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THE CONCRETE LINE: MIAMI'S MARINE PASSENGER TERMINALS

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ABSTRACT

In the 1960s, as cruise ship travel exploded and Miami emerged as the nation's primary port of embarkation, the city developed an unusual ocean passenger terminal on a new island just east of downtown. The heroic docking station comprised almost 800m of terminal modules and airfoil-shaped covered gangways constructed of concrete, punctuated by telescoping steel walkways. Australian-born architect John Andrews designed the structures using a systems-based approach that re-invented the port terminal type, improving the functionality of ship to shore loading and unloading. He also synthesized the operations of the port into the theater of the city, taking full advantage of the port's position straddling Miami and Miami Beach while considering the gleaming new cruise ships that were Miami's newest attraction as part of the design.

Historians have neglected Andrews, an important if cryptic figure in the development of modernism in the 1960s-70s (and of Brutalist architecture). A graduate of the University of Sidney, he attended Harvard GSD (grad. 1958) where he came under the influence of Jose Luis Sert. Andrews established his practice in Toronto and in 1965 launched his career with the design for Scarborough College of the University of Toronto. Scarborough's powerful concrete modernism, contrived as a mega-structure, emerged from a logical approach to communication and programming that would henceforth define his approach to architecture. Only two years later, his firm was selected to design the Port of Miami terminals following a competition organized by the Philadelphia architect Romaldo Giurgola.

Almost unique in Miami, Andrews' port terminals elevated infrastructure to a significant public presence in the city. Based on the serial repetition of monumental forms, the rhythmic scheme emphasized the horizontality of both its program and its context. While not explicitly intended as a tropicalist type of architecture, the adaptation of Andrews' own brand of Brutalist architecture to Miami's hot and humid environment is notable. The amalgamation of open-air umbrella-type structures with hermetically sealed and air-conditioned compartments defined a regionally accepted environmental strategy, one found in other Brutalist work in the city (for example, the various campuses of Miami-Dade College, and many of the projects for *Interama*, Miami's proposed Inter-American Worlds Fair, which were all contemporaries). As cruise ship sizes swelled, the port's fixed concrete terminal modules reached functional obsolescence, a fate common to other, more prominent terminal projects of the same period. Yet the Miami structures remain substantially intact, adapted into the contemporary needs of the port, a strategy that may offer lessons in the re-use of similar projects internationally.

THE CONCRETE LINE: MIAMI'S MARINE PASSENGER TERMINALS

[IMAGE 1]

In the 1960s, as cruise ship travel exploded in popularity and Miami emerged as the nation's primary port of embarkation, the city developed an unusual marine passenger terminal on a new island just east of downtown. The terminal comprised almost 800m of concrete terminal modules and covered halls punctuated by telescoping steel gangways. The Australian-born Canadian architect John Andrews designed the complex using an analytical approach that emphasized circulatory systems and the synthesis of functional issues. Opening in 1968, the novel terminal buildings introduced a new way of organizing port terminal operations, specifically improving the functionality of ship-to-shore loading and unloading. But the terminal's true innovation was the extent of its urban engagement, which quite dramatically transformed large-scale infrastructural needs with aesthetic and civic purpose.

The terminals formed a linear system that fed to and from the Miami ship channel. More than a building, this 'machine in the bay' was a 'plug-and-play' device conceived to service the transit and resort functions of the city. Its long structures synthesized the operations of the port into the theater of the city by considering the gleaming new cruise ships that were Miami's newest attraction as part of the design. As cruise ships came to rival hotels as luxury resorts, the linear port terminals were episodically transformed into Miami's third façade, with white, multi-storied machines that rivaled the hotel rows on both Biscayne Boulevard in Miami and Collins Avenue in Miami Beach. The coming and going of the ships, the pivoting of gangways and the bustle of people created an event architecture unlike any other in Miami.

The port terminals were in the vanguard of a wave of monumental public works and institutional buildings constructed in concrete in the language of the Brutalists.¹ These arrived largely in parallel with Miami's development as a pan-American city in the wake the Cuban Revolution in 1959. The influence of Latin American architects, and an increasingly north-south perspective in general, must certainly have amplified their consequence. The new concrete architecture set a high standard of monumentality and civic representation in postwar Miami. Yet, the port terminals occupy a paradoxical position. Born of public controversy over design quality, the project represented a high-minded approach to civic construction. When completed, however, they were locally ignored. Today they have become virtually obsolete, swallowed up in larger, newer port facilities.

