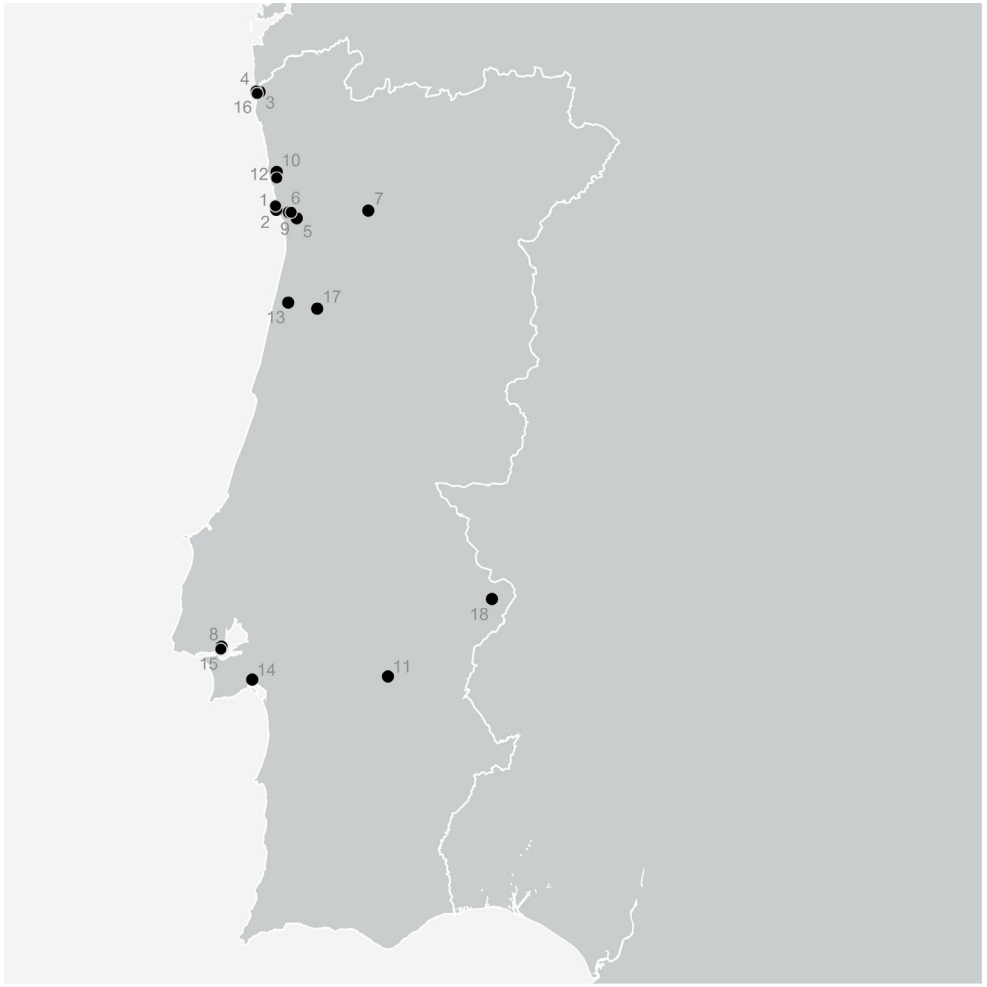
SIZATLAS

SERRALVES MUSEUM



1 Boa Nova Tea House and Restaurant
2 Ocean Swimming Pool
3 Alves Costa House
4 Alcino Cardoso House
5 Bouça Housing Complex
6 Faculty of Architecture of the University of Porto
7 Santa Maria Church and Parish Centre
8 Portugal Pavilion, Expo'98
9 Serralves Museum of Contemporary Art
10 Beires House
11 Malagueira Neighbourhood
12 Borges & Irmão Bank
13 Avelino Duarte House
14 Setúbal School of Education
15 Reconstruction of the Chiado area
16 Viana do Castelo Public Library
17 Pinto & Sotto Mayor Bank
18 Adega Mayor

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INTRODUCTION

CONTEXT

Twentieth-century heritage is particularly vulnerable because of its formal and material solutions, but also due to the fact of having scarce recognition among the civil society and heritage safeguarding bodies. Considering this background, the ICOMOS study "The World Heritage list: filling the gaps – an action plan for the future" (ICOMOS, 2005) and the Global Strategy of the UNESCO World Heritage Committee (WHC) have encouraged State Parties to submit twentieth-century heritage nominations (UNESCO-WHC, 1994).

In this context, the ICOMOS-Portugal presented the "Ensemble of Álvaro Siza's Architecture Works in Portugal" to the World Heritage (WH) Tentative List, in 2017, later submitted to the WH List by the Faculty of Architecture of the University of Porto, in 2024, under the title "Álvaro Siza's Architecture: Modern Contextualism Legacy". This nomination proposal expresses Álvaro Siza's outstanding architecture spanning across the second half of the twentieth century, which testifies to the critical revision of the Modern Movement principles towards a more contextual and humanist approach. This modern contextualism is an exceptional legacy conveyed by Álvaro Siza's architectural works and his 'School', with major impact across different generations of architects, in distinct continents, addressing the needs and the aspirations of local populations. The component parts emerge as a result of the architecture development in the second half of the twentieth century, responding to the specific conditions of local contexts and producing alternative responses to the prevailing axioms of the international Modernism, while also contributing to the Postmodern debate. Siza is a worldwide recognized architect with approximately five hundred projects and built works spread across four continents and sixteen countries, and the subject of more than one hundred distinctions and awards, nineteen Honorary degrees, and hundreds of dedicated publications.

Despite international recognition of the quality of Siza's architecture, there is not yet a complete and systematic inventory and consistent documentation of his built works. The information is usually scattered, partial or incomplete. The existent literature focuses more on formal aspects of the designs, and little on the tectonics and material dimension of his works, including the building's state of conservation and the potential threats affecting them.

With this framework, the project 'SizaATLAS: Filling the gaps for World Heritage' (SizaATLAS) was submitted and funded by the Foundation for Science and Technology (FCT) between 2021 and 2024. This research project aims to address: i) a collaborative platform for interactive dissemination; ii) a comprehensive inventory of all of Siza's built works; iii) a detailed documentation of the 18 buildings selected for the WH Tentative List (which is the main focus of the present booklet); iv) Recommendations for the WH nomination; and v) Dissemination and knowledge transfer.

METHODOLOGY

The research methodology for the documentation booklets is supported by a cross-analysis of different methods and tools: i) archival and bibliographic research; ii) field work observation and surveys; iii) digital documentation such as photogrammetry, virtual tours through 360° photos, 3D BIM didactic model of representative constructive sections and details. This multi-method approach, combining traditional and digital techniques, aims at providing holistic, integrated and comprehensive documentation, providing accessible information for diverse audiences, ranging from specialists to the general public, and a robust framework for management and conservation informed by the attributes of Outstanding Universal Value (OUV) and Álvaro Siza's design principles.

i) Archival Research included the consultation of documentation held by the Serralves Foundation, the Calouste Gulbenkian Foundation, the Canadian Centre for Architecture, or Drawing Matter. In addition, municipal archives and libraries were also consulted to gather as much relevant information as possible. Research included textual and graphic documentation, such as licensing projects, written documents, technical drawings, sketches, photographs, models, and correspondence, Also, comprehensive literature was developed for each building documentation.

ii) Fieldwork encompassed a meticulous exploration of the building's spaces and discussions with staff members, which provided valuable context and enhanced comprehension of the buildings. To ensure a comprehensive documentation process, an extensive photographic survey was conducted, employing drones to capture both aerial perspectives and detailed captions of the sites. Furthermore, this process included an in-depth analysis of construction details, with a particular focus on tectonic features.

iii) The digital documentation protocol was thoughtfully devised to facilitate the systematic organization and seamless integration of all gathered data, culminating in the creation of a comprehensive and easily accessible archive for future reference. The methodology for digital documentation, framed within the SizaATLAS research project, employs combined techniques to document Álvaro Siza buildings, namely: a) photogrammetry, b) 360º virtual tours, and c) BIM didactic models.

BOOKLET STRUCTURE

The booklets are structured in 9 sections.

The INTRODUCTION provides the background, aims and methodology of the SizaATLAS documentation booklets.

The HISTORY AND DESCRIPTION section provides a general context of the building analysed in the booklet, including the following aspects: place and date of construction; landscape, natural features and preexistences; context of the building commission; design and construction phases; detailed description of the design process supported on archival resources; composition, volumetrics and geometry; programme and functional organization; promenade and light; tectonics and constructive detailing; Integrated artworks and furniture; awards and recognitions; recent interventions; international impact of the work.

As regards the section CONSTRUCTION, it aims at providing a tectonic perspective of the buildings through a representative section and details focusing on its Structural System, Walls, Roofs, and Frames.

The DESIGN PRINCIPLES aim to clarify Álvaro Siza's original design intent, being a permanent reference for the conservation of the building and an ins¬trument to manage proposals for change. It should also be considered when establishing planning controls for the sur¬rounding landscape, ensuring the preservation of visual rela¬tionships and future long-term improvements to the setting. To remain faithful and respectful of Siza's thoughts and de¬sign approach, these design principles are based on his own words, namely on a selection of 'aphorisms' collected from his texts, design reports, and interviews.

The ATTRIBUTES section relates to the specific and unique qualities expressed in the OUV for the WH nomination proposal "Álvaro Siza's Architecture: Modern Contextualism Legacy", namely: i) Architecture responsive to a physical, social and historical context; ii) Integration of international and local references; iii) Sculptural volumetric expression; iv) Oriented spatial experiences; v) Total work of art including details, furniture and art works.

STATE OF CONSERVATION is a description of the building's current condition and recent conservation or reuse interventions. In most cases, the buildings have been submitted to recent conservation interventions which adapted them to current legal, sanitary, accessibility or comfort standards.

DIGITAL DOCUMENTATION results from an integrated methodology combining: i) photogrammetry; ii) 360º virtual tours (available through QR Codes); and iii) BIM didactic models. These techniques are adapted to each building with some limitations related with the photogrammetry conditions (vegetation, surface colours, and others) or to the access to the buildings, which was authorized in public buildings, and restricted in private houses and bank agencies.

SOURCES AND BIBLIOGRAPHY refer to the archives and specific literature consulted for each building under analysis.

HISTORY AND DESCRIPTION

The Serralves Museum of Contemporary Art (1989-1999) is situated in a bourgeois quarter of Porto, located in the western part of the city, within the expansive Serralves Park spanning 18 hectares. Surrounded by formal gardens, lush woodlands, and a traditional farmhouse, it quickly became a cultural hub upon opening its doors to the public in 1999. The site's focal point is a preexistent Art Deco villa, commissioned in the 1930s by a textile industry businessman as his residence. Despite its proximity to Serralves Street, a historic road connecting Porto to Matosinhos, Siza chose to construct the museum over the former vegetable garden and orchard, thereby preventing extensive deforestation in the park while ensuring easier access from Gomes da Costa Avenue.

