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THE SÃO PAULO HOUSES OF JOAQUIM GUEDES. DRAWINGS AND DETAILS

AS CASAS PAULISTANAS DE JOAQUIM GUEDES. DESENHOS E DETALHES

LAS CASAS DE SÃO PAULO DE JOAQUIM GUEDES. DISEÑO Y DETALLE

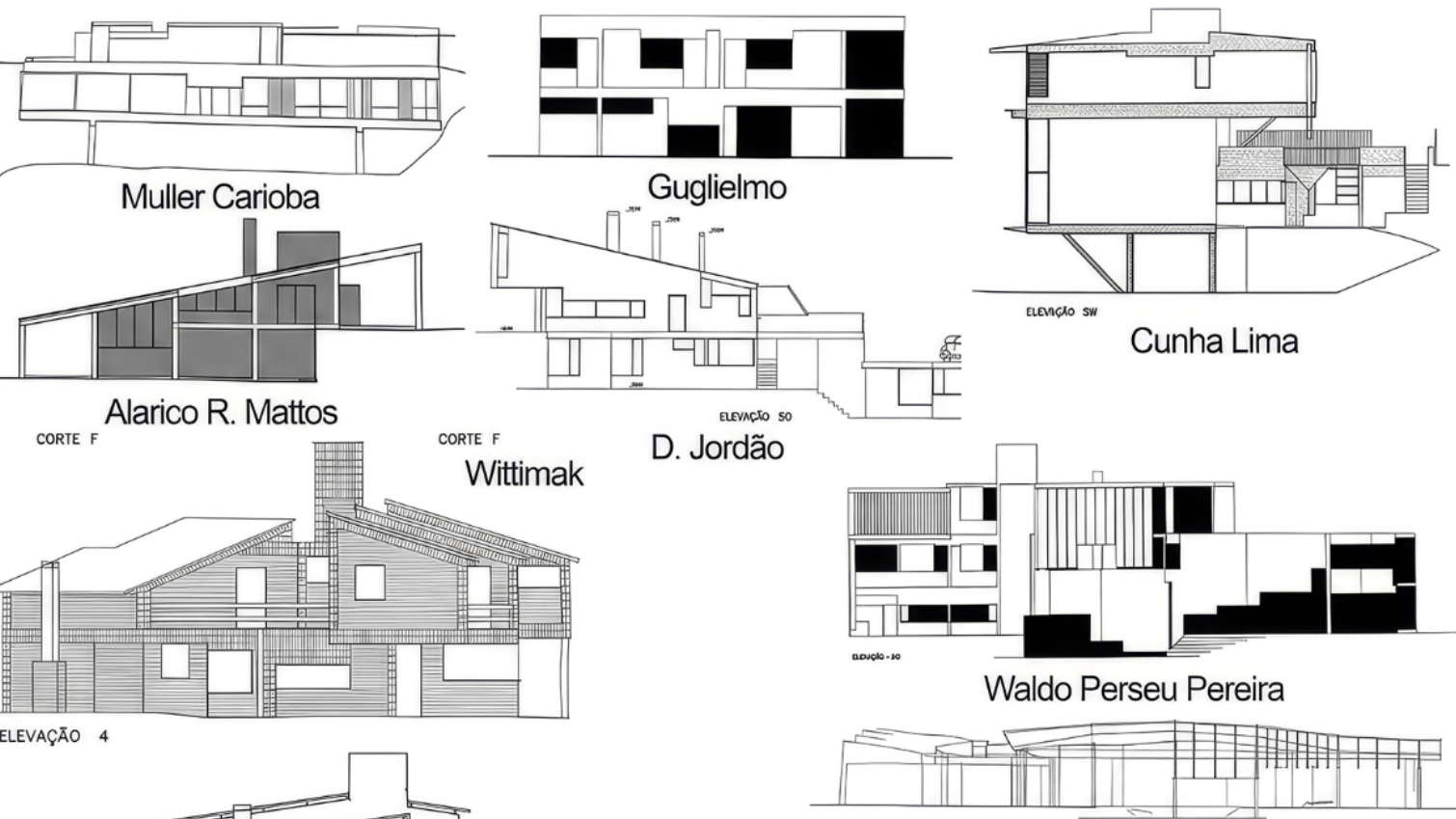


Figure 0. Elevations. Source:
 Joaquim Guedes collection FAUUSP/
 Authors.

ABSTRACT

The architectural office Joaquim Guedes & Associates and, in particular, Guedes himself developed projects on various scales, ranging from furniture and residences to institutional buildings and even cities. The city of São Paulo is home to many of his well-known works, especially residences, as well as lesser-known projects and works. The collection donated by the architect Joaquim Guedes to FAUUSP in São Paulo contains projects that have not yet been analyzed. These include the residential projects developed by Guedes and Associates, which were consulted and provided essential data and insights, allowing design strategies and distinctive characteristics to be identified. The study examines the construction details in the architectural drawings of houses in São Paulo, emphasizing notable features, particularly building elements such as windows, stairs, fireplaces, and roofs. This paper discusses how the modulation of spaces was achieved based on the dimensions of readily available materials, such as brick, fiber cement tiles, and ceramic tiles, which the architect explored as a rational construction process. The original contribution reveals how the locus of the architect's expertise was in his construction details.

Keywords: brazilian architecture, collection, composition, geometry, modern architecture

RESUMEN

El estudio de arquitectura Joaquim Guedes & Asociados, y en particular Guedes mismo, desarrolló proyectos de diversas escalas, desde mobiliario y residencias hasta edificios institucionales e incluso ciudades. La ciudad de São Paulo concentra muchas de sus obras más conocidas, especialmente residencias, así como proyectos y obras menos conocidos. La colección donada por el arquitecto Joaquim Guedes a la FAUUSP en São Paulo contiene proyectos que aún no han sido analizados, entre los cuales se incluyen proyectos residenciales desarrollados por su estudio, que consultamos y que nos proporcionaron datos y perspectivas esenciales, lo que permitió identificar estrategias de diseño y características distintivas. Este artículo examina los detalles constructivos presentados en los planos arquitectónicos de viviendas en São Paulo, destacando características notables, en particular, elementos constructivos como ventanas, escaleras, chimeneas y techos. Se analizó cómo la modulación de los espacios se produjo a partir de las dimensiones de materiales comunes, como el ladrillo, las placas de fibrocemento y la cerámica, que el arquitecto exploró como un proceso constructivo racional. La contribución original revela cómo el enfoque de la experiencia del arquitecto residió en sus detalles constructivos.