MIAMI AND ITS PORT

Miami's Marine Passenger Terminals, when finished, concluded the 1960s-era redevelopment of one of the city's most important institutions. Established in 1900 by the Peninsular and Occidental (P&O) Steamship Company, the port fused the shipping interests of Florida's two railroad barons, Henry Plant and Henry Flagler.² The battle between them to speed passenger and freight access to Cuba and the Caribbean by building new ports at the southern tip of Florida was an important act of the city's early development. An active port subsequently played a role in nurturing the idea of Miami as a hemispheric hub. The wharves, piers and railroad sidings of the old port came to occupy a key position in the topography of the city: a sliver of land that was Miami's central frontage on Biscayne Bay. By the 1950s, however, the port's thirty-six-acre site and three slips were already inadequate, unattractive and disruptive.³

Between the mid-1930s and the late 1950s, at least fourteen master plans for the expansion / redevelopment / replacement of the port were developed, and all were controversial.⁴ As both an economic engine and potential eyesore, the location of Miami's port had long been disputed. Further, the effect that such a large facility would pose to the delicate ecosystem of Miami's Biscayne Bay was hotly debated. Suddenly the remarkable postwar growth of maritime traffic, in particular the development of clean cargo transshipment and the cruise ship industry, made a new port imperative.⁵ In the face of the urgent need to expand the port's capacity, Miami's civic leaders were also lured by the benefits of redeveloping the valuable site of the old port for parks and cultural uses, but especially for commercial and resort activities.⁶ The sweeping away of the old port came to be known as "Operation Magic Wand."⁷

The port redevelopment plans, and the battles they ignited, comprise all the meta-narratives of Miami: land creation and real estate speculation; coarse politics; competition among Miami's component cities and jurisdictions; civic consolidation and shuffling of industry to the margins. Metropolitan Dade County (Metro), Miami's newly created county governance system, took over the project in 1959. Given the enormous resources already expended in the dredging of Government Cut and the ship channel, Metro's most favored schemes placed a new port within the archipelago of spoil islands surrounding the existing channels.⁸ By 1960, a rare consensus developed around Dodge Island.⁹ Construction began and by 1965 most of the new port was open for business. At its dedication, Metro Vice Mayor Arthur Patten Jr. declared "the port signifies the ability of an aroused citizenry to get together and do something as a community interested in progress."¹⁰ Yet to most the emerging port seemed more like an industrial facility.¹¹

[IMAGE 2]

DODGE ISLAND PORT COMPLEX AND TERMINAL

The Dodge Island port complex sits in the center of Biscayne Bay, between mainland Miami and Miami Beach. It is set among man-made residential islands and the connective net of causeways that transform the mostly shallow bay into the very heart of the city. The port encompasses a linear island of almost 275 acres connected to the city via bridges (and most recently a tunnel) carrying rail and motor traffic. Most of the land was created using fill from dredging operations to deepen the adjacent channels. A turning basin, about 1,700 feet in diameter, separates the port from the city. Even before the introduction of buildings, the port was conceived as a megastructure.

The passenger terminals, set on thirty-four acres nearest downtown Miami, were to be the new port's element of prestige. David Volkert & Associates, the Miami-based consulting engineers who had been tasked with overall design and engineering of the port, developed the plans.¹² First designs, proposed in 1958 following the model of a transit shed, were scrapped in 1963 in favor of a more ambitious facility that would separate passenger and cargo. Volkert's new terminal project, considered functionally state-of-the-art, would handle 2,000 passengers from five ocean liners simultaneously. [IMAGE 3] Based on airport terminal design, it was vertically organized, with an upper-level passenger terminal and a lower-level cargo area. The 275m long terminal building had a vaulted concrete roof and was fronted on the waterside by a 670m long gangway that would connect to the ships. When Volkert unveiled the plans in 1965, however, the design was quickly attacked. Dissatisfaction with the location and industrial character of the port crystalized in opposition to the passenger terminal, especially the design and aesthetics of its buildings.¹³ When Metro hired port consultant Frederic R. Harris Inc. of New York City to study the Volkert proposal, Miami activists were rewarded with a rare victory for advocates of prominent design. The definitive project was born of a critique.

The Harris study included an architectural critique by Philadelphia architect and University of Pennsylvania professor Romaldo Giurgola. In reviewing the project to date, Giurgola found plenty to criticize. For one, the "flat as a pancake island" was conceived in the absence of a comprehensive master plan, and so far lacked any landscaping. The buildings, he noted, lacked any real "architectural programming", and the absence of a firm conviction in design. Giurgola emphasized the civic importance of the new terminal project, and criticized the City's low prospects regarding an important piece of infrastructure. "In America, such buildings (seaports) have always been relegated to minor roles in the building of a seaport. I have seen shorelines destroyed by carelessness. Look at New York."¹⁴ Giurgola challenged Miami to develop a port with a tropical

identity, reflecting an enlightened American approach to infrastructure. Miami in fact had pioneered the notion of the terminal as civic landmark years earlier, at the Pan American Sea Plane Base and Terminal in Coconut Grove by architects Delano and Aldrich (1934). The Art Deco structure was so good that it is now Miami's City Hall.

