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Architectural Graphics

Volume 3 - Graphics for Education and Thought

Springer

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Volume 23

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Editors

Architectural Graphics

Volume 3 - Graphics for Education and Thought

Springer

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Preface

Graphic expression is a primordial characteristic of architectural activity and its most common way of representation. Architecture and urban planning have in graphic representation their basic tool not only for making projects a reality, but also for their reflection and research. Practically every day, architects, urban planners and designers make use of any graphic tool to think, face problems and propose solutions, in different phases and at different scales. If we add to these facts the large number of methods and techniques that can be used, we can understand that architectural graphic expression represents a fairly broad field of knowledge.

In this sense, the departments and areas of architectural graphic expression of the different European universities are responsible for improving teaching and promoting research in this discipline. To this end, the EGA International Congresses are a meeting point where they can present and share the main advances in their lines of research. This Congress series started in 1986 in Seville and has been held biannually since this year. As usual, these events revolve around a central theme proposed by the Congress and sub-themes or thematic lines that try to cover the different areas of work of professionals and researchers within the field of architectural graphics.

After two years that have shaken the world, in which our habits and our habitat have been transformed, where uncertainty has been declared a variable to be assumed in our daily lives, we have been able to observe how different independent initiatives have emerged from the most diverse areas of society to provide solutions to new problems and adapt to new situations. All of this made it pertinent to reflect on the capacity of our area to provide solutions to these new scenarios. For this reason, the central theme chosen for the last EGA Congress was the transfer of knowledge to a society in a process of change, from the different points of view and the specialties that we can cover. This volume is an offspring of the 19th International Congress on Architectural Graphics, held in Cartagena in June 2022. Each author or group of authors contributed an abstract, in their mother tongue, which was included in the Congress proceedings, published by Universidad Politécnica de Cartagena.

As an independent, external activity, the Scientific Committee selected a number of authors and invited them to contribute a different, longer text, about a series of specific topics connected with the main issues in architectural graphics which are included in this volume. These topics were proposed by the Organizing Committee, and they are as follows: Analysis, for the graphics tools as a method for detailed studies; Knowledge, for the study of the evolution of graphics methods themselves; Production, for researches related to architecture contributions; Thought, for critical and reflective works; and Education, for recent results in the field of teaching graphics.

For that purpose, researchers and professors belonging to the architectural graphic expression departments from all Spanish Schools of Architecture were invited to write and send a paper in which they describe their research related to the proposed topics. This invitation was also extended to researchers in the field of architectural graphics from other countries, belonging to different European universities from Portugal, Greece, Belgium, Italy and Germany, which are: Évora (Portugal); Bologna, Pavia, Genova, Reggio Calabria, Milano, Campania, La Sapienza di Roma, Molise, Bari, Firenze, Pescara, Padova, Palermo, Cagliari and Torino (Italy); Siegen and Dresden (Germany); Thessaly (Greece); and Leuven (Belgium). In addition, American authors from Colombia International University, Buenos Aires University (Argentina) and Guadalajara University (Mexico) have been also participated and even from Cuesta College in California. As a result, more than 250 researchers participated in the selection process, and 135 research works were received with the aim of being published.

The selection process of the works contained in this publication consisted of a double-blind peer review of the papers. Around 50 reviewers from different countries, who are recognized experts in the field of architectural graphics, were carefully chosen according to the papers presented. Finally, after this exhaustive review process, 130 papers were definitively accepted and classified by research topics: 47 chapters for Analysis, 33 chapters for Knowledge, 9 chapters for Production, 19 chapters for Education and 22 chapters for Thinking. Consequently, this publication consists of three volumes distributed as follows. *Volume 1: Graphics for Analysis* with 47 chapters, *Volume 2: Graphics for Knowledge and Production* with 42 chapters and *Volume 3: Graphics for Education and Thought* with 41 chapters.

Under those circumstances, we can define this publication as a compendium of research works in the field of architectural graphic expression developed in some of the most relevant architecture schools in Mediterranean Europe. Therefore, we can consider it a faithful proof of what is being done in our universities right now. This is not only about the academic scope, but also about the research works that

are being carried out, the new trends in graphic education, and the evolution of teaching adapted to the rapid changes to which universities are constantly subjected.