Palabras clave: arquitectura brasileña, colección, composición, geometría, arquitectura moderna

RESUMO

O escritório Joaquim Guedes e Associados e, em particular, o próprio Guedes desenvolveram projetos em diversas escalas, que vão do mobiliário e das residências aos edifícios institucionais e até às cidades. A cidade de São Paulo abriga muitas de suas obras mais conhecidas, sobretudo residências, bem como projetos e obras menos difundidos. O acervo doado pelo arquiteto Joaquim Guedes à FAUUSP, em São Paulo, contém projetos ainda não analisados. Entre eles, estão os projetos residenciais desenvolvidos por Guedes e Associados, cuja consulta forneceu dados e perspectivas essenciais, permitindo identificar estratégias projetuais e características distintivas. O estudo examina os detalhes construtivos dos desenhos arquitetônicos de casas paulistanas, com ênfase em soluções notáveis, em particular em elementos como janelas, escadas, lareiras e coberturas. O artigo discute como a modulação dos espaços foi obtida a partir das dimensões de materiais de fácil obtenção, como o tijolo, as placas de fibrocimento e as telhas cerâmicas, explorados pelo arquiteto como um processo construtivo racional. A contribuição original revela que o locus do domínio técnico do arquiteto residia em seu conhecimento dos materiais e de seus detalhes construtivos.

Palavras-chave: arquitetura brasileira, acervo, composição, geometria, arquitetura moderna

INTRODUCTION

Joaquim Manoel Guedes Sobrinho (1932–2008), who graduated in 1954 from the School of Architecture and Urbanism at the University of São Paulo, was an architect and urban planner. His office remained active from his graduation in 1954 until his death in 2008, influenced by Vilanova Artigas, Le Corbusier, and particularly Alvar Aalto, among others.

The book “Joaquim Guedes” by Mônica J. Camargo (2000) offers an important insight into some of Guedes' buildings. Indeed, in Brazil, special issues on his architecture were published in magazines such as *Acrópole* (Guedes, 1968; Guedes, 1969) and *AU* (Belleza, 2008). Guedes' housing projects have also been featured in international magazines, including *Summa* in Argentina and the Japanese magazines *Process Architecture* (Yamaki, 1980) and *G.A. Houses* (Futagawa, 2008), demonstrating his originality.

A collection of documents from the Joaquim Guedes & Associates office was donated to the FAUUSP library in 1997, where he was a professor for over 40 years. The collection consists of drawings, photographs, blueprints, and maps. The collection presents the different stages of the design process: preliminary study and sketches; preliminary design; detailed design; and complementary designs – structure and installations. Through these, it is possible to recognize his understanding and respect for the nature of each material by observing the technical drawings and their details.

His body of work includes numerous residential projects that have received awards and recognition in the São Paulo architectural scene. However, the house was a recurring theme in the architect's oeuvre. He shows this in the text “Inhabited Geometry,” which he wrote as the preface for the translation of Paul Valéry's book, “Eupalino, or The Architect” (Valéry, 1996, p.8):

“The house is the first construction, and construction, the theme, builds man. The house is his body, which is the measure of the world, gives the true references of pleasure and guides the spirit.” (free translation).

Guedes was also deeply focused on teaching work, particularly architectural design: “Architecture schools are not very different from the old Schools of Fine Arts; they seem not to know how to update the teaching of construction” (Valéry, 1996, p. 12, free translation).

In Socrates' dialogue with Phaedrus, Valéry highlights the importance of the Vitruvian triad: *utilitas*, *firmitas*, and *venustas*. It can be said that the concept of *firmitas* is closely connected to the tectonics of Guedes' architecture. In the following excerpt, the inseparability of this triad becomes clear:

“The body, therefore, compels us to desire what is useful, or simply convenient; the soul demands beauty; but the rest of the universe, with its laws and its accidents, obliges us to consider the question of solidity in every work” (Valéry, 1996, p. 139, free translation).

For Guedes, a residence should transcend mere utility; it should go beyond it; it should be a solid construction that meets the needs of the soul. It is the

art of building, or constructing with art, without neglecting human needs. His architecture highlights the value of his knowledge of material properties as an important part of the design process; similarly, Kenneth Frampton analyzed Carlo Scarpa's architecture, highlighting the veneration of the joint and the integration of heterogeneous elements (Frampton, 1996, p. 299).

This can be observed in the details, the encounter of materials and elements, which give value to the quality of the whole in its expressive and inhabited dimensions, making it suitable to the climate and location.

The study examines the construction details in the architectural drawings of houses in São Paulo, emphasizing notable features, particularly building elements such as windows, stairs, fireplaces, and roofs. We discuss how the modulation of spaces was achieved by considering the dimensions of available common materials, such as brick, fiber cement tiles, and ceramic tiles, which the architect employed as a rational construction process. The original contribution reveals how the locus of the architect's expertise was in his construction details.

FORMATION OF GUIDING CONCEPTS

Joaquim Guedes was influenced by important modern Brazilian architects of his time, such as Rino Levi, Carlos Millan, and Vilanova Artigas, as well as by international architects, particularly Alvar Aalto and Le Corbusier. His unease with what was being produced by São Paulo architecture was already present in the following 1957 statement: "...it was urgent to courageously confront the construction of space, setting aside purely formal solutions, free from the detestable façade game..." (Guedes, 1958, p. 19). Regarding the architects Carlos Millan and Rino Levi, Guedes stated: "I found in them support for this obsession of mine with scientific-constructive rigor" (Fracalossi, 2015, free translation).

Joaquim Guedes gradually sought to produce an architecture more centered on everyday social life and human needs, as he makes clear in this statement: "I take immense pleasure in seeing things born from the needs of social life." (Guedes, 1993) His careful observation of the daily life of construction and human needs led the architect to prioritize pragmatic measures in the art of building. "...we have a role: the architect can build," Guedes stated in an interview with Jean-Paul Dollé (Guedes, 1993, free translation). In this sense, it was traditional techniques and available materials that guided his design actions.

Guedes admired Lina Bo Bardi's architecture: "Cultured, and therefore devoid of arrogance, she seemed to have no doubts, but she asked questions; her method of knowing and inventing moved through refutation and contradiction, to reach the core of poetry. She frequently completed a scientific explanation by saying she only wanted to do something 'poetic.'" (Guedes, 1992) The reason for this may be her audacity in questioning the prevailing architectural trends of her time, hybridizing traditional techniques with modern ones, while simultaneously valuing the worker's craftsmanship.

Unlike the architects in São Paulo, Guedes did not use the two most frequent strategies of his time, especially between the 1950s and 1970s: the suspended nonvolume box and the large shelter. Except for the Cunha Lima residence (1958), Guedes kept his residences close to the ground, emerging from the terrain and not imposing themselves on the topography, as Frank Lloyd Wright did in his houses (Wright, 1954). The single-volume structure is an exception in Guedes' work, as in the Guglielmo residence (Guedes, 1968). The volumetry of his residences is fragmented, with acute angles in the multifaceted glass, diagonal walls, and "hand fan" shapes.

His approach to architecture stemmed from an affinity for reconciling humanism and organicism. Guedes explored a new lexicon of formal-spatial possibilities, distancing himself from the modern architecture of his contemporaries in São Paulo. If Bruno Zevi's book "Storia dell'Architettura Moderna" (Zevi, 1975) had an impact on his development, it was because it sparked renewed thoughts on the dogmas of modern architecture. Thus, Guedes's more inspired architecture, and consequently more integrated with the landscape and daily life, led to his recognition as a kind of dissident of the more orthodox modern architecture of São Paulo.