In response to Giurgola's study, and in a bold move to create a world-class terminal, the county jettisoned Volkert's design and commissioned Giurgola to help select a new design architect. Starting from a list of 13 candidates, Giurgola and a local committee narrowed the list to three finalists: Robert Venturi, Thomas R. Vreeland Jr., and John Andrews. All were practitioners close to academia with little relevant professional experience. Vreeland, a follower of Louis Kahn, was chairman of the University of New Mexico School of Architecture; Venturi was associate professor at University of Pennsylvania and had recently authored *Complexity and Contradiction in Architecture* (1966); and Andrews was a critic at University of Toronto. According to Giurgola, "I wanted young men to correspond to the scope of the project, to bring a new spirit and new reputation in Miami as a dynamic place to live and work... in Architecture, you have to want to take a chance."¹⁵ Andrews would get the commission;¹⁶ one can only speculate how the project might have turned out differently in the hands of the other competitors.

Andrews credits the commission to his approach and disposition, emphasizing "the organization of our firm and its ability to produce a building on time within the budget, using critical path method and cost control, while letting good design – so-called – be a byproduct."¹⁷ Indeed, the firm's project management capabilities were key to its confidence while using experimental approaches on large projects.¹⁸ They allowed Andrews, as an analytically-minded conceptual designer, to compete in a league with larger multi-disciplinary offices.

ANDREWS AND THE BRUTALISTS

Historians have neglected Andrews, an important if detached figure in the development of modernism in the 1960s-70s (and of Brutalist architecture). A graduate of the University of Sidney (1956), he attended Harvard GSD where he came under the influence of José Luis Sert. In 1961, Andrews established his practice and academic career in Toronto, having come to public and professional attention there as a student with a second place entry in the Toronto City Hall competition. Andrews came of age during a transformational period in modern architecture, when doctrinaire modernisms were rejected in favor of progressive social and cultural objectives. Andrews' own particular brand of concrete modernism owes debts, especially in its formal characteristics, to architects like Louis Kahn, James Sterling, Paul Rudolph and Sert – the bold, sculptural use of concrete, the canonical modern forms, the celebration of contingencies. However,

it was Sert's call for more engagement between architecture and urban design that was especially impactful. As *Architectural Record* noted, "Andrews built up his successful office through an ability to produce architectural concepts at a scale larger than that of the individual building."¹⁹

Andrews had gained wide public acclaim in the early 60s for the design of Scarborough College of the University of Toronto (1962-65). Scarborough's powerful concrete modernism, contrived as a megastructure, previews many of the qualities Andrews would later bring to the Miami port terminals. The campus is organized not as a series of buildings, but as a linear system comprising multi-story spines and program plugs-in. This linear system marries an irregular terrain, in this case a steep escarpment. The collection of raw and powerful concrete forms was widely published. As Jennifer Taylor has noted, "Scarborough gave credence to the widespread theories of the time, that a memorable image could emerge from an architecture that celebrated the construction process and the functional requirements of its spaces."²⁰

Over the next few years, in a series of architectural commissions and projects, Andrews further explored urban systems and the mechanisms of their growth. At the University of Guelph, Ontario (1965), he organized multi-story living quarters as a scalar system of housing communities, producing a crystalline megastructure organized along raised pedestrian streets; at African Place at Expo '67 (1965) he explored the agglomeration of cell-like pavilions to produce a matte-type structure animated by wind-scoops; and he experimented with high-rise housing units based on mass produced, plug-in units. In these projects, the novel organizational systems of Aldo van Eyck's Amsterdam Orphanage (1960), the mobility-based stem and web frameworks of Shadrach Wood and Team 10 (1960-62), and even Archigram's living cities (ie. Plug-in City, 1962-66) inspired pragmatic applications in the everyday infrastructure of modern Canadian life.

THE MIAMI MARINE PASSENGER TERMINALS

In the 1960s, dedicated marine passenger terminals were essentially a new building type, generated partly by dramatic changes in in the shipping industry. Competition by airlines was wiping out traditional long-distance sea routes and the companies that serviced them.²¹ At the same time, an emergent cruise industry was creating mass-market leisure opportunities. Miami was at the center of this marine transportation revolution. Cruise travel was innovated here in the 1950s by pioneers like Eastern Steamship Lines, which exploited the city's resort infrastructure, a creative fusion of air-sea travel packages, and proximity to warm weather ports in the Bahamas, the Caribbean and Central America. New industry leaders like Norwegian Cruise Line (1966), Royal Caribbean International (1968) and Carnival Cruise Lines (1972) set up base in Miami. It is

no wonder that the playground city would be on the front lines in developing a new type of terminal complex.

Miami's cruise ship industry managed a growing fleet of luxurious boats that were an example of machine culture meeting popular taste and modern social mores. These sleek white titans dispensed with the rigid social stratification of old ocean liners. Generally 500' in length, with a capacity of 500 passengers in one class, they were outfitted for 3-7 day cruises. While ocean liners typically departed from large transit sheds where the business of passenger and cargo mixed, cruise ships demanded rapid and efficient embarkation and debarkation without interference from cargo and baggage loading and unloading, as well as customs and immigration. Inevitably, architects and engineers looked to the design of airport for inspiration. Like an airport, the modern seaport was conceived as a node in an intermodal transportation network.

