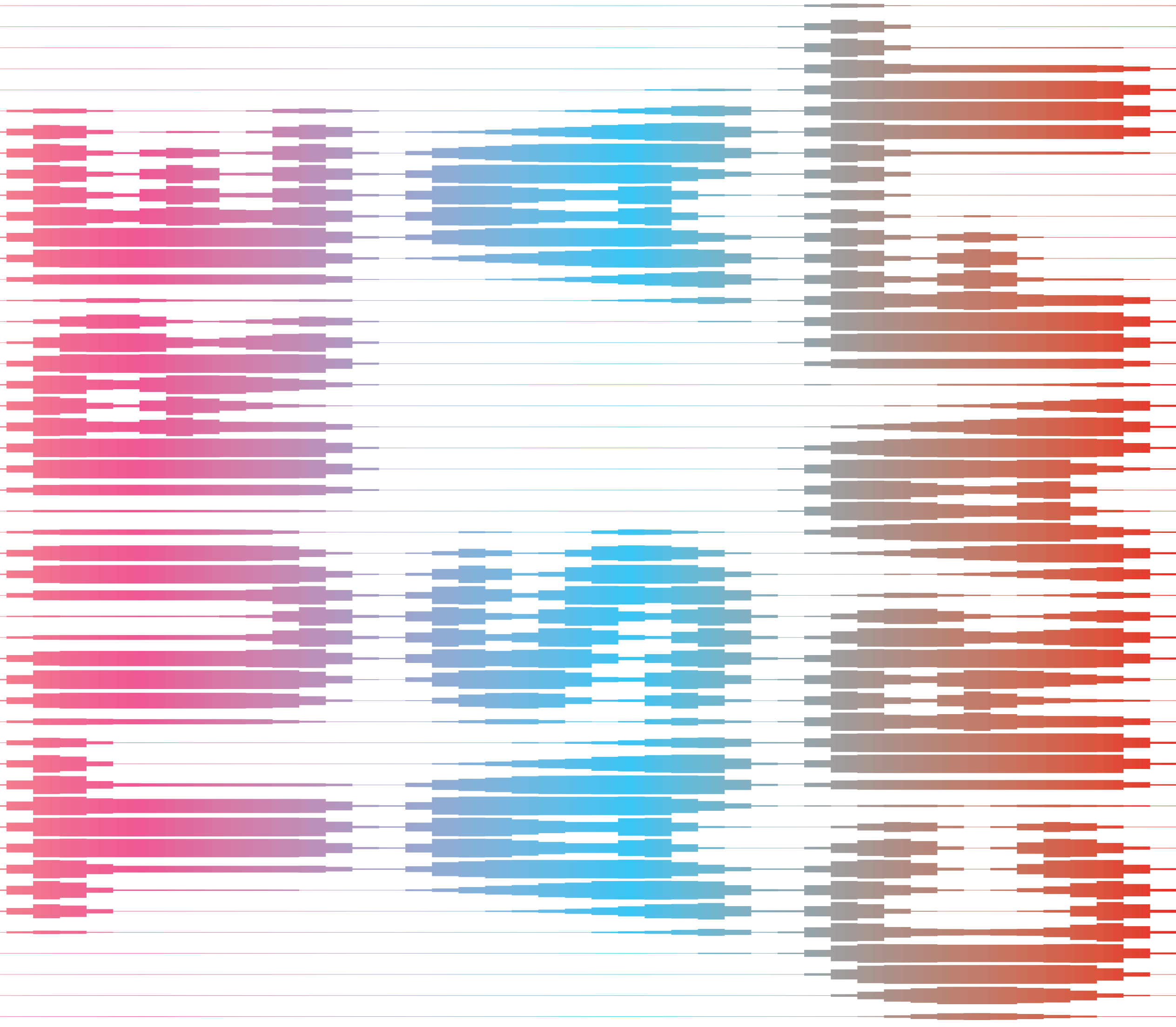
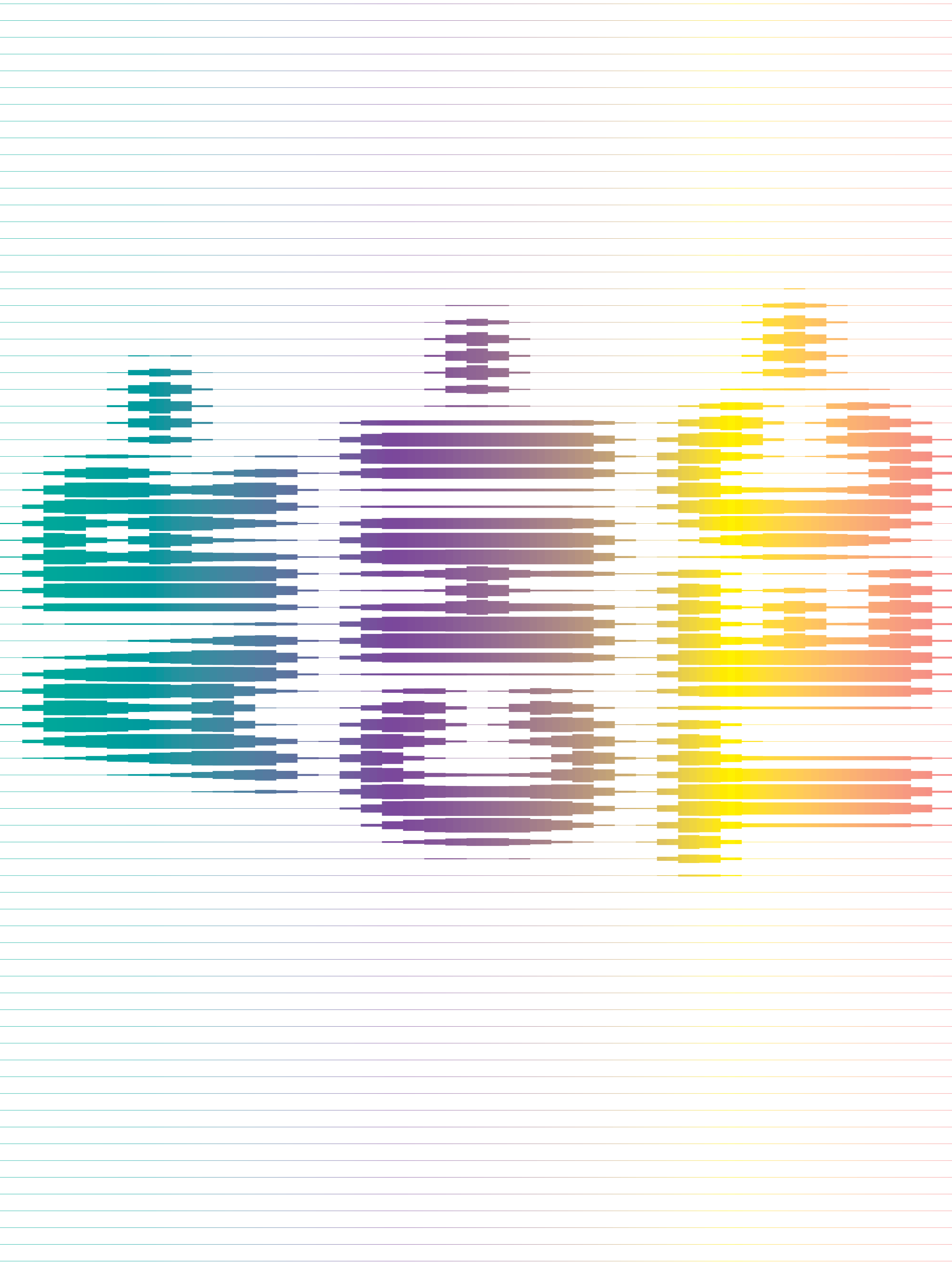




TURE AS A CRAFT

Architecture as a craft

SUN

Architecture, drawing, model and position

Edited by Michiel Riedijk
With the assistance of
Else Marijn Kruijswijk,
Dražen Kričković & Jaimy Siebel

Michiel Riedijk
Prologue

Michiel Riedijk, co-founder of Neutelings Riedijk Architects, has years of experience in the architectural practice. He graduated in 1989 at the University of Technology Delft and was a guest professor in Aachen University in 2002. He has given lectures and workshops at universities and museums worldwide among which Beijing, Moscow, Princeton, Los Angeles, Quito and Seattle. In September 2007 he accepted a professorship at the Faculty of Architecture in Delft. His office primarily focusses on the design of public buildings. By using handcrafted drawings and models, Neutelings Riedijk Architects practices a clear methodology, in order to develop innovative typologies and concepts in combination with rich facade structures. Among a wide variety of realized projects as the Dutch Institute for Sound and Vision (Hilversum), the university building 'Minnaert' (Utrecht), the shipping and transport college (Rotterdam) and the maritime museum MAS (Antwerp). Riedijk has published several books, among which *At Work*, a clear description of the design process at Neutelings Riedijk Architects, and *The drawing*, a lecture delivered upon assuming the chair of professor of architectural design, in which Riedijk reflects upon the significance of the drawing for the architectural practice.

Italo Calvino's book *If on a winter's night a traveller*[1] appears to tell a story by starting over and over again. It takes us to station buffets smelling of fresh coffee and cigarettes, aircraft interiors reeking of sweat, endless mirror rooms, and out into the countryside. On first reading, the detailed descriptions of colourful pastoral life in unfamiliar Central European countries seem totally unconnected. Sometimes they are fragments from diaries, and sometimes they read like extracts from hard-boiled detective stories. The main characters' names differ from chapter to chapter, and the story line keeps changing.

The table of contents reveals that the book includes two kinds of chapter. There are ten titled chapters, and twelve numbered from 1 to 12. The numbered and titled chapters alternate, except for the last two: Chapters 11 and 12 have no intervening titled chapter. In the numbered chapters the writer addresses the reader directly. He asks how the reader is feeling, what his reading posture is, whether he has enough light, whether he is sitting or lying comfortably enough to enjoy the book. The chapters with titles such as 'If on a winter's night a traveller', 'Outside the town of Malbork' or 'Looks down in the gathering shadow' are first-person narratives full of lyrical descriptions of gently rolling landscapes, freckles on country lasses' forearms and the smell of harbours. The titled chapters describe phenomena and impressions; the numbered ones mainly deal with form, structure and the nature of authorship.

The novel turns out to be a story that is told from a different perspective each time, with a different plot, in a different literary form, context or country. It plays on the observation that the same phenomenon is described or judged quite differently by different viewers, as in the famous parable in which a mountain is given a different name and different qualities are ascribed to it in each adjoining valley. The viewer's standpoint primarily tells us something about the viewer.

The clear subdivision in Calvino's novel gradually becomes more blurred and ambiguous; at one point even the language in which the book is written, Cimmerian, Cimbrian (or not?), and its originality and authorship are called into question. There is plagiarism, mistranslation, mysterious duplication. The untitled chapters are about writing, the

1 Italo Calvino, *If on a winter's night a traveller*. New York (Harcourt Brace Jovanovich) 1981; originally published in Italian as *Se una notte d'inverno un viaggiatore*. Turin 1979.

writer's attitude to his readers, and above all authorship. The possibility of making a clear distinction between story and form, between the titled and numbered chapters, is a key feature of the novel. Calvino's provisional conclusion appears to be that story and form – including the way in which the sections of pages are sewn into the book – interact and are inextricably bound up with one another. The telling of a story and the structure the author chooses for this purpose constantly influence each other. The book shows the interaction between form and narrative. It reveals the relationship between narrative structure and description of phenomena.

Architecture: a craft and a discipline

Architecture is about ideas. The architect produces a design in reply to a question from a client, and believes the design is the most appropriate answer to the initial question or spatial need. The architectural design thus always represents the designer's conceptual position in relation to the project, and reveals his range of different ideas about it. Ideas about the project, the social relevance of the design, spatiality and materiality, and the relationship between the designer and his own discipline are implicitly, and sometimes explicitly, reflected in the ultimate design. The designer's ideas solidify into drawings, scale models and texts.

The ultimate realisation of his ideas in buildings very much depends on others – clients, funders and contractors – and increasingly often it lies beyond the architect's control. In the first instance, and sometimes even in the last instance, the architect will only be able to realise his ideas on paper or in the glued pieces of cardboard and wood used for the model. The notation and documentation of ideas in drawings and models – the design – are thus the architect's true core task. Texts, drawings and models are the best instruments he can use to describe the form of the designed object as accurately as possible. This object depicts a future that has yet to be realised in brick, steel and timber. The designer's idea, his position in relation to the project, is displayed in the composition of the design. The composition of the ground plan, the cross-section or the elevation can be read and is developed in the drawing and the model.

It is in the text that the architect can become detached from the act of designing. The text embodies reflection on the profession. Unlike drawings and models – products of the act of design – architectural texts are the starting points for disciplinary thinking. Drawings and models are tautological elements of design. They are the means whereby the idea is explored and takes shape. At the same time, they are the result of the design effort. They are thus part of a potentially infinite iterative process of alteration and completion. The essence of architectural design lies in the production and constant alteration of the drawing and the model.

The drawing and the model operate in very different areas and can be expressed in very different ways. The model is a narrative instrument that can convey the exact proportions, dimensions, colours and textures of the design, whereas the drawing is merely a projection of reality through scale, coding and abstraction. The model is evocative, imaginative, and shows a reduced but inclusive reality; the drawing is selective and can only display a reduced part of reality. The drawing, and particularly the sketch, shows what the designer is trying to do. The medium of drawing forces the designer to draw only what is truly relevant to the design. It depicts what the designer wants to make – a potential future that will in some cases only be depicted on paper.

Depicting an as yet unbuilt reality as accurately as possible on paper or in clay, cardboard or polystyrene is largely the result of an act that may be termed 'craftsmanship' – a skill honed by repetition and practice. Here craftsmanship means a knowledge system based on skills that are developed in the course of the act. The skill is enhanced by altering the initial idea and retracing the vague sketch over and over again, and thus gradually improving them, in the act of design. This craftsmanship is the heart of design. Paradoxically, disciplinary conceptualisation about architecture begins with knowledge of the designer's craftsmanship. In architecture, midway between a craft and a discipline, there appears to be a polarity between craftsmanlike action and disciplinary thinking. What counts is not what the designer makes, but how it is done and what it is based on.

The craftsman

Richard Sennett's book *The Craftsman*[2] investigates the relationship between the skill with which something is made and its quality. Among other things, Sennett states that the

2 Richard Sennett, *The craftsman*, New Haven (Yale University Press) 2008.

quality of the end product is implicit in the act of making it, in its craftsmanship – and this applies whether we are talking about making violins or architectural design. The quality of the work is largely determined by the tried and tested relationship between eye and hand – in other words, between thinking and doing. Repeating a particular act over and over again creates meaning for the practitioner or the craftsman. The user of the product that is made by the craftsman has a better product thanks to the skill embedded in the maker's muscle memory. In this sense, 'craftsmanship' does not mean a nostalgic or historicising attitude to a particular activity or act, but explicitly examines the relationship between the act of making (or, in this case, designing) and its result. The book is an appeal for conscientious, ethical action, for this, says Sennett, leads to greater enjoyment of life, self-realisation and improved products. The craftsman is a generalist who has mastered all the facets of the production process and seems capable of resisting the continual erosion of skills and working conditions. The generalist is probably an anachronism in today's working conditions, in which mastery of all the facets of a design or production process is being destroyed by increasing division of labour and process optimisation. *The craftsman* can be read as a call for a design process in which the architect once again concerns himself with all the facets of his craft, and so can achieve the best result both for his client and for himself.

Focus of the book

Echoing Sennett's appeal for conscientious craftsmanship, this publication focuses on architecture as a craft. The boundaries of the architect's craft can only be marked out by examining the architect's position, taking account of the nature of the architectural composition and ultimately also the way in which the design is materialised. Craftsmanship is directly related to the organisation of working and production conditions in the designer's studio. The nature of architectural production is also largely determined by the specific role the architect chooses to play in the design and construction process and his position in relation to it. What is crucial here is his position in relation to sociocultural developments or societal phenomena, such as the current emphasis on sustainability. His traditional position in the design and production of buildings is changing as a result of ever-increasing division of labour. How should the architect design in today's working and production conditions? As his role is transformed by division of labour, is he still capable of producing a relevant design?

The question of meaningful composition is also directly related to the notion that design is essentially an act of craftsmanship. Does each design require a unique compositional system to be defined afresh, or is the act of design subject to universally applicable rules and reasons? In a craft, constant repetition of design motifs and themes continually improves each successive design and takes it further. Does the architect always essentially work on one and the same task, despite all his different projects, or does he work each time on something new that has to be developed completely from scratch?

The question of what the architect is actually doing also raises questions about his authorship. Is the architect a creative author with the will to produce a specific work, or do the conditions imposed on him inevitably result in something interchangeable, something that could as easily have been produced by someone else?

The discourse about authorship can be examined in the light of the development and alteration of themes from the architect's own work. How does the architect act in his studio? How are designs produced, and what instruments are used for this? What are the respective roles of the model and the drawing? Now that the computer enables the architect to manage all the design data within a single integrated information system, do models and drawings still serve any purpose?

The role of the computer is another key factor in understanding the process of division of labour. The first use of the computer in art and architecture was supposed to erase the artist's, composer's or architect's personal signature. The calculations and changes made by the computer were purely arithmetical and seemingly objective: the drawn result was the outcome of algorithms devoid of arbitrary personal taste.

But now the computer has become the opposite: since it enables us to document the designed object precisely and describe it with infinite accuracy, it would seem to provide endless scope for individual expression. Yet in practice it has led to great uniformity and lack of variety. Work by different designers is now indistinguishable, because they use the same computer techniques. The computer seems to disguise any precise expression of the designer's chosen position. Its seemingly perfect representation of reality obscures his position and his intentions. Computer-generated drawings lack the selection mechanism inherent in manual sketches and drawings. Is the computer drawing then meaningless as a notation of architectural ideas, since there is seemingly no longer any need to distinguish between main and side issues?

Structure

Like *If on a winter's night a traveller*, this book includes two kinds of chapter. Some discuss the form and structure of the actual design process; others describe its result. A distinction can also be made between chapters about design itself and ones based on general views about the discipline. Texts that postulate personal ideas about the profession alternate with ones that make specific recommendations about professional practice, based on a general notion of what architecture should be. The latter describe the iterative process that works from the general – the architect's position in relation to the project – to the specific, as a crucial aspect of design. The originally abstract project turns into a concrete proposal. These texts seem more normative. They indicate how the author believes architects should act. In that sense they provide an original basis and justification for design by treating it as a continuous sequence from the past to the future. This approach sets out from the notion that there are design positions which are universally applicable to the whole of the architectural discipline and architectural production. Every act of design can thus seemingly be defined as the application of universally valid design rules.

In contrast, there is the approach that works from the specific to the general. The architect's own attitude to design, or projects he himself has worked on, are used to back up a design discourse which the author or designer believes is more generally applicable. This approach often sets out from a description of the designed object. This more narrative way of thinking and working is closely linked to the description of phenomena that directly influence the form of the design. Any irregularity in the model, or unusual angle in the site, may lead to a new stage of the design. The design is guided by external phenomena and impulses, from the gentle rolling hills of the site to the contractor's gnarled hands. The response to such external phenomena and impulses remains detached from autonomous factors.

The texts can be divided into three main groups. The first group examines the architect's position – both his position in relation to the building and production process, and the relationship between him and the result of his action. The next group looks at architectural composition and the resources that architects use to produce a design, such as models and drawings. Two of these texts explore the notion of composition, particularly in painting and computer art, in order to develop a conceptual framework that can also be linked to architectural design. The final group of texts discusses the meaning of materialisation in architectural thinking. Can the materialisation of the architectural project only be understood when the actual building is completed, or is its completion already embodied in the drawing and the model?

The texts, which are written by both practising architects and architectural theorists, differ in style, tone, atmosphere and length. Some are personal and loving; others give matter-of-fact instructions about how to produce a design; together they provide a broad picture of architecture as a craft.

Enrique Walker's position sets out from the actual design process. Walker shows that the essence of an architectural design task may lie in the formulation of a constraint; and the designer arrives at that essence by taking a theme that marks out the boundaries of the task and the formal design choices in advance.

Mark Linder takes the view that everything in art and architecture can nowadays only be taken literally. He presents the work of the artist Sol LeWitt as a model for architects. What you buy is a set of instructions rather than a work of art. Linder uses a number of analogies to determine how the concept of 'literalness' should be understood and used.

In an article on the Florence-based architects' collective Archizoom, *Emre Altürk* further investigates the meaning of the architectural project. Describing the changed production conditions in the post-war consumer society that confronted young architects in the 1960s, he claims that the question of how architects could still produce relevant work under those conditions led, in the case of Archizoom, to a drawn form of social criticism.

The question of the architect's role in response to continuing division of labour has become an explicit position in the professional practice of the New York architectural firm SHop. One of SHop's founders, *Greg Pasquarelli*, calls for a different division of roles between clients, architects and contractors. Instead of the traditional division of labour between design, funding and execution, Pasquarelli states that only the architect can fully grasp the complex interaction between feasibility, costs, structural design and built result, and hence come up with a high-quality product.

In a sense, the work of the Flemish architect *Jan De Vylder* is just the opposite. It can be described as an intensive search for genuine architectural expression based on a highly restrained, personal use of resources. Like SHop's work, De Vylder's is very directly concerned with the way in which architecture is implemented in practice. Unlike SHop, however, De Vylder accepts the peculiarities of the division of labour in the building process, and this is reflected in the materialisation of his work.

Oswald Mathias Ungers' article '*Ordo, pondo et mensura*' states that ordering, the heaviness of the material and the arrangement of the various parts are the essence of architectural design. He says that architecture should be designed on the basis of systems of rules, relationships and analogies that determine the form of the design.

Joan Ockman's article discusses the work of the painter Robert Slutzky, who examines in depth the spatiality of the flat plane of the canvas through use of colour and form. Slutzky uses themes from his own work to develop more and more new paintings.

Alper Alkan looks at Cedric Price's drawings for the Fun Palace, which are an explicit attempt to get away from conventional architectural techniques of representation. Price's drawings avoid any description of architectural form, and simply show systems, links or relationships. Architecture seems to consist of nothing but the planning of logical functional arrangements. Alkan uses Price's work to further investigate a scientific approach to the architectural profession.

Stefano Milani's description of the work of the early computer artist Manfred Mohr discusses the boundaries of authorship and attempts to shed more light on the meaning of computer art in present-day architectural practice.

Sou Fujimoto's work is based on the alteration and reinterpretation of the model and the piles of 'junk' in his studio. In his work the model is the most accurate documentation of the architectural composition. New ideas emerge and concepts are developed by re-reading and reinterpreting the spatiality of the model.

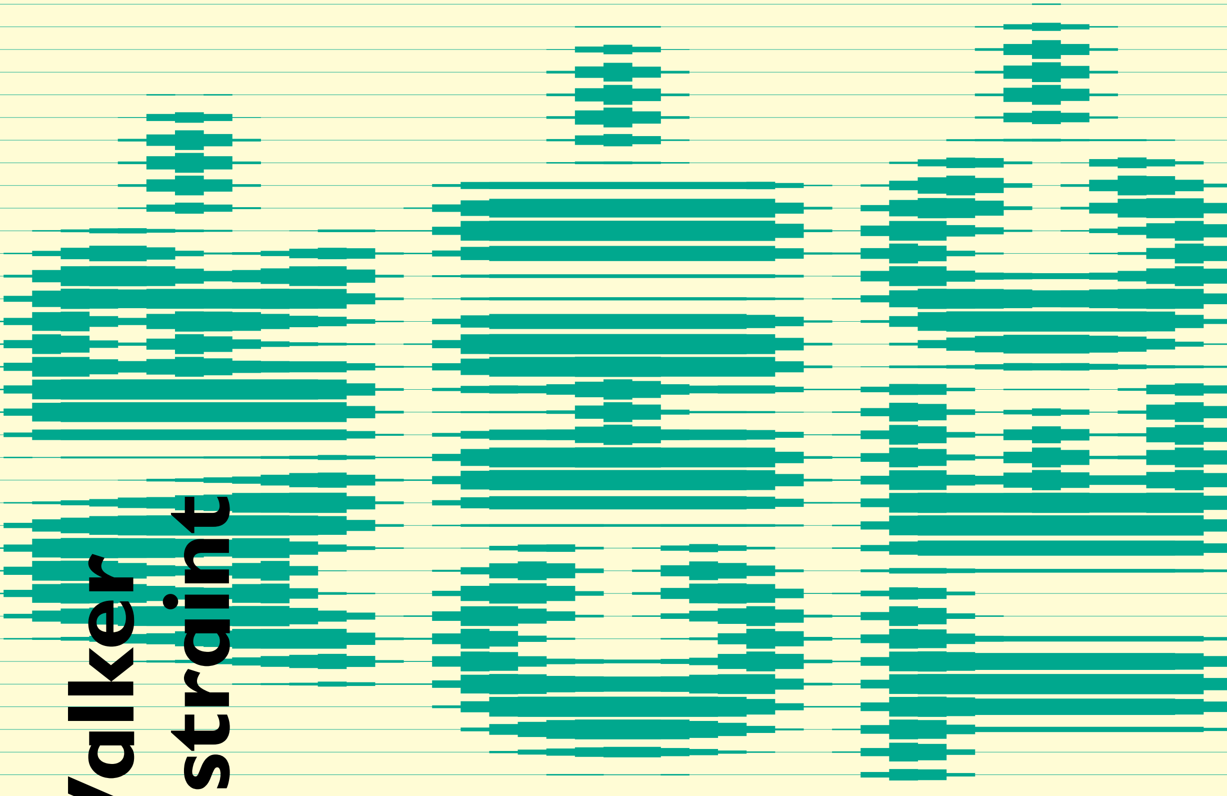
Christoph Gantenbein, from the young Swiss firm Christ & Gantenbein, uses their design for the housing and commercial building VoltaMitte in Basel to show how graphically methods of production and materialisation form the basis for architectural expression in the firm's work. In this work, materialisation and methods of production are the main strengths of the final composition. A conversation/interview between Gantenbein, Kersten Geers and Jan De Vylder examines their various positions in greater depth.

Giorgio Grassi's article 'Questions of design' describes his attitude to design as a search for architectural form and how it is determined by the craft of making and the design. He believes we must try to ensure that all the architectural elements are self-evidently and correctly expressed in the final built result.

In his article 'The model' *Michael Maltzan* states that the model is first and foremost the embodiment of an idea. It is also the perfect means of exploring form and architectural space. According to Maltzan, the model often seems to be treated as a product that is subordinate to the final building, but with reference to his own firm's practice he describes how the model in fact shapes the architectural project.

Kersten Geers emphasises that materialisation does not play an important part in the work of his Brussels-based firm Office. The architectural project emerges and exists only in the drawing. Using axonometric projections, collages and work based on artworks by John Baldessari, Office wants to persuade us that architecture consists solely of the drawn typological arrangement – the actual project.

The various texts form a whole, a snapshot of architectural thinking and design. Like the chapters in Calvino's *If on a* *winter's night a traveller*, they are different, with styles and perspectives of their own, but they cannot be seen in isolation from one another. Just as in Calvino's book, the two approaches – from the general to the specific, or from the documentation of phenomena to a more general architectural composition – may well be inextricably linked. Together these texts mark out the field of architecture as a craft.



Enrique Walker

Under constraint

Enrique Walker is an architect. He teaches at the Graduate School of Architecture, Planning and Preservation, Columbia University, and is also director of the Master of Science program in Advanced Architectural Design. His publications include: *Tschumi on Architecture* (Ediciones ARQ, 1998), *Conversations with Enrique Walker* (Monacelli, 2006) and *Lo ordinario* (Gustavo Gili, 2010).

Raymond Roussel died at the Grande Albergo e delle Palme in Palermo the night of July 13th, or the morning of July 14th, 1933. Before his departure from Paris, he had entrusted his publisher with the posthumous publication of a book which would reveal, as he thought was his duty, the method he had used to write several of his books. *Comment j'ai écrit certains de mes livres* appeared two years later and earned Roussel the recognition he hoped it would, and had so intensely pursued since his *sensations of glory* when writing *La doublure* at the age of nineteen.

Roussel completed his first book after six months, during which he was gradually filled with a euphoria of extraordinary intensity. He worked day and night, without the slightest deviation, and with no sign of fatigue. I shall reach great heights, he claimed; there lies within me an immensely powerful glory like a shell about to explode. His enthusiasm greatly diminished during the printing of the book and, since it eventually passed unremarked, completely extinguished after it was published. This failure plunged Roussel into a profound state of depression which lasted several years, and from which he never fully recovered. According to the doctor who later attended to him, following his crisis, Roussel still maintained the unshakeable conviction that glory was a fact. So throughout his life, he sought public success hoping that it would revive those earlier feelings of exaltation. Yet to no avail, for aside from the interest of some supporters, mainly the young *surréalistes*, who were far from the broad admiration Roussel strove for, his work attracted little attention. His books went unnoticed or were received with incomprehension; his plays, staged at his own expense to reach a larger audience, provoked scandals or were the object of derision.

Roussel found some glory elsewhere: with his piano performances, with his pistol-shooting trophies, with his design for a luxury caravan, with his patent for a system for insulating buildings, with his formula for an improved knight and bishop checkmate, and with his impersonations, where, as he claimed, his success was enormous and complete. During the last years of his life he attempted to recapture his earlier euphoria with the use of narcotics, which led to his death of an overdose. His will, deposited with his lawyer six months earlier, and seemingly his very last resort to achieve public recognition of his right to literary glory, instructed that a copy of *Comment j'ai écrit certains de mes livres* be sent to a list of twenty-two of his supporters, and that it then be issued for sale. A series of notes to his publisher prior to his departure to Sicily established the definite contents of the book and instructed that his photograph at the age of nineteen, the time when he felt he had *l'étoile au front*, appear on its frontispiece, as well as in all reissues of his works. This last book would reveal the secret to several of the others.

Roussel owed his gift of invention to a method which he had discovered at about the age of thirty, after the years of prospecting that followed the writing of his first book. The method entailed creating two phrases that sounded, and were spelled, almost identically, but had entirely different meanings, and then writing a story which would begin with one and end with the other. These pairs of homonymous or almost homophonic phrases would present a series of problems, or *équations de faits*, which it would then become necessary to solve logically. Thus the phrases, *les vers de la doublure dans la pièce du Forban Talon Rouge* (the lines of verse of the understudy in the play of Red-Heel the Buccaneer) and *les vers de la doublure dans la pièce du fort pantalon rouge* (the worms in the lining of the patch of the strong red trousers) were the basis for *Chiquenaude*; just as the phrases, *demoiselle* (young girl) *à prétendent* (suitor) and *demoiselle* (pavior's beetle) *à reître en dents* (soldier of fortune in teeth) were the basis for the complicated apparatus Roussel described from page thirty-one onwards in *Locus Solus*. I shed blood over every phrase, he once confessed.

Roussel worked in complete seclusion and with great effort for a fixed number of hours each day, often to the point of exhaustion. According to the rules of his game, once he established a pair of phrases with double meaning, or else diverted a found phrase into a homonym, he would have to solve the problem of bringing together the elements which derived from the pair, regardless of their disparity, and formulate their relationship on as realistic a level as possible, in a text written in the most neutral way. The method of word-pairing, not unlike a *table de dissection*, would offer the chance encounter of elements whose meticulous resolution would in turn release unforeseen invention. I have traveled a great deal, he said, yet from all these travels I never took anything for my books; imagination accounts for everything in my work. His posthumous book would explain his method, for he felt that future writers would perhaps be able to exploit it fruitfully, yet also imbue the work with a secret, let alone install the fantasy that this secret was a key to its understanding. The work bears no inside, however, no hidden treasure, no mystery to be deciphered.

Raymond Roussel committed to a secret procedure that actually held no secret, a writing which did not entail a reading. The method does not actually shed light on the work itself, but rather on the workings that preceded the work. Just like in his novels, where mystification is followed by revelation, Roussel meant to explain his secret after his death. He thought it was his duty to do so, but also hoped that he could gain a little posthumous recognition. Only his very last book would afford Roussel the great heights for which he had always thought he was destined.

Raymond Roussel decided to write certain of his books by using two homonymous, or almost homophonic, sentences as the beginning and end of his stories; Samuel Beckett decided to write his in a language other than his own; Thomas Bernhard decided to write some of his own in one paragraph; Jerzy Andrzejewsky decided to write a novel in one sentence; Georges Perec decided to write a novel without the use of a certain letter; Michel Butor decided to write a novel in the second person; Italo Calvino decided to write a novel with ten beginnings; Raymond Queneau decided to write a set of ten sonnets whose corresponding lines could be replaced with one another; Jacques Roubaud decided to write a collection of poems corresponding to the pieces of a game of *go*; Jacques Jouet decided to write poems corresponding to the stops of his *métro* journeys; Marcel Bénabou decided to write a book by giving an account of his impossibility to write one; Gilbert Sorrentino decided to write a novel by only resorting to questions; Harry Mathews decided to write a novel by . . . alas, he declined to reveal his decision; Ts'ui Pên decided to write a book as a labyrinth.

Friedrich Wilhelm Murnau decided to make a silent film without resorting to intertitles; Chris Marker decided to make a film by only resorting to stills; Alfred Hitchcock decided to make a film in a (seemingly) continuous take; [I – VIII] Aleksandr Sokurov decided to make a film in a single shot; Chantal Akerman decided to make a film by shadowing the protagonist; Dziga Vertov decided to make a film by using the city as the protagonist; Luis Buñuel decided to make a film by constantly changing the protagonist; Alain Resnais decided to make a film which would trace all the possible forkings of a story; Michelangelo Antonioni decided to make a film whose story would only be unleashed in the last few minutes; Néstor Almendros decided to accept Terrence Malick's decision to shoot a film almost entirely during the *magic hour* after sunset; Jørgen Leth decided to accept Lars von Trier's obstructions to remake one of his films; Stanley Kubrick decided to light a candlelight scene in one of his films by only using candles; Werner Herzog decided to make some of his films by documenting real actions; Jean-Luc Godard decided to make some of his own with *a girl and a gun*.

I – VIII

Subjected by definition to a regime of external forces, architecture has dismissed self-imposed constraints as a productive device. While it has overly submitted to a practice of problem-solving, it has demonized any constraint as a limitation to architectural imagination. Architecture tolerates voluntary constraints only when these forces appear as feeble, yet, used to a regime of dependency, still masking them ultimately under a narrative of necessity, and in so doing hindering their potential. The practice of self-imposed (and therefore arbitrary) constraints entails deliberately formulating the problem; an uncompromising decision which, if properly calibrated, may release otherwise unexpected paths of production.

I

II

V

VI

I – VIII Stills from the movie *Psycho* by Alfred Hitchcock (1960)

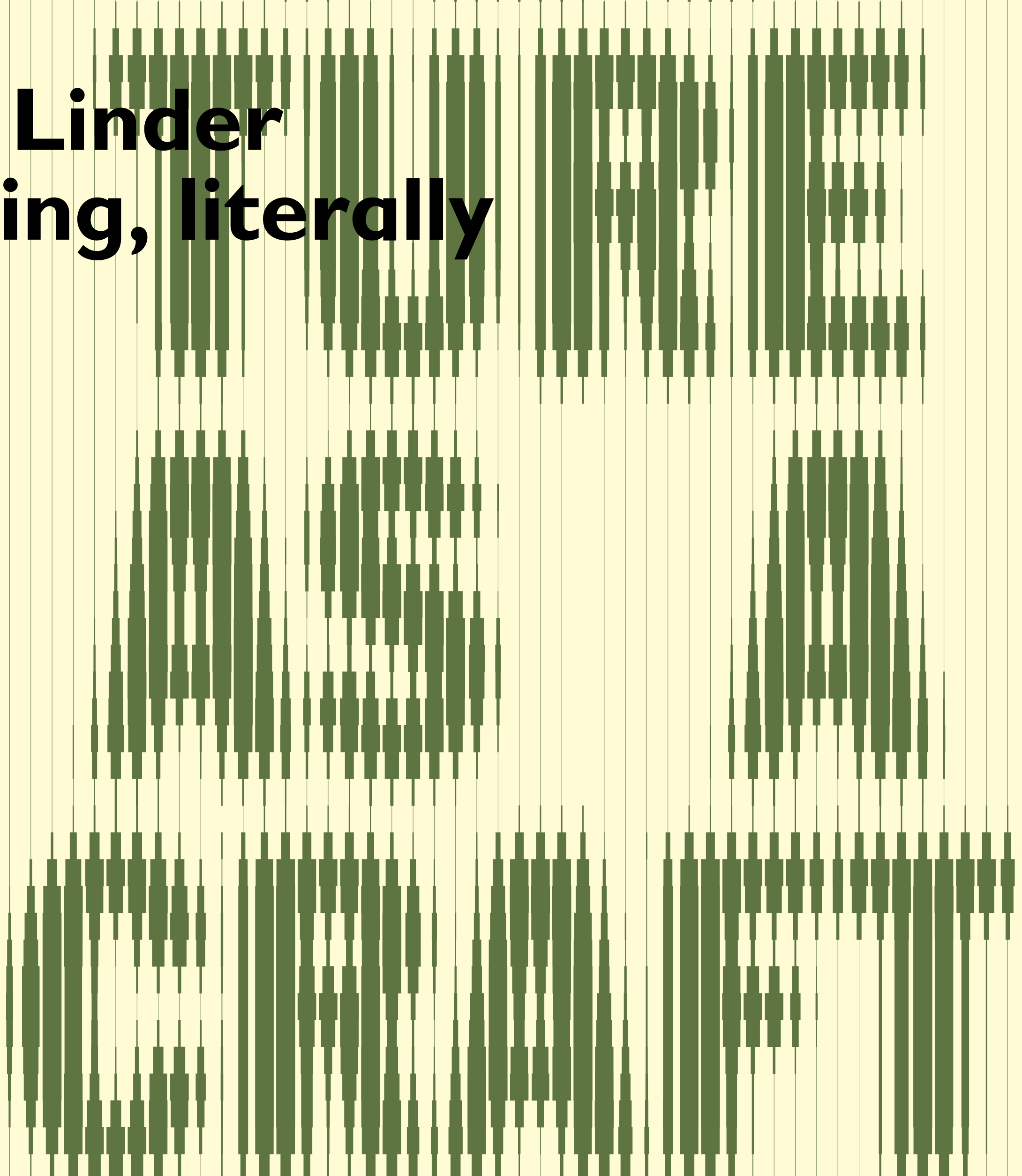
III

IV

VII

VIII

Mark Linder
Drawing, literally



Mark Linder is an associate professor of architecture and chair of graduate programs at the Syracuse University School of Architecture. He received his Bachelor of Science in Architecture from the University of Virginia in 1982, a Master of Architecture degree and a Master of Environmental Design (MED) degree from Yale University in 1986 and 1988, and a PhD in architecture from Princeton University in 1998. His research focuses on trans-disciplinary exchanges between art and architecture. His book, *Nothing Less than Literal. Architecture after Minimalism* (MIT 2004), examines the role of architecture in the emergence of minimal art in the 1960s. His latest book, *From Brutal to Literal*, on the work of Alison and Peter Smithson, John Hejduk and Walter Segal, is forthcoming. Linder is also the editor of *Scogin, Elam and Bray. Critical Architecture / Architectural Criticism* (1992) and has contributed essays to various publications, including *Strategies of Architectural Thinking* (1992) and *Autonomy and Ideology* (1997). He has participated in numerous symposia and conferences, including *Expertise* at Tel Aviv University (2009), *Seduction* at Yale (2007), *wanted* at Princeton (2001) and *Things in the Making* at the Museum of Modern Art in New York (2000).

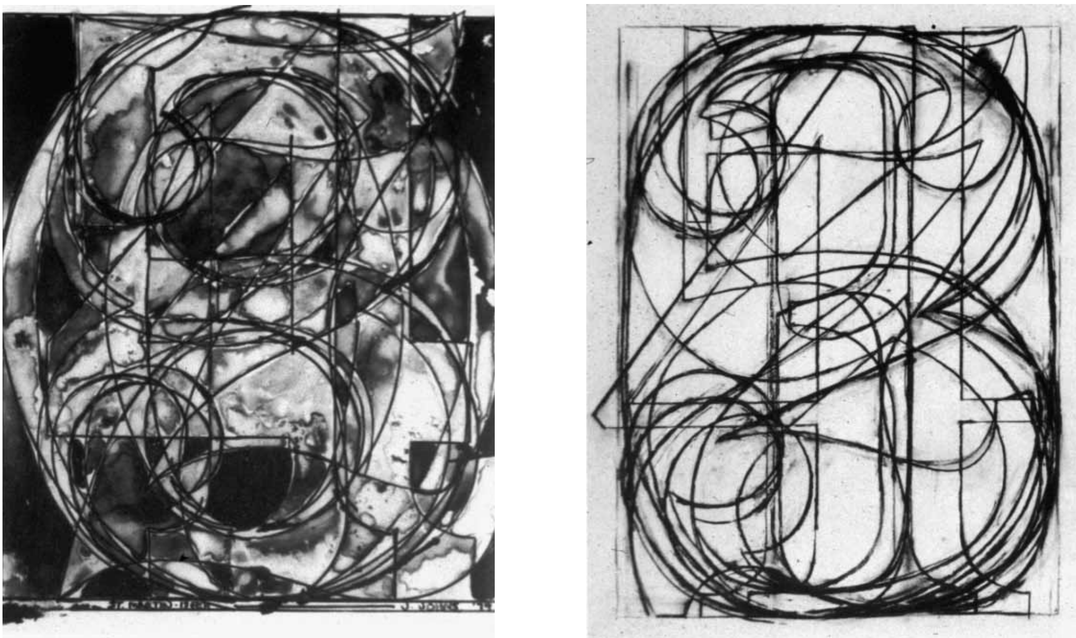
What is drawing, literally? Not long ago, this question invited a fairly straightforward answer: to drag (or draw, and thus to draft with) an implement across a flat surface. But in a digital era, the most common, pervasive and productive operations of drawing are literally virtual. As a result, drawing now is actually closer than ever before to realizing the theoretical significance and the complex productive potential of *disegno*, a term that has been central to architectural thinking since Alberti conceived it in the fifteenth century as simultaneously and ambiguously drawing and design, a thing and a concept, an artifact and an act, a physical and a mental operation. Digital media and production promise to fundamentally extend Alberti's formulation, and change (again, quite literally) the way architects draw and the way drawing produces the possibilities of architecture. In ways that are more multifaceted and obscure than ever, the two most basic theoretical questions, 'What does the architect do?' and 'How does architecture make its appearance?', provoke an interrogation of drawing and make it increasing necessary to ask: 'What is drawing, literally?'

What is a literalist approach? Literalism, literally, means 'of the letter' but its specific meaning varies in every discipline.[1] In mathematics, a literal is an equation that uses letters rather than numbers. In computing, a literal is virtually the opposite: an entity that defines itself, such as a fixed value in source code. In the arts, literalism can be defined as 'representation without idealization'. A literal image is one that depicts or refers with extreme specificity, not by being indexical like a photograph or a casting, but by being self-referential or by suggesting a series or repetition. Classic, didactic examples might include Jasper Johns's numerous drawings of numerals (as figures) or Frank Stella's early shaped-canvas stripe paintings. I II

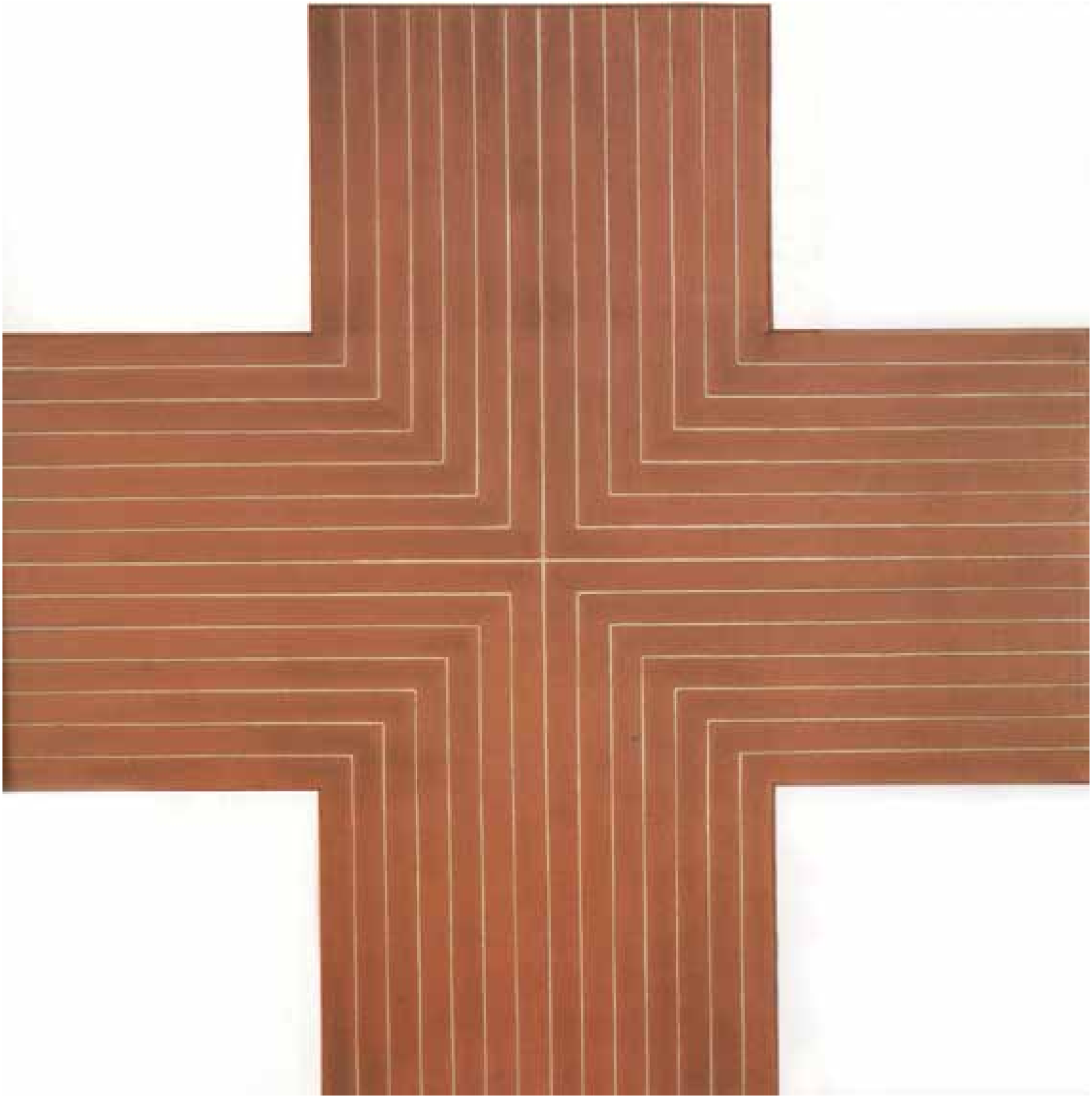
1 My primary source for these definitions is the *Oxford English Dictionary.*

I II

Despite their differences and contradictions, each of the preceding definitions adds complexity or depth to the most common (and objectionable) understanding of literalism as a direct, simplistic mode of meaning or interpretation. For example, the linguistic philosopher, Francois Recanati has criticized the claims of analytic philosophers that the 'meaning of sentences is determined by the rules of language' and he calls this literalism (though I would call it reductivism, and suggest that what Recanati calls contextualism is closer to



1 Jasper Johns, *0 through 9*, 1960, charcoal on paper, 737 x 584 mm, and *0 through 9*, 1979, ink on plastic, 302 x 273 mm



11 Frank Stella, *Ouray*, 1962, copper oil paint on canvas mounted on masonite, 64.8 x 64.8 cm

what I mean by literalism).[2] More popularly, literalism is usually defined as 'that sense or interpretation of a text which is obtained by taking words in the natural or customary meaning, and applying ordinary rules of grammar', a notion that usually is associated with religious fundamentalism (literal interpretations of the Bible) or, in the United States, the legal notion of 'original intent'. But neither approach delivers the certainty or fullness of meaning to which it aspires. Rather, both are radically *reductive* and thus deficient approaches. Literalism, as I will pursue it here, is based on other, more intriguing, approaches that began to be introduced in the middle of the twentieth century in the philosophy of Ludwig Wittgenstein and in the so-called 'ordinary language philosophy' of J.L. Austin and others who focused on 'speech acts' or 'usage' as the keys to meaning. The important of literalism to this approach emerged later, in the 1960s, in the work of Stanley Cavell who proposed multiple, original variations on literal uses as part of an approach that shows how 'what we ordinarily say and mean [has] a direct and deep control over what we can philosophically say and mean'.[3] According to Cavell, this 'is an idea which many philosophers find oppressive', but he suggests that the task of philosophy requires attention to what is nearest and seemingly most obvious. Philosophy can prove nothing, he claims, if proof means assuring agreement. Rather, 'all the philosopher, this kind of philosopher, can do is to express, as fully as he can, his world, and attract our undivided attention to our own.'[4] Literalism is one subject, and technique, of this approach, which aims to identify and scrutinize the most apparently unremarkable expressions or articulations of language, or any medium. Perhaps the most important aspect of this approach is the realization that locating or analyzing literalisms can not recover essential truths or realities, but is instead a kind of achievement, awareness or acknowledgment that is both therapeutic and liberating. Literalisms are a kind of appearance, or seeming, that is dependent on context. Statements, or things, *seem* literal. At best, the identification of literalisms recovers the latent potential of ways of mind or ways of working that are so common they have become naturalized or commonplace, and thus go unnoticed. But acknowledging these deep conventions mobilizes their potential in new ways.

A final philosophical point is especially crucial in a discussion of architectural drawing as 'representation without

2 Francois Recanati, *Literal Meaning*. Cambridge (Cambridge University Press) 2004, p. 3.

3 Stanley Cavell, 'Must We Mean What We Say?', *Inquiry*, 1 (1958), p. 172.

4 Stanley Cavell, 'Aesthetic Problems of Modern Philosophy', in: M. Black (ed.), *Philosophy in America*. Ithaca (Cornell University Press) 1965, p. 97.

idealization': the emphasis on literalism is an effort to avoid thinking, or thinking of thinking, in terms of mental images, cognition, self-expression, or psychologizing. As Cavell puts it: 'The strategy of literalization is: You say *only* what your words say.'[5] In other words, intention is not a matter of expressing inner thoughts or mental states, but a matter of action and transaction, of making an impression or an appearance. Similarly, communication is not a matter of reading others' minds, but of understanding and appropriately acknowledging others' words. This attitude appears in the way drawing is used or deployed in certain instances of 'conceptual art' which should not be understood as efforts to convey or represent concepts. Instead, these artworks are precise articulations that stake a claim or provoke actions. Mel Bochner's 'measurement rooms' are full-scale literalizations of the conventions of dimensional notation. Sol Lewitt's early wall drawings enact and record a logical set of literal operations. In both cases, the mode of drawing is explicitly architectural and literally inextricable from the architecture. Each refuses our presumption that drawing precedes architecture or that architecture can dispense with drawing.[III] [IV]

5 Stanley Cavell, 'Ending the Waiting Game: A Reading of Beckett's *Endgame*', in: Stanley Cavell, *Must We Mean What We Say? A book of Essays*. Cambridge (Cambridge University Press) 1969, p. 126.