Formerly known as "Casal de Santa Maria", the Park of Serralves underwent a complex evolution involving acquisitions, inheritances, transformations, demolitions, and constructions. Carlos Alberto Cabral, the second Count of Vizela, and a wealthy businessman, played a pivotal role in the villa's construction. He commissioned José Marques da Silva, another prestigious Portuguese architect, to design a house with a chapel. The Art Deco villa became the central element of the estate and inspired architect Jacques Gréber's garden design. The estate included lawns, water tanks connected by a staircase to the romantic lake, woods, vegetable gardens, and pastures with stables and annexes. European artists such as Charles Seclis, Edgar Brandt, Jacques-Émile Ruhlmann, Jules Leleu and René Lalique, contributed to the Villa's interior design. Carlos Alberto Cabral and his wife Blanche Daubin resided in the villa from 1944 until they sold it to Delfim Ferreira in 1955, under the condition that no alterations be made to the building. In 1987, the Portuguese State purchased the estate from Ferreira's heirs, and the Serralves Villa opened that year as a museum for modern and contemporary art, keeping its art collection until the opening of the new building in 1999.

The 1990s and early 2000s witnessed the construction of many emblematic cultural venues throughout Europe, following what became known as the 'Bilbao effect' after Frank Gehry's acclaimed intervention in that Spanish city in 1995. In contrast, Álvaro Siza's influential design for the Serralves Museum of Contemporary Art resided precisely in its rejection of iconographic flair, deeply integrating the museum into its context while providing a highly functional programmatic response.

Collaborators on the project included Rolando Torgo, Edite Rosa, Miguel Nery, Miguel Falcão, Rui Castro, Chiara Porcu and Paul Scott.

The design of the Contemporary Art Museum at the Park of Serralves began in 1989, alongside Álvaro Siza's work on other park projects. These included restoring the existing Serralves Villa (1988–2002) and expanding its annexes for the House of Cinema Manoel de Oliveira (2013–2019). In 2021, Siza converted a former machinery warehouse into the House of the Gardeners to support Serralves' gardening operations, and that same year, he also worked on the villa. In late 2023, Álvaro Siza designed

the Álvaro Siza Wing, connected to the museum via an elevated gallery. It opened to the public with one floor dedicated to Serralves archives and two floors for art and architecture exhibitions. This expansion provided an additional 75% space for museum reserves and increased exhibition space by 50%.

Although the museum project started in 1989, constant changes in the government prolonged and complicated the process. Álvaro Siza states that he designed five different projects, ranging from a small cultural centre to a larger museum with a conference centre. Early on, the program areas underwent significant changes, with Siza emphasizing the advantages of participation, discussions, and dialogue in shaping the final solution. Initially, Siza's sketches and models depicted a more compact arrangement of volumes, t but he gradually integrated U-shaped wings to open the building to its surroundings.

Before the museum's new design, Álvaro Siza had already been commissioned with the conservation project for the Serralves Villa (1988–2002). This included adding bathrooms and a kitchen in the basement to support events and updating technical installations such as acoustics, lighting, and thermal comfort systems. The conservation strategy prioritized preserving both exterior and interior features. In 2013, Álvaro Siza was commissioned to adapt the old house's garage and design a new building in the northeastern corner of the park to house the collection of Portuguese filmmaker Manoel de Oliveira. The House of Cinema aimed to centralize the museum's film collection and provide enhanced facilities for research and exhibition of moving pictures.

The delicate asymmetry of the Villa and its intimate connection with the gardens, facilitated through specific openings, significantly influenced the museum's design. The museum's atmosphere evokes the ambience of the Serralves Villa, offering a monumental reinterpretation of its elements such as the pathways, entrance gates, bow windows, main atrium and exhibition halls. Through meticulous archival research, the design process revealed how the Villa's asymmetry and harmonious relationship with nature informed the museum's layout and architectural features, resulting in a blend of historical homage and contemporary reinterpretation.

The museum is organized roughly along a north-south axis, inspired by the former layout of the vegetable garden. All program areas converge into a single structure, which, originating from a central core, extends into two asymmetric arms to the south, defining a courtyard. To the north, another L-shaped volume creates a second courtyard framing the museum's entrance. Public access guides visitors along a white wall and a covered pathway to the museum's interior, emphasizing the contrast between the openness of the luminous courtyard and the shadow and linearity of the exterior corridor. Adaptation to the topography and interaction between the museum and its surroundings played a decisive role in its design. Surrounding the museum, the building's volumetric expression creates new ways of interacting with the exterior, evident in features such as the evocative Art Deco lettering of the entrance gate, the staircase on the east wing forming a small courtyard around a tree, and the sculptural quality of the external granite access of the auditorium, positioned adjacent to the building.

Paths ensure continuity between the Villa and the museum, despite their differing scales, preserving the site's cultural essence. Convergence occurs at a single access point, where routes from the street, car park, and garden converge. Inside, the museum boasts a variety of spaces and routes, facilitating diverse visitor experiences.

One of the architect's main concerns was to achieve great clarity regarding the museum's routes and a good balance between corridors and exhibition space. The U-shaped distribution corridor, flanked by interconnected galleries, enables simultaneous exhibitions. Although there are exceptions, the architect opted for zenithal lighting at the centre of the exhibition halls, reserving most windows for the distribution galleries, strategically located to offer visitors varied views and experiences. The design of furniture (chairs, tables and panels), light fixtures and the details in the stairs or in the transition of materials contribute to the harmonious environment of the building.

The Serralves Museum incorporates load-bearing walls and reinforced concrete slabs in its construction. Thermal insulation is achieved through an ETICS system, finished with either white paint or granite cladding. Inside, Siza opted for plastered walls, marble flooring for corridors and restrooms, and oak hardwood floors for other areas. Most of the structure has a flat roof topped with tar and gravel, while the intricate roofs of the auditorium and the House of Cinema are finished with zinc flashing.

In addition to its cultural and artistic significance in the city and the nation, the museum distinguishes itself through its pivotal role in educational outreach, particularly for children. The Contemporary Art Museum of Serralves is equipped to host a wide range of art installations and exhibitions both inside and outside its buildings. Each year, it hosts several festivals and events that integrate different art forms, making full use of the park's varied spaces.

The Park of Serralves (including the Museum of Contemporary Art) was listed as a National Monument in 2012. The Buffer Zone encompasses the entire Park of Serralves and its surroundings, a consolidated low-density residential area. It is traversed to the northwest side by Gomes da Costa Avenue (an important link between Boavista Avenue and Foz, two highly significant parts of the city), where the main entrance to the park is located. The Buffer Zone also includes three large schools and the Pasteleira neighbourhood, a social housing complex from the 1950s.

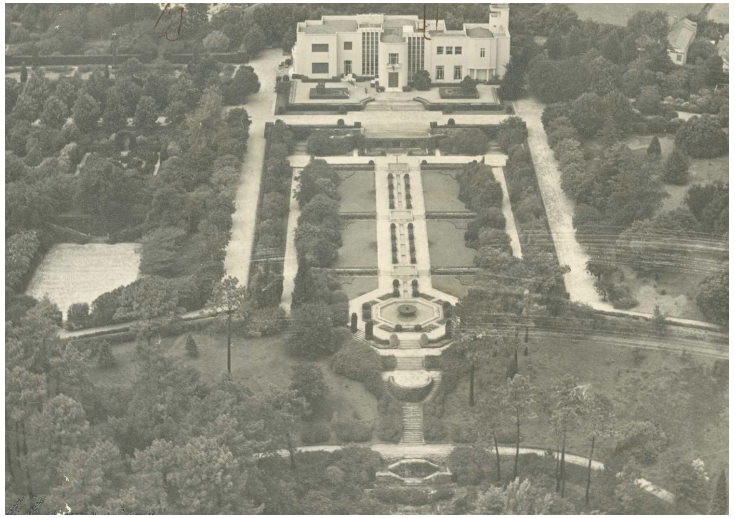
In 2021, an expansion of the museum was announced to be completed in 2023 under the design of Álvaro Siza, with new exhibitions scheduled for 2024. The newly inaugurated Álvaro Siza Wing opened to the public on February 24th, featuring the exhibition C.A.S.A. — Collection Álvaro Siza, Archive, organised by the Serralves Foundation, curated by Architect

António Choupina and coordinated by Sónia Oliveira. According to the project's description, the new construction is situated to the west of Serralves Museum, within the garden clearing and connected to it by an elevated gallery, ensuring it does not obstruct the pathway separating the two buildings. The proposed site layout and plan articulation aimed to minimize the impact on the garden, both in terms of the area occupied and the surrounding foliage to be preserved.

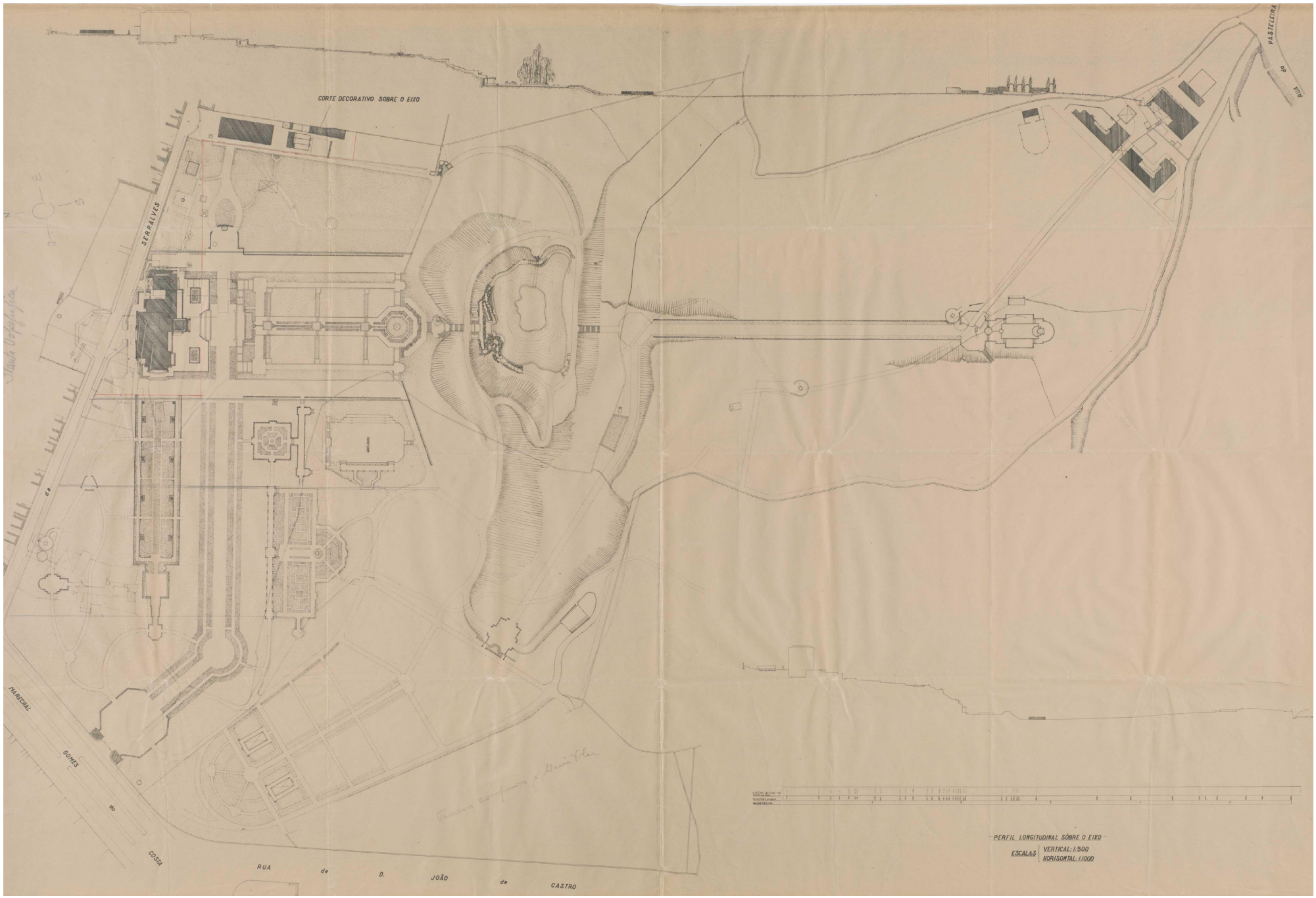
The Serralves Museum of Contemporary Art is one of Álvaro Siza's most significant exhibition spaces, earning widespread international acclaim. It has been featured in publications worldwide, including architectural journals and monographs dedicated to museums such as "Museums for the 21st Century" (Montaner, 2003), "Museum Builders" (Hourston, 2004), and "New Museum Architecture" (Zeiger, 2005).

