The Hybrid Practitioner

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Consider a place: presence of outlines, sketches, fictions, apparitions, X-rays of thoughts. Meditations on the meaning of erasures. To fabricate a construction of time.
—John Hejduk, 1986

The Catalan architect Carlos Martí once wrote that formwork is to the arch what theory is to architectural practice: an auxiliary construction that is no longer necessary when the arch is completed; as a final form, only the arch has the right to appear, not the formwork that allowed its construction. Architectural tracings are like the formwork of architectural design: they exist as supporting elements for design construction – but when the architectural work is finished, the tracings that ruled the architectural design are no longer needed.

However, there is a fallacy in this reasoning: the formwork for construing the arch is something that we previously know – we know precisely the radius of the arch that we want to build, and we know the arch’s form in advance – but thinking about tracings, it is quite the opposite. Through tracings, we assert the site’s geometric modulations, we discover new relationships between parts and whole in the project, and we draw lines that construct the architectural form – tracings are constructions in time revealed by inscriptions on tracing papers, overlapping other traces. Therefore, as an architectural generative tool, why should we hide the traces that allowed the form to appear? Should architecture not aim to construct a theory of practice, a theory coming from architectural tracings, instead of a theory previous to the practice?

The following lines search for the role of tracings in crafting the design process of Álvaro Siza in the 1980s, how tracings are produced, and what tracings produce in Siza’s design process through time. Deeply related to projective geometry and fundamental in architectural design practice since at least the sixteenth century, tracing drawings have a specific role in that process, in parallel with hand-drawn sketches, perspective drawings, detailed and constructional drawings, projective design, and annotations about design motivations.
**Writing, Sketching, Tracing, Drawing**

Architectural layout is the set of lines that configure the rules of a given design drawing or architectural representation. The Portuguese word *traçado* is ambiguous in that it refers to the past participle of the verb *to trace* or to a noun that refers to the geometric qualities of a drawing or representation. Conversely, the word *tracing* in English means a process of drawing and overlapping lines that configures certain graphic information; in that language, the word also has a meaning of *trace, mark, follow-up, or copy*, which is not unreasonable considering the design process as a dynamic event, subject to the pursuit of *clues* or *marks*; in the case of the French language, we have two words, *tracé* as outline (like in Portuguese) and *épure*, a word that designates what we call *tracing*, meaning the clearance of drawing in the design process, *cleaning up*.

In the past, when *tracing paper* was still in use, making pencil traces on paper allowed its progressive correction, or transformation, by repeating the gesture on translucent paper over the previous drawings. The design layers were physically constituted by the overlapping sheets of tracing paper, with the upper sheets showing the purified versions of the traces buried on the lower levels.

Among many other architectural representations, tracing drawings have a specific role in the design process, as they incorporate the characteristics attributed by Bruno Latour to architectural drawings, being “immutable, presentable, readable, combinable and mobile.” More than perspectives, which do not allow dimensions or architectural sketches to be read, and which present specific aspects of the architectural object, architectural tracings give precise geometric information that would allow us to construct the building, and vice versa: through the survey of a specific building, we can get back architectural representations and deduce the tracings as explicit geometric rules. Therefore, the objectivity of tracings can be translated as “form information,” “readable order,” “rules to be respected,” “instructions about how to build,” or as “drawing discipline.” Order seems the main subject of drawing tracings on a blank sheet of paper. In a time of many possible orders – fractal and non-Euclidian geometries – what can we learn from the construction of tracings in Siza’s projects?

Álvaro Siza’s work is known, among other things, for incorporating tracings as contextual elements in the design project; in fact, he “starts a project when he visits a site,” meaning that the site visit is the necessary impulse to start the drawing process. This “trace” of his architectural composition is deeply related to construing the project through line drawings – abstract lines compose the form of the building, articulating the urban context with the programme or architectural aim, tectonic readings and topological relations. “Siza’s line as geometry, contour, and profile thus merges the tectonic and the topological,” says Peter Testa or, in Siza’s own words: “ideas come to me without materiality, lines on a sheet of paper.”
The geometric orthographic projection drawings have a dialectical relationship with the sketches drawn in the sketchbook, as if each complement and tests the other. “Order is the approach of the opposites,” would be valid also in the case of complementary systems of representation. And this “double” approach would be a way of overcoming the division between subjective and objective, sensation and communication, expression and rule, subject and object. According to Peter Testa, Siza’s cadernos (sketchbooks) are spaces for multiplicity in perception, through multiple views, turning things into objects: “An attitude toward latent multiplicity in perception is evident as multiple views of either the same object or multiple objects occupy the same page. He turns things into objects through repeated drawing, positioning, and scaling.”

