEETING PLACE is a combination of seating benches, storage modules, and resilient native-plantings within a small park-like settings focused on storm water and sea level rise education. On a normal day, color-coded benches provide places for people to meet, sit and socialize. In cases of extreme weather, benches controlled by a locking system administered by the city are opened to reveal

their multi-functional side. Yellow benches store batteries, flashlights, fresh water and other emergency supplies. Red benches house charcoal grills and fuel for preparing food when the power is out. They are installed in multiple locations organized around rain gardens and mangrove plantings. At the intersection of Washington and Lincoln, they serve as barriers against vehicular traffic and inundation by high tides.



PLAY FORM



PLAY FORM transforms the idea of the natural tree canopy into whimsical tree-like canopies that funnel water into rain gardens within the open play areas below. Rain gardens provide a learning opportunity about how storm water can be collected, cleansed and used to irrigate native trees and plants. Dry play areas with colorful canopies encourage kids to get outside, engage in free-form play and may include seating.

OCEAN GATEWAY (Collins to South Beach)

Team Two's exploration focused on the intersection of Lincoln with Collins and east to the ocean where the built environment meets the natural world. Today, Lincoln Road unceremoniously dead-ends on the east side of Collins at a paved pedestrian/bikeway that threads its way along the shoreline between the sandy beach and commercial and residential development. There is no celebrated moment of arrival, and views of the ocean are broken by tall plantings. The team's goal was to "extend the importance of Lincoln Road to the ocean," thinking of the now moribund space as a new realm that it called "Lincoln Unleashed."

Like Team One, Team Two members identified elements from nature, culture and architecture as the framework for their new infrastructure solutions. But this team placed a special focus on bringing shoreline nature and habitat into the new plan, moving from the cultural into the natural realm. (image 2) Its scheme proposes three distinct segments: an arrival area and welcoming plaza; a newly-created "Miami Mangrove Park" showcasing resilient native tree species; and a multi-use community plaza with canopies and commanding views. (image 3)

