

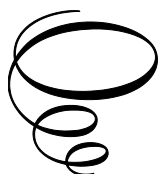
Approaches  
to Drawing  
in Architectural  
and Urban Design

# Approaches to Drawing in Architectural and Urban Design

Edited by

Fabio Colonnese, Nuno Grancho and  
Robin Schaeverbeke

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## INTRODUCTION

FABIO COLONNESE, NUNO GRANCHO,  
AND ROBIN SCHAEVERBEKE

### **Drawing for the design process**

Architects draw for a myriad of reasons and purposes. They draw to assimilate places and precedents. They draw to generate ideas. They draw to imagine, to express the spatial qualities of a design. They draw to develop a concept into a consistent project. They draw to communicate ideas and propositions to a team, to patrons, to clients and civil servants. They draw to manage and mediate the different construction stages with contractors, craftsmen, and engineers. They draw to produce elaborations for treatises, journals or personal portfolios. Most of all, architects draw because drawing enables them to explore and analyse matters related to forms and spaces.

The object of this book is the role of images and drawing in the design process. Next to the physical buildings, architectural history, theory and culture are shaped by models, drawings and images that accompany the buildings. Examples of innovative, interdisciplinary approaches to representation in the design process can be found in the history, eventually reinforced by emerging new technologies. The history of architectural drawing reads as fascinating story of inventing and systemising precise and transferable rules, procedures, standards, formats, protocols, and media.

From the 15th century onwards, the practice of describing architecture in words was first integrated and then largely replaced by images. This sort of 'early visual turn' was mainly shaped by hand made drawings, promoted by the circulation of cheap paper. Parallel with the intellectual redefinition of the figure of the architects and their primary tasks, a projective formulation, fostered by the Florentine perspective rediscovery, slowly moved the architectural drawing from an empirical to the scientific sphere. Added to this, a wide set of conventions, which include symbols, sheet sizes, units of measurement, scales of reduction, annotations, and cross-referencing marks, were developed to facilitate the envisioning and notation of

architecture and to turn drawing into a distinct visual language we came to appreciate as architectural drawing.

The emergence of digital drawing tools added exciting new layers to the architects' drawing activities and possibilities. Digitalisation not only radically changed architectural practice but also called for a reframing of the conceptual thinking about architectural drawing – both as a tool for thought and as a tool for communication. Digitalisation introduced new methodologies and approaches to the design process. Digital technology transformed the visual interfaces and the practice of the architectural office as well as the relationship with clients, public, and society. They have expanded the architects' tool box through digital collage, photo-realistic rendering, animation, rapid prototyping, digital simulation as well as Building Information Modelling (BIM) technology, augmented and virtual reality.

In every design process, the definition of procedures and tools of analysis, design and visualisation of space is linked to a program, a specific economic and productive context the architect belongs to and her or his social and cultural agenda. This strict relationship between architectural drawing and the human society makes the design drawings an unedited and intangible cultural heritage of ideas. These ideas may surface from the peculiar formats adopted by designers, surveyors, restorers, critics, and disseminators, and the artistic and social agency architecture and urbanism can play.

Graphic analysis and three-dimensional reconstruction of the projects and their inherent processes, especially the unbuilt ones, can reveal the ideas (and the minds) behind the projects in ways other sources cannot. Rooted in the principles of mimesis and semantic efficiency and addressed to the several subjects involved in shaping the territory, architectural drawings may be very sensitive to the social and cultural changes of the contexts in which they are practiced. Architectural and urban drawing has always proved ductile to variations, interpretations, customisations, contaminations, and hybridisations of the neighbouring artistic and, later, scientific disciplines.

The Modern Movement broke with history and put invention and legitimation on the architectural agenda. Inspired by advances in cognitive psychology and experiments in the early 20th century artistic avant-garde, architects started inquiring drawing as a medium to invent, to explore formal, spatial and material possibilities. From the 1960's onwards a discourse about the knowledge and making processes of design came to the

fore. The architect emancipated from his/her role as applied artist to become half-scientist, half-philosopher. Inspired by popular culture and conceptual art alike architects started compiling references to artworks, literary aphorisms, schemes, diagrams and annotations to elaborate upon the design process and emphasise upon the concept behind the building.

Even today, individual architects and design firms look for inspiration in the historical models of architectural drawing. They can find it both in the field of architectural drawing and in the extended field of visual arts and media. Besides being a way to think about form and space, architectural and urban design is largely an outcome of artistic practices and specific gazes which are constantly fuelled by other disciplines oriented to space and territory which also make use of drawing in their own distinct ways.