THE DESIGN PROCESS AND THE KNOWLEDGE OF THE MATERIALS

To be modern simply means that all materials are used honestly for the sake of their qualities, and that the materials modify the design of the building. (Wright, 1955, p.99)

Every design process, despite its technical rigor, is slowly built in an artisanal way. This fact is confirmed by the architect, who stated: "I must clarify that I consider all thinking work to be profoundly artisanal" (Fracalossi, 2015, free translation). On the other hand, we must say that he was a man of his time—the modern society. So, we can observe that Guedes' architecture is connected to industrial design and also with an artisanal way of thinking.

The design process is characterized by a gradual discovery of the problem's nature. However, it is through drawings that the architect gradually discovers the guiding thread of their thinking: "When I start designing, I feel that from a certain point on, it is no longer myself who commands the drawing, but the analyses demand that I make the drawing in that way... The reasoning is guided by the design, and it is the design that finds the intricacies through which it discovers the space, the forms of construction... I understand that being an architect is like being a doctor; it implies an obsession with solving problems" (Guedes Sobrinho, 2000).

According to the architect himself, the stages of project execution are: "First stage. Systematic and complete analysis of the program and the problems related to the theme. Study of the site and urban aspects; drafting a theory by the student for their project. Exploratory drawings, possibilities, initial ideas. Second stage. Based on the ideas, theories, and dimensional, functional, and

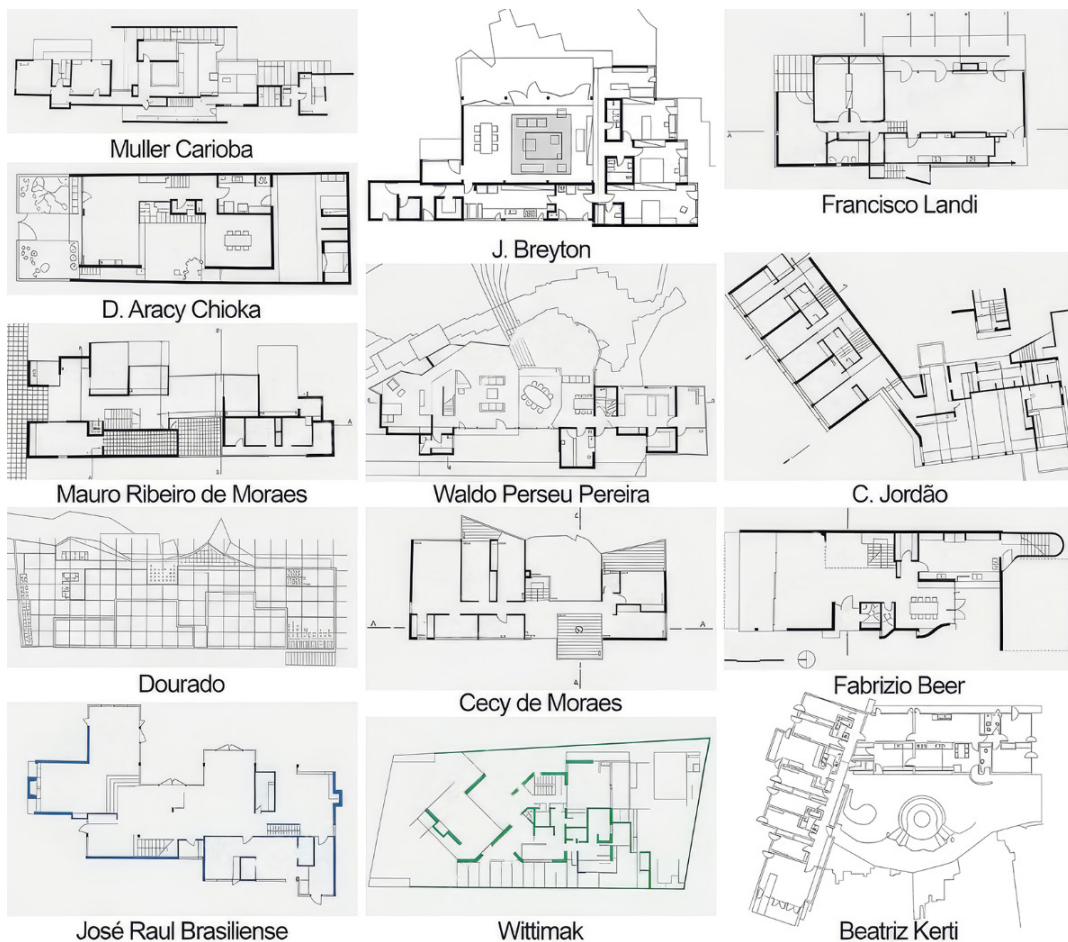


Figure 1. Floor Plans. Source:
 Joaquim Guedes collection -
 FAUUSP/Authors.

constructive references from the first stage, research into subsystems of spaces that organize the program as architecture. Third stage. Conception of the preliminary design, including structure, choice of materials, images, and system of details that qualify the conception. Fourth stage. Verification, confirmation, deepening, completion of the preliminary design, with all its graphic elements, model, and justifications." (Guedes, 1993) The architect describes what we classically know about the design process: analysis, synthesis, and evaluation.

"It is necessary to understand the act of planning as a creative process. It is necessary to affirm that human problems are human problems, which cannot be contained within mathematics." (Guedes Sobrinho, 1972, p. 175)

From the analysis conducted, the authors can verify that the construction details are a relevant part of the design process, articulating the third and fourth stages of his method, especially as an essential component of his thought.

THE CONSTRUCTIVE KNOWLEDGE LIES IN THE DETAILS

The São Paulo house projects found in the archive allowed identifying design strategies and distinctive characteristics.