Architectural drawings, in the design process of Siza, are the abstract lines shared with his collaborators in order to construct the project, as he “wouldn’t like to execute (the project) with his own hands. Nor even to design alone, because it would become sterile. The body-hand and mind and everything – doesn’t fit the body of each one. And there’s no autonomous part.” However, those drawings are subjected to scrutiny. The architectural sketches, produced by Siza in sketchbooks, are a way to scrutinise the table tracing drawings.

June 1985 / The Walled Garden of Quinta Da Póvoa: Bringing Context to the Drawing Table

When Siza initiated the project for the Porto Faculty of Architecture, the crossings of fast-traffic road accesses with urban streets, a panoramic road, and rural paths generated a particularly complex situation, due to their diversity of scale, purpose, or time of construction. In addition, the fragmentation caused by the percements operated by the access roads to the bridge gave rise to clues to difficulty of access or that they conflicted with each other. But, as Álvaro Siza says, “the essential problem is to be able to connect different things because the city today is a set of very different fragments.” The first “fragment” for the installation of the University of Porto Faculty of Architecture in the early 1980s consisted of the lot of walled land at Quinta da Póvoa, which included a house, a garden, and some stables.

The difficulties with starting a design proposal, with drawing the first traces over a blank sheet of paper, as Siza used to say, is maybe a reason to begin a project through reading the historical charts of a given place. A photograph of Siza leaning over a big chart in his office when he was starting the design proposals for a project in Berlin in the 1980s, is the best image of this initial process of site reading (fig. 21.1). Reading and interpreting historical charts give clues about the rhythms of the cadastre and land parcelling, the peculiarities of a topographic situation, the overlapping of historically diverse urban fabrics, the inflexion of the tracing of a street or boulevard, and the physical history of a
Fig. 21.1  Álvaro Siza working in his office in July 1983, when he was participating in Berlin Kulturforum Competition. Photograph: Brigitte Fleck.

Fig. 21.2  Extract of the Topography Chart of the City of Porto by Telles Ferreira, 1892.
place (fig. 21.2). The annotations, drawings, and sketches were later translated into architectural drawings and tracings, and those marks became “measurable, editable, comparable” plan drawings. Tracings fix spatial relationships of the site through topographic peculiarities; the analogue drawing produced on the desk should be as rigorous as possible and communicate with certainty the spatial and geometric relationships of the site. Marks and traces chosen among a diversity of topographic signs are the foundations for the design because “in difficult terrain we know to choose the place where to put our feet.”

Particular attention to the set of elements that make up houses and annexes in Quinta da Póvoa (stables, greenhouse) are revealed in the careful rehabilitation and extended to the arrangement of the gardens. The urgent need to build a new pavilion was to be a determining element in the design of the complex future expansion. Its placement at the north end of the lot, pressed against the boundary wall, allows the remaining garden to be freed and the internal area between the house and pavilion to be polarised (fig. 21.3). The tracings of the two volumes of the Carlos Ramos Pavilion converge in two corners of the main house, accentuating the house–pavilion polarisation. On the west wall, there is a large window opening over the grounds of Quinta da Esperança – at that time not yet assigned to the Faculty of Architecture. To the north side, the building has a small balcony, looking over the wall, with a view of the highway coming from Arrábida Bridge.

Fig. 21.3  Tracings of the Carlos Ramos Pavilion. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
The north-east access provided for the project was to be carried out through a mediation space, reusing a small castellated evocative construction, which would constitute a polarisation with the belvedere at the south-west end of the plot, over the landscape of the mouth of the Douro River.

**September 1986–January 1987 / Protocols of Communication: Sketching and Tracing the Quinta Da Esperança**

Soon after the completion of the Carlos Ramos Pavilion at Quinta da Póvoa, Siza started developing the project for the new Faculty of Architecture on the grounds of Quinta da Esperança. The contract for the project was signed in September 1986, with the development of the project scheduled in four phases: programme, base project, execution project, and exterior spaces project. The architect in charge at his office was Peter Testa, who developed the designed programme, and during a full year, a hectic process took place. Most probably all the initial drafts are drawn by Testa, as the project protocols followed the project of Malagueira. A blank A4 sketchbook served as a diary for Siza, in which he drew all the ideas and annotations concerning the project, like sections, spatial, and topographic relationship of volumes, measures and sizes, spatial modulation, openings and facades. “The *cadernos* document inquiry into the form of things,” as Testa says. These sketches were then passed on to the architect in charge, in order to test the design through rigorous drafts or models. Regular orthographic projections were then produced, searching the design translations of the sketched drawings, and introducing the necessary spatial modulations and tracings. The process is reciprocal: sketched volumes and drawings proceed the necessary rigorous representations and vice versa, those drawings triggering the impulse to new sketches, perspectives, and volume articulations.

