Sphinx' Brikkenbouw as found

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Sphinx' *Brikkenbouw* as found

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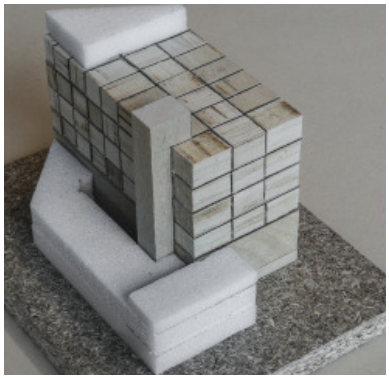
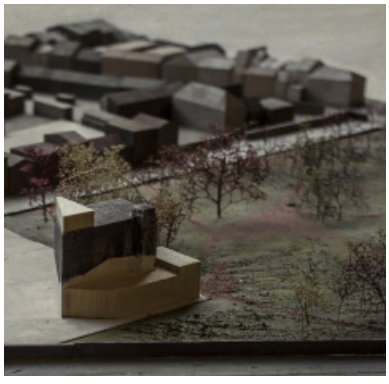
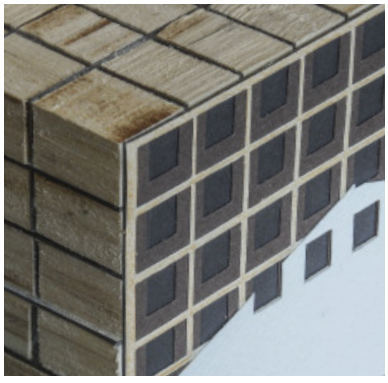
Sphinx' *Brikkenbouw* as found

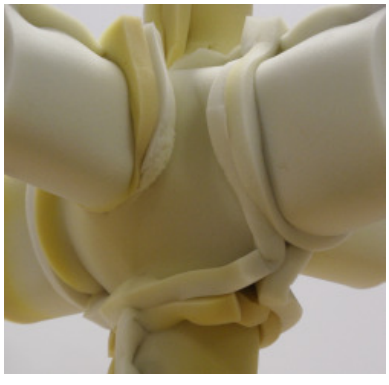
a critical embodiment of the tectonic and its interrelation with the topos and typos

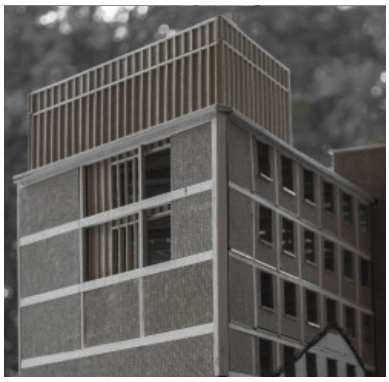



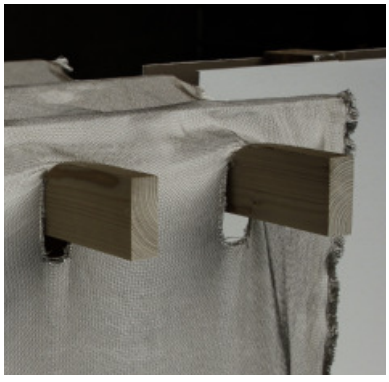




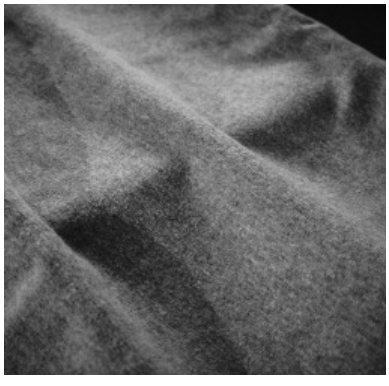







acknowledgements

Before introducing the contents of this graduation project I would like to show my thankfullness to those who shared their knowledge, those who showed their interest and confidence in my project and in me.

First of all, I would like to thank the members of my graduation committee – Bernard Colenbrander, Jacob Voorthuis, and Jan Schevers – who shared their knowledge, criticism, and optimism. In addition to these three aspects, which I think cannot go without each other, the enthusiasm they find in their professions proved to be a contagious factor during the numerous meetings that were part of the graduation process.

Concerning phenomenology, in addition to philosopher Jacob Voorthuis who inspired me with his 'architecture and philosophy' lectures, I wish to acknowledge Felicitas Kraemer who teaches philosophy at the Department of Industrial Engineering & Innovation Sciences. It was her course 'The body as a machine' that questioned the importance of our bodily perception within the technological era of today, and consequently provided sufficient food for thought to relate it back to the field of architecture and to redefine my position within architectural designing. In addition, she was kind enough to free time and comment on the phenomenological part of this research. To Ralph Brodrück I am grateful for introducing to me the works of phenomenologists Hermann Schmitz and Gernot Böhme, at the moment that questions were rising about the mere absence of phenomenology in today's architectural practice and in the handling of cladding tectonic particularly. Occasional talks with Ralph encouraged me to reconsider my perception of the world, of the *Brikkenbouw*, and of architecture generally.

It was IPAL Belvedere Maastricht that allowed me to enter the abandoned *Brikkenbouw* on different occasions and consequently be able to experience its interior spaces and atmospheres. The promoters of the Sphinxpark should also be thanked for their effort in providing the city of Maastricht and its inhabitants an incredible place to gather and express themselves in an accessible way, and inspiring me with their way of approaching topical questions of how to deal with our build environment.

contents

prologue

This writing is part of the graduation project The Naked Architect 2.0 at Eindhoven University of Technology, in which the combining of writing and making – thinking about the making – forms the general approach. The title Naked Architect refers to Jamie Oliver's cooking program Naked Chef, in which food and cooking were stripped down to the bare essence, their core. This metaphor is then adapted to the graduation project in which the bare essence of architectural beauty is put central.

The chosen graduation studio and the proposed topic of this research are emanated from the fascinations that I find within the field of architecture. Those fascinations are combined in the thinking about and making of architecture in the area that focusses on an architecture that is based on affection for materials, how they interrelate, and the message and atmosphere they are able to transcend. The way architectural elements and materials are put together, strongly influence the user's experience of the spaces those elements enclose.

The thinking and writing part of this graduation project will form the backbone of the design process. The design should show a critical adaptation of architectural techniques in relation to the concept of tectonic. Two books - "Herzog and de Meuron: natural history" and "Caruso St John: almost everything" - are used as a basis for this graduation project, both edited by architectural historian Philip Ursprung. Both architectural duos deal with the themes of tectonic and cladding frequently and relate their thinking and designing to the work of certain artists. These books can be considered and read as an atlas, trying to find the essence within the thinking and making of these fascinating architectural practices.

Based on own fascinations in architecture and the way of working of both architectural offices, I decided to focus on the themes of tectonic and cladding – the strong relation between core and shell, core-form (*Kernform*) and art-form (*Kunstform*), of a building, of building elements and their connection into joints – which are infinite themes in architectural theory, design, and practice. As stated in the title of this book, these themes will be critically (re)considered in relation to our embodied perception.

introduction

The *Brikkenbouw*, an industrial remain at the former Sphinx factory in Maastricht, The Netherlands, is chosen as a case study for this research. The demolition of the bulk of factory buildings at this industrial site has caused the *Brikkenbouw* to become a rather isolated entity within the city center. Parallel to a thorough research into the theme of tectonic, a redesign will be provided for this building. In addition to the usual application of theory to provide a basis on which design decision can be based, the design will be used as a case study and consequently as a means to reflect upon the research. This will corroborate the importance of both theory and design as tools for conducting research within the field of architecture. Let me first anatomize the research statement to clarify the elements of which it consists, their meaning and connection, before elaborating on the exact content of this book. The tectonic of the Brikkenbouw is chosen as the central theme of this research, of which figure x shows the defined model. The research statement is formulated as follows:

"Using the *Brikkenbouw* as found as a case study, research is conducted on how the tectonic, and its constantly evolving interplay with the topos and the typos - as defined by Kenneth Frampton, is related to a phenomenological approach of cladding tectonic."

sub-question 1 (part II):
"How can the tectonic of the *Brikkenbouw* be related to its topos and typos?"

sub-question 2 (part III):
"How to deal with the apparent neglect - including Frampton's rational approach of the subject matter - of the way in which the cladding tectonic presents itself to the human body, i.e., in what way can the cladding tectonic provide embodied knowledge to direct the analytic ways of knowing the world?"

This research on tectonic will consider Karl Bötticher's "*Kernform*" (core-form) and "*Kunstform*" (art-form) and the interrelation with Gottfried Semper's "*Bekleidungstheorie*"

01
Frampton, K. (1995), p. 2

(theory of cladding). A discussion and questioning of the tectonic, its physical relation with a specific location and building type, considering historical and potential future characteristics, is considered to be necessary in order to add a meaningful design. Two case study projects by the architectural practices of Herzog & de Meuron and Caruso St John – Ricola Storage Building and Nottingham Contemporary - will be analyzed to find out how the theories of Bötticher and Semper can be put into practice. Both offices applied the theme of cladding tectonic in such a way that the façade elements express the distinctive topos and typos, relating them to historical and current characteristics of the site. It is this interrelation which tends to be forgotten or neglected in today's architectural practice, at worst causing an increased detachment of buildings from the place where they are built. The question rises in what way the ordinary can be harnessed through reinterpretation, i.e., how to define the qualities of the existing, in this case the Sphinx site and 'Brikkenbouw', and use it as a basis for new insights, invest new life into what is already there?

In approaching the existing, the 'as found' concept– introduced by the architectural partnership of Peter and Alison Smithson – is borrowed and reinterpreted as a starting point. The specific meaning of the "as found" to which I will be referring to is, as stated by the Smithsons, «carefully observing existing structures to discover their qualities, to follow the traces of what is already there and to use them as a basis for new insights and forms». Consequently, any aspect of the built environment can be interpreted and employed as a trigger for architectural propositions. In this particular case, the existing which will be carefully observed and interpreted, is chosen to be the former industrial Sphinx site and remaining Brikkenbouw. This building was found by coincidence when looking for a possible case study building in the industrially enriched area defined by Maastricht, Aachen, and Liège. A redesign will be proposed for the build object and its settling within the urban structure of Maastricht, as a physical application of and answer to the main research model. Instead of merely focusing on the building itself and how it can compete with surrounding buildings, the 'as found' approach starts with that which is already there, that which characterizes this specific place. Only in this way, a historical continuity can be established and guaranteed, instead of causing an alienation of it.

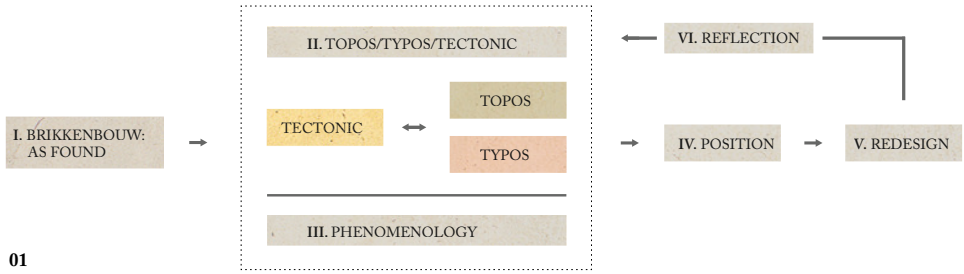
As can be interpreted further from the research statement, the research is based on a hermeneutic of both theory and perception. The theoretical part is guided by Kenneth Frampton's statement that »the built invariably comes into existence out of the constantly evolving interplay of three converging vectors, the topos, the typos, and the tectonic«[01]. In his Studies in tectonic culture, Frampton criticizes and polemicizes the poetics of construction in

nineteenth and twentieth century architecture. As stated by David Leatherbarrow, »Frampton's arguments are persuasive for two reasons: his command of the technical depth of his subject matter, and his ability to interpret the conceptual underpinnings of the buildings and writings he examines. It is their intertwining and complementarity that sustains the restorative description of architecture as a craft of making with its own intellectual tradition«[02]. While agreeing with Leatherbarrow's review, what seems to be put aside in Frampton's book is the phenomenological aspect of the tectonic, i.e., the way in which the tectonic presents itself to the body. One of the few phenomenological approaches of the subject matter, part of the introductory chapter, is a short description of how one moves from entry to council chamber of Alvar Aalto's Säynätsalo Town Hall, encountering a sequence of contrasting tactile experiences. The mere absence of further phenomenological analyses of the tectonic, leads to the question of the importance of sensory perception and *leibliches Empfinden* in his theory, and in architectural discourse in general.

