

Modernist Design for the Borderland. A Case Study. The Massey House in El Paso, Texas by David Hilles in 1952

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Reconsideration of Modernist Design in Terms of Sustainable Strategy

It would be helpful to the sustainable agenda if buildings of the heroic period of modern design were more readily discussed in terms of energy management and appropriate technology, rather than for their formal and experiential attributes. To this end, the study of famous buildings designed for difficult climates can be fruitful. Le Corbusier's houses for the Indian sub-continent come to mind as a vital resource. His much celebrated Villa Shodan in Ahmedabad, to illustrate the point, is demonstrably the product of a process where sustainable strategies, such as including the open room, planning for natural ventilation, and protecting the building from the sun, work hand in hand with, if not fully animate, the architectonic and sculptural agenda of the design.

The Shodan House exists, regrettably, as an exotic building few of us will ever visit. Alternative models, built in the United States and readily accessible, need to be identified for study. The south and the west regions of the country are home to works by architects such as Paul Rudolph, E. Fay Jones, O'Neal Ford, Rudolph Schindler, Richard Neutra, and Harwell Hamilton Harris that offer this potential. The accommodation of climate and geography considerations in the works of these architects does not occur as a second tier consideration, nor does it dull the effects of the art. On the contrary, the mingling of architectonic spectacle and response to climate

is the principal and vital characteristic of many of their works, particularly those of Rudolph and Schindler.

Constituents to Sense of Place

The largely unrecognized mid-century houses designed by Borderland architects Robert Garland and David Hilles of El Paso is worthy of consideration in this context. Their houses, 29 built between 1952 and 1962, significantly



Fig 1. View of model from the northwest.

contribute to the sense of place and cultural history of that city while exhibiting considerable finesse at managing the effects of the climate. They were important to the social milieu of their era and remain relevant to the historical context of the current city. In *Genius Loci*, Christian Norberg-Shulz defines "existential space" as that which is comprised of the basic relationship between man and his environment¹. He goes on to write that the making concrete of that relationship with buildings and cities, that clarify and explain the environment, is how a sense of place comes to be. For the author, the houses of Garland and Hilles do just that. The lines, the proportions, the materials, and most importantly, how the houses engage the ground, communicate a partnership between human occupation and the landscape that must certainly be what Norberg-Shulz is referring to.

Context: Climate, Geography of *El Paso*

The geography, made up of desert, mountains and a river, makes the natural environment of El Paso unique in Texas and distinctive by any comparison. A break in the north-south running mountain range that permits the course of the Rio Grande to turn east towards the Gulf of Mexico is origin of its name. Modern El Paso wraps around Mt. Franklin, the mountain mass just north of the pass, which is situated above and east of the river. The old city of Juarez, the original city at the pass, sprawls close by to the south.

Located as it is in the Great Chihuahuan Desert, El Paso suffers summers that are blisteringly hot and winters that can be unexpectedly cold. Annual rainfall averages around a withering eight inches. Comparing favorably with the other climates of Texas, however, the seasons are distinct. Fall, parts of the winter, and spring can be delightful. Opinion about the physical appearance of the city is never ambivalent, provoking, as it will, strong and contrasting impressions. Some districts evoke a sun-bleached and neglected moonscape, while others bring to mind a kind of desert Eden, especially if they happen to be close to the river. The whole is anchored and unified by the treeless mass of the mountain, visible everywhere and at any time of day which, ruggedness aside, is beloved by El Pasoans. Acute awareness of the geography and climate runs deep and contributes heavily to the sense of the city's identity.

The sun in El Paso is the serious consideration: it is both a benefactor and a ferocious enemy, especially in the summer. If the sun fails to impress, there is the wind and the blowing sand, a gritty nuisance that can render unscreened spaces uninhabitable. Careless planning relative to either the sun or the wind can render building interiors and even outdoor spaces nearly unusable, or too expensive to use because of cooling costs.

The Social and Historical Context

The end of World War II brought an explosion of change, expansion, and growth to the nation extensively written about. The construction industry boomed in response to a two decade long build up of shortages, particularly for single family housing, created first by the depression and later by four years of conflict. In this same period, the Cold War materialized and defense spending expanded in certain industries and weapons development programs, as well as the cities associated with them. El Paso, home to venerable Ft. Bliss and the newly important Biggs Field Air Force Base, in addition to the city's proximity to White Sands Missile Range in southern New Mexico, was poised to benefit immediately. The resultant engine of military spending energized a city economy that had been stagnant since even before the depression. In addition to those newcomers serving the expanding military, the city attracted young professionals from all over Texas as well as other parts of the country who were drawn by the opportunity.