Remarkably, the marine passenger terminals were designed and built in less than 20 months. The delays in building the needed passenger terminals had created a sense of urgency in Miami. Andrews and a few employees were installed directly in the port director's offices.²² [IMAGE 4] The architect's radical design for the new passenger terminals took shape over an intense beer-fueled two-month period.²³ According to Andrews, it was the "...most simple-minded solution I've come up with for any building."²⁴ He dispersed the complex into five self-contained terminals, effectively separating all of the embark/debark activities into discrete modular units. The larger baggage-handling areas were pulled out from underneath the terminals and located alongside in open-air hangars. The result was a dash-dot rhythm of terminals and hangars that followed the seawall in a linear sequence. [IMAGE 5]

Like other Andrews works, the Miami port project incorporated a traffic solution at its heart. It was ethics over aesthetics. The architect was particularly concerned with the process of loading and unloading ships. He criticized the attenuated flow of passengers inherent in the model of a single terminal serving five ships. "The grave and possibly fatal weakness of contemporary architecture is that it has so far failed to utilize the capabilities of technology to accommodate man as well as baggage."²⁵ The scheme borrowed loosely from satellite-type airport designs, like at Paris' Charles de Gaulle and Geneva's Geneve-Cointrin airports, yet here the baggage and customs were decentralized too. Andrews' design allowed passengers to reconnect with the luggage in open-air sheds beside each terminal. Customs and Immigration were mobile, and moved from shed to shed as needed.

The five terminal modules were the essential transit points in the scheme. Cylindrical in early studies, they eventually take the shape of diamonds with powerful circular turrets at three corners. Andrews had conceived and used diamond-shaped rooms at the University of Guelph dormitories, a consequence of placing doors, windows and closets in room corners. The strategy allowed uninterrupted walls between, and emphasized the “focal space within the rooms.” At the port, the focal points were the air-conditioned lounges that straddled bi-lateral circulation paths. Oblique views through the long glass walls presented the panorama of ships along the quais.

The powerful turrets that structure the corners of each terminal module presented a monumental silhouette that, repeated over the length of the complex, produced a basic rhythm. [IMAGE 6] Although their silo-like form might imply vertical circulation, in fact the turrets articulated attachment points, expressing the nodal connectivity of the complex. Telescoping metal gangways pivoted from the waterside turrets (connecting to the ships) while the side turrets led to the baggage sheds. The turrets also served a structural purpose, supporting the powerful beams that crossed over the long window walls to support the broad waffle slab roof.²⁶ The poured concrete architecture of the turrets, along with radiused apertures over the large ship-facing windows conveyed a strong plasticity that tempered Miami’s strong light and offered a striking contrast with the sleek metal cruise ships, the blue water and the green landscape.

Between the terminals were long open-air sheds with roofs shaped like airfoils, popularly called “seahorses”. The sheds covered the baggage and customs areas where luggage flowed from the ships’ belly on gravity fed conveyors. [IMAGE 7] Long elevated gangways crossed each shed, and connected to the terminal modules at either end. These formed a spine connecting the five terminals, a spine that in Andrews’ initial design was covered with glass – making the walkway a virtual tube. Punctuated at intervals by concrete stairs, these interior gangways were primary to the circulation diagram of the terminals. Each stair corresponded to a zone of the ship, and tourists exiting the terminals descended to the vast open-air hangars to find their luggage. Meanwhile, the spatially contoured roof funneled air to the passengers collecting their bags. Like the terminals, the sheds have a sculptural quality, albeit one apparent mainly in section. The profile evolved in concept from early sketches, where the roof reads more as a tilted plate. According to Andrews, the final spoiler-like design was developed in wind tunnels tests. It eliminated uplift during hurricanes, allowing a more efficient structure.²⁷ Architect Paul Rudolph proposed a similar airfoil shape, albeit one sheathed in a trellis of concrete planks, at the International Bazaar proposed for Miami’s Interama in 1967; [IMAGE 8] as a strategy for shading large areas, the resemblance among the two schemes is striking. Here, the planar geometry of the airfoils also served as a foil to the sculpturally expressive terminals. [IMAGE 9] They were constructed using post and beam construction, with concrete double-T’s spanning over curved beams. The hybridization of two

building technologies at the site, poured-in-place concrete for the enclosed terminals, and post and beam for the open sheds, illustrate how the best construction system for each building type exerted a strong force in the design. The same could be said for the environmental strategy, which amalgamated hermetically sealed air-conditioned compartments with open-air shade structures. The mixture defined a regionally accepted environmental strategy of the late 1960s, one found, for instance, in the contemporary university buildings at Ferendino, Pancoast & Associates' Miami-Dade College (1965-68). Concrete's insulative characteristics worked well with air conditioning, while the umbrella-like hangars provided effective shading to the baggage areas, which were of course located outside. Overall, the structures were inexpensive, conditioned to climate and resilient in storms. Moreover, they highlighted the role of concrete in creating a new iconography of tropicalism in Miami.