ANALYSIS OF RESIDENCES

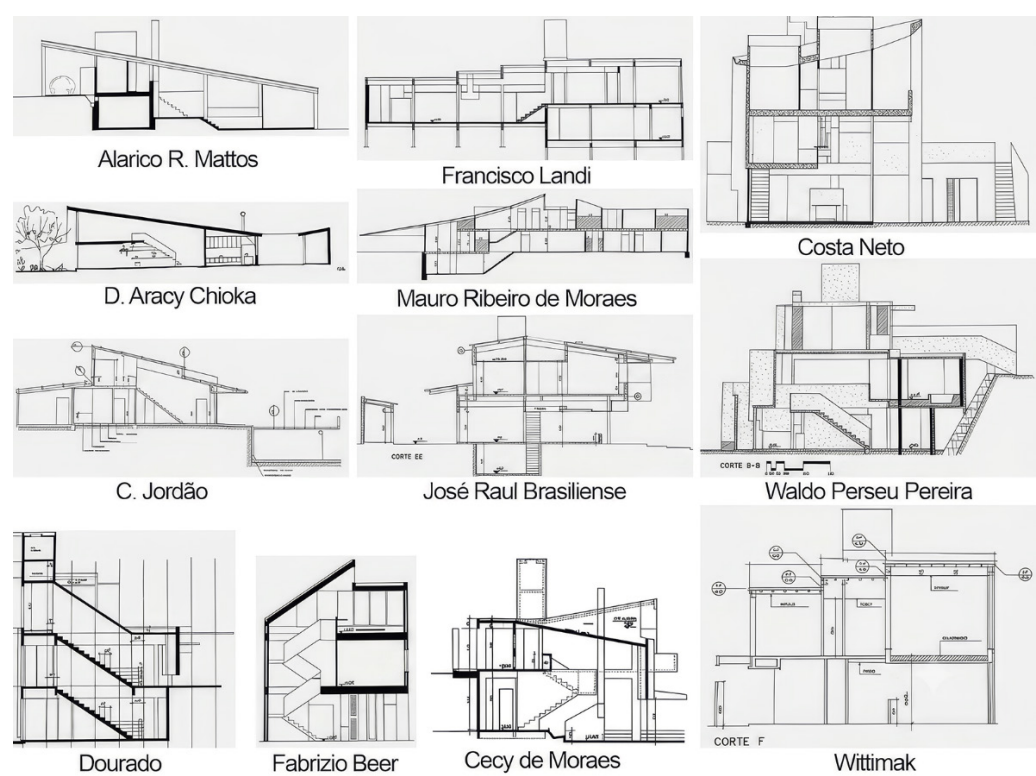


Figure 2. Cross-sections of Guedes’ houses. Source: Joaquim Guedes collection FAUUSP/Authors.

The visual table of floor plans for 13 different house projects (Figure 1) reveals striking characteristics of the architect’s design process that align with the stages of project execution mentioned earlier. First, the geometry; second, the openings (doors and windows); third, the placement on the urban lot; fourth, the hidden modulation of the spaces through the materials adopted.

At first glance, the floor plan does not reveal the structural subtleties that led the architect to adopt sculpted geometric forms. However, upon closer analysis, it can be noted that the rectangular spaces, predominantly right-angled, are arranged side by side, as if due to dimensions specific to the architectural program, and are functionally arranged sequentially along circulation axes.

The staggered arrangement of the bedrooms in the Jacques Breyton residence (1965) and the staggered forms of the Waldo Perseu Pereira residence (1967) can be interpreted as a consequence of the design method process conducted by Guedes.

The organically arranged zigzag garden terraces of Maison Carré (1956-1959), as well as the external staircases of Säynätsalo Town Hall (1948-1952), probably inspired the staggered design of the external steps in Guedes’ residences.

The Dourado residence (1974) is modular, 1.20 by 1.20 meters. The Fabrizio Beer residence (1975) is modular, using brick and ceramic blocks from the concrete formwork. These findings are due to the construction details of the projects analyzed.

It is important to highlight that previous studies present plans, sections, and elevations without detailing the final design, which better reveals what is practically hidden in the preliminary study or even the initial design.

Due to the extensive use of brick, glass, wood, ceramic, and fiber-cement roofing tiles, the joints and combinations of these materials were defined in the construction details to meet the architect's desired level of construction rigor.

The visual table of vertical sections from 12 different house projects (Figure 2) highlights heights, unevenness, and roofing. The predominance of sloped roofs is evident. Except for the Waldo Perseu Pereira residence (1967), with a waterproofed flat slab, and the Costa Neto residence (1961), with a curved roof, the others have inclined concrete slabs with lightweight tiles on top, as the roof of the Aalto Maison Carré (1956-1959), with its single slope, which possibly inspired Guedes.

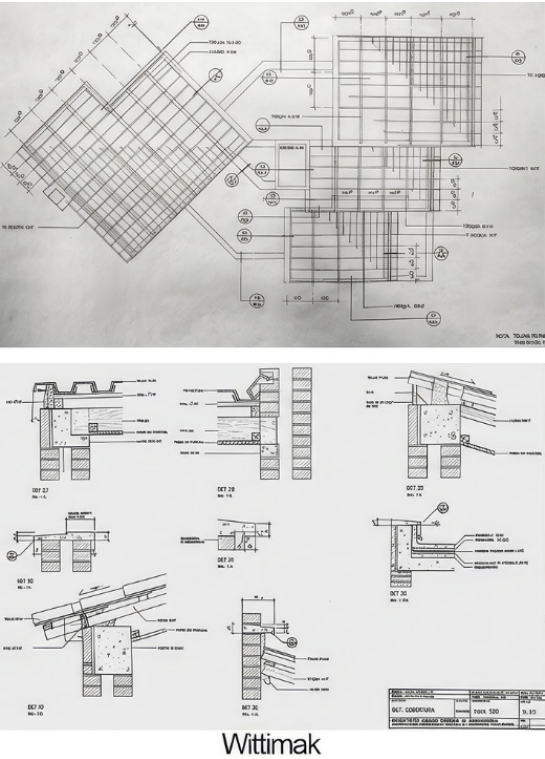
The roofs of the residences designed by Guedes incorporate knowledge of solar radiation protection. "The roof is the external surface most exposed to direct solar radiation... as a common solution, the roof is usually constructed in two layers, the outer layer being a lightweight slab that acts as a sunshade. With ventilation between the two layers, the temperature of the outer face of the lower layer will be close to the air temperature. In this case, this lower layer, usually a slab, functions similarly to a wall. In an arid climate, it is important to use slabs and walls that exhibit high thermal inertia. Thus, an efficient roof would consist of a thick slab (of bricks, for example), shaded by a lightweight fiber cement tile, both separated by a ventilated space" (Guedes Sobrinho, 1981, p. 144). It can be observed that the design of the roofs goes beyond a simple aesthetic form, presenting a rigorous scientific and technical analysis that is coherent and compatible with thermal and natural-lighting environmental comfort.

Unlike his contemporary modern architects from São Paulo, the flat concrete slab was highly exposed to the elements, which, when not properly implemented, caused serious structural problems such as rainwater infiltration and excessive heat transfer into the buildings.

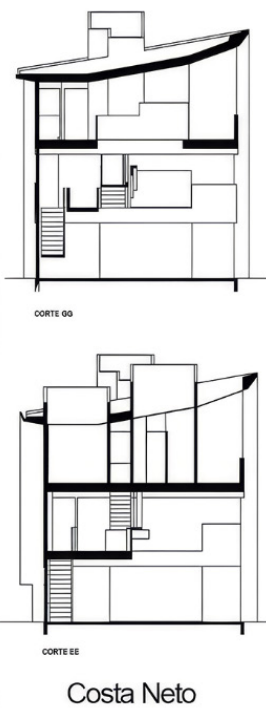
The drawings show the architect's commitment to detailing the roof, especially at the interface of materials – corrugated tiles, wooden beams, concrete slabs, and bricks.

The wide eaves and concrete canopies stand out, simultaneously extending the interior spaces and providing external solar protection. Diagonal skylights, such as sheds, served to capture light and generate cross-ventilation, as in the Cunha Lima residence (1958) or Beatriz Kerti (1971).

