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An examination of how the German-Puerto Rican architect Henry Klumb adapted aspects of modern architecture into a more humane, environmentally and culturally sensitive enterprise.

Henry Klumb: Puerto Rico's critical modernist

César A. Cruz

In February 1944 a thirty-nine-year-old itinerant architect named Heinrich 'Henry' Klumb *[1]* (1905–1984), moved to the Caribbean island of Puerto Rico for what was supposed to be a short-term, public works job with the island's provincial government, that is, a territorial government that had been established and was largely supervised by the American federal government. At the time of his arrival on the island, Klumb was a one-time German immigrant, a former protégé of Frank Lloyd Wright, Louis Kahn's occasional design and business partner during the mid-to-late 1930s, and a moderately successful designer of a variety of projects and building types. These early projects and building types included residences, prototype prefabricated buildings and houses, museum exhibits, furniture pieces, and a number of housing and urban master plans. Over the next forty years he would emerge as Puerto Rico's most locally well-known and prolific modern architect. His major successes on the island consisted of his public works, university buildings, churches, residences, and office buildings. Outside of Puerto Rico, his association with Frank Lloyd Wright has also generated a measure of interest.

1 Henry and Else Klumb and their two sons in Puerto Rico, c. 1947.



A recurring theme in the scholarly work on Klumb is how his buildings projected a strong modern lineage, especially in relation to the aesthetics of Le Corbusier, the Bauhaus, and the broader International Style.[1] Klumb's apparent debts to these movements and their leading figures were demonstrated in his reliance on forms and aesthetics predicated upon modern building materials (especially concrete) and their associated construction techniques. Examples of these forms and aesthetics included his regular use of *pilotis*, expansive open plans, flat or low-angled roofs, the checkerboard concrete façades of various institutional or office buildings, and the seemingly simple, unadorned, box-like enclosures of a number of his buildings.

To be sure, Klumb and his works were a product and a part of the modern architecture movement. As a university student in Cologne, Germany, he entered into the field of architecture at a time when it was increasingly being swayed by the *Deutscher Werkbund*, the Bauhaus, Le Corbusier, Adolf Loos, and other European predecessors and contemporaries, and he credited Frank Lloyd Wright with directly affecting his outlook on the built environment.[2] He also professed the modernist belief that humanity in the twentieth century had found itself in a new era, and that a new architecture had a crucial part in shaping that era.

Despite these links to the modern architecture movement and the modern allusions associated with his buildings in Puerto Rico, Klumb's approach to architecture – as a naturalist,

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environmentalist, and a socially and culturally aware architect – led him to cast a critical eye towards several of modern architecture's leading figures and their associated beliefs. The main thrust of Klumb's argument was that the modern architecture movement had failed to live up to its grandest social goals. As a consequence of such views, key aspects of Klumb's works can be seen as creative adaptations rather than rigid and blind adoptions of modern design and construction practices. In this article I argue that Klumb's legacy should be seen not as having brought the modern architecture movement to Puerto Rico (an untenable historiographical proposition).[3] Rather, his legacy should be seen in terms of bending and willing modern architecture in pursuit of more humane, and environmentally and culturally sensitive living environments for Puerto Rico's urban, suburban, and rural populations.

This article is divided into two parts. In the first part I examine a set of core principles that guided Klumb's architectural practice. These principles flowed from various influences, and personal and professional experiences: his tutelage under Wright between 1929 and 1933, his considered reactions to decades of modernist ideology and influence, and a highly prolific architecture practice that was both focused on the needs of the Puerto Rican people as well as being mindful of the island's natural resources and environmental factors. In the second part I present three adaptations by Klumb of modern design and construction practices. These adaptations were manifestations of his core architectural principles and his critiques of modernism. In discussing these adaptations I present a mix of major illustrative examples and selected supporting examples from Klumb's house designs.

In the end, through this historical study I aim to bring to light aspects of Klumb's career that are relatable and important to today's architects. One aspect is the ethical and critical practice of architecture, as exemplified by his core architectural principles and critiques of modernism. The other aspect is a series of viable design strategies in the form of Klumb's creative adaptations of modern design and construction practices. These strategies should speak to architects who share a concern for the environment and regional cultures, and who wish to acknowledge the power of unique and special places to shape our architecture.

Klumb's core architectural principles and critiques of modernism

Throughout his career, Klumb expressed a set of core architectural principles that were tantamount to a professional code of ethics. The first of these was the idea of 'higher values', which implied that architects should not concern themselves with the inconsequential pursuit of an artistic expression or the release of a creative impulse. Klumb disdained the idea of an architect indulging in their vanity, ego, or whimsy through their work. As he saw it, at its core the role of the architect in modern society was to solve the 'basic' and 'pressing problems' of a people in a principled manner by engaging, improving, and bringing together both the built and natural environments.[4] Thus, an architect that adhered to higher values eschewed self-aggrandisement as an impetus to their work. Instead, architects provided for and were in the service of others, a notion that is closely aligned with Klumb's next tenet in his professional code of ethics.

The second of Klumb's core principles was his interpretation of the aphorism 'man is the measure of all things', a saying that is attributed to the Ancient Greek philosopher Protagoras. Klumb took the phrase to mean that everything that an architect does should be for the betterment of humanity. Inversely, anything that is to the detriment of people's lives should be seen as such and thus either avoided or rectified by the architect. Klumb's many references to Protagoras' adage was such that two years before his death in 1984 he confided to a long-time friend in a letter, 'An inner urge led me to realise that "Man is the Measure", which became, before we even met, the criteria of my architectural solutions.'[5] Due to this influential mantra there always remained in Klumb's mind a lesson that he attributed to his time with Wright: 'the simple fact that people live and work in buildings'.[6]

Klumb's third core principle revolved around 'an architecture of social concern'. This principle stipulated that an architectural project can and should simultaneously meet multiple social, economic, and ecological needs. One of the clearest examples of this principle was his stated objective for the design section of the Puerto Rican government's Committee on Design of Public Works (CDPW). When Klumb arrived in Puerto Rico in 1944, his first job was, as the chief of the design section of this legislatively mandated, public works office. Klumb declared in a 16 August 1944 memo to the CDPW that the most important benefit of Puerto Rico's public building programmes was not in providing shelter, schools, or government services. The greatest benefit was instead in alleviating widespread unemployment and in turn raising the standard of living across the island.[7] Other examples of this principle are evident in one of a series of self-publishing projects that Klumb undertook near the end of his life in which he summarised many of the elements he sought to combine in his buildings and master plans. Among these elements were leveraging environmental factors (that is, natural ventilation and lighting), ensuring personal privacy and security, providing basic modern amenities for the poor, considering topography in master planning, and socioeconomically integrated housing.[8] In the end, what Klumb tried to accomplish in each design project through an architecture of social concern was to find a holistic solution to 'the complex problems of building'.[9]

Klumb's critiques of modernism begin to come into focus with his notions of higher values. In a 1979 speech to the American Institute of Architects (AIA) and in a 1981 letter to the New York Times architecture critic Ada Louise Huxtable, Klumb directly invoked higher values as the reason for

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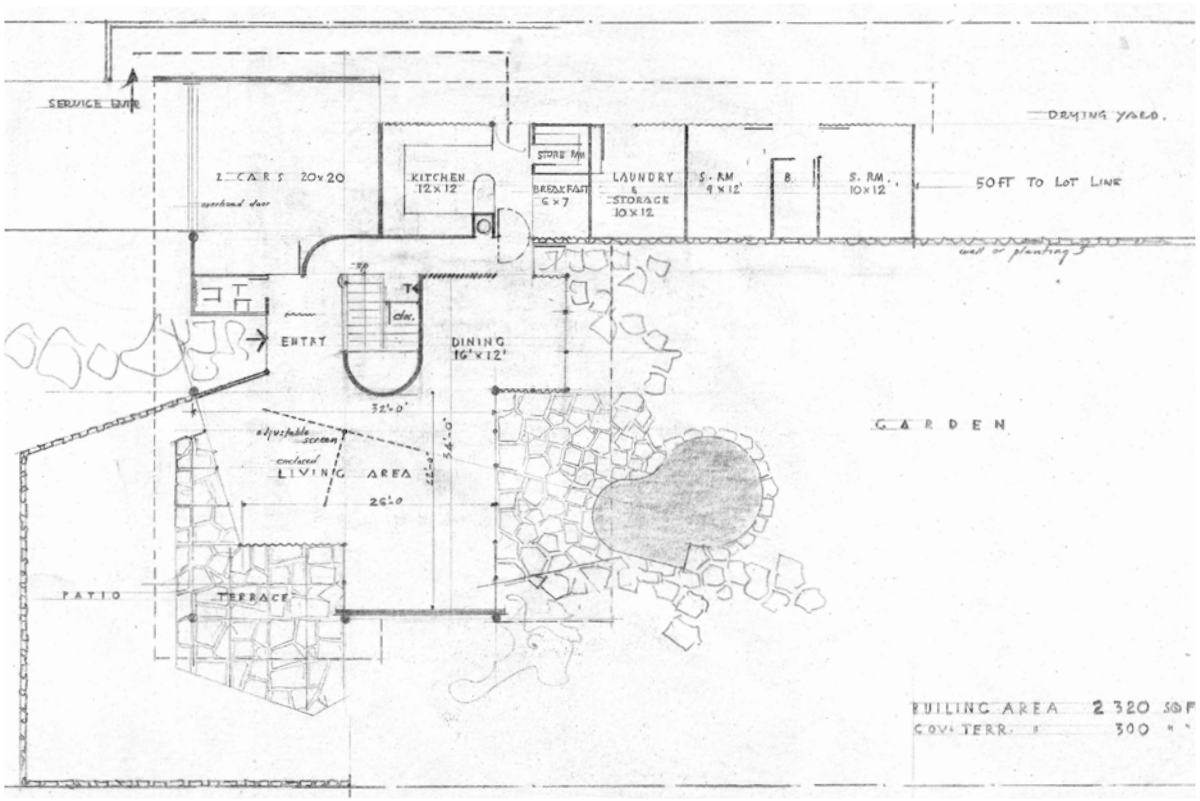
which he left Germany in 1927 and sought out Frank Lloyd Wright in the United States.[10] That is because as a young man and architecture student growing up and studying in Cologne, Germany, Klumb felt that at the infancy of the twentieth century the world of architecture, as well as the world in general, was at a crossroads. All around Klumb the world was transforming itself through new building materials and techniques, new building typologies, and great industrialisation and urbanisation. Would architecture reflect these changes or remain mired in ancient and medieval forms and edifices?