02
Leatherbarrow, D. (1997), p. 98

The question of perception will form the second part of this research, and will complement the aforementioned question on the interrelation of the topos, the typos, and the tectonic. Firstly, I will describe my embodied relation with the *Brikkenbouw* and its placement at the Sphinx site, experienced the day I bumped into it. This will show my interpretation of the building in a phenomenological way, when having limited background information at that time. Then, as a second part, a theory will be developed against a mere rational approach of architecture in general and the *Brikkenbouw* in particular, still using the tectonic as a central theme. In this part the thinking of Philosophers Maurice Merleau-Ponty, Hermann Schmitz, and Gernot Böhme will be used as a leitmotiv.

In short, what will follow in this research section is firstly an explanation of the 'as found' concept in relation to the *Brikkenbouw*, guided by my embodied perception of this building when encountering it. Secondly, the topos, the typos, and the tectonic of the *Brikkenbouw* will be exemplified after which the interrelation of these three converging vectors will be reflected upon. Thirdly, the phenomenological aspect of the tectonic will be considered as a critique on a mere rational approach. To conclude the theoretical part of this research, I will clarify my own position in relation to the remained industrial *Brikkenbouw* and its topos, typos, and tectonic, and define the relative importance of knowledge and perception. It should be stressed, though, that circle is not yet round after this theoretical part. As an equal part of this research, the re-design of the centrally positioned case study – the *Brikkenbouw* – will both use findings from the theoretical part as well as provide new insights as input for the considered theory. Finally, the design will be used to reflect upon the research.



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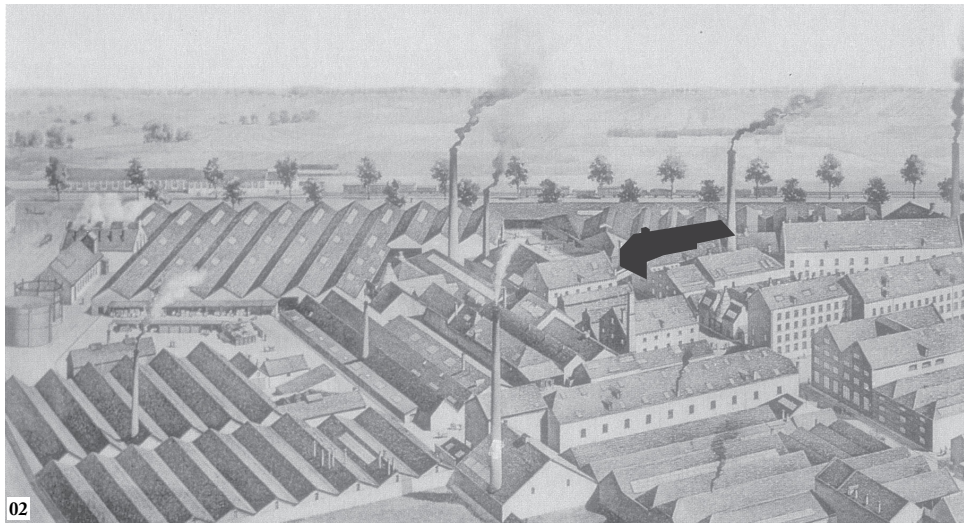

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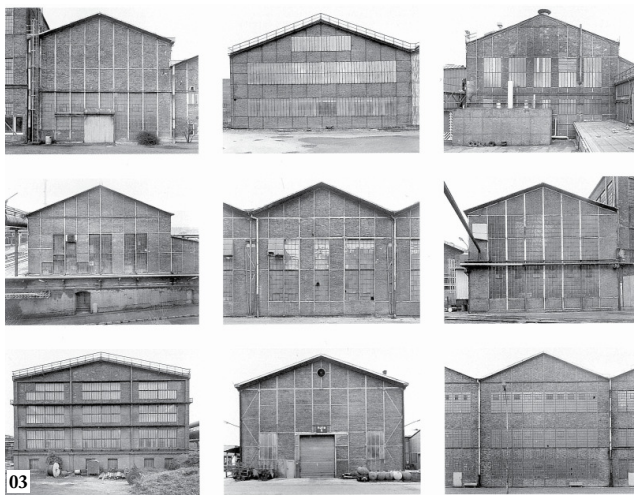


03

04

Fig. 01
Visualization of the *main research* process

Fig. 02
Sphinx industrial site, Maastricht

Fig. 03
industrial typology
Bernd and Hilla Becher

Fig. 04
industrial remain
'Brikkenbouw', Maastricht

I. *Brikkenbouw* as found

05

The Smithson's 'as found' concept is borrowed and reinterpreted in approaching the existing. As introduced in previous introductory chapter, it can be described as carefully observing existing structures to discover their qualities, to follow the traces of what is already there and to use them as a basis for new insights and forms. In their essay "The 'as found' and the 'found'", the Smithsons state that they »meant by the 'as found' not only adjacent buildings but all those marks that constitute remembrances in a place and that are to be read through finding out how the existing built fabric of the place had come to be as it was«[01].

The 'as found' concept is strikingly illustrated by their Upper Lawn Pavilion (**Fig. 07**), where they did not pursue newness, as seemed to be common practice in earlier modernism, but chose for reusing and reinventing the existing. This attitude is fundamentally different from a tabula rasa approach, in which the existing and its historical, social, economic or ecological contexts are ignored while evoking a sense of permanence and timelessness.

We can say that the architectural practice of Caruso St John shares this attitude of the Smithsons, by claiming that »nothing can be more thrilling than the concrete reality of a specific situation, and to engage with this reality is to harness the economic, social and ideological conditions of the site«[02]. In their preference of the specific to the generic they show similarities with the early work of Herzog & de Meuron, of which a striking example would be the Ricola Storage Building, which is used as a case study project in chapter 4.

Interesting is the Smithson's further notion of 'selective accident'; »to be good [it] must function like the objet trouvé - a chance set of 'found' phenomena bringing about an order which you might ideally wished/invented to create from scratch«[03]. Considering this meaning, when relating the 'as found' concept to the Brikkenbouw as found, the building can be considered an objet trouvé. Following two sections – II. tectonic/topos/typos and III. a phenomenology of cladding tectonic – will consider this discarded building as found, to provide a theoretical basis for its redesign. The 'as found' concept will be an implicit part

01
Smithson, A. & P. (1990); p. 201

02
Caruso St John; p. x

03
Heuvel,van den, D. (2002); p. 62

Fig. 05
Sphinx' Brikkenbouw
view from *Sphinxpark*

of both theory and redesign. Before explicating the interrelation of the tectonic of the *Brikkenbouw* with its topos and typos in section II, I will first describe my initial encounter with this building and the way I interpreted it when having no background information about the building and limited background information about the site.

Fig. 06
'As found'
Alison and Peter Smithson

Fig. 07
Upper Lawn Pavilion
Alison and Peter Smithson

Fig. 08
nature on its way
Brikkenbouw

Fig. 09
interior mold storage
Brikkenbouw

II. tectonic/topos/typos

10

1. introduction

Using the *Brikkenbouw* as a case study and centralizing the tectonic, this section will study and reflect upon »the constantly evolving interplay of three converging vectors, the topos, the typos, and the tectonic«[01] - as stated by Kenneth Frampton in his "Studies in tectonic culture". He arrived at this interplay through the identification of respectively »the unavoidably earthbound nature of building«, »the received "what" deposited by the lifeworld», and «the expressive potential of constructional technique«[01].

In the introductory chapter, »Frampton [further] introduces a paradigm that will be rediscovered in subsequent chapters: the essential pairing of architectural earthwork and framework, alternatively named topography and tectonics«[02]. The earthwork and framework are linked to Semper's "four elements of architecture", which are the hearth, the roof (framework), the enclosure, the mound (earthwork). Frampton's stressed "essential paring of earthwork and framework" causes the enclosure and the hearth to be put aside to a certain extent, whereas the enclosure is centralized in Semper's theory of cladding (*Bekleidungstheorie*); »he never neglects the space-defining woven or textile element«[03].

In order to state an own position on the "tectonic" and "cladding" *(Bekleidung)*, next chapter will consider both concepts which were central themes in the theories of both Karl Bötticher and Gottfried Semper. For Karl Bötticher, the tectonic stands for the problematic reciprocity between core-form (*Kernform*) and art-form (*Kunstform*), being two opposing categories that can never escape each other. Werner Oechslin's "*Stilhülse und Kern*", studied as an introduction into Bötticher's and Semper's theories on the tectonic, is based on this distinction and related to the question of how buildings should be cladded. For this, in addition to Karl Bötticher, he strongly refers to Gottfried Semper, Adolf Loos, and Otto Wagner. The subsequent chapters of the second part of this research will study and finally reflect upon (chapter 6) the interrelation of the tectonic (chapter 3), the topos (chapter 4), and the typos (chapter 5) of the *Brikkenbouw*.

01
Frampton, K. (1995); p. 2

02
Leatherbarrow, D. (1997); p. 98

03
Leatherbarrow, D. (1997); p. 99

Fig. 10
Thinking Tectonic Drapery
philosophical table

2. Bötticher and Semper on cladding tectonic

(archi)tectonic origins

04
Bötticher, K. (1844); p. 6

05
Laugier, M. (1753)

To find out more about the nebulous concept of the tectonic, the contributions by German architectural critics Karl Bötticher and Gottfried Semper, in the middle of the nineteenth century, will be used studied in this chapter. Both critics were inspired by Hellenistic architecture, and as an important part of their theories they refer back to the Hellenic way of constructing buildings, and more specifically to that of the Greek temple. Both critics think the way Hellenic tectonic is formed to be identical to the forming of nature, in which »idea, being, and function of every organism are made physical, by forming them in such a way that their externality obviously represents the function«[04]. This becomes clear when referring to the principles in Greek architecture according to which the different elements are designed, shaped, and combined into a single unity.

In his Essai sur l'Architecture, architectural theorist Marc-Antoine Laugier claims that classic architecture seemed to have developed over the centuries through a process of imitation and refinement from a primitive hut.[05] This questioning and archetype of architecture received a central position in one of his drawings (**Fig. 12**). Its message is the necessity, in the ideology of Laugier, to return to the primary elements of architecture, captured in the primitive hut. He considered the roof and load-bearing parts that physically support an architecture to be more important than those for the division of space or cladding, and, as a result, the use of ornaments and the imitation of former building principles, instead of imitating nature, to be 'wrong' characters of the Greek (Classical) architecture.

A closer look at the Hellenic architecture indeed shows that the principles of building a wooden carpentered frame are imitated when stone became the main building material, which as a structural material does have considerably different characteristics. Such deviating characteristics resulted in increasing weight and risk of fracture and a subsequent

increase of the size of each structural elements. It shows that within the concept of tectonics, truth seems to be an important aspect. Tectonic truth does not only consider the expression of the structural function of the different elements that make up the architectural composition, but also the way materials are used according to their specific characteristics.

The imitation of the wooden carpentered temple causes the stone temple to be a representation of its predecessor. The structural elements of the temple are the stone base, the former wooden columns that supported the entablature and roof. The entablature is formed by a main beam, architrave, that supports the perpendicular cross beams. **Fig. 13** and **Fig. 14** show how the original wooden temple was 'translated' into a stone structure that strongly refers to its archetype. The stone temple consists of elements that kept their structural function, although using a completely different material, and elements that merely represent the original way of building in wood. One of those representing elements is the triglyph which was originally used to protect the end of every cross beam against rain. The openings between the cross beams with triglyphs were closed with rectangular clay elements, called metopes. The Doric column forms a representational element of the columns used in wooden temples. Originally the wooden columns were placed on stone plates, to protect them from moisture. When building the temple in stone these plates were joined into a single stone platform, which causes them to become invisible as an inextricable part of the three-step-base that lifts the temple from its surroundings. These examples show that when building the temples in stone, such elements were kept as a tectonic representation and tribute to the origins of architecture, although losing its practical function. One could say that a change of the original scheme would have caused the balance of the building to be disturbed, and that subsequent temple designs were supposed to complement this scheme.