The different voices and ideas that are collected throughout this book prove that drawing remains an indispensable and powerful medium and tool to record, explore, communicate and envision forms and spaces in architecture and urban design. To highlight the methodological and operational specificities of the scholars, we ordered the chapters into four main sections: the first – *Practices and Conversations* – features interviews with active practitioners and professionals and explores architectural drawing as a ‘living’ matter and a language daily ‘spoken’ and ‘adapted’ to the contingencies; the second – *Histories* – presents historical studies and theoretical studies involving a specific age, place or subject; the third – *Theories* – includes theoretical and interpretative studies on drawing as a tool and medium; the fourth – *Connections* – includes interdisciplinary and multidisciplinary studies, whose critical considerations are fundamental to frame the current practice of drawing.

## **Practices and Conversations**

The ten interviews with designers that open the book focus on the different roles drawing can have during the creative process. In particular, we discerned four main roles for drawing:

- observation and recording;
- exploration and conceptualisation;
- formalisation and communication;
- exploring the ephemeral and experiential.

These roles, which cannot be seen in isolation as they tend to overlap in different phases of the design process, inspired four ‘standard’ questions that appear in most of the interviews. The opening question of the interviews is centred on a specific drawing chosen from the graphical production of each of the designers. This drawing is expected to work as a sort of *Madeleine de Proust* to stir up the mental and emotional involvement of the designer and to favour a kind of “stream of consciousness” about their previous design experiences. Inspired by the specific practice of the designer, one or two more questions were added to our four standard questions. Occasionally, we also invited the designers to reveal an architectural image made by someone else, which inspired their drawing practice. Finally, all of them selected ten drawings from their design practice to illustrate their words and works.

Most of the designers were sent the questions by email – generally in English, but also in Dutch, French, Italian, Portuguese and Spanish – and wrote their thoughts in a file. This is the case of Henri Ciriani, José Ignacio Linazasoro, Kostas Manolidis, Raul Mehrotra and Peter Wilson. They also attached digital copies and captions for their drawings to which some refer in their texts. In other cases, the images are a visual complement to the text. Some sent more than ten images, like the lavish Raul Mehrotra and the witty Peter Wilson, leaving us the task to select some of them.

We had the opportunity to conduct some of the interviews live, within the practitioners’ studios and the work and drawings physically present. These interviews differ from the above as they followed the mood and orientation of the conversation. During the transcription, efforts have been made to preserve the natural spontaneity of the words.

We deliberately wanted to interview Jan De Vylder and Inge Vinck of `ajdviv\architectenjandevylderingevinck\+etc.`, as a duo to explore their drawing interaction and collaboration. Robin Schaevebeke travelled to their home studio in Ghent where the suggestion of ‘drawing together’ sparked a lengthy conversation between the two architects. The text published in this book is an excerpt of some of the main issues and projects the architects brought to the fore, to explore their collaborative practice.

Álvaro Siza Vieira was interviewed by Greta Ruffino and the photographer Raul Betti, who are also two of the contributors of the book. They met him in his office at 53 Rua do Aleixo in Porto on 23 July 2022 to talk about architecture, drawing, people and life.

Unfortunately, due to several reasons, some of the designers were unable to either attend an interview or formulate answers to the questions. In close collaboration with the editors, Wim van den Bergh adapted a text of one of his previous articles into an interview<sup>1</sup> while Steven Holl gave us the permission to publish “Drawing as thought”, a text already included in the catalogue of the exhibition *Steven Holl: Making Architecture*<sup>2</sup>. Added to that, the editors collaged a short text combining excerpts about architectural drawing from previous interviews with him.

## Histories

*Approaches to Drawing in Architectural and Urban Design* spans more than a millennium in its ten essays focused on drawing and representation in architecture and urbanism histories. All ten chapters are recent scholarship to explore the opportunities presented by rethinking representation and narrative issues in architectural and urbanism histories. Unifying the volume is a set of intertwined questions: What is the function and value of drawing within architectural discourse and history? What kinds of representation does architectural history use? How are the architectural and urbanism histories organised in different narratives, and to which ends? What might these concerns tell us about architects’ and urbanists’ disciplinary and institutional positions and practices in the past and present? And finally, how can consideration of drawing and representation help us to reimagine the limits and the potentials of the built environment?