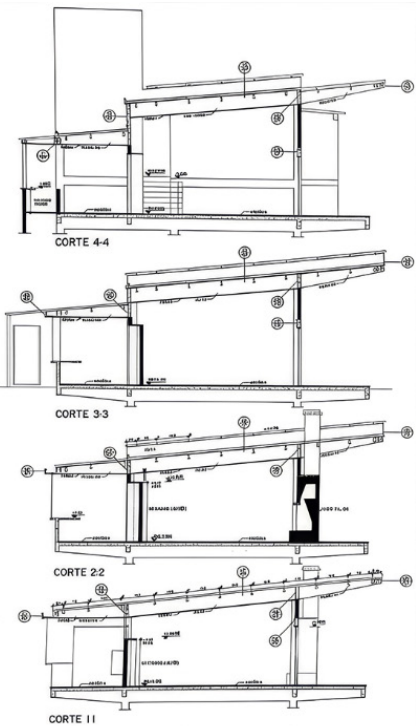
Single-pitched roofs were extensively detailed in the analyzed projects (Figure 3). A concrete gutter with a drip edge was typically placed over wide eaves, as in the Francisco Landi residence, and, in some cases, a gargoyle, as in the Cunha Lima (1958).



Wittimak



Costa Neto



Francisco Landi

Figure 3. Roofs. Source:
Joaquim Guedes collection
FAUUSP/Authors.

Figure 4. Stairs. Source:
Joaquim Guedes collection
FAUUSP/Authors.



Fabrizio Beer



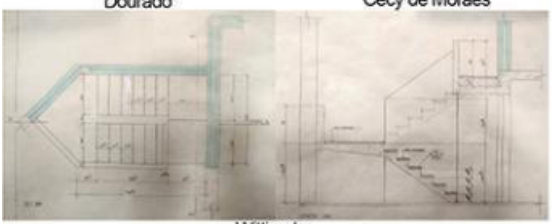
Costa Neto



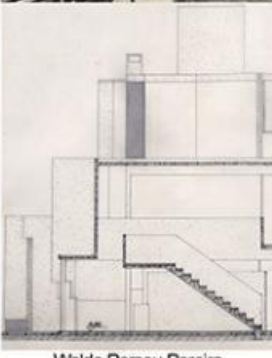
Dourado



Cecy de Moraes



Wittimak



Waldo Perseu Pereira

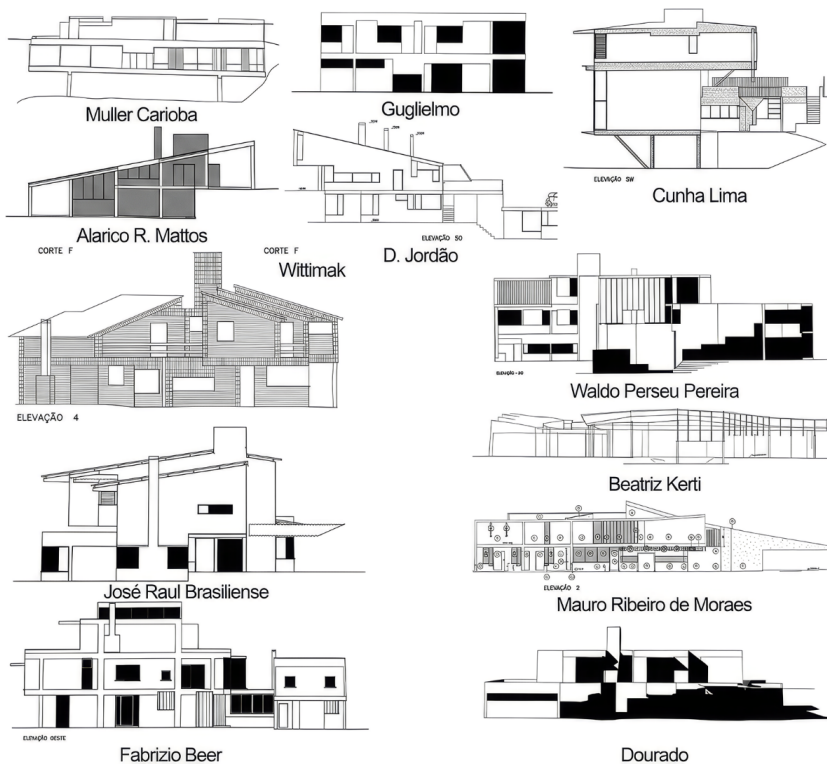


Figure 5. Elevations. Source:
 Joaquim Guedes collection
 FAUUSP/Authors.

The technical details of the tiled roofs demonstrate that the modulation of the roof timbering resulted from the dimensions of the fiber cement tiles, showing that the dimensions of the materials used dictated the design and spatial organization. The visual table of 3 different house projects presents some of the technical details of the roof (Figure 3) of Francisco Landi (1965), Costa Neto (1961), and the Wittimak residence (1988), which contributed to the modulation of spaces.

The staggered roof design was determined by the unevenness of the residences' interiors, as well as the need to provide higher-quality interior spaces, both in terms of spatial design and to achieve greater thermal comfort (increased air volume). Therefore, the roof design stemmed from technical and construction, as well as internal spatial considerations.

The visual table of 6 different house projects (Figure 4) highlights stairs in drawings and photos. This element holds unique importance in Guedes' architecture, as this vertical circulation allows spaces to be connected and crossed diagonally. Internal level differences, with few steps, were also frequent to accommodate the floors on the terrain. The topography of São Paulo influenced the architect's decision to explore the unevenness of the sloping, uphill terrain.

While the interior steps are straight, the exterior steps organically adapt to the terrain's unevenness, as seen, for example, in the Waldo Perseu Pereira (1967) and Beatriz Kerti residences, in a free and spontaneous manner, probably inspired by Alvar Aalto's designs.