Manuel A. Ródenas-López
José Calvo-López
Macarena Salcedo-Galera

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Education

Álvaro Siza Vieira Malagueira's Notebooks: A Reading on the Relevance of Drawing for Architectural Research

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Abstract. Álvaro Siza Viera began in March 1977 the constant, methodical, and continuous, almost compulsive, recording of drawings in A4 notebooks. This record, which spans over the 22 years he spent working at the Bairro da Malagueira project in Évora, allows us to understand his conception and design process, and reflects the ability of drawing to serve as a tool for investigation through design. This type of record, far beyond the record of the real usually made in a travel notebook, constitutes an essential testimony of the author and his work, but also of architecture and its conception process. The research **used** 48 notebooks dedicated to Malagueira and presents the indications of a research process **centered** in the observation and design of the territory and in the imagination of its future as a basis for the progressive construction of an urban plan, of its moments and elements. Based on this knowledge it is possible to affirm the character of drawing to bring together elements from the field of history and architecture that are close to the place and the themes of the ongoing project. Drawing brings together the possibilities of the transformation of this memory at the service of the present in the construction of the future and the architectural project.

Keywords: Álvaro Siza Vieira · Malagueira · Design driven research · Research by drawing

1 Opening

Álvaro Siza Vieira's Malagueira Plan in Évora started in March 1977 and with this project began a constant, methodical, and continuous, almost compulsive, record of drawings in A4 notebooks. These notebooks are a remarkable resource for research and for understanding his working method.

There are 52 different notebooks (more than 2800 pages), listed between March 1977 (Figs. 1, 2, 3, 4 and 5) and the end of March 1999, that gather roughly 22 years of the design of the Malagueira's project including housing, public buildings, and public spaces. These notebooks with red cover (if bought in Évora, that was run at that time by a communist government) or black cover (if bought at Oporto) have around 80 to 160 blank pages of 80gr cetin paper, sometimes slightly yellowish. Álvaro Siza Vieira

CREDITS All images used are courtesy of Drawing Matter Collections.

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frequently writes on the right page (few double pages are usually used) and uses a Bic pen, usually black, occasionally a red or blue pen, or a pencil. Notebooks include a mix of meeting notes, texts, poems, timetables or schedules, but mostly drawings, both from people and from ongoing projects. These notebooks provide a mapping of his thoughts.

All notebooks about the social projects of São Victor, Bouça and Malagueira are entrusted to Niall Hobhouse and Drawing Matter who have made them graciously available for this research.

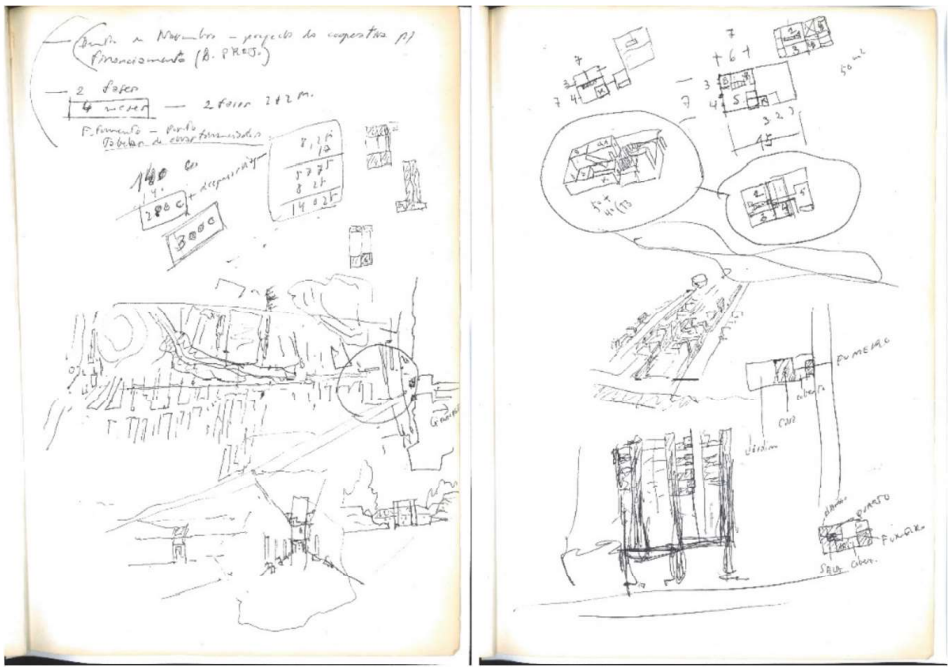

Fig. 1. Notebook 01, p.2 & p.4, March 1977 - The initial urban design to connect the old city (Portas de Alconchel) to Quinta da Malagueira and the housing layout.