Each chapter creates a space where historically grounded research into all aspects of architecture and the built environment can be undertaken. As such, they open themselves for historical, historiographic, theoretical, and critical contributions. These engage with architecture and the built environment from several historical perspectives. But they also feature interdisciplinary perspectives with contributions from visual arts, anthropology, psychology, postcolonial studies, museology, etc.

When we read Paolo Belardi and Valeria Menchetelli’s manuscript, we immediately decided to use it as an opening for the book since it addresses one of the main driving forces in architectural thinking: imagination. Departing from Ernst Theodor Hoffmann’s *Rat Krespel*, a short story about

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<sup>1</sup> Wim van den Bergh, “Mental Perspectives”, *Disegnare*, No. 52 (2016), 7-11.

<sup>2</sup> Steven Holl: Making Architecture. An Exhibition at the Samuel Dorsky Museum of Art, State University of New York at New Paltz (New York, NY: Samuel Dorsky Museum of Art, 2018), 17.



a man who built a house without a plan, Belardi and Menchetelli explore the relationship between written and drawn architecture. Their text is a celebration of the role of language and imagination in architectural design and discourse. By referring to non-drawn architectural treatises such as Vitruvius' and Leon Battista Alberti's as well as visionary writers such as Dante, Jorge Luis Borges, Italo Calvino and Umberto Eco, they discuss how verbal descriptions of architectural spaces can evoke mental images and stimulate the reader's imagination. While their text is firmly rooted in historical research, they transpose their observations to make a case for the importance of language and imagination in light of the recent developments of textual prompts in artificial intelligence to generate architectural images.

Hubertus Günther seems to build further upon Belardi and Menchetelli's reflections by delving deeper into the 'age-old dichotomy between words and images'. But while the duo celebrate imagination, Günther draws our attention to the objective character of architectural drawings whose message is not to be coloured by imagination but understood by reason. By investigating the transition from description to representation in the practice of architecture, he analyses the use of images in the architecture of the Renaissance and their role in conveying information. Through the interpretation of the Vitruvian *lineamenta* in the architects and engineers' drawings, he explores how Early Modern illustrations were more extensive than language in communicating complex ideas and how they were used to supplement architectural drawings. Finally, Günther highlights the importance of images in science and their role in enhancing understanding and cognition in ways other media cannot.

Basile Baudez focuses on a specific type of representation, the plan (or horizontal section) as one of the most abstract and complex tools of graphic illumination. By analysing the historical evolution of natural and conventional signs in architectural plans, he describes the use of symbols, icons, and written measures in architectural drawings from ancient Egypt to the 18th century. His essay discusses the evolution of graphic conventions and the tension between legibility and information in architectural representation. He also highlights the strategies draughtsmen used to convey information while maintaining the plan's clarity. Overall, he offers insights into the development of architectural plans and their visual language.

While the previous chapters focus on the process of formalisation of the architectural drawing as a language, Francisco Martínez Mindeguía turns the tables around by staging an argument for the visual power of drawing. The Greek parable of the origin of drawing, where Dibutades' daughter

traces the contour of her boyfriend's shadow onto the wall, leads Mindiguia to argue that drawing originates in memory rather than in communication. To discuss the role, limitations and customisation that emerge in the practice of the architects from the Renaissance on, he explores how architects use drawing as a means of communication and representation, eventually highlighting the ambiguity and resilience of this medium. To illustrate the contradictions or ambiguities that drawings may reveal in a deeper analysis, he references examples from the drawings of Raphael, Andrea Palladio, Gian Lorenzo Bernini, to conclude with a poetic analysis of a seemingly banal Heinrich Tessenow's drawing.

The efficiency and limits of architectural drawing as a visual language also emerge in the act of translating the architectural principles from one cultural content to another, as the chapter of Marco Trisciuglio demonstrates. When he was teaching in China, he received a folder containing 59 prints of handmade drawings having as their object monuments of traditional architecture in China. Knowledge about non-European architectures remains marginal despite the many sources and documents that describe them. Sicheng's collection of drawings on traditional Chinese architecture revealed to be a curious example. The drawings are bilingual (Chinese/English) and make use of Western drawing conventions to communicate Oriental architecture. The drawings provide an account of specific buildings and details. The intriguing part is that Sicheng complements Vignola's classical orders with a Chinese order, as if he intended to draw Chinese architecture into Western Architectural History. Which is, on the one hand a bold move; but, viewing this move from a post historical point view, it was a logical thing to do? It is an account of a visionary architect and project which tried to bridge gaps between different cultures, transferring, with great intuition, connections between Hellenistic architecture and Chinese architecture of Buddhist origin, from one part of the world to the other. In this sense, there are many directions in which we can read Trisciuglio's chapter. It is part the story of a 'Chinese Vignola', part the mapping of an almost lost architecture, and part the report of an attempt to draw vernacular or indigenous buildings into the canon of architectural history; eventually, it is an account of a treatise that made its way into station bookshops, as public heritage.