Klumb's thinking was fully in concert (whether knowingly or not) with many early innovators of the modern architecture movement, particularly the Italian Futurists, Le Corbusier, and the many notable modernists in Germany who were transforming the world of architecture in the early twentieth century. Understandably, amid this world in transition Klumb would come to absorb a host of local and international influences that were emerging in the early decades of the twentieth century. Some of these influences, Klumb thought, were the right way forward. They offered a pathway to higher values lacking in other influences of the era.

For Klumb, the ideas of Frank Lloyd Wright were chief among several contemporary influences. Klumb's high regards for Wright's work in the Wasmuth Portfolio (which had been published in Germany in 1910) was such that he thought it had the potential to wrest architecture from a neoclassical past and propel it into a new modern era. In Klumb's 1979 speech at the AIA convention, he stated that the Portfolio's strengths lay in that it 'challenged outworn architectural dogma' and in its message 'that true architecture was timeless, that it evolves [and] follows organic principles of growth'.[11] In a statement that seems to have conveniently ignored his former mentor's outsized efforts in self-promotion and showmanship, Klumb nevertheless characterised Wright's career as exemplifying higher values, stating, 'Material success achieved at the expense of higher values, eclecticism and emulation as a substitute for creativity he despised.'[12]

Having firmly aligned himself with the works and ideas of Frank Lloyd Wright, Klumb saw a lack of higher values in a number of notable other figures and ideologies of the modern architecture movement of the 1920s and 1930s, viewing with particular disdain the wide influence of the International Style. Klumb felt that the International Style was characterised by 'sterile concepts' and 'hollowed values from abroad' (that is, from the European continent).[13] Next on Klumb's mind was the Bauhaus. For Klumb the Bauhaus was an even more personally felt presence by virtue of the famed school's proximity to his native city of Cologne. Klumb pointedly called the Bauhaus movement 'the Bauhaus indoctrination', and further characterised the European architectural scene of the late 1920s as 'alive alright with intellectual vengeance, but void of spirit and man's inner needs'.[14] In one overarching critique of modernist influence, Klumb derided Le Corbusier, Adolf Loos, and Hannes Meyer in one fell swoop when he wrote, 'Houses were to become machines for living, pitched roofs became a heresy and ornament a crime. Architecture was reduced to a formula adhered to with intellectual vengeance.'[15]

2 The Kogan House, preliminary floor plan, March 1949.



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Put another way, modern architecture's intriguing outward appearances – exemplified through its highly publicised pavilions, exhibits, pure forms, and blank façades – belied an empty vessel that did little to address any real needs.

If modern architecture was sorely lacking in higher values, as Klumb thought, man was also not the measure in large, visible, and pervasive parts of the evolving modern architecture movement. Nowhere was this more evident to Klumb than in skyscraper architecture and the advent of the modern metropolis. In an untitled speech that he gave at the University of Puerto Rico in 1954, Klumb spoke very clearly and directly on the subject of skyscrapers and the impressions that they made upon him when he first arrived in the United States.[16]

In the 1954 speech Klumb told his audience that upon first emigrating from Germany to New York City in the summer of 1927 he was besieged by the frenetic pace of urban life and by the character of the city as it was shaped by a great number of skyscrapers. The advent of these skyscrapers was a modern eventuality, Klumb thought, but their resulting chokehold on humanity was not. The way for a humane high-rise architecture, where man was the measure, had been presaged by Louis Sullivan, particularly through his Wainwright Building in St. Louis. Unfortunately, architects, developers, and financiers did not heed Sullivan's example. Profits and density overruled and have dominated ever since. The result was an undignified, unhealthy, overcrowded, chaotic, oppressive, and inhumane urban built environment. For the most part, Klumb thought, a humane skyscraper architecture had long ago eluded architects. Only architects who were attuned to meeting the needs of people rather than those of investors could reverse the broken relationship between people, skyscraper architecture, and the city.

Finally in terms of Klumb's core architectural principles and his critiques of modernism, in practicing an architecture of social concern he felt that industrialisation had to be tempered in light of local conditions (that is, a population's needs and resources). To be sure, the many advantages of applying industrial means towards real-world problems of housing and public works are alluring. But when Klumb first moved to Puerto Rico in the mid-1940s he found that industrial means were not yet firmly established, modern materials were not as abundantly available as was desired, and consequently building projects that depended heavily on industrial means would have been cost prohibitive. Thus, just five-and-a-half months after arriving in Puerto Rico, while still working with the CDPW during the summer of 1944, Klumb made a determination to obviate an overreliance on industrialisation and standardised building solutions where local building practices, materials, and labour resources would instead lead to greater socioeconomic benefits to large segments of Puerto Rico's population.[17] The full weight of industrialisation would someday have a great effect throughout the island, Klumb thought, but not just yet.

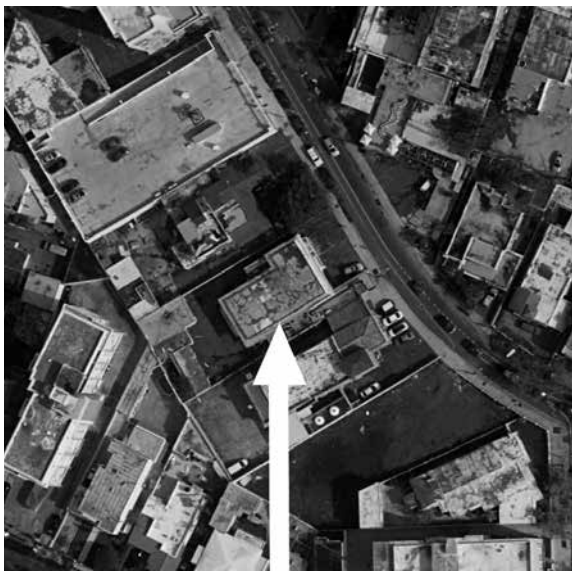
Over the forty years that he resided and practiced architecture in Puerto Rico, Klumb's appraisal of the modern architecture tradition of which he was a part led him to reinterpret aspects of modernist architecture in order to best address the pressing problems of the island's people. These took shape through Klumb's creative adaptations of modern design and construction practices. Below are the three major creative adaptations that he undertook and were exemplified in his residential practice.

Klumb's houses in dense urban spaces

Klumb's first creative adaptation was the balancing of natural and built elements in his houses set in dense urban spaces. Klumb's insistence on interjecting natural elements within the strictly urban environment is rooted in his early experiences as an immigrant in the United States in 1927. After visiting New York, Chicago, St. Louis, and Detroit, Klumb

3 Current satellite image of the Kogan House site (arrow designation by the author).

4 Current satellite image of the Kogan House location in relation to Condado Lagoon to the west-southwest and the Atlantic Ocean to the north-northeast (arrow designation by the author).