Sets of layout drawings, organised by floor (first, second, third, and fourth floor) and incorporating the main south facade and a section, seem to punctuate the free expression drawings, exploring the disposition, internal functional organisation, and partitions of the volumes. Four series of complete versions (the four floors, sections, facades) were then produced. The translucency of the tracing paper allows the drawings to be superimposed, showing the vertical continuity (stair columns, structure) and expression of the volumes.

The first sketches produced by Siza translated into elemental orthographic drawings, focusing on the construction of a cloistered volume at the northern limit of the terrain, a reference to the bishop’s palace built over the cathedral’s cliffs. A set of volumes appears at the southern limit on the panoramic road, and the boundary wall of the Quinta da Póvoa plot consistently appears as a fundamental reference in the construction of the project (fig. 21.4). In addition, the volume of the Quinta da Póvoa House is taken as an ordering element for the volumes of the new programme.
The various designs consider the fragmentation of the volumes to the south side and certain forms of continuity, construing a wall or barrier to the north side. An “iterative practice of drawing renders familiar objects as abstract.”\textsuperscript{18} The volumetric opposition corresponds to a programmatic one: the southern volumes would include the design studio and lecture rooms, and the north side would include the collective programmes, such as the auditoria, library, museum, the school offices, and the cafeteria. The difficulty in linking to the northern volume convincingly led to the design of a patella, linking the two directions of the north wall and causing a deviation in the volume of the library, allowing the west facade of Carlos Ramos Pavilion to be seen. Thus, the geometry of the layout of the faculty, in its various design versions, starts from the two elements that constitute the polarities of Quinta da Póvoa: the Carlos Ramos Pavilion and the house of Quinta da Póvoa. The alignments of the two paths converge at the west limit of the Quinta da Esperança lot, close to the viaduct of the highway. “Arguably, the author [Siza] cares less about the objects themselves than about their relations; their compositional structure is what matters.”\textsuperscript{19}

\textbf{June 1987 / Iterations: Sense-making, Tuning Geometric Tracings}

After approving the design programme, the second design moment, the base project, started, fine-tuning the proportions and connections of the January drawing (fig. 21.5). The autonomous volumes at the south side become rectangular instead of square, due to interior arrangements; the patella becomes
a half-circle building (the museum building), joining the auditoria galleries to the library. Three fundamental strokes appear in the composition: the alignment of the autonomous volumes to the south by the volume of the house of Quinta da Póvoa; the alignment, originating in the south-east corner of the Carlos Ramos Pavilion, which extends perpendicular to the west wall containment of Quinta da Póvoa, and which affirms this alignment in the volumes that delimits the set to the north; and the outline of the coordinating hinge between that direction and the direction of the library volume, delimiting the central space to the north.

The opposition between the continuity of the north and south volumes can be seen as an expression of various cultural references, according to Testa:

The Faculty of Architecture posits a coexistence of typologically unrelated buildings, from its baroque enchainment of institutional spaces that form a boundary to the north to its neoclassical and modernist studio pavilions overlooking the Douro River. In the cadernos, it is not each thing separately but all things separately that form a whole understanding of individual yet not isolated types.  

A geometric drawing produced on the drawing table resumes the main tracings that the project should respect. We don’t know when it was produced, but as pavilion was written by hand in English, we suspect that it was drawn by Peter Testa. Due to its abstract nature, an interpretation is needed. Three lines define

a direction, with inscription of the word *muro* (wall); a circle is inscribed in those three lines, and a fourth line crosses the centre of the circle; this line has the word *casa* (house). A fifth line, with a diverse direction, and with the word *pavilion*, refers to the direction of the main west wall of the Carlos Ramos Pavilion; the line includes a small triangle, which in fact is the entrance of the pavilion. This line gives a clue to the purpose of the drawing: to join the west wall of the pavilion with the tracings of the west wall of the house of Quinta da Póvoa and the west wall that defines the limit of Quinta da Esperança. In addition to the lines, two dashed lines included in the central circle report the two earth terraces of Quinta da Esperança, which would be incorporated in the central square of the project. This drawing resumes the main directions of the Faculty of Architecture tracings (fig. 21.6).

Fig. 21.6  Main directions in the FAUP Building. Archive Arqtº Álvaro Siza. Col. Fundação de Serralves – Museu de Arte Contemporânea, Porto. Donation 2015.
After setting the detailed tracings between the north and south volumes, the project of the exterior spaces was produced. The exterior spaces, including the connections between the various elements (walled garden of Quinta da Póvoa, western access close to the highway bridge, links with the panoramic route and public walk), were then subjected to a detailed construction project that explored the expression of granite masonry retaining walls, pavements, and the paths that conduct the overall structure. A new layout of the Panoramic Road, completed in October 1987 and negotiated with the author of the general plan, was designed, allowing the expansion of the platform necessary for the implantation of the southern volumes.