03. Photo plan of Porto, 1958.

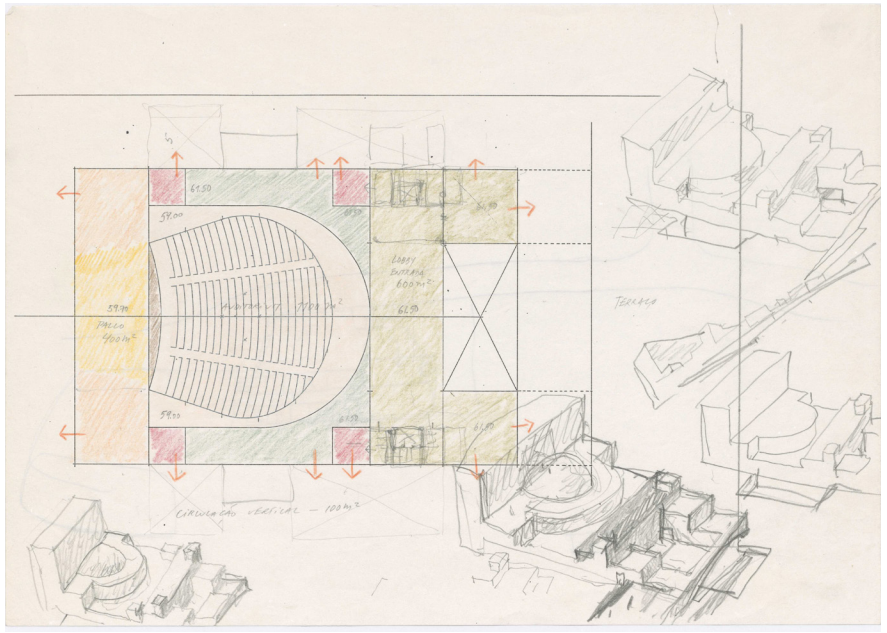
04. The Rose Garden in the 1940s.

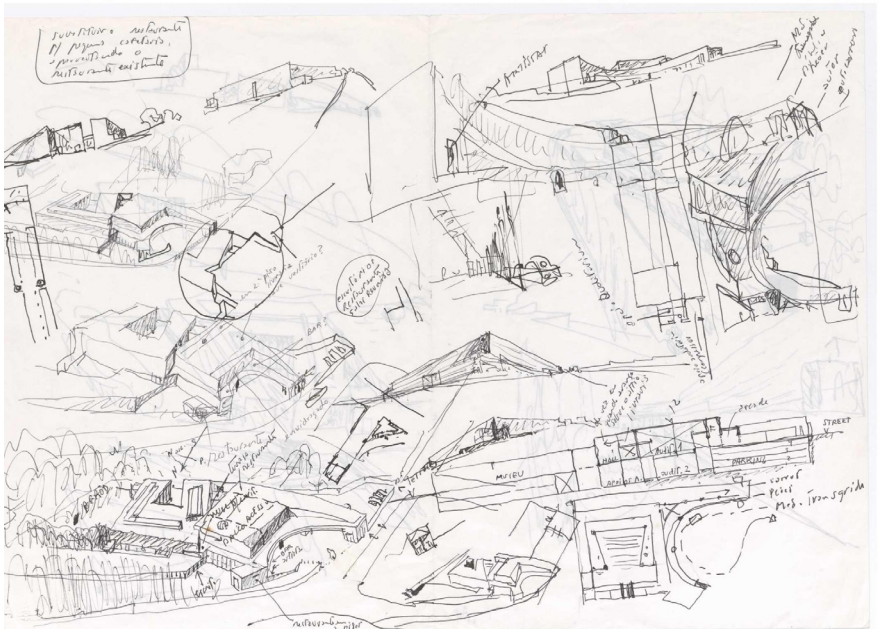


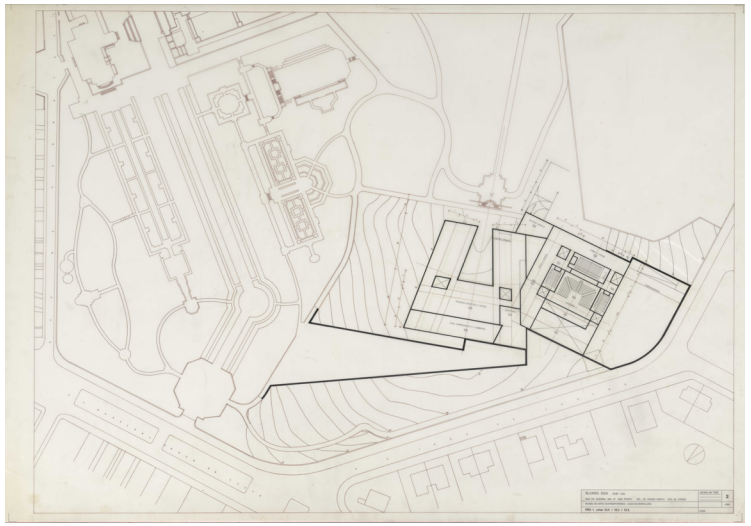
05. House and garden, 1940.

