

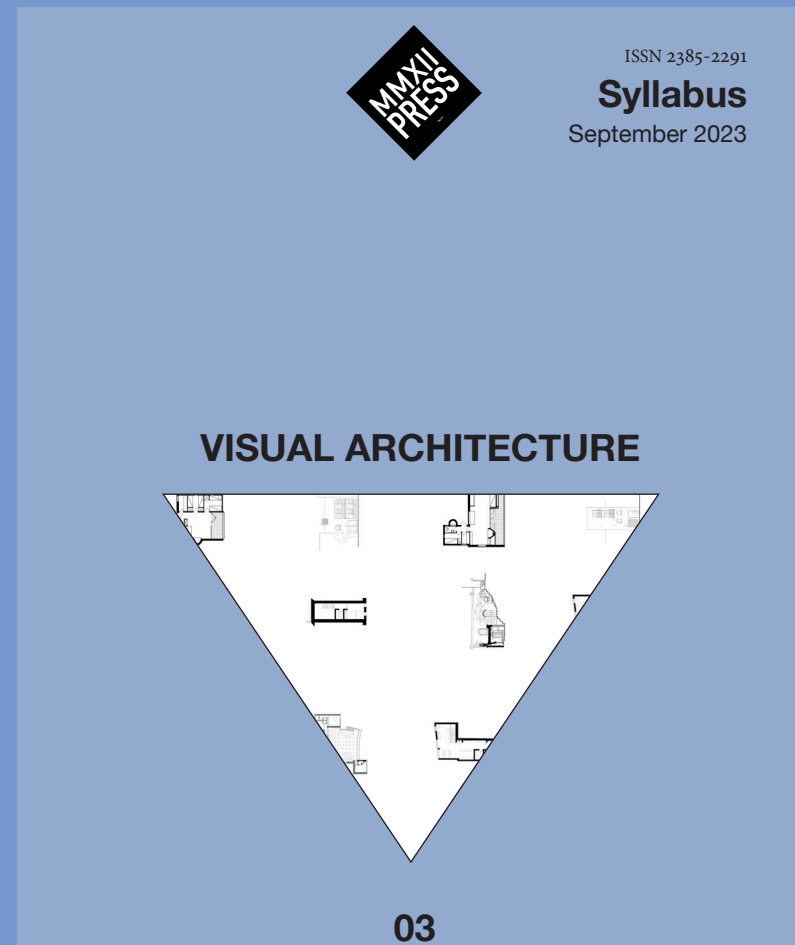
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**Syllabus presents experiences and research made inside formative courses at different levels: bachelor, master, doctorate.
The goal is to offer these results, provisional and incomplete as they can be, to the scientific community, enhancing dialogues and exchanges.**

All contributions are evaluated by the scientific board with a review process.

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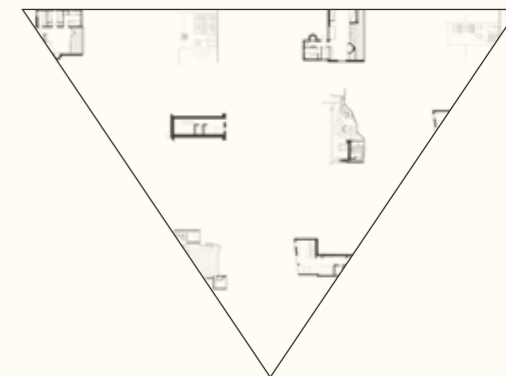
Stefano Sartorio

Cover: elaboration of a drawing by Federico Campana and Fjolla Silovinja, from the exhibition "As Found/As Reimagined. Mediterranean vernacular architecture in the modern itineraries" curated by Stamatina Kousidi. AUIC School, Politecnico di Milano, 01/03-25/03/2022.