These drawings show the architect's intentions and the path in design research followed from the first initial sketch (Fig. 1) to the last more detailed drawing (Fig. 6) and complement the final formal written and drawn documents of the project. Throughout these drawings we can realize Álvaro Siza Vieira's ethical commitment to the construction of a memory based in an intuition and sensitivity of a new architecture within the context of the nearby pre-existing city of Évora.

As Álvaro Siza Vieira usually recalls he started drawing in the notebooks due to the necessity to organize and collect his thoughts to keep them as they evolved. His first notebook, a red one, was started in March 1977, responding to the necessity of "keeping track of a very complex work" [1].

Recent interviews with Siza [1, 2] about Malagueira's notebooks have shown his ability to recall the parameters of each drawing, and the histories they entail. When in face of his early notebooks Álvaro Siza Vieira can describe all drawings and even the social or

political events around them. Images encapsulate not only the ideas behind the project but also its circumstances (term used by Fernando Távora in 1962 [3] to describe the elaborated interwind of natural and human factors that surround man, including those he creates and that condition his own well-being). Sometimes circumstances are of the utmost importance to understand the shifts and ways of the drawings making the wholistic reading of notebooks dependable on the author recollections.

Therefore, he gathers drawn elements from the field of history and architecture in his notebooks that are close to the site and to the themes of the ongoing project. His ability to select and collect these circumstances are closely related to his ability to walk, observe, and draw [4].

Previous research on walking and drawing [4, 5] take into attention Siza's overlook of the territory while strolling Évora's city center and around Malagueira. Álvaro Siza Vieira collects memories of Évora's buildings and incorporates them into some equipment's design (i.e., he draws some churches in Évora as visual research for the Paroquial Center church's façade and plaza design).

He continuously brings together references that allow the possibilities of transforming the site's memory at the service of the present for the construction of the future.

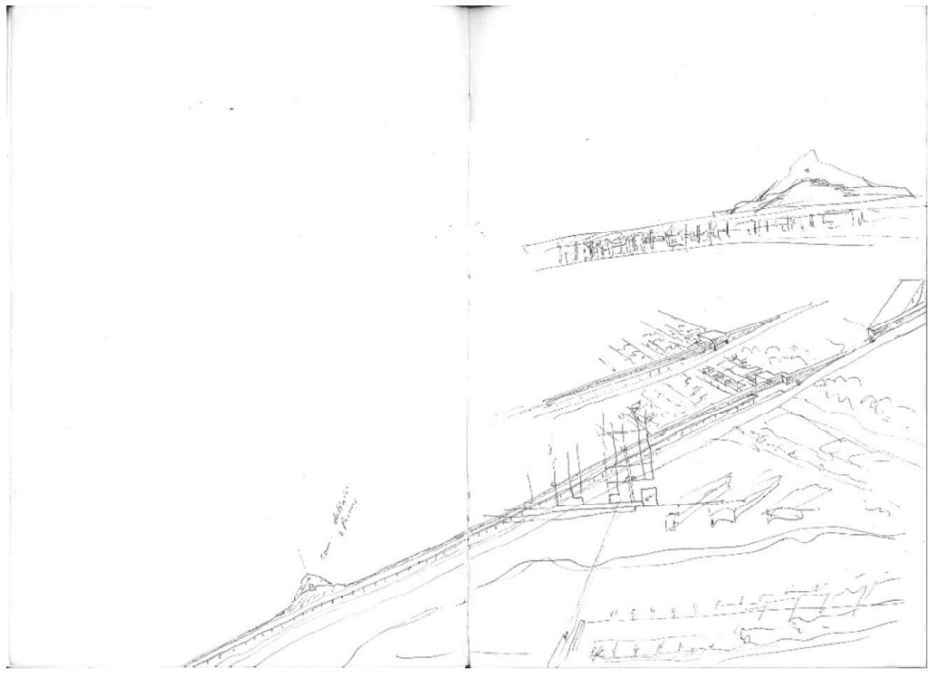

Fig. 2. Notebook 22, p.16, May 1978 - The first position for the half-dome inserted along the aqueduct.