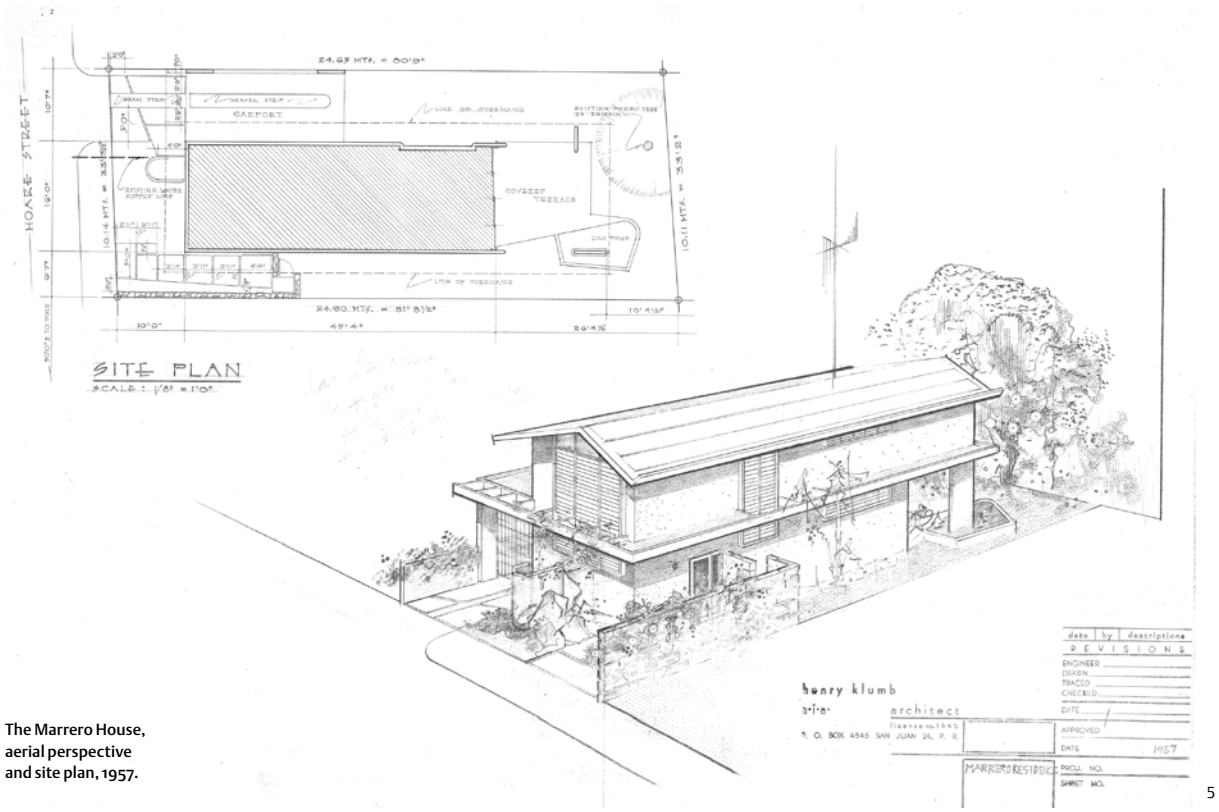


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5 The Marrero House, aerial perspective and site plan, 1957.

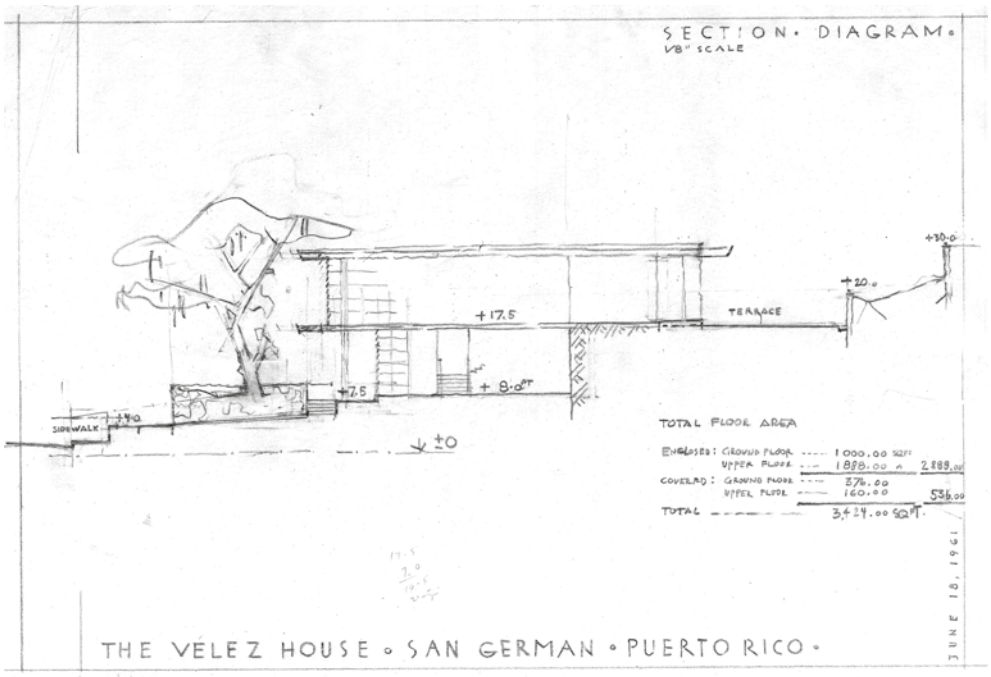
concluded that in the modern era a general schism between people and nature was especially problematic in the urban context, where residential building plots were generally smaller, more closely spaced together and more homogenous in shape than in the suburbs or countryside. Historically, with the great demand for urban space in places like the San Juan metropolitan area, landscaped or outdoor spaces that were still prevalent in the first half of the twentieth century – spaces such as small farms, wooded lots, and residential gardens – increasingly gave way to mid- and high-rise buildings, and generally an increasing amount of concrete and steel over plants, trees, and natural vistas. In response to this perceived ongoing dilemma, Klumb asked the audience at his 1954 'Skyscraper Architecture' lecture, 'How long can man survive as man in defiance of the renewing power of nature?'[18] As a further indication of Klumb's view of the urban-natural divide, and on a lighter note, Klumb thought enough of a quote about the city by the Soviet Premier Nikita Khrushchev to jot it down and add it to his vast collection of personal and professional papers. The quote, attributed to Khrushchev while on a visit to New York City in October 1960, read, 'There is not greenery. It is enough to make a stone sad.'[19]

Klumb responded to the urban-natural divide by reimagining and including well-worn models like the modern garden house or Wright's 'Natural House' where they were needed the most.[20] These models were readymade for a wooded suburban lot or a faraway rural retreat. But the greater challenge and most crucial need were to include these houses in rapidly growing modern cities. By doing so, Klumb upended Le Corbusier's roof garden so as to make natural elements and environments foundational to his building designs rather than being relegated to residual spaces. Three examples are the Kogan, Marrero, and Velez houses.[21]

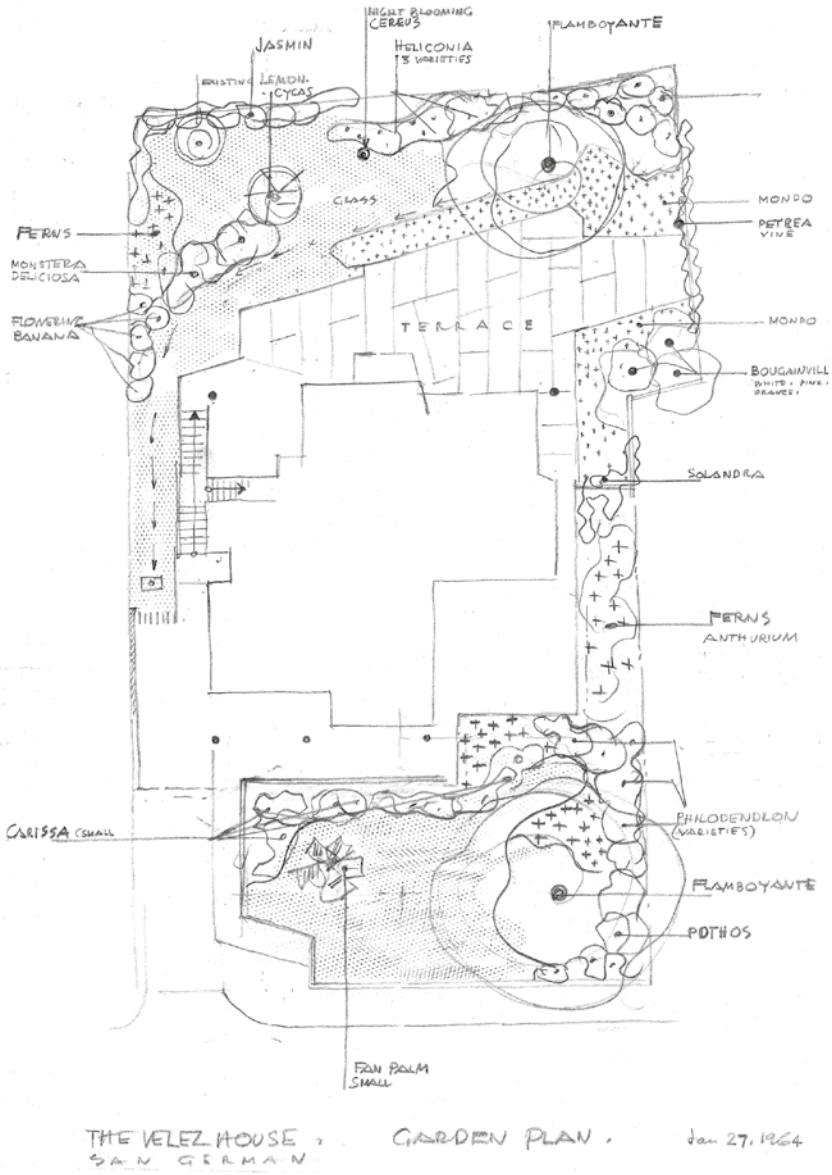
In an early floor plan of the Kogan House *[2]* Klumb planned for several outdoor spaces on the quarter-acre lot. This included a stone-paved terrace and a large, stone-walled patio at the front of the house. At the back of the house he planned for another stone-paved terrace, a curvilinear pool of water, and a garden covering roughly one fourth of the property. Between the front and back areas Klumb also inserted a glazed living room that allowed visibility into both of these important front and rear areas. In addition to these many spaces, Klumb found enough space on the ground floor to include a carport, a kitchen and dining room, servants' quarters, and yet another open-air room in the form of a service yard.