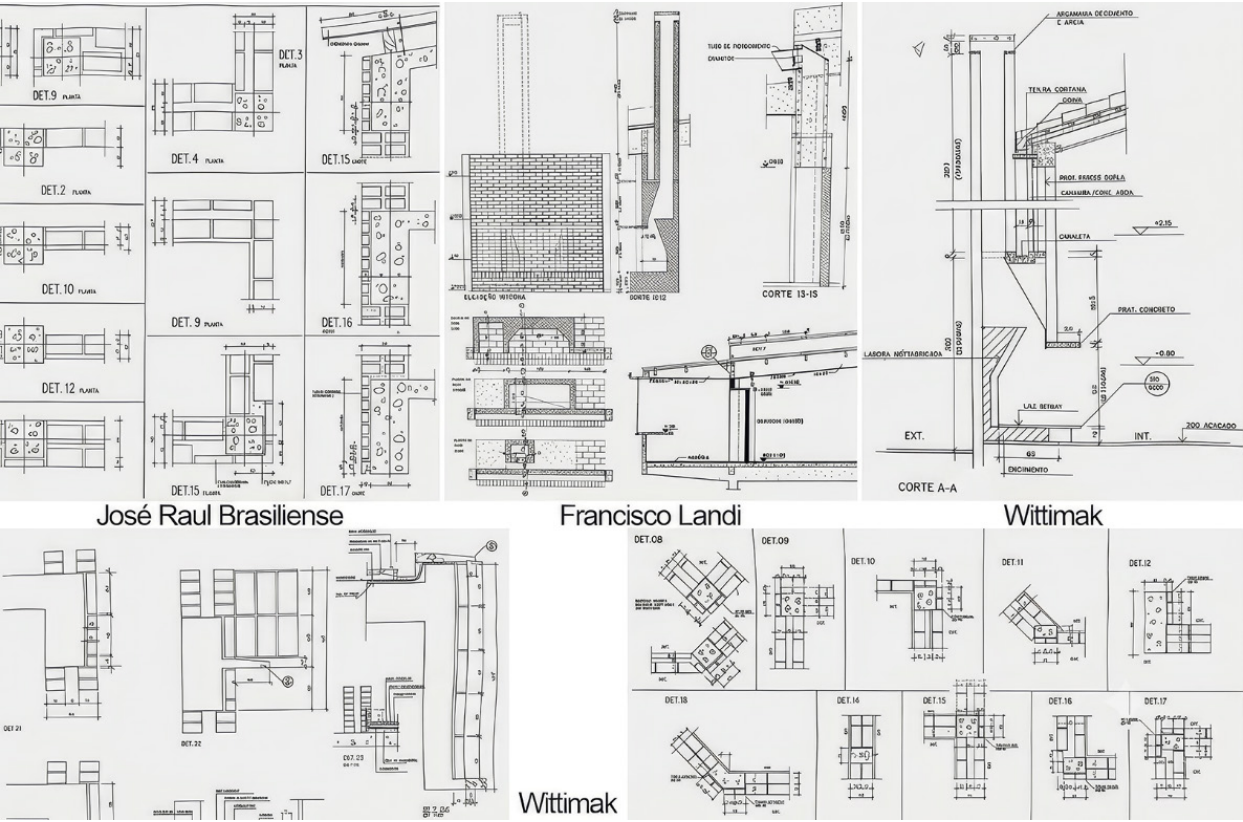


Figure 6. Bricks. Source: Joaquim Guedes collection FAUUSP/Authors.

The staircases, straight or U-shaped, cross the internal voids, allowing one to enjoy wide visual fields. It was observed that predominantly staircases also have concrete railings at a height between 82 and 90 cm.

In the Waldo Perseu Pereira (1967) and Dourado (1974) residences, the “hanging” (i.e., suspended from the floor) concrete gables (Figure 5) in front of the living areas create shading and a sense of plane depth. These staggered vertical “flaps” are set back from the ground by varying heights, allowing different framings of the landscape for those positioned inside these environments.

In the Fabrizio Beer residence (1975), the brick masonry of the walls and the ceramic tiles of the slabs defined the entire spatial modulation. In the Wittimak residence (1988), the bricks were designed to modulate the dimensions of the concrete pillars, as can be seen in the construction details. In the José Raul Brasiliense residence (1975), pillars and beams are enveloped by the precise modulation of the brick dimensions.

In the residences of Francisco Landi (1965), Fabrizio Beer (1975), Anna Mariani (1977), and Wittimak (1988), references to the Aalto Experimental House (1952-53) regarding the use of exposed brick are evident.

The details of the fireplaces show that the number of brick courses modulates the exterior wall of these residences. Therefore, as the architect rightly stated, “the materials, their interpretation, their design and the overall

result, in short, are linked to the possibility of realizing certain systems of constructive details" (Guedes, 1969, p. 20).

The double external brick walls, alternating with internal voids, of the Wittimak residence (1988) demonstrate the thermal concerns declared by the architect. It is important to note that continuity across the walls, floors, and slabs was achieved using brick.

In interior floors, there is a strong focus on the modularity of the ceramic tiles. In exterior floors, modularity is achieved through brick dimensions (Figure 6).

The alternating heights of the windowsills, their dimensions, and their positions on the facades are characteristic of his residential designs. The visual table of 6 different house projects (Figure 7) highlights the different shapes and alternating positions of the openings on the facades. Consequently, the "plastic" and "compositional" effects were not random, merely the result of desire, but rather derived from rational arguments and an awareness of building with an "aesthetic" sense of human needs.

The design of the windows stemmed from interconnected concerns, whether to meet the needs for lighting and ventilation, or to establish satisfactory relationships between the internal and external spaces of the residences. Guedes' statement in his thesis is enlightening: "The difference in level between the windows provides the chimney effect, causing the hot air to rise and exit through the higher opening.." (Guedes Sobrinho, 1981, p. 145).

One characteristic of the window frames is the alternation between fixed glass and venetian windows. While the glazed area provides lighting, the Venetian windows allow for continuous airflow between the external and internal environments. The west facade of the Fabrizio Beer residence (1975) features fixed glass and Venetian windows.

The drawings of the openings in the facades of the Guglielmo residence (Guedes, 1968) show in blue the areas that would be fixed glass and in white those that would be louvers.

In the detail of one of the window frames of the Wittimak residence (1988), it can be noted that the width of the louvered area is smaller than the glazed area. Furthermore, the alignment between the double brick wall, the window frame depth, and the exterior concrete lintel with brick is evident.

The counterweight movement of the shutters in the Cunha Lima residence (1958) creates shading on the facade while allowing large openings to the exterior.

The concrete columns, with recesses to accommodate tempered glass, in the Costa Neto and Jacques Breyton residences (1965) are innovative and challenging. In these constructive details, the architect's expertise in defining the encounter of materials is evident.

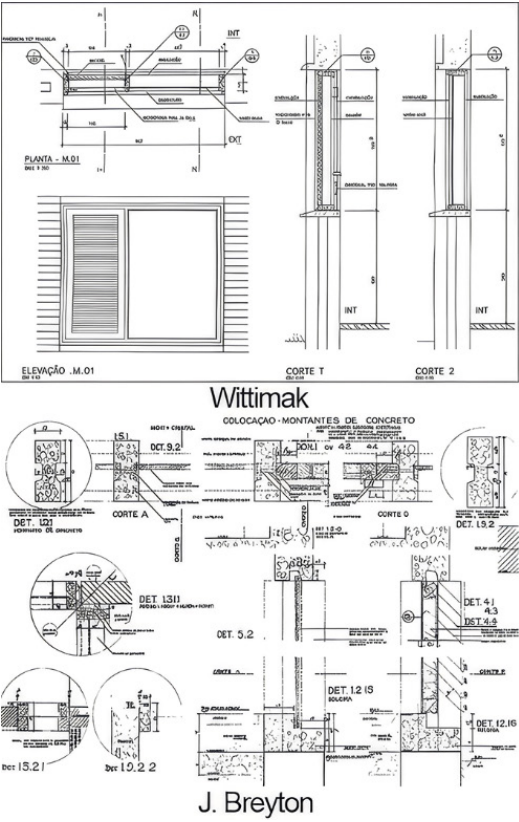


Figure 7. Glazing with Venetian windows and concrete supports.
Source: Joaquim Guedes collection FAUUSP/Authors.

The framing of the surrounding landscape and external visual fields depended on the dimensions of the openings, promoting greater transparency in the building. However, the design of the windows – width, height, and sill – and their location depended on environmental factors, in particular, thermal comfort. The architect stated: “The window frames are the parts of the building most vulnerable to the passage of thermal radiation... The windows are made with lightweight materials of low thermal resistance.” (Guedes Sobrinho, 1981, p. 145) Consequently, the architect thought about the windows in a very particular way and with great concern.