Álvaro Siza Vieira states in 1994 "it was difficult for the gaze to conquer the necessary discipline: to see everything and receive (a mark like red-hot iron), to leap in a methodical choreography" [6]. This discipline is evident in the path of the initial idea, or of the "primary generator in a generator-design-analysis model" [7], which Álvaro Siza Vieira collects and envisions in his notebook.

The sketches of what he observes within the territory, conjugate the history of the place, the materiality that he feels and observes while walking through the city of Évora, but also the memories of the classical and modern past of European urban exemplars of the past and post-war period. He explains[1] that when he travelled to Pompei he noticed soft variations of the city's grid that shifted due to topography and he did the same at Malagueira, as different geometries of rows of houses adapt to the terrain. The gentle slopes are included in the design and implantation of the houses making the streets look more variable.

Not only does the unit (house) scheme incorporates variations (i) due the position of the backyard - typology "A" with the front patio; and typology "B" with the patio at the back - and (ii) due to the number of family members – thus allowing a variable number of bedrooms, from 1 to 5 – but (iii) also includes variations due to the topographic implementation of the front façade elements in relation to their neighbours. This research can be observed in his drawings (Fig. 1) as he varies the positioning of the façade in different streets.

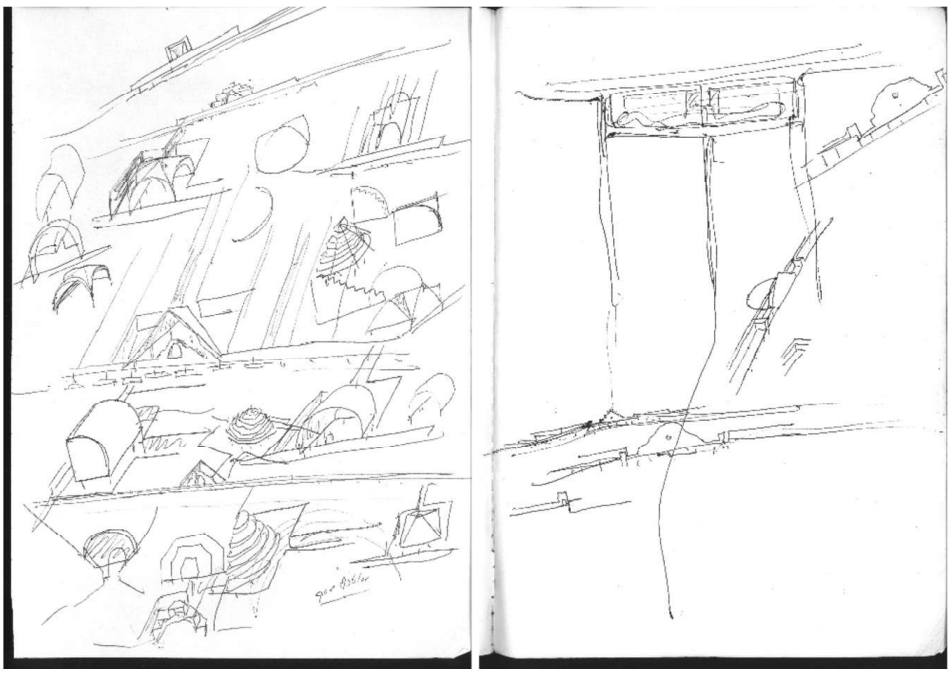

Fig. 3. Notebook 26, p.22 & p.48, September 1978 – Studies of forms and facades for the half-dome.

Drawings are very fluid and exploratory: "when I sketch, I can go this way or that way". Drawing is a free exploratory tool, and the final (formal) drawing is less relevant for expressing the process of architectural thought (See footnote 1).

[1] According to Niall Hobhouse, Trustee of Drawing Matter at FAUP on the 24th November 2021.

Even though Álvaro Siza Vieira's drawings are most relevant, they are not enough[2]. His dreams (of space) are not sufficient and need to be verified, to reduce failure of scale or other disconformities. He uses complementary scale models, as more rigorous research studies to arrive to the exactness of space. To some degree he considers models as less representative of architectural thought, thus less remarkable, although necessary to assert interior space, volumetric control, or light/shadow modelling.