Klumb put these open-air rooms on the ground floor and in both the front and back of the property. He did so, first, because the property benefited from cool breezes from Condado Lagoon 450 feet to the west-southwest and from the Atlantic Ocean 700 feet to the north-northwest *[3, 4]*. Next, the second floor, which was supported overhead by *pilotis*, provided the ground floor terraces with cooling shade. And last, as these open-air rooms included a pool of water, it was reasonable to combine these elements on the ground rather than on the second floor or a roof terrace. Unfortunately, over the course of the design process these many outdoor spaces were reduced to a stone-paved entryway and several nondescript planting areas designated 'N.I.C.' (Not in Contract). Presumably, in reducing the up-front scope of work for the project, Klumb's clients were delaying a cost that they may have been willing to assume later.

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6 The Velez House, preliminary site and house section drawing, June 1961.

7 The Velez House, garden plan, January 1964.

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The Marrero House was located on a plot of land that was even more restricted in size (approximately 3,650 square feet) than the Kogan House property *[5]*. Still, on the ground floor Klumb included a small planting area at the front of the house, and at the back of the house a covered terrace underneath the projected structure of the second floor. Conveniently, early floor plans of the house indicate that the prevailing winds on the site were directed towards the back of the house. So, also at the back of the house, a small, cooling pool of water surrounded an unusual concrete pier that stood in one corner of the terrace and supported the second floor overhead. Also, at the very back edge of the property Klumb preserved an existing mango tree. This entire rear area at the back of the house was screened from the street by a stone wall.

In designing the Velez House, Klumb had to deal with a constricted urban site and a sloping topography *[6, 7]*. Despite these challenges, Klumb took advantage of several plants and trees already on the site in order to interject open-air rooms and natural elements into this urban residence. The principal outdoor space is at the rear of the house. There, Klumb designed a covered, concrete-paved terrace. In the small amount of space remaining on the lot and beyond the terrace to the north, Klumb gathered many pre-existing plants and trees into a planting area. Also, along the side of the house there was another long planting area. And at the front of the house Klumb preserved a large shade tree, which he surrounded with more plants.

The objects that populated Klumb's outdoor spaces were modest in scale and few in number. He drew from a limited palette of planting areas, stone, or concrete-paved terraces, trees and other vegetation, a small pool of water, and a patio bounded by a low stone wall. Their inclusion in the Marrero and Velez houses were nevertheless noteworthy. Despite the small site of the Marrero House, the architect went to great lengths to complement one necessity for life, the physical shelter, with another similar necessity (a natural microenvironment). At the Velez House, the amount of natural elements and the size of the terrace are extraordinary in light of the uncertain, economically driven fate of such spaces in his proposed house plans that were set in highly restricted urban sites. The result is that the Velez House is defined as much by its outdoor spaces, natural elements, and conformity to its site's topography as it is by its compact urban form.

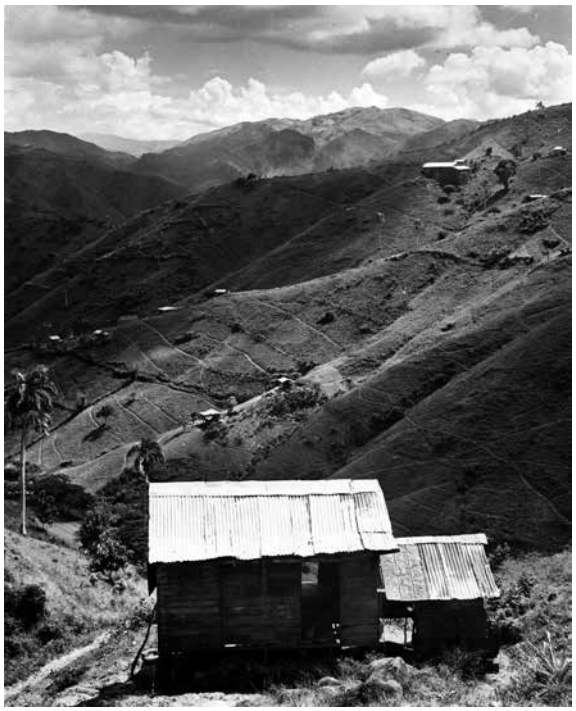
The Marrero and Velez houses, then, were small examples of what the Kogan House could not be. What we first saw at the Kogan House is that even where space was extremely limited, as it invariably is in the city, Klumb's intentions were clear: any design project can and should accommodate a great many natural elements. Klumb always saw opportunities to open a house to the outdoors and interject natural elements into it, even if his planned open-air rooms and their constituent natural elements receded in the planning, design, and construction of his houses. Thus, Klumb's houses set in dense urban areas emulated his own house, which he once called 'an oasis in a concrete jungle'.[22] But these natural effects were only possible if an architect was given free rein with the understanding that such design elements were not products of an architect's fancy but instead were necessary in the pursuit of a truly humane architecture, one that carefully balanced the built work with a generous application of natural elements.

Klumb and the Puerto Rican vernacular

Klumb's second creative adaptation of modern design and construction practices was in formulating a modern stilt house that was suitable to Puerto Rico's mountainous topography. Klumb designed many of these houses to rise up on *pilotis* and to project upward and outward over their usually sloping sites. In formulating this building type, Klumb drew inspiration from the homes of the island's *jibaro* population, that is, the island's rural fieldworkers and working poor *[8]*. According to the anthropologists Carol Jopling and John Vlach, the mid-twentieth-century *jibaro* shack or hut was shaped by four historical influences: the island's pre-Columbian *Taino* Indians, Spanish colonists, African slaves, and twentieth-century America.[23] In looking to these humble, seemingly ramshackle dwellings for inspiration, Klumb cast himself as an inheritor of the centuries-old, multiethnic building practices and traditions of Puerto Rico's *jibaros*. But why and how?

Jibaro huts were ubiquitous in Puerto Rico at the time that Klumb arrived there in 1944. Visiting public works job sites across the island, Klumb had an up-close view of life far afield from the populous

8 A typical *jibaro* hut near Comerio, Puerto Rico, October 1945, photograph by Edwin Rosskam.



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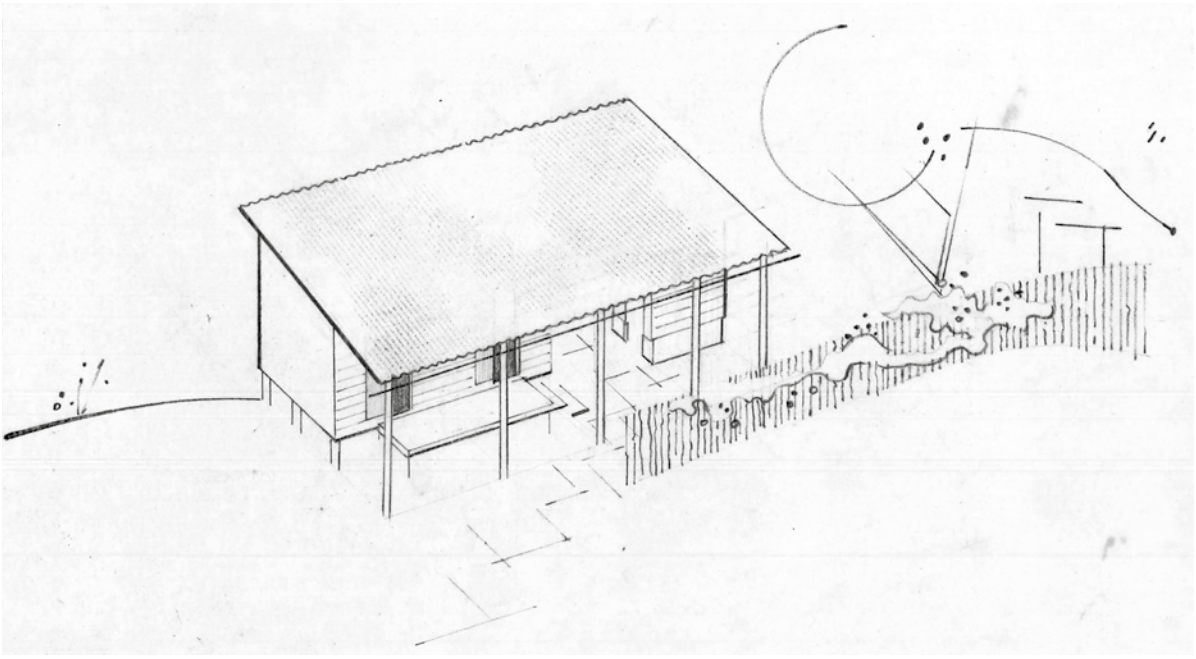
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San Juan metropolitan area. As such, he would have seen many of these structures during his travels. Also, beginning in 1944, Klumb accumulated a collection of photographs of *jibaro* huts and their inhabitants from newspaper and magazine clippings, and local archives. Finally, to represent an affinity with and admiration for the *jibaros* and their environments, in a series of design portfolios that he produced in the 1970s and 1980s, Klumb included many of these photographs next to his public works projects from the 1940s.[24]