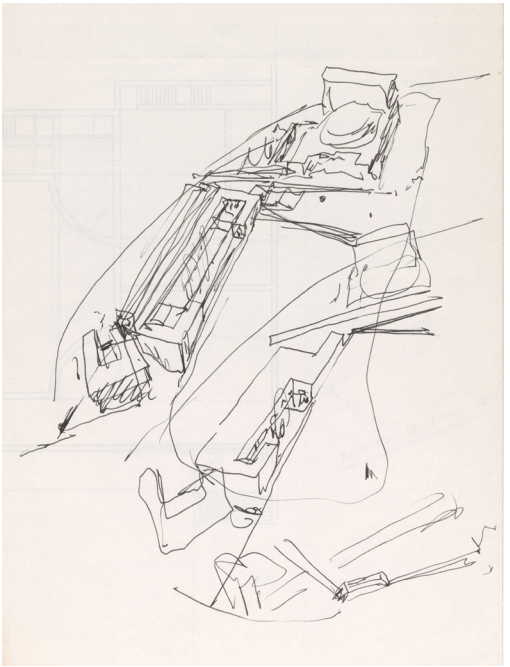


06. General Plan and sections of the House and Gardens.

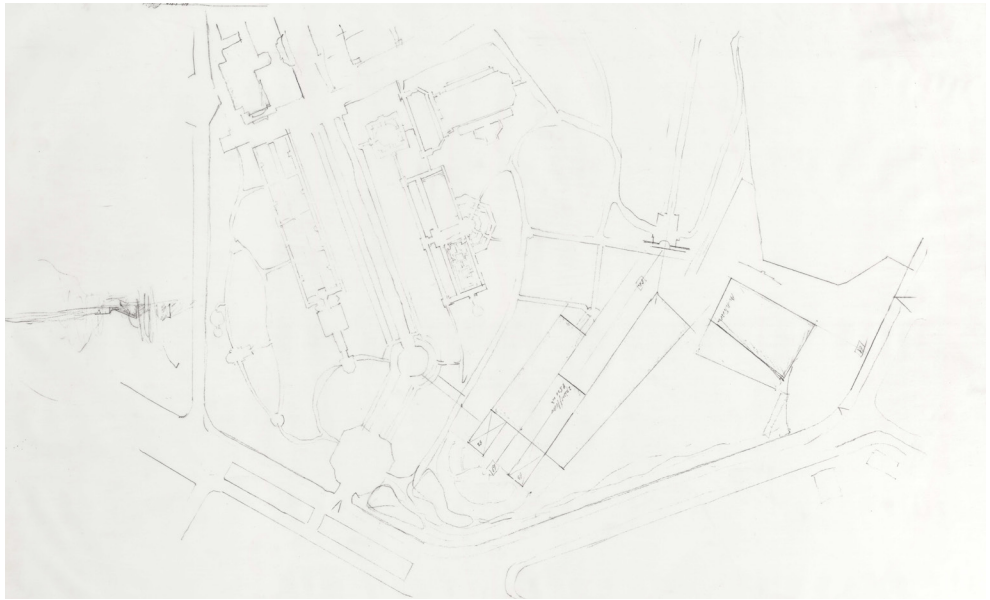


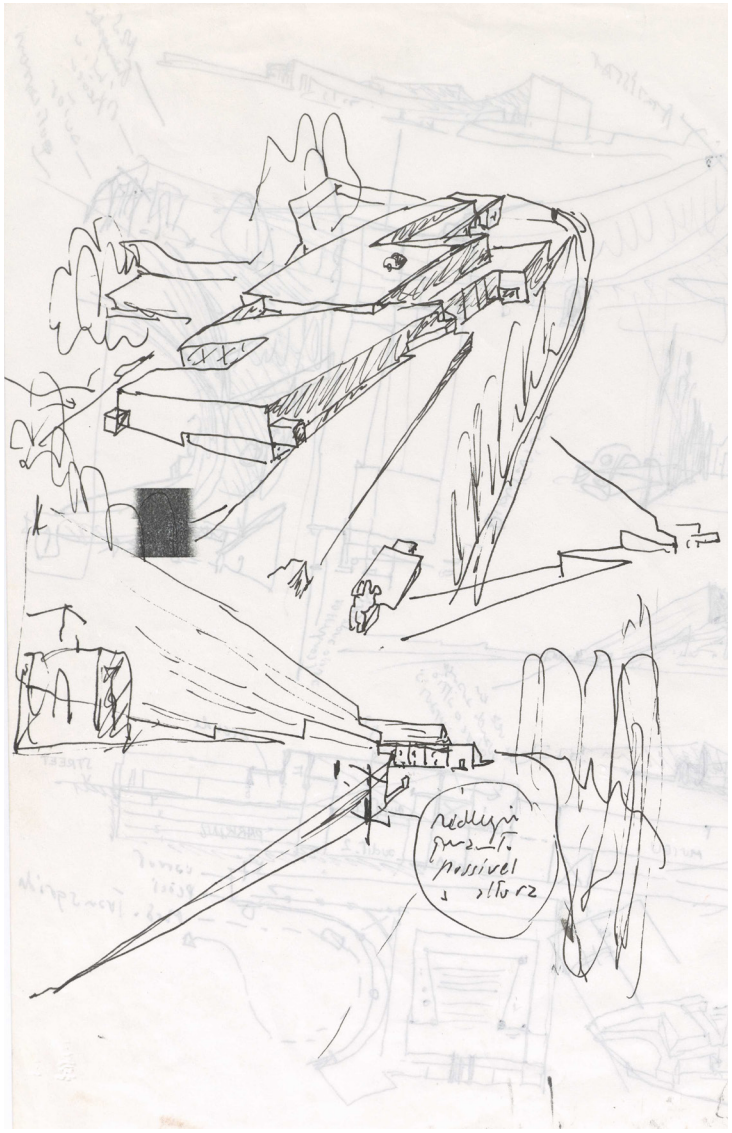




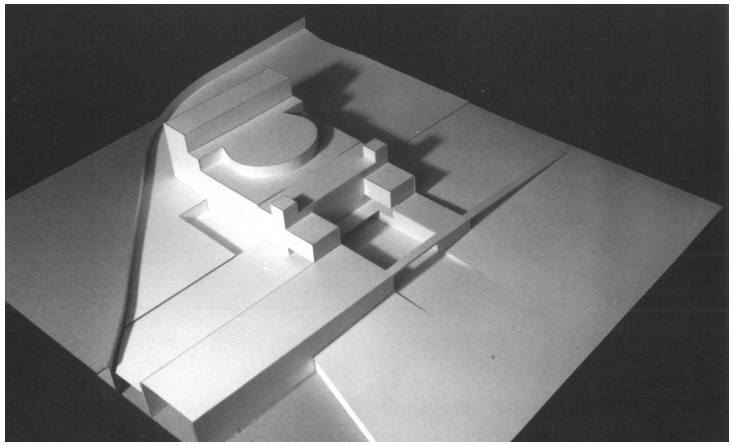


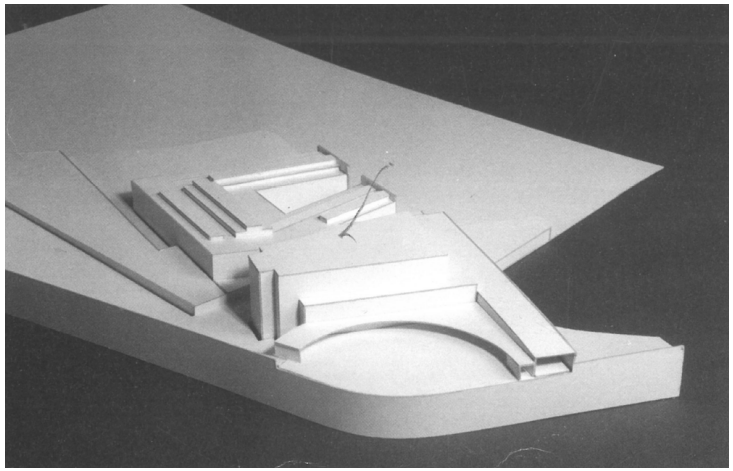
07. 08. 09.10. Preliminary Designs, 1991-1992.



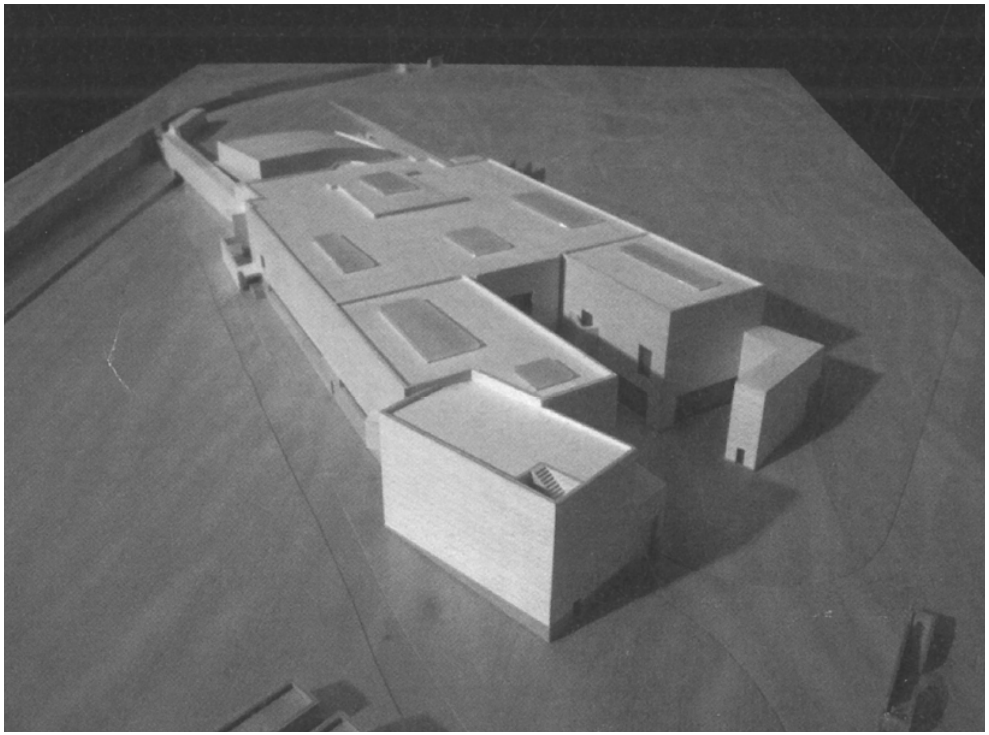


11. 12. 13. Preliminary Designs.

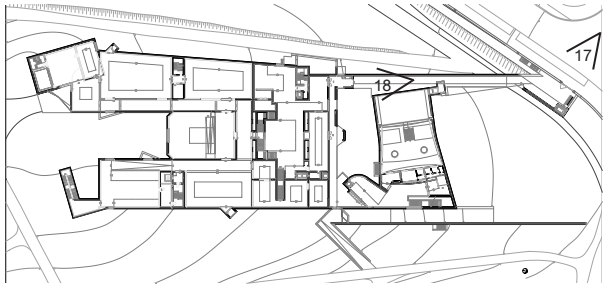




14. 15. Preliminary Designs.

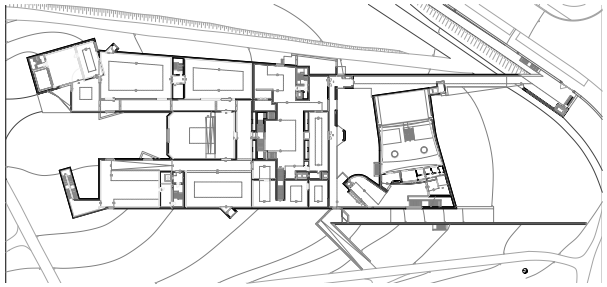


16. Final Design.



17. Entrance Gate.

18. The covered walkway, leading to the Museum.



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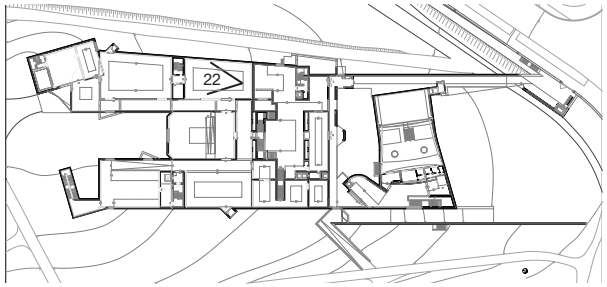
19. Patio containing a magnolia tree.

20. Elm patio.

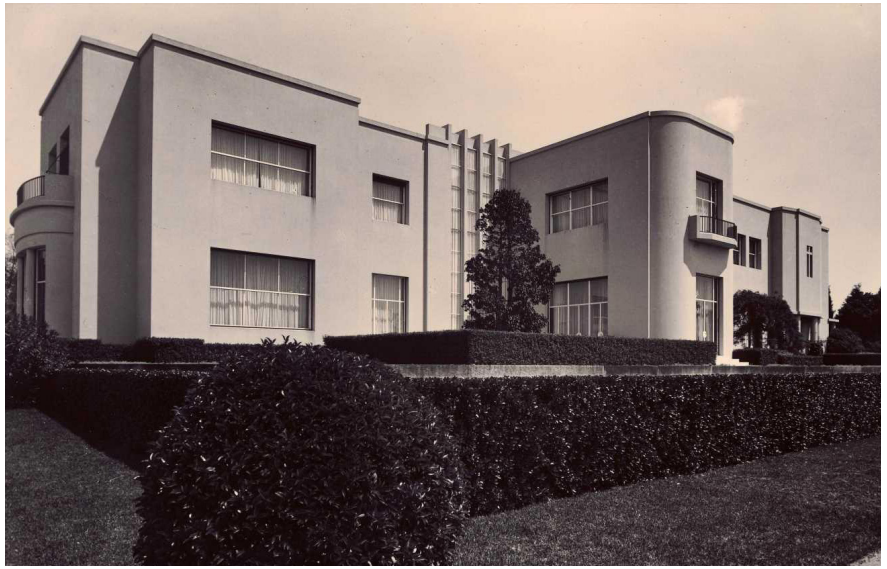
21. The Museum's left wing. Esplanade and Auditorium Bar.