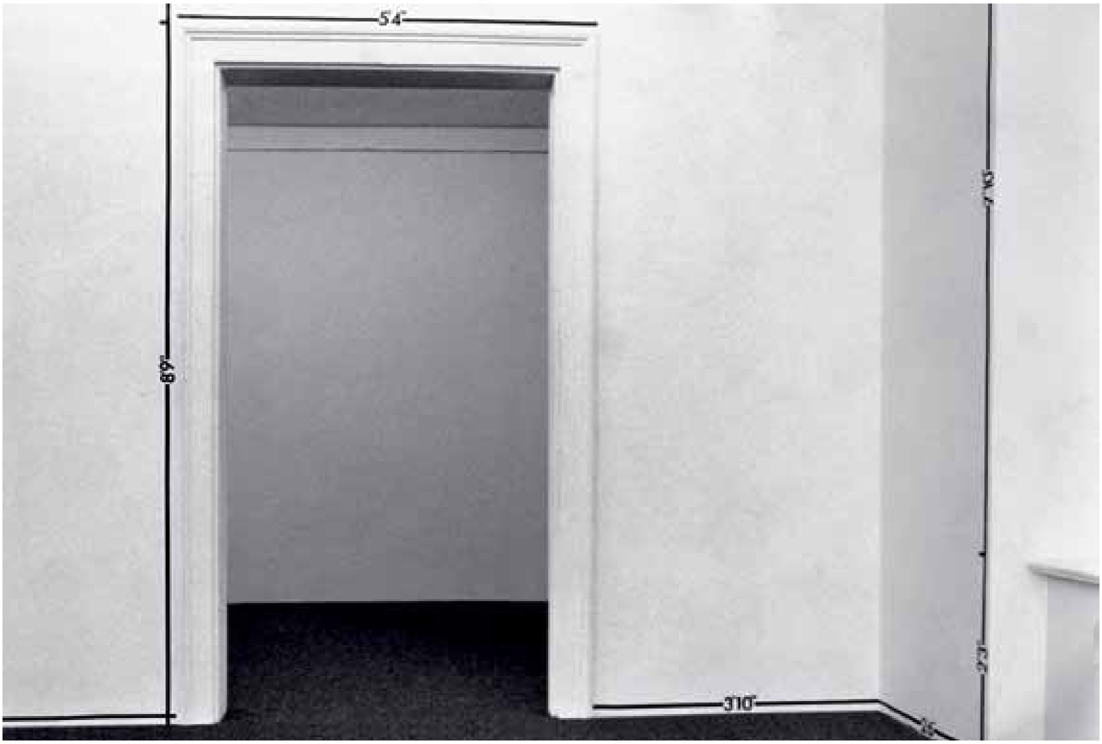
III IV

Bochner and Lewitt remind us that contrary to the all too common criticism, architecture never can be 'too literal'. Over and over we hear critics say, as if sophistication always trumps the obvious, and subtlety always beats crudity, 'I like what you're trying to do but it's too literal.' What I've come to believe is that ninety percent of the time what the critics really mean is that the work is too *reductive*, and the problem is *not* that the work is too literal, but that it's *not literal enough*.

First Literalist Axiom

Too Literal = Reductive = Not Literal Enough

If architects would aspire to produce work that is nothing less than literal, they would cease to perpetuate a peculiar denial that is deeply embedded in the discipline's techniques and discourses, sensibilities, design processes, modes of interpretation and representation, which persistently, and with great success, tend to deny architecture's most salient, and sometimes sala-



III Mel Bochner, Measurement: Room (at Galerie Heiner Friedrich, Munich), 1969

IV Sol Lewitt, *Wall Drawing #260*, 1975 (at The Museum of Modern Art, 2008), chalk on painted wall, dimensions variable cious, means and effects: its literalness. That denial is perverse. As much as any discipline, and much more than most, architecture relies upon its literalness to achieve credibility. Every discipline finds itself making elaborate denials of its most literal aspects, but architecture stands to gain the most by breaking the habit.

So, literalism is a specific, if perplexing, intellectual stance. The literary critic Susan Sontag offers guidance in her 1964 essay 'Against Interpretation' where she advocates an intriguing but *not quite* literalist method: 'What is needed is a vocabulary – a descriptive, rather than prescriptive, vocabulary – for forms' which would enable critics to offer 'a really accurate, sharp, loving description of the appearance of a work of art.' She argues that critics should strive for 'pure, untranslatable, sensuous immediacy', the result of which, she believes, would be the recovery of 'an erotics of art'. She endorses and solicits 'works of art whose surface is so unified and clean, whose momentum is so rapid, whose address is so direct that the work can be . . . just what it is'.[6] But of course the desire for art that actually is 'just what it is' or for criticism that can 'show *that it is what it is*' is a delusion, what Cavell would call a mistaken theoretical demand for absoluteness or concreteness.[7] Cavell's examples show that literalism is much, much more devious, excessive and puzzling than that.

Second Literalist Axiom
THIS IS THIS

Literalisms are particular, peculiar, dense, obdurate modes of abstraction that subscribe to the formula, 'this is this'. Abstraction in this sense does not involve reduction, as most definitions or conceptions of abstraction presume, for example 'removal of specific qualities to arrive at general features' (like platonic forms or ideas); 'apart from concrete existence'; or 'no specific instance'. Literal abstraction is not idealization. Literal abstraction occurs when the concrete instance seemingly coincides with the general.

Cavell offers a useful example in an essay on Samuel Beckett's *Endgame*, where he discusses what he calls 'hidden

6 Susan Sontag, 'Against Interpretation', *Evergreen Review*, 34 (December 1964), pp. 80, 93. Sontag's less polemical, or philosophically naïve, conclusion is: 'The function of criticism should be to show *how it is what it is*, even *that it is what it is*, rather than to show *what it means*.'

7 Cavell, 'Aesthetic Problems' (note 4), p. 78. 'This is the sort of thing that happens with astonishing frequency in philosophy. We impose a demand for absoluteness (typically of some simple physical kind) upon a concept and then, finding that our ordinary use of this concept does not meet our demand, we accommodate this discrepancy as nearly as possible.'*how it is what it is*, even *that it is what it is*, rather than to show *what it means*.'

literality'.[8] Cavell suggests that there is likely something to be learned by scrutinizing and playing out the conventional uses of those words in Beckett which (in Cavell's words) 'strew obscurities across our path and seem willfully to thwart comprehension; and then time after time we discover that their meaning has been missed only because it was so utterly bare – totally, therefore, unnoticeably, in view'. It is as though we have 'been willfully uncomprehending, misleading ourselves in demanding further . . . meaning where the meaning was nearest'. He explains that in Beckett, the characters often seem to speak in idioms – such as 'what in God's name' or 'for the love of God' – or metaphors – 'what is on the horizon?' – that are in fact, in the context of the drama, comprehensible as literal statements. Phrases that would seem like mild cursing or empty abstraction in other contexts can be taken as precise descriptions or revealing statements in *Endgame*. Thus, like Sontag, Cavell is against interpretation but he harbours no illusion about purity or immediacy or absoluteness.

A fascinating architectural example of hidden literality occurs in the first of Alberti's *Ten Books*. His literalist explanation of the origin of the column as a 'certain strong part of a wall' initiates the discourse on the classical orders in renaissance theory and after. Yet from Serlio to Durand, the increasingly abstract and convoluted attempts to determine the proper number, proportions and uses of the orders charts an evasive trajectory away from the overt literalism of Alberti's explanation of columns as 'nothing other than a wall that has been pierced in several places by openings', and thus as primarily and specifically structure in the same family of elements as piers and buttresses.[9] This astounding literalism is followed by, and I believe provokes and sustains, his most elaborate theoretical arguments: first, a complex understanding of structure, or *structura*, which is as ambiguous as *disegno* – simultaneously construction and order, material and form, physical and virtual – and second, a theorization of the column as simultaneously body and ornament, fundamental and supplemental.[10] For the next three centuries, the column would be the focus of theoretical debate, almost always through drawings, from woodcuts to etchings, with each medium revealing and generating new problems and paradigms. Yet the tendency of all of those images was to overlook the initial literalism of the column/wall in Alberti and to emphasize instead the issues of imitation

8 Cavell, 'Ending the Waiting Game' (note 5), p. 119.

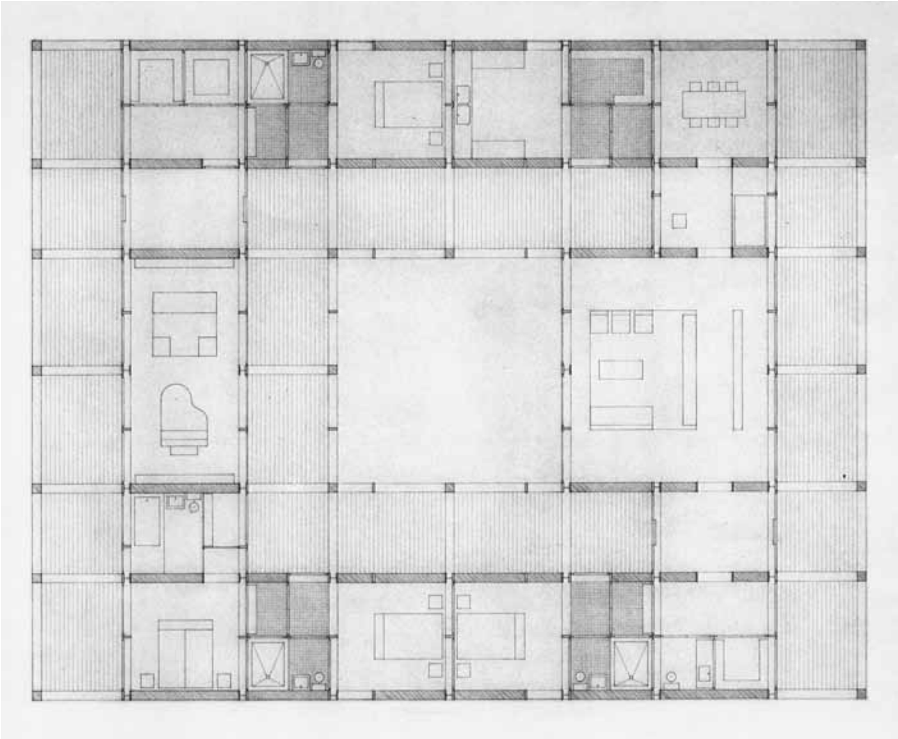
9 This passage occurs in Book 1, Chapter 10.

10 For a structuralist essay on the column/wall problem see Hubert Damisch, 'The Column and the Wall', *Architectural Design* (AD Profile 21), 1979.

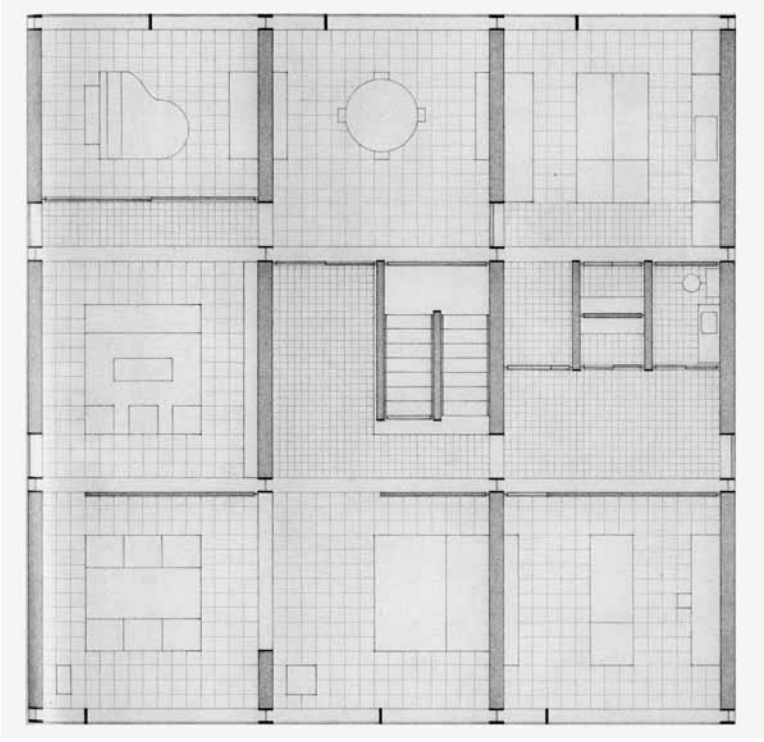
and the systems of proportion that occur in the later books of Alberti's treatise. This flight from literalism only increased over time. Eventually, when the ferocity of argument over the orders was beginning to wane, the column/wall problem returned with reductionist vengeance in both Laugier's *Essay on Architecture* (1753) – which polemically insists on a purely columnar architecture and the elimination of any structural role for the wall – and in Durand's *Précis des leçons d'architecture* (1809, his didactic lectures on design for the civil engineers at the École Polytechnique) – which radically dismisses the prior four centuries of debate on the orders only to reassert Alberti's column/wall in a reduced, feeble form, as an absolute reciprocity of walls and columns as merely lines and points disposed on a grid and inconsequentially interchangeable as elements in pattern-book *ensembles.* V VI

V VI

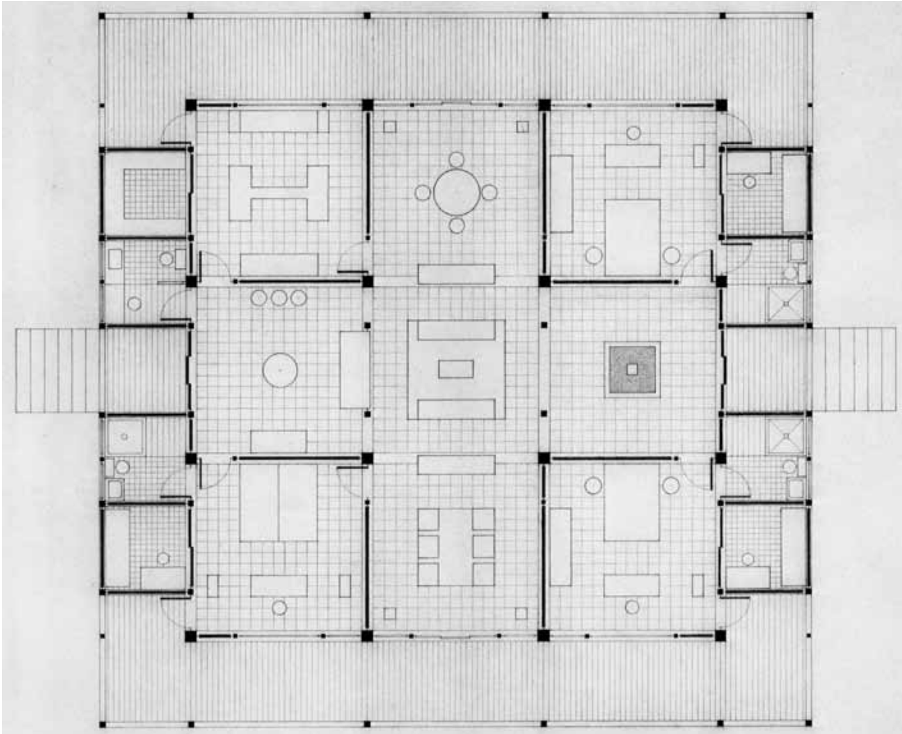
Still, there are exceptional examples of architecture that successfully recuperate the potential of Alberti's literalism: two of the most profound are Michelangelo's embedded columns in the entry to the Laurentian Library in Florence and Schinkel's façade of the Altes Museum in Berlin. Another is John Hejduk's Texas Houses (1954-1963), a series of drawings that meticulously examines the column and wall as conjoined structural elements and spatial devices. The plans in that series exemplify literal abstraction and aspire to the same coincidence of building and drawing, element and assemblage, material and form that Ludwig Mies van der Rohe achieved in the steel and brick architecture at the Illinois Institute of Technology in Chicago (where, unfortunately, Mies's literalism was reduced to pedagogical dogma). Contrary to the dominant modes of modernist abstraction from De Stijl to Le Corbusier (Hejduk has famously remarked that 'The Texas Houses are not Modern'), architecture is literally represented by Hejduk's drawings which do not exceed or elide the limitations that would be imposed by the material limitations of building. Instead they aspire to achieve the effects of specificity and assembly that would be inevitable in building: the drawing and the building seemingly coincide. Stan Allen has noted that this attitude continues in Hejduk's later series of 'little mechanical houses' including the Dilemma House of 1976 which Hejduk has called 'perhaps the most abstract I have attempted'. Allen writes: 'This is not an abstract projective operation, but a concrete series of operations, performed as if the elements were



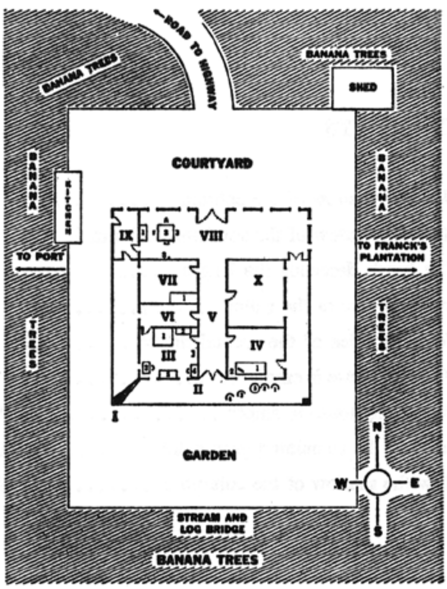
V John Hejduk, Texas House 3, plan, 1954-1960



VI John Hejduk, Texas House 4, first floor plan, 1956-1960



VII John Hejduk, Texas House 2, first floor plan, 1954-1958



LEGEND

I. Southwest pillar and its shadow at the beginning of the novel.
II. Veranda: 1) Franck's chair. 2) A . . .'s chair. 3) Empty chair. 5) Cocktail table.
III. A. . .'s room: 1) Bed. 2) Chest. 3) Dressing table. 4) Writing table. 5) Wardrobe.
IV. Office: 1) Desk. 2) Photograph of A . . .
V. Hallway
VI. Bathroom
VII. Small bedroom: 1) Bed.
VIII. Living room — dining room: 1) Sideboard. 2) Table. 3) Mark of centipede on wall.
IX. Pantry.
X. Storage room or other (not described).

VIII From Alain Robbe-Grillet, *Two Novels by Robbe-Grillet:* Jealousy *and* In the Labyrinth. Translated by R. Howard, New York (Grove Press) 1989, pp. 36-37 *already* material. . . . [I]n Hejduk's work, form is the result of a series of simple and direct manipulations of the concrete elements of the form itself. For all its formal precision, this not a *geometrical* operation, but rather a *plastic* operation.'[11] In the Dilemma House, the That is That House, or the Texas Houses, how do we separate the drawing and the building? As Bob Somol explains, 'Hejduk enumerates specific utterances, performing architecture's parole, suggesting there can be no abstracted ideal, no generalized theory of architectural meaning, divorced from its particular embodiment.'[12] In other words, Hejduk's approach to drawing and to architecture is analogous to Cavell's pursuit of ordinary language philosophy. We might think of Hejduk's project as an achievement of the literal in the ordinary language of modern architecture. Hejduk's drawings are not pictures, not images, not compositions. They are fully plans: 'Hejduk' says only what his plans say. VII VIII

11 Stan Allen, 'Nothing but Architecture', in: M. Hays (ed.), *Hejduk's Chronotope*. New York (Princeton Architectural Press) 1996, p. 90.

12 R.E. Somol, 'One or Several Masters?', in: *Ibid.*, p. 103.

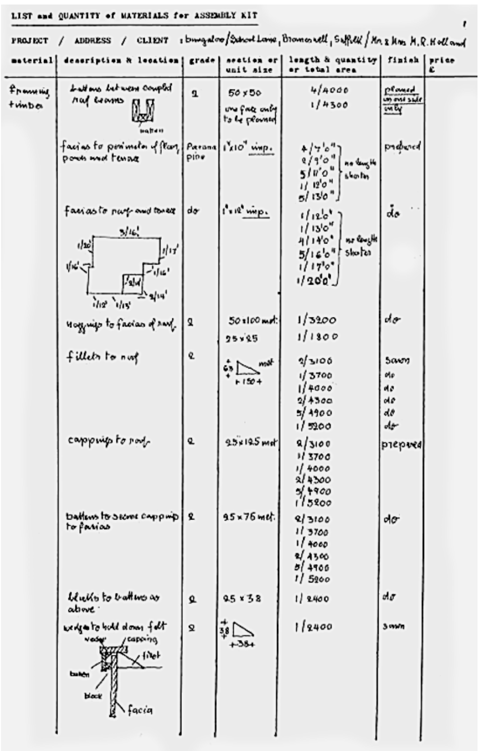
VII VIII

Understood in this way, there is an uncanny resonance between the Texas House drawings and the descriptive methods of the novels of Alain Robbe-Grillet which evacuate any trace of the narrator's consciousness. In his third novel, *Jealousy* (1957), architecture is presented as the main character of the novel: the events of the story are described always in relation to the features of the house and its landscape. The book opens with a description of a column that 'supports the southwest corner of the roof' and proceeds to explain how its shadow marks time: 'at this moment the shadow of the outer edge of the roof coincides exactly with the right angle formed by the terrace and the two vertical surfaces of the corner of the house'.[13] But in fact, the house is first described in a drawing: an annotated diagram of its plan, including the column's shadow (but no others), the furniture mentioned in the text and the house's immediate site, which appears on the pages immediately before the text begins, serving notice that architecture will be not only the subject of the book, but a model for its form and modes of representation. There is an amazing formal correspondence between Robbe-Grillet's diagram and Hejduk's plans, especially House 2 (1954-1958) which begs for a literalist analysis of their differences in the contexts of modern architecture and the modern novel. IX

13 Alain Robbe-Grillet, *Two Novels by Robbe-Grillet:* Jealously *and* In the Labyrinth. Transl. R. Howard, New York (Grove Press) 1994, p. 39.

IX

A comparison of the drawings of Hejduk and those of Walter Segal is also intriguing. Segal pursued an equally

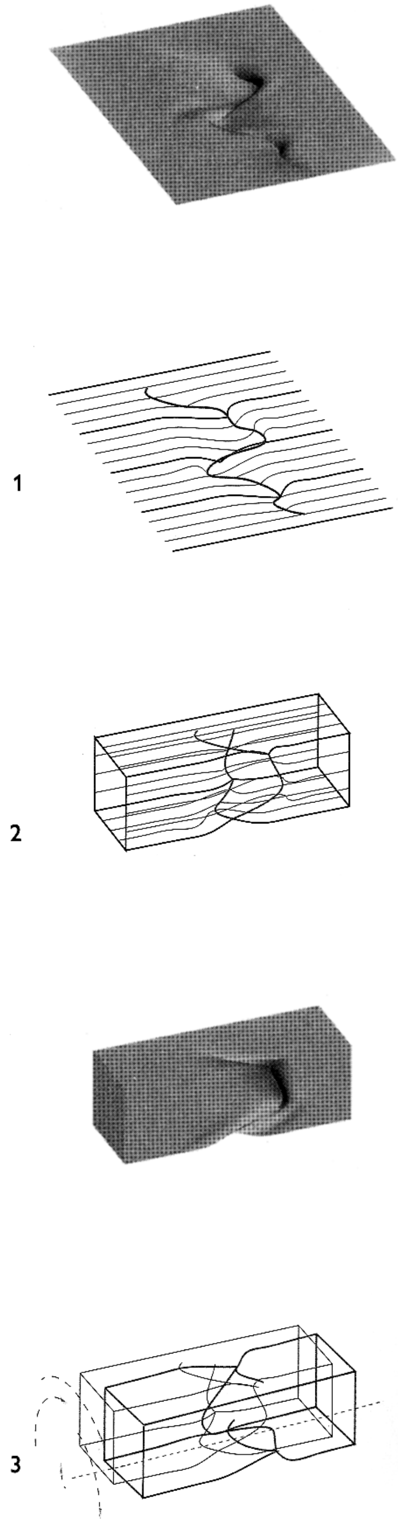


LIST and QUANTITY of MATERIALS for ASSEMBLY KIT

PROJECT / ADDRESS / CLIENT : bungalow/School Lane, Bramswell, Suffolk/Mr & Mrs M.R. Holland

material	description & location	grade	section or unit size	length & quantity or total area	finish	price £
framing timber	battens between coupled roof beams (batten)	2	50 x 50 one face only to be planed	4/4000 1/4300	planed on one side only	
	facias to perimeter of floor, porch and terrace	Parana pine	1"x10" nmp.	4/7'0" 2/9'0" 5/11'0" 1/12'0" 5/13'0" no length shorter	prepared	
	facias to roof and terrace (3/16' 1/20' 1/17' 1/16' 1/16' 1/21' 2/14' 1/12' 1/13')	do	1"x12" nmp.	1/12'0" 1/13'0" 4/14'0" 5/16'0" 1/17'0" 1/20'0" no length shorter	do	
	noggings to facias of roof	2	50x100 mat: 25x25	1/3200 1/1800	do	
	fillets to roof	2	63 150 mat	2/3100 1/3700 1/4000 2/4300 5/4900 1/5200	sawn do do do do	
	cappings to roof	2	25x125 mat	2/3100 1/3700 1/4000 2/4300 5/4900 1/5200	prepared	
	battens to secure capping to facias	2	25x76 mat.	2/3100 1/3700 1/4000 2/4300 5/4900 1/5200	do	
	blocks to battens as above	2	25 x 38	1/2400	do	
	wedges to hold down felt (wedge, capping, fillet, batten, block, facia)	2	38 38	1/2400	sawn	

IX Walter Segal, List and Quantity of Materials for Assembly Kit, Holland House, 1971



X Preston Scott Cohen, House on a Terminal Line, 1997-1999 ingenious, if less sophisticated, approach to architectural drawing that he devised in order to pursue his aim to design and build modern houses in ways that were so radically simple, so dependent on readily available materials and techniques, so efficient and economical that anyone could afford and build one. His attitude was far from merely practical: he believed that the promise of modern architecture could be realized by ordinary people working at the scale of the individual house. His responsibility as an architect, as he saw it, was to focus on control, efficiency, clarity, speed, completeness, and objectivity, and thus bypass the habitual and legal complications of the typical professional practice. He asked, 'How then does a one-man firm run? . . . by simplification, shortcuts, extreme centralization and sharp eye on economy.'[14] To achieve this, he produced unusually literal drawings. 'The working drawings too are freehand, quite mechanical without any embellishments. All sizes are given. Longhand lettering and dimensioning, large and legible.' For the structure of each project Segal made no more than a dozen A4 pages of calculations for frames and in 1970 took an interest in the computer as a way to achieve further efficiencies. At that time he wrote that he looked forward to

> *a time when the single highly-geared architect, powered by modern methods of documentation and administration provided by [computing] apparatus, will be in a convenient position to tackle the work load of the present day mammoth office using traditional methods. Then the re-individualized architect with power at his disposal and tools for his work (which consist of apparatus and not of management techniques) will be able to devote himself again fully to the job of designing in freedom: and in freedom it will be, as those that already have a taste of operating building methods of greater variability than traditional techniques know well.*

Segal did not persist with his interest in computing but he did anticipate the role computing would eventually play in the profession. If Segal's obsession was the one-man office, the current obsession is the one-drawing office. Segal's A4 sheets operate according to the same model of integrated information that exists in REVIT or other building information modeling (BIM) programs. Segal and BIM are both motivated by a desire to control and integrate information and standardize its transmission. But Segal insisted on a kind of literalism that allows us to see

14 All quotations are from John McKean, *Learning from Segal. Walter Segal's Life, Work and Influence*. Basel (Birkhäuser) 1989, pp. 116, 120, 124.

the craft of the drawing and the craft of building, especially in a digital age, as convergent and continuous. His project reminds us that computing not only offers new challenges and opportunities for experimentation, speculation and innovation, but also to deliberatively scrutinize the presumed fundamental forms of expertise, production and knowledge that define the discipline of architecture and, hopefully, to understand the specifically architectural potential that is latent in, or confounded by, software. X

X

What is the digital equivalent to Alberti's wall/column proposition? Scott Cohen's Terminal Line house suggests one possibility: the line/surface. If a column is nothing other than a discontinuous wall, a terminal line is quite simply a discrete event in a surface, and is as fundamental to the topological world of digital modeling as the column/wall was to Alberti's. More important, both BIM and Cohen demonstrate that we are entering an era where Robin Evans's brilliant examination of the 'translations from drawing to building' is becoming obsolete. While the variance between the drawing and the building is still great, and drawing remains the dominant mode of architectural production, a crucial change is that computation, coding, data, and CNC fabrication allow a potentially seamless movement from description to construction. Rather than translations from drawing to building, we now move directly, even literally, from modeling to fabrication, potentially without translation. Or at the very least, we are approaching a situation in which the difference between drawing and building is no longer the same sort of problem. Rather that questions of the subjective basis of imagination and judgment, there are new problems of procedure and protocol that require collective or collaborative transaction. The digital model, whether in REVIT or Rhino, is not a source of meaning and interpretation but a device of applications and usage that offers the technical means for the constructed artifact to be adequately (if not completely) articulated as information. Of course it would be foolish to suggest that a digital model is the same as a building, but it may be just as good. The literal digital sides neither with the virtue of reality or its virtual simulation. More than ever the tired truism that you have to actually experience a building to fully appreciate it as architecture is virtually obsolete.

Emre Altürk
Drawings that take sides

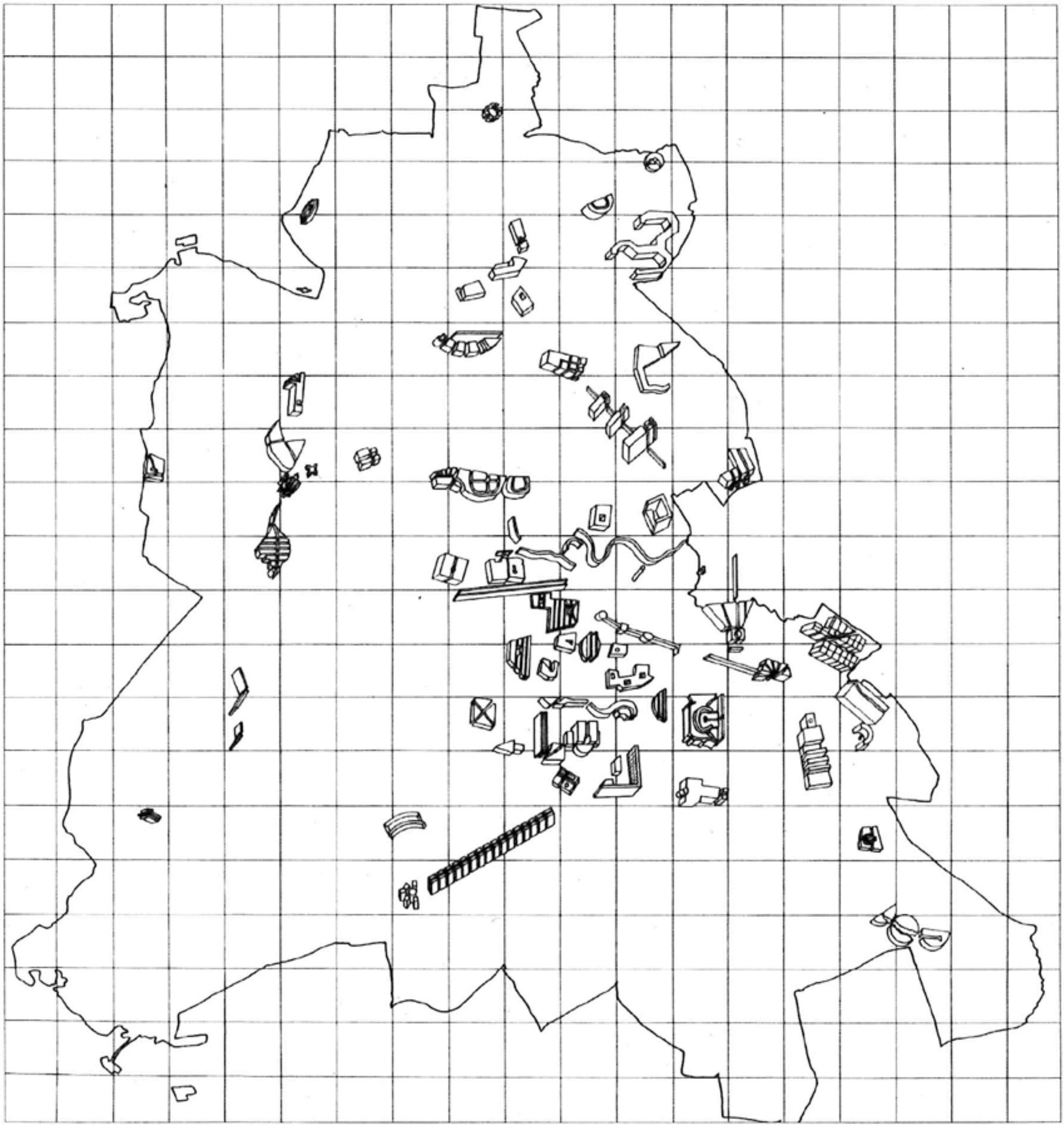
Emre Altürk is an architect and assistant professor of architecture at Delft University of Technology. He received his degrees from METU, Ankara (MArch, 2004) and TU Delft (PhD 2009). He worked for several architecture offices in Ankara. He has been running his own office since 2007 with Melis Gürbüzbalaban. His research interests pivot around two topics: the architectural discourse on the city and the architectural drawings – or more generally the representation of architecture in various visual media. He teaches design and theory courses at the chairs of Building Typology and Public Building.

Most architectural drawings are produced to facilitate the design and the production of the buildings. In this short text, I dwell on some that are not. More specifically, I dwell on some drawings that are deployed to reflect and speculate on the existing architectural production and the built environment; drawings that operate as non-verbal arguments on their context.[1]

I I

The drawings that play such a role are usually of an analytic nature. By that, I mean, e.g., the drawings that break down a formal organization to its constituting parts in order to study their relation; the drawings that abstract a building to its generating diagram or type; the drawings that look for the organizing geometries of a structure; or the drawings that map the specific features of a built environment or the specific behaviors of its users. It is true that registering and representing the actual three-dimensional world through drawings always require both coding and an active mediation that is selective and explorative. Even photographs, which are usually taken as the mute and acute representations of things, do manipulate their objects. The 'analytical drawings', nevertheless, go over a crucial threshold and rather than providing with mere delineations, they manifestly parse and reconfigure their objects in order to understand them. They facilitate contemplation. But there seems to be more than one threshold on that scale. While the analytical drawings do transform their object, since they simply aim to comprehend it, they are usually bound up with it; they are bound up with its elements, system, and context. And there are those drawings, which, rather than merely try to understand their object, develop an explicit argument through it.

1 The material presented in this short essay draws heavily on my PhD research completed at the TU Delft: *Drawing Architecture Theory on the City*, 2009.



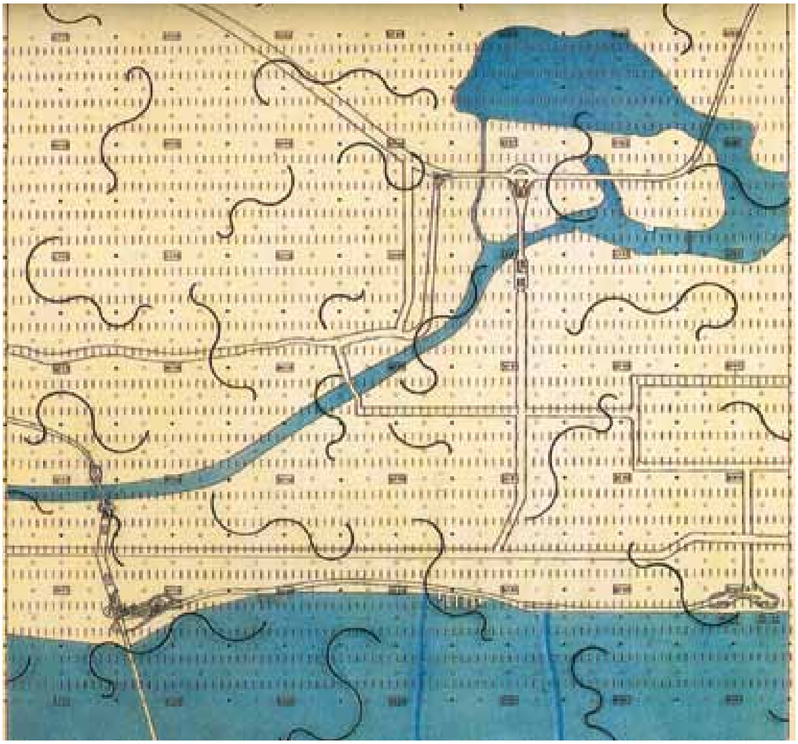
1 Oswald Mathias Ungers, Hans Kollhoff, Rem Koolhaas, Arthur Ovaska, Peter Riemann, Städte in der Stadt, drawing, 1977

By that, I mean, e.g., the drawings that mobilize questioning by changing the syntax and the signification of their object; the drawings that compare, juxtapose, superimpose their objects; relate them to other discourses; shift their context; isolate and exaggerate their elements; render their specific qualities visible or offer alternative readings. I will call such drawings given to theorizing, the 'speculative drawings'.

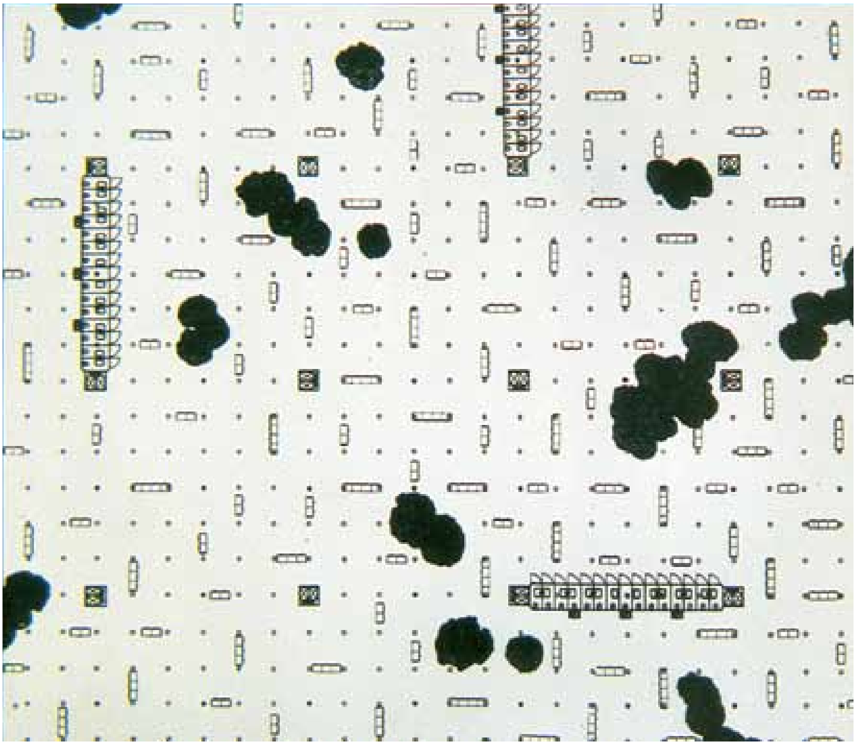
Like all architectural drawings, the speculative drawings too utilize the eminence and immediacy of the graphical means in describing form. They too visualize buildings, spatial models, or urban scenarios. But not for building them. They rather do so in order to make a point, to demonstrate an argument, to offer an interpretation, in any case, to take a position. So, such practices still benefit from images for imagining, much the way drawings are deployed in design, in order to attain results 'beyond the reach of unaided imagination'.[2] However, said images are meant to transform the architecture theory rather than the built environment. Distancing the drawing from its operational uses in the building processes liberates it, encourages it to engage in discursive relations within the discipline or symbolic relations with the rest of the world, which is a privileged position that is historically granted almost exclusively to the building.

This 'distancing' obviously does not entail the total disembodiment of the drawing from its operationality in design nor does it undermine the drawings' descriptive and analytic roles in theory. In fact, the speculative drawings cannot operate without the more common roles of the drawings in design and theory. Much the way the visual media have a specific capacity in facilitating cultural

2 Robin Evans, 'Translation from Drawing to Building', *AA Files*, 12 (Summer 1986), p. 14. Also published in: *Translation from Drawing to Building and Other Essays*. London (Architectural Association) 1997, pp. 153-194.



II Archizoom Associati, Diagramma Abitativo Omogeneo, drawing, 1970



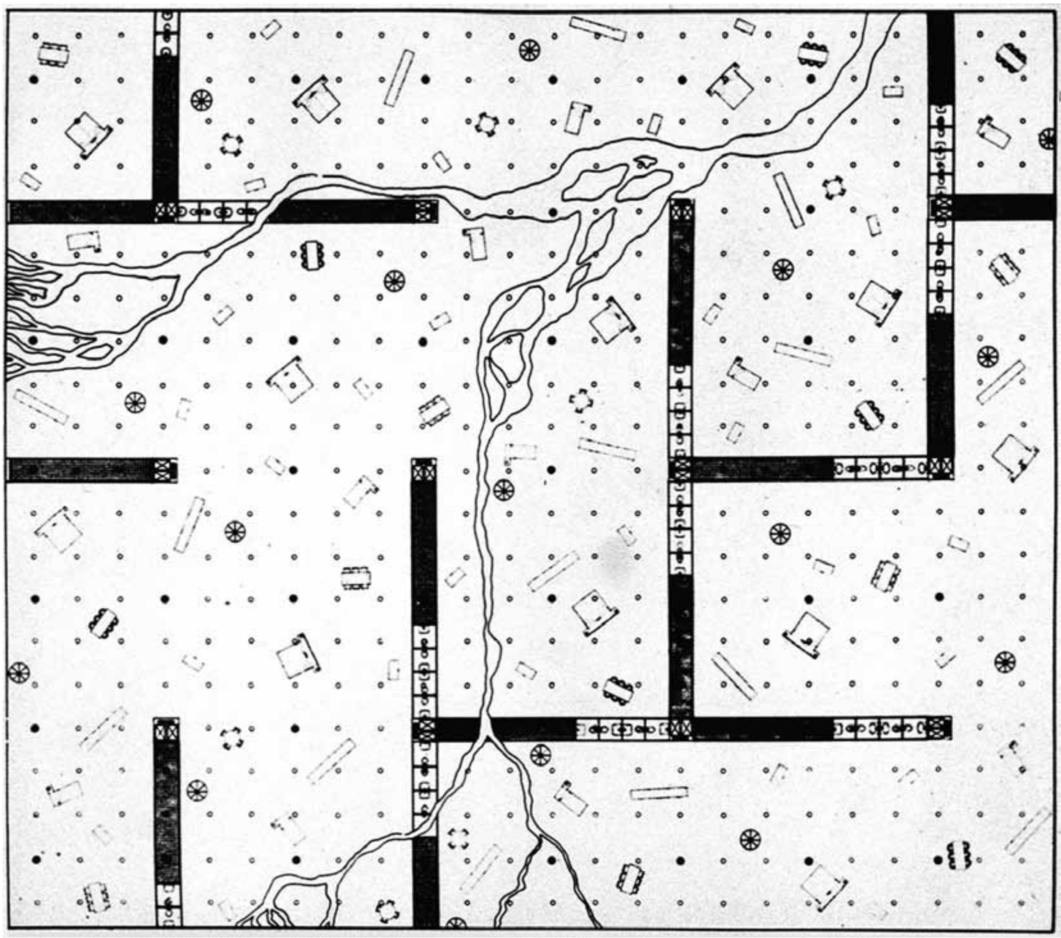
III Archizoom Associati, Diagramma Abitativo Omogeneo, drawing, 1970 and political criticism because of their own prominence in the production, dissemination, and perpetuation of culture, drawings too offer a similar capacity in architecture because most architectural practices are carried out in drawings and much of the architectural knowledge consists of and disseminated through the visual media. The speculative drawings, being akin to other visual elements of the architectural discourse, have an immediacy in bringing them together. They have the capacity to assemble architectural elements so as to form a montage that has theoretical signification. Yet, even more importantly, the particular specificity that the speculative drawings offer for the theoretical practices is that by means of such drawings one can engage a theoretical issue through the architectural form, within the formal vocabulary of the discipline. Similar to their cousins deployed in design, speculative drawings deployed in architecture theory provide a facilitating medium not only for ideation, but also for testing, criticism, and self-criticism through the architectural forms. Here the capacity that drawings are deployed differs from the drawings' most common use in theory: illustrating the written text where the argument actually unfolds.

II III IV

II III IV

The body of drawings that I would like to dwell on within this context is that of No-Stop City by Archizoom Associati.[3] The group acknowledges the aforementioned specificity that drawings bring to a theoretical practice right at the outset of the project. The written text and the drawings are positioned as complementary media. The written text is posited as the more 'conventional medium' for developing a theory on a particular urban condition. And the

3 Archizoom was a group of Florentine architects founded in 1966 by Andrea Branzi, Gilberto Corretti, Paolo Deganello and Massimo Morozzi. The group later also comprised Dario Bartolini and Lucia Morozzi. Archizoom worked on the No-Stop City between 1969 and 1972. The project was published for the first time in *Casabella* in 1970: Archizoom Associati, 'Città, Catena di Montaggio del Socialel: ideologia e teoria della metropoli' / City, the Assembly Line of the Social: ideology and theory of the metropolis', *Casabella*, 350-351 (July-August 1970), pp. 43-52. It is possible to trace the ideas presented there back to 'Archizoom: Discorsi per Immagini 13 / Archizoom: Speaking through Images', *Domus*, 481 (December 1969), pp. 46-48. The later publications include: Archizoom Associati, 'No-Stop City, Residential Parkings Climatic Universal System', *Domus*, 496 (March 1971), pp. 49-54; 'Archizoom Associates: No-Stop City (1969-72)', in: Martin van Schaik and Otakar Máčel (eds.), *Exit Utopia: Architectural Provocations 1956-76*. Munich (Prestel) 2005, pp. 157-190; Andrea Branzi, *No-Stop City, Archizoom Associati*. Orléans (Editions HYX) 2006.



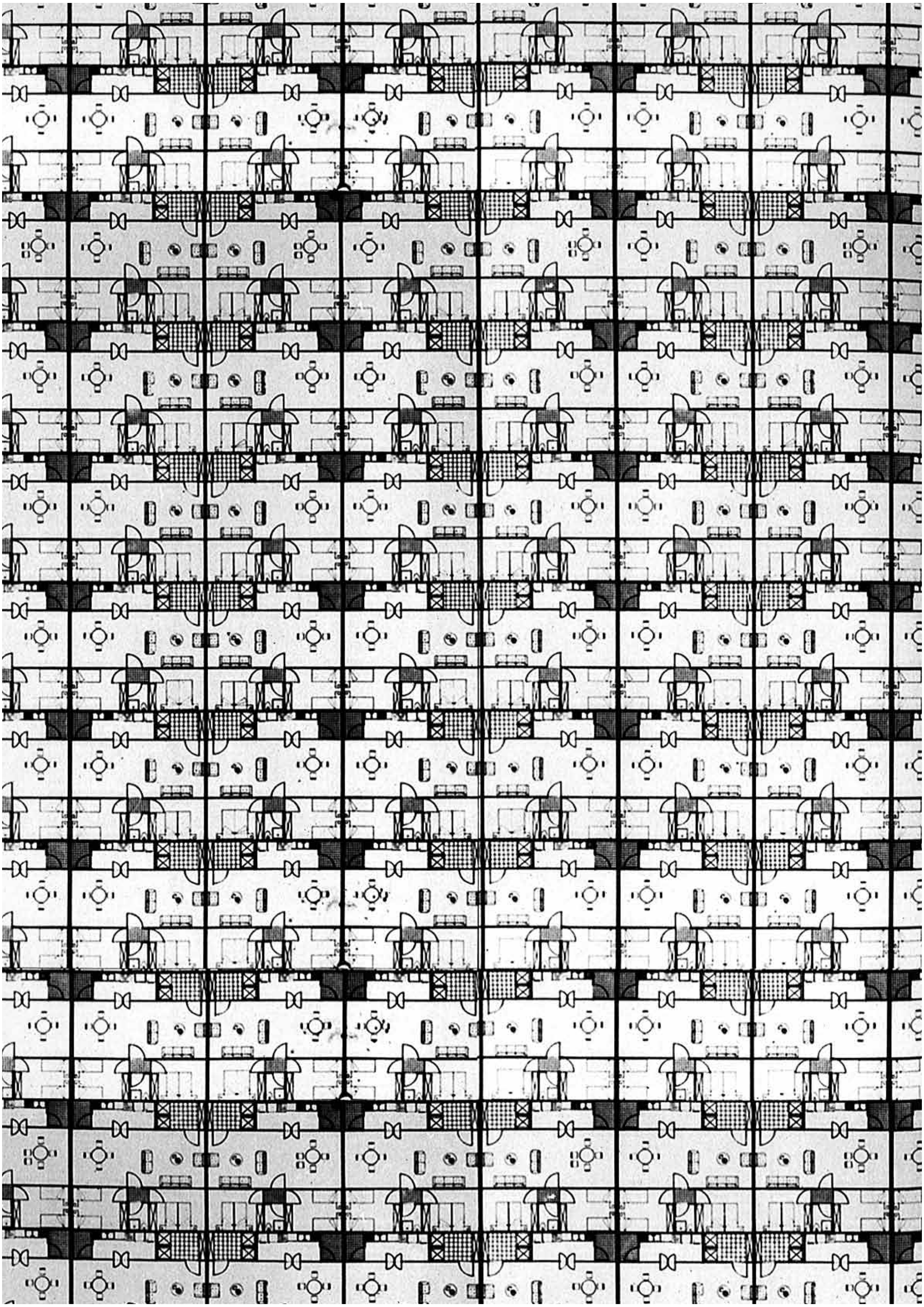
IV Archizoom Associati, Diagramma Abitativo Omogeneo, drawing, 1970 drawings, the medium that is more 'specific' and 'closer to the discipline', is deployed to elaborate the same theory on an architectonic level, which would be 'impossible to elaborate in another medium'.[4] The text and the drawings do indeed operate in different and complementary ways. The text hypothesizes an urban condition and the drawings investigate this condition through form, develop its spatial counterpart, and radicalize it to render it visible. The drawings, as basic and unpretentious as they are, inevitably are more multivalent, open to various readings. Whereas text frames their signification, limits the possible readings, and anchors them to the specific discourse of the group.[5]

The expressions in the text are certain; the language is that of manifestos. It starts with the bold declaration of what the group identifies as the essence of the contemporary big city: 'As a physical and social phenomenon the metropolis derives from the Capital and develops in line with its logic.'[6] For Archizoom the city ceased to be a 'place' as we know it and became a 'condition' that is organized by the capital and determined by the logic of the mass production and consumption. So the city could be best understood through the notion of quantity rather than the qualitative categories associated with the notion of place. In this sense, as Andrea Branzi put more succinctly later, the city is essentially 'a bathroom in every 100 meters, or a computer in every 40 meters'. Yet the cultural processes including architecture 'mystify' the logic of the city and prevent one from recognizing it for what it is. And this is the precise target of the project: 'to demystify the logic on which the bourgeois city was based', and thus deploy a Marxist critique of the capitalist city. In this sense, the project amounts to a 'Theory' on

4 'Per compiere tale operazione noi utilizziamo un linguaggio classico scritto, ed uno grafico, più strettamente disciplinare. Il primo ci fornisce strumenti di analisi ampiamente collaudati; il secondo ci permette una elaborazione creativa dei risultati del processo stesso. Ma la creatività in questo caso è rappresentata solo dall'uso del linguaggio architettonico ad un livello esplicativo diretto, altrimenti impossibile.' Archizoom, 'Città' (note 3), p. 44.

5 Here I dwell on Roland Barthes's notion of 'anchorage', see 'Rhetoric of the Image', in: Roland Barthes, *Image, Music, Text*. Ed. & transl. Stephen Heath, London (Fontana Press) 1977, pp. 32-51.