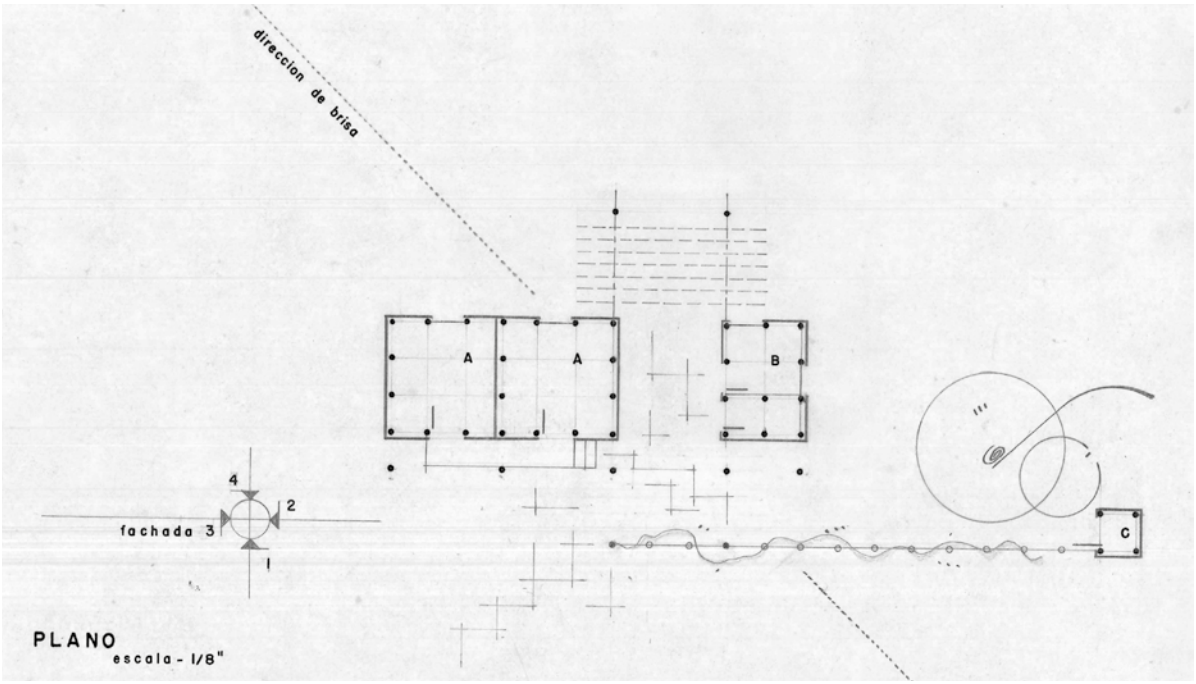
Was Klumb exoticising or fetishising *jibaro* culture? In looking to local populations, he was not fashioning romanticised representations of Puerto Rico's rural working poor. He was playing a part in creating a modern vernacular in ways that preceded Bernard Rudofsky's *Architecture without Architects*, Amos Rappaport's *House Form and Culture*, and numerous works by the landscape historian and critic J. B. Jackson.[25] Like these later scholars, Klumb was a devoted student of the vernacular. He studied the local geography, building practices, rituals and festivals, as well as the island's socioeconomic concerns. The photographs of *jibaro* life that he studied and collected, for example, were the well-known products of activist photojournalists who sought to bring to light the plight of the island's less

9 The Low Cost Rural Houses, perspective of scheme no. 2 of 7, 1946.

10 The Low Cost Rural Houses, floor plan of scheme no. 2 of 7, 1946.

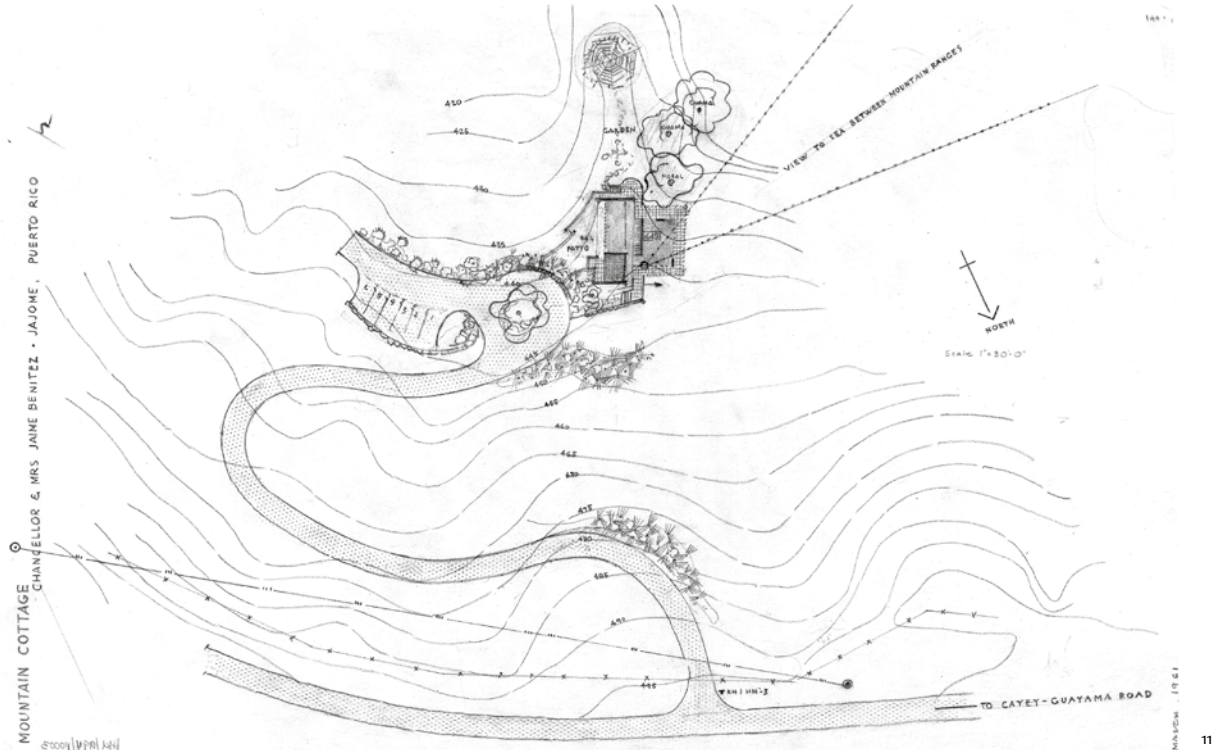


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11 The Benitez Mountain Cottage, preliminary site plan, March 1961.

fortunate peoples. So, for Klumb, learning about, transforming, and adapting highly localised, culturally specific building practices was not a casual affair. It was a full immersion into new worlds, which he then incorporated into his design repertoire.

Over time, Klumb came to embrace longstanding, local building solutions as essential to the practice of architecture. In thinking about the most elementary aspects of building, what he called 'the pattern of architecture', Klumb once noted,