That these terminals together make 'megastructure' seems evident, even if they lacked the multiplicity of use of a true urban setting. Assembled, it was a coherent device in terms of both function and formal expression. It was made of small units in a way that allowed for serial development and growth; construction proceeded progressively and in fixed ratios, and the terminals opened incrementally. The port terminals derived their conceptual clarity from the modular discreteness of each part, and paradoxically also from their interconnectedness. Fluidity and friction alternate in any diagram of the complex, and the transparency and visibility of these qualities was important. The length and serial repetition of its forms echoed the movement of cars on the adjacent causeway and the passage of ships in the channel. The rhythmic scheme was punctuated by numerous switchback stairs and telescoping walkways, expressing function and movement. The successive terminal modules and spine-like connecting bridges of Andrews' terminal seem to approximate the functioning of Stem and Web, the mobility-based conceptual framework developed by Shadrach Wood and Team 10 in the 1960s. On a larger level, the almost kilometer long system was a macro structure for macro machines – the ships literally plugged in. The whole complex and its operations were intended to be seen, forming one long edge of the port facing the MacArthur Causeway and the residential islands to the north. [IMAGE 10] Unburdened by immediate context, the buildings could be understood as a landscape. As such, their simple rhythmic forms offered a "dramatic contrast between the cool sanity of the new Machine Age, and the chaos and confusion of today's and yesterday's laissez-faire cities."²⁸

CODA: OBLIVION

When completed in 1968,²⁹ Miami's sleek and sculptural new concrete terminals were a potent symbol of efficiency and modernity. These radical new structures for the burgeoning age of cruise ship travel were an infrastructural rejoinder, a physical counterbalance, to the battery of

commercial hotels and apartment buildings that have historically defined the city's resort facades (and image). The process that created the terminals marked a high water mark of public involvement, and their realization an apex of civic representation in a tidal flux soon marked mainly by retreat. The development in the 1960s Brutalist movement of high-impact civic architecture was just beginning to approach the power of the earlier Mediterranean Revival and Art Deco styles (1920s-30s) that characterize Miami's idealist early growth. Like the monuments of these previous eras, the new terminals elevated public infrastructure to an almost unique frontal position in the city. Far from the appreciation of these early styles, however, the port terminals were met mainly by public apathy when they opened. Although lavishly published in journals like *Architectural Design* and *Architectural Record*, they received scant recognition at home. The near simultaneous failure of Greek architect Constantinos Doxiadis' ambitious master plan for Miami's nearby bayfront (1966-68) and the various projects designed for Miami's Inter-American Worlds Fair, or Interama (Breuer, Sert, Kahn, Stone, Rudolph, Weese, Yamasaki, et. al. 1960-67), confirmed the declining level of ambition in Miami.³⁰

Travel the nearby MacArthur Causeway today and it is difficult to discern Andrews' original terminal buildings. They stand mainly intact, but partly buried beneath contemporary additions. Soon after completion, their fixed concrete terminal modules faced existential challenges typical of a megastructure, in particular a lack of adaptability to evolving needs. Since 1968, ship sizes have swelled exponentially, with "mega-ships" now nearly 1,200 feet long, carrying more than 5,000 passengers (ten times what they carried when the terminals were completed). Eventually, the terminals reached functional obsolescence. One of the five terminals has been demolished, and additions of several kinds have transformed the remaining ones. Most significant are the easternmost terminals, which now serve as a podium for a larger concourse whose iconography of Teflon sails suggests a very different marine imagery. As additions were made, the original terminals eventually achieved a new type of relevance, as a support and foundation for the port's contemporary needs. While the megastructure may not be adaptable, it achieved resiliency paradoxically through its very mass and stability – a strategy that may offer lessons in the re-use of similar projects internationally. In the meantime, it is the megaships themselves that are the true megastructures of our generation.