A *folie*, close to the Panoramic Road viaduct, respecting the pedestrian access layout of the general plan in the west, was designed. This *folie*, inserted in the system of pedestrian spaces, replicates the north-east entrance of Quinta da Póvoa, showing some similarities with the Quinta da Conceição reception yard, a project by Fernando Távora from the 1960s. A set of platforms starting from the *folie* and progressing to Quinta da Póvoa were incorporated into the project, taking the west wall of the Quitan da Póvoa lot into account. The central platform in particular is placed at an accurate level in relation to the sidewalk, making its entire length visible from the entrance.

The tracings of exterior spaces are resumed to the most elemental, bringing basic instructions to the implementation of the volumes on-site. They include perpendicular lines, convergent lines in a node or a point, rebatement, but also rotation, translation, transfer, symmetry. The operations implied in the geometric projections are set as rules for drawing construction (fig. 21.7).

The variable dimensions of the tracing paper caused by humidity implies strategies of drawing based on a set of geometric rules that can, by analogy, be transposed to the implantation of volumes and platforms in a specific place. The circle of bringing the lot, terrain, or topography onto the drawing table is now sent back from the drawing table to the lot, terrain, or topography.

**Concluding Remarks**

Architectural traces appear in Álvaro Siza’s projects as a particular moment of linking architectural and urban form to the social, cultural, and physical context. As a territorial inscription, the layout emerges as (1) an incorporation of the paths of the inhabitants of the urban space (features), (2) a technique for rescuing the past by affirming settlement archaeologies (readings of the territorial palimpsest), (3) a recording of tensions and negotiations of the project with the territorial management institutions or promoters (the plan-project conflict), (4) a mnemonic for local architectural references, and (5) an element of linkage of the landscape to the memory of physical places (orography, topography, among others).

In the design process, outlines are a form of self-knowledge, a dialogue with oneself, an affirmation that is privately tested before being publicly declared. And in the design studio, the most obvious way to test the layout is to transmit it: to the collaborators who will follow it as a design rule in the production of drawings and models or a geometric norm that surpass and direct the myriad of options and decisions; to the specialist engineer, who needs it to calculate his infrastructure; to the foreman who cannot do without it, through a set of lines, to replicate the designed alignments; to the executors or workers, who see in it the geometric rule needed to perform their task. Traces are elements of mediation between the project and work, but they are also elements of mediation between the various actors in the processes of planning, design, and execution, and this mediation implies the sharing of codes of spatial representation, codes of geometric construction, a set of design instruments only accessible within the design process.
Notes

10. Peter Testa was invited to the programme *Find and Tell*, at the Canadian Centre for Architecture in November 2018, where the selected several sketchbooks by Siza. Please see “On Line: Álvaro Siza’s Cadernos Pretos” – Peter Testa on the Álvaro Siza Fonds Sketchbooks/cadernos, at Canadian Centre for Architecture.
13. In another context, when Siza was starting the plan for the expansion of the city of Évora, the site drawings in his sketchbooks (cadernos), photographed by Roberto Collová, also testify to the same interest in reading the main topographical signs, the undulations of the terrain, the territorial traces, the lines of force of the plan composition, made of paths, walks, and routes. In this case, we still have the drawings produced in the sketchbook, which were later brought to the office in Porto to start the design process. Those cadernos are now at Niall Hobhouse’s “Drawing Matter” archive. In fact, Siza started to draw in cadernos from the Évora project on. He used to spend two days travelling from Porto to Évora every week and used to bring annotations on small pieces of paper, until one of his collaborators gave him a notebook and asked him to draw in that notebook. That is how the famous cadernos started.
17. The correspondence between sets of sketches in cadernos, and desk drawings, is not easy because finally both types of drawings were set in different archives. The project or desk
drawings were archived in Serralves Museum in Porto, and the sketches or cadernos were archived at the Canadian Centre for Architecture, so it is now difficult to compare them. At Canadian Centre for Architecture, related with the Faculdade de Arquitectura da Universidade do Porto buildings are the following sketchbooks: 197, 203, 204, 205, 207, 208, 209, 213, 220, 225, 226, 229, 238, 240, 243, 244, 246, 248, 251, 252, 256, 257, 258, 259, 292, 294, 301, 317, 318, 324, 325, covering a time period from February 1985 to January 1992.

19. Peter Testa, “Find and Tell.”
20. Peter Testa, “Find and Tell.”

Bibliography

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