23. Marble Room, left wing.

22. Exhibition Room with an “inverted table” lighting system, right wing.

24. Library.



25. Exterior view of the house: south façade, 1940.

26. Interior view of the house: main entrance hall, 1940.

27. Courtyard and Museum Bow Window.

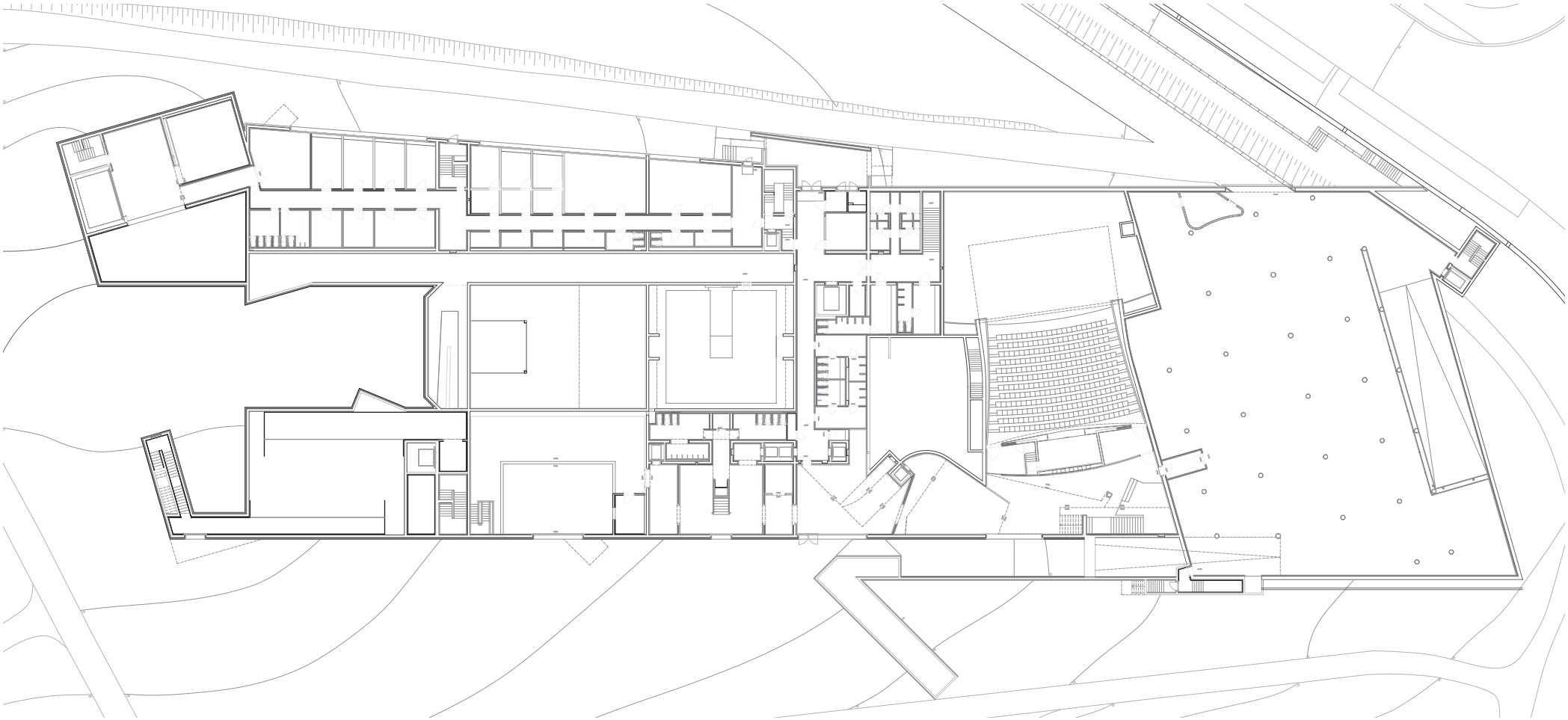
28. Museum Hall.

29. Interior view of the house: dining room, 1940.

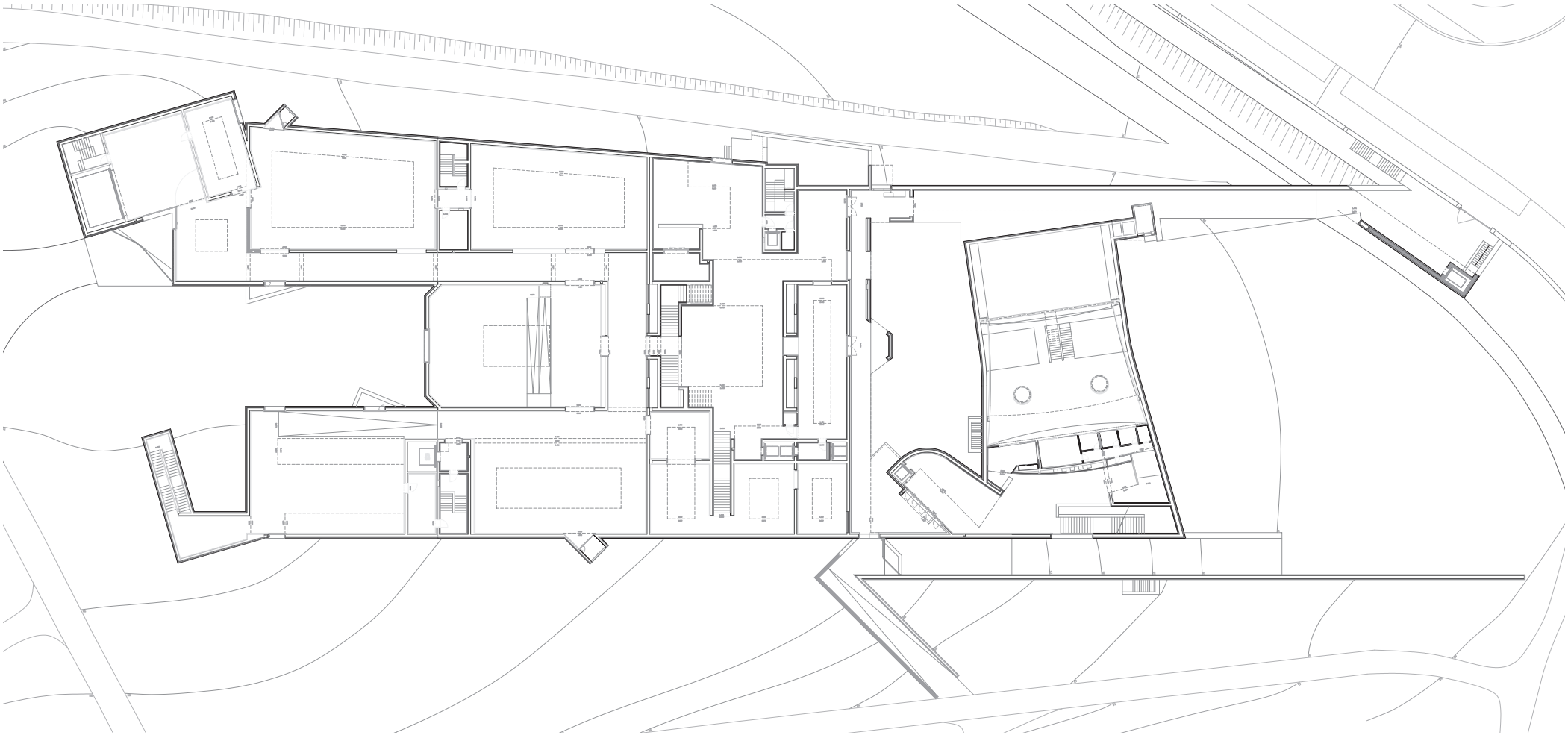
30. Interior view of the house: entrance hall, 1940.

31. Bookshop.

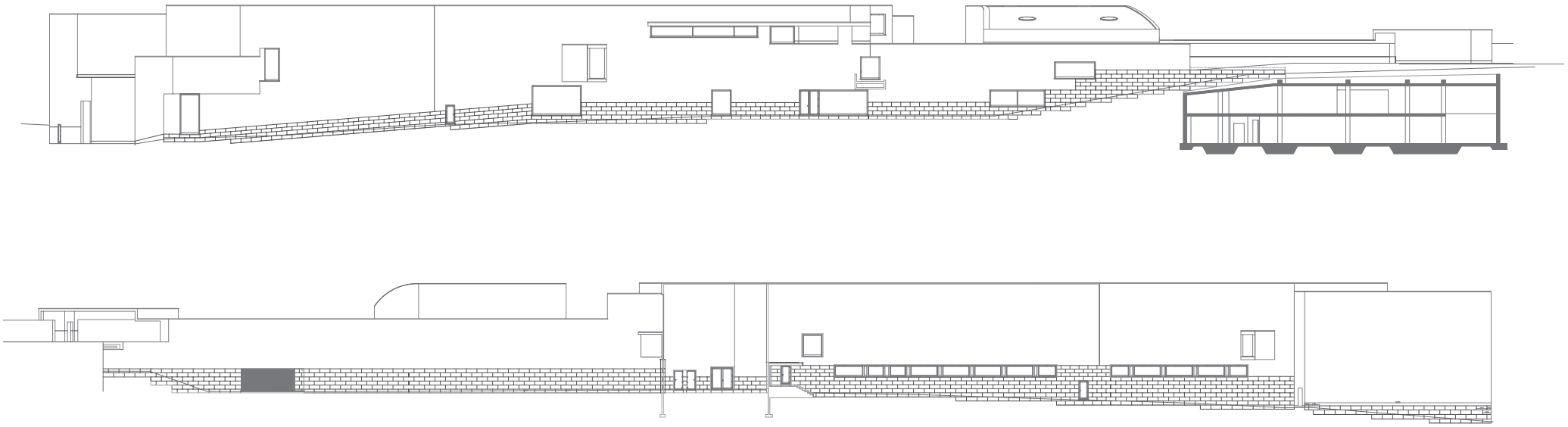
32. Stairs to the Basement Floor of the Museum.



33. Floor 1 Plan.



34. Floor 2 Plan.



35. 36. East elevation and west elevation.

37. 38. Sections.

CONSTRUCTION

STRUCTURAL SYSTEM

The vertical structure of the Serralves Museum comprises structural walls and slabs made of reinforced concrete with external thermal insulation using an ETICS system, painted white or covered in granite panels. Inside, Siza chose plaster walls, marble floors for the corridors and toilets, and oak wood flooring for the rest of the museum.

The horizontal structure consists of reinforced concrete slabs with external thermal insulation. While most of the building is covered by a flat tar and gravel roof, zinc panels were used for the roofs of the auditorium and the Casa do Cinema due to their complex geometry.

WALLS

The museum's exterior walls are double-layered, consisting of a reinforced concrete wall and a 30x20x11 perforated brick wall with a 14cm thick granite ashlar base, supported by UNP200 steel profiles. The air cavity contains 4cm thick extruded polystyrene thermal insulation. All outer surfaces of these walls are plastered with a fine sanded finish and painted white. The balcony walls are capped with Évora grey granite.

On the inside, the walls are either plastered with a stuccoed and painted finish or clad with a plasterboard system with a painted finish, providing space for the installation of infrastructure networks.

There are two types of interior walls: structural walls made of reinforced concrete and partition walls made of hollow brick, with varying thicknesses. Their cladding is predominantly plasterboard, maintaining continuity with the external walls. In the sanitary facilities, the walls are paneled with 2cm thick marble up to a height of 212cm.

40. 41. 42. Construction Works.

43. 44. 45. Construction Works.

FLOORS

The ground floor of the Serralves Museum is constructed atop general soffit slabs, which are laid on compacted soil and tout-venant backfill, with a maximum dimension of 6cm. A sodium bentonite blanket was used to waterproof the surfaces of these slabs in contact with the ground.

An aerated concrete base was built on top of the ground floor slabs to accommodate networks and installations, with a variable height depending on the floor finish. White marble slabs are laid directly on the levelling screed, while parquet flooring is fixed to wooden slats, which are laid with mortar on the levelling screed.

On the upper floors, the floor covering is maintained, with the stone covering changed to limestone. This is applied over the aerated concrete filling and the necessary smoothing screed. Only the ramps have a metal structure, with the floor covered in wooden flooring and the sides covered in plasterboard.

The various staircases are clad in marble and limestone and laid with a smoothing screed.

ROOFS

The building features two types of roofs: flat roofs covering almost the entire area and sloping roofs over the auditorium volume. The majority of flat roofs are non-accessible, with a few being accessible terraces. Non-accessible roofs are predominantly covered with pebbles, averaging 6cm in thickness, and some may have a stone finish, such as the canopies. Accessible terrace roofs are clad in stone plaster, with a thickness ranging from 4 to 5cm.

All flat roofs include a sloping layer of lightweight concrete, varying in thickness from 18.4 to 30.4cm, leveled to ensure proper bonding of the waterproofing layer. Waterproofing consists of asphalt canvas and includes elements like gutters, platbands, and skylight trims. Extruded polystyrene thermal insulation is applied over the waterproofing, with a thickness of 5cm for pebble finishes or 3cm for stone cladding.