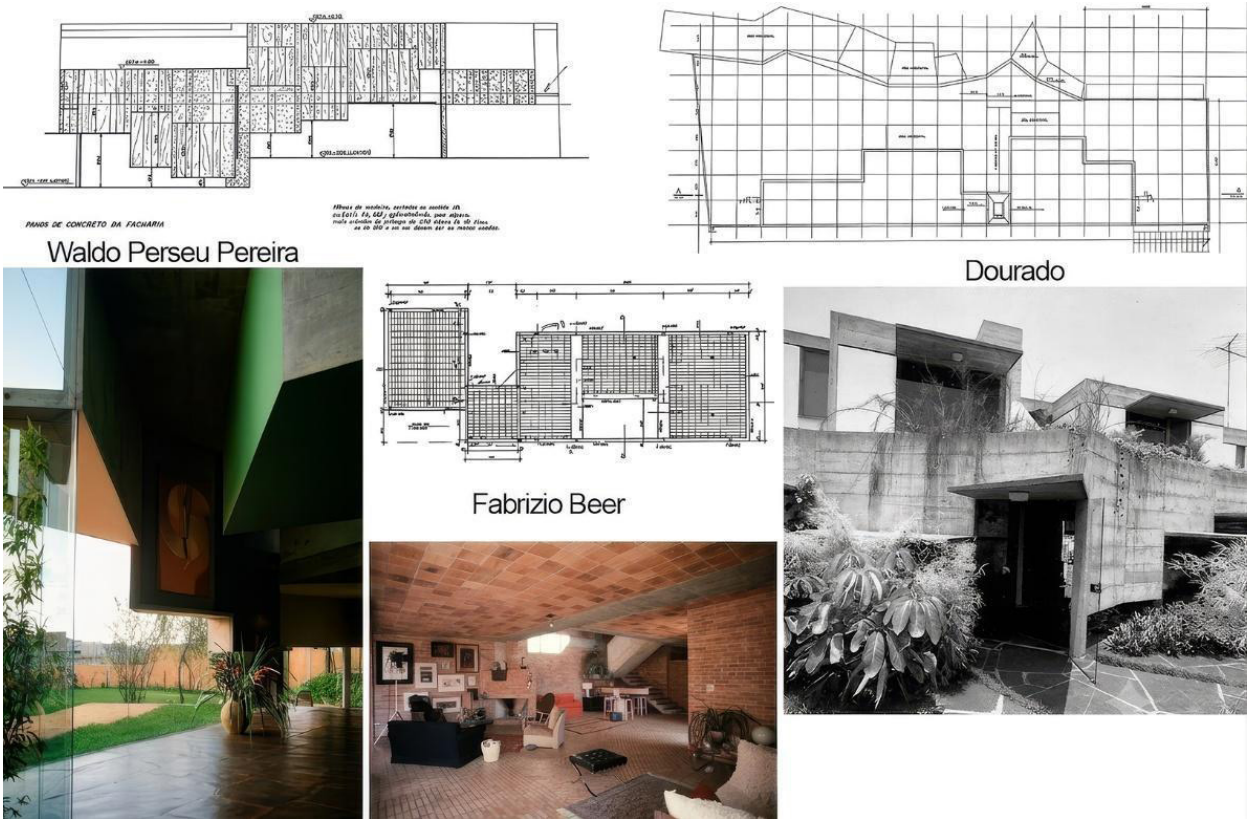
Nevertheless, one can also consider that the varying heights of the window sills allowed the user’s gaze to shift from inside to outside the residence, offering different framings of the surrounding landscape. As the architect rightly stated, it was a “(...) dialogue between glass and concrete, between interior space and exterior space...” (Guedes, 1969, p. 20).

In the detailed description of the multifaceted (or “hand fan-shaped”) glass (Figure 8), one can clearly see the rigorous construction the architect undertook to achieve the desired effect in the built work. The designs of the J. Breyton (1965), Beatriz Kerti (1971), Cecy de Moraes (1973), and Dourado (1974) residences feature tempered glass fixed to the floor and concrete slab in the living areas, offering transparency and wide views of the exterior. In the architect’s words, “...glass exists as matter; it is not merely transparency; it constructs transparent-reflective prismatic volumes; it connects directly to the concrete, without frames, through internal joints.” (Guedes, 1969, p. 20) The



Figure 8. Window and door frames: between straight lines and curves. Source: Joaquim Guedes collection FAUUSP/ Authors.

Figure 9. Concrete, ceramic brick and modular systems. Source: Joaquim Guedes collection FAUUSP/Authors.



corner windowpanes in the residences of Costa Neto (1961), Waldo Perseu Pereira (1967) and Fabrizio Beer (1975) expand the internal lighting and direct a wide external visual field.

The design of the concrete panels on the facade of the Waldo Perseu Pereira residence (1967) reveals the architect's concern regarding the arrangement of the wooden planks, "madeirit," for the concrete forms (Figure 9). The wooden planks were cut to widths of 27.5, 55, and 82.5 cm, and set back from the ground at distances of 39, 91, 106, 156, and 226 cm. More than just the efficient use of wooden planks, these dimensions curiously closely resemble those of Le Corbusier's Modulor, red and blue series, indicating Guedes' rational constructive process.

In the roof plan and photograph of the Dourado residence (1974), the contrast between the perimeter of the ground-floor roof and the regularity of the upper-floor roof is noticeable. Also noteworthy are the wide horizontal overhangs that shade the openings, protecting the interior spaces from intense sunlight.

The physical models, perspectives, and photographs in the architect's collection demonstrate design expertise and excellence in execution. For the architect, "what matters is the construction of space and light" (Guedes, 1969, p. 20). We can say that light and space were not merely theoretical abstractions but physical realities that could become materialization through the organized arrangement of a brick, the perfect design of the window, and so on. The precise details of the project, or a particular design of an element's joint, are where Guedes's architecture shows its full expression.

DISCUSSION AND FINAL REMARKS

The text "The Exercise of Detailing" (Gregotti, 1983), written by Vittorio Gregotti, highlights the importance of detail in expressing the integrity of the project as a whole, resisting arbitrariness, and mediating between the idea and the construction. If, as Marco Frascari (1997) rightly stated, "details are the locus of an order of knowledge in which the mind discovers its own intelligibility, that is, logos," then detail must be understood as the locus of knowledge that the architect must have about the reality and nature of the construction.

As a concise recording tool, drawing preserves ideas. The detail in Guedes' architecture can be understood as evidence of his knowledge of the materials' nature. "Building materials precede design and have the greatest responsibility in defining spaces," stated Guedes (1968, p. 21). Therefore, through technical drawing, as Franco Purini (1976, p. 24) suggests, Guedes uses a floor plan to guide his thinking and ensure the viability of the implementation. Thus, Guedes's premise is confirmed by the analysis of the technical drawings for the house projects. It is through different types of drawings, at different stages of the project, that the architect records and guides his thinking to ensure feasibility of execution during construction.



Figure 10. Cunha Lima Residence. Source: Photographs taken by the Authors (2021).