6 Archizoom, 'Città' (note 3), p. 43. The capital letters are original.



V Archizoom Associati, No-Stop City, drawing, 1971 the existing city rather than being a 'proposition for an alternative one'.[7] The decision of critically engaging with the existing city rather than proposing a new one stems primarily from the ideological position of Archizoom: 'Just as there is no Economy Politics of the Class but only Class Criticism of Economy Politics, there is no Urban Theory of the Class but only Class Criticism of Urban Theory.'[8]

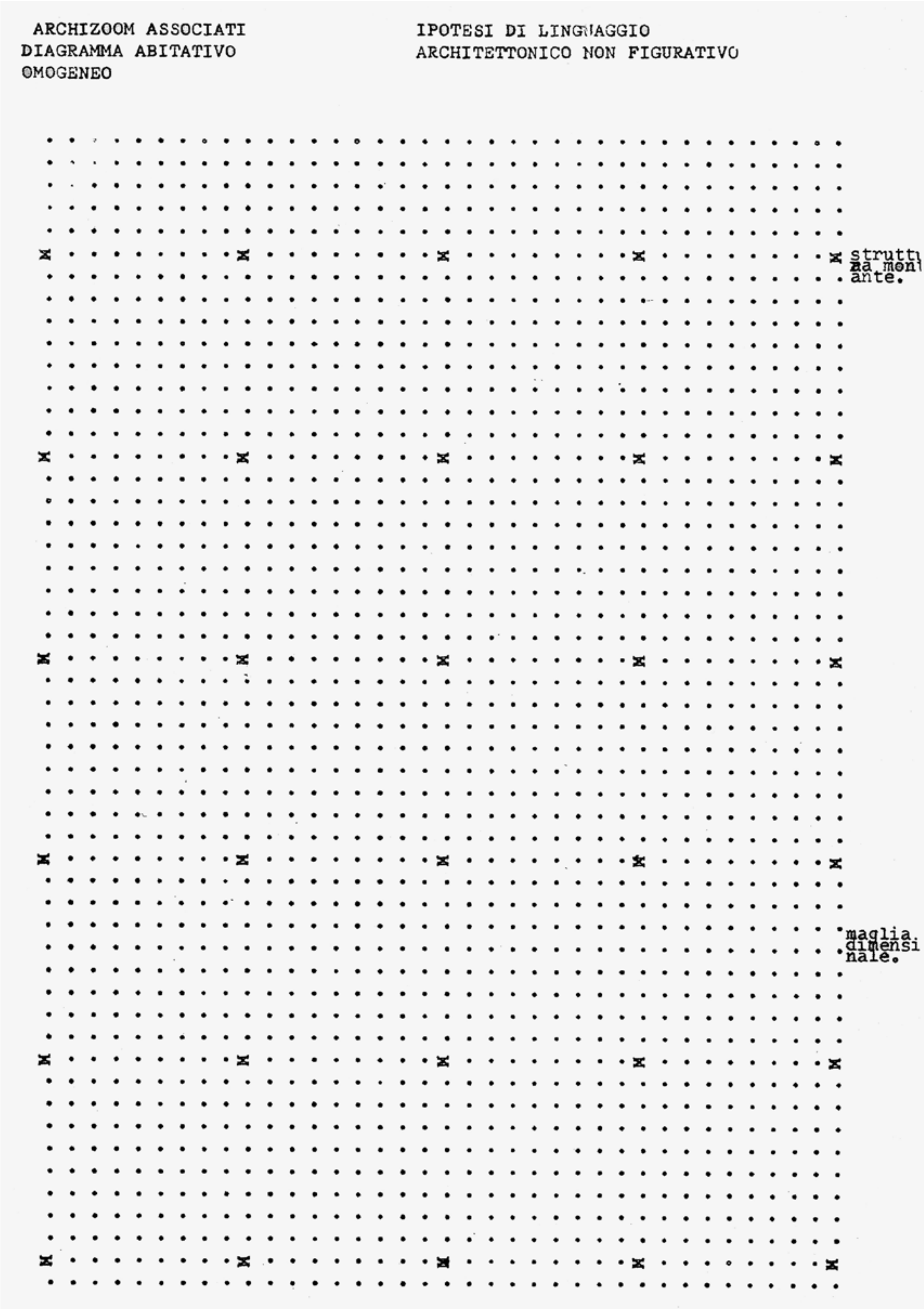
V V

Engaging the city, Archizoom claims to deploy one of the most conventional architectural means on the subject, the utopia.[9] However, although No-Stop City has affinities with utopia, it radically transforms the conventional sense of the term as it is established in the discipline.[10] The basic characteristics of utopia can be defined as: 1. the radical criticism of the existing society and the existing space, 2. the proposition of a model society and a model space.[11]
In architecture, many schemes have been developed within this paradigm. Mainly starting in Renaissance and proliferating during the industrial revolution, architecture did not suffer from a shortage of the visions of the 'ideal city', the spatial model that lies at the heart of the utopia. Moreover, it is not that contentious to propose that all architectural projects are in a way akin to utopia, understood in the simplest terms as a hypothetical better place yet to be produced. Both the actual paradigm of the utopia and the architectural common sense are consciously deformed by Archizoom. By means of the written text, No-Stop City offers an account and forges a criticism of the existing capitalist society and the existing city. As far as the second half of the utopia paradigm is concerned, the project offers a model by means of the drawings. This 'Urban Model, how-

7 'Di una Teoria dunque, si tratta, e non di una proposta "alternative"'. Archizoom, 'Città' (note 3), p. 44.

8 'Come "non" esiste una Economia Politica di Classe, ma solo una Critica di Classe all'Economia Politica, così non esiste una Teoria Urbanistica di Classe, ma solo una Critica di Classe alla Teoria Urbanistica.' *Ibid.* This decision also has to do with the period the project is from. One could argue that in late 1960s and early 70s the city was repositioned in the architectural discourse and that after this period architecture theory has gradually been less occupied with the alternative urban models intended to replace the existing city and has more comprised the efforts of understanding the actual city in order to operate within it.

9 'Utopia' initially started its life as a proper name coined by Thomas More referring to the hypothetic settlement articulated in his 1516 book, which later came to be known shortly as *Utopia* (originally *Libellus vere aureus nec minus salutaris quam festivus de optimo reipublicae statu deque nova Insula Utopia*). The word is derived from the Greek *topos* [place] and prefixes *ou-* [non] and/or *eu-* [good].



VI Archizoom Associati, Diagramma Abitativo Omogeneo, drawing, 1970 ever, does not represent the alternative to present reality, but present reality at a new level of Critical Awareness'.[12] So this model is neither totally non-existing nor necessarily any better. On the contrary, it simply exposes the very logic that produces the city.

VI

No-Stop City is the ideal model or the blueprint of the existing city. In this sense, the second part of the utopian paradigm is folded back on the first part and deployed as a filter that strips the existing city from the qualities that mystify it; a filter that enables a better and truer sight of the city. The model exposes the essential logic behind the city in its uncompromised state. Doing so, No-Stop City overlaps with the factory, the supermarket, and the parking lot. For it is in these places, Archizoom asserts, that the logic of 'the System' spatializes itself, its functional, rigorous, rational logic, directly and transparently.[13] And it is the connotations of these notions that the No-Stop City drawings resonate with. The drawings seem mechanical and repetitive; they are dominantly orthographic (mostly plans), sharp, fine, seemingly technical, devoid of any trace of the author and subjectivity.

Be them apartments juxtaposed so rigorously that they don't have any front doors or windows, be them regularly located toilets and domestic furniture scattered on an endless undifferentiated landscape, or be it the uniform infrastructure that is drawn very precisely or even typed: all No-Stop City drawings are marked by the repetition of elementary units or relations ad infinitum, and by homogeneity as the result of that repetition. The fact that the diagrams of 'homogeneous habitation' are so stripped of any conventional architectural or spatial quality that they can be produced by a

VI

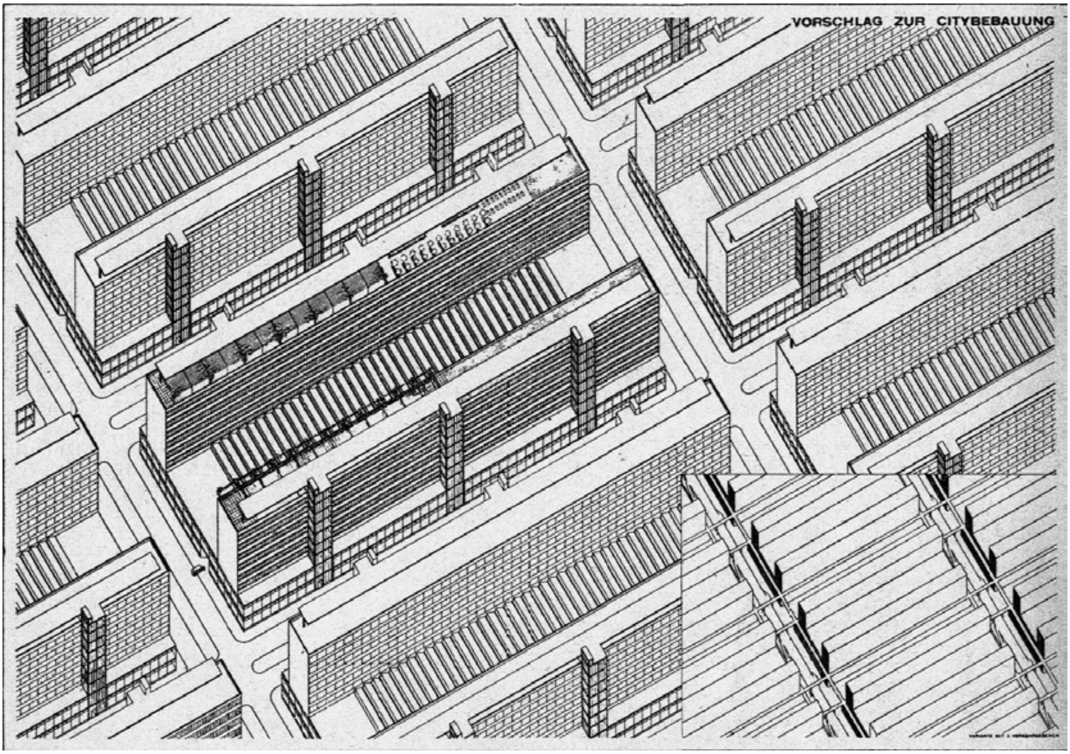
Utopia later came to designate the literary genre inaugurated by More's book and sharing its structural characteristics. In time, semantic clarity of the term has been considerably compromised.

10 For an outstanding articulation of the notion of the utopia see Françoise Choay, *The Rule and the Model: on the Theory of Architecture and Urbanism*. Ed. Denise Bratton, Cambridge, MA (The MIT Press) 1997. First published in French: *La règle et le modèle*. Paris (Le Seuil) 1980, revised ed. 1996.

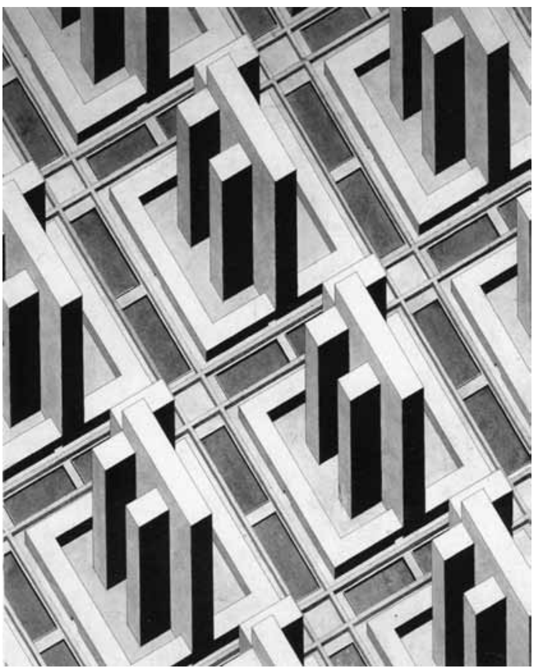
11 Here I adopt and slightly change Choay's formulation. *Ibid.*

12 Archizoom, 'Città' (note 3), p. 43.

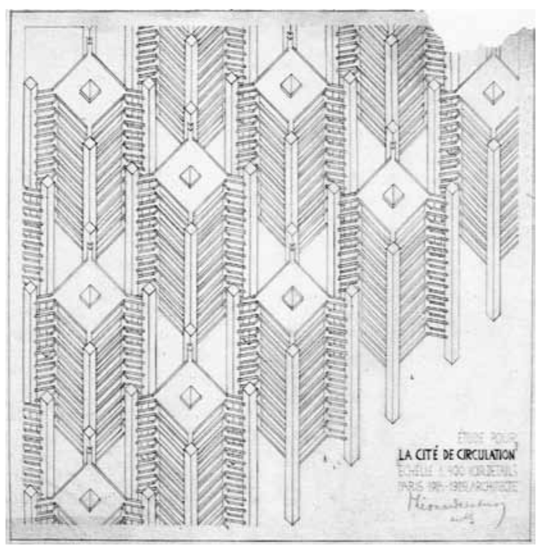
13 *Ibid.*



VII Ludwig Hilberseimer, Vorschlag zur Citybebauung, drawing, 1930



VIII Cornelis van Eesteren & Georges Pineau, Quartier commercial d'une grande ville contemporaine, Paris, axonometric view, drawing, 1926



IX Theo van Doesburg & Cornelis van Eesteren, La cité de circulation, Paris, axonometric view, drawing, 1924-1927 simple mechanical device, and the immutable machine-like rhythm of the drawings both engage in a symbolic relationship with the notion of the factory. Because it is the factory that Archizoom's capitalist city aspires to in its organization. In this sense, the specter of Ludwig Hilberseimer haunts the No-Stop City. For his Grossstadt too is determined by the logic of the mass production, where a Fordist/Taylorist production line manufactures the buildings, the urban blocks and ultimately the city through the reproduction of the same elementary unit: the room.[14] The rigorous logic of the industrial production tightly knits all the elements together: the city overlaps with the logic that produces it and organizes everything from the dimensions of the domestic furniture to the city.

VII VIII IX

VII VIII IX

The logic of the industrial production, the relentless repetition, the homogeneity, the aspiration to rationality, the absence of iconography or strong distinguishable architectural forms, the aesthetics of bureaucracy: all of these place the No-Stop City drawings in the tradition of the most orthodox rationalist strain of the Modern Architecture, that of, e.g., Meyer and Hilberseimer. So it is no surprise that the No-Stop City drawings are reminiscent of the early modernist city visions and the actual post-war social housing schemes that adopted the types and inventions of the Modern Architecture in the 1950s. But they are also reminiscent of the American city, the suburb, the row houses of the English industrial cities, the Parisian banlieue, the sea of apartment blocks, say, in Barcelona, Athens, Ankara, Beijing or elsewhere. After all the city is about quantity. And it is quantity that the No-Stop City drawings take to an extreme and render visible. The drawings offer a cynical clarity

14 Hilberseimer suggested that 'The architecture of the metropolis depends essentially on the solution both of the elementary cell and the urban organism as a whole. The single room as the constituent element of the habitation will determine the form of habitation, and since the habitations in turn form the blocks, the room will become the decisive factor of urban configuration, which is architecture's true goal. Reciprocally, the planimetric structure of the city will have a substantial influence on the design of the habitation and the room.' Ludwig Hilberseimer, *Grossstadtarchitektur.* Stuttgart (Julius Hoffmann) 1927, pp. 98-100. Also see Manfredo Tafuri, '"Radical" Architecture and the City', in: Manfredo Tafuri, *Architecture and Utopia, Design and Capitalist Development*. Transl. Barbara Luigia La Penta Cambridge, MA (The MIT Press) 1976, pp. 104-124.

and demonstrate that whether or not modernity was able to transform 'quantity into quality', it sure brought about the former. Much like the cuts between the factory and the city in Ron Fricke's 1992 film *Baraka*, the No-Stop City drawings draw convincingly on the common logic that organizes the industrial production, the city, and the society alike. The more mechanical, 'uniform, ordinary, and joyless' the drawings were, the stronger their message became.[15]

The colourful popular imagery, the cartoon aesthetics, and the commercial iconography were co-opted regularly by many architectural practices especially in Britain, Austria, and France of the 1960s and 1970s. This period witnessed a richly graphic architectural debate, innovation, and speculation carried out in pamphlets, 'little magazines', 'underground architectural protest magazines', and in some 'professional magazines that were influenced by the graphics and intellectual concerns of their self-published contemporaries'.[16] However in No-Stop City Archizoom almost exclusively operated within the linguistic competence of professional architecture, e.g., precise floor plans, sections, and orthographic diagrams. In this way, on the one hand the stubborn elementariness and silence of the drawings resonated with the legacy of the architecture of industrial mass production, the idea of stripping down the city from its distracting qualities and the 'non-figurative architectonic language' that the project hypothesized. As opposed to the colourful images and playful photomontages, No-Stop City drawings became telling in their muteness. On the other hand, the project benefitted from the extra shock effect produced by the stimulation of the realizable. There were plenty of other

15 The text of 'Città' opens with a Thomas Mann quote that roughly translates: 'At midday, one day of the week, no matter what season. It is not raining, and yet the sky is uniformly grey, ordinary, joyless; in the street, there is an opaque light which excludes all mystery, all strangeness of the soul.' Some parts are omitted in the Archizoom text and the full quote in German original is: 'um Mittag, Wochentags, zu einer gleichgültigen Jahreszeit. Das Wetter ist mäßig gut, indifferent. Es regnet nicht, aber der Himmel ist auch nicht blau; er ist gleichmäßig weißgrau, gewöhnlich, unfestlich, und die Straße liegt in einer stumpfen und nüchternen Beleuchtung, die jeden Mysticismus, jede Absonderlichkeit der Stimmung ausschließt.' See Thomas Mann, *Königliche Hoheit*, mit Kommentar von Heinrich Detering in Zusammenarbeit mit Stephan Stachorski. Frankfurt a.M (S. Fischer) 2004, pp. 529-530. *Königliche Hoheit* was first published in 1909.

16 The expression 'underground architectural protest magazines' is used by Reyner Banham to refer to student-run alternative magazines such as *Polygon*, *Clip-Kit* and *Archigram*, in his essay 'Zoom Wave

architectural provocations in that period, but this one had plans and sections. The incorporation of the everyday popular imagery in the architectural representation is usually done to shed the abstractness of the architectural media and bring architecture closer to the actual urban culture. No-Stop City drawings worked in the opposite direction and abstracted the city to the extent that there was nothing left to distract one from recognizing its underlying logic. So the more abstract the drawings were, the closer they got to the existing city, or to its essential structure anyway.

Archizoom's use of the linguistic competence and the visual means of professional architecture is understandable: No-Stop City is an architectural project. It operates on a theoretical surface because it is a project that is radically turned back on its context. It is a project that is preoccupied with its – symbolic, urban, intellectual, economic, cultural – context to the extent that in the end there is no real project in the common sense of the term but just critique and speculation. The dual accomplishment of No-Stop City is that on the one hand it engages with the city on a theoretical level, as a context rather than a pragmatic object. And on the other hand, it is still able to position the city as an architectural object that can be considered through form, through architecture's core means and object. This is the specific capacity that speculative drawings offer in architecture theory.

Hits Architecture', *New Society*, March 1966 (later published in *Design by Choice*. London [Academy Editions] 1981, pp. 64-65). For the 'little magazines' and the argument on the little period of the professional magazines see the exhibition *Clip / Stamp / Fold: The Radical Architecture of Little Magazines 196X – 197X* realized by Beatriz Colomina and a group of PhD students at Princeton University School of Architecture, at http://www.clip-stampfold.com; also see the Canadian Center for Architecture website for the Clip / Stamp / Fold 2 exhibition.

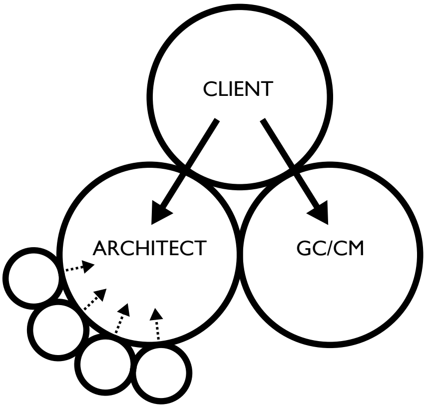
Gregg Pasquarelli
RE: position

Gregg Pasquarelli is a partner and founding principal of SHoP architects, founded in 1996. He received a Bachelor of Science from the School of Business at Villanova University in 1987, and a Master of Architecture from Columbia University in 1994, from which he graduated with honours. In the search for new expression the architecture of SHoP can be considered a critical reflection of contemporary society. By using modern techniques like *computer aided design*, the office not only tends to produce innovative forms, but also tries to streamline the design and construction process resulting in higher efficiency. The works of SHoP include The Porter House, a residential condominium in New York; the Hangil Book House exhibition building in South Korea; and the Rector Street Bridge at Ground Zero in New York. Currently, the office is designing a two-mile waterfront park along the East River in Manhattan, a new student center and classroom building for the Fashion Institute of Technology, and Google's first ever ground-up project, a net-zero energy building for its main campus in Mountain View, California. SHoP won the National Design Award for Architecture Design in 2009, and in 2010 the Chicago Athenaeum American Architecture Award.

This is the text of a lecture by Gregg Pasquarelli at the seminar Architecture as a Craft*, 3 June 2009, at Delft University of Technology. The text was edited by Jaimy Siebel.*

SHoP is reconsidering the position of architects within the building process. Located in Lower Manhattan, the office was founded in 1996 by five principals and has since grown to roughly sixty employees. Their work covers a wide variety of project types, from multi-story housing to academic buildings to master plans. By expanding their responsibilities they investigate different possibilities to regain the decisive role as designers. They feel that the architect's intellectual contribution is at risk because of the constraints created by the market and the emerging abilities of digital design tools. Their medium-seized office integrates various forms of expertise with the intent of creating a surplus of architectonic expression while maintaining a strong financial position. According to SHoP it is essential to participate in the financial risk opportunity of specific projects in order for architects to gain back their vital position within the design process. Gregg Pasquarelli, a founding principal of SHoP architects, explains how their office has made different attempt at various levels to reinvent their position as designers.

According to SHoP, the only diagram represented within the legislation of the American Institute of Architects is exemplary for the legal structure applied on the American building process. It clearly illustrates the adversity for the different partners involved. The liabilities are strictly designated between the client, the general contractor and the architect. The linear organizational structure in combination with the clear-set boundaries causes for a very contra-effective design process.
A process where the architect would carry a lot of public responsibility but is yet unable to really take control over the entire scale of the project. The legal structure was designed for the architecture firm to have a distinct role within the process. The firm can then benefit from this model by centralizing all its production and talent into making a defined building design. The proposal can be clearly defended, altered or undone from a designer's point of view. On the contrary, SHoP argues that, unless



NOT INTERESTED

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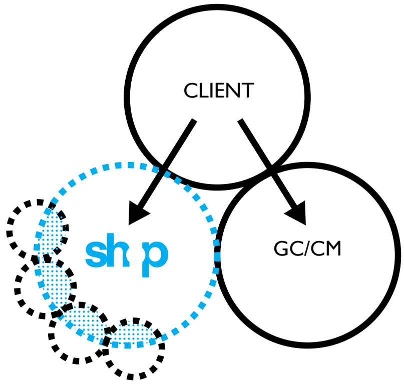
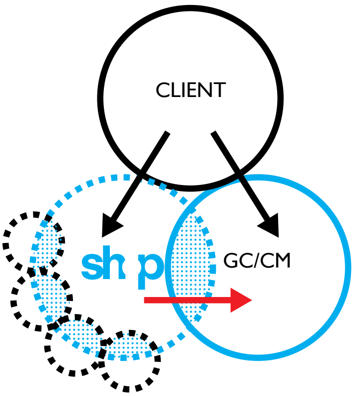


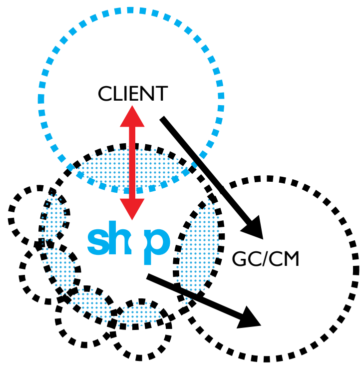
INSTITUTIONAL CIVIC CULTURAL

II



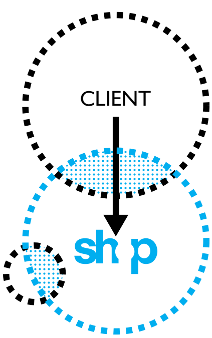
RETAIL INSTALLATION

III



RESIDENTIAL HOSPITALITY COMMERCIAL

IV



MASTER PLANNING BRAND CONSULTING
INVESTMENT ADVISING DESIGN WEALTH MANAGEMENT

V

I Diagram as interpreted from the legislation of the American Institute of Architects.
II Diagram for SHoP's legislative responsibilities concerning institutional, civic or cultural projects.
III Diagram for SHoP's legislative responsibilities concerning retail or installation type projects.
IV Diagram for SHoP's legislative responsibilities concerning residential, hospitality or commercial projects.
V Diagram for SHoP's legislative responsibilities concerning master planning, brand consulting, investment advising or design wealth management projects.

the architect is involved in large-scale projects, this model is very limiting towards the possibilities of architects to influence the architectural process. Pasquarelli describes it as follows: ‘We started to realize that we were limited as to what we could do architecturally, there was this struggle between the contractor, the owner and the architect.’ He believes that the emerging abilities of digital design tools allows for the architect to seize this technology and regain its decisive position as an intellectual. I – V

I – V

In an effort to gain more control over the entire design process SHoP enables four different business models, each of which is specific for the scale and function of the project. The legal structure applied for ‘institutional, civic, cultural’ projects remains closest to the current structure. SHoP insists on integrating the various responsibilities of consultants, represented by the four small circles at the bottom left. The ‘client’ however is a major public institution and is therefore legally separated. The mere scale of these types of projects makes it impossible for a relatively small architecture office to become part of the construction management. The second diagram shows the ‘retail, installation’ structure. The client being either a corporation or a specific brand controls the project in order to get the optimal result. The scale of the project however is considerable, making it possible for an architecture firm to integrate specific tasks of construction management. This enables the architect to have more control over the sequence of constructing and the materials and techniques applied. The diagram for the ‘residential, hospitality, commercial’ legal structure clearly illustrates SHoP’s ambition to become a central party involved in the building and design process. By taking equity positions the architect integrates the risks and rewards carried on by a project. The last diagram illustrates the architecture office as a research institution. The intellectual assignment only has two major parties involved, namely the ‘client’ and the ‘architect’. It is therefore a dual setup where the project, although often initiated by the client, has a shared responsibility. SHoP has applied these legal structures upon various projects they were involved in. We will go more in-depth on three recent projects.

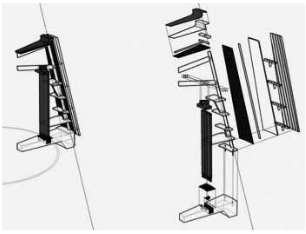
The construction manager

The first example integrates construction management and different consultancy task as shown in figure III. The Hangil Sade Book House in Seoul, Korea is an exhibition hall and book house for Hangil Publishing. Located at the base of one of the six hills defining the Art Park, the concept was conceived to construct the building as a 'built landscape'. This asked for a relatively complicated façade structure that consists of one main element with different lengths. VI

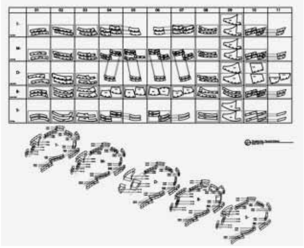
In order to realize this complex structure, without direct supervision on the site, SHoP wrote their own software for the production of the different elements. They designed a construction that needed relatively easy assembly on the site. Clear instructions for contractors in the form of IKEA style manuals, decreased the time needed for general construction and marginalized the costs of construction management. The architectonic expression principally exists within the bend of the façade. This specific shape only came within financial reach because of the integration of digital design and modern construction management tools.

SHoP's method of integrating design and construction management shows its potential when the ambition is to use computer driven construction techniques. These techniques do not require technical specification plans, as they can be relatively easily assembled. As Pasquarelli explains: 'We figured out that by engaging technology, in the form of C++ production methods, it became possible to make a very specific aesthetic for standard production costs.' The legislative role that the drawing embodies restrains the architect's possibility to create complex structures for marginal costs. Taking full advantages of computer driven design, construction manuals and production techniques is essential in 'driving the form itself'. VII VIII

VI SHoP architects, Façade of the Hangil Book House – Heyri Art Complex in Seoul, South Korea



VII IKEA style construction drawings as used for the façade of the Hangil Book House – Heyri Art Complex in Seoul, South Korea



VIII SHoP architects, The Porter House Condominiums in Lower Manhattan, New York

The developer

After partially integrating specific responsibilities from the field of construction management, SHoP was still unsatisfied with the architectural limitations caused by the client. Against the advise of suspicious colleagues, warning the young firm that by becoming part of the 'development crowd' their intellectual property would suffer, they set out to experiment with becoming their own client. The architect no longer being a consultant of design, but the architect at the heart of the entire project. They set out in New York City, their own backyard, chasing down different building sites up for development. Searching for the opportunity to become financial shareholder. IX

IX SHoP architects, The Porter House Condominiums in Lower Manhattan, New York

The Porter House is the first successful example of this new business model. From the start roughly ten different parties were interested in developing the site. Maximizing the build volume was obviously essential for the amount of revenue and therefore for the height of the bid. Not having the longest financial reach, SHoP had to take full advantage of the various forms of intelligence present within their architectural firm. They were able to create a construction, with the knowledge already present in the office, that allowed them to buy the neighbour's air-rights and cantilever them over the side of the building. This insight created an extra amount of possible revenue, that gave them the possibility to bid just that little bit more and take control over the site. Solving the design strategy, the cantilever, before they even started the project, enabled them to develop their own project.

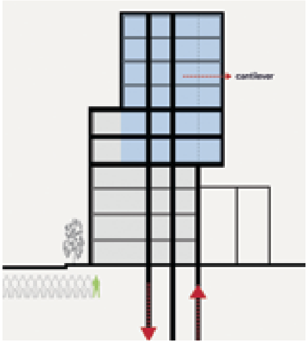
The six-story, 3000-square-meter warehouse build in 1905 had to be renovated and converted to residential condominiums. And a new four-story addition, totaling 2000 square meter, was cantilevered 2,5 meters over the volume's southern exposure. The extremely high rate of return on square meters obligated the program towards extreme efficiency. SHoP's main architectural focus was thereby directed towards the façade. The result was dominated by the 'fight of contextuality' imposed on by New York city officials, forcing the newly build to be contextualized according to its surroundings.

This directed the architects to use zinc as the main material for the façade structure. X XI

Zinc, from a historic point of view, is a highly expensive building material. Instead of ordering the zinc at a local distributer, SHoP flew out to France and bought a container of uncut pieces of zinc. This gave them the opportunity to eliminate the subcontractors and become part of the production process. In order to streamline the production for the 480 different elements of zinc, they used *solidworks* software. This allowed them to translate the computer drawings directly to production and at the same time use the raw material in a highly efficient way.

In addition they made the marketing materials, designed the interiors, sold the apartments and rented out the ground floor. Taking on this complete spectrum of different responsibilities allowed them to create a very efficient and integrated design and construction process. 'The most important thing we learned was that once we were financial partners with our client, we were not seen as an aesthetic costly consultant but as a partner. The more we were connected into the financial model, the more design freedom we got.'

In total, they flew to France and bought raw slices of zinc, instead of going to a zinc distributor in the states. A tailor-made façade became possible because of efficient use of the available software. The cantilever construction enabled them to create extra revenue and therefore even have a project. Creating a custom-prefabricated façade that was easy to assemble, eliminated a major part of the construction management. The total led to a two percent increase of construction cost. Yet the created extra revenue was fifteen percent more than the biggest grossing project in the direct neighbourhood. This extra value exemplifies the successful integration of the different specialties and the markets appreciation for the designed product.



X Diagram illustrating the constructional concept for the cantilever used for the Porter House project, New York

XI Photograph of the historical and newly-build façades of the Porter House project, New York

The designer

SHoP believes that when a project is either initiated by the municipality or its financial commitment is substantially high, the architect has no other choice than to be a designer of building. The mere complexity that size adds to program, construction and financial responsibility justifies the architect's responsibility to solemnly being a consultant of design. SHoP does however insist on integrating all various consultancies in order to optimize the design process.

SHoP's winning design for an addition to the urban campus of the Fashion Institute of Technology in New York, positions the firm's architectural ambition. The site is basically dominated by a brutalist concrete mass dating back to the 1960s. The proposed design contains a very divers program sheltering activities going from interactive media courses to fabric design studios. In terms of performance SHoP assumes that for design education basically three activities are eminent: exhibiting your work, critiquing your work and circulating your ideas. A new transparent façade shelters these prominent activities and simultaneously breaches different connections between floors. In order to regulate the various circulation flows an indoor junction on the fifth floor is created, concurrently being an indoor gathering space for students between the several campus buildings. This quad is connected to the ground-level garden outside with an express escalator, piercing through the existing building fabric.

The FIT design is the result of a programmatic and typological experiment. It evokes the user's ingenuity and enables space for challenging experiences. These are specific qualities that, to a certain extent, were absent in the previously mentioned projects. Qualities that are at the heart of the architectural debate. It would be inconsiderate to reflect this eminent difference exclusively upon the integration of various disciplines, since a different degree of scale, function, context and point of departure are applied. Nevertheless, the notion of ambivalent interest remains when the architect becomes a financial shareholder.

Understanding the difficulty imposed in the search for balance between the two disciplines, we can not deny that the past two decades a technological paradigm shift has occurred. A shift that allows for new methods of construction, new methods of design and perhaps new methods of practice.

Jan De Vylder
The drawing is everywhere

Jan De Vylder studied architecture at the Department of Architecture at Sint-Lucas University for science and art in Ghent, Belgium. He had been a project director for Stéphane Beel for several years before he founded his own architectural practice in co-operation with Trice Hofkens in 2000, which today operates under the name *architecten de vylder vinck taillieu.* Typical for Jan De Vylder's work is the narrative. Sketches and drawings play an important role in the architecture of De Vylder as they tell a story about the relation of the building and its context. Secondly they express a 'lifestyle' that is not directly focused on design but rather on the necessary requirements. Among projects that characterize De Vylder's work are: house De Vylder-Hofkens (Ghent, 2000) and a house in Ordos (Inner Mongolia, 2007), and the production studios for Les Ballets C de la B and LOD in Ghent, completed in 2008. *Architecten de vylder vinck taillieu* participated in the exhibition *People Meet in Architecture* at the Venice Biennale 2010. In 2004-2005 De Vylder lectured at Ghent University. Since 2005 he has taught at the Sint-Lucas School for Science and Art in Brussels and he has been a guest lecturer at Delft University of Technology.

There are many stories on the 'drawing'. Here are only five.

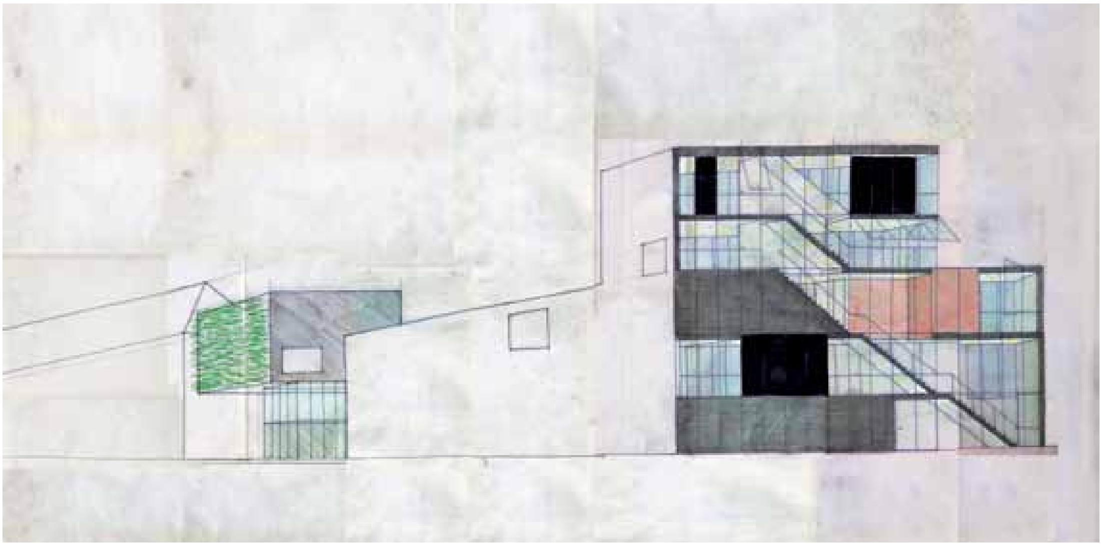
Four drawings of a façade. And one photo I – III

Let's stay with the last two drawings. Or with the last drawing and the photograph.

The photograph V is the drawing of the present. The white drawing V
with black lines and somehow damaged status is the last drawing. IV IV
The last drawing was made by the constructor to schematize somehow the aluminium framework of the soon to be glazed façade at that moment. He wrote down the several specific detailed measurements of each piece of glass that would be put in the framework.

It is a nice drawing. It expresses the way the drawing has been made and has been used. Applied on the back of a used paper; drawn and written with a much too thick and not very sharp pencil or pen. Probably the contractor was standing in a not so comfortable high position on a leveller to work in the height. It seems to have been a slightly rainy day; the paper got wet and the pencil marks became blurred. While he was moving about, he put the paper into the pocket of his working suit. While he was measuring and writing, the architect came along and insisted on some corrections of the framework. Afterwards the contractor corrected his figures with a red pencil.

I



I Architecten de vylder vinck taillieu, i.c.w. Trice Hofkens, Production studios for Les Ballets C de la B and LOD, Bijlokesite, Ghent, Belgium, 2005

The next day the contractor brought the paper into his office. He planned to contact the glass manufacturer and order the differently-sized glass panels. Looking at the paper he first had to rethink the precise meaning of his notes. After some seconds he remembered how the drawing had to be held.

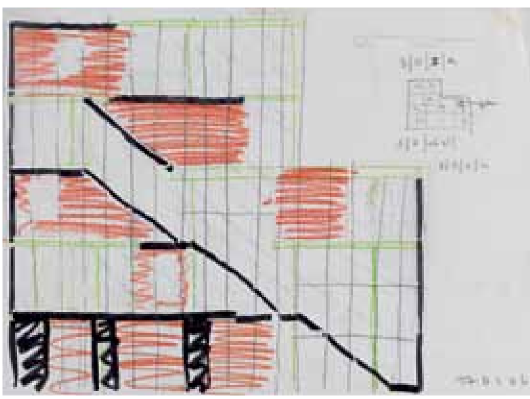
The glass could be ordered.

Some weeks later the glass was placed.

By the end of the day the architect arrived and greeted the contractor. Yes; everything was all right. Holding the drawing in his left hand, the contractor with his right hand pointed out some detail of the framework. All of a sudden someone shouted from above. The contractor opened the folded paper, looked at the drawing and shouted a number to the man upstairs.

The architect's eye fell on the paper. He asked if he could have a look. The contractor handed the paper over to the architect. The paper changed hands: at a certain moment, the paper was in two hands. On the one side the workman's thick hand with scars. He could hardly move his thickened fingers, roughened by the handling of cold and rough materials. The lines in the hand were deeply filled with black dust. And on the other side of the paper was the architect's hand. A hand that was ageing considerably, especially because he used it to make drawings. His index finger had a small kink caused by holding pencils, and his middle, ring and pink finger seemed to have grown together. All this caused by drawing.

II



III

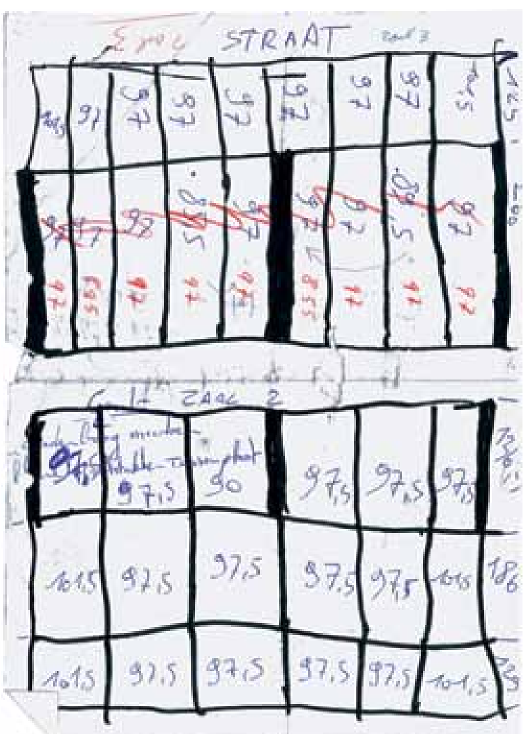
II III Architecten de vylder vinck taillieu, i.c.w. Trice Hofkens, Production studios for Les Ballets C de la B and LOD, Bijlokesite, Ghent, Belgium, 2006

The contractor’s drawing had a peculiar beauty. It was the perfect, last, essential drawing in the range of drawings that were made until then. It represents the link between what is wanted and how to get what you want. Until now the attention given to the drawings was only done by the architect. An architect who wants to build. Who knows how to build; at least that is what he thinks. Who wants to know what he builds. Who, in making drawings, finds a way to learn how to build. To incorporate what he has seen. On building sites. In buildings. But also in his imagination. The architect communicates with his drawings. Making drawings is meeting someone else on the drawing-table who discusses the project with you, without becoming that person. Making drawings is looking in the mirror. In the mirror you see the project that is not there yet. And you see the project in a very precise way. More precise than when you might see it in reality.

The drawing is qualified here as the ‘ultimate partner’ on the drawing-table: while you make the drawing, the drawing itself is the critic who comments most directly on what you draw. *The drawing is the companion of the architect.*

The beauty of the contractor’s drawing lies in the way he deals with the architect’s drawings. In this drawing the project is reconstructed to the pure elements of his thoughts. It is summarized to his fantasy, to his world of living, his world of doing.

IV



IV Contractor’s drawing, production studios for Les Ballets C de la B and LOD, Bijlokesite, Ghent, Belgium, 2008

But the beauty of this drawings lies in many things. It is so pure, but it is also personal. To a certain extent the contractor is the only person who can read the drawing. At least he knows how to use the drawing. In his profession he has to combine his knowledge, his understanding and his specific fantasy. No more, but hardly anything less. That is why he also needs a few seconds to understand it when he looks at the drawing again. Just a few seconds.

The architect asked the constructor if he could have the drawing. The constructor was amazed. He proposed to deliver a new and clean plan the next day, if that's what the architect wanted. No, the architect didn't want that.

The architect took the original drawing home and put it away with his many drawings. Now the collection is complete.

Before he put the drawing away in the folder with the other drawings; the architect saw just one more thing of beauty in the drawing. When he put down the drawing next to a photo of the building, there is a very nice difference between the black on the drawing and black in the building. It has different meanings in both drawings. But when both drawings lie next to each other, it is so beautiful.

Maybe it is just that.

V

V Architecten de vylder vinck taillieu, i.c.w. Trice Hofkens, Production studios for Les Ballets C de la B and LOD, Bijlokesite, Ghent, Belgium, 2009

Drawing the wall. Photos of a series of walls.
And one of a rainwater gutter

Six series of walls

A floor of a church. The joints have been redrawn. Certainly, there must be a historical explanation. There is. But let's keep it the way we see it: has someone been redrawing the joints? VI

A wall of a university building in Ghent. A nice wall in bleu stone. But almost forever covered by posters that were put up by students tot announce all kinds of activities. But once in a while the posters are cleared away. And the traces of the glue of the tape draw new lines on top of the existing lines of the joints. VII

Paris. The restoration of a façade in white stone. VIII

Ghent. A fragment of the façade of the St Nicolas church at the city centre. Churches are permanent building-sites. Building and restoration as a continuous reality. The St Nicolas church is a massive Doornik-stone church. But at one specific part of the façade the restoration revealed what seemed to have been the original ambition: the stone is painted in 'stone-colour' and the joints are added later, but are corrected by white painted lines pretending to be joints. This restoration is disputed vigorously by the public. IX

VI

VII

VIII

VI Detail of a church floor
VII Detail of a wall of a university building, Ghent
VIII The restoration of a façade in white stone, Paris

A typical brick wall of a nineteenth-century house. One sees a brick wall X
made of bricks and cement joints. Those cement joints are laid ‘upon’ the façade. And afterwards the wall is painted red. And the joints are painted white.

Five photographs. Or are they five strange drawings? It is as if someone XI XII
is redrawing reality. As if when the building is build, it starts all over again. The drawings overrule the reality. The reality has to follow the drawing or the drawing will immediately take over reality.

Photographs on the interior walls of a building under construction. The main ambition in this project is to treat the rough material of inside brick walls as the finished wall. We deliberately alternated different dimensions of brick and material. In the end, the walls can be interpreted as if they have been covered by wall-paper. The drawing is the ambition.

The rainwater gutter

The old townhouse of Ghent. What a beauty! In this photograph the mate- XIII
rial of which the gutter is made is no longer perceptible because of what is drawn on it. The essence of the drawing is the way in which the water is being drained off. It is like covering the reality with an abstract echo of the water in the tube. The ultimate idea of ‘the drawing reigns’!

IX

XI

X

XII

A garden fence. In concrete. But being just the 'drawing' of a tree

The romance in the drawing. In the fence. In the concrete. But in the end it is a drawing again. The material is irrelevant in expressing the meaning of what was made, of what was drawn. An architect wants to make drawings. Makes drawings. XIV

XIII

XIV

IX Detail of the façade of the St Nicolas church, Ghent
X Typical brick wall of a nineteenth-century house
XI Architecten de vylder vinck taillieu, i.c.w. Trice Hofkens, Interior of the veterinarian's practice Malpertuus, Heusden, Belgium, 2010
XII Interior of the veterinarian's practice Malpertuus, Heusden, Belgium, 2010
XIII Rainwater gutter of the old Ghent townhouse
XIV Concrete fence

The trompe l'oeil and the broken perspective

Drawings of the trompe-l'oeil. And one of a door

A simple commission. An artist couple buys an old primary school, and at a certain moment they want to enlarge the building: they want a larger studio. For this the outdoor shelter, where the school kids used to play when it rained, seems to be the perfect place. But it also means the immediate loss of the quality of that place as it is. Not only the quality of the use; but also the mere quality of the perception of it. XV XVI

This perception is what the project is about. To fit in the new studio space under that shelter only one wall has to be added and the studio would be finished. But this wall had to be designed with great care and much precision. In order to preserve the idea of the perspective, the wall is conceived as a *trompe l'oeil*. It is erected with the same bricks as were used for the back wall of the shelter, but at the same time the perspective of the concrete cantilevers are included into the flat wall. As curving lines. And from one specific point the perspective will be exactly like the reality. But when one leaves that specific point one perceives the perspective as unreal.

The perspective and the drawing. They go together. While reality has its one real perspective, the drawing can add another perspective, which looks

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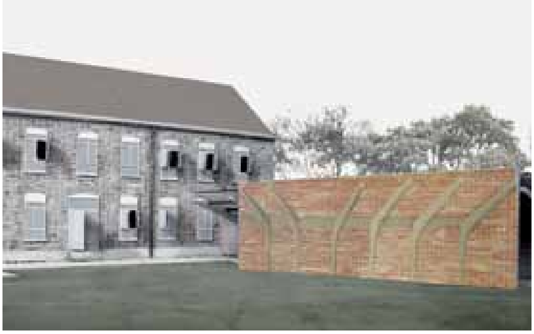

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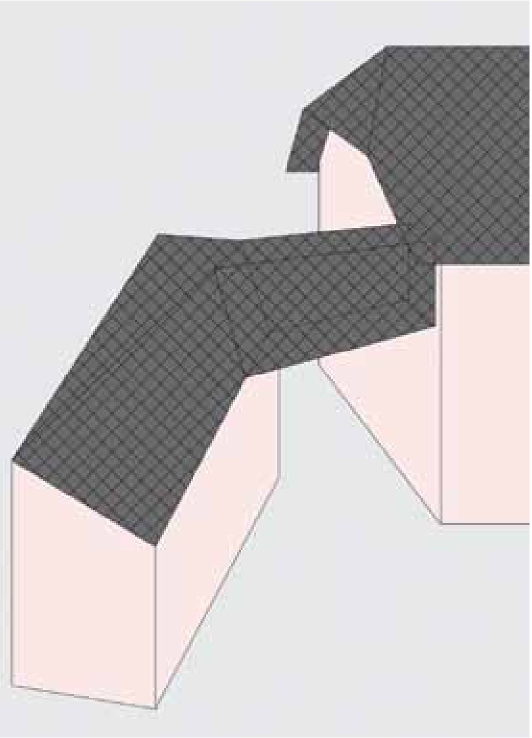


more real than the real perspective. And by adding that other perspective we sometimes make the reality more clear than what the reality can do by itself. A strange connotation. But a nice one. One well-liked by architects.

The drawing as the ultimate instrument to alter the perspective of reality. And by doing so, make reality more comprehensible.

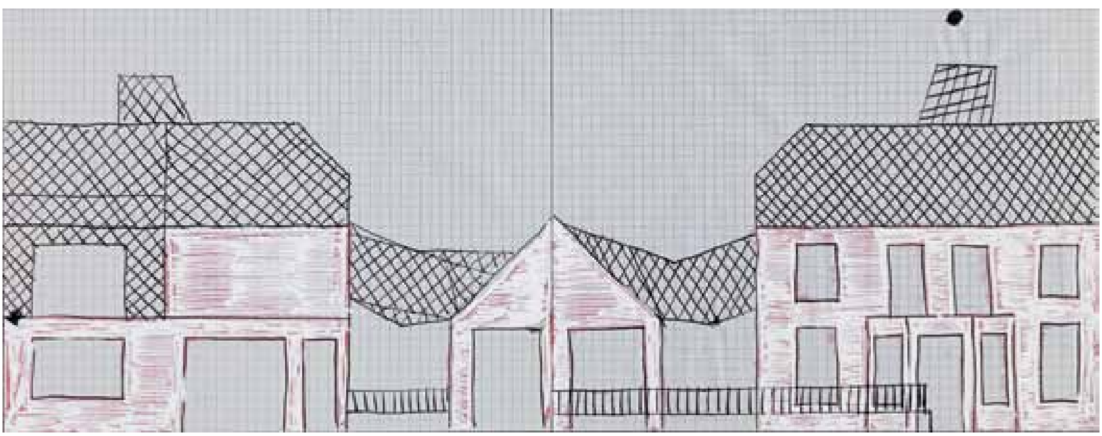
In this case: the drawing serves to evocate a lost reality.

But naturally, the drawing first of all serves to evocate the reality of the future!

The broken perspective

In the architect's mind, the concept is viewed from different angles, and con- XVII
sequently put on paper in a direct, two-dimensional perspective. The reality XVIII
and the concept are unfolded in a comprehensible drawing. At least for the architect. But this pure drawing of the architect's thoughts enables the next stage: the first drawing of the reality.

XVII



XV XVI Architecten de vylder vinck taillieu, Model for House Weze, Weze, Belgium, 2009
XVII XVIII Architecten de vylder vinck taillieu, Drawing for House Ariheun, Ghent, Belgium, 2006

The reality as a drawing

One photograph of a ceiling and another photograph of the reflection of the reality into the real

Look at the ceiling and the TL. How reality all of a sudden is a drawing. XIX
Look at the eaves and the dormer. The intervention has been covered with XX
a mirror; the mirror draws the reality of the context into the reality of the building; context and building become one, they fuse. The mirror ‘re-draws’ the reality. The mirror is the drawing of what is not real. Can the drawing be the mirror of what we don’t see?