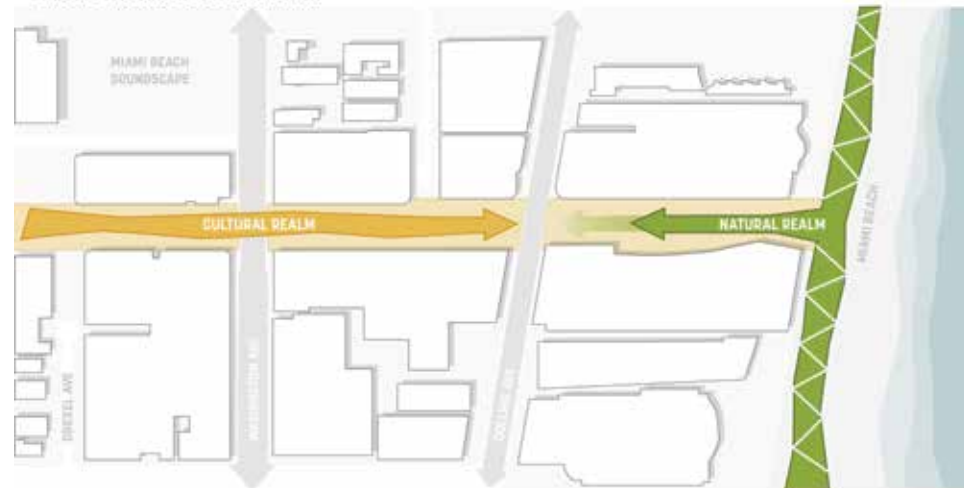


Image 2

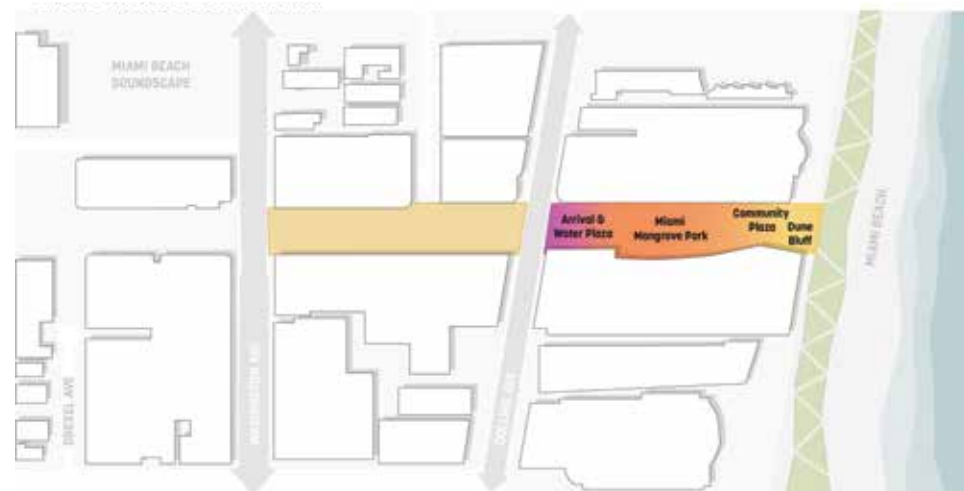


Image 3

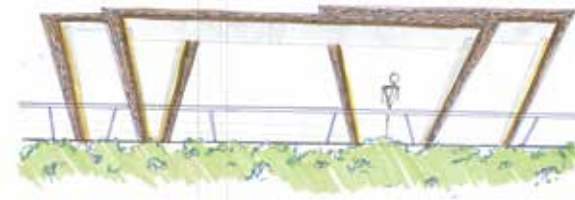
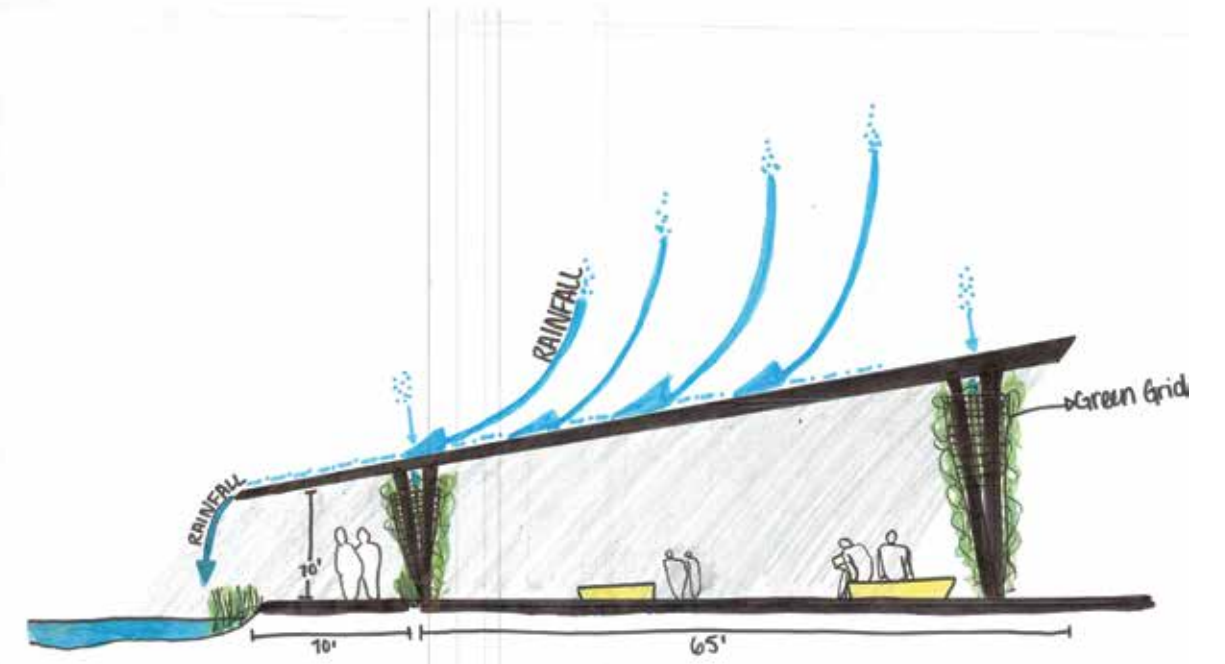


THE WELCOMING PLAZA is designed to draw in visitors from the hotel district along Collins Avenue and direct people walking down Lincoln Road to the oceanfront. It begins at a roundabout that serves as drop-off/valet access for residences and hotels bordering the street - the only place along the Lincoln corridor where vehicular traffic penetrates the site. The team proposed converting an existing parking garage on the street to office space with public terraces in order to make better use of valuable ocean-view property. From here to the water Lincoln becomes a pedestrian place that beckons with a reflecting pool and fountain, a native limestone seating wall, and dramatic, large-scale (8' x 4') lettering and branding opportunity announcing "South Beach" that the team envisions as a gathering place and photo stop. Beyond these elements is an open space plaza that, like the fountain and signage, would be lit to enhance the sense of arrival. In this transitional arrival area, the team strove to create a cohesive design language that acknowledges Miami's historic legacy and Team One's designs, employing Art Deco stylistic elements, such as offset lines, slow stacking and rectilinear black and white-barred paving panels with rays that draw the eye toward the beach.