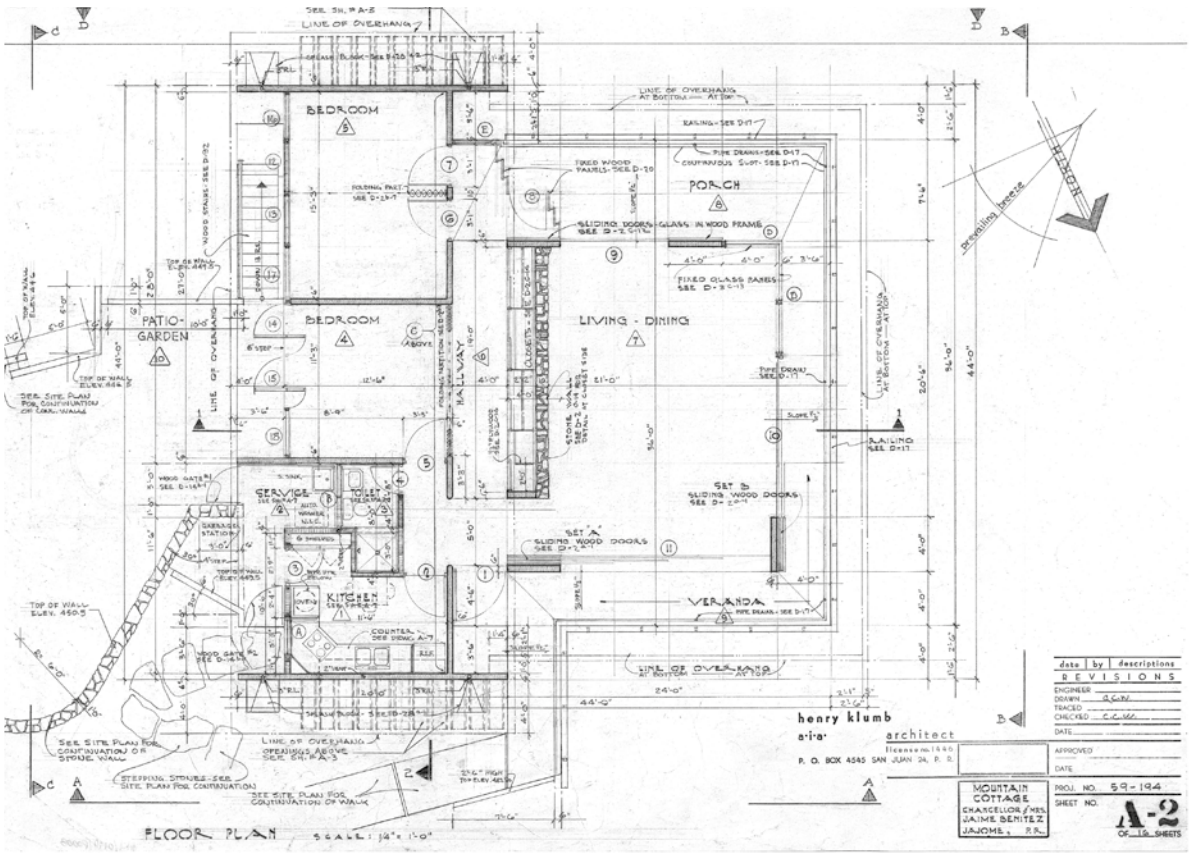
> *The true basis is in those indigenous structures, in the humble buildings, which are to architecture what folklore is to literature or folk songs to music.* [...] *These traits of a structure are national – of the soil, their virtue intimately related with environment and with the habits of life of the people.*[26]

But more specific to Puerto Rico, Klumb came to see the *jibaro* hut as a complex social, economic, and cultural symbol. On the surface, these shacks symbolised the island's substandard living conditions, lack of economic opportunities, and lack of government services for the rural population, among other problems. And yet where a casual observer may have rejected the *jibaro* hut as an inferior dwelling, Klumb may have also seen the *jibaro* hut as emblematic of the rural people's simple way of life, a life that he saw as intimately integrated with nature. Seen in this light, to Klumb these structures were a testament to the local population's abilities in place making under adverse circumstances. Even in the midst of the island's rugged terrain the local population was able to improve their condition by simply and creatively shaping their environment. In Puerto Rico so much could be done with so little. 'Just four walls and a roof – and in this climate – just a roof' was all that was needed, Klumb once remarked.[27]

On numerous occasions Klumb attempted to emulate and reproduce the *jibaro* hut type using modern building materials, construction techniques, and design sensibilities. Two key examples were his Low Cost Rural Houses and the Benitez Mountain Cottage.[28] In the Low Cost Rural Houses project *[9, 10]* Klumb worked with Puerto Rico's Office of Permits to provide standardised house plans that a *jibaro* and his family could build for simply the cost of labour.[29] In this project Klumb relied on a 3 ft x 3 ft spatial-structural planning grid and standardised building modules to transform a pre-existing local type into a flexible building system. Klumb did this, first, by replacing a static, single spatial unit (the small, one- or two-room, rectangular structure that comprised the entire house) with an even smaller and simpler unit (the planning grid). The grid then led to a set of building blocks (the bedroom, kitchen, and latrine modules) and, by extension, an increasingly varied combination of spaces. Next, Klumb infused his building system with a greater unity between the building and its surroundings. He combined stone-paved terraces, fenced-in yards, and even the latrines into an integrated whole tied into the spatial-structural planning grid. And lastly, as a nod to local environmental factors, in select houses Klumb included a breezeway that was oriented to the prevailing breezes. These various outdoor spaces were early manifestations of Klumb's open-air rooms, particularly those set in dense urban spaces detailed above.

In another example, the Benitez Mountain Cottage, a preliminary site plan *[11]* illustrates

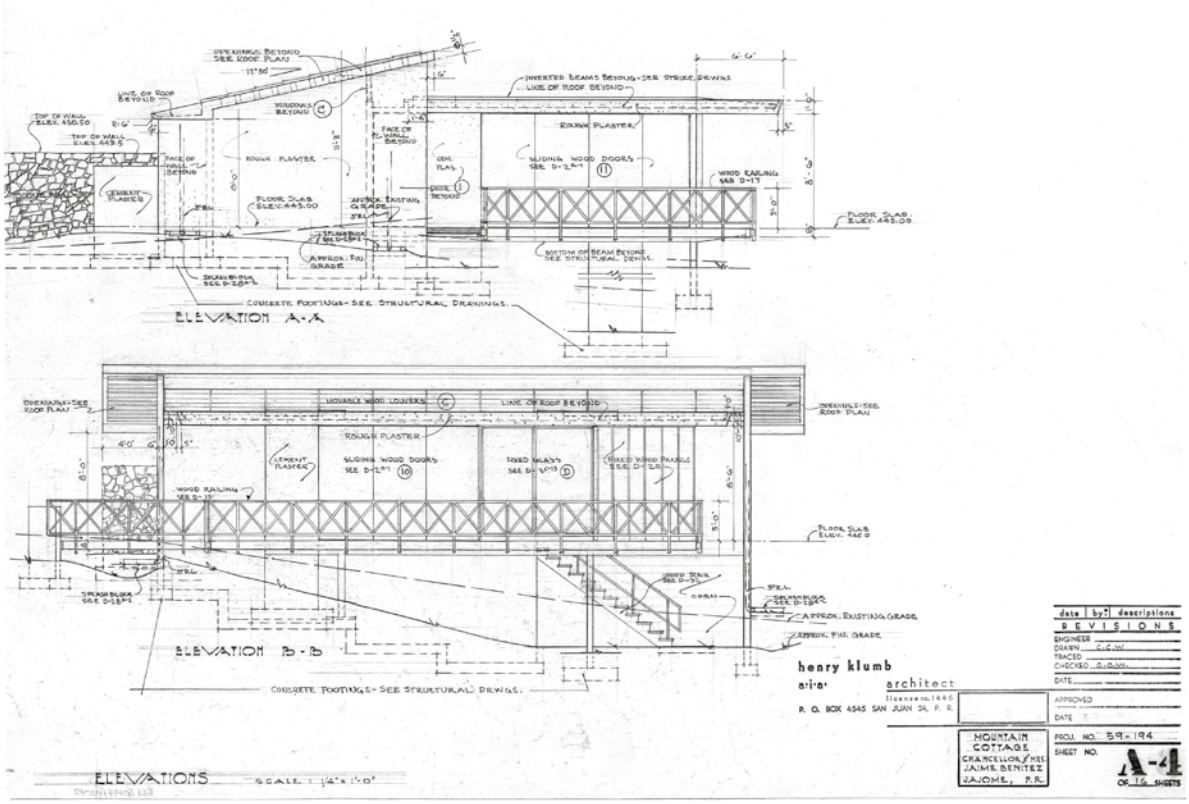
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12 The Benitez Mountain Cottage, floor plan, April 1961.

13 The Benitez Mountain Cottage, elevations, April 1961.



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important parallels with a *jibaro* hut. A *jibaro* hut has a dual orientation. It is first directed inward to the terrain that will allow physical entry into the house. Second, the hut is directed outward to the views of the farming fields that a *jibaro* and his family tilled. At the Benitez Cottage, the house is in firm contact with the ground on one of its corners. That point is the easiest entryway to the house. The other three corners of the cottage complete a platform that hovers over the sloping terrain on stilt-like supports. These three corners project out towards a panoramic view of nearby mountains, valleys, and even as far as the ocean on Puerto Rico's southern coast. In designing the Benitez Cottage, Klumb also altered and augmented the *jibaro* hut type *[12, 13]*. A concrete slab, *pilotis*, and concrete footings supplanted the original wooden platform and supporting posts. At the superstructure, the *jibaro* hut's basic palette of wood planks and structural frame, and sheet metal roof ceded to full-height glass windows, sliding doors, wood louvers and railings, concrete beams and roof panels, ceramic floor tiles, and a mix of interior wall structures and surfaces, among them concrete, stone, and plaster.[30] And yet despite its increased complexities, in the living room and the veranda Klumb retained a functional simplicity that was true to the spirit of a *jibaro* hut. The cottage remained a simple dwelling that is low in profile, almost square in plan, containing a few rooms.