ENDNOTES

- ¹ Monumental concrete structures in the Brutalist style were built throughout Miami in the 1960s. These works included the campuses of all three of the city's universities (University of Miami, Florida International University, and Miami-Dade College), hospitals, city halls, police stations, the Miami Marine Stadium, and the remarkable but un-built plans for Interama, the pan-American Worlds Fair planned for Miami in 1967. Had Interama been built, it would have been an exposition of the Brutalist brand of heroic concrete architecture (in the manner of Expo '67 in Montreal).
- ² Arthur Chapman, "Watch the Port of Miami," **Tequesta 53** (Historical Association of Southern Florida) 1993: 10.
- ³ George Fox Mott, **Miami's Marine Destiny: Today's Decisions** (Washington, D.C.: Mott of Washington & Associates) 1955.
- ⁴ Plans for the port ranged from the most conservative (expansion of the historic port southward) to the most extreme (elimination of the port in favor of the existing port at Port Everglades). Other sites within Dade County, including the Graves Tract (future site of Interama) and Paradise Point in South Biscayne Bay were considered. Master plans included the Orr and Gardner plan (1930s); the Treadwell & Rader plan (1952) and the Darlow plan (1956).
- ⁵ Miami became the nation's leading port of entry in 1943, handling 46.5 percent of all international passenger arrivals and departures. "Miami, Florida with its industrial advantages" (electronic resource): "gateway of the Americas"/ compiled by Industrial Development Department of the Miami Chamber of Commerce. (Miami: Industrial Development Dept., Miami Chamber of Commerce), 1943.
- ⁶ The twenty million dollar overall cost of the new port was to be offset by the sale of the old port. Plans drawn by Weed-Johnson Associates in 1956 show the port area as a campus of rectangular slab buildings, while in 1959 the Planning Department sketched a mixed-use complex of office and administrative buildings clustered with apartment buildings, hotels, a concert hall, an exhibition hall, a convention hall, a museum and bus terminal, all centered on a vast plaza covering a two thousand-car parking garage.
- ⁷ Kristoffer A. Garin, **Devils on the deep blue sea : the dreams, schemes, and showdowns that built America's cruise-ship empires**, (New York: Viking) 2005.
- ⁸ The islands around the Miami Ship Channel include Watson Island, Fisher Island, Virginia Key and Dodge and Lummus islands.
- ⁹ **Planning Review Report of the Miami Seaport Location** (Miami: Metropolitan Dade County Planning Department) July 1959, Project Report No. 1.
- ¹⁰ Charles Whited, "Dodge Island Opens Amid Toots and Blasts," **The Miami Herald**, June 8, 1965
- ¹¹ Dan Paul called the complex "the wrong kind of port in the wrong place," Charles Whited, "Dodge Island Opens Amid Toots and Blasts," **The Miami Herald**, June 8, 1965. Also see Paul Einstein, "Seaport Ugly Duckling Rejected by Metro," **The Miami News**, March 31, 1966; and "Scrub Port Shed Design, Miami Will Urge County," **The Miami Herald**, October 29, 1966.
- ¹² David Volkert & Associates was the successor firm to New Orleans-based Ewin Engineers, which had prepared earlier studies for the port. Architect Henry L. Trimm and engineer Whipple Jones led the Miami port project team.
- ¹³ The fight over the terminal design raged from 1966-67. Residents of the nearby islands enlisted a series of allies, including the South Florida Chapter of the American Institute of Architects, which severely criticized the design of the new passenger terminal. Paul Einstein, "Port Can't Dodge Woes," **The Miami News**, May 15, 1966
- ¹⁴ Rich Archbold, "Panel Screens Architects for Dodge Island Terminal," **The Miami Herald**, March 27, 1967
- ¹⁵ Ibid.
- ¹⁶ Andrews was hired as a Design Architect; David Volkert & Associates was the Architect-of-Record.
- ¹⁷ Jennifer Taylor and John Andrews, **Architecture as a Performing Art** (New York, Oxford University Press) 1982, p. 79.
- ¹⁸ **Architectural Record** credited Robert Anderson in the Andrews office with employing cost and time control techniques. "Beyond the Individual Building," **Architectural Record**, September, 1966, v. 140, n. 3, p. 161-172.
- ¹⁹ "Beyond the Individual Building," p. 161.
- ²⁰ **Architecture as a Performing Art**, p. 28
- ²¹ In addition to transatlantic service by Cunard, etc., passenger service up and down the east coast had been provided by Clyde Mallory Line, Merchants and Miners Transportation Company and Munson Lines.
- ²² "We had a constant supply of beer and it got to a point where, when the Admiral came in (he would drop in 10 times a day), he had to push the door open and push the beer cans out of the way." *Architecture as a Performing Art*, p. 80.
- ²³ Andrews provided two alternatives. The alternative not chosen retained the singular terminal and long connecting passenger concourse of the Volkert scheme, albeit with aesthetic modifications. The main feature was a broad flat concrete roof supported on concrete columns that provided both transparency and openness to the water.
- ²⁴ Author telephone interview with John Andrews, July 2013.
- ²⁵ **Architecture as a Performing Art**, p. 82.
- ²⁶ Andrews had previously explored the idea of an open center floor plate supported only at the corners in his three-point tower project in Toronto.
- ²⁷ *Architecture as a Performing Art*, p. 77.
- ²⁸ Peter Blake, "Half-Mile Gangplank," **Architectural Design**, p. 57.
- ²⁹ The terminals were dedicated Dec. 29, 1968.
- ³⁰ "Port Proposal Makes Sense," *The Miami News*, December 24, 1959.