Between the pebble cladding and thermal insulation, a geotextile felt provides separation, while stone cladding can be laid directly or set in mortar. On terraces, stone cladding is laid on adjustable supports designed for this purpose.

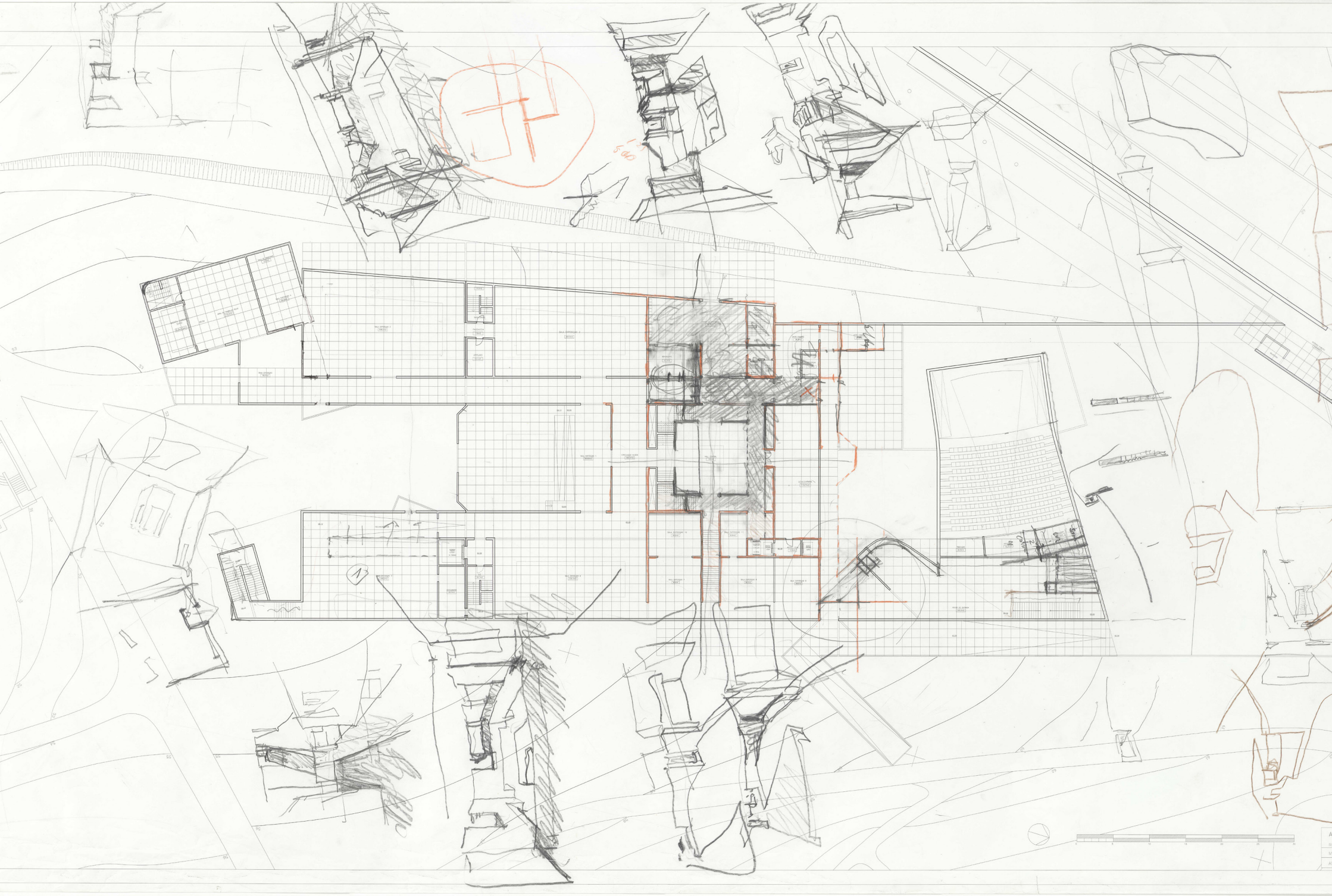
OPENINGS

The exterior frames are installed within the openings of the walls, with the interior face of the frames flush against the interior surface of the walls. These frames feature a combination of materials: painted wood on the interior and sandblasted stainless steel bars on the exterior. Glazed frames are filled with acrylic sheets. All thresholds are made from the same granite as the paneling, and openings are finished with white marble.

Skylights are constructed with a metallised and painted iron structure, and double glazingnd are fixed and finished with stainless steel profiles.

Interior frames predominantly consist of doors, many of which are sliding and made of plywood with a painted finish.

46. Construction Works.



DESIGN PRINCIPLES

NOT TO AFFECT THE DELICATE BALANCE BETWEEN THE VILLA, THE GEOMETRIC GARDEN AND THE WOODS

The insertion of the Serralves Foundation building in the garden of the property is intended not to affect the delicate balance between the villa, the geometric garden along its perpendicular axis and the woods that extend it. For this reason, a peripheral setting was chosen and for this, the existing vegetable garden and orchard will be moved. (Siza, 1992)

ENSURE THAT THE NEW BUILDING WOULD NOT BE VISIBLE FROM THE VILLA

Also in the project for the Contemporary Art Museum of Serralves, one of the main problems was to limit the building's impact on a precious garden from the 1930s, an extension of an important Art Déco Villa. (...) The proposed site, the only one available, was a recent extension of the property, transformed first into an orchard, then into a vegetable garden. The dimensions were compatible with the architectural program, and its setting at a lower level than the main garden, would ensure that the new building would not be visible from the Villa. The only possible link between the original nucleus and the museum was entrusted to the paths and to memory. (Siza, 1996)

AVOIDING DEFORESTATION WORKS

For the choice of this location to set the Museum, the determining factors were the proximity to the Marechal Gomes da Costa Avenue and D. João de Castro Street, ensuring the easiest access for the public, and the absence of trees, thus avoiding deforestation works in the Park. (Siza, 1996)

DEVELOPMENT ALONG A LONGITUDINAL AXIS

In a morphological description of the new building, it is worth mentioning its development along a longitudinal axis approximately oriented in the North-South direction, resuming the layout of the farm beds of the former vegetable garden. (Siza, 1996)

INTERPENETRATION OF AXES TO CONTROL THE SHAPE OF THE FREE SPACES

The articulation of these volumes comprises the interpenetration and angulation of axes, in order to control the shape of the free spaces resulting from the setting of the new building in a site with irregular planimetry. (Siza, 1992)

THE HOUSE IS THE ORIGIN OF THE MUSEUM

The house is the origin of the museum. Before there were museums, the collections were in palaces. I did not want to establish a striking difference between the museum and the house: the succession of rooms, the large spaces. (Siza, 2005, p. 21)

PATHS ENSURE CONTINUITY BETWEEN THE BUILDINGS

The encounter between the different scales of the museum and the house is one of the most interesting features of the project. The house, in fact, preserves the activity connected to the cultural centre and the paths in the garden ensure continuity between the two buildings. (Siza, 1998)

THE POSITION OF THE OPENINGS VISUALLY EXTENDS THIS AXIALITY TO THE EXTERIOR

From this space there is access to a distribution atrium with a square plan and double height. This atrium is centered on the longitudinal and transversal axes. The position of the openings in this room and int the adjacent compartments visually extends this axiality to the exterior and in the four cardinal directions. (Siza, 1996)

ATTRIBUTES

ARCHITECTURE RESPONSIVE TO A PHYSICAL, SOCIAL AND HISTORICAL CONTEXT

The component part's composition is inspired by the preexisting landscape of the farm beds' layout of the former vegetable garden and orchard, which influenced its geometry, alignments and strong linearity. The alignment of the compositional and visual axis providing long-centered perspectives, extending the view to the gardens and beyond.

INTEGRATION OF INTERNATIONAL AND LOCAL REFERENCES

The delicate asymmetry of the Villa and its intimate connection with the gardens through specific openings have significantly influenced the design of the museum. The atmosphere of the museum evokes the feeling of the Serralves Villa, offering a monumental reinterpretation of elements such as the promenade, entrance gates, bow window, main atrium and exhibition halls.

SCULPTURAL VOLUMETRIC EXPRESSION

The building's volumetric expression introduces innovative ways of interacting with the exterior. This is evident in the manner in which the volume of the stairs on the east wing forms a small patio around a tree and how the auditorium's granite exterior access creates a sculptural piece adjacent to the building. These elements combined with the auditorium's curved roof, the bow window over the entrance, and differently oriented windows featuring small balconies and recesses, collectively accentuate the sculptural expression of the building.

ORIENTED SPATIAL EXPERIENCES

The component part uses movement, light, and visual openings to guide visitors through spaces. For instance, the museum's exterior access takes place along a white wall and a covered path, displaying contrast between luminous patios and the shadowy exterior corridor. The double-height atrium, a central distribution space, anchors both long-centred perspectives defining the building's geometry. While there are some exceptions, zenithal lighting at the exhibition halls, with carefully placed punctual windows, offers visitors diverse views of the gardens.

TOTAL WORK OF ART INCLUDING DETAILS, FURNITURE AND ART WORKS

The component part expresses harmony between structure, program, form and details. The design of furniture such as chairs, tables and light fixtures, expresses the harmonious relation between the whole and the parts.

AUTHENTICITY AND INTEGRITY

AUTHENTICITY

The Serralves Museum of Contemporary Art maintains the authenticity of its form and design. A new extension designed by Siza will be opened in 2024. However, the new building is detached from the original and adapted to the location of the trees in the park, in order to fully respect the authenticity of form and design. The Serralves Museum of Contemporary Art maintains most of the original materials. A very accurate maintenance plan guarantees that all elements are in good conditions respecting the original materials, construction system and details.

The Serralves Museum of Contemporary Art fully maintains its original use and function. As a contemporary art museum the internal spaces are dynamic and change according to different temporary exhibitions.

The Serralves Museum of Contemporary Art location and setting remains unchanged. A consolidated low-density residential area characterizes its immediate context since the construction of the museum. Also, because of the existent Buffer Zone that protects its visibility, it does not face significant development pressures. The fact that all buildings are located within the park's walls make it less likely for its views or site to be affected by new interventions nearby.

The Serralves Museum of Contemporary Art maintains a close connection with nature. The paths that connect the different areas of the park, offer its visitors a peaceful retreat from the city hustle. The light variations in the museum's routes, the monumentality of the exhibition halls or the different fragments of landscape framed by every window contribute to the richness of the visitor's experience.

INTEGRITY

The Serralves Museum of Contemporary Art retains a very high degree of integrity as it is maintainedin good condition, including all elements necessary to express its values and significance. The building itself retains a high degree of original fabric, including interior fittings and fixtures.

The component part limits defined by the Buffer Zone include all elements that express the significance of the Museum of Contemporary Art and Park of Serralves, namely the Serralves Villa, the House of Cinema, the farm buildings and all areas inside the park's walls. The building did not suffer any significant change during its lifetime, aside from the construction of a new wing (2021–2023) designed by

Álvaro Siza, respecting the original design and fabric.Being a museum for contemporary art, the building has had to adapt to different exhibition layouts, with minor interventions carried out by artists, curators or staff. However, these changes have a temporary character, being entirely reversible and respectful in its design and materials.