The strict connection between territory, society, and the architecture, which invariably interprets and represents them, makes architectural drawing a tool able to map and reveal the network of invisible connections and barriers of urban environments. Writing from the post-colonial India, Nuno Grancho discusses architectural drawing and ethnography in understanding and

representing the spaces of marginalised and subaltern groups. He emphasises the agency of drawing, note-taking and drawing together in creating a rich and detailed record of the experiences and observations of the architect, which can lead to a more nuanced understanding of the culture or community being studied. Grancho also highlights the complexity and diversity of social and cultural practices and challenges dominant narratives and assumptions by addressing the question of representation in postcolonial and subaltern studies. He also discusses the need to overcome binary systems and cultural differences in studying non-western architectures and cities and emphasises the importance of recognising and describing marginalised spaces and spatial practices.

The social and creative role of the colours in the built environment emerges in Luca Placci's analysis of Alvar Aalto's architectural drawings. Placci writes about the importance of colour for the creative process and how it shapes architecture. The essay highlights the architect's shift from refined drawings to more expressionistic representations and his adoption of a minimal colour palette. Placci phenomenologically reflects upon Aalto's use of pencils and brushes and his beliefs about paper for drawing architecture. Moreover, he emphasises the role of freehand drawings in Aalto's design process and how they condensed his architectural concepts.

Fabio Colonnese investigates a time frame within Le Corbusier's drawing practice where the master of modernism seems to have explored distorted or inappropriate perspectives to simulate the moving eye along the architectural promenade. By digitally redrawing some of Le Corbusier's designs and analysing their perspective structure, Colonnese reveals his interest in a perception in motion through the visions of the marcher, the navigator, and the aviator, which regulated the relationship between interiors and the landscape, private and public. The essay suggests that the drawings go beyond mere visualisations of architectural plans and instead aim to evoke a sense of space and engage the viewer in interpreting architectural experiences. Overall, the chapter offers the novelty of new insights into Le Corbusier's approach to architectural representation and his drawings' significance in conveying architectural ideas and spatial thought.

In a similar vein, Maria Grazia D'Amelio and Lorenzo Grieco's follow the theory of visual perception and poetics to the analysis of Luigi Moretti's designs. Besides Moretti's inspiration from Baroque art and his sensitivity to the material effects of architectural surfaces, they explore his personal optical and perspective approach to design by analysing his drawings and the conventional signs on them. Through examples such as the Foro

Mussolini in Rome and the master plan of Perugia, they illustrate Moretti's outstanding use of visual perception in design, eventually defining a new role of the architectural forms in the extended field of the landscape. Intrigued by the visual cones and angles in numbers in plans and sections and supported by written considerations on their role in the definition of the projects, they argue that Moretti's interest in perception can be traced back to the studies of German architect Herman Maertens. In particular, they point out the role of Maertens' 'optical scale', an application of optical theories to urban and architectural design to control the perceptive effect of the visitors.

Fabio Lanfranchi's essay also deals with the Foro Mussolini in Rome and perceptive issues but he focuses on Pietro Aschieri's unbuilt project for a new bridge over the Tiber. Departing from Aschieri's drawings – as a primary source – Lanfranchi discusses the interpretation of the bid requirements for the bridge design, the authorship of drawings, and the methods used to build the perspective views. His essay also introduces a detailed analysis of the survived perspective views and graphical techniques of the drawings. By reconstructing and redrawing the vanishing points, the manipulation of shadows, and the materials used in the rendering, Lanfranchi demonstrates Aschieri's ability in overcoming and transgressing the mathematical rules to imagine a visual experience, a priority according to his artistic and scene-maker education.

## Theories

The seven chapters of this section discuss the drawing as a tool and medium as well as the role of specific modes, typologies and procedures in the design process and its education. They demonstrate that specific typologies of images can be researched for their capacity to define alternative and ground-breaking design processes, out of the academic consolidated scenarios and towards more inclusive horizons. The examples they present here also demonstrate that these typologies, like the diagrams analysed by Lidia Gasperoni or the comics studied by Luis Miguel "Koldo" Lus Arana and Simon Grennan, continually oscillate between an exploratory and a communicative agency, eventually affecting the architectural form and its relationship with the forces that shape human society.