The population city grew to from 131,067 in 1940 (note that it had declined since 1930) to 314,070 by 1960². Young doctors from elsewhere were common, finding their ways to internships in El Paso's hospitals from as far away as Chicago and New York. Retail and service providers benefited from the boomtown atmosphere. Within a short number of years, many of these doctors, as well as newly prosperous merchants, would commission Garland and Hilles to design their houses.

Massey House. The Commission

The Massey House was one of the first unabashedly modern, International Style, houses to be built in the city. That it would assume importance as a destination for social scene was just as important as its place in the

cultural development of El Paso. The clients, Robert and Jeanne Massey were prominent figures in the arts community; he was a painter and college professor, she a public school teacher and leader in the theater community. Their parties would draw many influential El Pasoans to the house, which became a convincing example of a modern house for others seeking to build their own.

The Masseys, joining many that migrated to the city to take advantage of available jobs, arrived in El Paso in 1951. Robert was recruited to teach at the local college, then called Texas Western, and Jeanne found ready employment on the understaffed faculty of the public school system. Having lived and studied in places like New York and Havana, the couple was familiar with the contemporary design theories of the day. She earned a degree in drama at Columbia in New York. He studied painting at Syracuse, where he taught following graduation. Together, their personalities and worldly outlook would make a significant contribution to the cultural scene of their adopted home³.

Following two years of renting, the couple purchased a small lot in an older established neighborhood in the western foothills of Mt. Franklin and asked David Hilles, Jeanne Massey's brother, to prepare a design for a house. The commission would encourage him to move to El Paso where he would later build a thriving professional practice. By hiring Hilles, the Masseys harnessed a confluence of youthful exuberance, cultural experience, talent, and ambition that produced such an interesting house.

Which Massey House for the Case Study?

Like so modern houses of the mid-century, the Massey House has suffered numerous later additions and remodeling campaigns that compromised the quality of the original design. The 1,438 square foot house finally built in 1955 represented only the first anticipated phase of a construction sequence that would eventually yield a house of 1,855 square feet. With each subsequent construction phase, generally directed by the Masseys without the close supervision of Hilles, the design drifted, regrettably, away from the architect's original intentions. To fully explore Hilles' ideas, the case study examines the original design only,

deduced from the original construction drawings.

The Massey House Design

The site for the new house was not promising, probably accounting for the lot remaining vacant in this already developed neighborhood. It is narrow in width, unusually deep, and features a pronounced grade change. Imagining the site before the construction of the house, one would have seen a stony and vegetation free patch of land with a grade that sloped down from left to right and from the rear to the front. A conventional house would be difficult to build there. The experience of working with this far from ideal site, on a positive note, prepared Hilles for later commissions for houses on even more difficult sites, many located higher up the mountain.

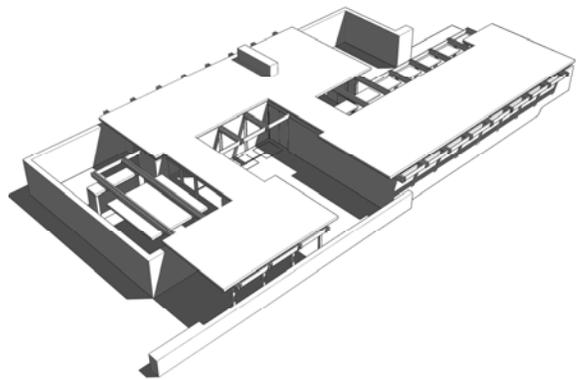


Fig. 2. Isometric From Northwest

What the lot had going for it was its orientation. The street line faces northeast and the perpendicular and parallel side property lot lines aim to the southwest. This is the ideal orientation for a building in El Paso in terms of capturing the wind. From the website of the Texas Commission on Environmental Quality, the following prevailing wind directions are established. In the hot months of the year, roughly from March until September, the wind is anticipated to arrive from either the northwest or the southeast. During the cold months, it is expected out of the north and northeast. Thus, the narrow site permits the maximum exposure to cooling wind, on the parallel lot lines, and a minimum exposure to the hostile cold wind coming from the north at the front. A conundrum of the condition was this: the same northwest and

southwest orientation that is good for ventilation is terrible for sun exposure. The mid morning and the later afternoon sun, especially in the summer, is especially punishing from these directions.