IMAGES



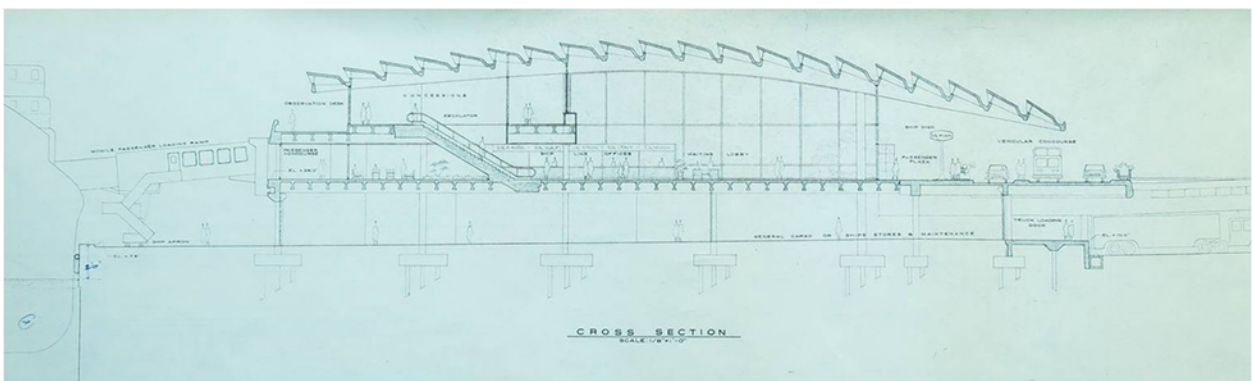
[IMAGE 1]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. Aerial View looking West. Photograph by Hiro Nakashima. From "Passenger Terminal: Port of Miami", *The Canadian Architect* 15 (April 1970):47



[IMAGE 2]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. Aerial View OF Port of Miami, 1968, with MacArthur Causeway, Palm Island and Miami Skyline. From Internet Source. <http://3.bp.blogspot.com/-ue8DrmAhsd8/T1PLpHDqjFI/AAAAAAAAAD4k/WQggIhyjHHg/s1600/port+miami+1968.jpg>



[IMAGE 3]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. Section David Volkert and Associated Engineers/Architects, 1965. Courtesy of University of Calgary Canadian Architectural Archives



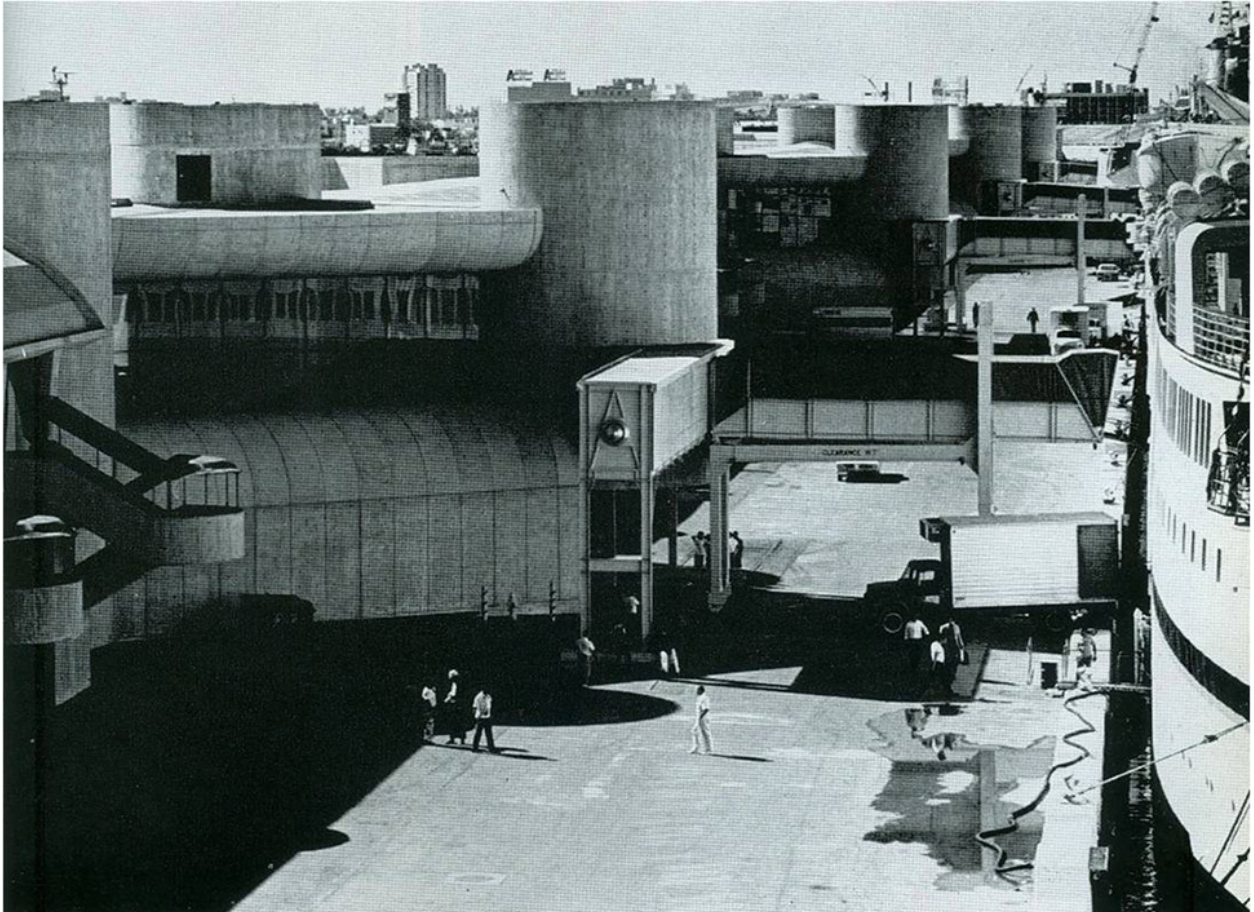
[IMAGE 4]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. Proposed port terminal, Dodge Island. John Andrews, with David Volkert & Associates, Photo of model measuring eight feet long. C. 1966. Courtesy of the Historical Museum of Southern Florida, Miami News Collection.