When talking about drawing we often reduce the practice and its artefacts to its pictorial characteristics. From the observation that diagrams have a hybrid character, in between image and textuality, Gasperoni detects a need

to develop a critical discourse to explore the potential richness of the diagram as research field. Departing from the recent “iconic turn” of the diagram in the design process, she argues that “the introduction of digital techniques and the spread of a formalistic approach have reduced the diagram’s critical power” expressed since the 1980s. According to Gasperoni, iconic diagrammatic practices in architecture have used the diagram as a “medium for exploring new design fields, extending the means and meanings of architecture”. Supported by a radicalisation of the diagram from a philosophical point of view, the diagram is able to become a “generative design process” able to produce the architectural form. In her essay, she explores its conceptual expansion into various media (“diagrammania”) and its recent development as “a medium that relates territorial knowledge to spatial practices”. According to Gasperoni the diagram can in some cases – as in geometry and logic – reach levels of evidence and precision in the image itself, while in others – as in artistic practices – it implies a series of figurative and discursive relations that are not evident and that involve greater criticality.

While Gasperoni investigates the evidential potential of diagrams as a complementary design tool, “Koldo” Lus Arana and Simon Grennan introduce the (archi)comic as a genre to convey spatial experiences in a narrative way. Throughout their chapter, Arana and Grennan provide different strategies to use the comic medium as a tool to visualise and explain, to develop stories and discourses, start morphogenetic processes that lead to novel architectural forms and even to rethink architectural space. After briefly framing the relationship between architects and comics from historical context, they list an impressive number of recent cases involving emerging artists, architectural offices and studios, and social networks to express the different peculiarities and potentialities of the medium. Like other popular media of the past, comics provide a semantic potential able to depict time in space and to convey meanings to a wider public. In this sense, comics represent a way of thinking architecture able to regenerate conventional visual language and a narrative tool able to “unleash and guide” alternative creative processes, to present the stories behind them, which “have gradually grown as significant as the final object itself”.

Conceptual ancestors of the comic medium can be found in Chinese scrolls where the oblique projection allowed the story to unfold in time. Christoph Leuder highlights that “viewing a drawing is an act of reading and immersion, that draws on pre-conceptions, commentary and annotation, cultural knowledges of the viewer and the drawer, as well as their imaginaries”. Lauder observes that by removing painting from the wall, as

in frescoes, and making painting ‘mobile’ a paradigm shift in representational practices occurred in the Renaissance. The immobile viewpoint of scientific perspective includes the position of the viewer in space, but does not account either for binocular vision, nor for continuous movement of eyes and head that we use to orient ourselves in space. Studying the Jiehua system of oblique projection which originated in China (Northern Song Dynasty 960-1127), Lauder argues that axonometric views, with their infinitely far-away point of view, call for moving viewers and involves them in a psychological way. An immersive use of parallel projection invites to empathy through a specific use of human figures and open fertile ground for imagination. Similar as Arana and Grennan, Lauder argues that drawing not only is a medium for telling, but also for inventing and creating stories. Practices of ‘drawing up’ stories intersect with producing architecture that can act as a substrate for the stories of everyday life, and that anticipates its transformation through those stories, the imaginaries, and actions of inhabitants.

In the case of Oswald Mathias Ungers, whose drawings reveal often an additional metaphorical value, the question of the reader is even more important. Based on an analysis of his ideas and designs on the city, Marianna Charitonidou argues that the critique of functionalism and the intensification of the interest in the reinvention of the modes of representation – together with the raise of architectural drawings to art-objects – occasionally led to an architecture that prioritised the observers and neglected the inhabitants of space. While Ungers’ collages and perspectival photomontages literally express his idea of a city, the axonometric view, often combined with plans, is assumed as an objective image oriented to a collective subject, whose scientific nature indirectly connote the whole design process.