The drawing is the ultimate

The drawing is the ultimate instrument for the architect. For architecture. XXII –
But the drawing can be and should also be appreciated for another reason: XXIV
it is always present. Not only in the design process, but also in the building itself. Only the drawing represents the desire for a certain reality; it represents more than what we see in reality. The drawing is the architect’s ultimate instrument; friend and critic. In the act of drawing as well as in the act of building. Architecture is drawing. At any time; at any moment. Craftsmanship through drawing. XXV
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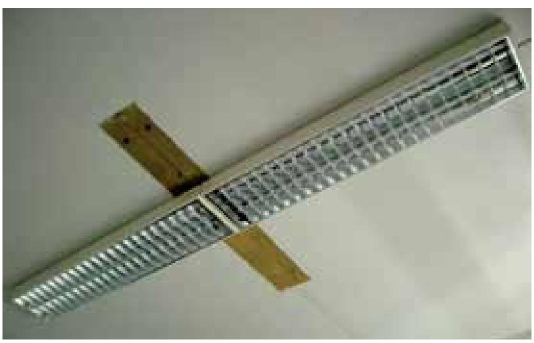

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XIX The ceiling and the TL
XX Architecten de vylder vinck taillieu, Drawing for House Rotelenberg, Oudenaarde, Belgium, 2010

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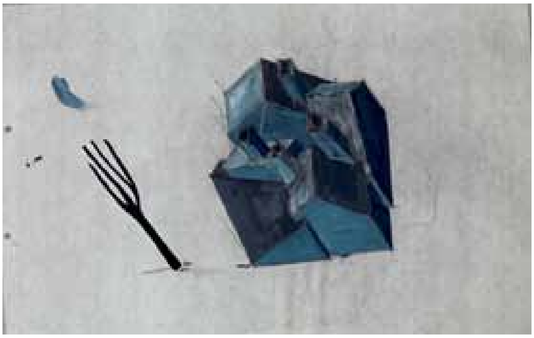

XXI Architecten de vylder vinck taillieu, Drawing for House #001 Ordos, master plan by Herzog & de Meuron and Ai WeiWei, Ordos, Mongolia, 2009
XXII XXIII Architecten de vylder vinck taillieu, Drawing for House H, Oosterzele, Belgium, 2005
XXIV Architecten de vylder vinck taillieu, Draft for House S, Sint-Pieters Leeuw, Belgium, 2005
XXV Architecten de vylder vinck taillieu, Drawing for House Pussemier, Ghent, Belgium, 2009
XXVI Drawing for House #001 Ordos, master plan by Herzog & de Meuron and Ai WeiWei, Ordos, Mongolia, 2009

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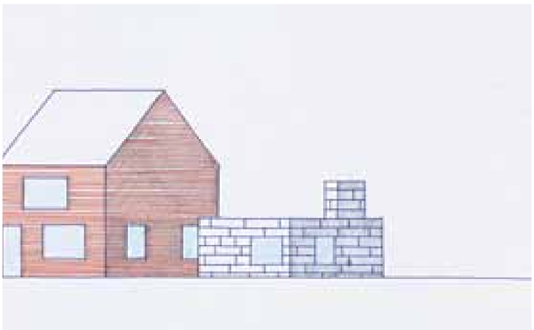

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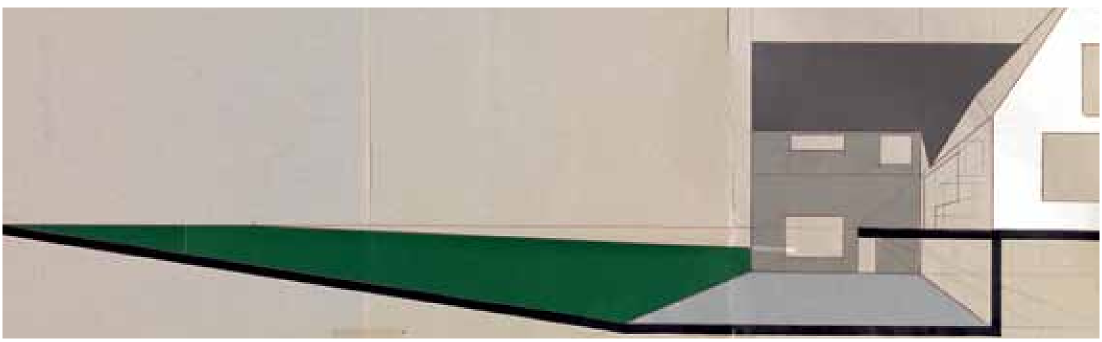

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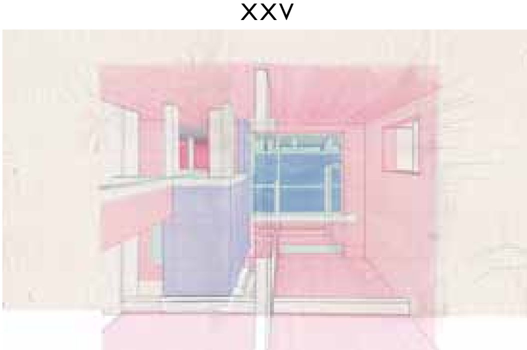

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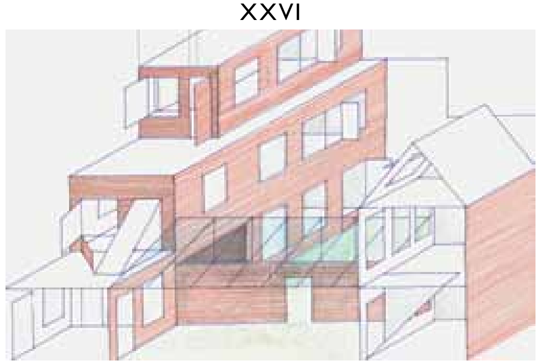


Oswald Mathias Ungers

Ordo, pondo et mensura. The criteria of architecture

Oswald Mathias Ungers (1926-2007) was a German architect and architectural theorist. From 1965 to 1967, he served as the dean of the faculty of architecture at the Technical University of Berlin. In 1968 he moved to the United States, where he became the dean of the department of architecture at Cornell University. In 1971 he became a member of the American Institute of Architects. He returned to Germany in 1976, becoming a professor at the Kunstakademie Düsseldorf.

Ungers can be seen as a rationalist. He often arranges and combines various geometric shapes in order to create a certain complexity. He has been discussing themes like ‘the city within the city’, transformation, incorporation and ‘the world as a presentation’. As a participating member of Team X, Ungers critiqued the ideas produced at the CIAM convention.

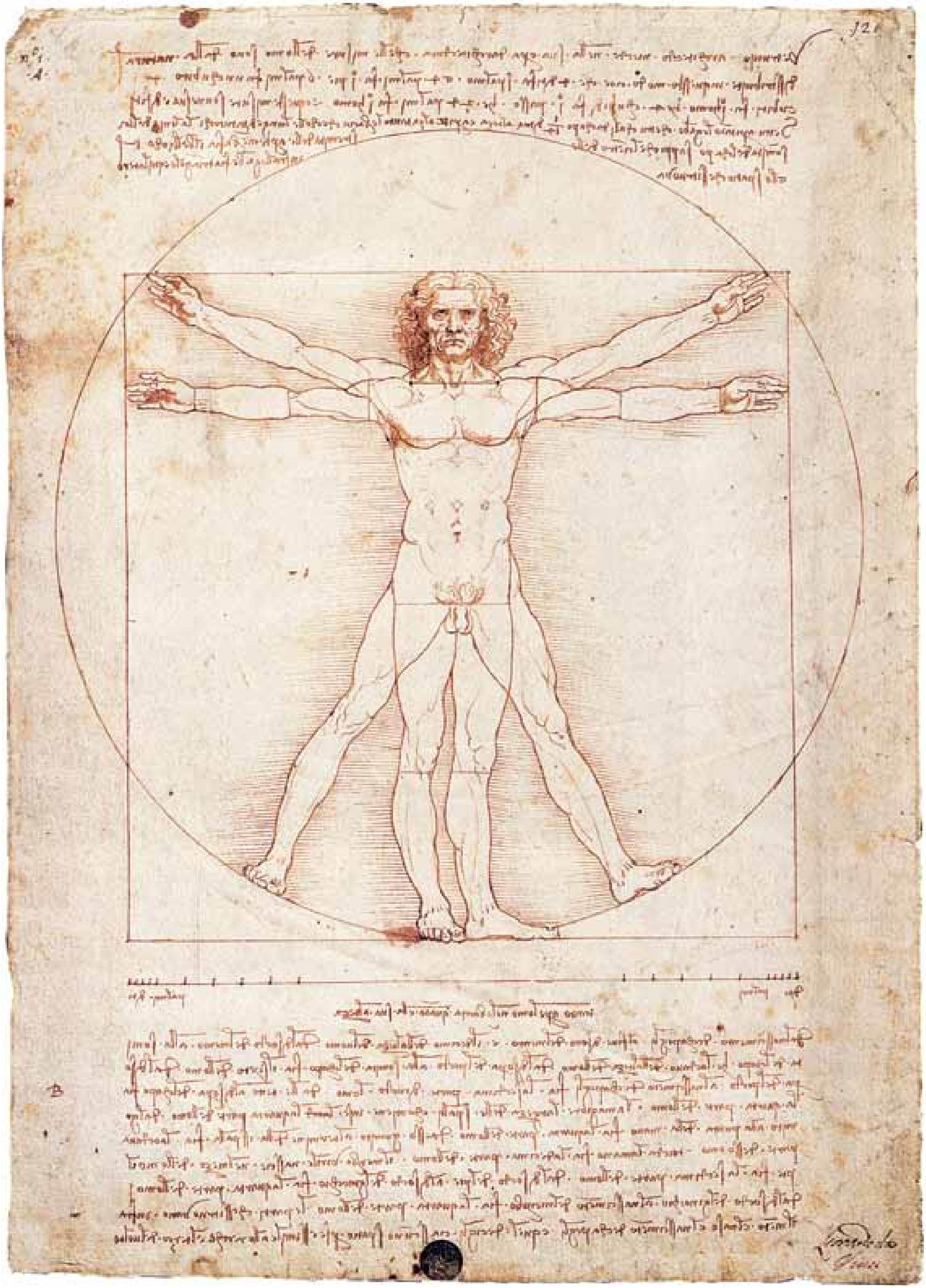
Most of his works were constructed in Germany. Among his most important projects are the Deutsche Architekturmuseum in Frankfurt am Main(1984), the Torhaus Gleisdreieck in Frankfurt(1984) and the German embassy in Washington DC. Being a highly respected architectural theorist, Ungers published, among other works, *Morphologie. City Metaphors* (1982), *Die Thematisierung der Architektur* (1983) and *The Dialectic City* (1997).

When in 1399 the *capomeistro* Jean Mignos, a native of southern France, was called in as a consultant for the construction of Milan Cathedral (begun 1386), he coined a maxim that neatly encapsulates the spirit of the Renaissance sensibility: *Ars sine sciencia nihil est* – Art without science is naught. He was in fact echoing a saying that originated long before him in ancient Rome: *Artem sine scientia esse non posse – There can be no art without science.* Throughout antiquity, and notably in the architectural works of Phidias and Polyclitus, mathematical rigor and geometrical severity were deemed to be the basis of all artistic expression. Things were not beautiful because they were outwardly pleasing to behold, but because they were the expression of a system of precise harmonic rules and relationships. This conception of beauty was summarized by Plato: 'If one were to separate from the arts the doctrine of numbers, measure, and harmony, little would be left but miserable remains. By beauty of form, I do not refer to what most people consider beauty, such as the beauty of humans or certain paintings. By beauty I mean, rather, something square or circular, or surfaces and solids formed with the aid of a compass, straightedge and set-square: such things are always beautiful in themselves, and embody artistic feelings of a very special nature.' (*Philebus*, 51c).

The Pythagoreans also maintained that the purpose of humanity was to fulfill the universal divine order (an order of a strictly mathematical nature); they reasoned that harmony depended on numerical relationships. and that numbers were the essence of all things.

With this in mind, St. Augustine, philosopher of Early Christianity and great teacher of the Church, borrowed from one of King Solomon's sayings, namely, 'You have given order to all things according to size, number, and weight' (*ordo, pondo et mensura*). Augustine developed the notion of the harmony of the spheres, a characteristic of the Middle Ages. For him, God was the origin of all beauty, and beauty was expressed through measurements, number and harmony. By this transcendental system, music and architecture were seen as an outward reflection of eternal beauty. Hence Augustine interpreted architecture as a science based on the application of geometrical laws.

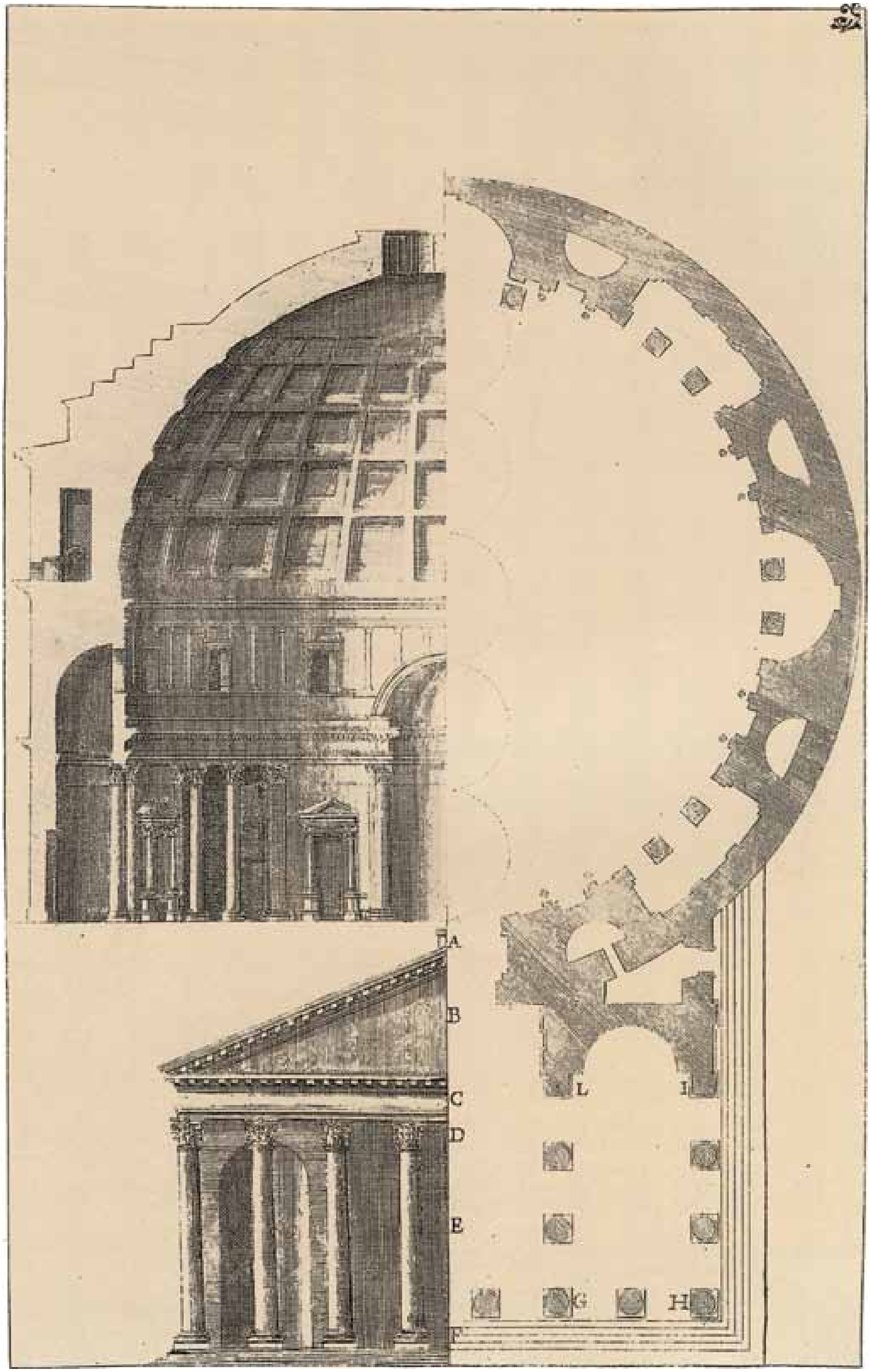
A key figure in hastening the transition from the Middle Ages to the Renaissance was the German artist Albrecht Dürer. Guided by his disposition for empirical method, Dürer attempted to prove that art was founded on a set of rules. He wrote three essays on the subject, in which he summarized his theories on art, and supplied evidence that the 'foundations of art' are based on an exact science. These writings, which were conceived as a program, and published in Nuremburg, comprise: *Underweysung der Messung mit der Zirkel und richscheyt, in Linien Ebnen unn ganen Corporen / durch Albrecht Dürer zusammen gezogen...* (1525), a text on the application



Leonardo da Vinci, *Study of proportions* of geometry; *Etliche underricht, zu befestigung der Stett, Schloss und Flecken* (1527), a treatise on fortification; and *Vier bücher von menschlicher Proportion* (1528), on the proportions of the human body. Dürer's doctrine on human proportions is the essence of his life's work. The artistic theory it embodies is wider in scope than the theories of his Italian contemporaries Piero della Francesca, Leon Battista Alberti, and even Luca Pacioli. Notwithstanding his superlative theoretical contribution to the Renaissance, Dürer's writings are still undeservingly neglected. The doctrine unfolds in a logical program quite unprecedented for the period and, proceeding through to the metamorphoses and morphological shifts contained in the fourth volume on proportions, it far outshines all other theories that have so far come to our notice. A close friend of the Nuremburg humanist Wilibald Pirckheimer, Durer had access to the latter's magnificent library and consequently made his acquaintance with the fundamental writings of antiquity, such as Euclid's *Elements* and Vitruvius' *De architectura libri decem*, to which Dürer pays explicit homage in his own work: 'As regards any discussion on building, or of its elements, I believe none among our eminent *capimaestri* or artisans have overlooked how the ancient Roman author Vitruvius wrote so splendidly in his books regarding the decoration of architecture: his example is a lesson to all.'

During his travels through Italy Dürer doubtlessly came across the early Italian writings on the arts, such as Piero della Francesca's *De prospectiva pingendi* (ca. 1465), the mathematician Luca Pacioli's *De divina proportione* (1509), and Leon Battista Alberti's *De pictura* (1540). Here too he came into contact with both Pacioli and Leonardo da Vinci, who executed the illustrations for the former's mathematical treatise.

Leonardo may even have provided the illustrations for the important 1521 edition of Vitruvius, edited by Cesare Cesariano. The *De architectura* was the point of departure for a crescendo of interest in art theory throughout the Western world, beginning with the writings and technical treatises of the humanists of Northern Italy in the Quattrocento and Cinquecento: Piero della Francesca, Luca Pacioli, Fra Giocondo, Andrea Palladio, Daniele Barbaro, Giacomo da Vignola, Sebastiano Serlio, Filarete, Vincenzo Scamozzi, Leon Battista Alberti, Francesco di Giorgio Martini. (Indeed, the influence of Vitruvius has endured even in more recent studies on the theory of proportions.) Vitruvius was the fountainhead of all Renaissance thought on art and the techniques of representation. The theoreticians of the period all drew on his fundamental writings in the *De architectura libri decem*, which have become to art historians what the Sacred Scriptures are to the theologians: Vitruvius' work is the 'bible' of artistic doctrine. The *De architectura* was written during the reign of Augustus, to whom it was in fact dedicated. Although the original Roman manuscript

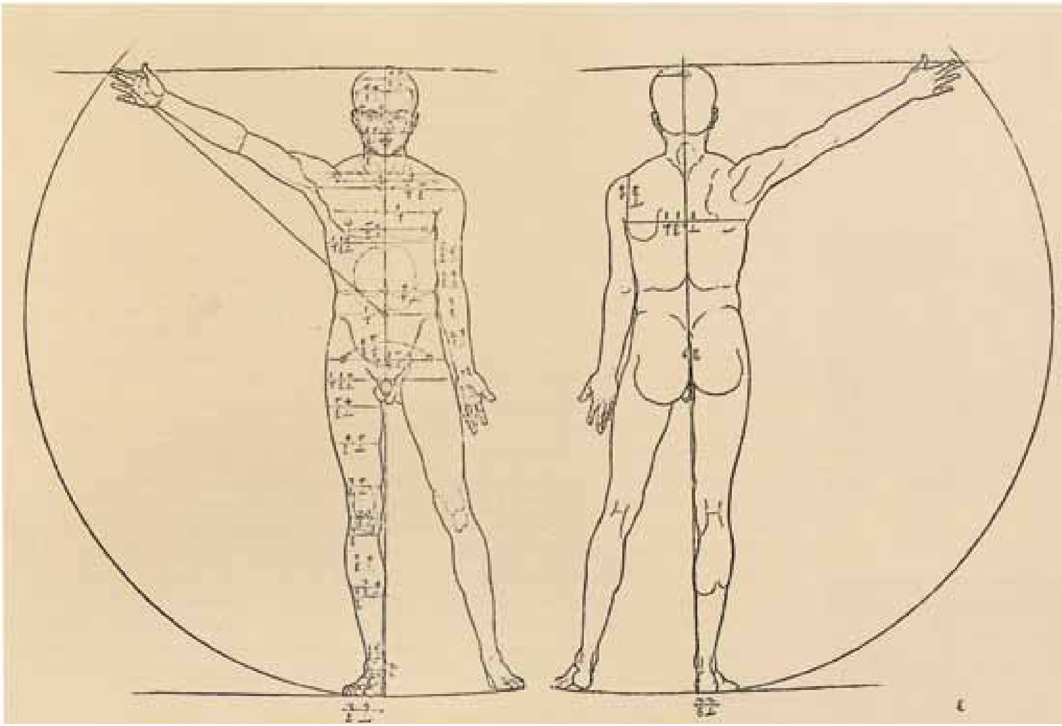


Neralco, *The Pantheon*, 1763

has long been lost to us, no less than fifty-five copies of it have survived, the earliest of which dates to the beginning of the ninth century. It was not until 1486, however, that the work appeared for the first time in movable type, an incunabula version, devotedly compiled by the Veronese scholar Sulpicius da Veroli, archaeologist to the Accademia Romana during the reign of Pope Innocent VIII.

Vitruvius' texts were already the subject of discussion in the days of Charlemagne and his court. The Frankish regent's historian, Bishop Einhard, is known to have asked the English churchman Alcuin, who was a guest of Charlemagne's court, for explanations of some of Vitruvius' more awkward technical terms. Some three centuries later, there is evidence that the Holy Roman Emperor Frederick II was acquainted with the *De architectura*, as the buildings he commissioned bear the signs of great mathematical rigor. The first illustrated edition dates to the Renaissance. Assembled by the architect Fra Giocondo in Venice in 1511, the new publication of Vitruvius' text marked the start of a long series of constantly amended and revised editions – a tradition that has continued to the present day, unfolding in the course of five centuries like a chronological table of cultural history. In all this time, Vitruvius' *De architectura* has been translated into all the languages of the Western world, sometimes accompanied by ample explanatory texts, and each time with new, stimulating illustrative matter. Taking their cue from the ancient conception of the Sophists – as summarized by Prothagoras of Abdera's famous saying: 'Man is the measure of all things, of existence of all things that are and the nonexistence of all things that are not' – [for the Renaissance theoreticians?] the human figure became the fulcrum of thought and of the world, not only an object of man's enquiry into proportion, but the yardstick itself of proportion. Basing himself on the teachings of Vitruvius, whose writings also cover questions of art and the human body, Leonardo da Vinci devised an ideal form of beauty for the human body, the proportions of which were based on the circle and the square. In the famous Como edition of Vitruvius, published in 1521, Cesariano reproduced Leonardo's set of illustrations.

Dürer too, in his manuscript *Speis der Maler*, in the chapter dealing with the human arts, illustrates the canons of beauty outlined by Vitruvius, and comments thus: 'That master of the ancient world Vitruvius, architect of grandiose buildings in Rome, states that he who intends to build should conform to human beauty, because the body conceals the arcane secrets of proportion. Hence, before discussing buildings, I intend to explain the form of a well-built man, and then a woman, a child, and a horse. In this way you will acquire an approximate measure of all the things about you. Heed first, therefore, what Vitruvius has written on human body learned from great masters, painters and sculptors who earned great renown.

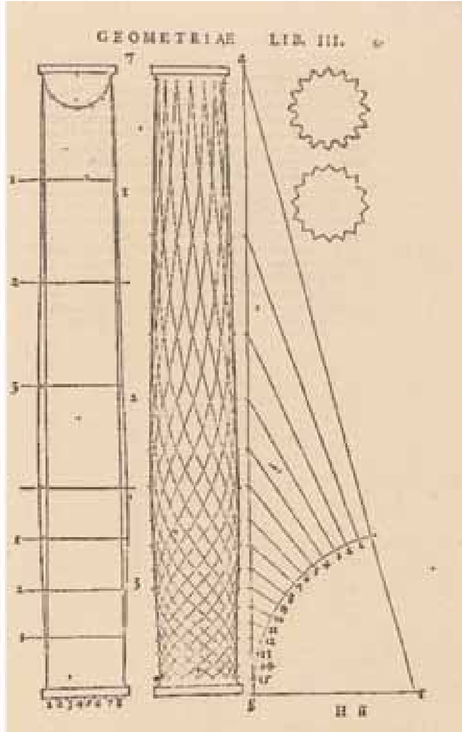


Albrecht Dürer, *Human proportions*, 1528

"They stated that the human body must be such that the face, from the chin to the hairline is one tenth of the human form; the open hand is of the same length; the head itself is an eighth, and the breast to the hairline is one sixth. Likewise the face, from the hair to the chin, is divided into three parts, the first being the forehead, then comes the nose, and lastly the mouth and chin. The foot is one sixth of the human form, the arm a quarter, the chest another quarter. In this way the body's members are subdivided. If a man is laid down on the ground, spread-eagle, his hands and feet will lie on the circle described by a compass with its point fixed at his navel." In this way he shows the structure in quarters. And thus he has gathered the human limbs in a structurally perfect number, ordering them in such a precise way as to avoid contradiction with either the ancient texts or with posterity; anyone who so wishes may read how he enunciates the finest prerequisites of structure.'

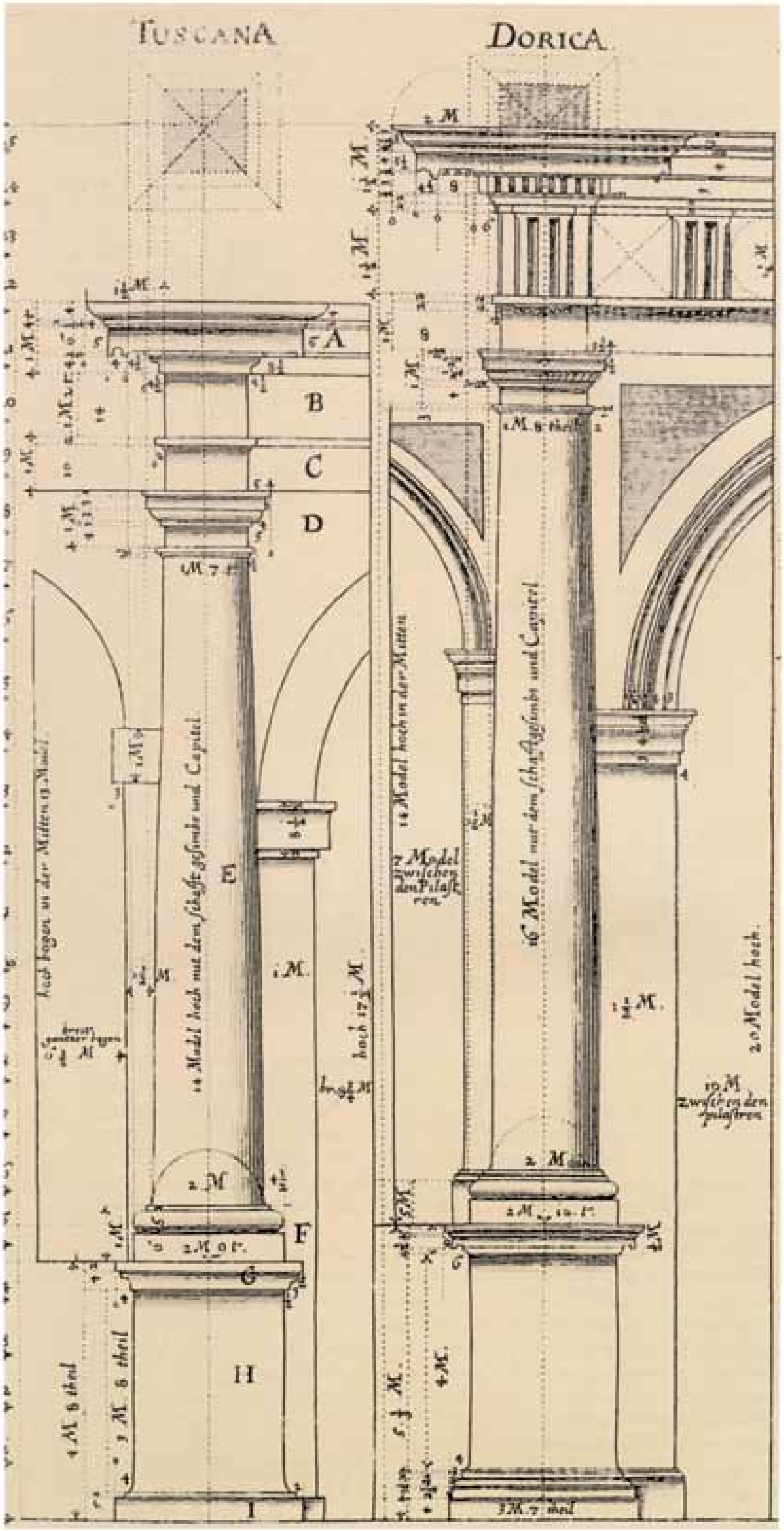
In Renaissance architectural theory, the proportions of the human body assumed a crucial role in the formulation of the architectural orders. Ever since Vitruvius, architecture had established an anthropomorphic matrix both for the building as a whole, and for its separate elements, or 'ornament'. In his treatise *De re aedificatoria* Alberti goes back as far as the idea of the building as an organism, constituted of lines and matter, in

Luca Pacioli, *Study of the Corinthian order*, 1503



Albrecht Dürer, *Study of an order*, 1525

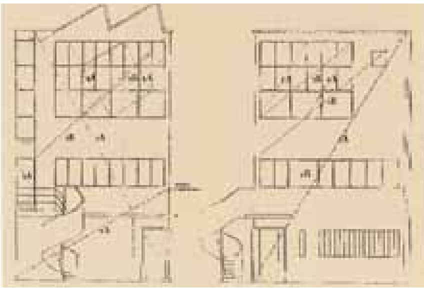
which the lines stem from the spirit of man, and the matter from nature. ‘Beauty’, retained Alberti, ‘is a form of sympathy and consonance of the parts within a body, according to definite number, outline and position, as dictated by *concinnitas*, the absolute and fundamental rule of nature.’ Alberti’s concept of *concinnitas* regulates nature, and is one of the rules of Creation, standing above the laws of nature. Architecture is not simply accorded a status equal to that of nature, but is proposed as one of the principles of natural order, whose multiplicity of manifestations are reflected in the architectural orders: ‘Following the example of nature, they consequently idealized the structures of decoration for buildings, giving them names that derived from those who had served the same function. One of these orders was complete, suitable for work and endurance, and they called it Doric. The second was lighter, more cheerful, and they called it Corinthian. The central one, however, became to some extent an amalgam of the other two, and was called Ionic. In this way they devised similar names for the entire body.’ As yet, however, Alberti was not acquainted with the architectural orders in the true sense. Nor had he systematically compared their relative ratios and proportions – a task that was undertaken in some detail later by Vignola, Serlio, Scamozzi and other architects.



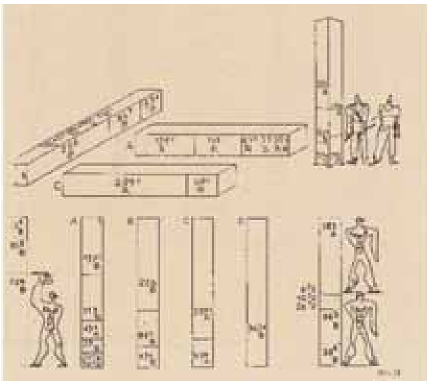
Georg Caspar Erasmus, *The Tuscan and Doric orders*, 1667

Vitruvius himself had opened the door to the personalization of the columns. The Doric column, he noted in Book VI, exemplified the 'proportion, strength and grace of a man's body'; the Ionic was characterized by 'feminine slenderness', harmonious and pleasant to look at; and the Corinthian column alluded to the 'slight figure of a girl'. He then went a step further, and ascribed each of the different columns to a deity: Doric was equated with the masculine nature of Minerva, Mars, and Hercules; the harmonious Ionic column was associated with Juno, Diana, and Bacchus; while the decorative Corinthian column was identified with Venus, Flora, and Persephone. For his part, Luca Pacioli extended this association of the orders to embrace certain Christian saints. In his *Theatrum vitae humanae* (1577), the Flemish painter and draftsman Hans Vredeman de Vries linked the different orders with the stages of the human life: similarly the Tuscan, and even the Doric, being orders of such remote origins, were associated with old age. Owing to its more recent origin, the Composite order which was in fact added to the set as a fifth order by Vignola – was linked to man's infancy. In his treatise *Le premier Tome de l'Architecture* (1567) Philibert de l'Orme devised an exclusively French set of orders. The Swiss theorist Hans Blum, with his book *Gebrauch der V. Säulen* (1550) accorded the Germans a national symbol: to his mind, the so-called Tuscan order derived from the giant Tuscan, the father of the 'Tüschen' or Teutonic race. The most muddled set of orders is the one concocted by Dietterlin in his treatise *Architectura von Außtheilung: Symmetria und Proportionen der Fünff Seulen...* (1593-1598), in which he expanded the five classical orders of Doric, Ionic and Corinthian (later augmented with Tuscan and Composite) to include a haphazard conglomeration of forms and decorations of all kinds. It was an attempt at a symbolic interpretation of the architectural orders, juggled at whim in a highly individual fashion. More recently, during the period of neoclassical revivalism, with Schinkel, Klenze and Stuhler, the order of columns, pillars, and entablatures had an important role in the structure of buildings.

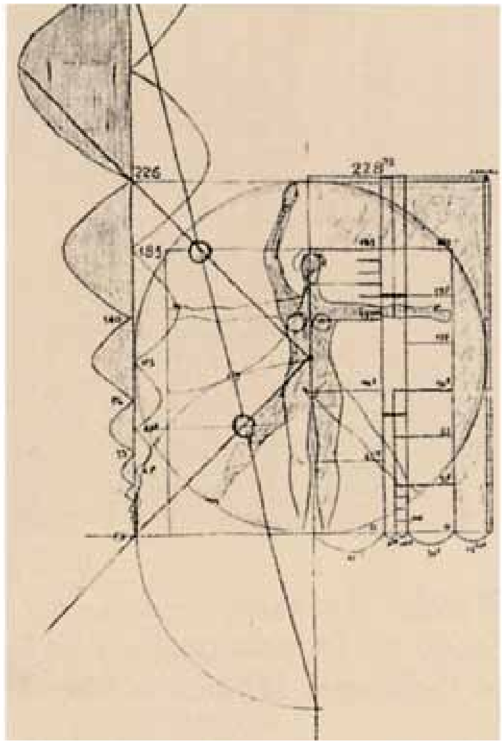
Even Le Corbusier, in his *Le Modulor* (1950 and 1955), made a detailed survey of the arrangement of pedestals, establishing a set of different orders. The orders were not simply categorized by taking a random height, according to proportional relationships with the human body, between height and girth (Doric 1:7, Ionic 1:9, and Corinthian 1:9½) and their relative applications in building design – they expressed a stylistic conception directly referring to modern architecture. The Doric order, with its limpid, rational design, devoid of arabesque features, corresponded to the current of Rationalist architecture, with its accent on geometrical forms and elementary bodies. The Ionic order was equated with a more elegant architectural expression, of the Constructivist kind. The Corinthian or



Le Corbusier, *Maison Ozenfant / Study in proportion*s, 1923



Le Corbusier, *The stele proportions*, 1947



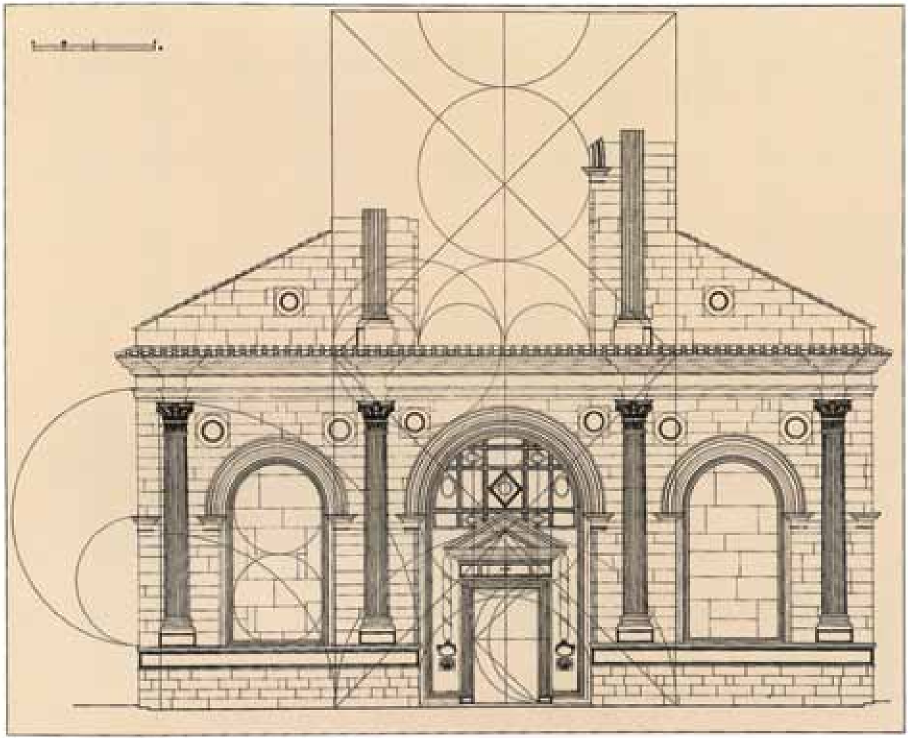
Le Corbusier, *Modulor man*

Composite orders – particularly as regards the free interpretations of Dietterling and Gabriel Krammer – were seen to represent an emphatic, unrestrained architectural language in which system and order are ruled out, and structure depends solely on experience and whim.

Evidently, the debate on the architectural orders has not yet run its course, but continues to be discussed in the context of modern architecture.

Not only Vitruvius, but also Francesco di Giorgio and most of those who theorized on architecture turned to nature's own forms – and particularly the human body – to deduce the elements of proportion as much for the architectural orders as for buildings as a whole. The essential geometrical figures remained the circle and the square, as representations and synonyms for the cosmos. Just as the human body was a clearly defined organism, with head and limbs, so were buildings.

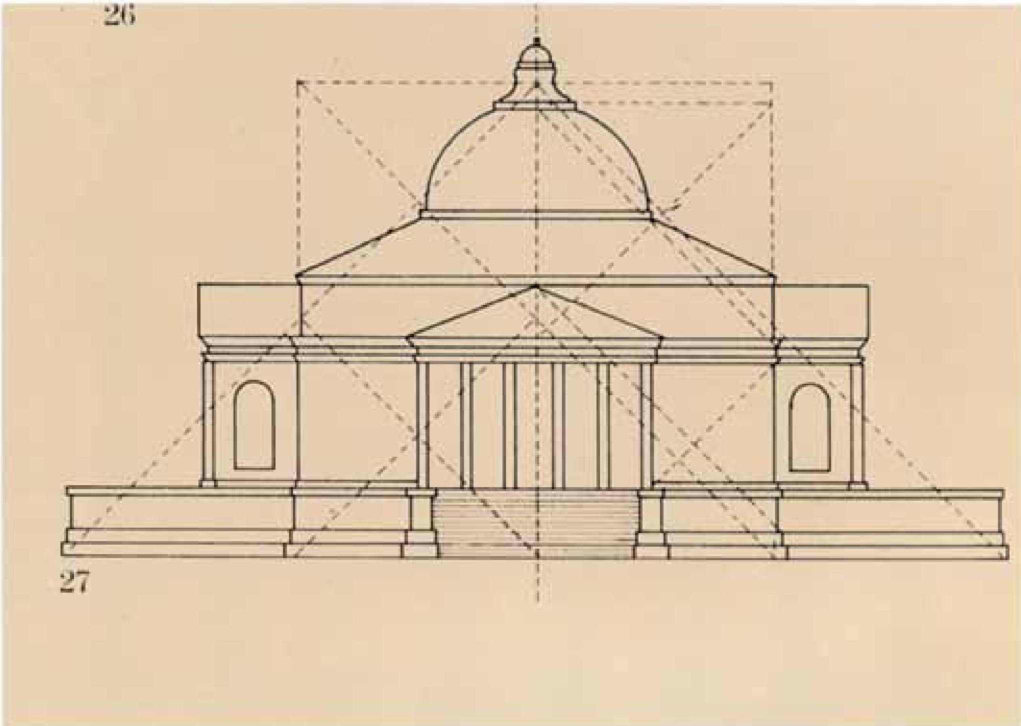
Architecture was not to be taken as a literal imitation of nature. Art and architecture were determined by *ratio*: they were sciences manifested through the relationships of proportion. For this reason, the rigid geometry underpinning Renaissance architecture was also the root of all the architectural rules. Form was not a random occurrence but the outcome of applied logic, and hence comparable with the result of applying proportional relationships. Seen in this light, architecture was a question of giving



Leon Battista Alberti, *Study of proportions of the façade of Tempio Malatestiano*

order to matter, physical data, and reality through the application of reason, and was explained in its underlying proportionality. By this means, matter was subjected to the rigors of form. Such a logic excluded any concept of an ideal of matter or functionality. Architecture was comparable to a science that had lost sight of the absolute, the Platonic concept of reality, truth and beauty.

As a consequence, buildings came to be clad in smooth, unembellished surfaces, because what counted was the clear form of the whole, and its geometrically determinable proportions. With its rigid artistic modeling, the work of art achieved its maturity and dignity – that magnificence and completeness which had been sought for so long. The original geometric forms of the circle, rectangle and sphere, the cone, ellipse and so forth, supplied the necessary structure for transforming natural objects into symbols of the spirit and soul of man. The finest, most noble form, the most harmonious and true form of all was an expression of the ideal proportions, an affirmation of the cosmic link with nature, which only art and science could offer. The essence of art was seen to be number, dimension, proportion. Pursuing this line of thought, in our own century the sculptor Hildebrand developed the basics for which 'the question of forms is the absolute issue of art'. In the days of the great humanist theoreticians



Andrea Palladio, *Villa Rotonda / Study in proportions*, 1570

on art, creative and artistic activity was held in far greater esteem than it is today. Scholarship, knowledge, cognition, evidence and demonstration-science in its broadest sense – were both prerequisites and constituents of art. Shapes necessitated explanation, demanded to be proved by theory. Methods and procedures had to guarantee results that could be taught and handed down as proper methods. Value judgments and chance were ruled out from the field of infinite possibilities.

Alberti's outline of the practicing architect is a demanding one: the true architect must be a scientist of the utmost moral correctness, a representative of a spiritual elite. 'A great thing is architecture, and not all men are so equipped to try their hand at it. He who claims to be an architect must possess a lofty spirit, inexhaustible diligence, considerable learning, and above all a profound capacity for judgment and great wisdom. In architecture the greatest virtue is being able to exactly judge what is necessary; building is a matter of necessity; having constructed in a suitable fashion depends on need and utility: but to construct in such a way, to earn the assent of the wise without being scorned by the common people, is the undertaking of a proficient, well-informed and judicious artist.'

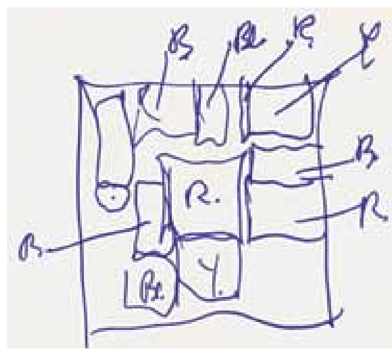
Joan Ockman
Painting, drawing, thinking. Robert Slutzky's drawings for paintings

Joan Ockman retired from Columbia University in 2008 after directing the Temple Hoyne Buell Center for the Study of American Architecture there for fourteen years and teaching in the Graduate School of Architecture, Planning and Preservation for over two decades. She has held visiting teaching appointments at the Graduate School of Fine Arts of the University of Pennsylvania, the Centre de Cultura Contemporànea de Barcelona, the Graduate Center of the City University of New York, and Yale University School of Architecture. In 2002-2003 she was a Center Fellow at the International Center for Advanced Studies at New York University. She is currently editing a book on the history of architecture education in North America, forthcoming from MIT Press in 2012. Ockman has worked in the offices of Richard Meier and Peter Eisenman. She is the author or editor of several highly regarded books in her field, among them *Out of Ground Zero. Case Studies in Urban Reinvention* (Munich [Prestel] 2002) and *Architecture Culture 1943-1968. A Documentary Anthology* (New York [Rizzoli] 1993). Her essays and reviews have appeared in *Artforum*, *Journal of the Society of Architectural Historians*, *Assemblage*, *ANY*, *Architecture*, *Metropolis*, *Arquitectura Viva*, *A+U*, *Arch+*, *Design Book Review*, *Women's Review of Books*, *Harvard Design Magazine* and *Oppositions*, among others. They are included in a number of anthologies, including *Autonomy and Ideology. Positioning an Architectural Avant-Garde in North America*, *The Sex of Architecture*, *Architecture and Film*, *The Urban Lifeworld*, and *Architecture of the Everyday.*

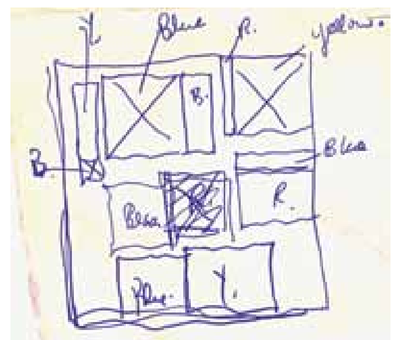
In his more than fifty years of painting, in the patient discovery and evolution of his own visual language, Robert Slutzky employed drawing in two distinct ways. These correspond to an ongoing dialogue in his work between concept and percept, architectonics and poetics. We may characterize these ways as *diagrammatic* and *calligraphic*. Increasingly these two graphic impulses became one.

In sketches for a large early painting, *Sourcehollandays*, first executed in oils in 1957 (no longer extant) and then repainted
I in acrylics fifteen years later,[I] it is possible to observe how the diagrammatic drawing functions as a succinct but highly sensitive instrument for working out the painting's basic structure. Colors are indicated by a notational system, often abbreviated to a letter of the alphabet, with squares or near-squares
II marked with an X. In an initial sketch[II] the 'topological' concerns of the painting are resolved: each primary color as well as black touches another once and only once. In
III the more assured second sketch,[III] the nine-square grid with its central hole or oculus emerges decisively. This structure was to become one of Slutzky's privileged compositional strategies, invested with increasing layers of meaning over the years. If the more

I *Sourcehollandays*, 1957/1973



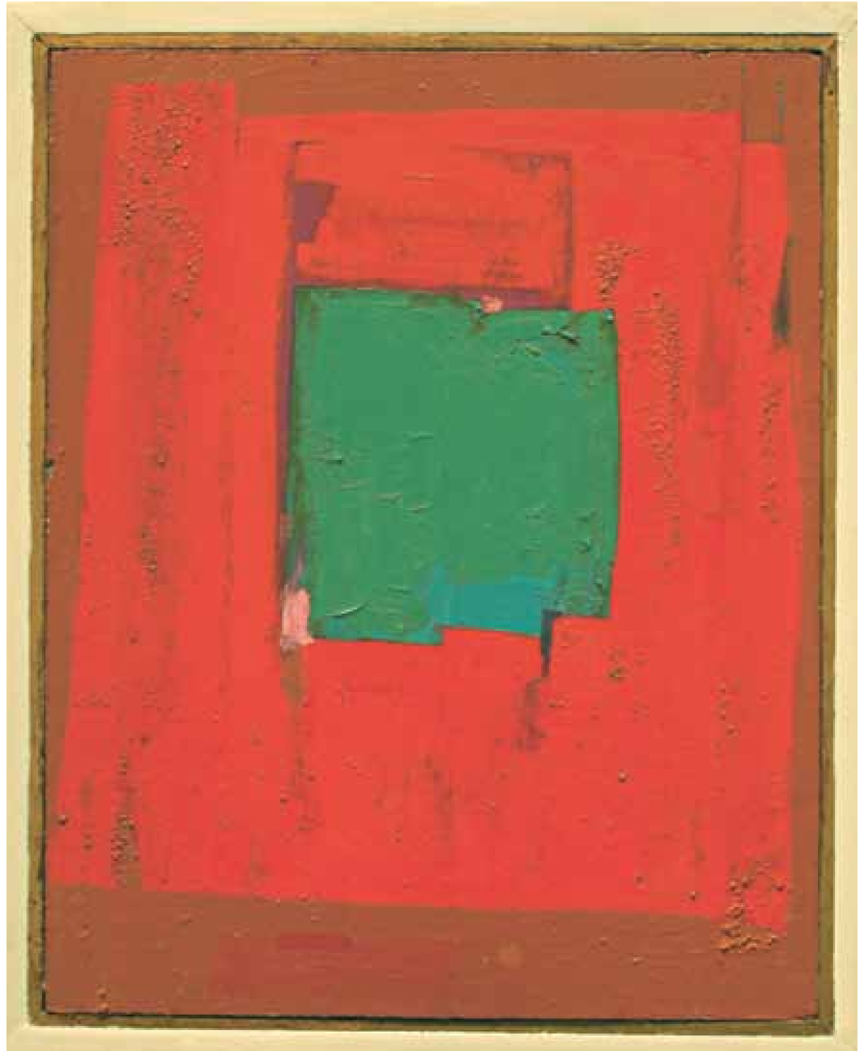
II Sketch for *Sourcehollandays*



III Sketch for *Sourcehollandays*

nervous handwriting of the first sketch intimates the 'jiggle-jaggle' shears and slippages and ambiguous figure-field relations of the final painting, the second sketch portends its rotational rhythm. Just as a musical score is a scaffold for the future eruption of sound, so Slutzky's monochromatic ink drawings hold the promise of chromaticism within their skeletal shorthand.