2 Plot

We put forward the hypothesis that drawing is an operative, valid tool, and method to research thru design "in", "on" and "about" architecture and still imperative to teaching.

The ongoing research[3] and the already published articles [5, 8–11] share evidence that Álvaro Siza Vieira's drawings act as a method for architectural research thru the architectural design, as a way of thinking and analysing the various possibilities of the project. The mutations pursued or abandoned suggest complex reasoning that follow Christopher Alexander's abstract semilattice structure [12] and cannot reproduce but elude categorization.

The half-dome [10] is a clear example where Álvaro Siza Vieira tests not only the physical positioning and the urban relation of a major iconic public building at the centre of Malagueira, but also its social and cultural positioning in the identity definition of the neighbourhood itself and in the relation with the historical city. Drawings induce a complex research narrative that determine critical thinking (Fig. 2, 3 and 4).

An aggregative theoretical discourse positions the design of Álvaro Siza Vieira as a process of investigation through design [13–15] and in design driven research (DDr[4]). The research followed by Álvaro Siza Vieira, narrated through the drawings he elaborates in his notebooks, is assumed as an experimental investigation on form, light, history, and architecture. The project is a laboratory [16] of investigation. Drawing is the experiment that tests the various hypotheses of composition.

In notebook 26 (Fig. 3) Álvaro Siza Vieira tries different shapes for the half-dome, as if all could be discussed and questioned. He explores new ideas and forms to assert the true nature of the half-dome. He dreams within the drawing about new possibilities that he did not think before. By questioning everything he was able to open the square to propose the half-dome in front of the conduct, in an open plaza facing North. This would in fact be the final positioning of the half-dome.

[2] Talk between Álvaro Siza, Niall Hobhouse, Neiva at FAUP on the 24th November 2021.

[3] Malagueira: Heritage for all. Contributions for its nomination. This work is financed by national funds through FCT - Foundation for Science and Technology, I.P., within the scope of the research project MALAGUEIRA - PATRIMÓNIO DE TODOS, Ref.ª PTDC 2017 – PTDC/ART-DAQ/32111/2017 [UI&D: CHAIA/UÉ – Ref.ª UID/EAT/00112/2020 – FCT] hosted at CHAIA, Universidade de Évora (www.uevora.pt/en/research/projects?id=3827).

[4] Design Driven research, derives from Research by Design, following CA2RE work (ca2re.eu).

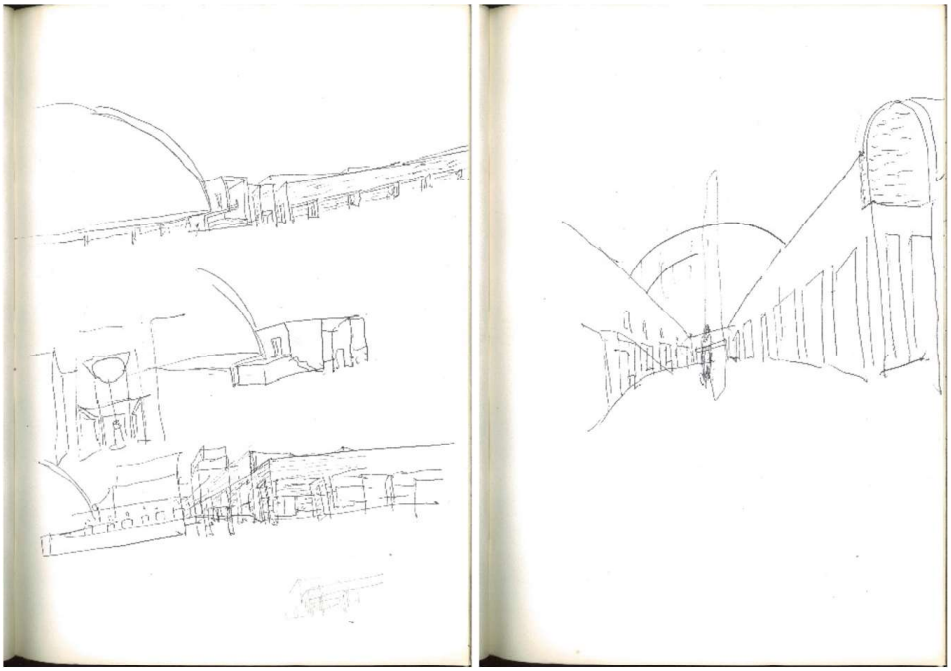

Fig. 4. Notebook 42, p.35 & p.36, September 1977 – Different views form the coffee shop and from the commercial street.