As a key part of Klumb's overall legacy we can add a pioneering intellectual curiosity in the area of vernacular architecture. Klumb leveraged this curiosity chiefly in numerous public works. In his private residences, even though they catered to more affluent clients, Klumb's lessons from the vernacular enabled him to perpetuate, through modern materials and methods, an important cultural heritage. This was significant for people who wished to reaffirm ties with the Puerto Rican countryside, whether through a weekend getaway house, a vacation retreat, or a home in the periphery of the island's suburbs or far from a city centre.

Klumb's topographical-contextual planning grids

Klumb's third creative adaptation of modern design practices is evident in his spatial-structural planning grids. Klumb did not organise or give shape to his houses through grids that were beholden to preconceived, modern notions of abstract spatial order or structure. His grids went far beyond creating a simple L-shaped house or twisting his buildings into pinwheels. Instead, in his residences Klumb leveraged his grids to integrate each house with the minutest details of its topography, environmental factors, and vistas. Through this practice, Klumb's spatial-structural planning grids became topographical-contextual planning grids.

Klumb used a variety of planning grids, including an equilateral triangle unit grid that could be combined to form highly unusual rhomboidal grid patterns and hexagonal rooms.[31] However, by far his most common grid system was a 4 foot square unit grid. Two houses based on this grid were the Haeussler and Ewing residences.[32] Klumb's manipulation of the 4 foot square planning grid at the Ewing Residence makes this house an aberration on its street *[14, 15]*. Whereas its neighbours are oriented parallel to the street, Klumb rotated one wing of the Ewing Residence so that the terrace at the back of the house would face both the prevailing breezes to the site and *El Yunque*'s tropical rainforest and natural preserve seventeen miles away. The other wing of the house is rotated so that it is in line with the contour intervals of the steep slope behind the house. So in the case of the Ewing Residence, the house is the result of a careful reading of ground conditions both immediately near and very far away.

In the Haeussler Residence *[16]* Klumb initially orientated the planning grid parallel to the site boundary and street to the south. Most of the house's service spaces – the garage, servant's room, laundry, and entry porch – are aligned from north to south on an axis perpendicular to the site's southern edge. But as the house continues northwards into the living room and bedroom wing the planning grid rotates 76 degrees in a counter-clockwise direction. This sudden, unexpected, and new orientation accommodates three prominent trees on the property. Indeed, the house appears to be sandwiched between five large trees (shown as

14 Current satellite image of the Ewing Residence in relation to its street and neighbours (with axes superimposed on the image by the author).

15 Current satellite image of the Ewing Residence (with axes superimposed by the author).

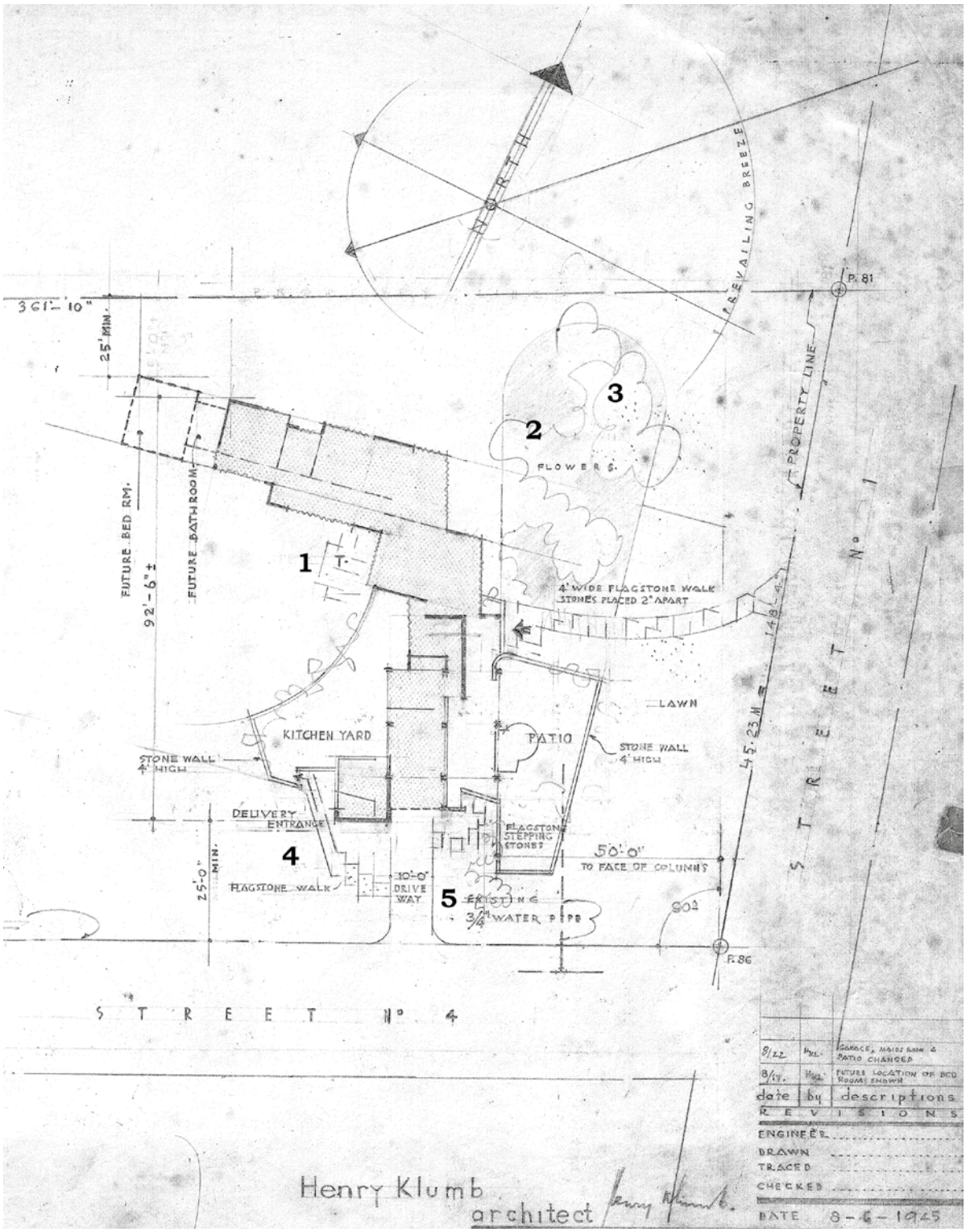


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16 The Haeussler Residence, site plan, August 1945 (the designation of the five numbered trees is by the author).

numbers 1–5 on the site plan). The first three and most prominent trees include one at the back of the house and directly west of the living room (no. 1). This tree sits next to a small terrace, and is encircled by the northern wing and the kitchen and laundry yard's curvilinear wall. The other prominent trees are two large trees on the northeast corner of the property (no.s 2 and 3). These two trees are immediately outside and readily visible from a corner bedroom and the living room. The last trees sit on either side of the driveway, one to the east and the other to the west (no.s 4 and 5).

I contend that Klumb's many idiosyncratic, topographical-contextual planning grids stand as his most inventive adaptation of a modern design practice. That is because Klumb did not begin a project by using a grid system to impart order upon a building's footprint, site, or landscape. He instead

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derived order from the landscape, its vistas, and a site's environmental factors (especially the prevailing winds). He then imparted that order back onto his houses through an appropriate grid, either a square, triangular, or rhomboidal grid depending on the conditions that governed each project. Consequently, his grids were not beholden to a larger, governing pattern or grid system such as a cartographer's mapping grid, a city grid, or even a site's lot lines. His grids were inherently localised to the smallest details of each site's regulating lines. He demonstrated an acute awareness of each project's surroundings both far and near. Therefore, each house's planning grid and its site's natural contexts made allowances for one another, and engendered a complementary union between the built work and its surroundings.

Conclusion

The picture of Klumb that emerges from his core architectural principles, his critiques of modernism, and his creative adaptations of modern design and construction practices is one of carefully crafted contradictions. During the dynamic first half of the twentieth century Klumb took part in the rapid ascent of modernisation, most notably with Wright and later in Puerto Rico. Nonetheless, Klumb still managed to maintain a critical distance in relation to some of the most celebrated projects and figures of this era. We may call such a person a critical participant, as this term illustrates the ways that Klumb fully contributed to the formulation and promotion of modern advancements, worldviews, or ideologies, but at the same time he sought to obviate the unintended, harmful, and sometimes catastrophic consequences of modernisation.

Klumb's journey as a critical participant began as a young person who was both curious and hopeful for the modern world that was evolving around him in the early part of the twentieth century. Next, Klumb would go on to realise some of his most important ambitions by aligning himself with numerous key figures and places. Chief among these were Frank Lloyd Wright and his Taliesin (a place that Klumb saw as the highest embodiment of Wright's Organic Architecture philosophy), Puerto Rico's social, political, and economic transformations following the Second World War, and the island's environmental concerns of the same era. Lastly, Klumb's hopes for a truly progressive modern world for all – from the affluent urban dweller to the rural family in need of collective support – were diminished in what he saw as a largely unrealised social agenda of much of the modern architecture movement.