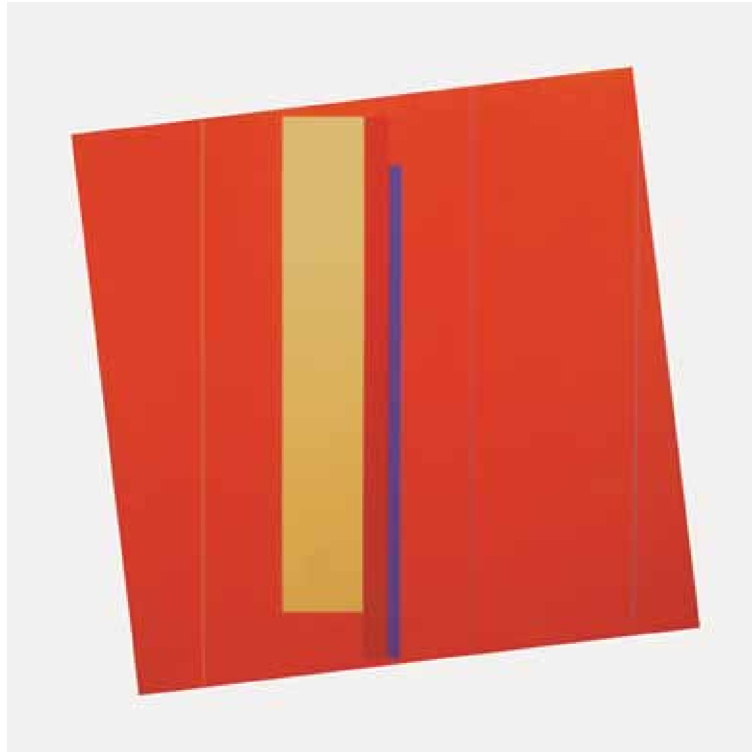
Of course the actual painting possesses a physicality and presence that far exceed the diagram's anticipatory potential to convey its reality (not to mention the reproduction's retroactive one), and also incorporates accidental or evolutionary traits that only come into being in the contingent process of painting. Slutzky typically began each canvas with a light pencil underdrawing – often a reinterpretation and rescaling of the paper diagram – on a freshly gessoed surface, then gradually worked from washy to definite form. The aesthetics of flatness and the unforgiving nature of acrylic paint, which he first began to use in the second half of the 1960s, were inimical to built up layers of paint. Yet he refused to 'paint by number', and rejected the art of those who left nothing to the final painting but the transfer of a predetermined image. In his view the diagram was an initiator or facilitator of the process of making, not its destiny. In this sense, even at his most



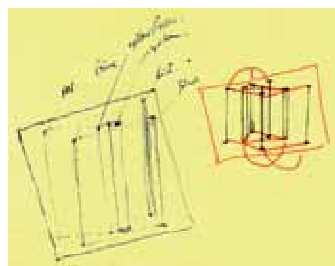
IV *JA . . . HH*, 1952

metaphysical and cerebral, he never entirely relinquished the physicality of the hand or ruled out the velleities of the process.

For similar reasons – to avoid literal and reductive readings – Slutzky did not title his paintings. Most simply and unsystematically they became *Untitled 1*, *Untitled 2*, and so on. On occasion, however, he could not resist a poetic metaphor or historical allusion. In *Sourcehollandays*, the painting's *ex post facto* title wittily conflates palette and palate, the primary colors of De Stijl and the yolky luminosity of a *sauce hollandaise*. As the pun makes clear, the painting is a tribute to Neo-Plasticism, to whose orthodox principles Slutzky dedicated himself for the better part of a decade starting around 1953-1954. He embarked on this trajectory after leaving the artistic hothouse of New York City for New Haven and Yale University's School of Art. In New York an older generation of artists was still pursuing the figurative realism of the 1930s while the vanguard was being swept up in the postwar current of Abstract Expressionism. As a beginning art student, first at the Art Students League and then at Cooper Union, Slutzky dabbled in both these tendencies. Yet at Yale, where he arrived in 1951, he found himself engaged by something more rigorous: Josef Albers's pedagogy of color interaction. A painting marking a decisive



V *Untitled*, 1968-1969

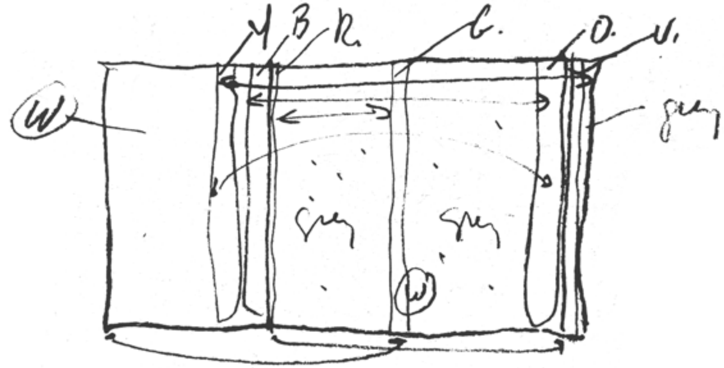


VI Sketches for tipped paintings similar to fig. V

crossroads in his creative development is the
IV small but iconlike *JA . . . HH* (1952; Fig. IV), which records this initial moment of negotiation between Hans Hofmann's push-pull gesturalism and Albers's 'retinal' psychology.

For the next three decades, Slutzky would find his adopted discipline of hard-edge geometric abstraction sufficiently engrossing to dispel any lingering nostalgia for the expressive freedoms of the hand, at least overtly. Yet the painterly dialectics of mind-eye and hand-body present in his earliest work never altogether vanished from his work. Upon graduating from Yale in 1954, he took a first job teaching in the school of architecture at the University of Texas in Austin. There, with paintings like *Guadaloupe Boogie-Woogie*, he continued to pursue his artistic filiation to Mondrian, while also entering into a new world of architectural ideas, developing close intellectual bonds with stimulating colleagues like Colin Rowe and John Hejduk. At the same time, his discovery of the plastic values of Cubist and Corbusian aesthetics – which would inform the *Transparency* articles he coauthored with Rowe in 1955-1956 – and his engagement with both the teaching and making of collage served as a reminder of, and compensation for, the tactile values he had foresworn in his paintings. Regarding collage-making as an essen-

VII *Untitled*, 1972

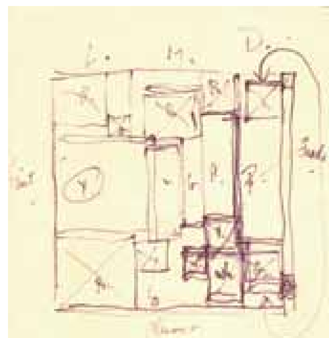


VIII Sketch for *Untitled*, 1972

tial form of 'finger exercise', he continued to pursue experiments with torn paper in the late 1950s after leaving Texas. Throughout his career he also would continue to teach studio courses to both art and architecture students on a subject he called 'collage-montage', drawing a somewhat unorthodox distinction between these two terms on the basis of their respectively nonrepresentational and representational (or narrative) character.

Having worked through the problems of the red-blue-yellow-black-white-gray canvas by the mid-1960s to his satisfaction, or else exhaustion, at least for the time being, he embarked on a series of compositions with vertical stripes on orthogonal or tipped fields. Among them were a large group of diamond-shaped paintings. This transition marked a new and permanent involvement with primary-complementary color relationships, and it was accompanied by the previously mentioned shift to acrylic paint, a medium that had recently come into currency among artists and was ideally suited to taping off hard, crisp edges, if at the sacrifice of some luminosity. Like their predecessors, these stripe paintings were often kicked off by a rough diagram scribbled on the back of an envelope or napkin, although on occasion also put down with greater deliberateness.

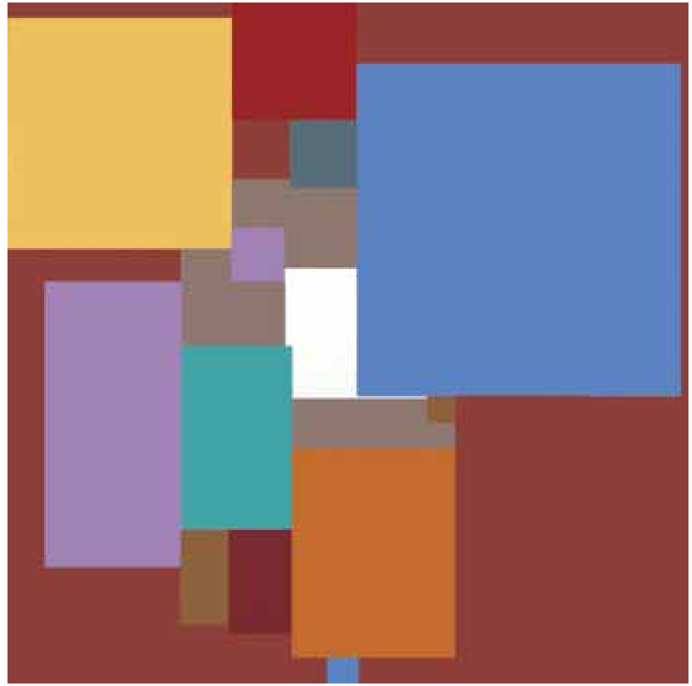
IX *Homage to Bach*, 1973-1974



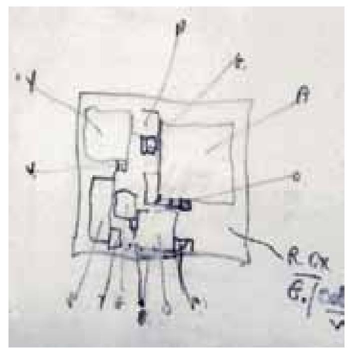
X Sketch for *Homage to Bach*

While expanded in their range of coloration, they also continued to plumb the geometries of the square and the golden-section rectangle as well as the latent illusionism of the flat surface. In the latter respect his work took a precisely opposite path from that promoted after World War II by the critic Clement Greenberg (and his disciple Rosalind Krauss), who upheld flatness as the holy grail of abstract art. Slutzky's tipped paintings in particular – which hang at various angles off the orthogonal, from 3 to 45 degrees – use abstractionist flatness to explore the implied spatialities of perspectival and axonometric projection. In this regard his work reflects a rich seepage of architectural thinking, an original vein he would mine further in an exhibition with John Hejduk entitled *The Diamond in Painting and Architecture*, presented at the Architectural League in New York in 1967.

As evident from a pair of diagrams for tipped paintings containing six and seven verticals, respectively, of different thickness,
VI spacing, and color, VI similar to the red paint-
V ing of 1968-1969 reproduced here, V Slutzky's
intent was to make the picture plane read as a folded sheet, or more precisely, to create an oscillating ambiguity between the up-and-down dance of the color stripes on the painting's surface and the illusionistic possibility of



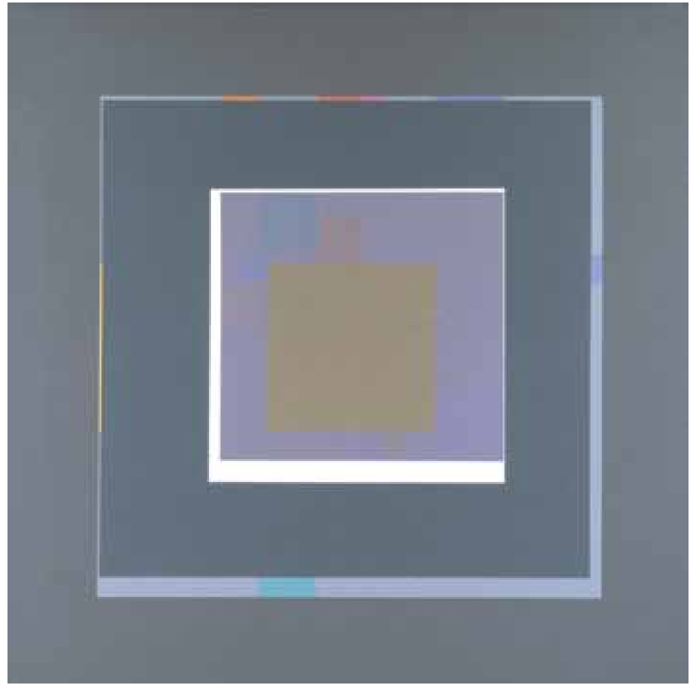
XI *Chromeclusters*, 1974



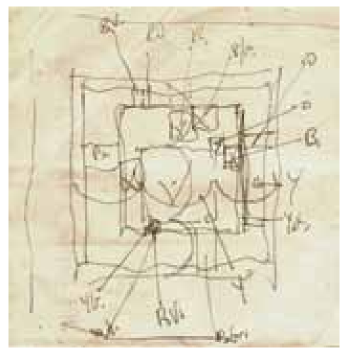
XII Sketch for *Chromeclusters*

perceiving them as bars moving forward and back in space. The paintings in figures 5 and 6 are still based on the primary palette, with each of the three colors doubled. But the introduction of 'yellow-green', as indicated
VI in the left-hand diagram in figure VI, riffs the system, setting off a relational game in which one of the primaries reads as 'more primary' than the other, or even implies its complementary color. With their multiple yellows, blues, and reds these paintings inevitably pointed to the next step for Slutzky, which was to open his palette to the full spectrum. Indeed, he reasoned, Mondrian himself would likely have made a similar move had he lived longer: in his unfinished last painting, the *Victory Boogie-Woogie*, which he worked on in his New York studio from 1942 to 1944, the Dutch painter introduced subtle variations on the primary palette, suggesting that he may have been poised to embark on a radically new direction. (This intuition seems to be confirmed by a recent analysis of the successive stages in the painting's long gestation carried out by scholars at the Gemeentemuseum in The Hague.)

An orthogonal and ostensibly more straightforward canvas that Slutzky painted
VII a few years later [VII] consists simply of three stripes of pure primaries on the left and three stripes of pure complementaries on the



XIII *Untitled (color wheel)*, 1978-1979



XIV Sketch for *Untitled*, 1978-1979

right set against a background that is half gray and half white. Yet the precisely calibrated intervals between these elements and the insertion of three hairline-thin white-gray verticals produce the kinetic effect of square fields sliding left and right, rendering ambiguous what is figure and what ground. These dynamics, resembling a curtain moving back and forth, are anticipated in the energetic handwriting

VIII of the diagram for this painting. VIII It is noteworthy, however, that the order of the colors projected in the diagram was reversed in the actual painting, indicating once again the empirical nature of the painterly process.

In the early 1970s the striped, tipped, and diamond canvases gave way to a new series of paintings of increasing structural complexity and chromatic variability. These compositions of squares, rectangles, and L-shapes, deployed in complementary pairings

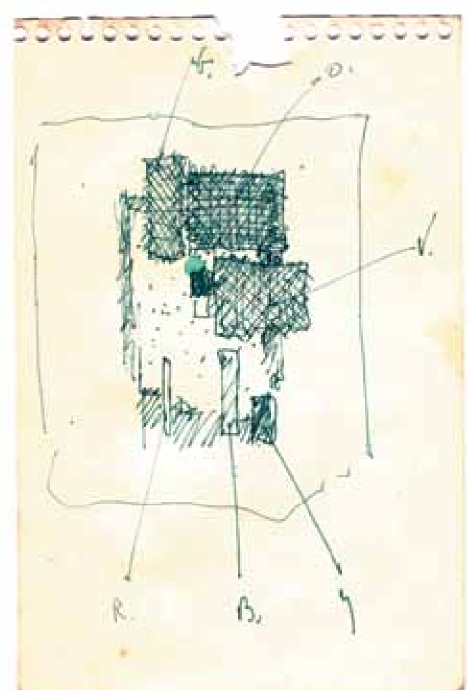
IX XI and chromatic clusters, IX XI paid homage to Cubism (most especially Juan Gris, but also Léger, Braque, and Picasso) and to musical forms (most especially Bach, but also jazz). Slutzky seized on the proclivity in Gris's late still-lifes for reflected or inverted symmetries about a diagonal axis, but set for himself the problem of achieving with his abstract formal repertory relationships similar to those produced by the Cubist painter's pipes, guitars, and compote dishes. At the same time, his

XV *Untitled (The Tempest)*, 1984

enriched palette of colors, modulated with a range of sonorities, lent these paintings a new emotional resonance. Slutzky's articulate dia-
X XII grammatic drawings for these paintings X XII not only show their structural conception but also provide an inkling of the coloristic ener-gies to be unleashed in the final work.

Around the mid-1970s, Slutzky lit upon an
XIII entirely original compositional structure. XIII At first glance his color-wheel paintings recall the pulsating fields of Albers's *Homage to the Square* series. But Slutzky's aim was far less minimalist than his teacher's, not just compositionally but semantically. Fus-ing perceptual optics with both the hermetic poetry of the Cubist still-life and the con-ceptual armature of Goethean color theory, the color-wheel paintings aspired to be a self-sufficient world of abstract color, struc-ture, and meaning, a total synthesis of the painterly universe. The twelve hues orbit-ing around the series of concentric square fields in obedience to the sequence of the spectrum – red, red-violet, violet, blue-violet, blue, blue-green, green, yellow-green, yellow, yellow-orange, orange, red-orange – inter-lock in complementary relationships that vector across the canvas, meanwhile being transformed in value and size by the color fields through which they pass.

These intricate paintings, on which



XVI Sketch for painting in the same series as fig. XV

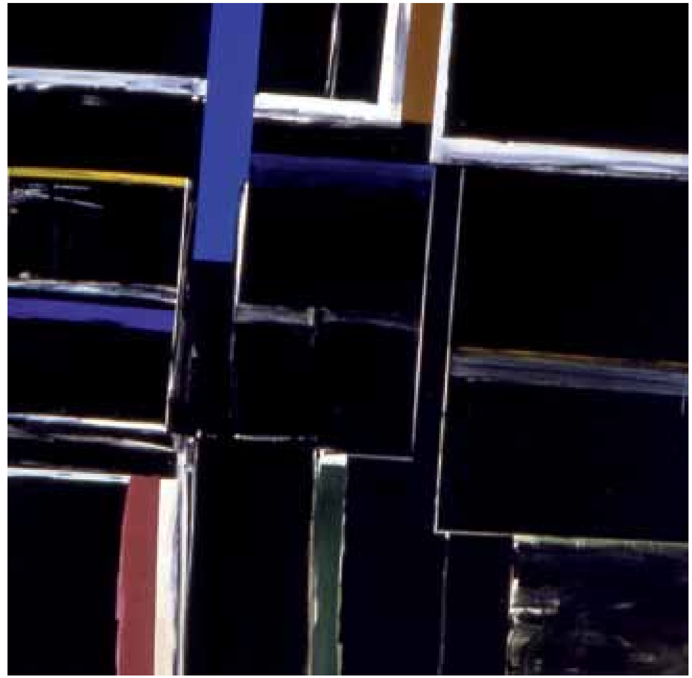
Slutzky worked from about 1976 to 1980,
inevitably led, with an inexorable logic, to
their own limit-point. Much as his stretch-
ing of the boundaries of the primary palette
had earlier opened the floodgates to the rest
of the spectrum, so in the color-wheel paint-
ings his experimentation with extremely close
value relationships, which often resulted in an
optical dissolution of the boundaries between
fields, ultimately spurred him to transgress the
hard-edge aesthetic he had embraced thirty
years earlier. With this apparently momen-
tous move, the calligraphic impulse Slutzky
had long repressed began to reappear. In a
XV extraordinarily beautiful painting of 1984, XV
which subliminally recalls Giorgione's *Tempesta*
in the Accademia in Venice, many of Slutzky's
previous themes are present – the central
oculus, the peripheral color wheel, the com-
plementary color pairings – but now in an oc-
cluded, highly atmospheric form. The painter's
brushstrokes peek from behind the opaque
color blocks like roiling weather and the spec-
tral sequence is auroral. In a small drawing for
XVI a related painting in this series, XVI the use of
cross-hatching and shading suggest Slutzky
searching for a way to invest his older system
of denotation with more connotative, ambi-
ent affects.

In fact, the introduction of tactilities into the canvas in the 1980s would only constitute

XVII *Untitled (The Tempest)*, 1984

a partial break in Slutzky's trajectory. In his subsequent work he never abandoned the hard edge entirely, but rather pursued a dialogue between the hard and the soft, finished and unfinished, objectivity and subjectivity. At times these oppositions resulted in an uneasy coexistence or unresolved state of tension. At the same time, especially in retrospect, it is possible to sense similar tensions in his early geometric work – for example, in certain of his stripe and diamond paintings, with their attenuated or meandering linearities and gravity-sensitive fields; in these compositions lines serve not just to demarcate spatial contours but also as surrogates for dripping paint or as metaphors of the painter's hand.

Yet it is only in the late work that Slutzky permits actual drips and blurs and smudges and areas of raw canvas and of indecision to persist into the finished work, exposing the private, arcane process of painting to public view. Indeed, the late paintings may be read as fields for the active working out of the ontological differences between painting and drawing. Not surprisingly, the notational diagrams on scraps of paper became increasingly rare, and presumably unnecessary. In a series of five black, somewhat impasto paintings completed in the early 1990s, not long after he had moved out of his loft studio



XVIII Intermediate state of *Untitled*, 1995 (fig. XIX)

in Manhattan into an old mill building on the outskirts of Philadelphia, Slutzky returned to the nine-square structure of his early *Source-hollandays*, but now as a kind of calligraphic, and autobiographic, memory. The mill's solid stone masonry became the inspiration – uncharacteristically for this anti-naturalistic painter – for his conception of these large paintings as excavations of light and color out of opaque, material substance. In the last
XIX painting in the series, finished in 1995, XIX it is possible to trace through photographs of successive stages of its development a partly sgraffito process of erasure and emendation
XVII XVIII leading to its ghostly final state. XVII XVIII

XX The painting in figure XX, an example from a more ebullient series Slutzky undertook just after the black paintings and never exhibited, represents a more literal return to his 'Dutch' period and his early preoccupation with primary colors and plaid grids. There is an unmistakable wink at the several Rietveld chairs that were scattered around his studio in these years, not to mention a bow to Van Doesburg. Van Doesburg's heretical act of introducing the diagonal into Mondrian's orthogonal universe in 1924 – going beyond the lozenge shape of the canvas into the configurative heart of the painting – became, for Slutzky, the provocation for yet another consciously meditated 'viola-

XIX Final state of *Untitled*, 1995

tion' in his own late work. But in resurrecting this polemical battle between the diagonal and the orthogonal, Slutzky characteristically transformed it into a dialectical disputation within the painting itself. Apropos of the theme of the mental and the manual, this gestural red-blue-yellow-black-white painting cannot help but suggest a parallel to the handicraft context within which the metaphysical polemics of De Stijl played out.

Slutzky's internal, ongoing dialogues with Neo-Plasticism and Cubism reflect not just his acute consciousness of the history of art but also his awareness of the implications of his own belated relationship to the Modern Movement. While modernist aesthetics remained an unfinished and vital project for him to the end of his life, they did not imply a slavish repetition but rather demanded a genealogical and increasingly questioning relationship. This often meant circling back for the sake of a radical reinterpretation. In this
XXI context, a very late painting, of 1999, XXI is exemplary. The synthetic world of the color-wheel painting has been completely abandoned now in favor of forms that fly off the canvas into outer space, as if the painting were no more than a momentaneous capturing of chance, flotational fragments in an infinite galaxy. The painting evokes yet another iconic image of modernism – the

XX *Untitled*, 1995

cerebral, *gegendstandlose* universe of Suprematism. Here, however, the utopias of Malevich and Lissitzky seem to meet the blood and tears of earthly existence. The painterly field and the gravitational field are in conflict; it is indeterminable whether the truncated red cruciform is in the act of ascending or crashing to earth. Meanwhile, within this cosmic drama, Slutzky's rigorous compositional structuring remains unfailing: three primaries and three complementaries facing off each other in complementary pairings.

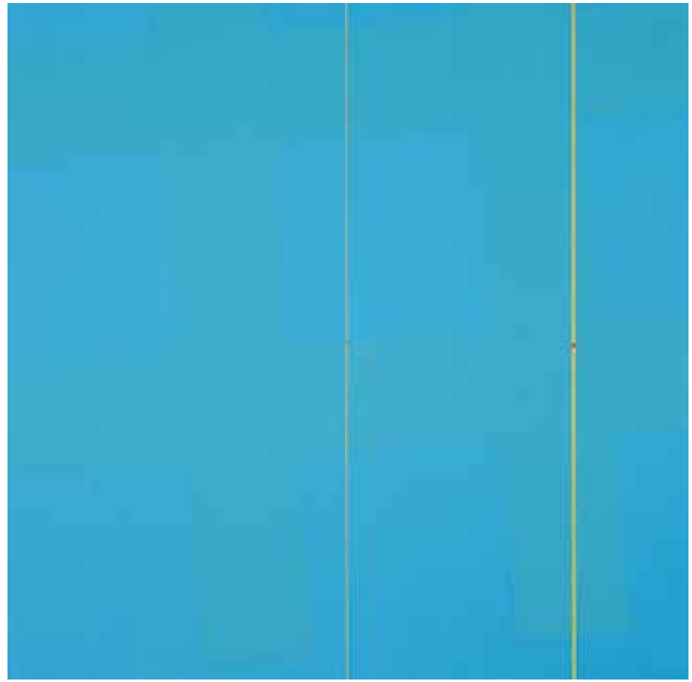
Much of what has been suggested here with regard to the intertwined physics and metaphysics of Slutzky's paintings is summed up in his final work, now in the collection XXII of the Whitney Museum in New York, XXII At the time he painted it, in 2002, he had nearly lost the use of his hands to the motor neuron disease to which he succumbed three years later, and its minimalism may be ascribed, although only in part, to the physical difficulty of painting. The levitational plaid grid, an evanescent green-blue on blue, is pinioned by two thin yellow verticals, each divided precisely in half by a tiny red dot – the last permutations of the signature oculus. Although Slutzky never titled this painting, its coloration, which completely suffuses the field of vision, evokes Hölderlin's fragmentary last poem, 'In Lovely Blue':

XXI *Untitled*, 1999

In lovely blue the steeple blossoms
With its metal roof. Around which
Drift swallow cries, around which
Lies most loving blue.

. . . poetically
man dwells on this earth . . .

Would I like to be a comet? I think so.
They are swift as birds, they flower
With fire, childlike in purity. To desire
More than this is beyond human measure.[1]



XXII *Untitled (In Lovely Blue)*, 2002

1 'In lieblicher Bläue . . .' from Friedrich Hölderlin, *Hymns and Fragments*. Translated by Richard Sieburth, Princeton (Princeton University Press) 1984, pp. 249, 251. This same poem inspired the essay '. . . Poetically Man Dwells . . .' by Martin Heidegger, another of whose essays, 'Building Dwelling Thinking', prompted the title for the present reflections.

Alper Semih Alkan

Architectural representation beyond visualization. Cedric Price's diagrams of social imagination

Alper Semih Alkan was born in 1977, in Erzurum, Turkey. In 2001, he graduated at METU Department of Architecture in Ankara, where he also received his MArch degree in 2004 with the thesis entitled *Framing the 'Invisible'. 'Section' as a spatial frame for a reconsideration of architectural representation.* He worked as a research and teaching assistant between 2003 and 2007 at METU. Since September 2007, he is a PhD researcher at the Faculty of Architecture of Delft University of Technology. Different modes of architectural representation are at the centre of his research. He conceives representation as the mediator of architecture at different levels of both conceptual and practical production. Therefore, the transformation of the cognitive path in architectural design in the last decades has been one of his main research tracks with a special focus on design media.

He contributed to several projects as a designer and an architect: Vinery for Kiska Corp. (2006, Kalecik, with N. Bursa & H. Zelef), Health Care Unit (2005, Elmadag, with M. Ozkar), Sakip Sabanci Museum Exhibition Galleries-Extension (2005, Istanbul, with A. Savas & N. Erkal), Press Centre for Municipality of Ankara (2003, with N. Erkal), Art-Ist Art Expo, Istanbul (2002, concept design with N. Erkal). He worked as a designer for several private exhibitions. Additionally, he both designed the exhibition display system for METU Faculty of Architecture and organized many exhibitions there between 2005 and 2007. He is a committee member of Sanart-Turkish Association for Aesthetics since 2004, and from 2004 to 2006 he served as a member of the editorial board of the Chamber of Architects in Turkey.

Architecture's engagement with visual documentation has always been in close proximity with the developments in technology and arts, and in turn it has been problematic but productive, as well. Problematic in terms of appropriating different means of expression and yet to stay within a notational structure that can be communicated among the professionals of the discipline and practice. Productive, as this multifaceted relation to other domains enriched the expressive power of the designers. In that respect, the production of visual documents served two evident purposes for the discipline: internal and external communication; *imaginative* with its *projective* capacity, and *documentary* with its multimedia. In this context, visualization should be addressed both with its projective and documentary capacities, which can be translated as *imaginary* and *operational* in the instance of architectural drawings.

Diagram drawings, in this context, are intense tools suggesting alternative possibilities in form generation and raising new conceptual issues and relationships. Rather than focusing on representation, they help designers avoid early formal fixation in the design process. Yet, sometimes they are also opaque or at least translucent in conveying the design idea while combining multiple attributes of the design process. Therefore, their thick surface needs an elaborate decoding which requires advanced media literacy in different domains.

To epitomize this, the British architect Cedric Price's (1934-2003) drawings provide limited but substantial contextual evidence, which helps seeing that the act of drawing becomes a technical mapping of the proposed design solutions. They are preferably called suggestions here because in Price's approach the design solutions are meant to provide a playground for further possibilities, which enact the users in a reflective mode. In this sense, Price's diagrams themselves become a sort of *prescriptive* provisions of various probabilities and simulate those controversially in the *descriptive* medium of drawing.[1] Yet, the characteristics of the drawings easily show that they are not typical elements of a set of orthographic or documentary drawings. The internal structuring of design solutions for variability and the user input become a means for drawings' expressive character, and therefore, they mostly resonate with Archigram's projective urban proposals, and yet stay in a more limited cosmos of architectural elements.

1 Bryan Lawson refers to Cedric Price to highlight these complementary concepts while discussing guiding principles in design-thinking. See Bryan Lawson, *How Designers Think. The Design Process Demystified*. 4th ed., Amsterdam (Elsevier) 2005.

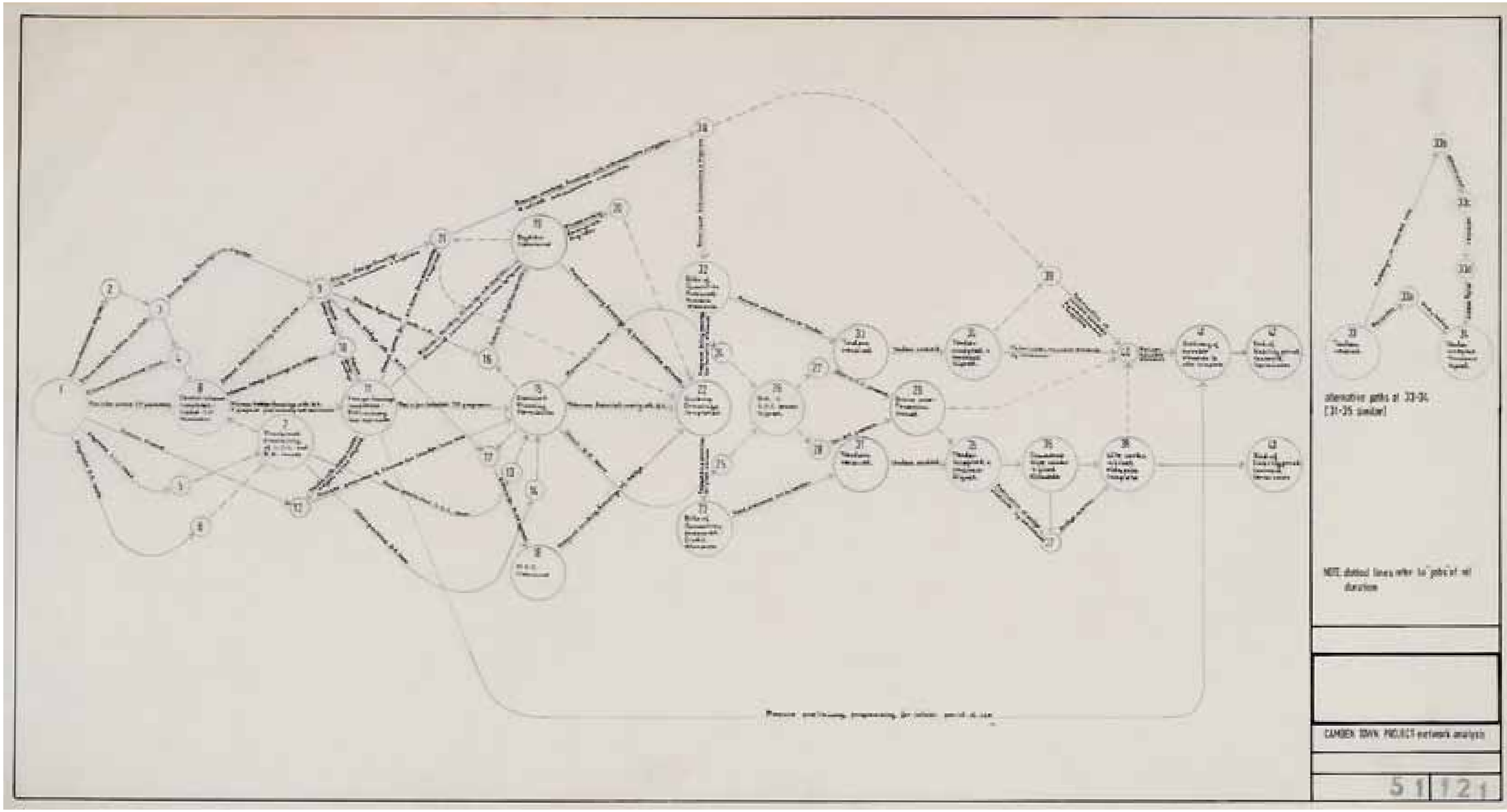
The network analysis flowchart for the programmatic development of the Fun Palace (1961-1972) conceived by Price for the Theatre Workshop of Joan Littlewood, as a drawing, becomes a model in itself: a structured network that simulates the causal modalities which reflects the formation of the overall programme in different fields with an array of institutional, legislative and contractual relationships.[2] In this regard, this drawing seems to be more successful in conveying the logical structure of the decision making procedure than most of other drawings like presentation panels or interior perspectives for
1 Fun Palace.[1]

Thanks to the political and social climate of the period in sixties and seventies, the approach to design with a focus on user participation coincided with the interests of architects in self-organized solutions for design problems. Cedric Price was one of the most influential architects of the period. His critical approach to the conception of architectural practice and design notions also influenced other architects and groups of designers, whose practice displayed that influence through forthcoming decades, like Archigram, Bernard Tschumi and Rem Koolhaas. Koolhaas starts his introduction to *Re: CP* saying that 'nobody has ever changed architecture more with fewer means than Cedric Price'.[3] Obviously, this claim addresses Price's programmatic emphasis over physical requirements, which sometimes even caused him to decline project commissions by questioning the necessity of a building at its expense. In this context, the aim in this paper is not to rely on Price's negation of formal baggage of an architect as a designer. On the contrary, probably in a more naïve way of illustration by outlining how Price utilized the diagrammatic drawings, I aim to exhibit the intrinsic force of drawing in architectural practice, where one of its central motivations for visualization conflicts with its aimed final product and broadens the limits of architectural representation.

Price's approach to space is in line with the theory of systems that was put forward in late 1950s. Its gravitating impact on architecture, however, showed itself in sixties and Price and his contemporaries were convinced by its prescriptive power. The developments in systems theory in the 1940s can be mentioned as the origin for the interdisciplinary formation of cybernetics, which in the end influenced other domains of knowledge and in turn reshaped it. With many other

2 Tim Anstey, 'Where is the Project? Cedric Price on Architectural Action', in: Jane Rendell, Jonathan Hill, Murray Fraser and Mark Dorrian (eds.), *Critical Architecture*. London (Routledge) 2007, p. 221; Tim Anstey, 'Architecture and Rhetoric: Persuasion, Context, Action', in: Tim Anstey, Katja Grillner, and Rolf Hughes (eds.), *Architecture and Authorship*. London (Black Dog Publishing) 2007, pp. 18-29; Thomas Hänsli, 'Parrhasius's Curtain. Visual Simulation's Mimesis and Mediality', in: A. Gleiniger, and G. Vrachliotis (eds.), *Simulation. Presentation Technique and Cognitive Method*. Berlin (Birkhäuser) 2008, pp. 13-28; Stanley Mathews, 'The Fun Palace. Cedric Price's Experiment in Architecture and Technology', *Technoetic Arts. A Journal of Speculative Research*, 3 (2005), No. 2, pp. 73-91; Stanley Mathews, 'The Fun Palace as Virtual Architecture', *Journal of Architectural Education*, 59 (2006), No. 3, pp. 39-48; Stanley Mathews, *From Agit-Prop to Free Space. The Architecture of Cedric Price*. London (Black Dog Publishing) 2007; Cedric Price and Joan Littlewood, 'The Fun Palace', *The Drama Review: TDR*, 12 (1968), No. 3, pp. 127-134.

1 Network analysis diagram produced for Fun Palace's programmatic relationships by Cedric Price



disciplines like psychology, control systems, neuroscience or game theory, architecture was also in this league of predictive endeavours yet the entailment of systems theory had to wait until late 1950s so it could infiltrate into the processes of design. Contemporary to Price's endeavour to search for reflective spatial organizations, the Architecture Machine Group at MIT, which was the core of the current Media Lab, lead by Nicholas Negroponte was looking for self-organizational implications in the light of the developments in systems theory and computer science, where Gordon Pask had insurmountable impact.[4] In order to single out this relationship between architecture and systems theory, diagramming can be used as a framework to understand how the conceptual mutation in
II design came forth. II

Gordon Pask, psychologist and one of the leading figures in cybernetics, who was also involved in the Fun Palace project with Cedric Price, claims that systems-oriented thinking also became apparent in the techniques of design.[5] The diagram in Fig. III attributed to him, helps clarify the impact of this approach in Price's practice. Comparing to Price's network analysis diagram, Pask's drawing reveals the explicit mode of technical thinking, which priorities the relative modalities of relationships and tries to even standardise them at a more abstract level. This can be also highlighted by designers' interest in automated design processes and self organized systems. Especially, for Price this interest showed itself as early in the beginning of 1960's.Probably this is why most of his sketches of architectural elements imply a collection of spatial configurators that should be gathered together by the user – the Generator project being the motto for it. Thereby he avoids putting forward a final solution to the pre-defined state of the
III IV problems.[6] III IV

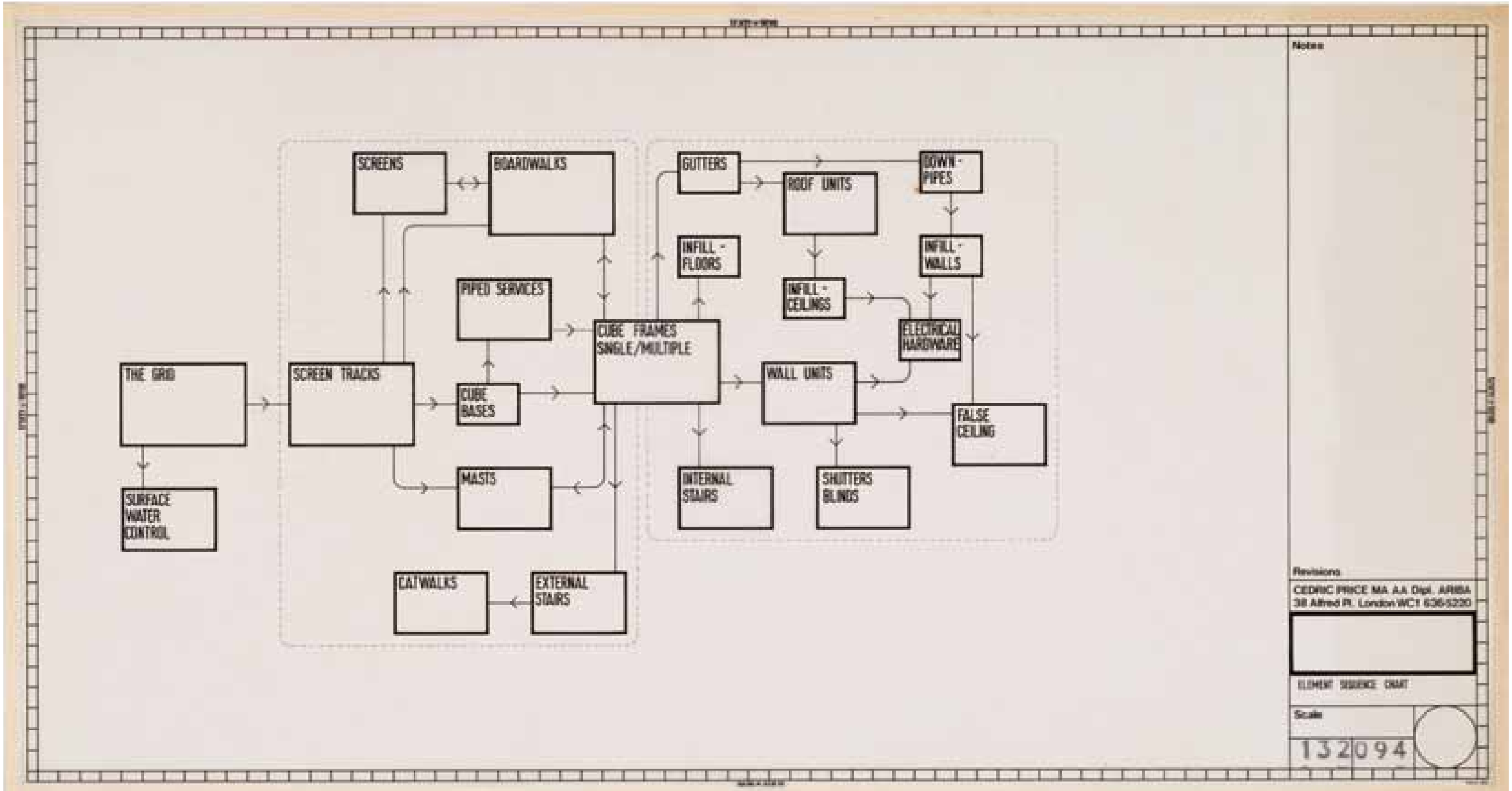
3 Rem Koolhaas, 'Introduction', in: Hans Ulrich Obrist (ed.), *Re: CP by Cedric Price*. Berlin (Birkhäuser) 2003.

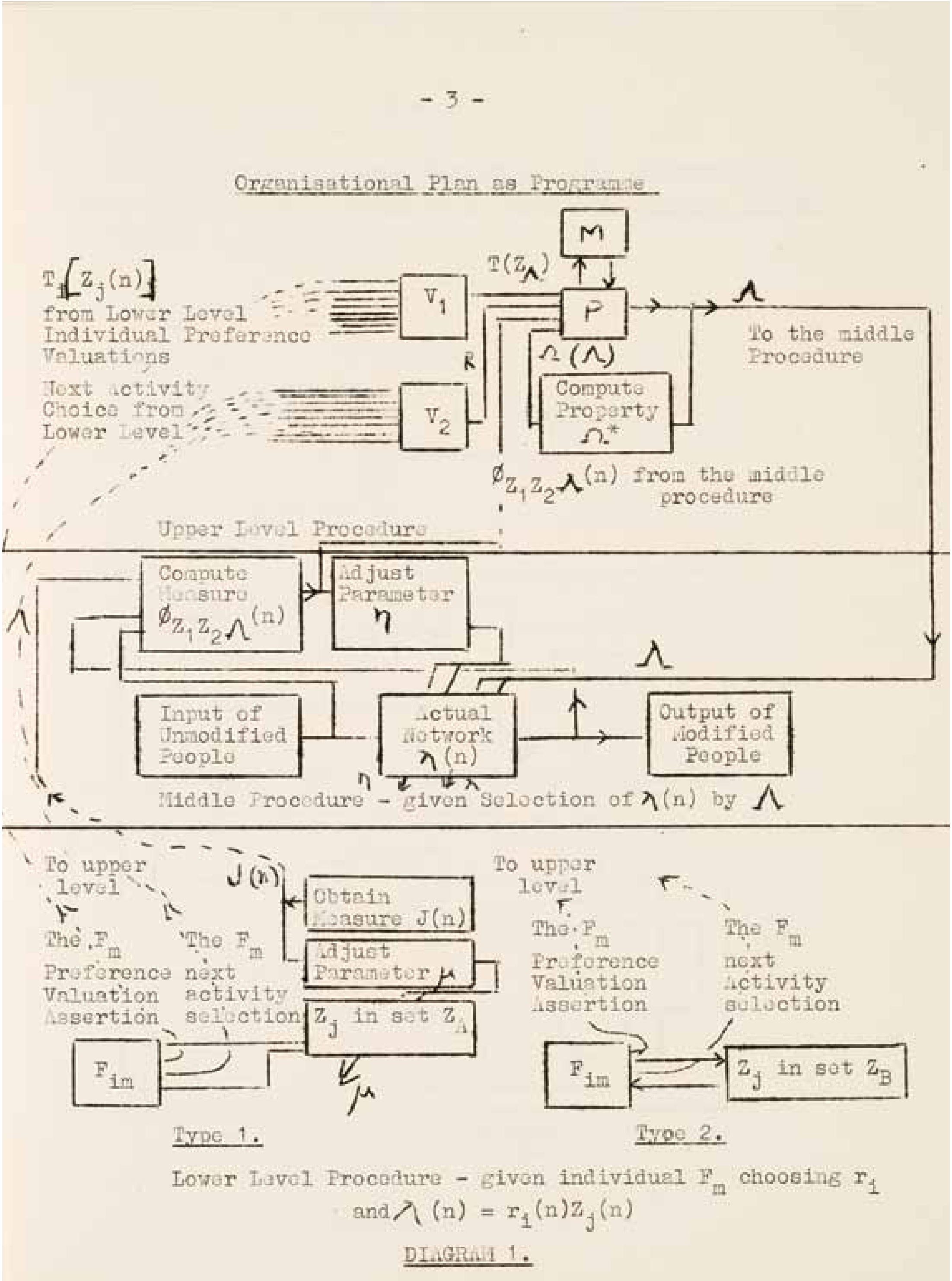
4 Nicholas Negroponte, *Soft Architecture Machines*. Cambridge, MA (The MIT Press) 1976.

5 Frazer, 'The Cybernetics of Architecture. A Tribute to the Contribution of Gordon Pask', in: *Kybernetes*, 20 (2001), No. 5/6, pp. 641-651.

6 Royston Landau reminds the discovery of DNA molecule by Watson and Crick, which transformed the biological research so radically that the subject became a matter of information science. Yet, he also emphasizes that Price's effort was put forward when architecture was still in a stage premature for information science: 'Already by 1961, Price had embarked on an enquiry into information technology and in 1961, in a lecture at the AA, he examined the relationships between location, communication and information, beginning with a model of the early human settlement when information would have been transmitted by voice and by foot alone. As settlements developed and became more complex, a technology had to be devised which spurred on these developments.

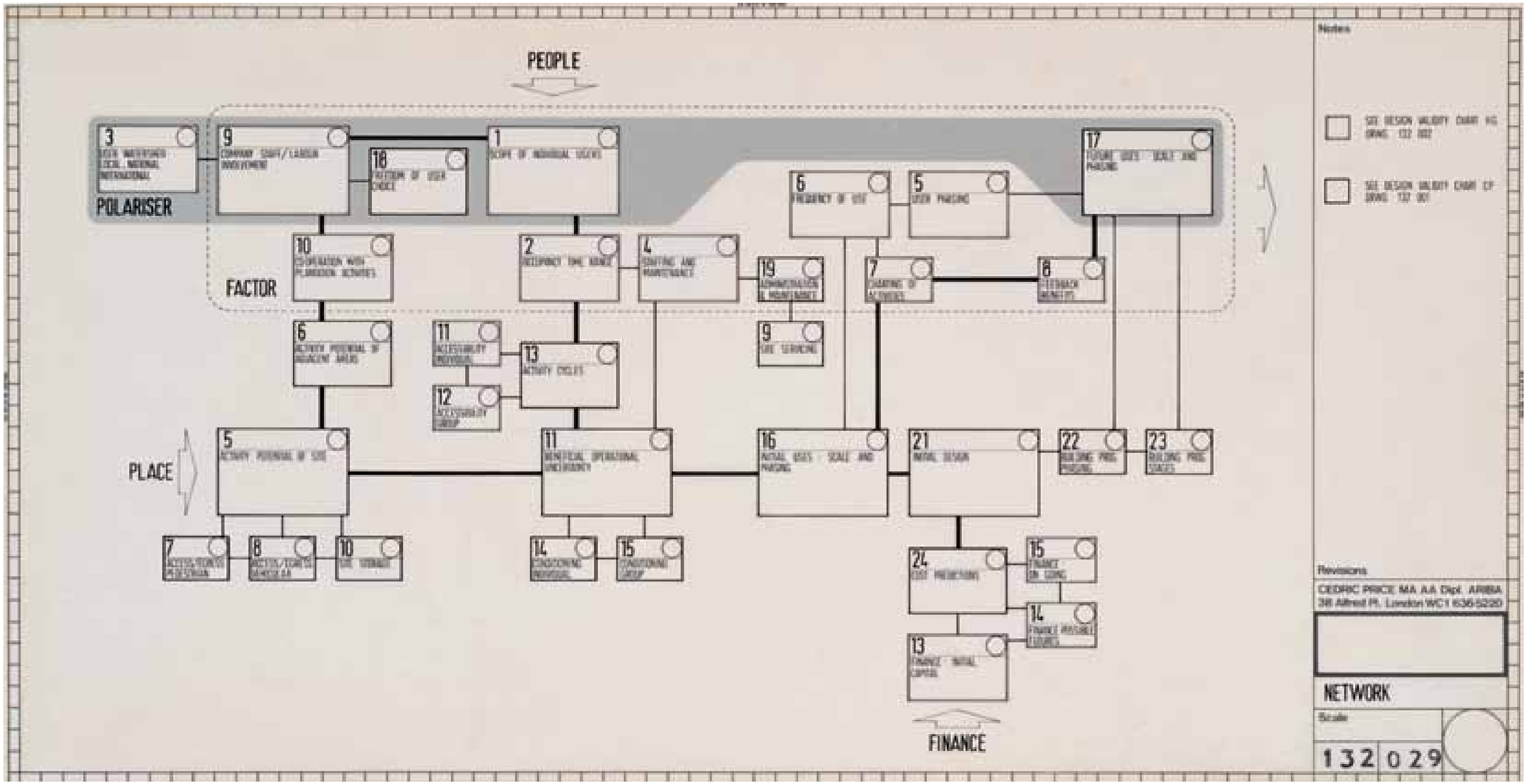
11 Cedric Price, Generator: Diagrammatic chart of element sequence, c. 1977





III Gordon Pask, 'Organisational Plan as Programme', from the minutes of the Fun Palace cybernetics committee meeting, 27th January 1965; Typographic ink on wove paper 25.6 x 20.5 cm

IV Cedric Price, Generator, White Oak, Florida: initial design network showing three starting points



Diagrams for an architecture as social automaton

With a focus on Price's architectural endeavour, my aim is not to revisit the arguments on user participation raised by Price's generation in a political climate when architecture was seen as an agency in realizing a substitute utopia for the city.[7] Rather, by focusing on the diagrammatic almost non-representational drawings and schemes produced by Price, the priority within the limits of this text is to outline the impact of the cybernetic mode of thinking that was already apparent in a period when the sole medium of design depended on analogous modes of representation. This way, although it seems to be one of the recurrent themes in the design discourse, it might provide a frame for understanding the cognitive foundation of diagrammatic thinking in architecture.

The architect's authority has been usually reflected by her expertise in controlling the qualitative values within the space by the boundary conditions itself. Namely the material envelope and its conception has always been the denominator for spatial practice.[8] In that respect, the enrichment of the content and the context of the design object should be taken into consideration with a delicate balance between its material and programmatic components. The diagrammatic approach to architectural problems can be seen as a response to this dilemma, for diagrams usually provide the designer with both a symbolical structure of meanings in which the theme of design can be communicated and also a graphical expression over which the physical outcome could be initiated.

This can be best highlighted by Vilém Flusser's (1920-1991) definition of 'technical images', which are products or by-products of apparatuses.[9] Since the apparatuses with their internal programming replaced the tools, the output of this shift from tools to apparatuses also caused a change in the conception of the images. Technical images are reflections of the internal programming of an apparatus, the internal diagram in a sense.[10] The diagrammatic drawings by Price should be acknowledged in line with this. So, how a totally analogous drawing on a sheet of paper can be used to epitomize logical programming?

What Flusser calls the internal program of the apparatus is not tightly bound to some functional features of the machinery of that apparatus. On the contrary, the program

7 Jonathan Hill discusses user-centered interpretation of space and interventionist approaches at large. For specific cases and definitions in this context see Jonathan Hill, *Actions of Architecture. Architects and Creative Users*. London (Routledge) 2003.