THE MIAMI MANGROVE PARK provides a wholly different environment. Here in the second section of Team Two’s scheme, a newly created mangrove lagoon it likened to “a small pocket of the Everglades” highlights the tree species one team member called “a salt-water treatment system.” The lagoon is designed to provide an immersive experience of how resilient native plantings adapt to rising tides and aquifer levels and how they absorb and remediate storm and sea water inundation in the urban environment. All three types of mangrove native to Miami are included:

red, white and black, in areas from shallow to deep. The team proposed that these be maintained by water from collected groundwater sources, rather than ocean tides, which would require much deeper channels. Visitors can walk around the lagoon, cross it over a transparent glass footbridge, or sit on a ribbon seating wall around its perimeter. A perforated COR-TEN steel aqueduct running along the axis of the lagoon serves to irrigate the site and provides a sculptural gesture that directs attention toward the sea.



RECOMMENDED SPECIES LIST

MANGROVE AREA

A COMMUNITY PLAZA defines the culminating segment in the Ocean Gateway plan. It includes public amenities, an amphitheater-like space for theatrical and other events, and open space with seating and canopy structures that provide protection from sun and rain, signal direction, and frame views. Tilted canopies divert rain into a bioswale to mitigate flooding. The ground plane under the plaza is thickened,

rising subtly in elevation and ending in sand dunes at an elevation of 3.8 feet above seal level, protecting Lincoln Road from projected 40-year sea level rise and providing open views to the ocean. In support of its proposals to incorporate native plant and tree species throughout its site, the team provided a plant pallet with recommended species lists for all three segments.

Together, Teams One and Two offered an ambitious plan for a key connector in the Miami Beach urban environment that endeavors to incorporate local natural, cultural and architectural elements, reference and build on the original Lapidus design for the Lincoln Road Mall west of Washington Avenue, compliment the new James Corner Field Operations master plan for updating the mall, deepen the penetration of nature into the corridor, and celebrate the beach that is the great drawing card of the city. In a question and answer period following the presentations, audience members reacted with enthusiasm to the work. One participant commented on the human-powered energy-generating feature of the Kinetic Refuge: "This is a strong intermediary step toward providing free power in the public realm by saying, 'You provide the input, we'll provide the power.'" Another said, "I enjoyed your exploration of how urban infrastructure and street furniture can demonstrate resiliency and impact users without being connected to the grid." A faculty member observed, "The Umbrella Rain Tree idea is something that kids can enjoy. This would be a really nice piece, with further engineering, that reflects some of the thinking in the Field Operations plan." Another opined, "This work is on the whole a really interesting approach to

showing how elements can express what they do and saying that we can live with water, respond to it in a positive way and benefit from those experiences." Yet another said, "The Block idea is a really cool structural way to organize the street so that in the event of sea level rise, this becomes the new wall plane." Finally, Rogelio Madan, Chief Planner for the City of Miami Beach stated: "[Municipal officials] ... harp upon us to get benefits from our infrastructure improvements. I don't think we've thought about how features such as these in an urban landscape can benefit our sea level rise resiliency and storm water drainage. This has definitely helped open my eyes to how these small features can be looked at in a completely different way to achieve a lot of benefit."

Kirt Martin, Landscape Forms Chief Creative Officer and Vice President of Design and Marketing, thanked the teams and leaders for their participation and impressive work, which the company values as vital intelligence that informs its own work in creating product solutions for landscape environments. Going forward, Landscape Forms encourages participants to use the company's online network for Xtreme LA alumni to stay engaged in the issues and with each other.

MIAMI FLORIDA: ENVISIONING LIFE ON THE EDGE

Professional Participation

James Braun
Hugo Colon
Allyson Caruso
Jessica Doig
Wes Gentry
Rachel Johnson
Bo Lu
Steven Mansfield
Thomas Nideroest
Harriet Robertson
Laurah Walker
Tyler Wallace
Terence Welles
Xin Wu
Jim Zheng

Student Participation

Kelsey Boyd
Michael Bradley
Olivia Bussey
William Callahan
Alain Carrazana
Josandra Castillo
Robert Colon
Catalina Dugand
Daniella Fernandez
Luiz Lam
Denise Morales
Juliana Musmanni
Taylor Price
Katja Rocha
Mairin Subervi
Andrew Sykes



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