Fabrizio Gay extends the exploration of drawing in the semantic field and frames the concept of style as a meta-language able to offer an allegorical representation of the socio-political values. He investigates the Italian art of the fascist decades and the Littorio-style to understand its genetical mechanism and the role of architecture’s image in it. Such a “style”, which, also for political opportunities, had to be inclusive of the several incipient, and even antagonist, architectural trends, emerged in the 1932 Fascist Revolution Exhibition, whose many contributors were indirectly entrusted with producing a consistent representation of the Regime. In particular, Mario Sironi’s (and his closest colleagues’) work contributed to orient the overall figurative result towards an “image corresponding to the common denominator of the expressive characters of a vast array of visual artefacts,

from architecture to design and graphics”. While the term ‘image’ in itself, with its wide semantic field, is challenged and charged with new meanings and functions, which indirectly intersect with the scenography context, architecture, in its multiscale presence and artistic synthesis, is reduced to a medium with the task of representing the power and gaining its endorsement.

In her research and teaching, Caroline Voet explores “how theory can be produced through drawing and making”. Based on recent teaching studios, Voet explores ways of looking at buildings through the eyes of the designing and drawing architect to reveal new readings that open up dialogues for interventions in between metamorphosis and conservation. Her research aims to bridge a gap between the practice of theory and architectural production by developing an architectural thinking that combines ontological research with exemplary building practice. For Voet, drawing as a research tool is equally important as writing. Both are part of a process of becoming by a process of re-writing/re-drawing in series and repetitions, until the argument is formulated in a mutual reinforcement. Through a constant application of an ontological doubt, “through the analysis of specific historical artefacts, urbanisms and atmospheres, through processes of abstraction and superposition in time”, Voet aims to create “layered and critical contingencies for the current design practice”.

Pari Riahi’s concluding article is a reflection on a particular pedagogical format of teaching strategies for an experimental, open-minded, and open-ended design process. In her studio, students from diverse backgrounds, some with some knowledge of architecture, others without prior knowledge, come together to explore general principles of design and architecture. Through a process-oriented method, the conceptual switch of media, a playful thinking in 2D and 3D, etc., they learn to carry on a consistent creative process rather than focusing on how to produce buildings. Departing from the ‘cabinet of curiosities’, as a framework, Riahi and her students explore how drawing ‘as a mode of thinking and making’ is emphasised and practiced by keeping a balance between method and imagination. Her true goal is to let the students find their own “perceptions, interests, pace, and voice”, thanks to intrinsic motivation. Following Richard Sennet, Riahi sees drawing as a skill that embodies both creative and imaginative abilities and practical ones.

## Connections

Riahi's chapter bridges the reader to the third section of the book, whose seven chapters provide only a small glimpse of the range of issues connected to architectural and urban design. Here the act of drawing is explored along the border line dividing and connecting, at the same time, architectural representation, scientific research, and artistic practices. In this sense, all of these chapters are not focused on architecture *per se*, but use it in an analogical or metaphorical way to explore the limits, knowledge areas and opportunities of design tools and methodologies.

The opening chapters illustrate the heuristic role of drawing in the artistic practice of Ana Aragão and Tobias Becker. Both of them read as practice based chronicles that reflect upon the status and value of their own work and practice in between architecture and art. The essay of Ana Aragao, who also provided the wonderful cover illustration of this book, reads as an existential reflection about her practice as imaginary architectural draughtsman. It is a celebration of drawing both as an activity and process but, more importantly, it is a celebration of the power of imagination. Referring to the titans of imagination such as Jorge Luis Borges, Lewis Carroll, Italo Calvino, José Saramago, etc., her reflection is dense with sharp observations about drawing, making, dreaming, fictions, wandering and the way one looks at drawings. Aragao sees her drawings as research for methods for the imagination, new models for the representation of subjective and personal reality. Her drawings have no finality of being architecture, nor pretension of being art, and can be considered as acts of 'presentification'. Drawings with the finality of drawing, and, in Aragao's case, drawing out of curiosity to see the final result. The relationship between reason and emotion is the synthesis of the meaning of her work as an architect who only draws.

This is also evident in the work of Thomas Becker, who approaches the representation of the ineffable and dynamic form of clouds with the power of a procedure tested in the architectural process. His chapter can be read as an honest account of a process that is bound to fail but, yet, the discoveries lay in the persisting of seeing things through. The iterations between photographing, modelling, drawing, painting and ultimately designing a cloudy sky reveal that, step by step, the loss of context slowly reveals something new in the designer/beholder's imagination. During this process, the clouds metaphorically transform themselves from weightless phenomena into heavy concrete like structures conceptually akin to El Lissitzky and Mart Stam's *Wolkenbügel* (1924). Eventually, the process



reveals the impossibility to capture a natural phenomenon with the media of design and the gaps in between them.