8 Vilém Flusser, 'The Technical Image', in: Vilém Flusser, *Towards a Philosophy of Photography*. London (Reaktion Books) 2000, pp. 14-20.

9 Although this is a bit controversial, the analogy to simulation might be helpful in displaying its potential. Herbert Simon, similarly, discusses the role of computer in simulation as a source of new knowledge, where he puts two propositions: 1. A simulation is no better than the assumptions built into it. 2. A computer can do only what it is programmed to do. He claims that 'there are two related ways in which simulation can provide new knowledge – one of them obvious, the other perhaps a bit subtle'. So, the apparatus's function as an agent in the simulation provides a new frame to look at the phenomena that has to be contemplated on. See Herbert A. Simon, *The Sciences of the Artificial*. Cambridge, MA (The MIT Press) 1996.

intrinsic to the apparatus is the soft machine that also conditions the users' state of mind. In the end, the product becomes a snapshot of a combination of a cybernetic system itself. In fact, this can best be highlighted by an anecdote by Herbert Simon when they were trying to simulate the computer ironically by hand. Simon clearly explains it as follows:

> *Simulation, as a technique for achieving understanding and predicting the behaviour of systems, predates of course the digital computer. The model basin and the wind tunnel are valued means for studying the behaviour of large systems by modelling them in the small, and it is quite certain that Ohm's law was suggested to its discoverer by its analogy with simple hydraulic phenomena . . . Simulation may even take the form of a thought experiment, never actually implemented dynamically.*[11]

In this respect, the significance of modelling and its expression either in visual or symbolic language of representation becomes a crucial issue in architecture, which is conventionally dominated by visual media. The significance of the discussion with a focus on Price's network diagram lies here. In his effort to reach a performative architecture, drawings become a simulation of the functions for the proposed programme. The programme encoded into the diagram becomes the essential dataset required for modelling. Architecture becomes an apparatus, a social automaton par excellence.

As diagrams play an overarching role to define a utopian state, Price's drawings, even the most descriptive ones in the instance of Fun Palace, seem to be quite explicit in respect to the required hierarchical set of information for the realization of the project.[12] Successively, this results in a more abstracted yet naïve expression of the 'project' as architecture where the internal programme is also left as a latent quality. The singularities of Price's diagrammatic drawings, prescriptions for almost pending conditions, arise from these peculiarities of the programmatic multiplicity that he presumes as states of 'unformed buildings'.[13] Therefore, those drawings, apart from the ones done on purpose of presentation or visualization to communicate externally, exhibit a coarse texture that awaits decoding on a non-linear sequence which gives way to

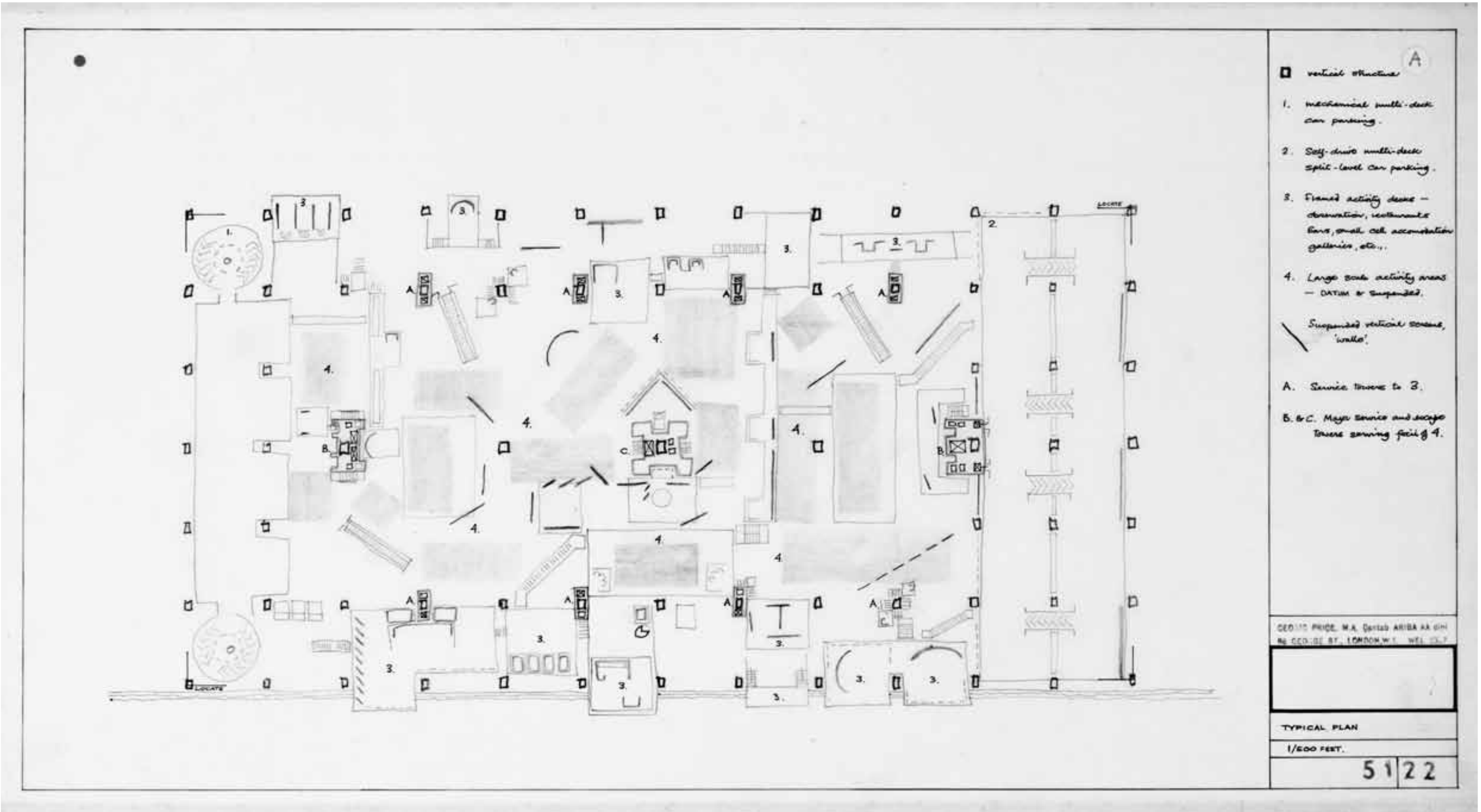
V VI parallel or cyclical operations, at once. V VI

10 Simon, *The Sciences of the Artificial* (note 10).

11 Simon, *The Sciences of the Artificial* (note 10).

12 Here, I refer to Vidler's multifaceted definition of diagram, as he notes that it 'goes far beyond its informative and referential characteristics'. He suggests that diagram is an instrument of a 'suspended reality', which should be read in conjunction with the effort here to disclose the structure of Price's diagrams of abstract social relationships. See, Anthony Vidler, 'Diagrams of Utopia', *Daidalos. Berlin Architectual Journal*, 74 (2000), pp. 6-7.

13 I derive this definition of unformed buildings from Yeoryia Manolopoulou's concept of 'unformed drawings': 'Notes, sketches, and diagrams in mixed combinations make what we can call incomplete or "unformed drawing". . . . [T]he unformed drawing is alive and changeable.' For a broader discussion of her definition, see Yeoryia Manolopoulou, 'Unformed Drawing. Notes, Sketches, and Diagrams', *The Journal of Architecture*, 10 (2005), No. 5, p. 520.



V Cedric Price, Fun Palace: diagrammatic plan, 1963

VI Cedric Price, Presentation Panel, Fun Palace: perspective for the Lea River site between 1961 and 1965

However, his negation of the physical edifice, and instead, focus on the prescriptive effort in the instance of Fun Palace reflects another problematic in itself that was highly criticized because of his oversimplification of architecture to functionalism. One of those critiques is boldly expressed by Peter Eisenman:

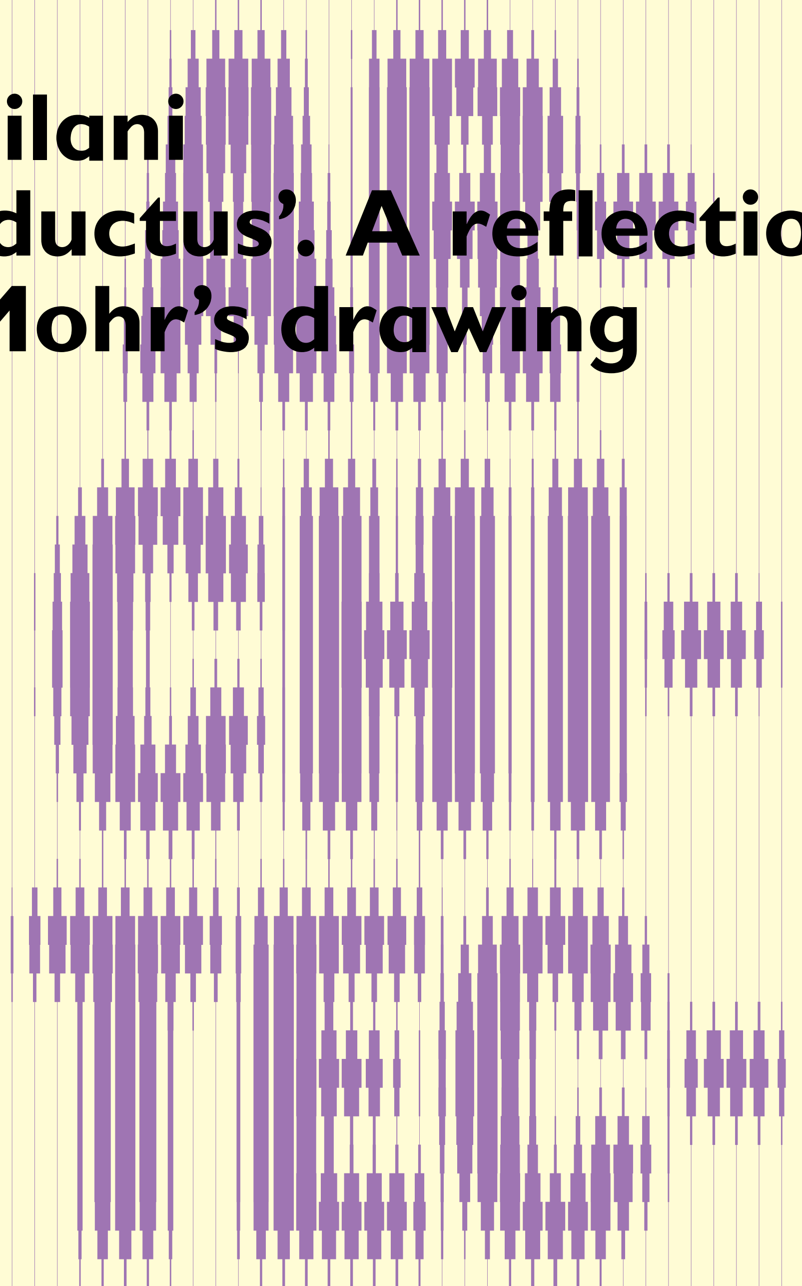
> *This shift in balance has produced a situation whereby, for the past fifty years, architects have understood design as the product of some oversimplified form-follows-function formula. . . . [A]s late as the end of the 1960s, it was still thought that the polemics and theories of the early Modern Movement could sustain architecture. The major thesis of this attitude was articulated in what could be called the English Revisionist Functionalism of Reyner Banham, Cedric Price, and Archigram. . . . However, the continued substitution of moral criteria for those of a more formal nature produced a situation which now can be seen to have created a functionalist predicament, precisely because the primary theoretical justification given to formal arrangements was a moral imperative that is no longer operative within contemporary experience. This sense of displaced positivism characterizes certain current perceptions of the failure of humanism within a broader cultural context.*[14]

14 Peter Eisenman, 'Post-Functionalism', in: K. Michael Hays (ed.), *Architecture Theory since 1968*. Cambridge, MA (The MIT Press) 1998, p. 237.

The tone of the critique in Eisenman's reconsideration of the so-called Revisionists' approach in general reflects the anxiety for the domination of architecture with an outdated design agenda. However, Price and his fellows' approach should not be underpriced simply by just arguing that their effort was in a sense to overturn the practice of architecture into a ghost of self-organized functional relationships. The indispensible problem of formal complexity in architecture, where the classical Modernists left out, should also be questioned in this framework. The reconfiguration of our spatial dilemma should lead to a more serious reconsideration of the content rather than its formal aspects. In that sense, the cognitive path they followed in outlining the requirements of a architectural configuration with more prescriptive sensitivity should be aligned with the indigenous search for formal originality and complexity. More importantly, the visual categories they worked in, once heretic in their own context, also reflects the effort to resolve the latency between the spatial stimulus of architectural intervention and the social response to it.

Stefano Milani

The new ‘ductus’. A reflection on Manfred Mohr’s drawing



Stefano Milani graduated cum laude from the IUAV of Venice. Since 2004 he has been a principal architect at Ufo Architects in Delft. From 2001 to 2005 he worked as a project architect at Nio Architecten in Rotterdam. Besides his practical experience he has been carrying out research on the architectural drawing at the Faculty of Architecture at Delft University of Technology. At this faculty, he has also been teaching within the Territory in Transit Research Program. Since drawings are considered to represent the privileged field of architectural knowledge, his research attempts to enhance the role of architectural drawing within design research and theory. In 2006, he was invited to take part in the 10th Architecture Biennale of Venice. In 2008 he edited the publication *Franco Purini, Drawing Architectures*, 2008 and he curated, with Filip Geerts, the Symposium *Ideal / Real City*.

‘The question is,’ said Humpty Dumpty, ‘which is to be master – that’s all.’

Lewis Carroll, *Through the looking glass*, chapter VI

The analytical approach and the drawing

For nearly fifty years, different thematic aspects of computer sciences, such as shape grammars, evolutionary algorithms, parametric techniques, have influenced the architectural debate. In more recent years, we have witness an increasingly complexity of this relationship when many computational techniques and highly complex organizational model became available in all fields of the architectural production.

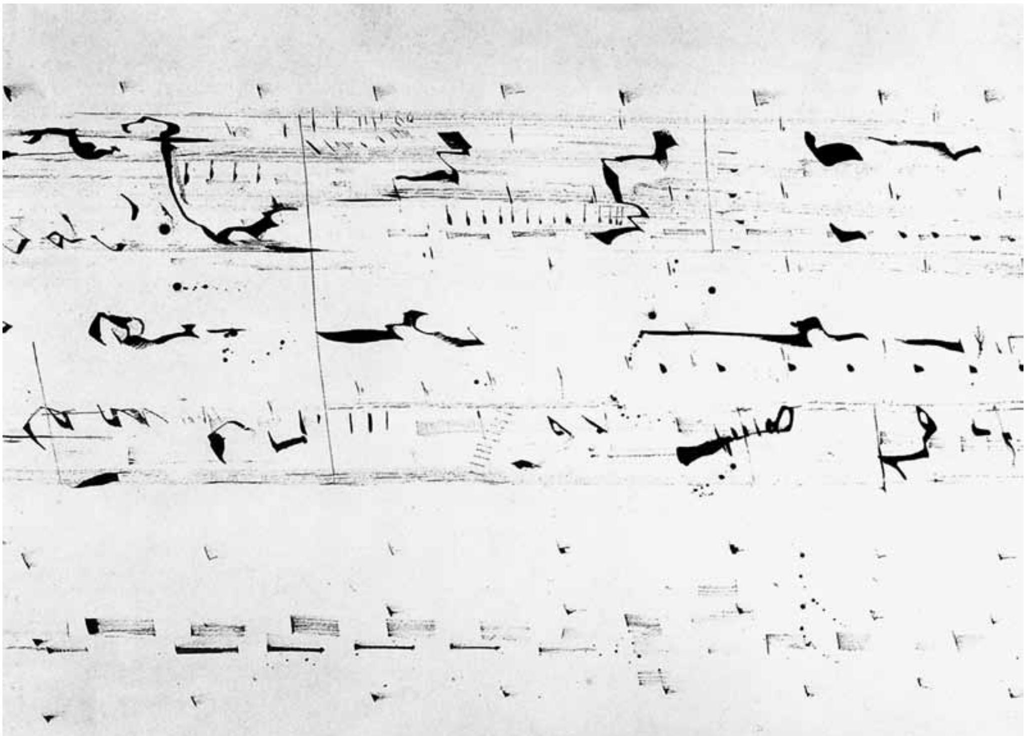
Reflecting on these topics of the contemporary condition of the architectural project Diana Agrest, has observed the existence of a paradoxical condition that sees a ‘reunification of the process of representation in the production of a design and the process of construction’,[1] a paradox which is also a sign of a conceptual problem that invest the specific identity and finality of architectural expression and the one of its ‘construction’.

Undoubtedly, it must be acknowledged important transformations have occurred within the organization of the architectural work as a whole. This fact has lead to a redefinition of the visual repertoire of the architect but also a complete disarray of his cognitive maps. With extreme simplicity, the computer offers the possibility to organize in coherent classes an enormous amount of data that the architect have to ‘connect’ with imaginative paths, sometimes poetic, sometimes chaotic, but that are conceptually foreign to the rationality of a programmed trajectory, implied by a scientific method of computation.

In any case, there seem to be enough arguments for a comprehensive and rigorous research concerning the theoretical poignancy of the new modes of architectural expression and conception of architectural ideas, which, up until now, computer and complex software seem to have not yet determined.

An extended theoretical understanding of the Drawing, as a specific form of the elaboration of the architectural thought and, at the same time, as the very place of the architectural expression, could still be a privileged place for this epistemological research. Certainly, we will need an expanded

1 See Diana Agrest, *Representation as articulation between theory and practice*, in: Stan Allen, *Practice. Architecture, Technique and Representation.* Amsterdam (G+B) 2000, p. 176.



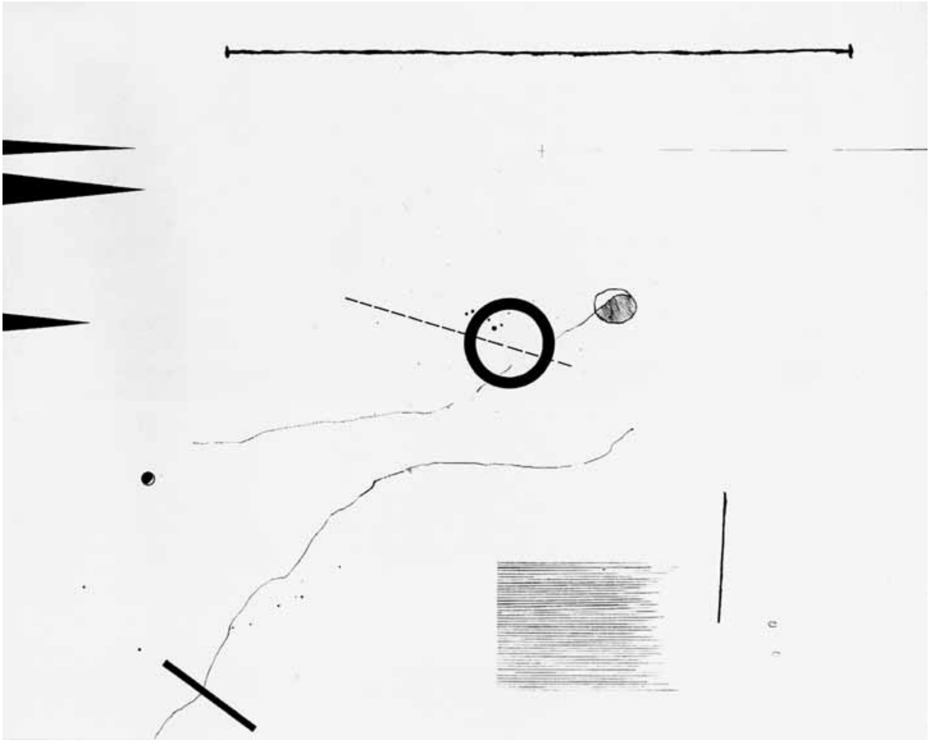
1 Manfred Mohr, Drawing, ink on paper, 1963

idea on what we traditionally refer to as the 'drawing'.

The Italian architect and theorist Franco Purini notes that the progressive scientific-*ization* of the design, especially in recent years, seems to have overshadowed the unpredictable aesthetic sphere the drawing, its artistic dimension: 'as a consequence of the digital revolution, the drawing becomes a "scientific text", an applied theorem or an algorithm that protects its content through an accelerated and mysterious figuration'.[2]

2 See Franco Purini, 'Drawing Architectures', in: Stefano Milani (ed.), *Franco Purini. Drawing Architectures*. Bologna (Compositori) 2008, p. 41.

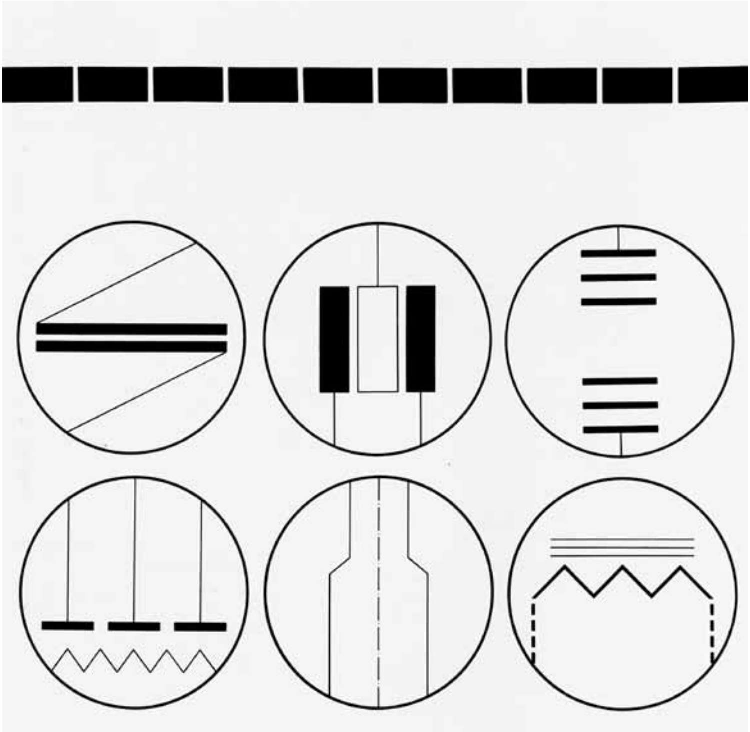
The question of the artistic dimension of the architectural drawing is a very generic one, especially in a moment where languages of art and architecture have undergone irreducible hybridisation that renders impossible to disclose the criteria of this relationship. Nevertheless we can observe that whenever art and architecture concern themselves with theoretical and constructivist problem a mutual attraction occurs; an attraction which is measured by the drawing, by an idea of drawing. This has notoriously taken place during the Renaissance where the drawing squired the status of 'synthesis of all the arts,' during the historical Avant-gardes, especially with the experience of De Stijl, in particular the work of Theo van



11 Manfred Mohr, Drawing, ink on paper, *Bild 12_366*, 1966

Doesburg, and again during the sixties, when the experience of the avant-garde attempted to resurface. With the analytical experiences of sixties, art and architectural work acquired a qualified professional dimension. The creative and constructive work became a means for other finalities while the object of art became a 'project', an investigation into the realm of the series, into the process.

This critical operation implied a meta-linguistic character seen the double operation of making art and, at the same time, a discourse on art. The shift from the expression to the critical reflection on the work, the attempt of a formalization of a specific artistic language, implies the definition of logical operations and a scientific use of the 'vocabulary' of the artist. Through attempting to find the deep analogies that bind the two forms of materialization of thought, the 'rational' one and the 'artistic' one, the artist's expressions are transformed into logical-mathematical propositions, being thought as being true or false, and, consequently, they become analyzable as a whole. The drawing became the conceptual place for this analysis and formalization. The renowned closeness between art and architecture revealed an increasing interest



III Manfred Mohr, *Hard Edge*, *Work Phase (1966-1969)*, *Subjective Geometries*, *777 MHz*, 1967.

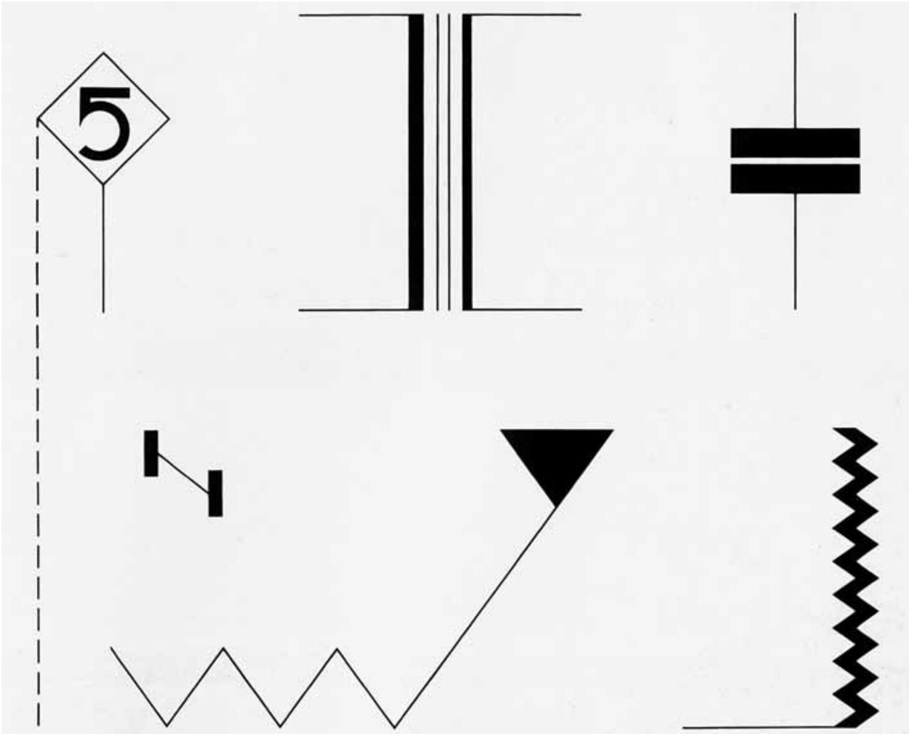
for the drawing considered not only as a design act but also as an 'intransitive experience that allows for the systematization of a self-verified approach'.[3]

3 See Filiberto Menna, *La linea analitica dell'Arte Moderna*. Turin (Einaudi) 1975 (reprint 2001).

Manfred Mohr's 'drawings'

The drawing of the German artist Manfred Mohr can offer a very singular, and on the same time very consistent and precise account on some of the theoretical themes emerging between mathematical logic and aesthetic research found and developed through his work. The radical questioning of the subjectivity of the artist, the rigorous and radical definition of a constructivist attitude towards art, and on the same time the difficulties to bind it within a traditional critical framework, are all aspects that Manfred Mohr's work appears to be stressing to the point of their logical conclusion.

Mohr's work seems to offer the possibility to envision aspects such as a new aesthetic dimension of the sign, for a redefinition of 'drawing' both as a significant moment of knowledge and as datum, a concrete expression of artistic dignity. In essence, Mohr's drawings are theoretical landscapes in a world of two-dimensional mathematical forms.



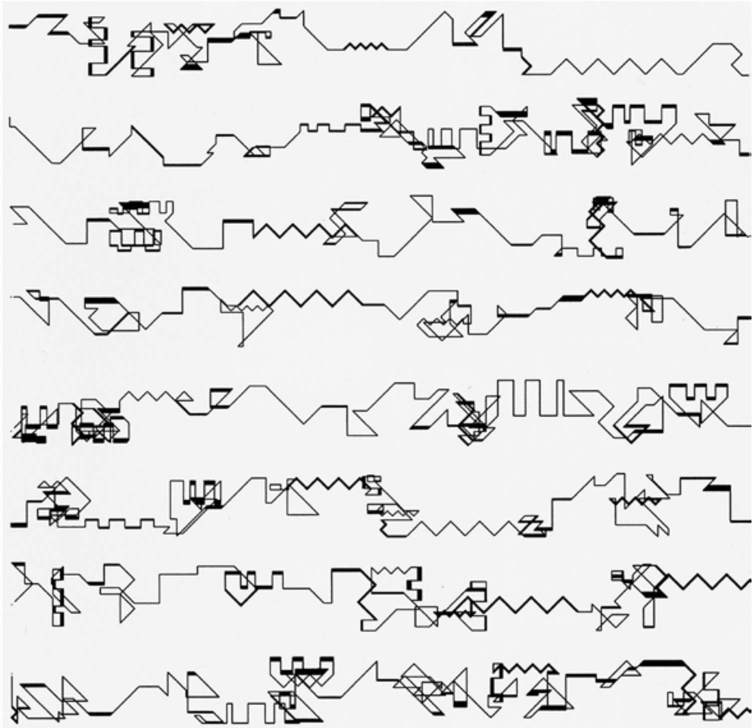
IV Manfred Mohr, *Bild 16_469*, *Work Phase (1966-1969)*, 1969

Manfred Mohr has been one of the first artists together with Frieder Nake, Michael Noll, Georg Nees, to acknowledge the potential of the computer for the exploration of the domain of the intelligence proper. As an artist, Mohr 'draws' algorithms that are processed by a computer and printed by a plotter. The algorithms function as aesthetic filters to represent the human behavior in a given aesthetic situation. Mathematics, thus, is used as vehicle (and only as a vehicle) of the artist's expression. Mohr describes his work and the role of the computer with a bewildering terseness: 'the computer became a physical and intellectual extension in the process of creating my art. I write computer algorithms i.e. rules that calculate and then generate the work which could not be realized in any other way. My artistic goal is reached when a finished work can dissociate itself from its logical content and stand convincingly as an independent abstract entity.'[4]

In the mid-sixties, influenced by Max Bense's ideas on 'aesthetics',[5] Manfred Mohr started a radical questioning of his informal approach to art, and he began a rigorous formal analysis of his painting. He started to enquire the possibility to rationalize the 'emotive cloud' and the free nature of the signs

4 Manfred Mohr, quoted from the exhibition catalogue: *Manfred Mohr Computer Graphics. Une esthétique programmée*. A-R-C Musée d'Art Moderne de la ville de Paris, Paris, 1971, p. 38.

5 Max Bense's aesthetics represent the conclusive moment of a long tradition of thought that sees the theory of the Avant-garde as fertile ground for a synthesis of all technological ideology. Bense have been able to reach a complete synthesis of aesthetic, ethic and cybernetic, oriented to a configuration of a rigorous model of the behavior of a man fully involved within the universe of the capitalism.



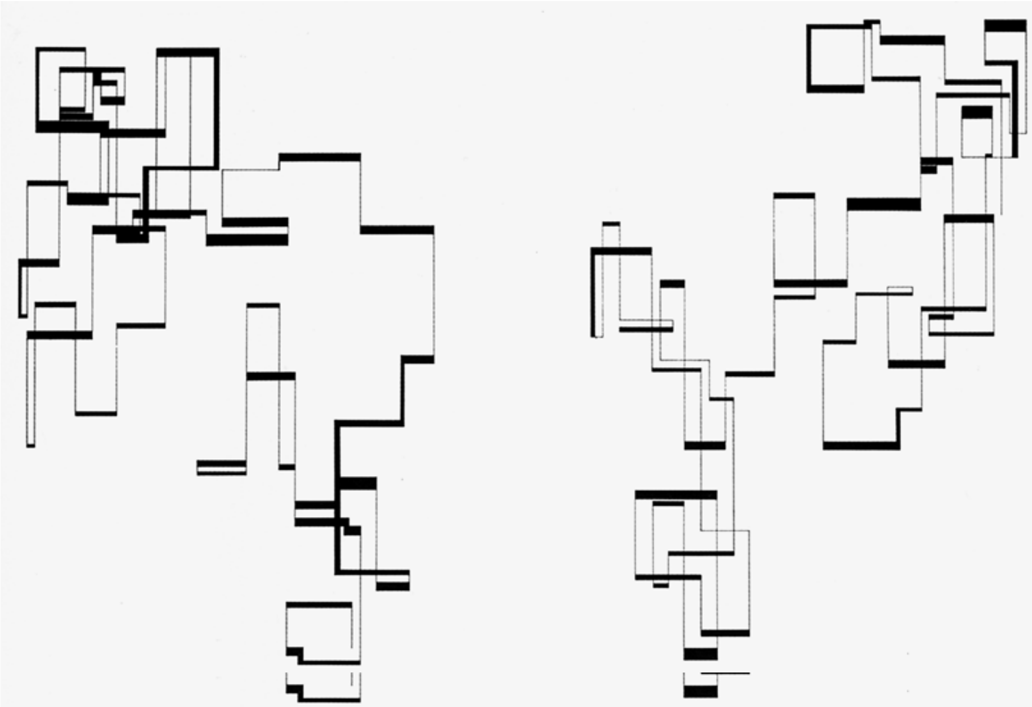
V Manfred Mohr, *Early Algorithms, Work Phase (1969-1972), Band Structures, Program P-21*, 1969

and their organization within the white background, thus discovering a large amount of regularities, determined of course by his
I individual aesthetic sense expressed in his early work. [I]
Consequently, this led to a definition of a rough syntax of basic elements and recurrences that would determine the criteria of the next phase. In this intermediate moment of analysis, the work *Subjective Geometry* represented a first attempt to rationalize his imagination through the realization of a catalogue of black geometric signs accurately arranged on a white background. The pictograms, conceived according to 'a subjective selection process' and visually informed technical symbols as well as mathematical formulas and electronic circuits, constituted the premise for the elaboration of
II a formal language of self-referential signs. [II]

In the next work phase between 1969 and 1972, Mohr introduces logic and mathematics to study and represent his production of signs. Algorithms were for the first time introduced to calculate the images that will be unified under a computer program to allow for all possible combinatorial representation of that algorithm.

It is in this period that Mohr discovers the potential of

Regarding more specifically the work of art Max Bense investigated the possibilities to formalize the aesthetic content of an artwork on the basis of 'aesthetic signs' aiming for a rational approach for the understanding and production of art. Reflecting on the influence of technology on society, and on people's awareness of it, he believed that the judgment and the production of art should leave the emotive subjective sphere to a more logic-mathematical approach.

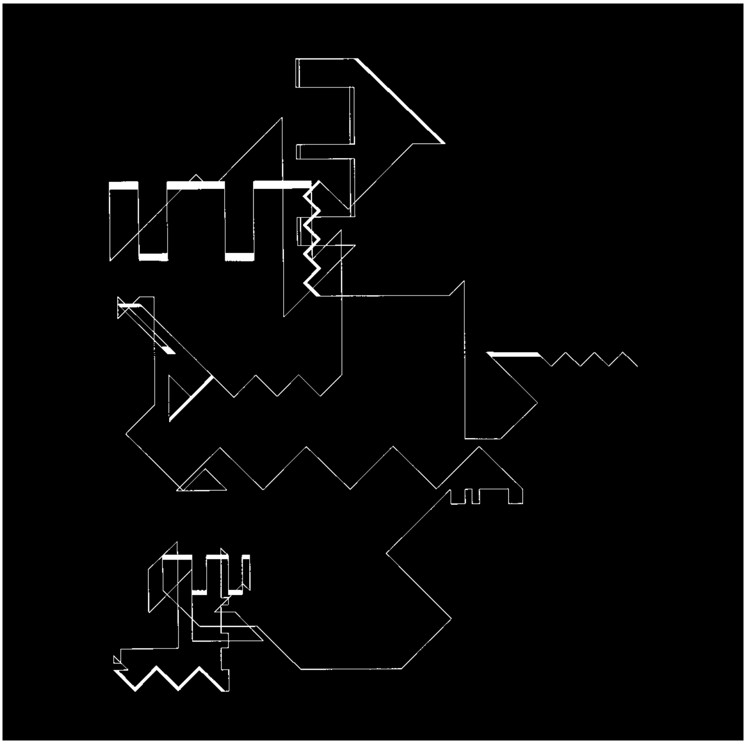


VI Manfred Mohr, *Continuous Lines P-10_I and P-10_II, Study (first level) for Program 21, Early Algorithms, Work Phase (1969-1972)*

the use the computer to develop his research. In 1968, thanks to the influence of the composer Pierre Barbaud, one of the pioneers of the computer music, he had the opportunity to be guest at the *Institut Météorologique* in Paris where he could use a *CDC 6400* computer and plotter for his experiments on man-machine relationship, by testing his visual ideas and at the same time to develop the knowledge in order to write himself the algorithms and the software he to be used in the process.

This would turn out to be a crucial moment on the development of his research, because from that moment on the series of abstract forms (signs) produced have no visual reference with their constructive logic expressed by the algorithm. This fact implies that the algorithmically produced signs accurately defined as autonomous 'carriers of aesthetic information'. In fact, according to Mohr, 'the sign must be able to free itself visually from the logical content so as to appear as an abstract form. But at the very least an equilibrium between logical content (origin) and aesthetic information (goal) should be reached.'

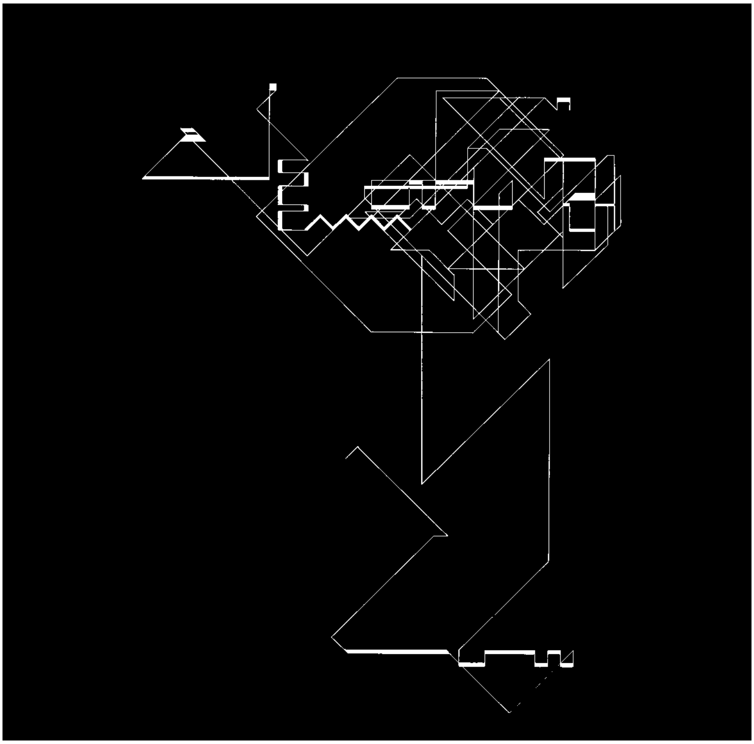
The work series 'Continuous Lines', 'Discontinuous



VII Manfred Mohr, *Random Walk P-18, Study (second level) for Program 2, Early Algorithms, Work Phase (1969-1972)*

Lines', 'Band Structure', 'Formal Language', 'White Noise' are examples of this his early algorithmic phase. Accompanying the title there was always the reference of the version of the program that generated the work. In 'Band Structure', a series of continuous script-like lines are generated according to the 'Program 21' that contains a number of aleatory instruction in order establishing the criterion of appearance and behaviour of elementary lines according to parameters such as: intervals and thickness, zigzags and directions; while a sub-program parameterizes the relationship between lines
III according to similar instructions. III IV

IV Even when seen at a general level, without entering the complexity and controversial meanders of a semantic analysis to attempt to reveal the potential meaning of this operation conduced by Mohr, this work allows for the singling out with clarity a series of essential aspects. First, the artistic signs become truly self-referential; second, the precision of their systematic production offers the possibility for interpretation. The gap, between their constructive logic and their visual equivalent defines the boundaries of an aesthetical territory that can be, measured, improved, developed and redefined.



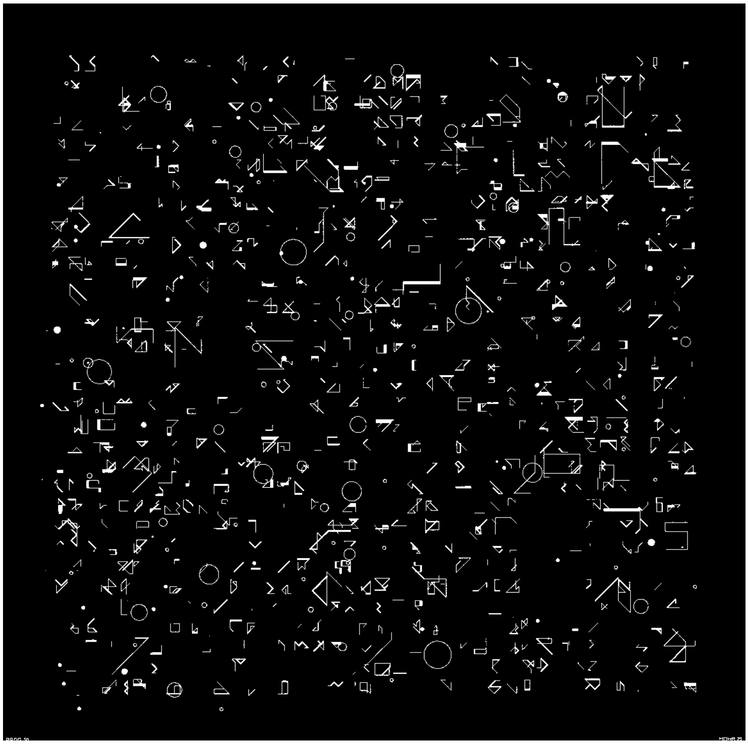
VIII Manfred Mohr, *Random Walk P-18*, *Study (second level) for Program 2*, *Early Algorithms*, *Work Phase (1969-1972)*

The basis of Manfred Mohr's working process is the creation of rules and systems. In a second stage, with the visual realization of the work, it is determined whether the system is adequate and if it can function as foundation for further development. This approach based on a rigorous system of binary decisions is associated with the complete freedom and curiosity towards the contradictory chaotic visual output of the series. The diversity of the results is stimulated by random choices along the execution of the program, which according to Max Bense's theory represent the 'guarantee of the singularity of the mechanically generated aesthetic object'.[6]

After this programmatic phase, where we can still find a analogical relationship between algorithmic scripting and their output as in 'Band-Structures', Mohr introduced the cube as 'fixed system with which signs are generated'.[7] The intelligibility of the cube, the fundamental three-dimensional Cartesian object, enables a further systematization of the algorithmic work. From this basic structure, Mohr elaborate a syntax of constructive and deconstructive algorithms that enable an endless proliferation of the cognition of the aesthetic processes. Once again, the development of

6 Max Bense quoted in: Lida von Mengden, 'Manfred Mohr. Research in the Aesthetic Universe of the Cube', in: Lida von Mengden, *Manfred Mohr. Broken symmetry.* Exhibition catalogue Kunsthalle, Bremen 2007.

7 Manfred Mohr, *Cubic Limit*, Galerie Weiller, Paris, May 1975.

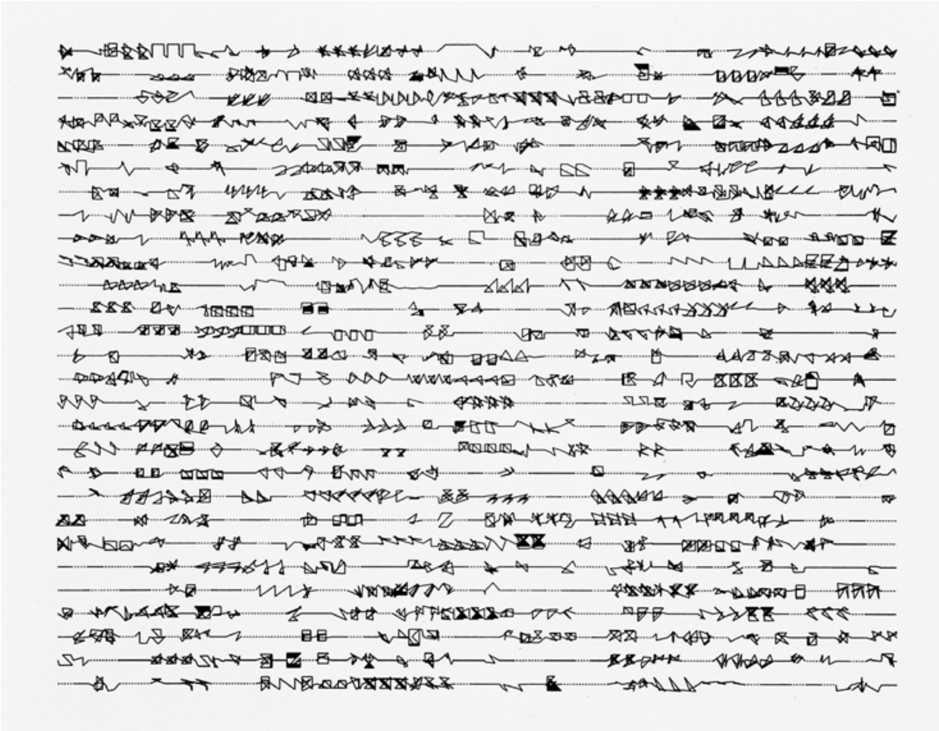


IX Manfred Mohr, *A Formal Language P-50, Early Algorithms, Work Phase* (1969-1972)

the work, its complexity and expansion into unforeseen territories, was achieved through the rationalization and precision of the systematization of the work phase. 'The cube' will represent the leitmotif in which Mohr would develop the repertoire of signs of the later stages of his work.

In *Cubic Limits I* (1972-1975) an algorithm generates a catalogue of signs where the twelve edges of the cube underwent a gradual combinatorial subtraction to the point of loosing visual referent with the basic structure of the cube. In this work the constructive logic of the algorithm generates autonomous two-dimensional signs from a three-dimensional form. The signs produce a progressive break-up of the solidity of the cube and in particular the spatial illusion of its three-dimensionality on the picture plane. In this microcosm, aesthetical complexity is achieved through reduction, by the elimination of the spatial ambiguity of the solid representation on the picture. Mohr excludes the concept of spatiality from his research, as he is interested only in the relation between signs and a two-dimensional field. The idea of dimension is not understood in its physical and philosophical aspects, but solely in a mathematical sense.[8] There are

8 As a mathematical entity the cube can be conceived with an infinite number of dimensions. In *Divisibility I* (1978-1980), for instance, the cube is expanded to the fourth dimension (hyper-cube).



X Manfred Mohr, *Early Algorithms, Work Phase (1969-1972), White Noise, Program P3-6*

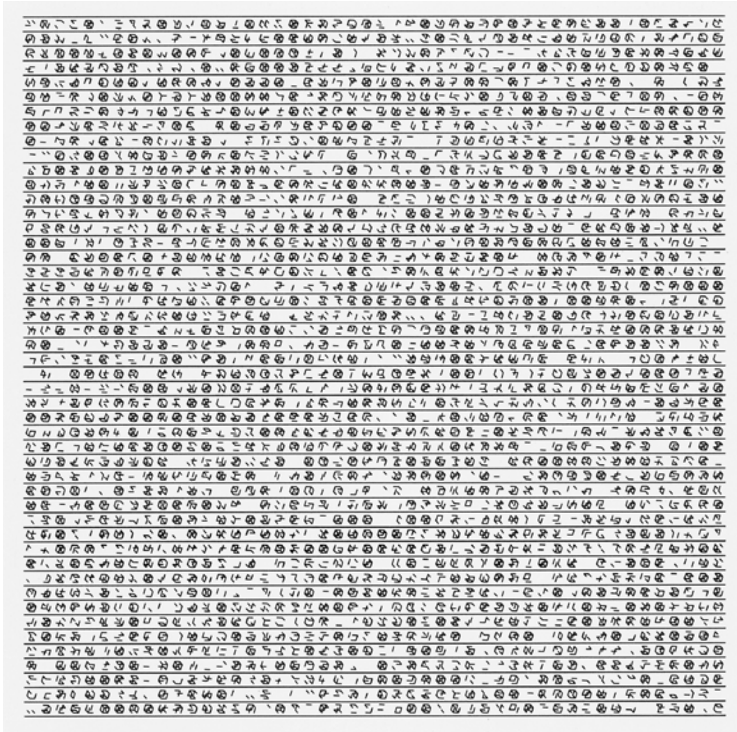
no representations of an external reality, nor his process is a fiction. Rather, here reality is conceived anew within a world of sign.

Mohr's early work phase on the cube offers enough elements to formulate a series of conclusive considerations aiming to address the question of drawing underlying this text.

There are many evident characteristics (formal and visual) that enable us to use the term 'drawing' for this work: the elementariness of the information, the technical precision, the exclusive use of black and white, the linearity as the only determining element of form. But drawing herein must be understood in a wider sense, as amplitude that exceeds the criteria of a formal analysis.

We need to recall the concepts of *Disegno Interno* and *Disegno Esterno* (Inner Drawing and External Drawing) elaborated by Francesco Zuccari at the beginning of the seventeenth century, in order to broaden the spectrum of analysis. Zuccari, in fact, was able to theorize a unifying concept of drawing that connects the concept of Idea to the one of Representation.[9] For Zuccari, the precision of the analytical approach and the theoretical interpretation of the drawing lies

9 See Federico Zuccari, *L'idea de pittori, scultori et architetti*. Turin 1607; reprinted in: Detlef Heikamp (ed.), *Scritti d'arte di Federico Zuccaro*. Florence (L.S. Olschki) 1961.

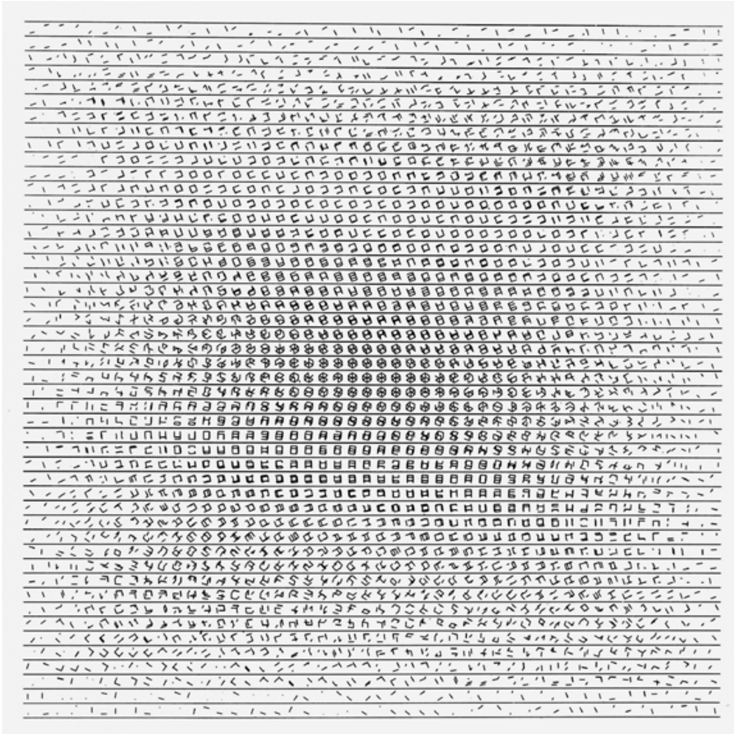


XI Manfred Mohr, *Cubic Limits I, Work Phase (1973-1975), Program P-155-C*, 1974

in the very moment of general consciousness of the world, a general disposition (or faculty) of the human being to give *meaning and form* to the external world. The central assumption of Zuccari is the attribution to the Inner Drawing, both imaginary and spiritual, the quality of concept and object known, that means to give to the drawing the epistemological status, a device able to generate knowledge and 'even' truth. Consequently the drawing should be a subject matter for our comprehension of the world.