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VISUAL ARCHITECTURE



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PLACING DESIGN IN ARCHITECTURAL RESEARCH

Stamatina Kousidi

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Since the 1990s, the relationship between design and research has been central to architectural discussions. One particular stream of research practice (research for art and design) has engaged principally with the production of artifacts, regarding them as an embodiment of design thinking. The aim of such research stream “is not primarily communicable knowledge in the sense of verbal communication, in the sense of visual or iconic or imagistic communication” but instead “cognitive tradition – a tradition which stands outside the artifact at the same time as standing within it” (Frayling 1993-94).

The various possible entanglements

between design speculation and theoretical reasoning continues to be a primary concern in architectural research today. The visual essays comprising this issue – developed in the context of the Architecture Research Agenda (A.R.A. course, led by prof. Rocca, Gritti, and Kousidi), a first year of the doctoral program in Architectural Urban and Interior Design at Politecnico di Milano (spring 2022) – focus as a whole on the relationship between verbal and non-verbal means of communication, between visuals and concepts.

They put forward a reflection on the contemporary research applications of design: on the role of design as an essential

research tool in architecture, as narrative and praxis alike.

The diverse intersections between theory- and design-led processes are indicative of the close connection between speculation and criticism culminating in the experimental architectural projects of the 1950s and '60s. The project “Shell Structural System for the 14th Milan Triennale, 1967” by Renzo Piano is an indicative example. It represented a study into the physical properties of new materials in those days, such as polyester and fiberglass, and how these could contribute to novel form-finding and construction processes. The creation of rigid

Placing Design in Architectural Research

one-shell structures represented a search for new means of architectural expression (weightlessness) and spatial articulation (the open plan). The project was a fragment of a broader body of work that aimed to bridge “[the] desired physical applications of materials” with their “‘non-physical’ traits, such as lightness, pliability, ease of construction and adaptability” (Piano in Steele and de Canales, 2009).

Exhibited in the garden of the Triennale in 1968, the temporary installation can be regarded as a prototype for subsequent projects by Piano. Based on model making, it was a project of both a theoretical and technical character, examining the relationship between material advances and metaphors inspired by processes and forms found in nature.

The study formed part of a broader interdisciplinary design experimentation in the postwar period into minimal structures carried out by architects such as Frei Otto as well as the less famous architect Lisbeth Sachs. From Otto's 1959 large-scale greenhouse envelope for agricultural use (a pneumatic membrane structure) to

Sachs's 1971 study for a youth hostel on Lake Zürich (a self-supporting, undulated, wooden lattice-shell structure), projected works into minimal structures explored issues of flexibility, weightlessness, and transparency.

Models, in this context, were intended “as didactic tools to explain the structural system to others as well as to [the architect] himself” (Glaeser 1972), exploring the possible practical applications of structural patterns existent in nature.

The concept of the seemingly floating, space-encompassing envelope, as the title of his doctoral dissertation “Das hängende Dach [The Suspended Roof]” (1954) at the Technical University of Berlin suggests, materialized in Otto's artifacts. Regarding the experimentation process underlying them, he writes: “Suspended roofs can not be designed. If you avoid any impure tone, you may be able to help them unfold. [...] We are only at the beginning of development, which wants to be nothing more than a very modest contribution to the problems that move us. There is still a great deal to think, to test and to form everything.

The task of building meets the new idea

of space that lies beyond the still visible, partially or completely closed, translucent shell” (Otto, 1954 in Klotz 1984). For both Otto and Sachs, temporary exhibitions would provide a platform for experimentation into materiality and form: next to the structures designed by Otto for the 1957 Federal Garden Exhibition in Cologne, Sachs's open-air museum pavilion for the *Schweizerische Ausstellung für Frauenarbeit* [Swiss Exhibition for Women's Work] (SAFFA) exhibition the following year incorporated elements that aimed to dissolve the boundaries between inside and outside.