[IMAGE 5]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. Proposed port terminal, Dodge Island. John Andrews, with David Volkert & Associates, Photo of model measuring eight feet long. ca. 1966. Courtesy of the Historical Museum of Southern Florida, Miami News Collection.



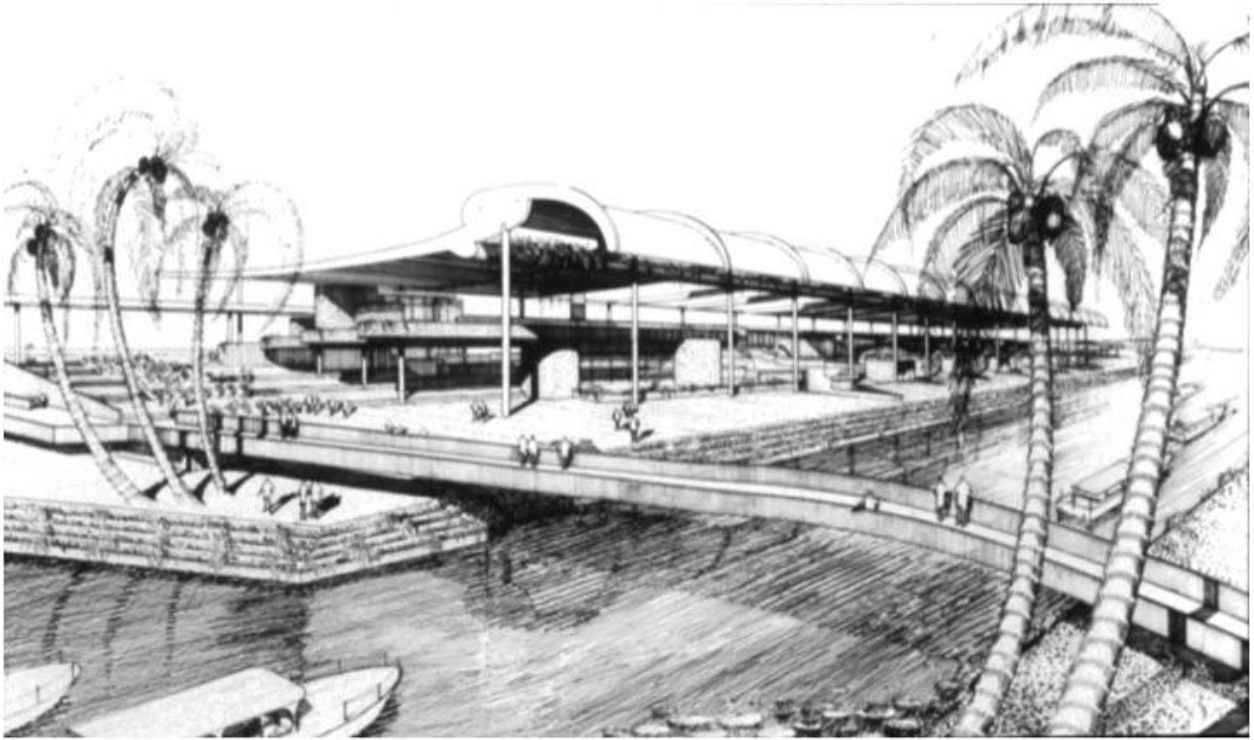
[IMAGE 6]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. John Andrews with David Volkert & Associates, 1968. View along the quais. Photograph by Hiro Nakashima From "Passenger Terminal: Port of Miami", *The Canadian Architect* 15 (April 1970):47



[IMAGE 7]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. (top) Elevated conduit below airfoil roof, (above) Luggage claim area, with elevated conduits to lounges above. From "Passenger terminal: Port of Miami," *The Canadian Architect* 15 (April 1970):50



[IMAGE 8]
International Bazaar at Interama, Paul Rudolph, 1967. Library of Congress.



[IMAGE 9]
Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969.

Details of shed roof. Courtesy, Port of Miami.



[IMAGE 10]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. Miami's third façade. Photo montage of passenger port model with skyline beyond, c. 1966. Courtesy of the Historical Museum of Southern Florida, Miami News Collection.



[IMAGE 11]

Miami Marine Passenger Terminal, Dodge Island. John Andrews with David Volkert & Associates, 1969. Passenger ships docked at port. Courtesy of the Historical Museum of Southern Florida, Miami News Collection.