But, while in Zuccari the meaning of the supremacy of drawing originates from the Idea that lightens the mind of the artist and that finds its external concretization in the drawing itself, in Mohr the concept of origin becomes relative: idea and result are just sections of a process. The relationship between the functional role of the artist's individuality towards the conception of the object does not subsist from the moment in which Mohr Mohr delegates the 'work of art' to an on-going exploration, oscillating between the two poles of the Inner Drawing and the one of the External Drawing.

All here seem to be equally consistent and necessary to grasp anew an understanding of the work of art: the con-

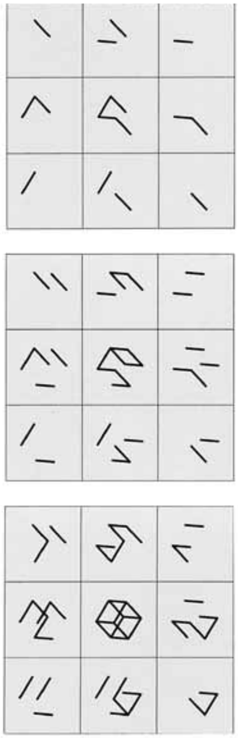


XII Manfred Mohr, *Cubic Limits I, Work Phase (1973-1975), Program P-159-A*, 1974

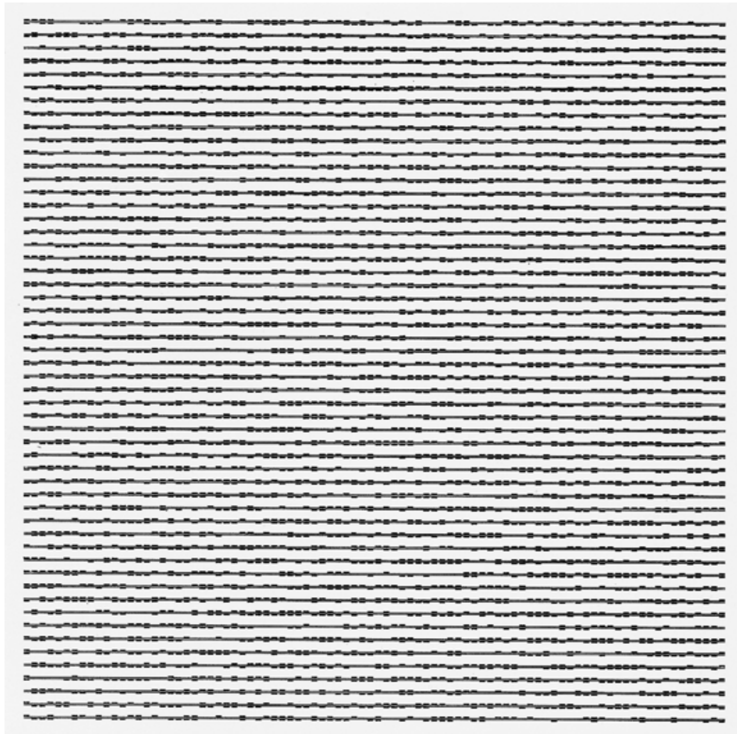
ception of the algorithms, the precision of the machine, the plotted results. It is not a case that Mohr uses to published the result of his experiment along with the algorithms and programs. According to Lauren Sedofsky, 'Mohr's strictly heuristic use of the digital image occupies a territory midway between established artistic practice and the paradigm of computer simulation, understood as the visualization of theoretical systems, or even simply forms, evolving over time. Based on a priori rules (the transcription of relations, continuous variations and multi-dimensional structures), simulation creates the conditions of production for a microcosm, an autonomous formalized universe whose inherent possibilities become accessible to exhaustive exploration.' And again: 'Where the particularity of the work of art was once a function of the artist's individuality, here form begets form.'[10]

If the death of the aura is the necessary condition of the universe of art within the technological society, then, for the artist, the inner contradiction disclosed within the elaboration of the work of art becomes a necessary element to accelerate this death. To do so the artist must now become 'an operator, entering hypothetical laws of composition in an

10 In: Lauren Sedofsky, *Linebreeder, Manfred Mohr*. Exhibition catalogue Josef Albers Museum, Bottrop 1998.



XIII Manfred Mohr, *Cubic Limits II*, *Work Phase (1975-1977)*, *Program P-185-D*, 1976



XIV Manfred Mohr, *In Schrift*, 1973

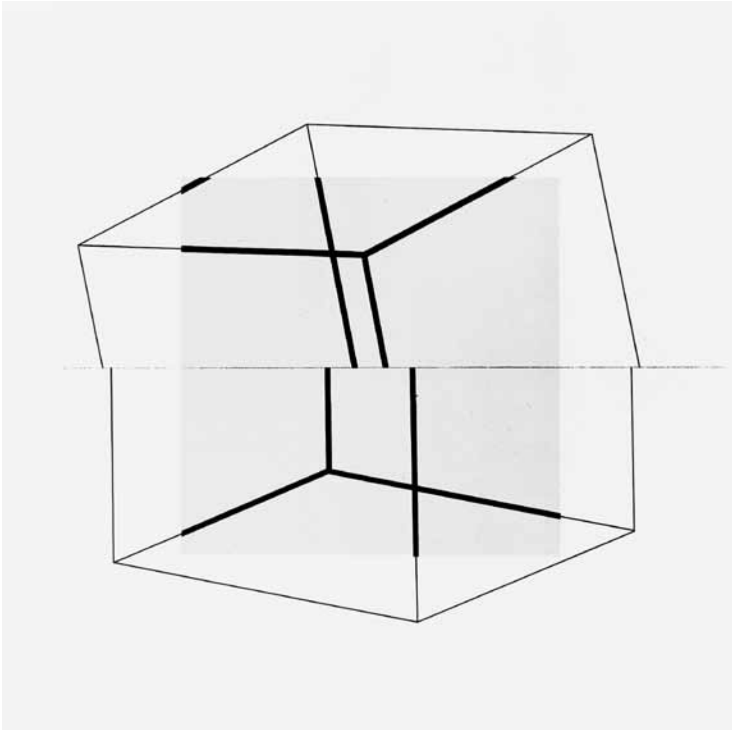
abstract notation, while passing alternately through moments of blindness and moments of insight'.[11]

11 *Ibid.*

A new ductus

Manfred Mohr's radical approach to art prompts a series of arguments that legitimize a reflection on the field of architectural drawing. In addition to the evident similarities between Mohr's investigations and the architectural drawing, such as the constructivist approach and the necessity for its visual output, one theme in particular can be singled out as potentially reinvigorating of the theoretical relevance of drawing in architecture.

The implications produced by the conceptual shifts operated by Manfred Mohr is the theoretical possibility to conceive a reformulation of the most basic structural character of drawing, namely the *ductus*. The concept of singularity and individual qualities of a sign, should be redefined through the formalization of new *modi operandi* that enable the integration of the c*ausa mentale* of human thinking with the of the precision of the mechanical production. According to Mohr, 'Since the most important point in applying a computer to solve



XV Manfred Mohr, *P-196-EE*, 1977-1979

aesthetical problems is the MATERIALGERECHTE[12] use of this instrument, the research therefore should assume that old techniques of drawing and imagination are not to be imposed on the machine (although this would be possible), but should develop a priori a vocabulary which integrates the computer into the aesthetic system.'[13]

Within the apparatus elaborated by Mohr, the drawing can rediscovers its necessity and universality also within architecture, enabling the possibilities to re-conceive its epistemological status, and the aesthetical experience. But this new finality of drawing cannot be prescribed a priori, nor can it be a-critically remitted to an instrument or to a technique, as the rational research of Manfred Mohr has shown, rather it can only be found within the freedom accorded by its own modus operandi. Through the norm, drawing can become a form of writing, investigating the inner legalities of its praxis, and perpetuating its inscription inside the domain of form.

12 *MATERIALGERECHT*, German for: working or using a material only in the way that is basic to the material.

13 Manfred Mohr, quoted in: *Manfred Mohr Computer Graphics. Une esthétique programmée.* Exhibition catalogue A-R-C Musée d'Art Moderne de la ville de Paris, Paris, 1971, p. 36.

Sou Fujimoto
Understanding ambiguous spaces

Sou Fujimoto was born in Hokkaido in Japan in 1971. After graduating from the Department of Architecture, Faculty of Engineering of Tokyo University, he established Sou Fujimoto Architects in 2000. He is a lecturer at the Tokyo University of Science since 2001 and the Kyoto University since 2007. His architectural designs pursue new shapes and spaces that exist between nature and artificiality. In search of redefinitions in this context they will undoubtedly continue to evolve in the future.

Since 2005 Fujimoto was awarded the Architectural Review Award three years consecutively, taking home the grand prize in 2006. In 2008 he won the Japan Institute of Architects award and the highest award at the World Architectural Festival for the Private House division. Among many other awards, his latest price is the Rice Design Alliance Spotlight Award 2010. This RDA award recognizes exceptionally gifted architects in the early phase of their professional career. His book *Primitive Future*, published in 2008, was the best-selling architectural book of the year. Recent publications include a monograph by the Spanish editorial 2G.

This is the text of a lecture by Sou Fujimoto at the seminar Architecture as a Craft*, 28 May 2009, at Delft University of Technology. The text was edited by Else Marijn Kruijswijk.*

The role of the model in the design process

The Tokyo-based office of Sou Fujimoto appears chaotic. Fujimoto himself compares his office with a market place. I II 'The Asian market surrounded by many items inspires us to create something new.' The scattered models in his office represent Fujimoto's ideas about architecture. The models differ slightly from each other and scale up gradually. It is a slowly growing process comparable to agriculture. 'The models are sometimes trash but a very precious kind of trash. . . . Of course architecture is not chaotic, but sometimes we can create a new order from chaos.' Through heaps of models and by reusing, restacking and rethinking this heaps of models Fujimoto and his employees can choose and generate a new model. These trashes and ruins give them inspiration to create something new. Fujimoto underlines the importance of being surrounded by models to get inspiration from different projects. He states that this continuity of making and reusing models leads to evolution and eventually to new designs. I II

The main theme of Fujimoto's approach to architecture is how to combine simplicity with complexity. He likes to make architecture in a simple way. 'Good architecture is simple, but at the same time it is complex and various.' He states that the model, as a tool, enables a clear combination of simplicity and complexity because the model communicates as a clear concept. You can see how it is composed and what it is, but at the same time it is a field of experience. You can see both the simple composition and the various complex experiences within the model.

In his approach to architecture Fujimoto emphasizes on the creation of something between artificial and natural. He refers to the trash of models in his office: 'Many models create artificial things, but scattering the models in the office creates something like a jungle: something like an Asian market which relates to the rules of nature.'

I The Asian market, Thailand

II Sou Fujimoto Architects' office, Tokyo

Final Wooden House, the relation between the drawing and the model

The method of making models in order to understand complex spaces is also used in the small project Final Wooden House. [III] The Final Wooden House is built in the woods of Kumamoto in Japan. [IV] The main concept is to combine furniture space with architectural space to create something new. So, the space that is occupied by the furniture itself is the negative of the space. The furniture is the architecture. By making models they experimented with the combination of these two and experienced what happened. III IV

The key concept is repetition of varying combinations of the same element in order to create different specific spaces within one designated shape. In this case, the element is a 35 cm wooden step. The concept is simple, but the experiences are various because some steps have no function in order to allow the user to experience and investigate new possibilities for that specific space. 'It is an infinite deepness of experience.' One element can be used for different purposes. One could even say: there is no purpose, there are only possibilities. After six years, in 2007, Fujimoto got the chance to build the concept in reality. The building is made on a smaller scale (4.2 by 4.2 by 4.2 meter) but the concept is the same.

The advantage of the use of models in this project was the possibility to oversee the model 'as a kind of god'. It enabled them to oversee the double meanings and to treat the experiences and the concept. Especially in this project, they made more models because the space itself is three-dimensionally complicated. So, normal plans and sections were useless. 'If you draw one plan there are shapes but you can't understand what is happening. By making models and looking inside, the idea is growing gradually.' After they made a lot of models, they reduced the amount of models to four, the models were made on a 1:20 scale and finally, they were able to implement the results of the different studies into reality.

The main role of the drawing in the project Final Wooden House was to communicate how to construct the building. Thereby drawings like schemes and diagrams were used to explain the concept. But like in many projects of Fujimoto, the drawing has a secondary role in the design process. The drawing is mainly used as a communication devise for the final result. Therefore, not the drawing but the model is used as the tool to explore complex spaces during the design process.

III Sou Fujimoto Architects, Final Wooden House model, 2009

IV Final Wooden House, Kumamoto, Japan, 2008

The relation between projects

In Fujimoto's office, inspiration for one project is derived from other projects. Sometimes by models and sometimes by key phrases. Making models and giving names to objects is very similar to them. This idea helps him to make the concept more clear and to be able to use the concept in other projects. 'In House N, I thought about making a building with the in-between space as the central idea. In the previous project, the Final Wooden House, the field between making furniture and architecture is a kind of in-betweenness. In the House N project we translated this idea and looked to the in-betweenness between the city and a house and between public space and private space.' Fujimoto is intrigued by this kind of translation or mistranslation.

House N is a house in Oita in Japan that was built in 2008. V VI V VI
In this project, the idea of the in-betweenness led to the concept of the box in the box in the box: like a Russian doll. The house itself is comprised of three shells of progressive size nested inside one another. The outermost shell covers the entire premises, creating a covered, semi-indoor garden. This shell has many openings, some closed by glass and some open in order to experience the quality of the natural surroundings. The second shell encloses a limited space inside the covered outdoor space. This second box represents the house, but the house is boxed to create a mixture of inside and outside and a mixture of a city within a house. The third shell creates a smaller interior space. By the different openings one can experience various distances between the house and the city and between the house and the sky. In short, this project is about gradation of urban and domestic space and gradation between inside and outside space.

The role of the model in this project was giving simple shape to an ambiguous situation. For Fujimoto, it is important that the house is clear architecture but at the same time you cannot see anything inside. Through the outer layer you can see the house behind it. Emptiness is an important idea in this project. 'Of course emptiness is hard to explain to a client, because emptiness is nothing. But in Japanese architecture we have a tradition called "Engawa space". "Engawa space" is a huge wooden deck. An empty space without a specific function. The outer volume of House N is subtracted asymmetrically which creates a range of experiential moments, a variety of experiences. To convince the client of the quality of the huge open space I told him this was in fact one big "Engawa space". The client understood what I tried to do.'

The concept of the box in the box in the box formed the main inspiration for the Library of Musashino Art University project. VII VIII The many different layers give the opportunity to create a labyrinth space. The library is made solely of bookshelves. The visitor therefore experiences the feeling of being in an infinite world of books. VII VIII

The Figs. IX and X show the collective housing project Tokyo Apartment in a crowded Tokyo area. Fujimoto tried to recreate the spirit of Tokyo by literally stacking houses to create a city. In *Primitive Future*[1] Fujimoto writes: 'It is a multifamily housing composed of five living units. Each unit has two to three house-shaped compartments connected by stairs. Thus, one living unit is constituted of rooms and urban spaces in between them. This vision of Tokyo appears familiar and yet equally futuristic as light can enter unexpectedly from between houses or one can walk on neighbours' roofs.' IX X

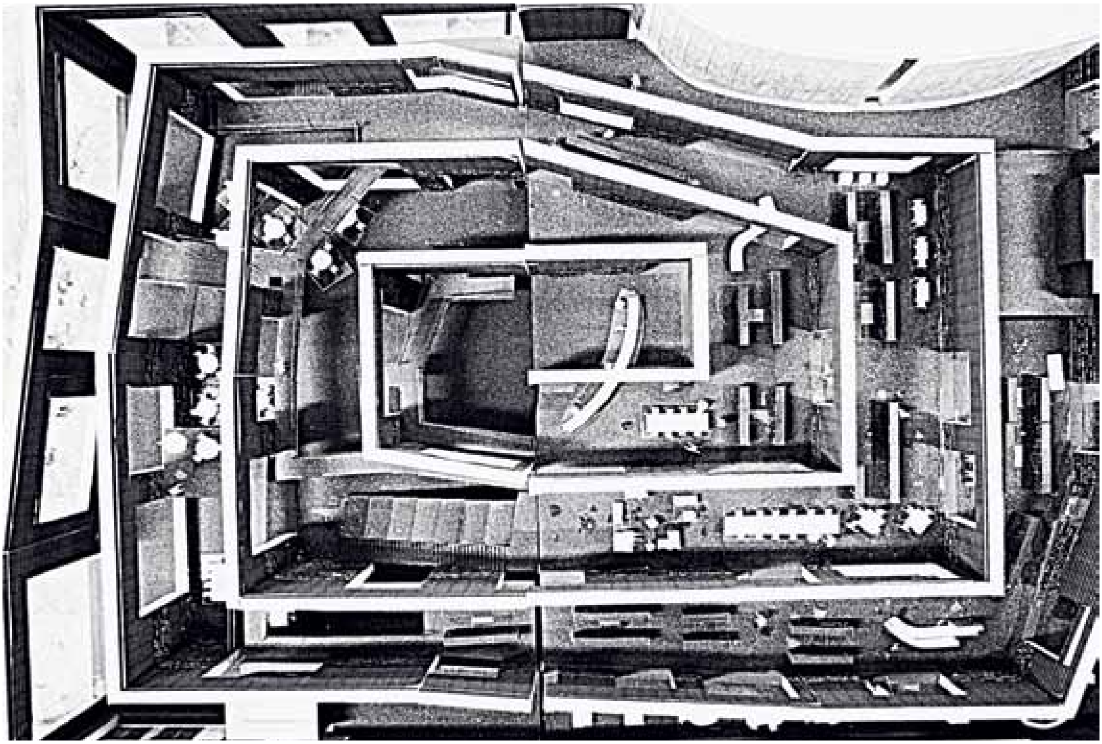
In this project, one definitely sees the link between this project and the trash of models in Fujimoto's office. The form of the stacked houses seems to be found between the heaps of models Fujimoto was talking about.

The accumulation of the previous projects led to the project House Before House. XI XII The House Before House in Tokyo is one house which is differentiated in multiple stacked and scattered volumes. The house has become a mixture between a city, a house and a forest. Stacking the building volumes and treating them as loose volumes create a kind of mountain experience. This changes the experience of a house from only interior to both interior and exterior. XI XII

1 Sou Fujimoto, *Primitive Future*. Tokyo (INAX Publishing) 2008, p. 114.

V Sou Fujimoto Architects, House N model, 2006

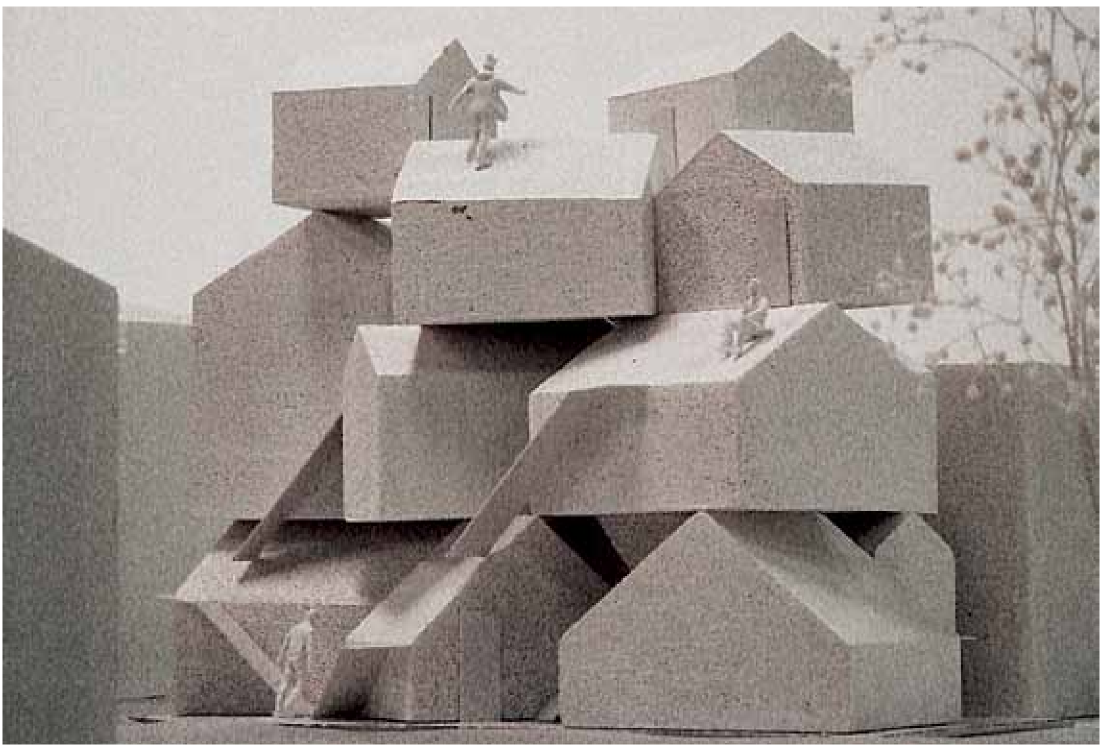
VI House N, Oita, Japan, 2008



VII Sou Fujimoto Architects, Musashino Art University Library model, 2008

VIII Musashino Art University Library model, 2008

IX Sou Fujimoto Architects, Tokyo Apartment model, 2007



X Tokyo Apartment model, 2007

Materialization

Materialization seems to be less important in Fujimoto's design process. In many projects, the designs and the buildings seem 'material-less'. Models are made of one material, mostly white foam. The models don't say anything about the material of the building. The House N and the House Before House seem simply blown-up models. The architectural exploration of Fujimoto focuses on space instead of material.

Nevertheless, Fujimoto's use of materials is deliberate. Fujimoto uses traditional materials like wood, concrete and steel. But he is also interested in new materials or new interpretations of traditional materials because this starts a process of new explorations of architecture. For instance, in the Final Wooden House project Fujimoto experimented with the traditional material wood. Finally, he didn't use slabs but blocks of wood and he didn't use wood only for the structure but for everything: foundation, exterior walls, interior walls, ceiling, flooring, insulation, furniture, stairs and window frames. One simple wooden element appears multifunctional and creates multifunctional spaces. Fujimoto keeps the materials simple by using a small selection of materials. This enables various happenings and different interpretations.

In the cases of the House N and the House Before House, the buildings almost seem to be blown-up models. Whether this is a conscious decision or not remains unclear, but in these projects Fujimoto tries to blur the rigid division of inside and outside. He erects the houses seemingly out of one material in order to let the border between interior and exterior space fade away.

Fujimoto's main concern is keeping his initial concept clear and simple. He controls and focuses on gradually growing designs. The role of the model in this process is clear: making models makes it possible to understand ambiguous spaces and the evolution of designs. Thereby Fujimoto states: 'Evolution of models leads to infinite inspiration.'[2]

2 Sou Fujimoto, *Primitive Future.* Tokyo (INAX Publishing) 2008, p. 114.

XI Sou Fujimoto Architects, House Before House model, 2008

XII House Before House, Tochigi, Japan

Christoph Gantenbein, Kersten Geers and Jan De Vylder
Questioning the craft.
A conversation

The Swiss architect Christoph Gantenbein (1971) graduated at the ETH in Zurich in 1998. In the same year, Gantenbein and his partner Emanuel Christ started their architecture firm Christ & Gantenbein in Basel. Gantenbein has been a guest lecturer at several faculties, for instance at the Accademia di Architettura Mendrisio (Switzerland) and at the Oslo School of Architecture and Design. Since 2010, he is a professor at the ETH.

The thematic research on dealing with both the old and the new, carried out by several renovation projects, plays a central role in the work of Christ & Gantenbein. In a sensitive way, they connect traditional materials with contemporary materials like concrete. Another main theme is the experiment with form, although in renovation projects they always in a way make a link to the existing form.

Among the recent works of Christ & Gantenbein are the housing and commercial building VoltaMitte in Basel (2010), the renovation and extension of the Swiss National Museum in Zurich (2002 – present) and the pavilion Ancient Tree for the Jinhua Architecture Park in China (2006-2007). In 2009, they won the competition for the extension 'Burghof' of the Kunstmuseum in Basel.

For the biographies of Kersten Geers and Jan De Vylder see their respective contributions, p. 216 and 82.

After giving a lecture at the seminar Architecture as a Craft, Christoph Gantenbein, Jan De Vylder and Kersten Geers came together to again discuss the topic 'Architecture as a Craft'.

Kersten Geers The seminar Architecture as a Craft dealt with a set of different themes. 'The drawing', 'The position of architects in society' and 'Materialization' all are aspects of a heterogeneous profession. The drawing is probably the most evident tool to make a project, the materialization a means of making a building, the position an a priori for a critical practice. Drawing and materialization are parts of the architect's method. He uses a certain amount of tools to make a piece of architecture. The project, finally, takes a position in society. There is a whole set of different drawings: a perspective drawing, a plan drawing, a section drawing, a detail drawing. A big part of the initial project can only be presented in the drawing. In the moment I actually build, I translate my drawing into the material. This is of course a very specific approach.

Talking about method, in our office (Office Kersten Geers David Van Severen), the idea is that the drawing is a fundamental device to create our own universe. A universe for which we look for the adequate material to make that drawn project into a real project, if we are in the lucky situation that we can actually build this project. (Sometimes we consider an un-built project, the paper project, the final outcome.) It is of course a bit simplistic but you could say that that is our method. I guess David (Van Severen) would agree if I say that from our perspective there is a certain hierarchy in the material we produce, and the drawing is at the core of our production.

Christoph Gantenbein In our practice the drawing is of minor importance. It is one possible way of visualizing what you are developing. But I would rather like to talk about method with you than about tools. You have mentioned the parallel of the architect's profession as a craft. I think there is a crucial difference between an architect and, for example, a carpenter who

has his methods, his tools and his techniques.
I understand our profession as a highly intellectual one. That is why I am very critical towards this discussion about method. Method is about structure, it implies that rules are accepted and followed. I associate this with a precise scientific work. In biological research for instance, you must have clear standardized questions how you define a research program, and you focus on the question how to go on with precise standardized steps to get relevant results.
I think that making architecture has nothing to do with each of these professions: neither with the carpenter, nor with the biologist. You could even say, as I understand it and I experience it in everyday work, that developing architecture is the contrary of methodic working. It means being confronted with a chaotic amount of questions and it is about finding out during a design process which of the architectonic questions, which arguments, which criteria and which topics are relevant in one concrete project, and which are not. This kind of researching process in the chaos is so complex, maybe much more complex than in scientific research. I experience developing architecture as something completely different: it is a constant questioning of what you know, of criticizing so-called certainties. Whenever a design process gets methodic and automatic, I feel the need to react, to question it, to destroy it.

I II I II

Jan De Vylder Sometimes I think about which kind of professions I would like to be compared with. And I think about the persons on the ground floor of the stock market who have to react in a few seconds. Although you have a certain method of knowledge of how the stock market becomes, you have to react every day. Sometimes you have to react half in an emotional and half in a rational way at that very second. Or people at the emergency rooms of hospitals where they suddenly bring in a bus with fatally injured sixteen-year-old school girls. All you have to decide is which of the victims you should help first. This sounds quite tough for the parents. I would like to be

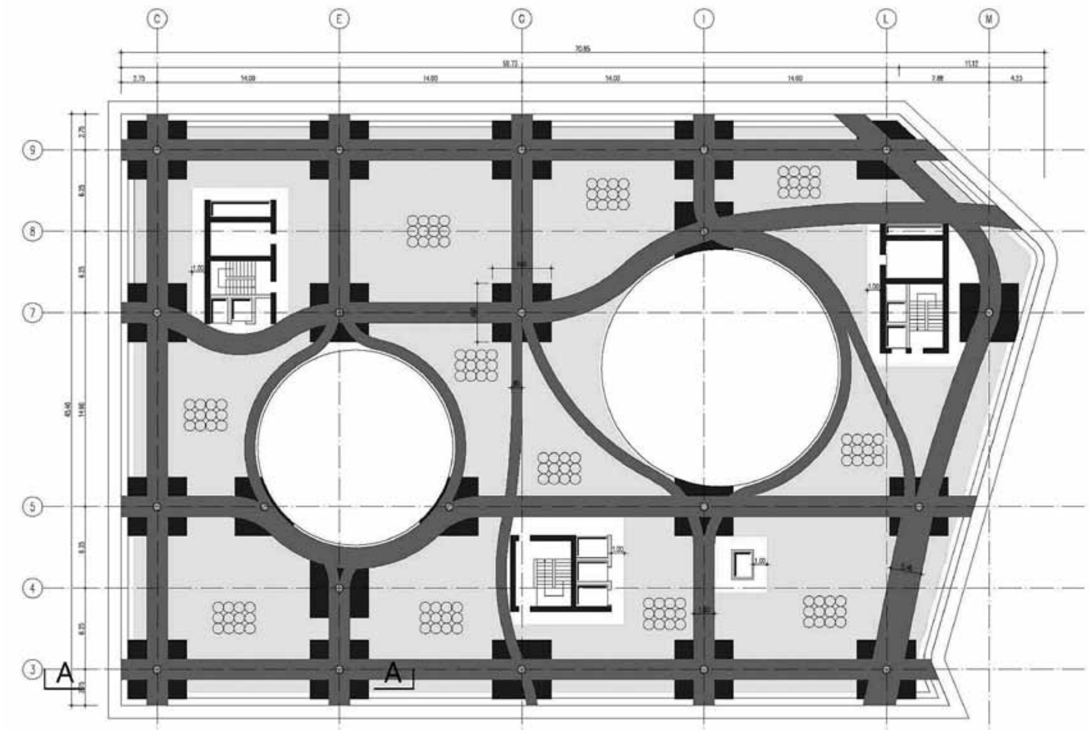
I Christ & Gantenbein, Study models of the Apartment Tower, Pratteln, Switzerland

II Christ & Gantenbein, Concrete Model 1:200 Swiss National Museum, Zurich, Switzerland compared with a carpenter, a profession I really like because he has a set of tools with a traditional use over the years and he has a set of traditional building methods he can use to construct; with that method and that tradition he can continue forever.

Kersten Geers I have ambivalent feelings about the comparison of architecture with craft, for two reasons. First of all because I myself do not feel very much connected with craftsmanship in general. I feel more connected to the thinker than to the maker. As Étienne-Louis Boullée says: 'Il faut concevoir avant d'effectuer.' So, that's one aspect. The second, somewhat stupid aspect but an interesting anecdote I always felt related to, is Adolf Loos's attack on the expression of craftsmanship in the beginning of the twentieth century. He may have uttered his attack with the love of what the craftsman can do, but also with a certain despise of the aethetization of the Arts and Crafts. So there I find 'architecture as a craft' a very tricky moniker.

What interests me in architecture is very much the clash or the confrontation between a given set of principles, 'a-priori's' you develop within your own work. And I think that at best – and I am paraphrasing Loos here – it is a set of describable elements of which you do not exactly know what they are before you start making the work, but gradually you are able to define them more precisely. To me, the clash between the set of a priori's and the world is the core of the architectural project. Architecture is cultural production. It is similar to what an artist does. Architects are not artists. Still, I do believe that it is about creating a parallel universe which attempts to be quite complete and is then again confronted with a certain reality. I understand the comparison with the stock market person or something like that. And I think we also have this period of extreme stress related to ever-changing conditions. But in a way I do not really relate our profession so much to it. I mean, for me our profession remains extremely slow. And like anybody in any situation: sometimes you have to make quick decisions. Sometimes the quickest ones are the best. But I feel far more connected with a painter like Ed Ruscha who develops a body of work over time in changing conditions. Who is not fully aware of what exactly he wants to say with that work. It is personal. It is related to his context. It is related to his context of references. And if it is successful, at a certain point you can acknowledge that. You can see that. You can recognize that body of work.

Christoph Gantenbein Stressing the intellectual and creative aspects of our profession and its difference from a carpenter's or a scientist's does not pay respect to the fact that there is another reality: the one of the daily business. Besides struggling as intellectuals in a complex system of difficult questions, we also do manage to run our business week after week. We are managing offices with plenty of collaborators, we are managing the finances, emergency cases and difficult clients. We do all this besides what is really the core of our profession. The understanding and demands of our profession and of the design process clash daily with the requirements of the services we perform for our clients: with costs and expenses, with legal issues, with technical requirements and all that. Talking about method, it may be a kind of technique to bring this culture together with all these really challenging requirements. And with the twelve years of experience we have, we sense that it is getting tougher and tougher in Switzerland. We are working in a world dominated by the logic and culture – if its merits may be called so – of the MBA. To defend our ideals is part of our daily business. The architecture we are interested in is not easy to sell. It is a kind of technique how to sell it to your clients, how to convince your clients. Of course you always have those lucky cases when you encounter interested, cultivated people with enough money. But this is not the big mass production. How to sell architecture to a kind of limited, uncultivated person? In this sense I would admit that we use methods.



III Christ & Gantenbein, Structural scheme of an office building, Cheseaux-sur-Lausanne, Switzerland

IV Christ & Gantenbein, Formwork on site, roof for a schoolyard, Muttenz, Switzerland

Kersten Geers I think, in the end it is not so different from the earlier comparison of how an artist makes an artwork. Of course with one big exception: that, apart from the drawings we all make, we cannot actually make our work without being supplied with the financial means. Whereas in most art cases – not in all cases, but in most – the work of art can be produced quite independently from its market appreciation. A fundamental difference is of course that we have the dilemma that we need to get a project approved before we can actually build it. What I find intriguing is that we often make cultural products despite our context, despite our clients, despite many of these things.

Christoph Gantenbein We often experience the same. If you hear something nice about a project, if you succeed in putting an idea you had into practice, there must have been an accident within the process. The client missed the moment to mess up your project in order to save some money. Unfortunately, this fact leads to the situation that you start working against your client, as he does not appreciate the quality you are developing for him, and you are constantly confronted with the reproach that you are developing a project that does not meet his demands. How could you act differently, if the client has a simplistic vision of architecture, understanding only figures?

For instance, in our housing project VoltaMitte in Basel, we managed to carry out some things that are amazing, if you compare it to similar investment projects: The floor height of the stories resembles that of bourgeois nineteenth-century constructions, the percentage of glass is very generous, the geometrical system developed could be called crazy. Why was it built? It was a kind of accident that in a decisive moment the general contractor was in a weak position because there had been a merging of two firms. He did not have the capacity to control the project, to make it 'reasonable'. Architecture survived. If the general contractor had controlled the whole process he would not have built this house. I heard that when the CEO of the general contractor came to the building site last week, he said that this project did not fit into the product range of his firm and that he was puzzled by what his firm had built. This is my pessimistic statement, but he obviously does not appreciate the project. We in contrast like it very much and it is a huge success for us! It has been a unique chance to get it built and we are aware that an extraordinary constellation enabled us to do so. One could never ever build this house a second time.

V V

<u>Kersten Geers</u> Do you think that the client is really the client? I could argue that in most cases we are our own client and the client himself is a catalyst. I mean, we seldom really experience the client as a client. A very good client is a very good catalyst in the sense that a good catalyst is part of the process, but isn't really engaged in the actual chemistry of it. From that perspective I think we are often successful for the wrong reason. But maybe that is not a problem. I am not really sure whether, for example, the artist Gerhard Richter feels appreciated for that what he really is after. He is super successful but maybe for the wrong reason.

<u>Christoph Gantenbein</u> If Gerhard Richter has dedicated his whole life to the understanding of painting, why should anybody else just approximately understand what he is doing?

That is a matter of fact. The architecture that you make, Kersten, why should I understand it? Of course there is a gap. You are closer to it. In a way, every consumer of art or architecture will have a lack of knowledge.

<u>Jan De Vylder</u> It is what Bakema has said. I can't repeat the exact content, but it was like:

'In the end making architecture remains a kind of small miracle. A small wonder. Making a design is in the end maybe just a wondering thing.'

V Christ & Gantenbein, VoltaMitte housing, Basel, Switzerland

Kersten Geers I guess there is something like 'expectation' after a while, a framework of interpretation that is not easy to escape, do you see that? One is confronted with the interpretation of what one makes. For example, when one is confronted with the work of Jan, one sees an evolution which is not always acknowledged. The Ordos House and also more recent work have a set of different themes, I think. The themes have changed over time. Of course one can relate to earlier themes but one can also think 'Wow, he got crazy. And nowadays he likes yurt tents, he copied buildings, and he got pretty scary.' Nevertheless, it is the evolution of a cultural producer. I don't know how you feel about that.

Jan De Vylder It is somehow strange that on a certain day you wake up and you are interested in certain things. It all of a sudden comes up. It has nothing to do with a new job or a new client. In another position you don't directly use in a certain way what you have been learning and what you have experienced in the time before. You make, all of a sudden, a certain move. Until today, we cannot exactly explain how we went from Les Ballets to the copy of the yurt tent case. The one definitely has to do with the other. Because in a certain way in the 'Les Ballets' case you have also a kind of copy.

Christoph Gantenbein At the beginning of this conversation I talked about chaos. We are human beings and as such we are influenced by a constellation of issues we encounter in our life as well as in our profession. The friends we meet. The talks we have. The architecture we see. It all comes together. And your personality shapes the architecture you make. It is a personal thing, based on a personal culture. This closeness of your architecture to yourself is a beautiful and tough fact. I often suffer to find out whether a spontaneous idea is a good one because it's spontaneous and fresh, or whether it's not, and it should be controlled. That is why being an architect is a really tough profession. Without criticizing yourself it doesn't work. The idea of the architect as a genius with a continuous, fluent output of ideas is ridiculous. You need the critique and you need to say 'no', and on the other hand you need ideas. This process is energy consuming. But I am sure it is a necessary basis for the creation of architecture.

Jan De Vylder The strange and nice thing of this kind of interview we are having now is that from the beginning of the interview we get somehow innerved by the idea of having to explain something that we are sure we cannot explain. And every time that we try to explain, we give a certain answer, but get innerved that the answer is not enough to explain it. We are innerved. We feel uncomfortable by the fact that in the end someone is urging us to admit something we cannot admit.

Kersten Geers Well, in a very simple way, I think the only thing which explains what we are doing is what we are doing. And that's it.

One of my favorite books is the one by Ed Ruscha called *Leave Any Information at the Signal*, referring to what is typical in the phone answering machine. In a way, this book is a collection of thirty years of interviews. And in all the interviews he seems to systematically deny everything that was asked. 'Why do you do that? The gas stations . . . is that because you wanted to show something about LA?" "No, no, no, they are from Oklahoma. That's a misunderstanding.' Do you know what I mean? He is endlessly denying and explaining misunderstandings. And maybe the book is the only attempt to get asymptotically close to what it is about. But of course his work is better in real time. I mean, the work explains his work. And anything else, any conversation about it, at most touches topics. That's it. And maybe that's also the end of the conversation.

Christoph Gantenbein I completely agree. But can you leave the students with this: 'Your work just explains your work'? Or to contradict my earlier statement against method in the design process, one might say that it is our task to give the students a kind of method or working technique. How does a student start his career as an architect in this school?

Kersten Geers I am convinced that one can teach oneself to use certain tools. You can teach the students how to make a plan or a section, and we are busy teaching how to make a perspective. And you can explain the difference between a render perspective in a computer and a composed perspective. You can show them the tools. But you cannot teach them the position of an architect. I think that is a very individual aspect. You cannot teach somebody to use paint in such a way that he becomes a good painter. You can only teach him this aspect with the tools itself. You can show him other projects or references. That's it. I really believe that only the things themselves can explain themselves. Of course, you cannot write a book if you cannot write.

Christoph Gantenbein As a student I have experienced two fundamentally different ways of teaching. I remember two of my most important teachers: Josep Lluís Mateo and Hans Kollhoff. Josep Lluís Mateo would look at your design, and reflect, smoking his cigar, and then say: 'It's interesting, it's interesting. Maybe it's good, maybe it's not good.' Such would be his comment. And then, you had to go on. That is how he confronted us with the difficulty of architecture, and that is of course always true: maybe it is good, maybe it is not. It depends, you cannot definitely tell. In general, it depends on everything.

The other teacher was Hans Kollhoff who was very clear in teaching his own understanding of architecture. And he asked you, as a student, to follow his way, at least for one semester. You had to learn how to do it his way. You just liked Hans Kollhoff, or not. Both systems are apposite and both show one aspect of architecture. We experienced and experimented with the ambivalence and insecurity, as well as the necessity of a setting, of saying 'I want it', of a formal intention.

Giorgio Grassi
Questions of design

AS A
CRAFT

The architect Giorgio Grassi was born in 1935 in Milan, Italy. He graduated in 1960 at the Politecnico di Milano. He has been a professor at this and other universities since 1965. Grassi is a non-conformist and a critic of conventional mainstream architecture. His architectural designs are predicated on absolute simplicity, clarity, and honesty without ingratiation, rhetoric, or spectacular shape-making. His work refers to historical (classical and neo-classical) archetypes of form and space but is at the same time deeply influenced by Modernism.

Among the works of Grassi are the municipal centre of the Visconteo Castle of Abbiategrasso (Italy, 1970), student housing in Chieti (Italy, 1976), the Prinz-Albrecht-Palais in Berlin (1984), the Roman theatre of Sagunto (Spain, 1985), the ABB Roland Ernst office buildings at Potsdamer Platz in Berlin (1993), and the Cassa di Risparmio in Florence (2004).

In addition, Grassi is a writer and a theorist. He is the author of, among others, *The Logical Construction of Architecture* (1967), *Architecture as a Craft* (1979) and more recently *Una vita da architetto* (Milan 2008).

When we look at the architectural works of the past we as architects, without exception I believe, are seeking to penetrate their secrets. Naturally I am talking about good works of architecture, about those buildings which grab our attention and hold it, about those to which we always return to restore faith in our work. And when I talk of secrets I am referring to secrets that can be unveiled, even if with difficulty. I am not talking about the Indecipherable, the interpretation of which we will leave to others.

What interests us are their, so to speak, technical secrets. We are interested in their criteria, their procedures. This is the special nature of our observation: we are looking in order to learn how to do.

And the first thing we learn, often the hard way, is that this secret does not belong to the form in itself. Indeed the form in itself, the form in isolation, is always an enigma and as such discouraging. On the other hand the stimulative effect that good architecture always has on us is something which is certainly included in the form itself, but which equally comes before and after the form, which precedes the form and detaches itself from the form, revealing its significance to us. Hence the latter pertains not so much to the form itself, as to the relations that the form establishes by its presence.

When the form is isolated, what stands out is its particularity, its eminently synthetic character. But we are not looking for impressions here. We are asking for explanations; we want to understand the links, the transitions. We know that that form is as it is, defined and peremptory, precisely because it is the result of closely connected observation and work. Everything is in its place in that form, nothing is left to chance or improvisation: this is what we find convincing. We look at the form from an analytical perspective, we recognize the assurance of the choices, but our attention is attracted instead by the coordination that governs such choices: that is to say by the order that presides over the disposition of the parts and elements. And the form as such interests us only because it is the outcome of these.

We admire the form, we wish to equal that result, and so we decide to investigate the methods by which it was achieved and appropriate them. By keeping to the emerging technical/practical aspect of the form, we gradually eliminate the gap that separates us from it. Although conscious of the important role played by historical, cultural and social conditions in the definition of the forms of architecture, we are attracted more by their material, practical conditions. We are attracted by the work involved; and this brings us closer to them. When as architects we speak of the a-historical nature of architectural forms, what we really mean is this. And we speak of appropriation largely in the sense of perceiving and agreeing with the practical reason behind such forms.

This specifically technical approach to form is also the only way to keep it at the right distance. We learn to look. We recognize the precision of the solutions, the consistency of the movements, and little by little we acquire familiarity with the elements of the work required to create it. It is construction that arouses our enthusiasm, not form. Here our capacity for perception is safe and we can drop all precautions: we look with the eyes of the apprentice, our attention is directed towards the how. The more enthusiastic we are about the work, the more we detach ourselves from the form. Form no longer matters. It could be the Pantheon or it could be one of Tessenow's little houses. The movement is always the same. Every example worthy of the name is capable of conveying a great deal of the work involved to us and of making us realize the amount of study and skill that were required. This way of looking, rather than levelling out differences, allows us to draw distinctions and to make choices. It offers us concrete bases for judgement, but above all it leads us to tackle our work, I believe, in the most correct way: giving us a version of it stripped of the many mystifying and illusory attributions, showing us its true limits, but also the hope that it implies and that can never be cheated.

So, through the specific elements of work, we find ourselves face to face with the problem: the raison d'être of architecture.

Each work of architecture, we know, is always primarily a response to a problem, to a well-defined and practical problem. All good works of architecture assert this clearly and stand in demonstration of it. The problem is the decisive test of the work. The practical problem, the touchstone of work well done. The practical problem and not the form is the true adversary that has to be overcome in the work.

The problem and the work: the what and the how. These are what really fascinate us: the material conditions of the architecture. One might object to following a rather too narrow path, but it is enough for us to be aware of it. We have certainly limited our observation, but we are also in a position to deal with the many temptations that we come across in the course of the project. We are familiar with Kant's saying: 'The dove, when it cleaves the air supported by its wings, may believe that it could fly still better in a vacuum.' But we are well aware that it is only the law of necessity, the raison d'être even more than the necessary condition of architecture, that supports it and that – both metaphorically and literally – allows it to rise. And experience makes us equally well aware that only the test of inflexible necessity stands against the indeterminateness of thought in the work of the architect. What we may believe, like Kant's dove, is merely the illusion of freer action.

The what and the how, the practical problem and the execution, the law of necessity and the rule of the trade. The whole of architecture can be reduced to these two conditions, even the most famous and admired of buildings. If we look with the eyes of he who does, then we perceive nothing but this. Besides, is this not the very reason for the permanence of the forms of architecture, the reason for the superimposition and blending of diverse experiences remote from each other in time? Just as happens in the house and in the elementary form of the house, which always bears the mark of the utensil. Just as happens in the public building and in its most recognizable form, the great hall, repeated over and over again in unchanging fashion. Always the same condition of necessity, the same idea of construction, the same object that is repeated.

Every good work of architecture always brings us back to the object, to that necessary and faithful object, moulded by use and custom, that by its nature is schematic and rough, elementary and solid, just like the material of which it is made, like the physical laws that govern it. That object so unsuited to the sudden changes dictated by the occasion, so inadequate in its response to demands that do not originate out of common expectations. Faced by the plainness and determination of the objects, everything else becomes secondary, precisely because its conditions are the very conditions of daily life.

Probably the peculiar beauty of architecture consists partly in the fact that it is at once subject and image of the rules that govern it. Could this not be the reason for the special beauty of abbeys or monasteries, of all those old buildings where the *regula* is such that the forms exactly repeat the rhythms of days that are all the same in a pattern without equal for clarity? Is it not just this perfect symmetry of forms and everyday life that makes us 'Unger' in the great courtyard of the Carthusian monastery in Pavia? That is responsible for the singular beauty of Einsiedeln or Cassino? And is it not strange that in all these examples it is always the house, the elementary form of the house, that regulates the succession of spaces and masses and that determines their proportions? The same thing happens in these monumental groups as almost always happens in works of architecture, even though they may appear more difficult to interpret at the outset. Is not in fact the house, the orderly succession of the famous and splendid *appartamenti,* still the only true rule and also the key to the interpretation of that great and suggestive complex which grew over the course of time into the palace of Mantua?

Thus, by sticking always to the technical/practical aspect of architecture, we have encountered the rule long before the form. It has made an impression on us with the sureness of the mark left by permanent necessity, with the suggestiveness of the unmistakable mark of nature, the touchstone of the world transformed by architecture, and with the conviction that always accompanies the mark of work. We have not had to accept it; we have learned to recognize ourselves in it even before learning to live together.

When we look at the architecture of the past, the good works of architecture, and we see them so established, necessary, and above all affirmative, then we recognize that their secret lies in just this unconditional acceptance of the rules of architecture and in this total submission. And so, resorting once again to the authority of the examples, we recognize that fine works of architecture are always gestures of allegiance to and admiration for whatever preceded them and made them possible; we recognize that good works of architecture are always something that is added onto a *corpus* that is shared by all of us, the world ordered and made accessible by the forms of architecture. And what unites experiences that are different and remote from one another in time is just this fidelity and this ever-renewed comparison. Otherwise, what would be the sense of studying antiquity in architecture, the sense of so many enthusiastic investigations and surveys? How to explain the combination of so much dedication and such a determination to build? What is the meaning of all those attempts made at the real or fantastic reconstruction of so many ancient buildings, and then their extension and completion? The meaning of those examples in which the *new* is inseparable from the *old,* in which the new owes so much to the old as to be unthinkable in any other form? How to explain Palazzo Orsini, the Malatesta Temple, the palace of the Duke of Gubbio or the Basilica of Vicenza? What other explanation can be found for the story of those complexes which have grown in time, like the palace in Mantua already referred to? How else may we possibly explain the history of our ancient cities?

When we look at the architecture of the past, the good works of architecture, and we see them so complete and rigorous but at the same time so well-suited and peculiar to their role, we recognize that in those examples the limits imposed by their material conditions, the special conditions of the requirements they had to fulfil, the constraints determined by the speed and manner of the work involved and those dictated by the experience and the authority of earlier examples, have been transformed into so many opportunities for exercising the skill and knowledge of a builder who knew his trade. So that each apparent obstacle to the architectural definition of that example has become a concrete reference, a support, a cornerstone of its construction. I am referring, for instance, to the relationship with the site: to those examples where the confrontation with the natural element is most obvious, to the fortresses and castles where the engine of war contends with the crags that surround it. An example of this is Mont-Saint-Michel, with the emphatic air of challenge of its stones bound to the rock, but which does not prevent one from seeing the rules on which it is based, the same as those of many other small bill towns. I am referring to those examples that confront a transformed nature, to those large rural courtyards of the people of Milan whose architectural plan seems to have been laid out together with the roads, canals and tidy fields that surround them. And again to the

Charterhouse, to the city of Pavia, to its rigorous but contradicted grid, to the countryside that separates them, the whole united in a single design, in one great and ancient plan. Might not the law of geometry, so fascinating and convenient for he who does, also be a law of nature?

This is the special status of work in architecture: a work where the conditions are in reality factors in the determination of the form, a work where the overcoming of practical difficulties and the definition of the form are the same thing. And this is also the beauty of that work: the sureness of a work dedicated exclusively to its own object and that finds the conditions to proceed solely in that object. A work where the form always comes last. A work where the form has to pass through many trials before it achieves its final definition: it overcomes obstacles, gets round them, takes unexpected paths, adapts itself, gradually eliminates whatever is superfluous, is refined. We see the growth of its condition of necessity, we see it acquire breadth and experience. And no-one, except in foolishness or bad faith, can ever say in the end that that form has been shaped by the desire for a specific form. Yet the form is the sole outcome of this long process, its only testimony: the liberated form, the form that was never sought. Not the stupid spontaneous form that does not exist, not the natural form that does not exist either, as we are well aware, but the constructed form, the tempered form, the form desired only on these conditions.

Each new obstacle turned into an opportunity for work, each accident translated into a new occasion on which yet again to gauge in practice the stable world of architectural forms: this is the peculiar freedom of architecture. A freedom that emerges out of restraints. A freedom won in adventurous fashion and at once contradicted in an equally adventurous manner; immediately exchanged for new constraints, in search of new points of reference; exchanged for the difficulties that have always tempered form. Always shunning the arbitrary that renders the form unconvincing. This is the great lesson to be learned from good architecture; and this is the advice it has to give.

The examples, as has already been said, teach us the *how* of the project: the procedures, the moves, even the tricks: the technical side of the project. And when we set to work on a project, we are doing the same thing, only that our own how is created in the process. This means that, in spite of everything, notwithstanding the hopes and the promises, we really only learn by doing: and in the work the how of the examples becomes no more than a trail to follow, an encouragement. We only learn by experience and we realize that only the object in front of us, the object of the project, is capable of giving us the indications that we need. But even this experience of ours has a limited validity: even a project already done immediately becomes nothing more than a trace for another project. Thus each work of architecture is a different story; each project always starts over from nothing. This is all the more surprising – and all the more significant – when one considers that architecture is always running over the same old themes and that it means very little over the course of time.