Somehow symmetric to the artistic practices, the work of scientists may reveal parallels to the architectural design process, although the handwritten and hand-drawn materials of experimental laboratory practices only occasionally have received the attention of the science historians. By focusing on the material of scientific production, Judith Dobler explores the epistemological mechanisms tied to the collaborative drawing practices in laboratory environments. She argues that epistemic cultures relate to practice in specific ways and are thus directly related to practices inside and outside the sciences that determine ‘how we know what we know’. Searching for a knowledge practice of drawing, Dobler draws from theory-led perspectives from various disciplines and research approaches in the humanities, particularly the philosophy driven image theories, basic design research, and science and technology studies in sociology. She expands the concept of drawing to collaborative and body drawing and the “performative and multimodal interactions in imaginative space” such as the hand drawing. Based on her research, Dobler deduces that hand drawing is a “cultural technique” that occupies an ephemeral but critical role within complex communicative processes, even beyond written and spoken language. In that sense, Dobler’s research makes an interesting case to include the notational function of drawing in cognition and learning processes!

Carolin Lange and Hetty Berens explore the architects’ ability in absorbing the achievements of the scientific and technological research and turning them into tools for the design process. Lange and Berens dive deep into a period of reproduction to study how cyanotype printing techniques challenged architects to transcend its reproductive qualities. Based on analysis of early prints from the ‘Het Nieuwe Instituut’ collection, they investigate how the technique gradually evolved from a reproductive into a design tool and from a mechanical into an autographical tool. In this sense, they investigate the reproduction technique for its qualities to inform design thinking, thereby arguing that innovations in the media architects use, especially the evolution of reproductive techniques, have an effect in the design and thinking processes.

In their chapter, Greta Ruffino and Raul Betti explore the dimension of materiality of architectural drawings and their emotional and narrative agency on the public. In particular, they describe the stages of the organisation of their *Alvaro Siza Viagem Set Programma* exhibition for the

2012 Venice Biennale. An exceptional draughtsman, Siza has always considered his drawings as parts of a constant learning process, eventually connoting the drawings themselves as documents of an incessant dialogue between imagination, memory and places. Aware of this, Ruffino and Betti retrospectively reflect on the process of picking 53 travel sketches out of Alvaro Siza's huge corpus and the many choices they did as curator to disclose the meanings of the drawings and to relate them to each other and to the buildings that housed the exhibition itself. Their chapter provides an extensive and almost private cut upon Siza's perspective on drawing, architecture, art and life. It is a remembrance of how essential it is to be free in order to explore the essence of things through drawing.

The chapter of Robin Schaefferbeke and H el ene Aarts and the one of Thomas Schmitz conclude this section by focusing on the architects' techniques to observe and record architectural space and assimilate basic data for the design process. In particular, both the chapters explore the relationship between the visual perception as it is investigated by scientists and philosophers and drawing as a way to register the experience not only of forms but also space, atmosphere and other ineffable elements of human environment.

Schaefferbeke and Aarts explore the concept of recording, as a primary function of drawing and cognition. They argue that while the theories of perception have made enormous advances, observational drawing in architectural confines remains trustworthy to its Renaissance geometrical and solitary gaze. Departing from advances in perceptual psychology and ethnography, they explore the prerequisites and ways to convey ephemeral qualities of spatial experiences which are generally excluded from the architects' metric-projective approach. Along the way, they find a conceptual ally in the ethnographer's field notes. From these different theories and practices, they search for a teaching/learning framework to study 'drawing-as-recording'. Illustrated with drawings from their workshops and studios, they propose a series of prerequisites to activate drawing-as-recording.

Thomas Schmitz focuses on the experience of drawing from life he carries on together with his students during his yearly academic travels abroad. In particular, he focuses on the agency of the peculiar sensitive condition that the tourist's gaze can have on the reception, interpretation, and representation of urban landscape as well as their atmosphere. This perceptive condition is investigated by combining a retrospective analysis of some of the watercolours he personally produced among his students,

coupled with literary reflections of philosophers, psychologists, and artists. This allows him to explore the analogy between the tangible and intangible nature of places, the layering of colours and textures on the paper sheet and the structuring of digital information in layers. In that way, Schmitz' essay is a celebration of the power of "looking with a pencil or even a stylus in one's hand" as well as a critical reflection on the pedagogical potentials of that blurred area between real and virtual.