Currently, the Serralves Museum of Contemporary Art does not face development threats.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STATE OF CONSERVATION

The Serralves Museum of Contemporary Art is in an excellent state of conservation, with all its components and systems in good condition. Also, a new museum wing was commissioned to Álvaro Siza and concluded in September 2023. The Serralves Museum of Contemporary Art is devoted to upholding conservation principles to ensure the long-term protection of the component part.

To achieve this, a Maintenance Plan has been developed and implemented, outlining a schedule of actions to be applied daily, weekly, monthly, and annually. These measures include routine inspections of built structures, cleaning, painting, and repairs. Additionally, construction records provide detailed knowledge about the component part's history, including previous constructions, reconstruction dates, architects, builders, and documentation of the interventions, allowing for informed decisions about maintenance and conservation.

A maintenance manager is responsible for ensuring that inspections are carried out according to the established schedule and that the maintenance manual is updated regularly, supported by computerised databases and software.

Implementing a Maintenance Plan, coupled with the commitment to its execution, has proven to be an effective means of confronting external destructive forces and maintaining the integrity of the component part.

DIGITAL DOCUMENTATION

The digital revolution significantly impacts Cultural Heritage safeguarding offering advanced documentation and communication techniques. Modern heritage presents a rich opportunity for study and interpretation due to its diverse documentary, physical, and oral resources.

The methodology for digital documentation, framed within the SizaATLAS research project, employs combined techniques to document Álvaro Siza buildings, namely i) photogrammetry, ii) 360º virtual tours, and iii) BIM didactic models.

The development process involves is supported on previpus analysis of archival and bibliographc documentation and field work observation. This integrated metholodology provides holistic and in-depht analysis of the architectural works, expressing their design principles and OUV attributes, spanning form the relation with the context, the local and international references, the oriented spatial experiences, the volumetric expression and multiscalar approach, including construction and details. Also, it aims at info-accessibility and didactic dissemination of Siza's Architecture, allowing for interactive experiences to users all over the word.

PHOTOGRAMMETRY

Photogrammetry facilitates the three-dimensional representation of Siza's architectural works, interactively elucidating their relationships with the context and its volumetric dimensions. When combined with Building Information Modeling (BIM) and other digital tools, it establishes a robust documentation system.

In the last decade, photogrammetry has evolved as a crucial tool for the 3D documentation of cultural heritage, using various types of photos from both the ground and the air. Digital photogrammetry stands apart from traditional methods by employing digital images and computer systems, such as cameras, computers, and specialized software. With computer vision and automated processes, it is now possible to document very complex objects accurately and reconstruct the three-dimensional model with remarkable precision.

Utilizing drone photography from both DGI Air 2 and DGI Mavick Pro, alongside Map Pilot Pro software, comprehensive volumetric data was captured, providing insights into the buildings' integration with their context. This method not only captured the buildings' physical dimensions but also their visual impact on the surrounding landscape. Terrestrial photogrammetry further refined the models' accuracy, supported by Agisoft Metashape software for georeferencing. Employing a BIM approach ensured data interoperability and facilitated the creation of didactic models.

360º VIRTUAL TOURS

Virtual tours are an increasing instrumental in the documentation and preservation of cultural heritage, contributing communication, and conservation monitoring.

The development of the 360º virtual tours captions was guided both by the OUV attributes and the design principles of each building.

Images for these tours were acquired by a Ricoh Theta camera, ensuring precise timing and favorable weather and light conditions. Subsequently, the virtual tours were processed and enabled using software developed by detalhar.pt. The QR codes in the booklet allow for interactive virtual tour experiences of the buildings, focusing on the main attributes and design principles.

DIDACTIC MODELS

BIM didactic models have as their main objective to conduct a thorough tectonic perspective of a representative section of the building, namely on its construction and material features. Also, by comparing diverse solutions proposed for different buildings within the SizaATLAS research project, the models enable a holistic evaluation of Siza's architectural achievements, emphasizing the integration of form, function and construction.

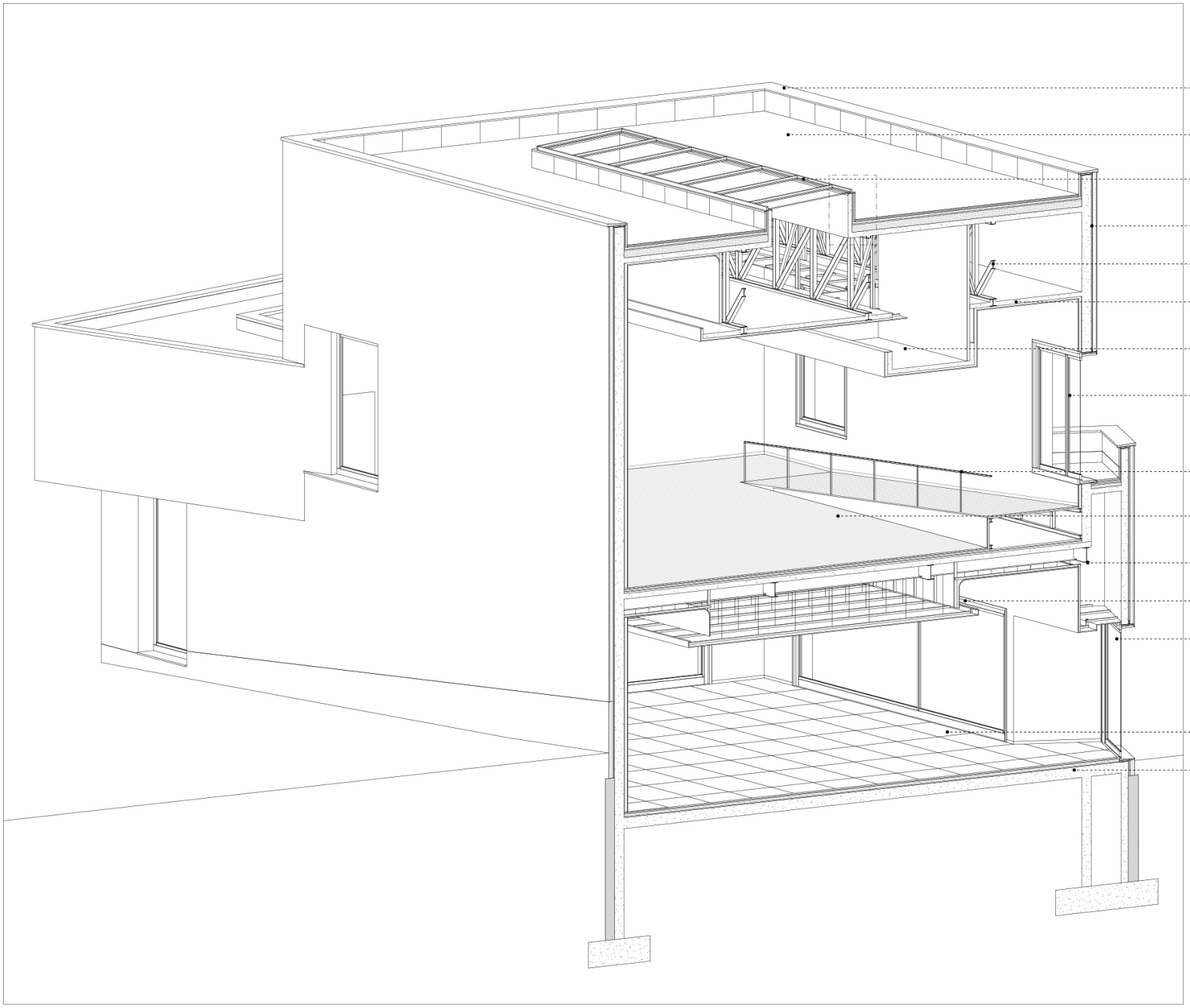
Drawing representation takes inspiration from Edward Ford's "The Details of Modern Architecture" these models prioritize clear language to disseminate knowledge effectively. The development process of the models involves cross-referencing analysis between archives and bibliography research combined with field work observation.

The Didactic Models offer an integrated approach to examining the architectural tectonics of Siza's designs. Hence, they meticulously detail material layers and construction methodologies, encompassing structural system, walls, roofs, frames and the respective intricate details.

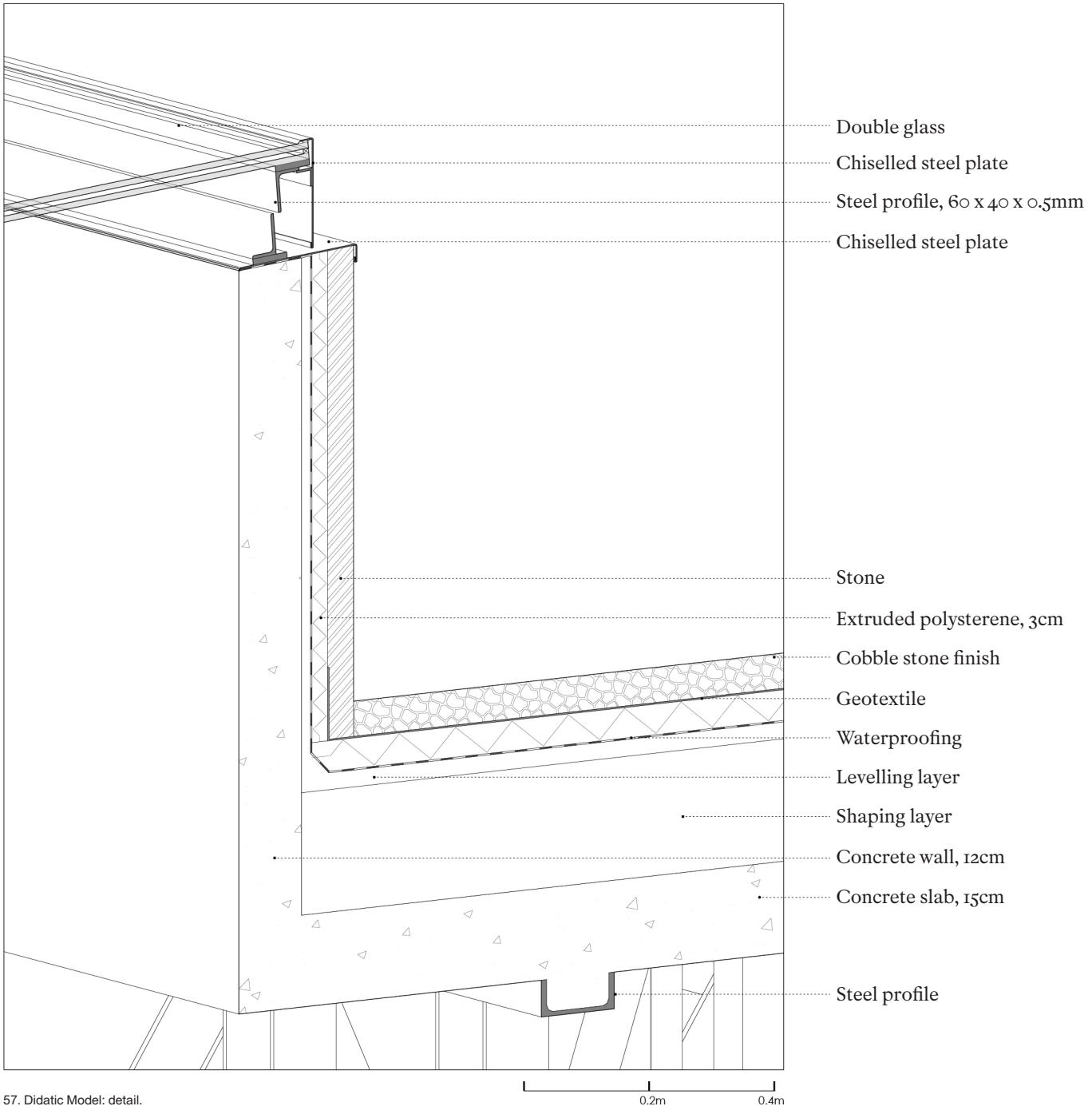
53. 54. Photogrammetry.