As Álvaro Siza Vieira says: "Drawing is the language and the memory, the way to communicate with oneself and with others, the construction. He does not draw for the demands of architecture (it is enough to think, to imagine). It draws out of pleasure necessity and vice." [6] This language and memory towards himself indicates an essential materialisation between thinking and conceiving architecture, anticipatory of construction. It is within the multiplicity and variety of drawn experimentation that resides the investigation and the process that transcends the graphic work to the architectural tool.

Drawing has become a vice, an addition, but with a purpose. The purpose is to explain and to trace the act of researching the project. This consecutive research procedure induces innovation. Being creative is not the same as researching, since the latter implies a systematic reflection, that Siza is only able to do and keep with drawings.

3 Spectacle

The role of drawing in architecture is often depreciated as scientific research since it is seen as an artistic work. Science presumes verbal or written communication as the most appropriate and legitimate way to produce and to share scientific knowledge. The teaching of architecture tends to use drawing as mere representation of analogue or digital visualization of the real. Drawings are therefore accepted mostly as visual synthesis of ideas but not as the actual ideas themselves.

But, to Álvaro Siza Vieira drawing is an instrument for research. Through his drawing new creative paradigms are born out of a systemic thinking that includes architectural, scientific, technological, aesthetic, and landscape approaches.

In our research we find images, models, and visual rhetoric to serve as architectural non-verbal thought, as knowledge production. We find design and architecture knowledge to rely mostly on non-verbal thought, such as visual thinking and representation, to further advance in research and knowledge. Images, models, physical making are essential for researching in architecture (Scientific thinking + visual and verbal rhetoric) and exploration of design solutions as well as in communication of knowledge and its findings [17, 18].

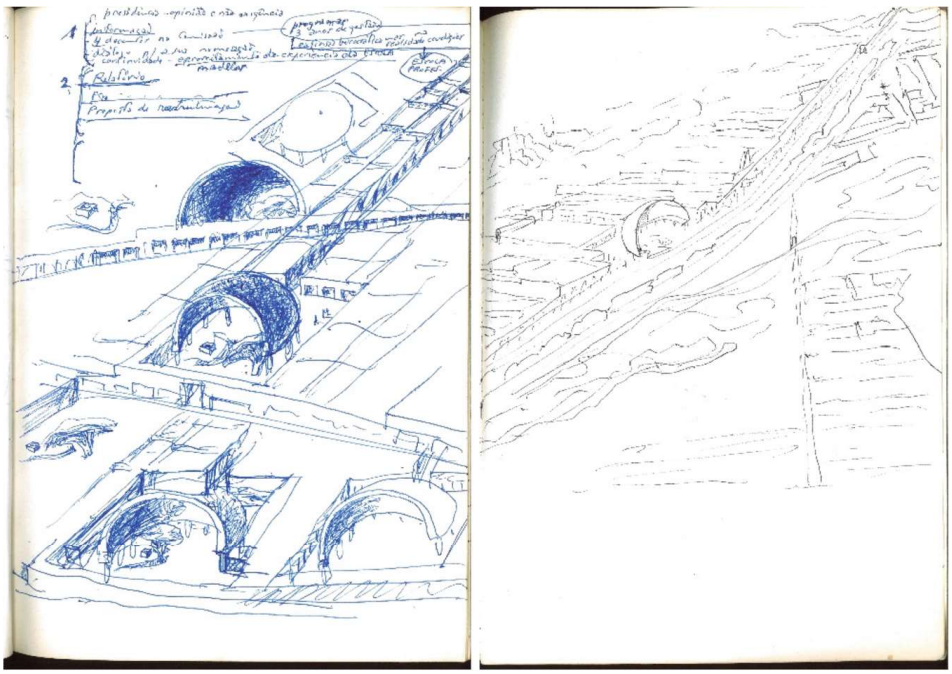

Fig. 5. Notebook 39, p.11 & p.48, June 1979 – The half-dome starts to get in front of the conduct.