In response to the conflicting factors, Hilles first conceived that the house would be pressed into the slope. This resulted in a finished floor, only one level was planned, that landed between 6 and 8 feet below the grade on the southeastern side at the rear. From there he deployed a pair of solid stone walls that run parallel to the lot lines and cut deeply into the site. Hilles then laid out the volumes of the actual house between these walls, making use their ability to protect with their height and opacity. An ingeniously designed strip of clerestory glazed operable vents, located at the tops of the walls and hiding directly behind the projecting and framed roof fascia boards, allows the breeze to penetrate. The projecting fascia boards protect the transom from the sun and sand, while allowing the penetration of the wind.

The house is protected from the north wind of winter by a windowless stone screen wall that wraps from the adjacent lot line and parallels the street. The design calls for an excavated court at the rear of the property. The excavation is so extensive, and the cutting so deep, that it was possible for one to step directly onto the roof from the undisturbed grade at points on the southeastern side of the house.

Although it might be tempting to attribute the excavation work and the use of indigenous stone for the walls to solely a strategy of managing heat and the desire to use locally available materials, examination of the model reveals the strong architectonic character of the results: the shifting planes of the flat roof and their massive supporting walls communicate a striking relationship between the architecture, the site, and by extension the broader geography of El Paso. This sensitivity to, if not exploitation of, the geographic character of a site emerged as the most distinctive characteristic of the later designs for houses produced by Hilles and his partner Garland, almost all of which feature ground hugging horizontal planes that contrast strongly to the mountainous landscape.

Enclosed and Semi-Enclosed Courtyards, the Outdoor Room

Entering the house by way of the carport, one encounters a 4,421 square foot matrix of designed indoor and outdoor spaces that includes four outdoor courts, all seemingly positioned as a result of the shearing motion of the stone lot line walls. It is interesting to note that mechanically heated and cooled space accounts for only 42 percent of the whole. The enclosed public rooms, the living room and dining room combination and the den, stretch along the southeastern wall and split a focus between the living court initially entered and the bedroom court at the rear. A range of bedrooms strung out on along the northwest wall toward the rear of the site focus on the above mentioned bedroom court.

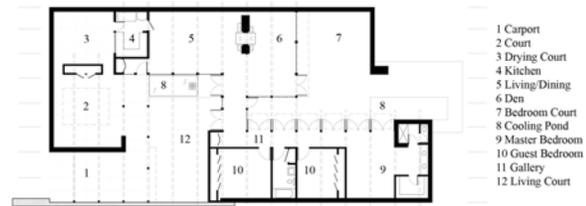


Fig. 3. Floor Plan. Original Design

Hilles must have assumed early on that the climate would permit the extensive use of unheated or cooled outdoor space. Having grown up in El Paso, the author can attest to the viability of the assumption: if an outdoor space is protected from the sun and wind, it can be used for most of the year and found desirable and comfortable for more than half of it. Intuition or style aside, Hilles' decision to incorporate out of door rooms constitutes the most sustainable strategy of the scheme. Spaces in the constructing drawings are identified and specified in terms of use with names like "living court" (the one first encountered), the "drying yard," and the "bedroom court." Clearly, he intended these spaces to serve beyond their ornamental associations.

The courts make use of the Mexican and Latin American tradition of the using enclosed but open to the sky courtyards in hot and hostile climates. They also recall the *zaguan*, or covered breezeway, of Mexican colonial architecture and the dog trot of southern pioneer housing. Surprisingly, Hilles is not

remembered to have held an interest in vernacular architecture. The courts are attributed, instead, to his interest in contemporary architecture.