The residential projects of Joaquim Guedes oscillate between the rationality of modulation and the organic nature of forms. In Guedes's vision, the architect, like a builder, should adhere to the craft of building well, exploring traditional materials such as brick, concrete, tempered glass, fiber-cement tiles, and wood. Like a kind of "sociologist," what interested the architect was the everyday, that which could be observed. Without unnecessary boldness and attentive to constructive rigor, Guedes challenged canons and generated controversy, but practiced the profession of architect with the care of someone concerned with the human being, attending to the needs of body and soul. The pleasure of meeting the "needs of social life" guided his actions.

While Guedes sought to satisfy the body's needs, whether through functionality or technical comfort, he also sought to satisfy "the soul," which "asks for beauty," as Valéry aptly defined it.

Based on the research conducted and careful interpretation of the designs and drawings from various project phases, it became clear that, more specifically, emphasis was placed on the residences' structural elements and the materials used. It was found that, in fact, his "reasoning" was "driven by the design" and the nature of the materials.

He refused to raise the house off the ground, establishing, whenever possible, one more connected to the land and the natural topography. He refused to work with single-volume designs. Finally, he refused to limit his architecture to the superficial imitation of aesthetic trends of his time.

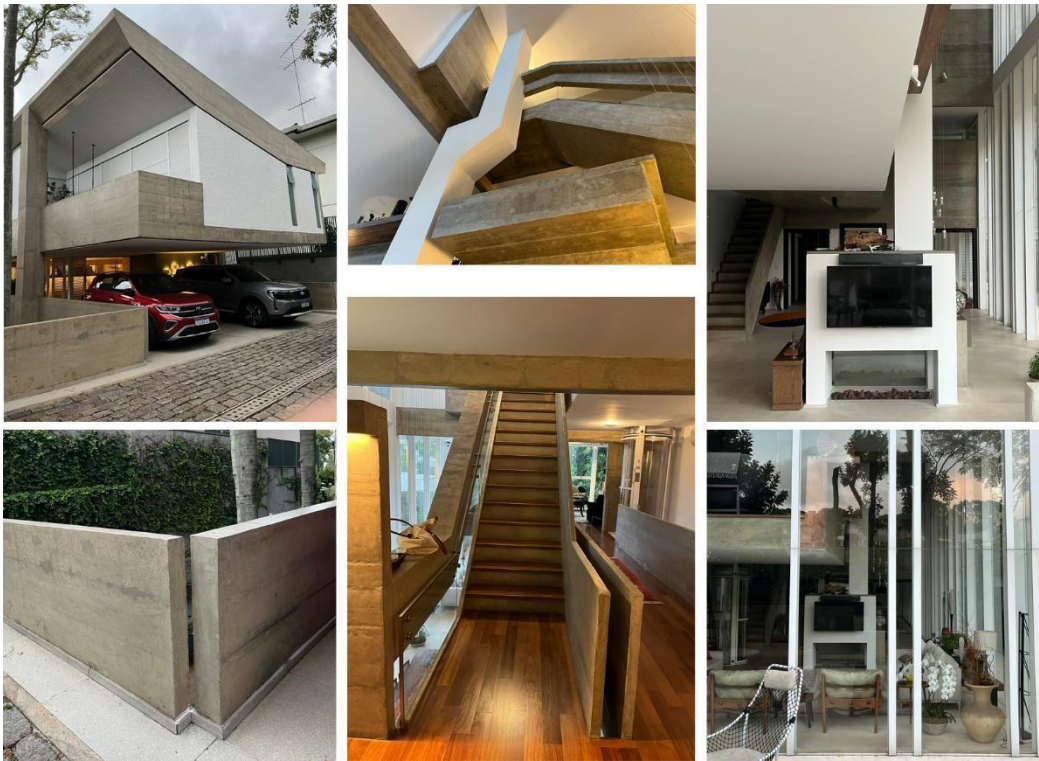


Figure 11. Costa Neto Residence. Source: Photographs taken by the Authors (2026).

The architect’s assertion that “building materials precede the design” could be confirmed by the technical drawings in the collection. The core of his knowledge of construction lay in the many drawing boards he produced in his office to guide the construction process.

The technical drawings of the residences in the collection reveal design strategies. Among those, the following stand out: staggered forms; rich constructive details between materials such as concrete, brick, glass, tile, and wood; single-pitched roofs; window frames at different heights; horizontal and vertical eaves and canopies; alternating ceiling heights; and modulations based on material dimensions.

As has been pointed out in this article, the modulation of spaces was based on the dimensions of readily available materials, such as brick, fiber-cement tiles, and ceramic slabs, which the architect explored as part of a rational construction process. On the other hand, poetic freedom was allowed to produce organic window and door frames in larger environments. The constructive details reveal the dialogue between the delicacy of glass and the rusticity of concrete, or between tempered industrial glass and handcrafted brick (Figure 10 and Figure 11).

Three factors indicate that the design and position of the windows depended on the interplay between technical and construction issues – the height of the concrete beam lintel and the sill; ventilation and lighting issues – cross ventilation; and landscape framing – the relationship between interior and exterior.

The glass frames—doors and windows—largely without frames, accentuate their transparency and were precisely detailed in his designs; furthermore, the “prismatic volumes” of the multifaceted glass contrast with the right angles. With precise fittings and junctions among glass, concrete, and brick, whether in frames, lintels, and sills, or in roofs, slabs, walls, and floors, Guedes stood out for his dedication to construction details and his knowledge of the nature of materials.

For Guedes, the question was not whether form was merely derived from function and vice versa. There was a strong concern with employing human knowledge to benefit the art of building, making good use of the nature of available materials and techniques. Regarding the form-function relationship in his design teaching method at FAUUSP, Guedes (1993) stated in an interview with a French magazine: “Form does not necessarily follow function. However, architecture is based on two principles: (a) it must solve a set of practical needs of a client, public or private; (b) it must create an intelligible order that goes beyond the simple solution of their needs.” It can be inferred that reality prevails: the solution of problems in practice, but one that exceeds basic needs and creates aesthetic pleasure.

Based on an analysis of his architecture, we can affirm that his design method was developed from the idea of composing the part for the whole, unlike the well-known language of the “São Paulo School,” where the single-volume design indicates the opposite. The value of the detail in Guedes’s architecture is directly related to his understanding of architecture as a synthesis of technique, construction, materials, structure, use, and place, as a modern architecture.

It is, therefore, an architecture generated from the inside out, based on the idea that every element should have its own appropriate design. The final form of the building was the result of an articulation of internal forces, of human needs for shelter with comfort and pleasure, and, remarkably, of an understanding of the nature of the materials. Consequently, the number of residences, characterized by staggered diagonal forms, resulted from the juxtaposition of functional and technical-constructive factors, before the “aesthetic” one.

By highlighting the importance of detailed construction design, Guedes brings visibility to a production process that is often mistaken for a mechanical act of making.

These facts allow us to position Joaquim Guedes’ architecture as unique within the panorama of modern architecture in São Paulo. With an architecture freer from orthodoxies yet with the scientific-constructive rigor he saw in the architecture of Rino Levi and Carlos Millan, the architect established himself as a particular and original thinker in modern architecture in Brazil and São Paulo.

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To the Library and architectural design collection at FAUUSP.

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