In reality always starting again from the beginning is a permanent requisite of the architect's work: it means that the conditions are never the same, but it also means that the experience we build up in the course of our work does not provide us with *answers* that prove to be valid in other circumstances. Experience gives us confidence in our judgement, faith in the means at our disposal, but it never allows us to take anything for granted. It never permits us to miss out steps. Bringing everything into question each time is actually a necessary condition of the project. This lesson too we are taught by good works of architecture: the more those works appear assured and definitive, the more they demonstrate that the academic temptation is wholly foreign to them.

What remains in the end is the construction of our profession, the growing mastery of the trade: confidence in our judgement in the first place and then a greater faith in the means of expression utilized (in the sense that we are trying to delimit a field of forms that is increasingly consistent with the type of representation that we are after). And when, while engaged on a project, we go back to the same examples, the best-loved and most familiar ones, we look at them with different eyes. Everything that attracted us in them by its universality and theoretical import we now want to measure against the result, against the realized form: we still want to learn, but we also want to compete. We want to check the solutions, the responses, the ones that seem decisive to us in that moment: we want to make comparisons. We look with opportunistic, biased eyes, as a consequence of our own work. We are not looking for suggestions; rather what we want is confirmations, optimistic but also uncertain as we are about the fate of our work. The ties that link us to good works of architecture are many and complicated in our work, not least what is in any case always implicit, that of imitation, but none is more important and none is decisive: this is why the lessons of good architecture are never exhausted and why they drive us to act.

Lastly let us look at a question that is undoubtedly given too much weight today, perhaps because it is emblematic of the different theoretical positions current in the field of architecture. A question that has already been dealt with in part and that is in any case implicit in what has been said so far. I am referring to the question of so-called *formal order* in the work of design – meaning by this term both the appropriate disposition of the parts and its immediate clarity, its visualization.

When we work on a project we are taking a personal requirement of our own into account as well, one which corresponds moreover to a more general condition of architecture itself: that of giving an orderly form to the object of our work, but one which does not necessarily coincide with the order brought to the object by the law of necessity of which we have already spoken. What I want to say is that in reality we are dealing with a will to order that almost always precedes and deviates from the object; in other words that tends to assume an independence of expression with respect to the object itself. There is no point in providing examples of this. It is a fact that has to be honestly acknowledged. It is part of the practice of our work and is always a temptation, independently of the type of order to which we make reference. (Here I am hypothesizing the existence of various types of order; I do not know how many, nor how many more have been invented recently, although certainly not as many as the number of names created by critics to identify them. However I am fairly convinced of one thing: that in architecture the absence of order is physically impossible.)

The architect is often accused of prevarication with regard to the object, almost always with reason. And this ought to lead us to a positive reflection. Firstly it should lead us to see this desire to give orderly form to the object as a genuine obstacle to the formal definition of the object itself: that odious mark of pretence that makes many drawing-board works of architecture so unconvincing. An obstacle that we can only overcome in the object, by the attention fixed on the object, by eliminating its schematic, a priori character. This means that, instead of striving in vain to make an order that comes from outside match the object, we have to seek in the object itself that order and that demand for order that alone convince us, and give a suitable form to them. In other words we have to recognize that our problem is not so much one of giving order to things as that, a simpler but at the same time more difficult one, of following and assisting the order which is always and in any case inherent in things, that order which is, in a manner of speaking, natural to things. We need to transform our desire for order, our desire for form, into a constructive attitude.

This is a truly concrete objective for the work of design that permits us to judge and choose, as we always do when we are faced with examples. And it is in just this sense that I return here, in the light of a particularly significant case, to the already mentioned question of the relationship between architecture and the natural element: the examples this time are the two cities of Timgad and Djemila. Everyone has heard of these two cities founded by the Romans in Algeria, not far from one another. Today they are suggestive ruins, with the layout of the streets, the locations of the most important buildings and the division of the blocks still visible: they are famous cities always cited as examples. In fact much of the theory of architecture of the Roman city is expressed in their forms. Much more interesting for us though, a direct comparison between these two cities provides confirmation of what has been said above with regard to the difference between a pre-established formal order, i.e. one imposed from the outside, and a formal order that comes from things, i.e. that emerges out of their special conditions. This can clearly be seen in the results. Such theoretical and methodological density and clarity derive solely from the fact that one city is located in the middle of a plain and the other on the curve of a mountain ridge. Simply because the resistance put up by the natural element has been different in each case. I am not going to describe their forms, which are too well-known in any case, but it is obvious that the comparison is such a significant one since the forms are the same: for in reality we are dealing with the same city built on two different sites.

What in one case is the practical, perfect and undistorted translation of an idea of order (even if this idea of order is really the synthetic outcome of a practice made perfect), in the other is the capacity to learn, to understand and to adapt that same basic idea. What in one case is merely the practical application of a theoretical proposition that is already unequivocal in itself (the pattern of the newly-founded Roman city) paradoxically shows us its limitations. In the other however, the application of the same proposition reveals its universal character, its possibilities, here expressed only in part, and it is for this reason that we find it convincing. So that we learn much more from the second than from the first since, unlike the first, we cannot do without the second. And this is the special quality of all great architecture, its timeless lesson, the lesson we get from Djemila.

For all these reasons when we, in the practice of our work, speak of order, of formal order as result, we always prefer to refer to that order in construction that is defined in the course of the work, as it is gradually carried out. So that we ourselves, while we work, are always partly onlookers as well, in the sense that at particular stages of the work what we are doing is more a participating and a sharing, more an assisting, than an out-and-out act. We watch things fall into place bit by bit, finding their place through an almost natural movement, a movement that seems to find its own way while the work does not slacken and the construction finds its own confirmation.

And since order in architecture is always, in spite of everything, an artifice as well (just as the order of daily life is also a convention), an artifice intended to make things more comprehensible, we will always be concerned with working in such a way as to give things their right emphasis, to bring out their differences, and not conceal them. We try to give them depth and credibility, so that the very notion of order emerges strengthened.

Improving, without leaving anything behind that has not eliminated itself: this would make a good motto for our work.

Michael Maltzan
The model

AR-
CHI-
TEC-

Michael Maltzan holds both a Bachelor of Fine Arts and a Bachelor of Architecture from Rhode Island School of Design, where he received the Henry Adams AIA Scholastic Gold Medal. He received his Master of Architecture degree with a Letter of Distinction from Harvard University. He is a Fellow of the American Institute of Architects and a GSA Design Excellence Program Peer. He has served as a design instructor, lecturer, and critic at The Architectural League of New York, Rhode Island School of Design, University of California, Los Angeles, University of California, Berkeley, University of Southern California, Harvard University, University of Waterloo, and Southern California Institute of Architecture.

In the two decades since founding Michael Maltzan Architecture in Los Angeles, California, Maltzan has created a practice which engages the increasingly complex reality of urbanization and information-driven culture. Building on his background in the arts, his work synthesizes the ambiguity of our contemporary world through an architecture that is both a catalyst for new experiences and is infused with optimism for its role as an agent for change. Among Maltzan's range of projects are Inner-City Arts, the Skid Row Housing Trust's New Carver Apartments, Hammer Museum, Pittman Dowell Residence, NASA/Jet Propulsion Laboratory Administration Building, Fresno Metropolitan Museum, Central Park at Playa Vista, San Francisco State University's Creative Arts Center, Ministructure No. 16 / Book Bar in Jinhua Architecture Park, and Chengdu Wide Horizon Bridges in China.

To understand our office, our work, and our design process, you must understand it in relationship to the model. It is one of the primary tools which characterizes the practice and our design process, but more importantly producing models is about producing forms, physical forms as well as forms of inquiry, that also characterize the practice. Similar to craft, models traditionally employ technique, skill, tools, and often experience. Most importantly however, for us, they characterize ideas.

Models represent many things in architecture, such as form, programmatic relationships, space, materials, details, and structure. Historically, the model's primary responsibility has been to represent the building. Models form part of a continuous narrative, unfolding, always on the way to and in the service of an ultimate built form. While often compelling, and at times beautiful in their own right, models have been thought of as subservient to the 'real thing'. In that way, we have learned to see them as the stand-in for the ultimate actor, the building itself. However, in our process and office, the model not only serves as an 'equivalent' of the final design, but also as something that exists on its own. The model is not only a representation of a building or a space, but the model exists on itself.

In fact, I have come to realize that one of the most devastating developments for the model is when a building is not being built (and of course ours is an architectural practice, so that happens more often than I'd like to dwell on), and the model is left to stand for the unrealized design on its own. It is at that moment that I think the model loses its autonomy and sacrifices its range of expanded possibilities and potential trajectories. Models of completed projects are free from that burden of verisimilitude to ambitions and desires and are open to other uses, other interpretations, other relationships. Most importantly, the actually built building does not make its models obsolete; instead it releases them from their obligations, which creates possibilities for other uses, other relationships, other interpretations. Here I will discuss in some detail one architectural project in particular. The idea being, I believe, to offer less of an overview, and more of a deep examination of a set of particular issues of practice and process as illustrated by a single project. However, given the model's complex role in our work culture, it is more appropriate to invert that equation. The larger relationship between our work and the project of the model is represented more fully by taking a wider view across multiple projects. This contrasts with the chronological development of a single project – especially as the single narrative of models leading inexorably to the ultimate outcome of the building is precisely the methodology to which our process seeks an alternative. Instead, recurrent themes play out across multiple projects, looping back to extend beyond a fixed, synchronic chronology. In this light, the extant and growing collection of models populating our studio can be seen as a project in and of itself. They are in dialogue with each other, and they present a major question for the office about architecture, authorship, idea, and practice.

As it relates to our work I want to focus on the model's role in three primary inquiries: Space/time and movement; effect and perception; and the hidden. These are not seen as distinct ideas in our approach to the work, but instead are present as overlapping concerns and mutually reinforcing complexities.

A primary concern in our work are the form, politics, characteristics, and the social or public potential of physical space. Movement, or the temporal, especially as it relates to the viewer or user, is the primary device animating space. In looking to forms that allow for real inquiry into the fundamental and interrelated connections between space and movement, models are an essential, invaluable means to explore and expand this evolving conversation within our design practice and vis-à-vis a larger architectural context.

In our earlier work, movement was often choreographed in a linear or narrative manner, the aim of which was to put the body into a more visceral and connected conversation with the building. Over the past decade, our interests in the relationship of the building participant and the building/space have continued to evolve, increasingly located in a type of contemporary space which, while continuing to develop ideas of movement, challenges the controlling (i.e., political) aspects of narrative movement, through means characterized by the non-narrative, the negotiable, and the simultaneous.

Interestingly, as we have continued to make an investigation of this kind of contemporary space characterized by the simultaneous, the physical model, as opposed to the digital model, has emerged as a most appropriate tool. I believe the reason for this is that the three-dimensional, analogous physical model allows multiple and simultaneous spaces and programs to exist within an individual's field of perception, and generally all at the same time. It provides for a network of relationships that can be apprehended, understood, and worked with fluidly. With digital models, their fundamental two-dimensional nature often has created for us a more limiting process, which has to be constantly negotiated through a process of singular scene editing.

The Pittman/Dowell Residence and its models are directed toward this issue of investigating the potential in simultaneity. I II The project is located on the threshold of the larger suburban sprawl that characterizes much of a contemporary city like Los Angeles. It is a residence for two artists overlooking the San Fernando Valley adjacent to Richard Neutra's 1952 Serulnic Residence, and is inscribed by the sole winding road which originally ended at the Neutra house above. The Serulnic design is characteristic of modernism's commitment to transparency, but here that transparency was in question as we began to think about the emerging social realities of a contemporary world where our lives have become, if not public, then extremely visible to the larger world. By contrast, the Pittman/Dowell Residence inverts the modernist ideal producing an extreme internal transparency while maintaining a more private exterior.

I II

Inspired by geometric arrangements of interlocking polygons, this new residence takes the form of an eidetic heptagon, the overall clarity of which is the sum of its individual parts, each informed by local contingencies of program, function, and experience. One important model of the house took on an almost puzzle-like form, where individual geometric fragments could be recombined in multiple relationships and varying degrees of internal or external transparency. The product of this layered, interwoven moiré of shifting interior perspective is a new kind of simultaneous experience, where individual spaces are characterized by an expanding set of visual and physical relationships. In a series of centrifugal trajectories extending from the void at its center, space and movement are blurred into a continuous network of movement and perspective, dissolving the boundary between the individual domestic territories of the home.

At a much larger scale is the model for San Francisco State University's Center for the Creative Arts, which examines the potential for simultaneity at an institutional size. Here, an incredibly broad range of spaces for performance and learning are bound together into a network of programmatic, visual, and physical links, creating a new and layered, horizontal data

I Model of the Pittman/Dowell Residence

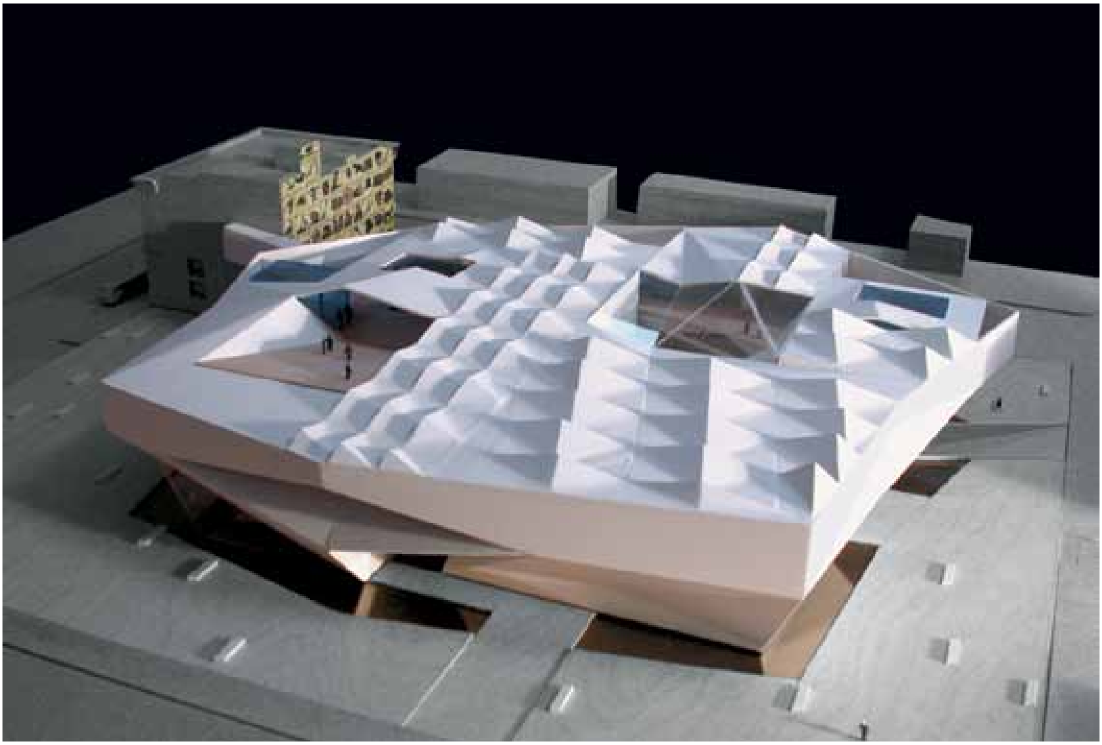
II Computer model of the Pittman/Dowell Residence for movement, connecting, and collaboration.[III] [IV] III IV This texture of experience is found in the void spaces which inscribe the project’s plan and section. The model reflects the intention of creating intertwining and fluid spatial relationships between building and campus, artist and audience, and between the network within and the city beyond. In many ways, a building of this scale and complexity is more like urbanism than building in its planning. Often planning at this scale relies on the diagram to underpin its conceptual development, but here we are more interested in reinforcing a complexity of heterogeneous texture in the experiences that connect this building to the idea of city, rather than structuring experience through diagrammatic armatures.

To a large extent, models that study effect and perception are also models of engagement. They model and investigate the characteristics of a project, a site, a natural or urban context, whether they are physical or ideological, concrete or abstract. They are the basis for producing deep, ongoing experiential connections between ourselves and the building, which is at the foundation of our practice and our work.

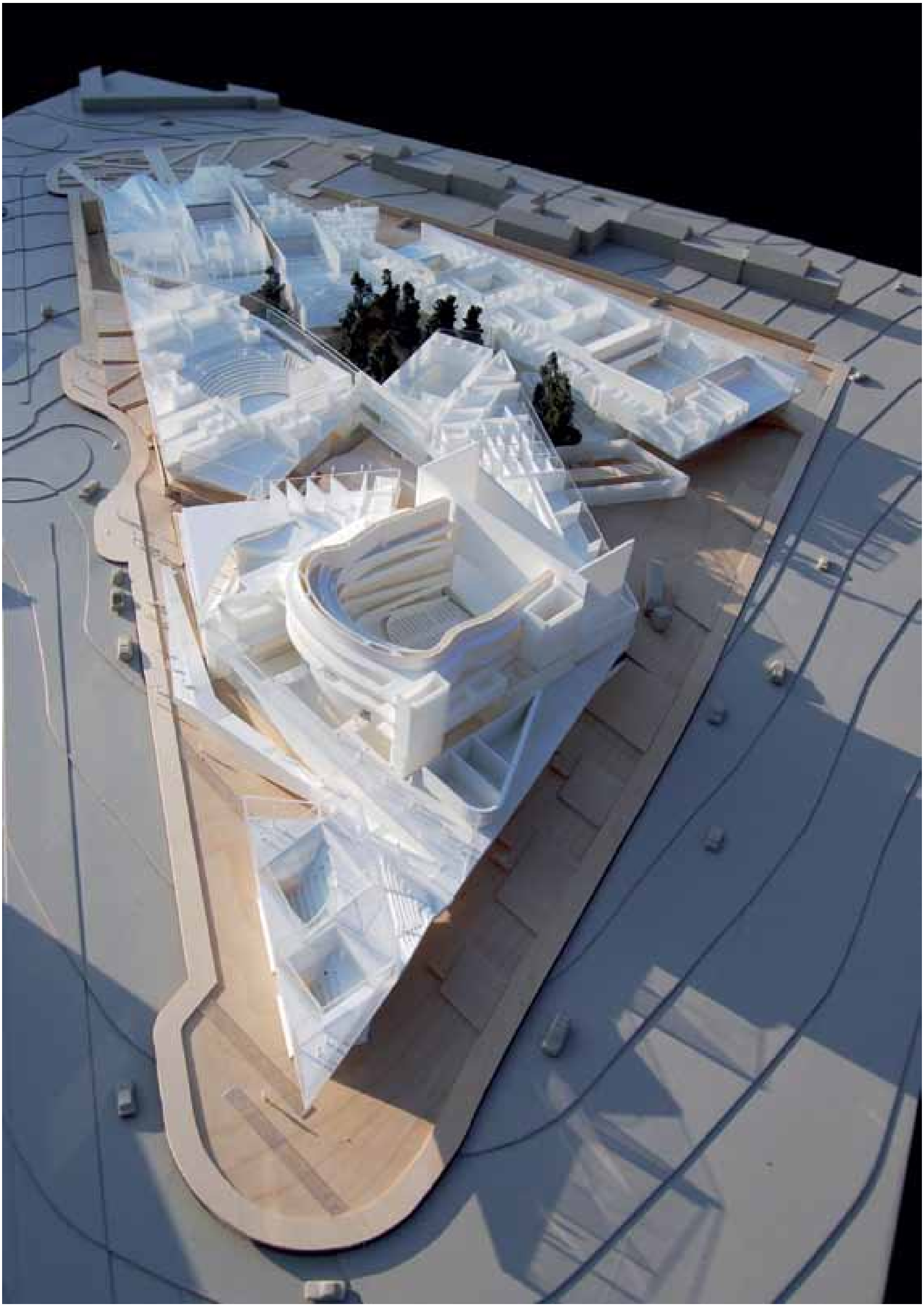
This investigation toward testing and understanding the perceptual characteristics of our architecture extends to include the performative surface of the building façade within the broader urban contextual fabric.[V] V At the Fresno Metropolitan Museum, a hybrid museum for science and art, we have lifted the design above the surrounding landscape of the city and California’s Central Valley. The museum’s levitated form transposes the open, boundless grid of the agricultural plots beyond the city’s limits to create a multidirectional network of galleries and learning environments beneath the sheltering expanse of the building’s primary and fifth façade, its roof.[VI] VI Through study models at a range of scales, this surface emerges as a series of oscillating frequencies of light and texture above the cityscape below. From the accessible part of the roof, the ‘texture-scape’ of the skylights seems to merge foreground and background. The shimmering of the mirage-like horizon of the humid agricultural context beyond extends back to produce a similar visual quality in the form of the Museum’s ‘roof-scape façade’.[VII] VII

The extensive relationship and the role that the model plays in the study of space, movement, and perception, are perhaps most clearly illustrated in the recently completed Benedict

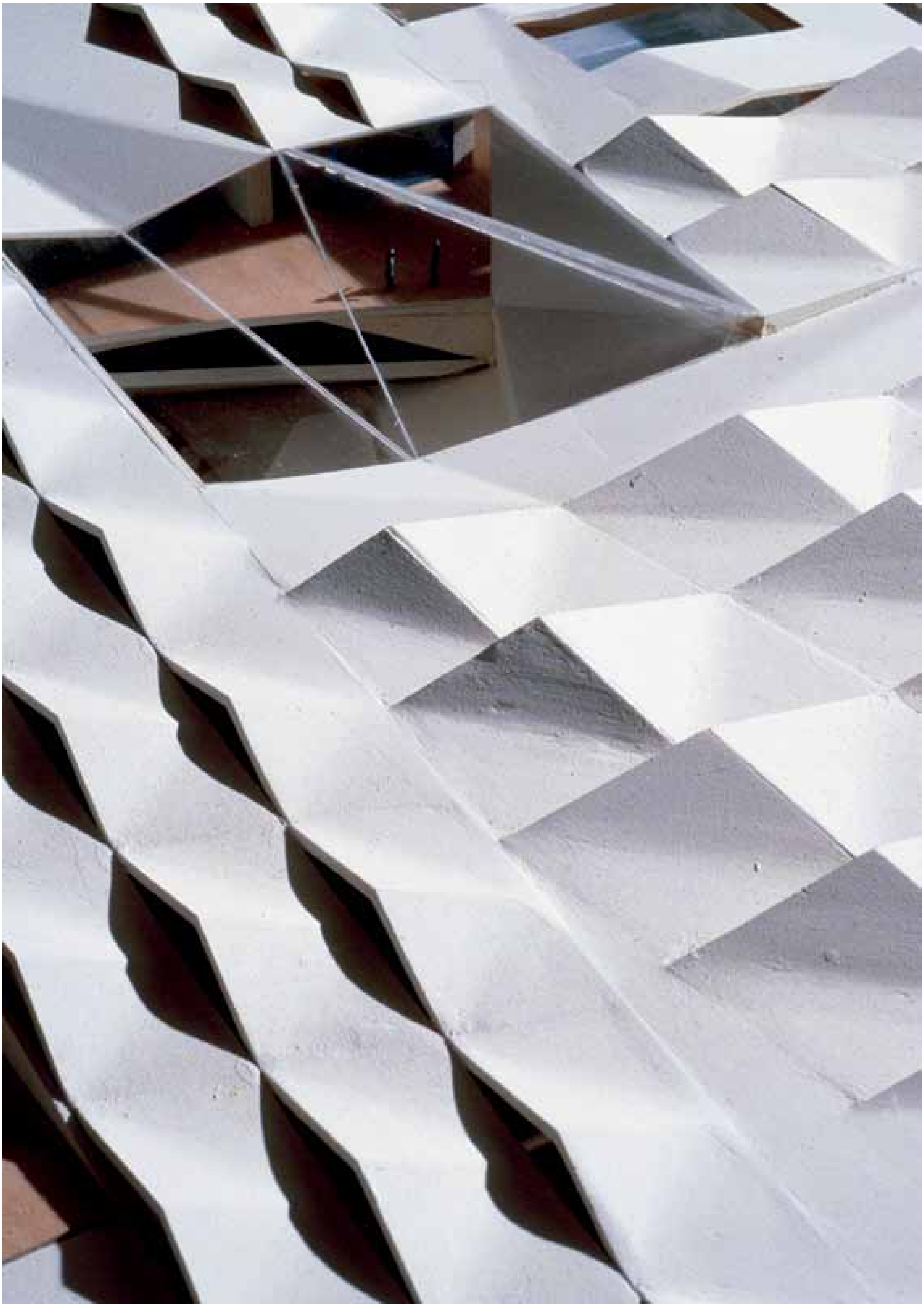
III Computer model of San Francisco State University's Center for the Creative Arts



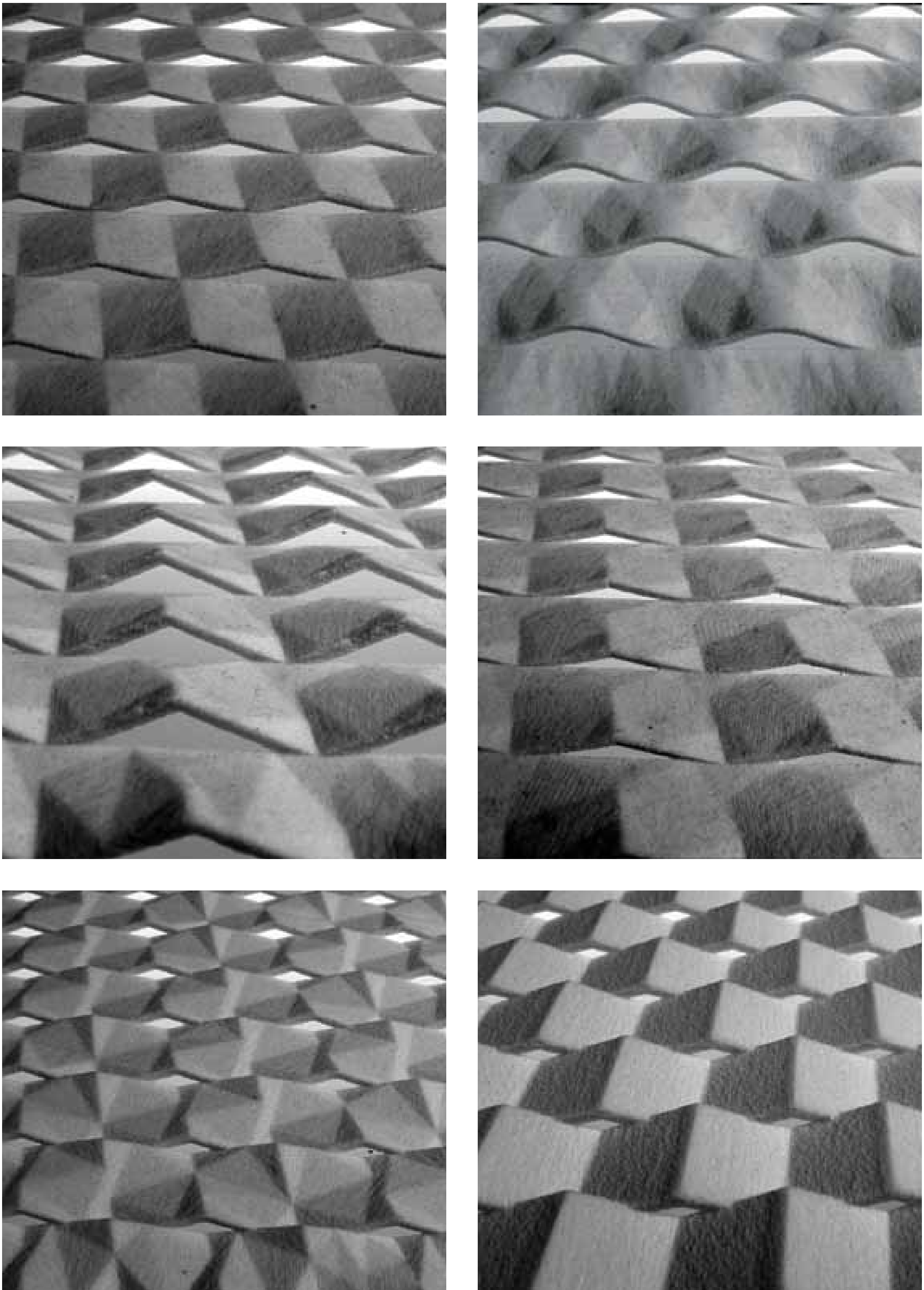
V Model of the Fresno Metropolitan Museum



IV Model of the San Francisco State University's Center for the Creative Arts



VI Model of the roof of the Fresno Metropolitan Museum



VII Models of different roof-scapes for the Fresno Metropolitan Museum

Canyon Residence, where a methodology of models and making extends to full-scale mockups, which are invaluable for both the production of compositions of effects and its most direct experience. [VIII] This project is defined by the sinuous, elevated line along which the residence is approached, tracing the length of the site before reversing itself, to reveal the residence, the site, and the 180-degree view of the Los Angeles Basin beyond. The visitor's trajectory continues through the entirety of the project, linking its multiplicity of programmatic and experiential environments and the three platonic volumes which levitate above the network of movement below. Here, models track an ongoing line of inquiry into the relationship between materiality, optics, and context, a shifting moiré of perforated and reflective panels creating a dynamic, direct relationship between the project, the surface of its façade, and the surrounding topography of its context. VIII

In projects like the Fresno Metropolitan Museum and the Benedict Canyon Residence, the models are the testing grounds of perceptual effects and qualities. The goal is to create rather than simulate these effects in the models, in our process, and it is reasonable to say that often the building simulates the model, rather than the other way around.

Within the concern with the simultaneous is the potential of the hidden. The space which is often described as the in-between, but is also in many ways a discussion of the potentials of the section. Often, this classical space of the *poche* is in the service of producing the figural qualities of space, but in certain projects we have been interested in exploring this space for its potential conceptual qualities as well.

In a project for the exhibition *Entre lentement* in Milan, [IX] we were asked to make an installation that dealt in some way with Rudolf Schindler's iconic home in Los Angeles. The house was designed as a utopian model of communal living between two families. Our project was most interested in the psychological space potentially present in that equation, and the large model represents the figural qualities that might be produced at the intersection of parallel worlds. [XV] Here the model became the most disconnected from the referent, and is representing a speculation as opposed to trying to be an a priori equivalent to what is built. IX XV

VIII Model of the Benedict Canyon Residence

IX Model for the exhibition *Entre lentement* in Milan

Ministructure No. 16 is a ‘bookbar’ pavilion constructed in Jinhua, China. [X] [XI] [XII] The project expands on the complex confluence between the book and architecture in Chinese culture. Working with the structural engineer Guy Nordenson, the pavilion’s form extends from its center into two unequal, cantilevered arms, housing a bookstore, a café, and reading space. [XIII] [XIV] The pavilion’s form as it extends from small-scale studies, digital models, and structural models at scales as large as 1:20, condense a series of visual relationships, perspectival projection, and a continuously shifting environment of light above the surrounding landscape. As visitors move toward, into, and through this labyrinth of reciprocal visual relationships between inside and outside, the complexity of the pavilion’s form reveals itself as it expands and contracts in a continuously changing montage of space and light.

X XI XII
XIII XIV

Finally, I want to emphasize the importance of the model in our office, as it relates to the ongoing culture of ideas in the studio. Physically the models can be seen as producing an expansive creative topography across the space of the studio, as well as temporally across successive generations of collaborations within the office. The models reside as multiple artifacts in the studio, a collage of many different materials, versions, scales, sizes, relationships, and adjacencies. Stacked around the studio they begin to create a fictive landscape open to productive misreadings and misperceptions. [XV]

XV

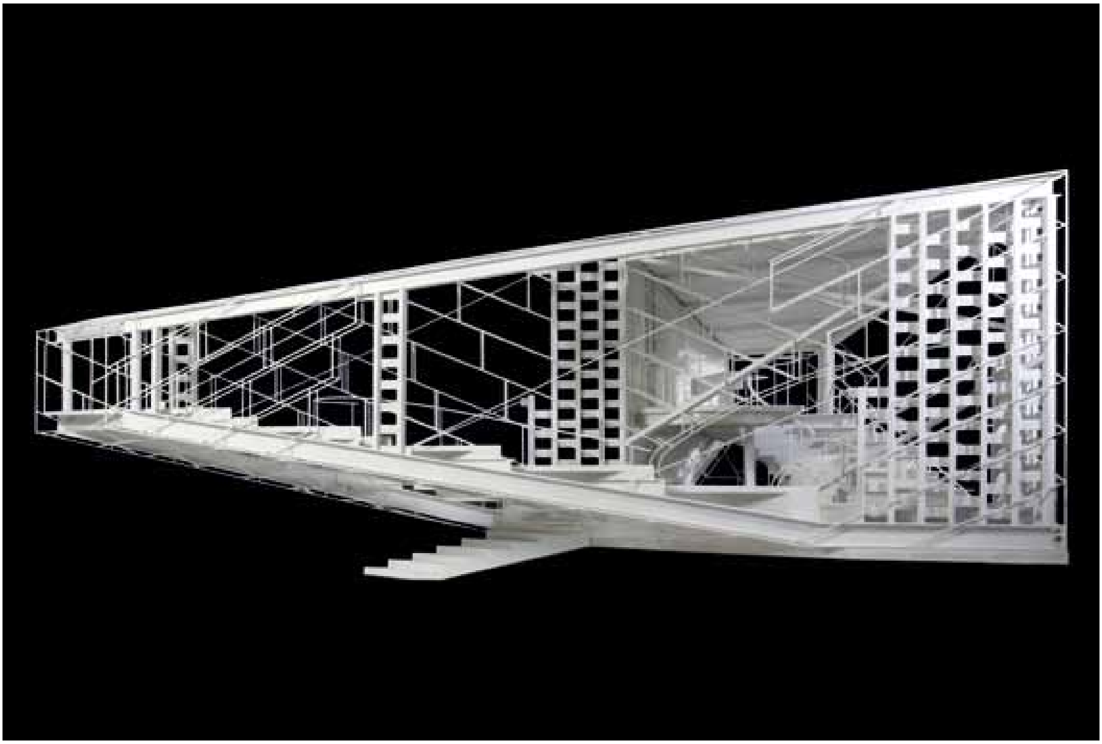
In this other form the models have a role that goes beyond the initial impetus for their creation within a specific building and design process. They are the context for ongoing investigations and inquires, and they form the space of conversations between those in the studio, clients, and others involved in our work. It is this capacity for overlapping, intertwining, and collapsing form that allows us to visualize a future landscape, city, or building, yet to be conceived.

X Detail of a model of the 'bookbar' pavilion Ministructure No. 16 in Jinhua (China)

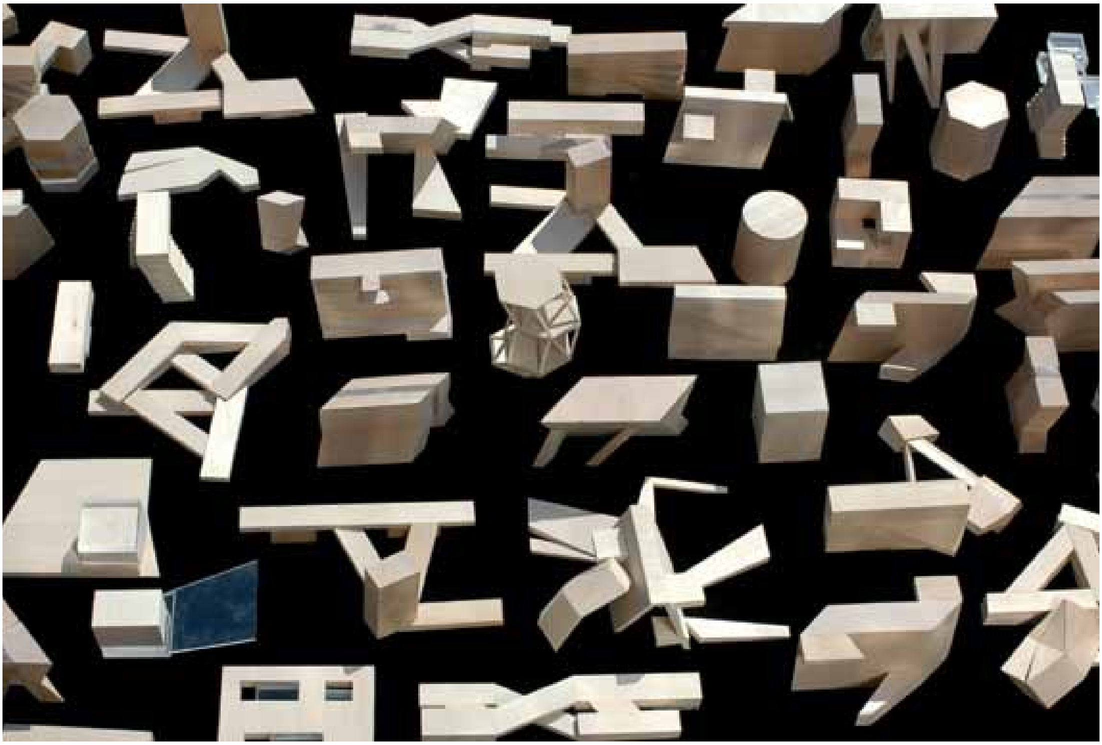
XI The 'bookbar' pavilion Ministructure No. 16 in Jinhua (China)

XII The 'bookbar' pavilion Ministructure No. 16 in Jinhua (China)

XIII 1:20 model of the 'bookbar' pavilion Ministructure No. 16 in Jinhua (China)



XIV 1:20 model of the 'bookbar' pavilion Ministructure No. 16 in Jinhua (China)



XV Study models of the Jet Propulsion Laboratory's Administration Building

Kersten Geers

Crafting architecture. In search of the architect's project

AS A

CRAFT

Kersten Geers is one of the principal architects in the Office Kersten Geers David Van Severen, which was founded in 2002. Geers graduated in architecture and urbanism at the University of Ghent, Belgium and at the Esquela Tecnica Superior de Arquitectura in Madrid, Spain. He was a project leader for Maxwan Architects and Urbanists in Rotterdam and for Neutelings Riedijk Architects in Rotterdam (2001-2005). He is currently a professor at the University of Ghent, and visiting professor at the School of Architecture in Mendrisio.

The architecture by Office can be seen as a phenomenological experience, without any rhetoric of programmatic organization or ironic provocation. The phenomenology as driving motivation for architecture results in sequences of closed and open spaces that stimulate the visitor to discover the building itself. Office's vision is realized in a series of competitions, and built projects. The collage, the drawing and the model play a significant role in the representation of their work. Among the characteristic projects are *Border Crossing* (Mexico/USA), a collaboration with Wonne Ickx; the Belgian pavilion for the Venice Biennale 2008 named *After the Party*; and the Kortrijk XPO completed in 2009 in collaboration with Joachim Declerck (Bureau Goddeeris) and Bureau Bas Smets. During the Venice Biennale 2010 Kersten Geers and his partner David Van Severen were awarded the Silver Lion for their contribution '7 rooms 21 perspectives'.

The formulation of a 'project' defines the core of architecture. This project is the embodiment of the architect's – or the author's – intention. It is not dissectible into simple propositions but is inherently complex by definition, which gives the project its *raison d'être*.

The work of the architect consists of an infinite, or sometimes even finite, set of projects developed over time. As much as each of these projects may deal with a specific context – real or virtual – each one always engages with the history of architecture. The architect's project always talks *about architecture*. It deals indirectly with everything that has happened before, both in the field of architecture and in the world. Architecture without acknowledging history is impossible. The project is not about inventions in order to bring something new into existence, but about formulating intentions to reassemble things already known in another way. In today's world, too much emphasis is put on the new – the fresh and the frenzy. Architecture is neither new nor old, architecture is always *contemporary*. Every *new* architecture reassembles chosen elements of a found reality.

With today's world becoming more and more urbanized, the architect's project can only happen in an urban environment. Even in the rare occasion of a complete absence of urban fabric, it is exactly the scarcity of built form that becomes the theme, or the context of the project. The urban environment doesn't support ideology very well, the reality as found is in stark contrast with it. Still, every reality is the sum of what is already there and its future is dependant on what is added by the architect's project. Sheepishly accepting a given reality in an attempt to make something *fit* into a preconceived notion escapes any social and political responsibility. The architect's project should take position within whichever given context it must take place in. Taking position is a public act. By doing so, it introduces *citizenship* in the urban fabric, a pretext of shared responsibility. Every project is an urban project, a display between a reality as found and rash intentions and a responsible muddle without final resolution. Balancing between pragmatism and ideology, the project positions itself as an anchor for collective misunderstanding.

At the core of the project lays an argument about the principles of architecture. These principles cannot be reduced to a manual; they do not form a closed set of architectural knowledge. Still, retroactively they seem to be describable. For example, in his 1966 essay 'Architecture for Museums', Aldo Rossi quotes Adolf Loos claiming that any good architecture is describable, using the Pantheon as an example. The example shows the ambivalence. *Ex Post* can be clarified what was unclear, not outspoken, unsaid, before the project was done. The project reveals (indirectly and confusingly) the underlying intentions: its principles. It does not, however, turn a set of given principles into reality. Architecture *happens* through the project, and does not exist outside of it. Only in the accumulation of projects – as a series – can a specific argument about architecture and its principles be made.

Authorship plays a very ambivalent role within a project; it is at the same time essential and irrelevant. Authorship is the catalyst of any single project or series of projects. Still, in the string of projects the author becomes transparent: either he coincides with the work – he becomes the work – or he completely disappears. Reyner Banham wrote beautifully about Stirling's drawings, and – in my opinion – fundamentally about his work, that they were 'impersonal coverings that can say something important for Stirling without saying a thing *about* Stirling'. In the disappearance of the author lays the real virtue of the project, it becomes part of the city, part of the collective, part of a shared responsibility. The work becomes 'cultural production'. Cultural production is production disengaged from its economical value.

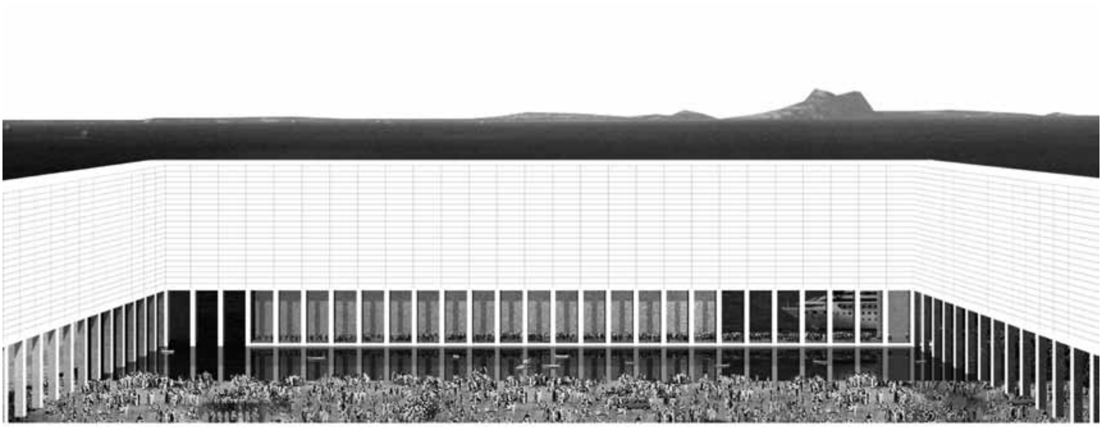
In our contemporary quantified universe, the project became the last resort for unclarity. This unclarity makes it economically unreliable. The project doesn't explain, *it is*, it exists. The project acts as an obstacle, an obstruction. Its formal existence has to be accepted by the community (or not), it forces to take a position.

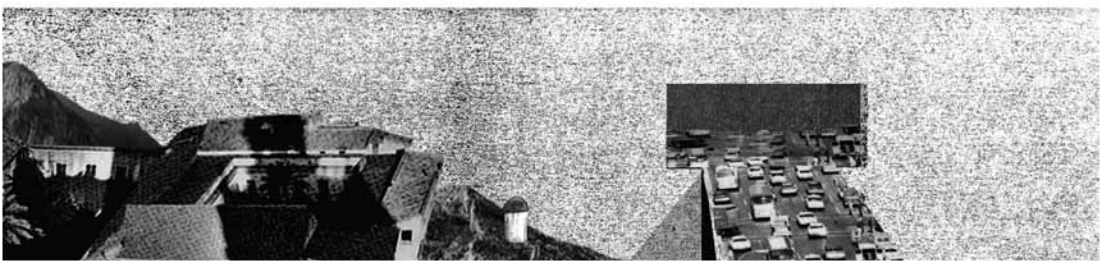
It is precisely there that the project finds its necessity.

How then, is it possible to distinguish a good project from a bad one? The main criterion for a good project is internal consistency. Complexity does not / should not exclude consistency. Every proper project engages in the found reality, the reality as found. It is as much part of the real context, as it is against it. It is its mirror and its transformer. A proper project *fails*, since any possibility to make complexity consistent fails. It is in this failure that it escapes the economical reality it is facing. It is not because the project escapes the logics of the economical reality that a project should not be economical. Its engagement into the reality 'as found' forces it to take money matters seriously. Through its composition, its showcase of intentions, it finally puts any found reality under pressure.

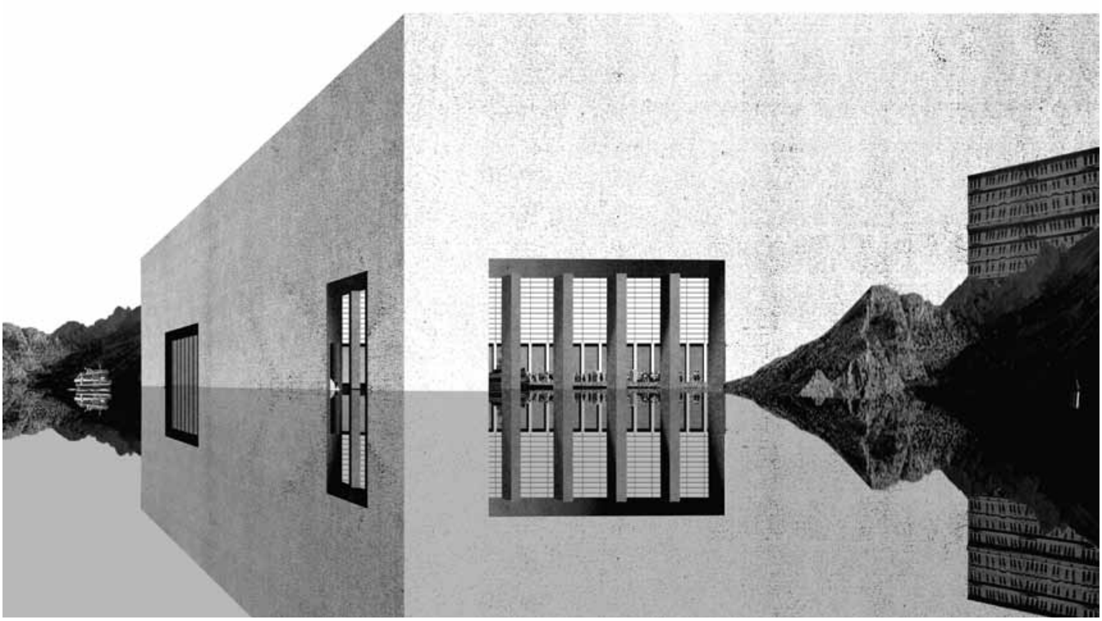
The craft of the architect is embedded in the knowledge of architecture. It is grounded in all the possible combinations and all the possible principles that the history of architecture bulks. Where matter is used in an attempt to materialize principles. This history is full of ambivalences, as from the very beginning architecture was deeply engaged into representing what it was unable to make. The tricky placement of Greek corner columns, the masquerade of Roman plaster rendered walls, the add-on orders of Mies . . . are all part of a fundamental history of intentions. These micro formalisms bridge the gap between intentions and reality and are at the heart of the architect's craft. This is the kernel, the starting point of any ambiguity, the core of precise intentions. Only through the project it can set off an accumulation of formal knowledge.[1]

1 'A non-dogmatic accumulation of formal knowledge', title of the introductionary essay on the work of James Stirling, written together with Pier Paulo Tamburelli, Joachim Declerck and Christoph Grafe.





Office KGDVS, Interior and exterior of the Cité de Réfuge, Ceuta, Project for the Rotterdam Biennale, 2007



Office KGDVS i.c.w. Joachim Declerck, Bureau Goddeeris and Bureau Bas Smets, Kortrijk XPO, Kortrijk, Belgium, 2007-2009

Office KGDVS i.c.w. Wonne Ickx, Border Crossing, Mexico – USA, 2005

Office KGDVS, 'After the Party', Belgian Pavilion for the Venice Biennale, Venice, Italy, 2008

Office KGDVS, ‘Garden Pavilion (7 Rooms / 21 Perspectives)’, Venice, Italy, 2010

Michiel Riedijk
Epilogue

We see a man and woman standing hand in hand. The man is shown on the left-hand of the painting, the woman on the right. The man's right hand is raised; the woman, who is almost certainly pregnant, has lovingly placed her left hand on her swollen belly. The man is looking at the viewer; the woman is looking down. A small dog stands guard at the couple's feet. Behind the man we see a window with a view of the outside world; behind the woman we see a red divan bed surrounded by draperies. In every respect the husband and wife are in mirror-like symmetry: indoors/outdoors, colourful/restrained, left/right, black/white, narrative/form, structure/phenomenon. At the heart of the composition, exactly two thirds of the way up, we see a mirror on the rear wall of the room. All the lines in the composition appear to converge in the mirror. On closer inspection we can see the painter himself reflected in it, standing behind his easel.

The painting *Portrait of Giovanni Arnolfini and his wife*, by the Flemish artist Jan van Eyck (1390-1441), is one of his most important works. The painter's inconspicuous presence at the centre of the scene makes us aware that what we see is first and foremost a representation of his idea. Could he really see himself in the mirror, or did he put that in later? Was the woman still pregnant when the painting was completed? Did the man and the woman really look like this? At the heart of the composition, the artist himself finally speaks. The heart of every design is formed by the designer's position in relation to it. The way in which he turns the subject matter into a material composition is his work. As in Van Eyck's painting, it is ultimately the architect's interpretation of the project, his central idea or position, that we perceive as architecture. His intentions, obsessions and wishes are ultimately the focus of architectural thinking. At the heart of every composition is its author.

Jan van Eyck, *Portrait of Giovanni Arnolfini and his wife*, 1434

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This publication was made possible by financial support of the Faculty of Architecture, Delft University of Technology.

Editor
Michiel Riedijk with the assistance of
Else Marijn Kruijswijk, Dražen Kričković, Jaimy Siebel

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Translation
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Final editing
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Graphic design
Karel Martens & Karl Nawrot

Publisher
Martien de Vletter, SUN

Available through IDEA BOOKS, Nieuwe Herengracht 11, 1011 RK Amsterdam, the Netherlands, tel. + 31 20 6226154, fax + 31 20 6209299, idea@ideabooks.nl.

ISBN: 978 94 6105 103 5
NUR 648, 955

SUN architecture Publishers based in Amsterdam develops and publishes books on architecture, urban planning and landscape design.
www.sunarchitecture.nl

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Acknowledgements

This book has been published to mark the *Architecture as a craft* symposium held at Delft University of Technology's Faculty of Architecture from 13 May to 4 June 2009.
We would like to thank Susanne Komossa and Tom Avermaete, associate professors at the Chair of Public Building/Architectural Composition, for moderating the debates that followed the various lectures. We are also grateful to Crispijn van Sas and Ruben Bergambagt for helping prepare the symposium. Finally, we wish to thank Jan Rots, Peter Boelhouwer and Wytze Patijn, deans and acting deans of the Faculty of Architecture, for the faculty's financial contribution to the symposium and this publication.

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