STRUCTURE

CONCEPT OR DIAGRAM

CONSTRUCTION

ACT OF MAKING

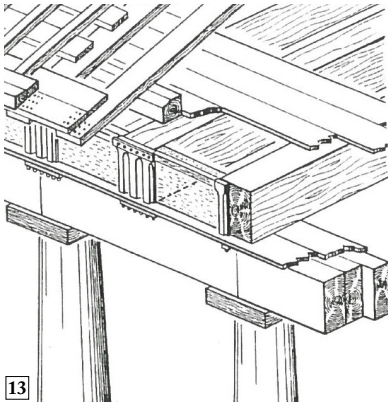
11

→

TECTONIC

EXPRESSION OF FORM AND FORCE

12



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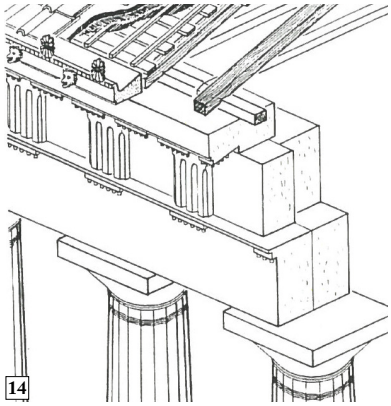


14

CLADDING TECTONIC

15

→

CORE-FORM & ART-FORM

THEORY OF CLADDING

Fig. 11
Eduard Sekler's description of *structure, construction, and tectonic*

Fig. 12
Marc-Antoine Laugier's drawing of a primitive hut

Fig. 13
original Greek temple (wood)

Fig. 14
imitated and adjusted Greek temple (stone)

Fig. 15
themes of this research

core-form and art-form

Along with structure and construction, tectonic refers to the art and act of building, and as part of their widely use these terms seem to be frequently mixed up or thought to be similar. In his essay "Structure, construction, tectonics", architectural historian Eduard Sekler provides a basic, though clear description covering the correct use of terminology. The word construction carries a connotation of something put together consciously, whereas structure refers to an ordered arrangement of constituent parts in a much wider sense. As Sekler puts it, »the intangible concept of structure is realized through construction and given visual expression through tectonics«[06]. So a first definition of tectonic could be "the expression of the relation between form and force".

This definition shows us that the tectonic contains a simultaneous presence of a structural functionality and an artistic expression. By formulating the essential duality of core-form and art-form in the first publication of his book "*Die Tektonik der Hellenen*" (1844), Bötticher discusses the concept of tectonic. As Bötticher puts it, the core-form can be circumscribed as the »mechanically necessary« aspect of any member of a building structure and their resistance to the internal forces of gravity and all external forces, the art-form as the »function explaining characteristic«[07].

This function explaining characteristic comprises both the own being of every member, and simultaneously their interrelation with the other members of the structure, »combining all separate members to an inseparable organism«[08]. It should be added that Bötticher acknowledged the naked core of any member, bared from any decorative character, to be completely able to fulfil all mechanically necessary aspects. Important though is the awareness that we cannot perceive forces, the actual core-form; only the material and form as a result of a constructed resistance to those forces become perceivable.

As stated in previous section Hellenic architecture seemed to be strongly related to the forming of nature, in which »idea, being, and function of every organism are made physical, by forming them in such a way that their externality obviously represents the function«[09]. To explain this concept of the forming of nature, and show its inextricable relation to Bötticher's concepts of core-form and art-form, the human skeleton will act as an extraordinary example. The human body could in many ways be seen as a metaphor for the way a building functions; the skeleton or structure gives shape and support, it provides a framework for the skin and in-between layers. The skeleton can be divided into two main parts: the first

06 Sekler, E. (1965); p. 89

07 Bötticher, K. (1844); p. 15

08 Bötticher, K. (1844); p. 9

09 Bötticher, K. (1844); p. 6

and most crucial would be the axial skeleton (primary structural elements) which are the bones that support it, the second the appendicular skeleton (secondary structural elements) which are the bones that are associated with and attached to the axial skeleton. As in building, the connection of two bones is called a joint and facilitates a specific interrelation of the individual elements to one another. Then there are two types of tissue: the first is the compact (dense) tissue which is the layer of hard bone that surrounds every bone forming the surface, the second the cancellous (spongy) tissue which forms the inner part of the bone and is cladded with the compact bone consisting of a meshwork of bony bars filled with interconnecting spaces. (**Fig. 17**) Whereas the outer and representative part of the bone, the compact tissue, provides strength for bearing weight, the inner part which is not visible has a completely different structure. In this particular case, the externalized cladding (art-form) receives the structural function of the element (core-form). Important is the awareness that in its formal expression, the core form and art form of the bone are fused into a inextricable unity, which causes the bone to be considered as being naked in its tectonic being.

Continuing on Bötticher's approach of the tectonic, the metaphor of skeleton (core-form) and tissue (cladding or art-form), core and shell, would be the most appropriate. Simultaneously, in embryo, the skeleton can be subdivided into a core-form and art-form. The skeleton is initially made of cartilage and by week 9, bone begins to replace the cartilage. This process could be called the becoming of the core-form (bone) by replacing the present art-form (cartilage) which merely functions as a representative of what is supposed to become a structural system, call it its structural diagram.

In addition to the relation of structural essence and interrelating formal expression of the elements that are used, the notions of core-form and art-form can also be applied to the essence of the material itself, how the material is shaped and expresses itself as a result of internal and external forces. The behavior of certain matter allows certain forms, and certain forms afford certain behavior of matter. This relation between matter and form is put central in the concept of hylomorphism. So even if a structure is cladded or masked, this shell contains a core-form and art-form in its own being, an inner play of forces and outer appearance.

As stated before, Bötticher was inspired by Hellenistic architecture, and as an important part of his theory he referred back to the Hellenistic way of constructing buildings. He discerns the symbolic language of Greek tectonics by considering it to be identical to the

forming of nature, and, as a consequence, randomness is put aside by providing a law of form. An example of the relationship between core form and art form, which is closely related to Bötticher being inspired by Hellenistic architecture, would be the transformation of a column by applying entasis, a convex curve, to its surface.[10] (**Fig. 18** and **Fig. 19**) This way of expressing the forces that are in play is also applied to the columns of Japanese Shinto Shrines. **Fig. 19** shows how the heaviness – importance – of the roof is visually strengthened, not only by using strong columns, but more effectively by giving these columns the appearance that they slightly deform due to the vertical pressure they have to absorb. In this way the symbolic form of the columns expresses their bearing function to an extreme.

The terms of core-form and art-form have been adopted ever since their introduction, in a metaphorical way, to distinct between the shell or skin and its including core or nucleus, »*Hülle und Kern*«.[11] As stated by Werner Oechslin in his book "*Stilhülse und Kern*", there seems to be an unbalance between the terms of core-form and art-form, which is in favor of the former, the core, and can be referred back to its etymology. In the general use of this word the core represents the substantial essence, whereas the shell merely serves the core. Although conceived as being subordinate to the core, the importance of the shell is gained by its expression of the inner essence of the structure, its art form. Bötticher also used this metaphor to further explain his theory by claiming that »first of all one needs to think up a scheme for the structural members which in its bareness completely fulfills the architectural function, after which this core is assigned such extremities or cladded with such a shell, that express its inner being in the most concise way«.[12] His use of the shell as a metaphor of art-form should be considered positive; although conceived as being subordinate to the core, the shell enables the visualization of the inner being, and consequently the essential interrelation of core-form and art-form.

As part of the upcoming of Modernism, ornamentation increasingly became a widely and extensively discussed aspect of architectural theory. According to German architect Adolf Loos, »modern is that which is not notable, that which is notable should be considered superfluous«[13]. Instead of the term "*Hülle*" (shell), Loos uses the term "*Bekleidung*" (cladding) when referring to the enclosure of space, and could be seen as a representative of Semper's "*Bekleidungstheorie*" (theory of cladding), which will be elaborated on in next section. The connotations of cladding are closely related to the implicit inner bareness and do not seem to be separable as part of their etymology. The metaphor of "*Hülle und Kern*" originates from Austrian composer Josef Bayer, who with the rise of Modernism saw the architecture in his town Vienna changing in such a way that the buildings gradually

10 Frampton, K. (1983)

11 Oechslin, W. (1994); *Einführung*

12 Oechslin, W. (1994); *Tektonik und Bekleidung*

13 Oechslin, W. (1994); *Einführung*

lost their ornamented shells, after which »the core revealed itself bare and clear to the sunlight«[14]. It should be added that even Bötticher touched this metaphorical use, as he talks about »*Körperkern*« which in its bareness is complemented or even completed by enveloping it (»*mit einer Hülle Bekleidens*«[15]). The question rises what this metaphorical use as an image of core and shell, inside and outside, adds to the theme we are dealing with. What happens if this core is revealed bare by liberating it from its shell, »*Den-Kern-aus-der-Hülle-befreien*«[16]?Would it even be possible to perceive the core in its essence, as it will show itself as an external image to the observant, an element that still consists of an inner and outer being?

14 Oechslin, W. (1994); *Einführung*

15 Bötticher, K. (1844); p. 6

16Oechslin, W. (1994); p. 91

Fig. 16 Karl Bötticher's description of *tectonic*

16

Fig. 17 section of a human bone

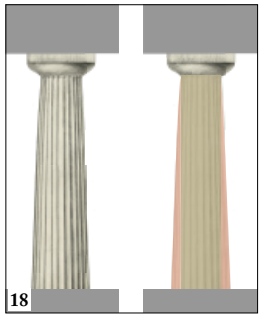


Fig. 18 *entasis* Doric column

Fig. 19 *entasis* wooden columns of Japanese Shinto shrine

theory of cladding

In the introductory chapter of "Studies in tectonic culture", Frampton stresses the essential paring of architectural earthwork and framework - topography and tectonics - which he examined more detailed in subsequent chapters. The earthwork and framework can be directly linked to Gottfried Semper's "four elements of architecture", which are the hearth, the roof (framework), the enclosure, and the mound (earthwork). Frampton's stressed "essential paring of architectural earthwork and framework" leads the enclosure and the hearth to be put aside to a certain extend. The enclosure is centralized in Semper's theory of cladding (*Bekleidungstheorie*); the space-defining woven or textile element is never neglected in his theory.

In his book "*Die Vier Elemente der Baukunst*", Gottfried Semper shows the importance of the aforementioned four elements of architecture of which the enclosure is the most interesting element in relation to the formerly introduced cladding tectonic. The thinking of Semper shows a major difference when compared to both Laugier's interest in the rational expression of construction and Bötticher's ideology of the structure being served and emphasized by an art-form . Conversely, Semper ascribed only a secondary function to the bearing structure, since, to him, it was introduced to support the weaving as »the archetype of the architectural subdivision of space«[17].

Semper considered the aforementioned archetype to be the weavings and textiles that people used from the very beginning of civilization, since one started to delineate artificial space by hanging carpets from a frame. Such application of weavings and textiles was even preceded by the cladding of the human body as an initial way of protection. Semper uses the reference of weavings and textiles to the origins of building, to clarify the emphasis he puts on the spatial qualities of the wall as a screen or piece of cloth, and explores them according to formal criteria, raw materials, and processing techniques. From this, Semper emphasizes the importance of the cladding, whereas the cladded elements, the structural core, merely receive a serving function. This causes Semper to move away from the use of the German word »"*Mauer*"«[18] (wall) and the reconsideration of the word »"*Wand*"«[18] (screen). Bearing walls and substructures, which are introduced posterior to answer the required protection to inter alia weather conditions and hostile influences, are considered to be disconnected from the nature of spatial division.[18] Since the cladding needs a frame or other kind of structural base to be able to 'clad', the essential question rises if and how the core and shell should interrelate and which of both needs to be emphasized.

17 Semper, G. (1851); pp. 56-58

18 Semper, G. (1851)

Whereas Bötticher considered his art-form to be serving the core-form – the art-form is supposed to express the inner essence of any structural element – Semper claims the essence should be sought in the cladding element which enables the division of space or is, in other words, the physical barrier to which we relate our bodily existence. This outer dressing layer will, both at the interior and exterior of a building, provide the tangible surface that embodies the formal language of the floor, wall, or roof. In his writing "*Das Prinzip der Bekleidung*", Adolf Loos radicalizes the thoughts postulated in Semper's theory of cladding by allocating a primary task of the architect, which is to hang the curtains of the room and thereby determine the intended character and atmosphere of the space, given by its surfaces. A subsequent and secondary task would be the designing of a structure to hold these curtains in place.[19] What is interesting in Loos' ideology is the stress he puts on the mastery of the embodied experience of enclosing surfaces, instead of focusing on the archetype of spatial division as protection against weather conditions and hostile influences.

The following statement shows the claimed relation between core and shell in Semper's thinking: »Architecture is dressing. It is the cloths, the adornment of the body, not the body itself.«[20] In this respect, the dressing of the human body forms an interesting reference for the cladding tectonic as we might encounter it in architecture. In his essay 'The fabric of fabrication' Gevork Hartoonian describes the strong relation between the dressing of the body and that of built structures by stating that «the dress is cut and fashioned in reference to the topology of the body … [and] the body should therefore be considered as the ur-form of clothing»[21]. This shows us that it is the topography and contours of the body that determine the surface appearance of the dressing or cladding. Consequently he stresses the conceptual differences between dressing and dressed-up – issues of great significance for understanding Semper's theory – by explaining that for the former the structure of the body informs the form and its surface (**Fig. 20**), whereas for the latter the body disappears behind clothing.[22] The dressed-up represents the idea of theatricality to embellish the constructed form; «the form fakes, according to Semper, if there is nothing behind the mask»[21].