55. 360º Virtual Tour.

Virtual Tour



56. Didatic model: section of the exhibition rooms.



57. Didatic Model: detail.

SOURCES AND BIBLIOGRAPHY

Asensio, P. (2002). “The Serralves Foundation”. In *Álvaro Siza*. Barcelona: teNeues, pp. 48.55.

Barata, P.M. *et al.* (2001). *Museu de Serralves: Álvaro Siza*. Lisboa: White&Blue.

Cannatá, M. and Fernandes, F. (2001). “Museu de Arte Contemporânea - Serralves”. In *Arquitectura Portuguesa Contemporânea*. Porto: Asa Editores, pp. 167-171.

Cannatá, M. and Fernandes, F. (2002). “Museu de Arte Contemporânea de Serralves [1993-1999]”. In *Guia da Arquitectura Moderna do Porto. 1925-2002*. Porto: Asa Editores S.A., pp. 127-128.

Cecilia, F.M. and Levene, R. (eds.) (2001). *Álvaro Siza: 1958-2000. El Croquis*, n.ºs 68/69+95. Madrid, 2001.

Cerver, F.A. (2000). “Serralves Museum”. In The World of Architecture. Koln: Konemann Verlagsgesellschaft mbH, pp. 262-263.

Choupina, A. (2020). “The idea of Álvaro Siza”. In *The Museum - Serralves Newspaper*. Porto.

Cohn, D. (1999). “Serralves Museum of Contemporary Art, Porto”. In R. Ivy (ed.), *Architectural Record*, vol. 187, n.º 11. New York: McGraw-Hill Companies, pp. 102-110.

Cuito, A. (2001). *Álvaro Siza*. Dinalivro.

D’Alfonso, M. and Introini, M. (2009). *Álvaro Siza: due musei, museo d’arte contemporanea Serralves a Porto, museo d’arte Iberê Camargo a Porto Alegre*. Milano: Mondadori Electa.

Fernandes, J. and Castanheira, C. (2005). *Álvaro Siza: on display*. Porto: Fundação de Serralves.

Finsterwalder, R. and Wang, W. (2011). “Álvaro Siza”. In *From Line to Space*. Viena: Springer, p. 80.

Frampton, K. (2000). “Museum of Contemporary Art, Serralves Foundation Porto, Forugal”. In *Álvaro Siza: Complete Works*. London: Phaidon, pp. 416-423.

Francisco, S. and Estadão, L. (1997). “Parque de Serralves”. In *Sistema de Informação para o Património Arquitectónico*: http://www.monumentos.gov.pt/Site/APP_PagesUser/SIPA.aspx?id=6216 [accessed 15 July, 2024].

Grande, N. and Muro, C (ed.). (2019). *Álvaro Siza: in/ disciplina*. Porto: Fundação de Serralves.

Hourston, L. (2004). “Alvara Siza. Serralves Museum, Oporto, Portugal”. In *Museum Builders II*. West Susses: Wiley-Academy, pp. 152-157.

Jodidio, P. (2001). “Serralves Foundation, Porto, Portugal”. In *Architecture Now!* Köln: Taschen, pp. 510-515.

Jodidio, P. (2003). “Serralves Foundation, Porto, Portugal”. In *Álvaro Siza*. Köln: Taschen, pp. 164-169.

Jodidio, P. (2013). “Serralves Foundation”. In *Álvaro Siza: Complete Works 1952-2013*. Köln: Taschen, pp. 188-201.

Loock, U. (ed.). (2005). Álvaro Siza. *Um percurso no Museu de Serralves*. Porto: Fundação de Serralves/ Jornal Público.

Machabert, D. and Beaudoin, L. (eds.) (2009). *Álvaro Siza, uma questão de medida*. Casal de Cambra: Caleidoscópio.

Neves, J.M. (2002). *Serralves: a fundação, a casa, o parque o museu, o arquitecto, a colecção, a paisagem*. Porto: Fundação Serralves.

Pires, J.M. (2021). “Siza Vieira assina novo edifício de Serralves”. In *Jornal I Online* (30 September 2021): https://ionline.sapo.pt/artigo/747787/siza-vieira-assina-novo-edificio-de-serralves?seccao=Mais_i [accessed 15 July, 2024].

Reis, M.M. and Santos, P. (coord.) (2013). “Museu de Arte Contemporânea - Fundação de Serralves”. In *Porto Poetic*. Porto: Ordem dos Arquitectos - Secção Regional do Norte, pp. 44-47.

Sequeira, M.; Melo, M. and Toussaint, M. (2017). “Casa de Serralves [restauro]/ Serralves Villa [refurbishment]”. In *Guia de Arquitectura. Álvaro Siza. Projetos Construídos. Portugal/ Architectural Guide. Álvaro Siza. Unbuilt Projects*. Portugal. Lisboa: A+A Books, pp. 108-109.

Sequeira, M.; Melo, M. and Toussaint, M. (2017). “Museu de Arte Contemporânea de Serralves/ Serralves Museum of Contemporary Art”. In *Guia de Arquitectura. Álvaro Siza. Projetos Construídos. Portugal/ Architectural Guide. Álvaro Siza. Unbuilt Projects. Portugal*. Lisboa: A+A Books, pp. 104-107.

Sereno, I. and Filipe, A. (1994). “Casal de Santa Maria / Casa de Serralves”. In *Sistema de Informação para o Património Arquitectónico*: http://www.monumentos.gov.pt/Site/APP_PagesUser/SIPA.aspx?id=6713 [accessed 15 July, 2024].

Siza, Á. (2007). “Art Centre/ Museum, Serralves Foundation”. In *Álvaro Siza*. Japan: TOTO Shuppan, pp, 218-245.

Siza Á. (1998). *Imaginar a evidência / Álvaro Siza*, preface by Vittorio Gregotti. Lisboa: Edições 70.

Siza, Á. (1992). “Museu/Centro Cultural de Serralves”. In *Design report*. Porto.

Siza, Á. (1996). “Museu de Arte Contemporânea”. In *Design report*, Porto.

Siza, Á. (2001). “Museu de Arte Contemporânea - Fundação de Serralves, Porto: 1991–1999”. In C. Castanheira and C. Porcu (eds.), *As Cidades de Álvaro Siza*. Lisboa: Figuerinhas.

Siza, Á. (2002). “Restauro da Casa de Serralves”. In *Design report*, Porto.

Siza, Á. (2005). “Fundação de Serralves”. In A.V. Milheiro *et al*. (eds.), *Álvaro Siza: candidatura ao premio UIA gold medal 2005*. Lisboa: Ordem dos Arquitectos, pp. 84–91.

Siza, Á. (2005). “Museu de Arte Contemporânea de Serralves (1991–99)” In J. Fernandes *et al*. (eds.) *Álvaro Siza: expor*. Porto: Fundação Serralves, pp. 70–127.

Siza, Á., *et al*. (2011). *Álvaro Siza: Museu de Arte Contemporânea de Serralves*. Barcelona: Ediciones Polígrafa.

Siza, Á. (2011). “Serralves Museum of Contemporary Art: Oporto, Portugal (1991–1999)”. In R. Finsterwalder and W. Wang (eds.), *Álvaro Siza: from line to space*. New York: Springer Wien, pp. 80-89.

Siza, Á. (2012). “Casa do Cinema Manoel de Oliveira”. In *Design report*. Porto.

Siza, Á (2013). “Casa do Cinema Manoel de Oliveira”. In *Design report*, 2013. Porto.

Tavares, A. (2007). *Os fantasmas de Serralves*. Porto: Dafne Editora.

Tavares, A. (2017). “Museu de Arte Contemporânea da Fundação Serralves”. In *Matéria-prima: um olhar sobre o arquivo de Álvaro Siza*. Porto: Fundação de Serralves, pp. 159–231.

Tostões, A. (2008). A*rquitectura Portuguesa Contemporânea*. Lisboa: CTT. Edição do Clube do Coleccionador.

Trulove, J.G. (2000). “Museu de Serralves, Oporto, Portugal. Alvaro Siza, architect”. In *Designing the New Museum: Building a Destination*. Gloucester: Rockport Publishers, Inc., pp. 70-79.

Villalobos, D. (2010). *21 Edifícios de Arquitectura Moderna en Oporto*. Valladolid: Universidad de Valladolid, Escuela Técnica Superior de Arquitectura.

Zeiger, M. (2005). “Museu Sessalves. Oporto, Portugal. Alvaro Siza”. In *New Museum Architecture. Innovative buildings from around the world*. London: Thames & Hudson, pp. 192-199.

01. Fernando Guerra | FG+SG, Serralves Foundation.
02. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
03. Municipal Historical Archive of Porto.
04. Alvão/Serralves Collection Archive.
05. Carlos Alberto Cabral Archive, Serralves Foundation.
06. Carlos Alberto Cabral Archive, Serralves Foundation.
7. 8. 9. 10. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
11. 12. 13. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
14. 15. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
16. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
17. Fernando Guerra | FG+SG, Serralves Foundation.
18. Filipe Braga, Serralves Foundation.
19. Fernando Guerra | FG+SG, Serralves Foundation.
20. Filipe Braga, Serralves Foundation.
21. Filipe Braga, Serralves Foundation.
22. Filipe Braga, Serralves Foundation.
23. Filipe Braga, Serralves Foundation.
24. Fernando Guerra | FG+SG, Serralves Foundation.
25. Carlos Alberto Cabral Archive, Serralves Foundation.
26. Carlos Alberto Cabral Archive, Serralves Foundation.
27. Fernando Guerra | FG+SG, Serralves Foundation.
28. Miguel Coutinho, 2022.
29. Carlos Alberto Cabral Archive, Serralves Foundation.
30. Carlos Alberto Cabral Archive, Serralves Foundation.
31. 32. Fernando Guerra | FG+SG, Serralves Foundation.
33. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
34. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
35. 36. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
37. 38. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
39. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
40. 41. 42. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
43. 44. 45. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
46. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
47. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
48. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
49. Fernando Guerra | FG+SG, Serralves Foundation.
50. Filipe Braga, Serralves Foundation.
51. João Morgado, Serralves Foundation.
52. Fernando Guerra | FG+SG, Serralves Foundation.
53. 54. Carlos Fernandes, Ricardo Dias and Siza ATLAS, 2023.
55. Carlos Sousa Pereira and Siza ATLAS 2024.
56. Siza ATLAS, 2023.
57. Siza ATLAS, 2023.

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Siza ATLAS: Filling the gaps for World Heritage

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