An intriguing feature of Hilles' design was the specifying of canvas and screen mesh covers for two of the courts and for the use of the canvas awnings extensively within the ancillary protecting pergolas. The idea of the canvas might have originated with Wright's Taliesin West where it was used extensively as the roof covering early in the life of the building. Regrettably, no one can recall having seen the canvas in place at the Massey House or experienced the light qualities the canvas probably produced. It could be expected that the glow coming from the fabric provided a pleasing diffused and glare free light source for the adjacent spaces. The wire mesh was used, and remembered, in the small and interesting space identified as the "drying yard" outside of the kitchen. This space was used to dry clothes.

Finally, Hilles designed two pools for the house. The first is located in the living court and the second off the master bedroom in the bedroom court and are strategically located to temper the breeze coming in from the northwest/southwest directions before it penetrates the adjacent interior spaces. A pair of glass doors opens directly over each pool to maximize the flow of air. In addition to cooling the air, the pools certainly contributed a desirable increase in humidity.

Checklist of Sustainable Design Accomplishments

Hilles might not have understood or used the expression "sustainable design" means. He nevertheless produced a design that performs as such. A checklist of what he accomplished is set out with the following:

- Spaces and openings are oriented to maximize natural ventilation.
- The building volume is depressed into the grade to minimize warm season heat gain and maximize cool season heat retention.
- Inexpensive and abundantly available materials (Mt. Franklin limestone) are used.
- Usable outdoor rooms are incorporated.

- Pools of water are strategically placed to cool and humidify the air.
- Canvas sun screens are deployed to block direct sunlight and to minimize glare.

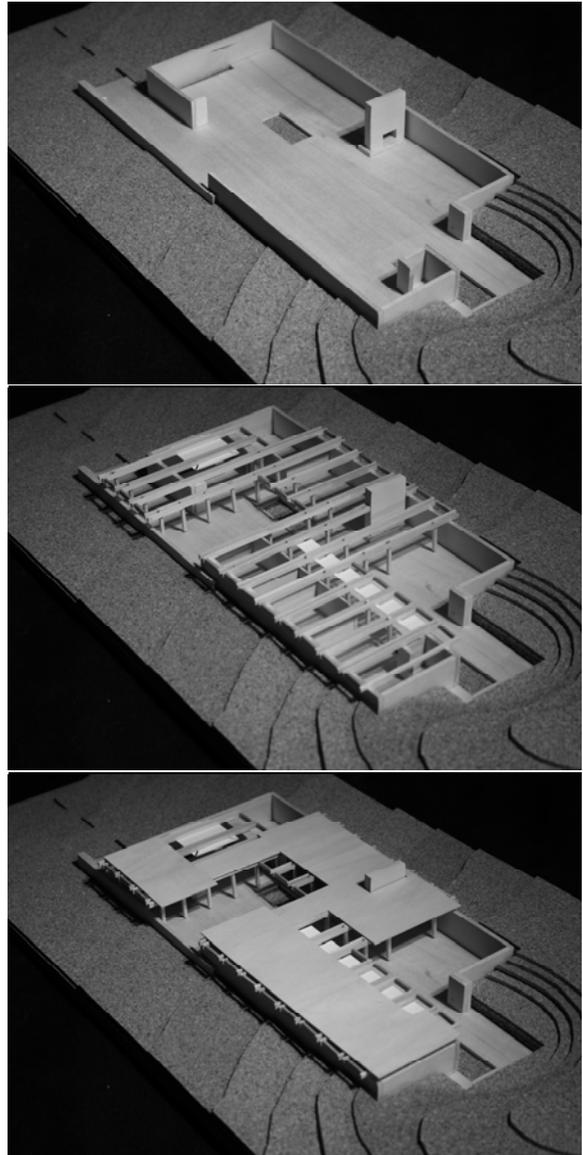


Fig. 4. Architectonic Sequence

The Architect and His Influences

David Hilles was born in 1926 and grew up in the small town of Stillwater, Oklahoma. He earned a first degree in math at Oklahoma A&M. Following a tour of duty in the Navy during World War II, he attended Yale where he completed a professional degree in

architecture. At Yale and while studying in the east, he was exposed to the significant architectural trends, practitioners, and personalities of the era.

Following graduation in 1951, Hilles worked for the gifted architects Paul Schweikher and Winston Elting in Barrington Illinois. While in Illinois, he gained the first hand experience of Wright's work. As mentioned above, his three year apprenticeship with Schweikher and Elting ended with the commission of the Massey House and his move to El Paso in 1952. He formed a partnership in 1955 with his Oklahoma acquaintance Robert Garland, himself a recent newcomer to the city. Hilles practiced architecture until his death in 1997.