In addition to his theory of cladding, Semper introduced the term "*Stoffwechsel*" (metabolism). His use of this term refers to the symbolic use of materials, i.e., »solving a technical task by using a different material than originally intended and applied for a specific purpose«[23], resulting in a representation of purpose through a transformation or transition of material. The concept of metabolism entails the adoption of original forms into new materials and techniques. A clear example for this is the translation of the original wooden carpentered temple in Hellenic architecture into a stone structure that strongly refers to its archetype.

19 Loos, A. (1898); p x

20 Davies, C. (2011)

21 Hartoonian, G. (2006); p. 273

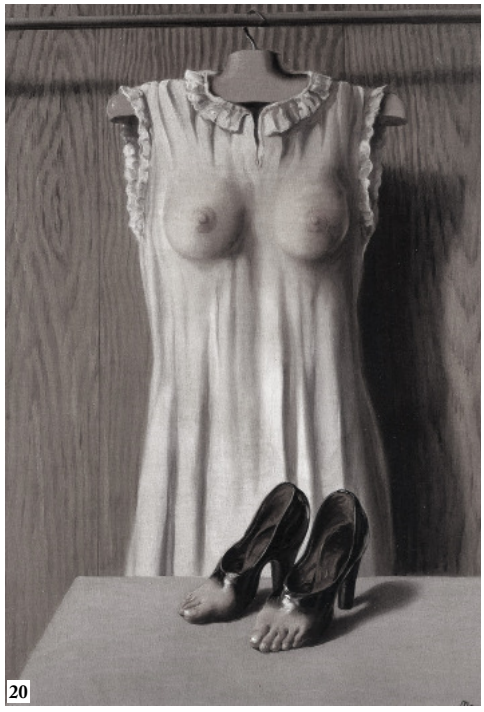
22 Hartoonian, G. (2006); p. 277

23 Quitzsch, H. (1962); p. 54

When building the temples in stone, certain elements – such as the triglyphs and metopes - were kept as a tectonic representation and tribute to the origins of architecture, although losing its practical function.

A further example for the concept of metabolism can be found in the theory of cladding, since the cladding of walls and façades - as physical barriers for the subdivision of space – are derived from the aforementioned archetype, i.e., the weavings and textiles. Therefore, »the original purpose needs to be taken into account constantly as part of their formation«.[24] In other words, walls and façades – dressings – are turned into a mere symbol as a result of the transformation of material, or *Stoffwechsel*.

24
Quitzsch, H. (1962); p. 55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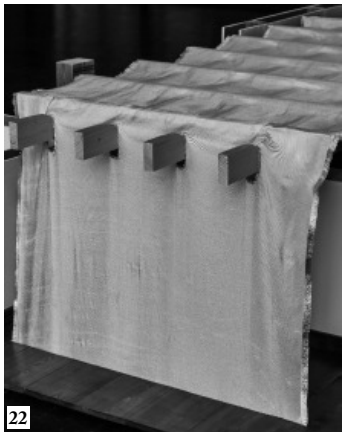
21

Fig. 20
Philisophy in the bedroom
Paul Cezanne

Fig. 21
Queen Luise bedroom
Charlotteburg Palace,
Karl Friedrich Schinkel

case study projects

To concretize the discussion on tectonic and cladding, three case study projects may serve to illustrate the way of dealing with the questioned theories. The first case study will consider the philosophical table - Thinking Tectonic Drapery (**Fig. 22**) - that was designed and fabricated during the first part of the graduation project, parallel to this theoretical research on tectonic and cladding. The other two projects that were chosen are buildings designed by the architects whose books were used as a starting point at the beginning of this project. The Ricola Storage Building, shown in **Fig. 23**, is one of the early buildings by Herzog & de Meuron, whereas **Fig. 24** shows Nottingham Contemporary, a rather new building designed by Caruso St John.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23


24

Fig. 22
Thinking Tectonic Drapery
own design and fabrication

Fig. 23
Ricola Storage Building
Herzog & de Meuron

Fig. 24
Nottingham Contemporary
Caruso St. John

25
Bötticher, K. (1844); p. 15

Thinking Tectonic Drapery - philosophical table

The philosophical table is placed in Gordon Matta-Clark's Four Way Wall (1974), in which he questioned the arrangement of spaces by cutting four rectangular openings into two crossing walls, depriving the customary placing and positioning of one's body within the room. It complements the table as a psychodyslepticum, disturbing its spatial setting and framing its view (**Fig. 25**).

The table was designed during the first part of the graduation project, parallel to a theoretical research on tectonic and cladding. It it not to be understood as a mere illustration of what is said by Bötticher and Semper, though rather as a reflection on their theories, a manner to express an own developed position on tectonic and cladding. The simultaneous overlap and contradiction between Bötticher's *art-form* and Semper's *theory of cladding*, form a crucial part of the knowledge that was gained as a result of the theoretical research.

An architecture based on the concept of the tectonic, constitutes an action that transmutes the being of individual elements, and their conjunction into a single expression, resulting in an aesthetic experience of structure. Bötticher's notion of the tectonic as the problematic reciprocity between core-form and art-form - two opposing categories that, to him, can never escape each other - is confronted with Semper's theory of cladding. According to Bötticher, the art-form has the specific task *to explain*.[25] If we consider this to be true, this means that the art-form is not an end in itself, but rather serves the core-form; Bötticher ascribes a subordinate role to the art-form. A further look at this serving function of the art-form shows three essentially different ways of dealing with the core-form: uncladding (showing the skeletal structure so that core-form and art-form merge into one), accentuating (showing extremities to emphasize the tectonic being of visible elements), or concealing (covering with a cladding that either does, or does not represent the structural function it covers).

The philosophical table explores these ways of how to deal with the core-form. The diagram of structural forces is made palpable by the bracketed, cantilevered construction, the simplicity and clarity of which belie the complexity of the jointing technique used to make it into a rigid single frame. In its mechanical necessity, the core-form, the weaving consists of two different parts. The initial symmetrical geometry of the table has been distorted simply by amputating its left wing, thereby removing its intrinsic balance and disturbing its response to the forces of gravity. Symbolism was added to the detail where the beams are forcefully held by the cloth, resembling a deformation of the beams as a result of this


25

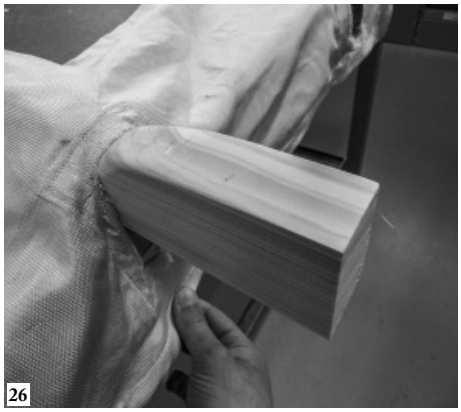
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Fig. 26
Thinking Tectonic Drapery
design and modeling

Fig. 26
Thinking Tectonic Drapery
symbolising active forces

Fig. 27
Thinking Tectonic Drapery

Fig. 28
representing cladding
human tissue and skeleton

Fig. 29
Thinking Tectonic Drapery
uncladded structure

force (**Fig. 26**). The added cloth used to drape the construction now becomes a structural element to restore stability and to ensure the table is kept at a horizontal plane by absorbing the enormous moment of the exaggerated cantilever. In accordance with the way the human skeleton system is cladded with skin (**Fig. 28**), the part of the draped cloth that is not needed to hold the structure in place conceals the details of the wooden structure, its joints and the material, whereas it accentuates the principle elements and proportion of the table structure. The tensile forces active in the cloth, keeping the handicapped structure stable, are accentuated too (**Fig. 27**). This shows that the cladding is not only interpreted as tactile or decorative, as we have seen in Semper's theory of cladding, but at the same time is assigned a structural (representing) function.

26
Ursprung, P. (2005); p. 194

Ricola Sorage Building

The Ricola Storage Building is one of their early buildings by Herzog & De Meuron. It is a mechanized warehouse that needed to be built for the storage of Ricola's well-known herbal sweets. As stated and visualized (**Fig. 30**) in Herzog & de Meuron's book Natural History »the handling of the façade forms a direct reference to the stacking of timber planks that are piled up to dry around the numerous saw mills of the area«[26]. The necessity of air to pass through the wooden staple is expressed in the façade of the storage building.

The building consists of a galvanized sheet-metal box, that forms the core of the building, and is cladded with a frame that holds the horizontally placed fiber cement panels. This is in accordance with Gottfried Semper's theory on cladding, in which he states that the spatially dividing weaving or screen is attached onto a structural frame. In most of their building designs, it is Herzog & de Meuron's intension to evoke meaning with the appearance. Accordingly, the cladding frame with fiber cement panels, the actual façade, should be understood as a pure expressive part of the building. The architects achieved an interesting way of perceiving the building from different distances. When approaching it, the initial the initial dark and heavy-looking mass starts to break-up into constituent elements. The support and load of all individual parts, their relation to the other members of the structure, and the process of construction become palpable the closer one gets to the building.

The individual panels appear to be stored in the façade and are attached to a wooden storage frame, consisting of perpendicularly connected bars. The forces in play - the resting of the fiber cement panels on their supporting wooden ribs - are made visible, which dominates the appearance of the building. One could even say that the panels are not just stored but

also exhibited, as they form a strong reference to the site of the building, a former quarry. Jacques Herzog further states that the building was fitted onto the site in such a way, that the layered building starts to be linked to layers of stone that are clearly visible in the adjecent limestone walls.[27] This would mean that the layers of stone in this adjecent wall are symbolically represented and exhibited in the façade. This integration of decor and structure can be best described as structural-symbolical, resulting in a reinforcement of the tectonic aspect of the shell and providing a strog reference to history of the site.

27 Ursprung, P. (2005); p. 221

To put the visual play of forces to an extreme, Herzog & de Meuron explored the notions of balance and gravity. The architects symbolized "balance" by placing the panels similarly to a house of cards, in which the typical corner detail was given a crucial role (**Fig. 31**). Due to the inclination of the 'cards' in both directions, which is needed to make the house of cards stand (**Fig. 32**), to allow its being of a standing structure, a gap is created at the corner detail. This gap can be seen as the visualization of the achieved balance. It should be mentioned, though, that this balance is a representation of something in balance, a structural-symbolical reference to the house of cards. The structure itself is based on different forces than can be found in a house of cards, where balance is achieved by the points of contact at the upper corners of the cards, where both cards need each other for keeping


30


31


32

Fig. 30
Stacking of timebe planks to dry

Fig. 31
Ricola Storage Building
Herzog & de Meuron

Fig. 31
house of cards

balance. In Herzog & de Meuron's design all individual panels are physically attached to the underlying wooden frame. What remains is a mental image of gravity and balance.
An additional important part of the façade composition is the use of different panel heights, which can be referred back to the architects apparent play with gravity. Opposed to the successively receding stories of, for example, a typical card house, in which the laws of gravity are followed, the built design contains an antithesis; gravity is made visible due to an inversion in height of the successive panels. As a result, the physical and, more important, optical mass of the panels increases and creates an awareness and visualization of the invisible forces.

28
Ursprung, P. (2009); p. 233

Nottingham Contemporary

Located at a split-level site in Nottingham, Nottingham Contemporary is a museum building designed by Caruso St. John. The design creates the image of a curtain that is drawn around its total volume of spaces. As shown in Caruso St. John's book Almost Everything, the facade is handled in such a way that it forms a direct reference to the area in which the museum is located, the former lacemaking part of town. The architects created an image as a reminder of the past by casting Victorian lace-patterned concrete panels. In addition to imitation of the lace-pattern that is made part of the concrete panels, the imitated lace imitates on its turn a flower motif.