Drawing must become a relevant method to architects: to act as a creative tool for project innovation through critical, practical, and theoretical consideration about the visible. Different kinds of visual imagery ought to be used to describe the circumstances and materials, contexts and intentions and serve as a privileged space for research and capture conceptual ideas. Drawing becomes an integrative process linking architecture as an instrument, process, and apparatus for researching, practice and teaching in dialogue with others.

This is certainly not the architect's only tool for conception, but it is one that, due to the speed of technology, has fallen into disuse, underestimating and undermining architect's ability to think, look and see, which is essential for the richness of the transfer of the project's becoming into something tangible and measurable (in construction).

4 Closing

Álvaro Siza Vieira brings together in its notebooks drawings that have several purposes but illustrate and give emphasis to drawings as a tool for architectural research (Fig. 6) for building architecture.

Drawings provide ways to produce new knowledge (of the territory, history, and architecture) to think (about architectural design revealing its creativity and innovation), and to investigate (geometric and referential metric, humanized and inhabited by man) with a focus on construction (because it serves the purpose of building and seeks, at various scales, represent the materiality of architecture).

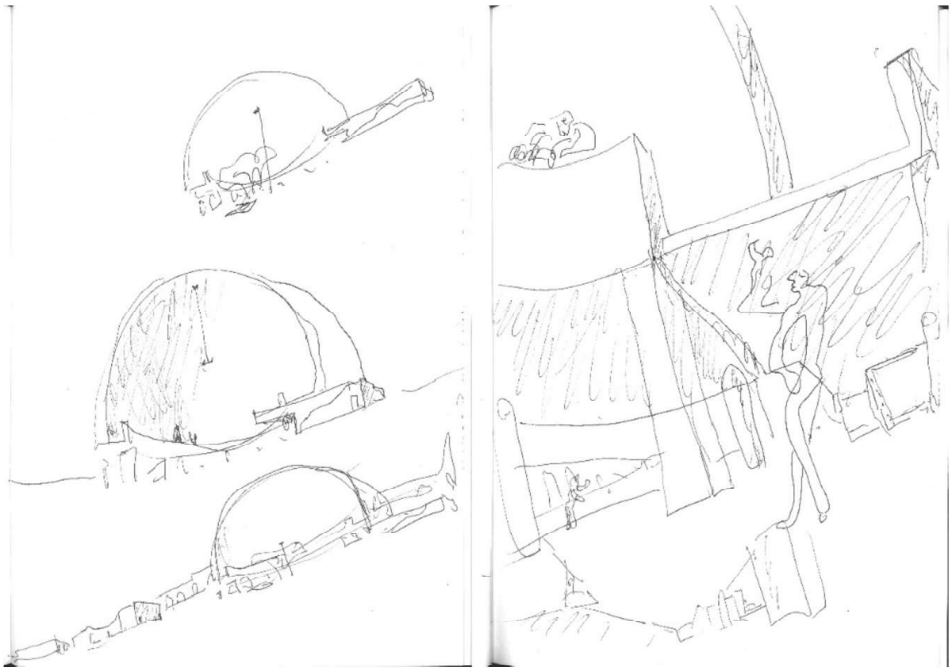

Fig. 6. Notebook 460, p.35 & p.47, March 1999 - The half-dome at its final position in the plaza and materials are decided.

Drawing is a fundamental tool in research thru the project and by following Álvaro Siza Vieira notebooks we can follow his research as notes from his lab, that retain the discoveries and the truths of the experiment.

We conclude that drawing can be used to generates research thru and for the project, and we need to reaffirm its relevance in face of its tacit disappearance. Both architectural teaching and the teaching of drawing should consolidate this practice as a pedagogical experience in architectural research carried out by students and teachers.

Drawings acts not only as a process of thought mapping that allows the construction of a platform for discussion of both theory and contemporary practice but also as critical though and investigative and theoretical confrontations for teaching architecture.

The comprehension of creative aspects of the architectural process, including the notebooks and drawings, is fundamental for the archive and patrimonialization of the ensemble of work by Álvaro Siza Vieira, and his own way of doing architecture.

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