The exhibition installations by Otto and Sachs, and successively by Piano, are integral parts of a theoretical stance toward the architectural project. They may be read as studies on continuous membranes as well as embodiments of the cultural associations of their era (ethical dimension of architecture; collective spirit; nature conservation). They are a testament to the observation that the most visionary “proposals in the history of modern architecture were made in the context of temporary

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exhibitions,” as the pavilion incorporated “a tradition of manifesto through design” (Colomina 2015). Concerning these works, design- and theory-led processes complement one another.

Such interrelationship rings all the more familiar today, a time when the productions of architecture/architecture productions are increasingly studied and understood through their representations. Despite the fact that “architecture is fundamentally concerned with physical reality,” increasingly, “we discuss and even define architecture (as opposed to building) through an elaborate construct of media representations: photography, criticism, books, films and exhibition” (Rattenbury 2002).

Temporary or semi-temporary exhibition environments, architectural catalogs, magazines and online research platforms open new communication and speculation paths. Contemporary design research practices continue to explore artifacts, structures, and installations as platforms for design thinking. In this context, the A.R.A. course set out to explore design as an essential form of research and the ways it may engender new methodological trajectories.

It engaged with a research process that, founded on a solid theoretical framework, may open up new possibilities and promote new ideas about the design of spaces, environments, and landscapes.

The question of how to place design in architectural research becomes all the more cogent today, as the design project is faced with the challenge of addressing imminent social issues connected to the environments we live in and to outline possible strategies towards these issues. Contemporary research undertakings in architecture do not focus merely on the physical aspects of spaces and landscapes but focus on their virtual functions and performances, considering equally the non-tangible, invisible components which shape and influence them.

Collages and diagrams, sections and details, maps and illustrations cross between scales and time frames. They focus not on representations of space, but on how certain processes/actions may be conveyed through these representations. Design representations emerge as essential media for speculation, registering the transition from objects to systems, from static to dynamic

processes, and from solid matter to energy flows, calling for the development of new research methodologies.

Revisiting the experimental projects of the 1950s and '60s, in their intersection between theoretical discourse and practice, technology and tradition, we may trace a genealogy of design research that is still relevant to the present day. Contemporary discussions continue to investigate the possible manifold ways design processes may be considered an essential form of research. Specific discussions explore “design research [as] a significant seam that runs through design work with a particular focus on the creation of new insight and knowledge” (Fraser 2013), a seam that manifests itself at the beginning of a research project and intersects its different phases.

Contrary to the understanding of theoretical propositions as successive to the conclusion of a given project, here theoretical production and design are put into dialogue. Others define “design forms [as] an instrument of research that joins together that which ordinarily remains separate” in a

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context where “science and the humanities are brought into contact with practice-oriented, heuristic approaches” (Geiser 2002). Design processes are reinterpreted, in this case, as an operative, generative, propositional tool deployed in order to place together knowledge from different epistemological fields. Further to its ability to organize and visualize research findings and information, design is equated to a tool that is able to convey a critical theoretical argument, evaluate a preliminary hypothesis, and thereby transform the research process.

“How can we identify and position design and the processes it involves, in the broader framework of research in architecture? How can we perceive design as a research tool, as an operative, generative, propositional action inherent to the research process? In which ways does design intersect research works that encompass theoretical assumptions? The following visual essays depart from a response to the course core themes, organized into four sections (Design Driven Research; Reading; Writing; Theory Driven Research), to further reinterpret, synthesize and transform these

themes, putting forward new connections between theoretical discourse and design representations. In so doing, they highlight in their entirety the need to conceive new ways of thinking through the architectural project and its visual representations. They set out to explore the expanded meaning of design “as a more inclusive term of this process than just the physical preparation of drawings” (Forty 2000), as the expression of a novel theoretical assumption.

Exploring possible connections between visual representations and speculative narratives reflects then the intention to allocate design research in the broader framework of architectural research today, to reflect on its contemporary relevance, possibilities, and expanded definition. The ways of placing design processes in architectural research result in a question open to further interpretation; they stress the need to think of what design research, in its curious new entanglements between representation and speculation, may generate.

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