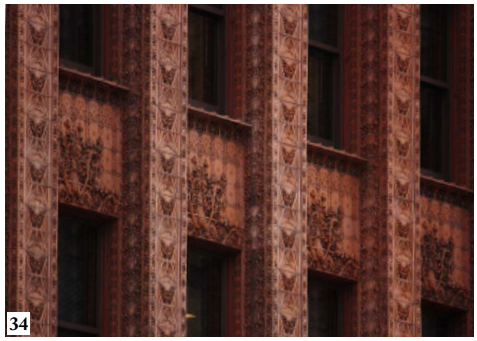
The architects state that the building exterior is inspired by the 19th century buildings of the Lace Market in Nottingham, »where hard brick forms a robust shell to the repetitive structural frames of the warehouse buildings«[28].To create the image of such a repetitive pattern of structural members, Caruso St. John added vertically placed anodised aluminium strips to cover both the slits between the different concrete elements as well as the ends of the curves in the concrete panels to complement the pursued repetitive pattern. This clearly shows that they seek to recall pictures from the past, a memory, though at the same time do not seem to be bothered to renounce this structural aspect in its being in the building design. The vertical articulation of what seem to be structural members that support the curtains forms a resemblance to buildings like the Palazzo Rucellai (**Fig. 33**), in which architectural elements, that of the lining, become a mere representation. Another striking, though different example of a building that uses a representation of structural elements, is Mies van der Rohe's Seagram Building. Mies attached steel mullions in vertical direction onto the facade as a direct reference to its structural frame that could not remain visible due to fire-proofing.

29
Davies, C. (2011); p. 100

30
interview with Paul Vermeulen (2002); p.82

Opposed to the Ricola Storage Building, in which the shell in a physical manner is used as a reference to the history of the site, Caruso St. John only use the shell as a mental reference by providing an image of the past. To some extent, structure (as a mental image) and ornament seem to be integrated, though »the effect is to undermine rather than reinforce the constructed, tectonic aspect«[29]. This undermining of the structural aspect of the façade forms a strong reference to Gottfried Semper's theory of cladding. Adam Caruso notes »it is meant to be a pure Semper façade. It is a picture of the structure so it is real architecture, but it is not the structure itself«[30]. The concrete 'curtain' has no structural purpose, but becomes the barrier to which passersby and inhabitants of Nottingham relate their bodily existence and create physical and mental images, a memory of the past.


33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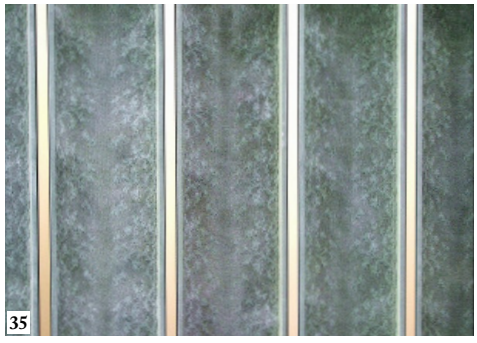
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Fig. 33
Palazzo Rucellai

Fig. 34
Guaranty Building
Louis Sullivan

Fig. 35
Nottingham Contemporary
Caruso St. John

conclusion: cladding tectonic

Both Bötticher and Semper showed how the concept of the tectonic became a crucial part of architecture and how it according to their thinking should be considered. By deconstructing every element into two beings which complement each other, the reciprocity between core-form and art-form, Bötticher introduced an approach of dealing with a crucial theme within architectural theory. Summarizing, one could say that an architecture based on the concept of the tectonic, constitutes an action that transmutes the being of individual elements, and their conjunction into a single expression, resulting in an aesthetic experience of structure. It is shown that, especially for Bötticher, the art-form is assigned a serving function since it has a task to explain, meaning that it is defined by the core-form and articulates its structural essence accordingly. Although generally conceived as being dependent on the core, the importance of the shell is gained by this expression of the inner structural essence. The philosophical table that was used as a case study showed an interesting fusion of the core-form and art-form,

The thinking of Semper shows a major difference when compared to Bötticher's ideology of the structure being served and emphasized by an art-form. Semper ascribed only a secondary function to the bearing structure, which, to him, was introduced to support the weaving, and claims that the essence should be sought in the cladding element. What is interesting in Loos' ideology is the stress he puts on the mastery of the way in which enclosing surfaces are experienced by building users, instead of focusing on the mere functional aspect of spatial division. Although Bötticher and Semper have divergent thoughts about the importance of structure, there are also certain similarities to mention within both theories. A first similarity would be the founding principle of their theory which states that idea, being, and function should be formed in such a way that their externality obviously represents the function. Using this circumscription, I would like to claim that, whether it is the structure or the spatially dividing element, the external representation of the essence of that which is placed central is the relevant aspect. A further similarity which can be extracted from the aforementioned is the notion of core and shell, inner and outer. Whether or not attached to an inseparable structure, these opposite elements are physically and perceptibly individual elements according to Semper. The shell or cladding is In Bötticher´s theory however, the inner and outer, the core-form and art-form, cannot be separated as obvious into single elements. In particular Semper applied the art-form in a symbolic way, in order to make buildings readable again.

An important term to introduce at this point, and use as a guidance within the developing of the project, to refer to the aforementioned overlap in theories, would be "cladding tectonic". This term is subdivided in three essentially different ways of dealing with the core-form - considering the possible function of the shell - which are 1. uncladding, 2. accentuating, and 3. masking (**Fig. 36**):

1. the "uncladded or naked" structure is in Bötticher's thinking completely able to fulfil all mechanical necessary aspects; it shows the skeletal structure so that core-form and art-form merge into one. It should be added though that the diagram of the structural anatomy, the core-form, remains hidden in its material presence and therefore cannot be completely revealed as such;

2. according to the explained ideology of Bötticher, the "accentuating" tectonic would be a translation of the way the art-form should be considered in its serving function in favor of the core. An example that relates to this type of tectonic would be the forming of the Greek column in which the entasis accentuates the tectonic being of the column and its relation to the other elements as a total configuration, showing extremities to emphasize the tectonic being of the visible elements;

3. the "masking" can be subdivided in concealing and representing, meaning that the core is covered with a cladding that either does, or does not represent the structural function it covers. Whereas the articulation of structural memebers in the facade of Palazzo Rucellai and Nottingham Contemporary are representing a structural concept, the columns that Mies used in his design for the Barcelona Pavilion are simultaneously concealing and representing the actual structure. The representing function of the Palazzo Rucellai contains similarities with the imitating of the wooden Greek temple when building it in stone. In that case the original elements were kept as a tectonic representation and consequently tributed to its origins.

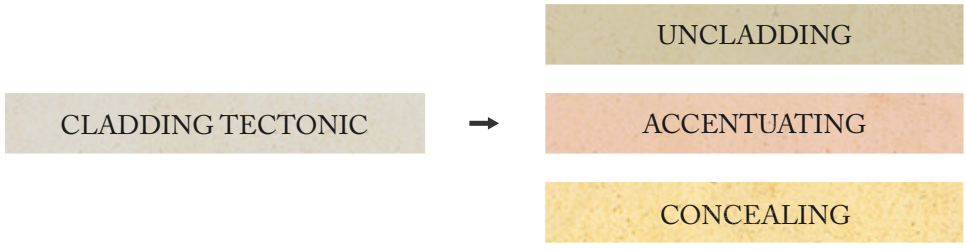

Fig. 36
Cladding tectonic: ways of dealing with the core-form

3. *Brikkenbouw*: tectonic

When considering the outer appearance of the *Brikkenbouw*, the question rises whether we are looking at a building that insists on volume or one that insists on surface. While representing the 3d skeletal structure, the façade of the *Brikkenbouw* simultaneously conceals the interior spatial configuration. In fact, the shell conveys the impression of an outspoken, self-contained independence, apart from the body of the building. The current state of the building consists of three interrelated compositional elements, which are the lower two levels out of bearing brick walls, steel columns, and vaulted floors; the upper four levels consisting of a structural frame out of monolithic reinforced concrete; and the recently exposed layer of white paint covering the exterior masonry of the *Brikkenbouw* and resembles the interior finishing of what used to be factory halls, enclosing the body of the *Brikkenbouw*.

The layer of paint is defined by a strong line of bitumen that shows and makes palpable the traces of the roof that covered the factory halls before their demolishment. At some parts of these interiorized walls the layer of paint is vanishing, increasing the ambiguity of interior and exterior, though the aforementioned roof layer maintains this separation within the layer of the façade. Besides this ambiguous relation between both sides of the wall, the layer of paint further decreases the structural expression of the *Brikkenbouw*, since the distinction between concrete structure and brick infill is difficult to detect due to its strong unifying planar character. When approaching the building, this layer starts to fragmentate and increasingly represent the irregular texture caused by the elements that are covered.

The Brikkenbouw shows characteristics of rationalist architecture. It is a rectilinear building of which the concrete structure of the upper four floors is an expressive part of the façade and no ornamentation is added. At the end of the nineteenth century, rationalism arises as a new architectural language in which abstraction would act as a central theme. This was mainly caused by the engineers tradition, implying new ways in which nature's lessons could be incorporated into architecture. As a result, an architectural language was developed which was based on »truth to the program and truth to the language of construction«[31]. One

of the inheritors of rationalism is the French engineer Auguste Perret, who explored the potentials of reinforced concrete, »in the believe that this would lead to genuine architectural forms of lasting quality«[31]. The actual invention of reinforced concrete – adding steel rods to the concrete to increase its strength – belonged to the French engineer François Hennebique, who patented his system in 1892. The method that Hennebique developed was one of the first appearances of the modern reinforced concrete construction method, uniting joining elements in-situ into a single monolithic element.
At the end of the nineteenth century, »architects attempted to find a style based on the material«[32]. One of the question was that of the external expression of concrete and whether or not it should be exposed or covered with a different material. In case of the *Brikkenbouw* such questioning did not exist since cost-efficiency was more important to factory owners of that time. Besides that, the rawness of the concrete frame at the *Brikkenbouw* fitted the processes that were carried out at the inside and outside, resulting in an industrial aesthetic. At the same time, though, this rawness stood in strong contrast with the products that were manufactured – the spot clean, bright white, carefully decorated, Sphinx earthenware.

The Hennebique frame shows a resemblance with timber structure due to the way the different elements are joined. In addition, the wooden form-work remained visible because the concrete frame is imposed a wooden texture. As such, this texture can be seen as an art-form in its capacity to accentuate the process of making, independent from the structural function of the concrete frame. Once the concrete is poured, it needs time to solidify and form solid chemical bonds before it can support weight or withstand force. This makes the fluid concrete actually highly reliant on the wooden form-work, since it is the form-work that forces it into a predetermined form, to actually 'have' a form. The reason for the rectangular form of the structural elements can also be ascribed to the timber form-work, since it is the most obvious and easy one to make. It can be stated that »the material did not in and of itself generate a vocabulary«[32]. This causes the wooden texture which became an inherent part of the concrete structure, to tell the story of the material characteristics and the method of making, and to be turned into a representing tectonic.

A typical element of the Hennebique method is the haunched beam, guaranteeing stability of the structure in its entirety. The absence of these haunched beams in the cross façades of the *Brikkenbouw* is justified by the presence of masonry infills which in this case are necessary to ensure stability. Because of the masonry infills, the structural frame cannot be seen in its entirety. From the exterior of the *Brikkenbouw* only a representation of the reinforced concrete frame is perceptible, since the skeleton is covered with a layer of plaster.

31
Curtis, W. (1996); p. 73

32
Curtis, W. (1996); p. 76

At the interior, though, the concrete frame can be seen in its bareness, while the diagram of the structural anatomy, the core-form, remains hidden in its material presence. In its application at the *Brikkenbouw*, the Hennebique frame can be seen as an expression of industrial progress. Whereas the aforementioned Doric column symbolizes the forces that are in play, the Hennebique frame does not. Actually, this concrete skeleton can be seen as a pure structural solution which is mainly based on the new ways of incorporating the lessons of nature and on efficiency, of which the latter operates as a central theme in industrial and modernist architecture. Consequently, Curtis' description of rational architecture, claiming that it seeks "truth to the language of construction" needs to be questioned carefully.


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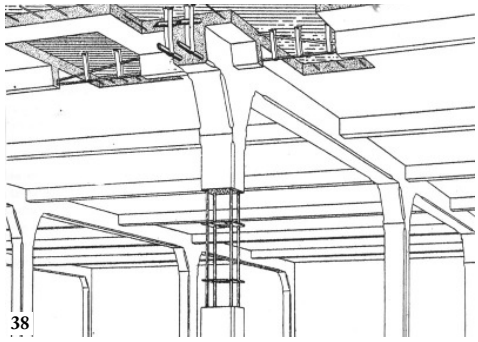

38


39

Fig. 37
Structure ad cladding.