## **Acknowledgements**

The idea of this book made its way in the first months of 2020, at the beginning of the pandemic. Looking back upon this period many of us experienced an unprecedented feeling of isolation. Not only were we confined to the privacy of our own houses but on top of that we were being made wary of other people, as they constituted a probable threat to our health. Forced to remote working, we were given an opportunity to look at our lives from outside, as if with a different perception of time and space. This opportunity indirectly promoted a heightened capacity and empathy to listen to others, to share good practices and to look for new forms of association, closeness and embodiment.

A book that brings together many voices and ideas came forth as an antidote to the invisible menace of isolation and distrust. It became a mental space to react to the frustrating, so called suspension of normality. Especially since we wanted to develop that space in a collective way, the idea of the book became our way to demonstrate that a source of anxiety and suffering could be turned into a rare opportunity of shared growth.

The topic of this book – drawing approaches in architectural and urban design – symbolically represents the unbridled optimism that characterises architects in every age and latitude. Projecting oneself into an optimistic future and anticipating possible visions are instinctive in all of the architects who carry within them the seeds of a better society and a more respectful approach to ecology, community and memory.

The structure of this book was defined little by little, during virtual meetings involving an extended group of colleagues. The points of view provided by the different participants brought to the fore that the book needed to foreground a variety of approaches to drawing – a term that later imposed itself also for the title. At the same time the book also needed to highlight the disciplinary peculiarities of these approaches. Our ambition was to edit a book as a platform where historians, theoreticians, practitioners and

peripheral fields of studies where able to meet and exchange knowledge, expertise and ideas.

Even naively, we established that drawing research should not be limited to a specific period or geographical area. The “multiplicity”, to quote one of the categories of Italo Calvino’s lessons in literature<sup>3</sup>, appeared to us as a quality to share with the readers. We compiled a pool of names of international colleagues exploring issues of drawing in a distinctive and rigorous way. Parallel to this, we selected a number of practices where drawing plays a unique role in one way or another. In both cases, we combined world-wide celebrated scholars and practitioners with emerging figures, also to compare different practices and perspectives.

As the three of us took the role of editors of the book, the colleagues involved in the early stage choose the role of contributor or just curious observer of the process, always available to advice.

In January 2021, we sent invitations to about 35 scholars and 15 designers. Our early intention was to follow this invitation with an open call-for-chapter but the high number of subscriptions received convinced us to give up this idea. We established the format of the long essay, the general timeline and the guidelines for the authors; then we started the process. Meanwhile, we prepared a series of standard questions for the interviews with the designers.

A few months later, we signed an agreement with Cambridge Scholars Publishing and fixed the deadlines of the manuscript development and delivery. Over the months, some of the contributors had to renounce and others were ‘recruited’ to replace them. All of the chapters were submitted to a double-blind review exploited by the contributors themselves and other colleagues who kindly took part in the process.

Now that the book is about to be published, we see that our inclusive intent is fulfilled. From a geographical point of view, we are surely satisfied. The 39 authors of this book represent five continents (Europe, North America, South America, Asia, Australia), fourteen birth-countries (Australia, Belgium, Holland, France, Germany, Greece, India, Iran, Italy, Peru, Portugal, Spain, UK and USA), and many others of adoption. Although the authors and their interests are directed above all to the Western world, and

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<sup>3</sup> Italo Calvino, *Six Memos for the Next Millenium*, Cambridge, MA: Harvard University Press, 1988.

Europe in particular, their training, research and design experiences range over several continents and cultures. Added to this, the chapters testify of a wide range of methodological approaches and different cultural gazes on the architectural drawing, which appears to be far away from being considered dead.

As mentioned, this book required the participation and work of many people, from the first mail sent to find a colleague to talk to about the idea of a book on architectural drawing to the last phone call to say “we are ready!”. In this sense, we benefited from the help and collaboration of our families, friends, colleagues, departments, libraries, archives, and institutions.

We wish to thank all the architects and contributors (even those that, for some reason, could not be included) that enthusiastically accepted our invitation to an interview or to write a chapter. They gave appreciation and supported our journey through a sea full of doubts and obstacles, and patiently responded to the many requests and deadlines that such a collective work demands. Among them, we ought to mention Greta Ruffino and Raul Betti, for their interview to Álvaro Siza in Porto, and Ana Aragão for the wonderful drawing on the cover.

The different sections and points of view this book compiles provide critical and rich readings and analysis of one of the primary tools and media architects can use. We can only hope that this richness is able to enlighten and inspire readers to further investigate this powerful medium and activity.

Fabio, Nuno and Robin