In terms of the influence of other architects, Hilles, like every architect of his generation worked under the heavy shadow of Frank Lloyd Wright, who was still producing formidable work, particularly designs for houses, in this period. His Usonian houses became the source, with varying results, for the modern American vernacular housing type called the ranch house emerging in this period. Beyond Wright, Mies van der Rohe and Breuer are detected as influences. Mies drew attention to courtyard houses in an era otherwise preoccupied with Wrightian limitless horizontality. Breuer revealed the potential of adding rustic and vernacular materials to the then acceptable modern material palette.

Schweikher is no doubt the most important influence. The use of semi-enclosed courts, organize by the cruciform of the plan, characterizes his own house and studio in Schaumburg, Illinois of 1937 and many of the others he designed⁴. Schweikher's interest in Japanese architecture might have also stimulated Hilles' experimentation with articulated wood structures. One of his best works, the magnificent Upton House in Scottsdale, Arizona built in 1951, is replete with outdoor courts, screened porches, and mediating pools of water that Hilles was fond of using⁵.

Referring to Arizona raises additional connections with to Taliesin West. First, because Wright depressed some of the volumes of the buildings into the landscape, achieving poetry with the image of a building that burrows into ground as a response to its harsh context, as a result. Second, because Wright exploited the architectonic potential of

the stone found at the site, using it extensively in wall and foundation structures. Finally, and most obviously, because Wright introduced the use of canvas as mentioned above.

The Houses of Garland and Hilles and the Sense of Place

The prodigious number of houses built means that a significant number of El Pasoans have a personal connection to the work of David Hilles and his partner Robert Garland. The houses, found in most neighborhoods, make a strong and conspicuous contribution to the perceived architectural wealth of the city, which is notably free of a preoccupation with the Spanish Colonial style favored in other southwestern cities. El Pasoans like architecture and are proud of the early twentieth century buildings of Henry Trost who is responsible for introducing the Prairie Style to this far away place.

Every building must necessarily respond to geography and climate, even if it does so incompetently. When a building does it right, a revelation about the place and about architecture occurs; the genius loci is made manifest as Norberg-Shultz put it. The Massey House accomplishes that revelation and the inventions and innovations Hilles' experimented with on his first commission would inform all of the subsequent Garland and Hilles' houses as well as the work of other El Paso architects. The design retains a relevance that is perhaps even more applicable now that when it was in the low energy cost era of the 1950s. It is a beautiful design that has the potential to excite as well as perform.

As an educator, it does not help when high profile design oriented architects like Peter Eisenman public announce their own lack of interest or comprehension in sustainable design. At a symposium organized by NYIT last spring, he, employing a venerable witticism, likened sustainable design to motherhood, saying that he was all for it, but did not understand anything about it. He was cheered by the audience. In stating this, he deftly distanced the high style and seductive work that he does from any obligation to energy management. He painted a regrettably misleading picture that high style or heroic design is necessarily above or removed from energy responsibility, and worse, that

sustainable design was unproductive in terms of art.

Within the body of modernist works, there are in fact many places to find exceptions to the above and to note that sustainable design strategy, even if it is not described as such, is inherent in the problem solving/ problem exploiting rigor of the creative designer. A case study like that of the Massey House creates a model for sustainable design that is compelling and relevant because it demonstrates how an architect can pursue an ambitious design agenda and achieve prudent energy and material management without a compromise in the quality of either.



Fig. 4. View of model from northeast

Endnotes

- ¹ Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture*, (New York: Rizzoli, 1980) pp. 1-7.
- ² C. L. Sonnichsen, *Pass of the North, Four Centuries on the Rio Grande*, Volume II (El Paso, Texas Western Press, 1980) pp. 54-75.
- ³ Extensive conversations with the widow of David Hilles, Mrs. Suzi Hilles.
- ⁴ Michael Webb, *Modernism Reborn, Mid-century American Houses* (New York: Universe Publishing, Rizzoli, 2001) pp. 48-51.
- ⁵ Luigi Serraino and Julius Shulman, *Modernism Rediscovered* (Cologne: Taschen 2000) pp. 73-75.