Fig.38
principle sketch hennebique frame

Fig. 39
hennebique frame in Brikkenbouw

4. *Brikkenbouw*: topos

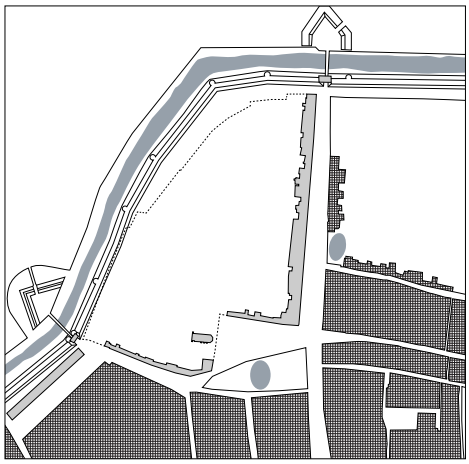
An interesting characteristic of the Sphinx site and its buildings are the numerous contextual changes that were effectuated throughout its period of use. In order to designate those changes, three topographical periods within the evolution of this site will be looked at and criticized – industrial topography, post-industrial topography, and future topography – of which the latter will provide a position and vision for the not yet executed.

industrial topos

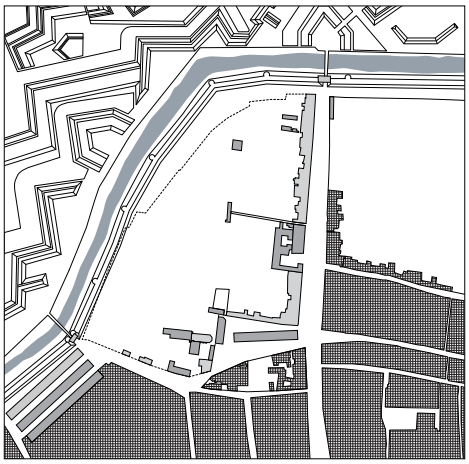
At the beginning of the nineteenth century, the city of Maastricht changed in character and gradually turned into a center of trade and industry, being situated advantageously close to Germany and Belgium. At that time, transportation by ship was the only adequate method, due to the absence of railways in this particular area and the poor condition of roads. A main cause for industrial development was the construction of the Zuid-Willemsvaart - a canal between Maastricht and 's-Hertogenbosch - allowing a connection with the river Meuse through the Bassin, solving the existing problem that the river was not navigable during the rainy parts of the year. The Koninklijke Sphinx earthenware factory was established by Petrus Regout in 1834, advantageously situated between the Zuid-Willemsvaart and Bassin. From the year 1867 Maastricht was no longer considered to be a fortress city after which the defensive wall was largely demolished. Petrus Regout started expanding his industrial ensemble and built a 3.5-meter-high wall around it, turning it into an introverted enclave within the city center (**map of 1899**). Consequently, a fair amount of buildings were built at the industrial site in a building style which showed a lot of similarities with other industrial buildings in the area between Aachen, Liege, and Maastricht.

Comparable to other industrial sites which had grown to become conglomerates that were almost cities in their own rights, at the end of the nineteenth century, the Sphinx factory had become a complex composed of different interconnected functional buildings forming

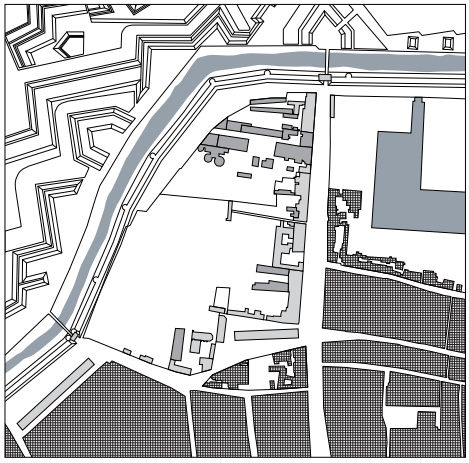
1632
Maastricht, a fortified city



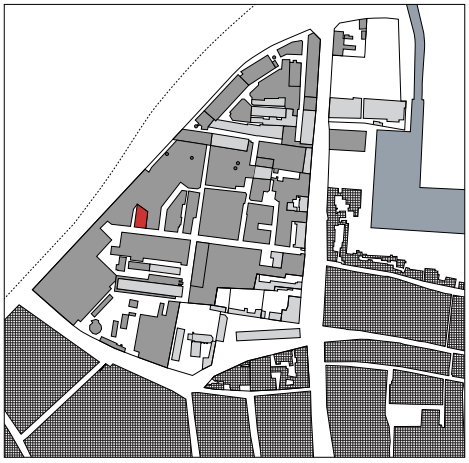
1814
expansion of fortifications



1845
establishment of Sphinx earthenware factory and bassin port

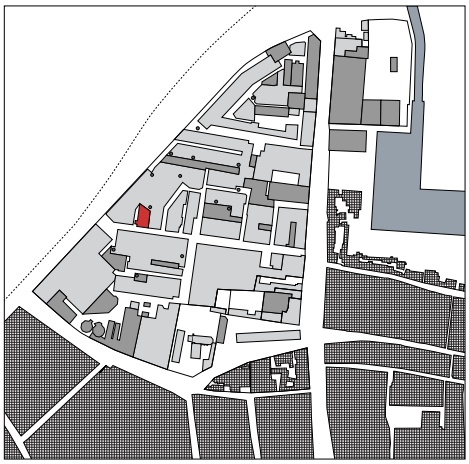


1899
expansion of Sphinx terrain after demolition of fortifications



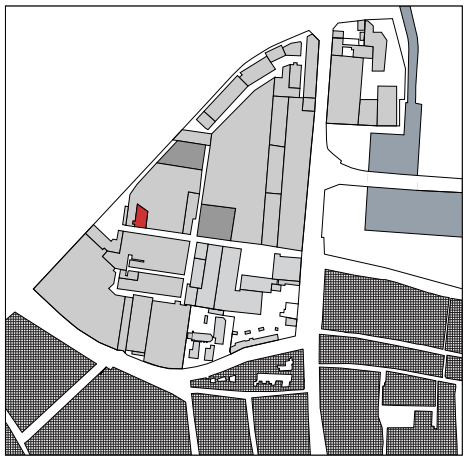
1925

Brikkenbouw extended with four levels, using new building methods



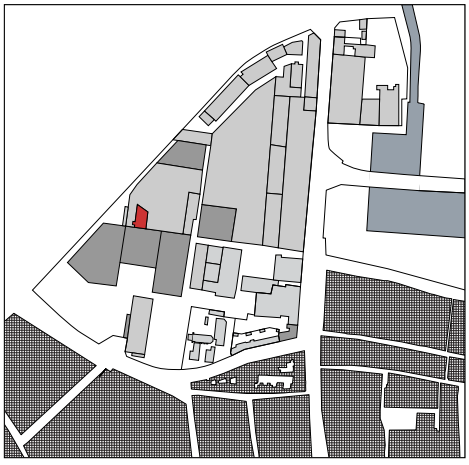
1970

Sphinx factory buildings nearly completely demolished and renewed



1999

southern part of industrial site replanned



2006

Sphinx factory moved, leaving an abandoned site behind

a complete spatial complex within the urban setting of Maastricht. However, since the site was completely surrounded by the factory wall this spatial interconnectedness remained out of sight when being outside this wall. One of these functional buildings – the initial two-story *Brikkenbouw* – was built in 1875 and used for the production of bricks - 'brikken' in the local language of Maastricht. The construction of this first phase is built up of concrete columns, steel beams and vaulted, brick floors (**Fig. 27**). Building higher was considered the only option to expand the factory floor space at the beginning of the twentieth century, and for this specific purpose the use of reinforced concrete as structural material was used as a new building method. In 1923, the *Brikkenbouw* was expanded in height by adding four floors on top of the existing building.

As can be read from the **map of 1899** and the **map of 1999**, the industrial site of the Sphinx factory was throughout the existence of the factory frequently and rigorously reconstructed, to answer to the constantly changing needs and to guarantee the aforementioned interconnectedness of buildings and processes. A comparison of the **map of 1925** and the **map of 1970** shows that the site was nearly completely torn down and rebuilt, excluding the *Brikkenbouw* - expressing the new way of building at the beginning of the twentieth century - and most of the historically valuable buildings at the northern part of the site. The gradual demolition of the numerous chimneys permanently changed the skyline of the industrial site. As another important part of this metamorphosis, the construction of the stark rational urban beam, named *Eiffel*, strongly resembles the building methods and materials that were used initially at the expansion of the *Brikkenbouw*. The coming into existence of this building generated an important change within the industrial site, allowing a strong interaction between the factory and Maastricht. As a result, in addition to the functional value of the building as an important link in the production process, the overwhelming *Eiffel* became a well-known sign of the Sphinx factory. The erection of new buildings, using postmodern methods and materials at the end of the 20th century, caused the demolition of the majority of the 19th century factory buildings. In addition, the gradual demolishing of the numerous chimneys, permanently changed the skyline of the industrial site.

post-industrial topos

As elucidated in previous section, the industrial site of the Sphinx factory is reconstructed frequently throughout its history, according to constantly changing needs. This is visualized in the study on the history of the site and the adjacent buildings of the city. Whereas

the factory changed largely but gradually during its period of existence, the **map of 1999 and 2006** show a radical change. This change is caused by the demolishment of the vast majority of industrial buildings at the Sphinx, at the beginning of this century.

What remained is an introvert enclave within the center of Maastricht, an inactive place waiting for a new chapter in its history and breathing a certain freedom for nature and 'intruders'. This sense of freedom is increased as a result of the factory wall, which physically and mentally occludes the site from the surrounding city. Architect Ignasi de Sola-Morales coined the term "*terrain vague*" to describe such indeterminate places within the city fabric, which he extensively described in his eponymous essay. He emphasizes the possibilities of such places by explaining that «the relationship between the absence of use, of activity, and the sense of freedom, of expectancy, is fundamental to understanding all the evocative potential that the city's *terrains vague* have accrued as part of the very perception of the city in recent years.» Accordingly, the closing and demolishing of the factory buildings at the former Sphinx site have caused this place to become external from Maastricht's current structures, a void or absence though at the same time a possibility or presence. The question rises what to do with this extensive *terrain vague* and the freedom that it expresses.

Plans of the city to breathe new life into this abandoned place, in cooperation with urban planning office Palmbout, were eventually postponed and necessarily renounced as a direct result of the economic crisis. Consequently, the northern half of the terrain is half is turned into a parking lot, whereas the southern part gradually became a natural setting. An important question is that of the meaning of the wall as a strong physical, visual, and auditory boundary between inner and outer, between the emptied and abandoned Sphinx site and the surrounding city structure of Maastricht. Since the site is still completely enclosed, a connection can be found with the *hortus conclusus*, literally meaning "enclosed garden", and suggesting a private natural place, surrounded by a wall.

The natural development of this southern part of the Sphinx site incited the city and inhabitants to turn it into a place where people could gather and enjoy divergent activities in a much more spontaneous and accessible manner. Considering the current intensive use of the terrain as a walled urban park, we can state that the so-called *Sphinxpark* has become an inextricable part of the city structure and daily life. This usage is mainly caused by its atmospherical conditions, of which the factory wall and heavy vegetation function as instantaneous transitions between atmospheres, as enclosures of an inner sphere, a sphere which is sought for to find comfort and protection. These developments which occurred

at the terrain vague of the former Sphinx site, show us that the economic crisis does not merely threaten future developments. As a result of the provisionally cancelling of the urban planning execution, it became a place for experimentation and innovation from Spring 2012. This experimental temporality enables us to seriously think about the treatment of such places, what kind of use would suit best, and how to cope with themes as urban agriculture, social cohesion and citizen participation. The park shows the incredible vitality of nature at the former industrial site, which has had a strong own will during the past five years of fallowness. Instead of being manipulated, this place is more effectively guided in a certain direction. The initiators started adapting it to their needs in a preservable way by adding some elements to it as shelter or protection and adding differences in height to the originally flat surface. As a result, the *Sphinxpark* is allowed to continue its natural function as a habitat for birds and insects. Currently the park is used for divergent purposes: walking, gardening, cultivating, picnicking, discovering, partying, dancing, singing, playing, exhibiting, discussing. This shows that to leave certain things at their place and allow them to flourish, is able to allow new and innovative forms of inhabitation to arise.

The *Brikkenbouw* is one of the few remaining buildings of the Sphinx factory and clearly shows traces of history. It was considerer to have monumental value since it exhibits the change in structural application of materials at the beginning of the 20th century in the industrially enriched area of Liege, Aachen, and Maastricht. The demolition of the bulk of the factory building has caused the 'Brikkengebouw' to become an isolated entity within the center of Maastricht. Currently, the '*Brikkenbouw*' is standing as a leftover at a two hectare abandoned and empty site. Although having a completely different reason why not being demolished it forms a resemblance with the so-called nail houses in China (**Fig. 45**). Currently, the *Brikkenbouw* is interestingly situated at the border of the *Sphinxpark* and the parking lot. The changes in topography at this very site remained visible at its outer appearance, telling the story of history.