As a critical participant, Klumb came to regard the modern architecture movement's aspirations towards social betterment and service to humanity all too often as merely masks for aesthetic agendas and egotistical artistic experimentations. More importantly, the movement's aspirations were empty when they resided purely in the abstract. It was not until these professed aspirations were directed towards the needs of a specific people, time, and place – not as experiments, but rather as real action in the service of substantial populations – that architecture's highest aspirations could be realised. And although Klumb's critiques of modernism were rather heavy-handed for effect, he should not be misunderstood as someone who had lost the hope for a truly progressive world. Quite to the contrary, he simply held firm in the belief that any progress that was not measured 'in human terms' and that did not 'result in the creation of a world of human dignity and beauty' was no progress at all.[33] In the end, Klumb's critiques of modernism, and of a number of modern architecture's ideologies and key figures were especially cutting because they came from an individual who was a product of the times, cultures, and places that gave rise to the modern architecture movement itself.

If Klumb adopted certain aspects of the modern architecture movement, he did not do so slavishly. The demands of both the particular island environments in Puerto Rico and of its people were far more important to him than any ideological constrictions or aesthetic practices he may have inherited from the International Style or any other architectural trend. Therefore, he countered the ongoing erosion of the natural world, the neglect of traditional building practices and cultures, and the abstract, strictly geometric ordering of the built environment with his natural houses in dense urban spaces, his devotion to vernacular influences, and his merging of the grid and the landscape.

Notes

1. Josean Figueroa and Edric Vivoni, *Henry Klumb: Principios Para Una Arquitectura de Integración* (San Juan, Puerto Rico: CAAPPR, 2013), p. 12; Rosa Otero, *Permeable Walls and Place Recognition in Henry Klumb's Architecture of Social Concern: A Dissertation in Architecture* (Philadelphia, Pennsylvania: The University of Pennsylvania, 2005), pp. 146–7; Enrique Vivoni-Farage, 'Modern Puerto Rico and Henry Klumb', *Docomomo*, 33 (September 2005), 27–37 (p. 34). Of these four Klumb scholars, Otero offers the most nuanced treatment of Klumb's complex attitude towards and against many of modern architecture's leading figures.
2. Henry Klumb, 'Wright, the Man', in *In the Cause of Architecture*, ed. by Frank Lloyd Wright and Frederick Gutheim (New York, New York: The Architectural Record, 1975), pp. 12–15 (pp. 13–14); Henry Klumb, 'Writings by Henry Klumb: 1935–1982', in Rosa Otero, *Permeable Walls*, pp. 304–27 (pp. 320–1); Unknown author, 'Klumb of Puerto Rico', *Architectural Forum*, 116 (July 1962), 86–90 (p. 88) [The Architectural Forum did not list an author for this article]; Frank Lloyd Wright, *Letters to Apprentices* (Fresno, California: The California State University Press, 1982), pp. 194–5.
3. The gradual introduction of modern architecture to Puerto Rico preceded Henry Klumb's arrival on the island by more than thirty years. Among the first major influences was a Czechoslovakian architect, Antonin Nechodoma (1877–1928), who very closely emulated Frank Lloyd Wright's Prairie Style houses. Another

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notable influence was the Art Deco style made popular on the US mainland in the first half of the twentieth century. A third influence consisted of a small group of local architects who were educated in the United States and who would emerge contemporaneously with Klumb as influential modern architects on the island.

4. Klumb, 'Writings', pp. 304–05, 321; and the Architecture and Construction Archives at the University of Puerto Rico in Rio Piedras (hereafter AACUPR), the Henry Klumb Collection, Box 84.12, 'Excerpts from an interview given to Julio Marrero for PALIQUE in 1954 and brought up to date', 6 May 1959, pp. 1–7 (p. 1).
5. AACUPR, the Henry Klumb Collection, Box 84.39, Henry Klumb, letter to Leopold Kohr, 14 April 1982. The quotations and capitalisation of Protagoras' maxim is by Klumb.
6. Klumb, 'Writings', p. 321.
7. AACUPR, the Henry Klumb Collection, Box 3.3, Henry Klumb, internal memorandum to the Committee on Design of Public Works (CDPW), 16 August 1944.
8. AACUPR, the Henry Klumb Collection, Box 100, Henry Klumb, *Henry Klumb: Eight Architectural Concerns*, n.d.
9. Klumb, 'Writings', p. 305.
10. Ibid., p. 321; AACUPR, the Henry Klumb Collection, Box 84.22, Henry Klumb, letter to Ada Louise Huxtable, 6 August 1981.
11. Klumb, 'Writings', p. 320.
12. Klumb, 'Wright, the Man', p. 12.
13. Ibid., p. 13; Klumb, letter to Huxtable, 6 August 1981.
14. AACUPR, the Henry Klumb Collection, Box 83.24, Henry Klumb, letter to Edgar Tafel, 17 June 1981; AACUPR, the Henry Klumb Collection, Box 84.22, Henry Klumb, letter to Theodore Moscoso Jr, 10 July 1981.
15. Klumb, 'Writings', p. 320.
16. AACUPR, the Henry Klumb Collection, Box 84.4, Henry Klumb, 'Prepared for the Opening of "Skyscraper Architecture" an Exhibit at the Library of the U.P.R.', 1954, pp. 1–15. Klumb delivered this lecture at the opening of a student exhibit of high-rise architecture. Also at this time Puerto Rico was in the middle of a post-Second World War building boom that included numerous high-rise buildings in the capital city of San Juan and the surrounding metropolitan area.
17. Klumb, internal memorandum to the CDPW, 16 August 1944.
18. Klumb, 'Skyscraper Architecture', p. 3.
19. AACUPR, the Henry Klumb Collection, Box 84.9, Henry Klumb, Untitled document – miscellaneous handwritten notes, undated.
20. The capitalisation of 'Natural House' follows Frank Lloyd Wright's use of the term, similarly to Wright's 'Organic Architecture'.
21. Other examples that exemplify Klumb's houses in dense urban spaces include the Benus (1949), Dubner (1950), and Levin (1951) houses. See projects HKl/0043, 0054, and 0086, respectively, in the Henry Klumb Collection.
22. AACUPR, the Henry Klumb Collection, Box 83.2, Henry Klumb, letter to Leopold Kohr, 7 September 1971.
23. Carol Jopling, *Puerto Rican Houses in Sociohistorical Perspective* (Knoxville, Tennessee: The University of Tennessee Press, 1988), p. 5; John Vlach, *The Afro-American Tradition in the Decorative Arts* (Cleveland, Ohio: The Cleveland Museum of Art, 1978), pp. 124–5, 128, 135–8.
24. AACUPR, the Henry Klumb Collection, Box 100, Henry Klumb, *Committee on Design of Public Works: 1944, 1946–1948*, and *The Office of Henry Klumb 3: Architecture of Social Concern, 1944–1947*, n.d.
25. Amos Rapoport, *House Form and Culture* (Englewood Cliffs, New Jersey: Prentice Hall, 1969); Bernard Rudofsky, *Architecture Without Architects* (Garden City, New York: Doubleday, 1964). J. B. Jackson's contributions in the area of the modern vernacular are many, but I would point readers first to *A Sense of Place, a Sense of Time* (New Haven, CT: Yale University Press, 1994).
26. AACUPR, the Henry Klumb Collection, Box 84.10, Henry Klumb, 'On Tropical Architecture', n.d., p. 2.
27. Klumb, 'Writings', p. 310.
28. Other examples that exemplify Klumb's vernacular influences include the Fullana (1954) and Evans (1961) houses, the Tugwell Cottage (1964), and the Foreman Mountain Retreat (1974). See projects HKl/0108, 0208, 0244, and 0256, respectively, in the Henry Klumb Collection.
29. AACUPR, the Henry Klumb Collection, Box 2.59, Henry Klumb, letter to Paula Elkind Echeverria (The Architectural Forum), 24 March 1949.
30. A *jibaro* hut's sheet metal roof was a twentieth-century addition to this vernacular building type.
31. Three examples of Klumb's rare and unusual triangular planning grids are found at the Evans Residence, Tugwell Cottage, and Foreman Mountain Retreat (see n. 28 above). In each of these cases Klumb was solving design problems set far into Puerto Rico's rural and mountainous countryside, or in greenfield sites that were far from Puerto Rico's major cities and rapidly expanding suburbs. In both Klumb's square and triangular systems, his grids were instrumental in creating strong links between a building, its organising grid, and its underlying and foundational ground conditions. These practices by Klumb demonstrate a strong influence from his onetime mentor Frank Lloyd Wright. Klumb's hexagonal rooms, for example, allude to projects such as the San Marcos Water Gardens, which Klumb worked on while employed by Wright.
32. Other examples that exemplify Klumb's merging of the grid and the landscape through a 4 foot square grid include the Bosch (1944), Fernandez Garcia (1950), Eloy Rodriguez (1951), and Dreyfuss (1972) houses, and the Duchow (1958) and Diaz-Osborne (1983) residences. See projects HKl/3057, 0049, 0088, 0245, 0161, and 3370, respectively, at the Henry Klumb Collection.
33. Klumb, 'Skyscraper Architecture', p. 1.

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