40


41

Fig. 40
view towards Eiffel from roof level of extended Brikkenbouw resembling map 1925

Fig. 41
aerial view of Sphinx site

Fig. 42
postponed urban plan

Fig. 43
current situation

Fig. 44
aerial view of site after demolishments

Fig. 45
Nail House, China

Fig. 46
view at Brikkenbouw current situation

Fig. 47
seperation of Sphinx site.

Fig. 48
Sphinxpark, current situation

5. *Brikkenbouw*: typos

33
Lindner, W. (1927)

34
Steinhauser, M. & Hemken, K.U. (1994), p. 82

35
Steinhauser, M. & Hemken, K.U. (1994), p. 14

The term typology can be circumscribed as a study of types, reflecting on a systematic classification of objects to identify mutualities, differences and structures. In "*Bauten der Technik*", Werner Lindner refers to 'type' as »the tried and tested, memorable shape of a building that is impressively good and that is used repeatedly where requirements are the same or similar, the type of building in which its purpose and construction are expressed fittingly for its intended role, harmoniously and in a particularly meaningful way«[33]. Interesting in his interpretation is the reference to built objects which withstanded the test of time and were eventually applied as a model for future construction, preceding the actual typological grouping.

When referring to industrial typologies, and more specifically the typological characteristics of the *Brikkenbouw*, the extensive documentational series of photographed industrial buildings by artists couple Bernd and Hilla Becher instantly come to mind. Their work can be considered an invaluable source, since it was this duo that acknowledged the valuable characteristics of industrial buildings and ensured that these generally unenduring structures were documented extensively. Among industrial photographers the Bechers are *sui generis*. They approached industrial buildings through photographical comparison in order to discover the essence of such structures. Interesting is the way this comparison of industrial objects communicates to the observer. It is the series that allows the observer to: «firstly, recognize an optical equivalence of the different photographs, showing in their function comparable types, secondly, perceive differences between these 'anonymous sculptures'.»[34] Their typological series are characterized by a precise decision of frontal view point and presentation techniques, with which they isolate the individual objects from their specific context and pursue a most objective representation. «The Bechers insist that the buildings in their photographs communicate their history, while fading out the narrative and only indicating topography.»[35] The pictures that were taken during an initial visit to the Sphinx site (**Fig. 49**), clearly show a resemblance with their work, representing a comparable isolation of the *Brikkenbouw* as an industrial object. The main difference, though, is

the involuntary and non-temporal character of this isolation, turning it into an actual part of its current topography.

The initial topographical conditions and close individual connection to a specific site establish the differences within an industrial type. In general, minor dissimilarities are significant due to a lack of strong individuality or distinction of industrial buildings belonging to a certain type. This is mainly caused by the absence of a dominating signature, which is much more the case in other building types. For this reason, the Bechers used the designation 'anonymous sculptures'. Opposed to their photographical series of tower conveyors, blast furnaces, gasometers, water towers, cooling towers, gas coolers, grain silos, and gravel plants, those of industrial façades and factory halls - the types that are considered as part of this research - do not directly reveal the function through the represented form. To put it different, «the outer appearance of the halls is barely determined by the inner processes of work»[36] since they are buildings that are characterized by multiple ways of use.

Within the industrial architecture at the Sphinx site, of which its remains were built in the late nineteenth and early twentieth century, divergent types can be found that were, in general, fully based on functionality and cost efficiency, with subordinate interest in representation. In addition to these determinants, the building also reveals key aspects of the zeitgeist of the industrial epoch. At that period of time, a »changed approach to architecture that saw the construction itself as a design medium«[37] evolved; industrial architecture developed an aesthetics marked by functional structural design. »Civil engineering was acquiring increasing aesthetic autonomy, becoming an archetype for a modern style interested in straightforward clarity and economy of shape.«[38]

With their industrial typologies, the Bechers seem to be searching for expressive qualities and differences in formal language. »Their photographs refer to structures, which according to their emergence did not deserve the designation architecture [...] currently though these anonymous buildings can be seen as source and origin of modern architecture.«[39] Consequently, they show that industrial buildings are not merely functional structures, but also have aesthetical qualities. Likewise, through comparison of the *Brikkenbouw* with other buildings of the same type as well as different types, its expressive qualities and formal language can be explored and eventually be used as a basis for new insights.

The former Sphinx industrial site today still shows two strongly distinguishable types, which were formed in different periods of time as a direct result of innovative building

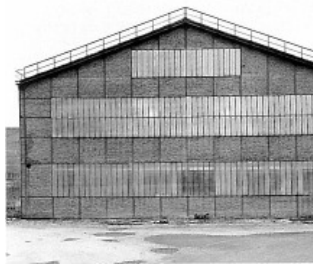
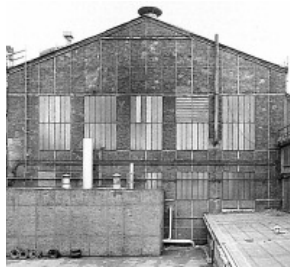
36 Bußmann, p. 5

37 Steinhauser, M. & Hemken, K.U. (1994), p. 56

38 Steinhauser, M. & Hemken, K.U. (1994), p. 57

39 Steinhauser, M. & Hemken, K.U. (1994), p. 78

methods. The first type would be the buildings with bearing brick walls, e.g., the *Gebouw B*, the second type buildings with rational concrete skeletal structures, e.g., the *Eiffel* (**Fig. 52**). This structural type evolved at the end of the nineteenth century when developments in reinforced concrete culminated, leading to another available construction material in addition to cast iron. Both aforementioned types were juxtaposed in the *Brikkenbouw*, using each other's structural characteristics to form a unified building. This resulted in a structurally expressive skin without feeling a need for decoration and cosmetic beautification. Bernd and Hilla Becher's photographs of industrial sheds are reminiscent of the application of brick in the *Brikkenbouw*, in which brick is used as an infill material of the concrete frame at the upper four floors. This way of using the brick can be seen as an inherent aspect of the typology to which the upper floors of the *Brikkenbouw*, and the *Eiffel*, belong. It is suggestive of the practical purpose given to it in industrial buildings, where the singularity is challenged by structural ambition and cost efficiency.

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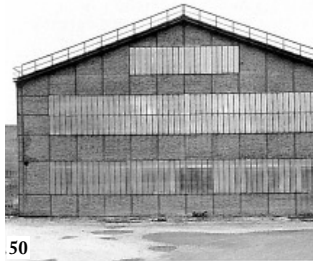
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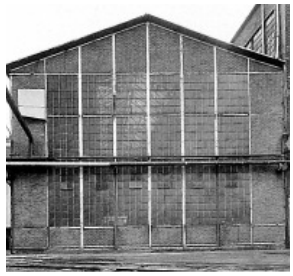

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52

Fig. 49
typos Brikkenbouw
views from parking lot

Fig. 50
industrial typolological studies
Bernd and Hilla Becher

Fig. 51
structural typos Brikkenbouw
study model, scale 1:50

Fig. 52
typos Eiffel

6. conclusion: reciprocity of tectonic, topos and typos

In this chapter, by way of conclusion of part II, the interrelation of the tectonic of the *Brikkenbouw* to its topos and typos will be described. The analysis clearly showed how the tectonic is inextricably related to its typos, meaning that the expressive potential of the way in which forces are passed to the foundation is rationalized through the adoption of new industrial techniques and materials. The *Brikkenbouw* proved to be a good example of a building that is purely based on natural scientific insights in how to build in a specific way. This was called the engineers tradition in chapter II.3, entailing a new architectural language in which abstraction would act as a central theme.

In case of industrial 'architecture', and more specifically of the *Brikkenbouw*, a new way of building higher and in an inexpensive way, using reinforced concrete, became widely used. The Hennebique frame, i.e., the structure of the building, forms an essential part of this building considering its tectonic and typos. It shows how the application of methods and techniques which do not originate from the field of architecture, may disregard the conceptual framework of the architectural discourse. Referring to the conceptual framework that was introduced in this research, the question of cladding tectonic shows that, in Böttichers use of the core-form and art-form, the tectonic of the *Brikkenbouw* seems to be purely based on a mechanical necessity, lacking any intention to relate it through its expressiveness to the field of architecture, to the *Baukunst*.

In chapter II.3 it was further described that the process of making can be read from the structural parts of the building, since these are imposed the texture of the form-work. This texture resembles the practicality that was sought for in the making of the structure, choosing a rectangular form of beams and columns which would be the easiest to make, using wood as an inexpensive and practical material for the form-work. This characteristic aspect can be seen as a strong interrelation of the tectonic, the topos, and the typos. It is the typological condition of the *Brikkenbouw* as a building for industrial purposes pursuing a strong functionality and inexpensiveness of factory buildings, since they were subjected to

constantly changing conditions and requirements.

This constantly changing use of buildings also forms a strong character of the exterior expression of the *Brikkenbouw*. The cladding tectonic of the *Brikkenbouw* was described to be strongly connected to its topos, through the traces of history in the form of the white layer of paint and the dark layer of bitumen, cladding its exterior walls. In relation to this research on cladding tectonic it is important to question in what way the current presence or absence of these concepts in the *Brikkenbouw* can add meaning to the redesign of this very building, to its future use. In part III a different approach of the cladding tectonic and the Brikkenbouw will be studied to extent this knowledge-based part of the research.

III. phenomenology of cladding tectonic

53

1. introduction

In architecture, the tectonic provides an expression of construction and structure, i.e., an expression of the acting forces within a build structure and the way in which these forces are passed to the earthwork, to the foundation. The perceived expressive potential of a building and its elements, being subjected to gravitation, creates a tension between actual forces in play and their possible symbolic representation. Karl Bötticher's theoretical subdivision of the tectonic into the core-form and the art-form – metaphorically applied as core and shell in Werner Oechslin's book "*Stilhülse und Kern*" – provides a description of this reciprocity. In general, though, building users will not be able to provide a satisfying answer when asking them how the elements of which a building consists - ensuring that its totality provides sufficient resistance against gravitational and external forces - can be subdivided into "core" and "shell". As a result, the distinction between core-form and art-form seems to be functioning as code language within architectural theory, since it can only be sufficiently understood when having the right theoretical background. This led to Gottfried Semper's ambition to convey this code language to the people with the use of symbolic representations in his buildings and consequently making architecture readable again.

How does such theoretical code language relate to the way in which users perceive a building when encountering it, when being surrounded with its cladded structure; are they able to perceive the theoretical seperation between core-form and art-form in a phenomenlogical way? Instead of merely focussing on such knowledge of the tectonic, would we be able to provide arguments for the importance of an embodiment through sensory perception, trough suggestions of movement and synesthetic characters? What about the honest use of material and structure which is put central within theories on the tectonic, is this still relevant? Or should this aim for honesty rather be put aside to make room for the creation of atmospheres and intentional acts?

Fig. 53
Sphinx' Brikkenbouw
view from parking lot

Along with the thorough research into "the constantly evolving interplay of three converging vectors, the topos, the typos, and the tectonic", as stated by Kenneth Frampton, these

01
Frampton, K. (1995), pp. 10-11

questions give rise to the theme of this part: a phenomenology of the cladding tectonic. In his book "Studies in tectonic culture", Frampton criticizes, and even polemicizes the poetics of construction in nineteenth and twentieth century architecture in a rational way. Here too, there seems to be a focus on knowledge of the tectonic and code language, including Bötticher's and Semper's theoretical approaches of the tectonic, whereas the phenomenological aspect of the cladding tectonic is disregarded largely. As we have seen with Bötticher and Semper, this leads us to the question whether such a rational approach is able to provide a complete representation of the cladding tectonic, which is a question about the importance of all elements of human experience.

At the same time, a reaction on Semper's ambition to make buildings readable again is provided, by questioning whether or not this 'readable' aspect within the theories of Semper, Bötticher, and Frampton is satisfactory. Instead of the application of symbols as we have seen in the 'classical' tectonic - to emphasize that forces are passed to the earthwork, the foundation, where a meaningful separation is made between appearance and actual forces - in a phenomenological approach, the play of forces would become bodily perceptible. In accordance with this ascertainment, the phenomenologist view of Maurice Merleau-Ponty should be mentioned, in which he suggests that »the value of people's experience of the world, gained through their immediate bodily engagement with it, remains greater than the value of understanding gleaned through abstract mathematical, scientific or technological systems«[02]. This leads us to the question whether Semper's ambition can be amplified by searching for ways to turn the readable aspect into an aspect which is bodily experienced.

Frampton included one of the few phenomenological approaches of the subject matter in the section called "corporeal metaphor" which is part of the chapter "introduction: reflections on the scope of the tectonic". Here, he addresses the capacity of the being to experience architecture bodily, and refers to a remark made by Scott Gartner on embodied experience in contemporary architectural theory. Gartner states that »the philosophical alienation of the body from the mind has resulted in the absence of embodied experience form almost all contemporary theories of meaning in architecture. […] Within this framework of thought, the body and its experience do not participate in the construction and realization of architectural meaning«[01]. It remains unclear at this stage, whether Frampton criticizes Gartner or embraces his approach.

At the end, Frampton provides a short description of how one moves from entry to council chamber - form earthwork to framework - of Alvar Aalto's Säynätsalo Town Hall, along

the way encountering a sequence of contrasting tactile experiences. »From the stereotomic mass and relative darkness of the entry stair, where the feeling of enclosure is augmented by the tactility of the brick treads, one enters into the bright light of the council chamber, the timber-lined roof of which is carried on fanlike, wooden trusses that splay upward to support concealed rafters above a boarded ceiling. The sense of arrival occasioned by this tectonic display is reinforced by various non-retinal sensations, from the smell of the polished wood to the floor flexing under one's weight together with the general destabilization of the body as one enters onto a highly polished surface«[02]. Even though this description is rather limited, it shows a phenomenological awareness of how the tectonic expression and tactility of present materials determine the way in which rooms are perceived as a result of their direct relation to the user's body. However, the mere absence of further phenomenological analyses of the cladding tectonic throughout the book, queries the importance of embodied perception in his theory, and in architectural discourse in general. Therefore, the embodied experience of cladding tectonic will form the central theme of this third part, stating sub-question 2 as follows:

02
Merleau-Ponty (1962), p. 11

"How to deal with the apparent neglect - as in Frampton's rational approach of the subject matter - of the way in which the cladding tectonic presents itself to the human body, i.e., in what way can the cladding tectonic provide embodied knowledge to direct the analytic ways of knowing the world?"

To show the importance of the phenomenology of cladding tectonic, and in doing so providing an answer to sub-question 2, following chapter will clarify the importance of perception - phenomenology - transcending that of rational knowledge. This will be explained by means of Merleau-Ponty's philosophical approach of the world. In addition, chapters 3, 4, and 5 will individually consider the theories on this subject matter of Remy Zaugg, Gernot Böhme, and Hermann Schmitz - chapter 3 will consider the way we perceive objects and the world by considering Remy Zaugg's theory which he explicates in his book "*Die List der Unschuld: das Wahrnehmen einer Skulptur*"; chapter 4 will consider in what way atmospheres can be related to our perception of cladding tectonic by considering Gernot Böhme's phenomenological thinking; chapter 5 will consider what role *Leiblichkeit* plays in relation to cladding tectonic by considering Hermann Schmitz' phenomenology. Then, in chapter 6, their theories will be implemented and exemplified with an analyses of two case study projects - the philosophical table "Thinking Tectonic Drapery" and the industrial "*Brikkenbouw*". Finally, by way of conclusion, the most important points of the above chapters will be summarized and reflected upon.

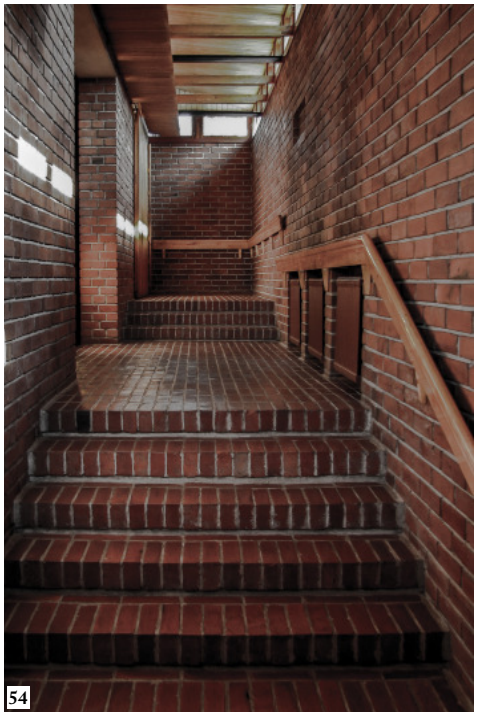


Fig. 54
entry (earthwork)
Säynätsalo Town Hall,
Alvar Aalto

Fig. 55
council chamber (framework)
Säynätsalo Town Hall,
Alvar Aalto

2. a phenomenological approach

The questions that were formulated in the introduction clearly focus on the border between knowledge and perception. Before starting our search for an answer to these questions, a sufficient understanding needs to be obtained of how we perceive the world in which we live. Therefore, in this chapter, the perceptive side of the border will be elucidated by extracting statements from Maurice Merleau-Ponty's phenomenology, who strongly based his work upon accounts of perception, which in his words precedes that of knowledge: »the world is that, *what we see*, and nonetheless that we must learn, to see it. First in the sense, that we must match this vision with knowledge, take possession of it, need to say, what *we* and what *seeing* are, act shortly, as if we knew nothing about it, as if we still had everything to learn about it«.[03] This shows that phenomenology approaches the world and things in an unprejudiced manner, without reference to knowledge. Instead of focussing on that which is known or taught, the so-called "phenomenological reduction" completely focusses on that which is experienced.

Merleau-Ponty based his phenomenology heavily on the work of Edmund Husserl, who can be called the principal founder of phenomenology. Both philosophers criticize the philosophical thinking of Descartes, who claimed that rational or scientific knowledge transcends knowledge that results from sensory perception. Merleau-Ponty opposes Descartes' dualism - the strict separation of thought and perception - by saying that »the perceived world is the always presupposed foundation of all rationality, all value and all existence«.[05] Since we are referring to the border between knowledge and perception, what should be added at this point, is that »rather than rejecting scientific and analytic ways of knowing the world, Merleau-Ponty simply wanted to argue that such knowledge is always derivative in relation to the more practical exigencies of the body's exposure to the world«[06].

Corresponding to Husserl, Merleau-Ponty claims that »our body enables us to approach the world; through our body we act in the world we are living«[07].With his view of "being-to-the-world", Merleau-Ponty pleads for an emphasis on existence instead of consciousness,

03
Zaugg, R. (2004), p. 41
from: Merleau-Ponty, M. (1964) , p. 18

05
Merleau-Ponty, M. (1964), p. 13

06
www.iep.utm.edu/merleau/

07
Bakker, R. (1965), p. 73

stating that »before things are ascribed a theoretical meaning through the intentionality of the conscious, they already are given meaning resulting from the way we relate ourselves to these things«[08]. In other words, things mean something to us due to our bodily relation with them. This return to the things and the world, preceding theoretical knowledge and science, is what Merleau-Ponty calls "embodied knowledge". It describes how we perceive the world through the body when interacting with this world. According to Merleau-Ponty, this interacting requires both the world (object) and the body (subject) to exist, which is called "intentionality". Interesting is the way in which Edmund Husserl distinguishes not only the intentionality of a "perceived" object, but also that of a thought object and a recalled object, which are to him different intentional acts. Important is the realization that, according to the phenomenological reduction of the natural attitude – i.e., the return to the things and the world, »this [intentional act] is not a reference to the real object but to the meaning of that which appears to me«[08].

The intentionality of the thinking body arranges the physical space and interprets the architectural qualities that surround it. One could say that the phenomenological way of encountering reality provides a direct description of the phenomena we experience. A phenomenon would be best described as a directly observable occurrence that is perceived by an individual, though present to all human beings. Basically, phenomena form the true connection between a sensing body and things within its surrounding space; they enable us to perceive the world we are living in. Concerning this perception of the world, it is important to look into the ways in which phenomena touch our bodily experience. »The perception of phenomena starts on a subconscious level and, as a result, it mainly remains inaccessible to our consciousness«[09]. This actually means that perception partly precedes our reflecting consciousness; it is a pre-reflective activity. When referring to the conscious part, sensory perception can be subdivided into the five senses - sight, hearing, taste, smell, touch - of which sight dominates in architectural theory, classifying architecture as a visual art. Opposed to this focus on mere visual perception, architectural theory and design would need to give more attention to the intertwining of our senses, as part of our being-in-the-world; »to perceive is to grasp the unified structure of the thing, its unique way of being which speaks to all my senses at once«[10]. In addition to the sensory perception belonging to the human body, philosopher Hermann Schmitz distinguishes the perception through the *Leib*, naming this way of perceiving "*leibliches Spüren*", which will be focussed on in chapter 5.

08
Merleau-Ponty, M. (2003), p. 16

09
Bakker, R. (1965), p. 61

10
Merleau-Ponty, M. (1964), p. 50

3. Remy Zaugg on perception

The way of perceiving the world in which we are bodily present will be further explained in this chapter, referring to Remy Zaugg's book "*Die List der Unschuld: das Wahrnehmen einer Skulptur*". In this book he extensively approaches a sculpture by Donald Judd, named "Untitled (six cold rolled steel boxes)". Zaugg describes the way in which one perceives this work of art, claiming that »if I say, I perceive a work, than I mean to say, I apprehend a system of signs through the senses and through the mind. The perceptible is included in the connection of the sensory and the intelligible; sense and mind are not separated beings. And the perception is that, which dialectically arises from the tension between feeling and knowledge«[11]. This shows us that the perception of an object is the action or the result of that action, which sensorially and intellectually apprehends a system of signs. Zaugg's statement that sense and mind are not separated beings matches Merleau-Ponty's philosophical thinking against Decartes' dualism, as it was described in previous chapter.

11 Zaugg, R. (2004), p. 85

12 Brodrück, R. (2007), p. 2

Zaugg's analysis of the sculpture shows that the specific place of exhibiting - the hallway of the Kunstmuseum in Basel (**Fig. 58** and **Fig. 59**) - plays an important role for the way in which the work of art is perceived and interpreted by the visitors of the museum. Since this hallway is - and hallways in general are - normally used as a transit zone and due to the everyday characteristics of the sculpture, visitors will approach this piece in a different way than they normally would in a museum. In his essay "Minimal tectonics" Ralph Brodrück cites Zaugg, who states that although »we knew that it is a fully construed work of art, we feel a not construed and not artificial matter«[12].

Considering the Ricola Storage Building by Herzog & de Meuron, that was analyzed as a case study in part II, Brodrück claims that »this understanding of how a context affects perception plays a part in the positioning of the Ricola warehouse in Laufen. [...] H&dM comments: "The decision to build the warehouse there gave us the possibility to make the wall a more consciously perceived landscape in itself. Our architecture tries to strengthen what exists, to pull it into the realm of the perceptible. Here, it is the essential constitution

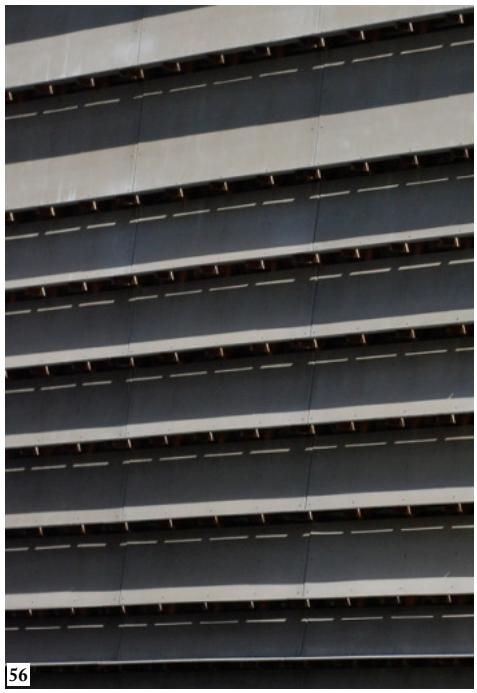
of the building and bedrock walls which is significant. Similarities as well as differences are to be understood without coding".«[12] In addition to the strengthened perception of context, considering phenomenology, it is not the play of forces which forms the main theme of this building though rather its reference to the numerous saw mills of the area. These mills pile up wood in such a way that air can pass though. As a consequence, the wood is able to dry while remaining protected from weather influences.

12 Brodrück, R. (2007), p. 2

In chapter II.2 it was stated that Herzog & de Meuron applied this principle in their design of the Ricola Storage Building, to make visible the necessity of air to pass through the wooden structure of the façade holding the stored fiber cement panels. Although they are known to add meaning to their architecture through its expression, it is interesting to ask whether Herzog & de Meuron achieved this in a phenomenological way in this building or that it is rather based on knowing. Since I did not visit this very building, yet, I will focus on two pictures of the façade (**Fig. 56** and **Fig. 57**) to consider its actual phenomenological working, restricting myself to that which can be perceived in these pictures. A strong difference becomes immediately apparent. **Fig. 56** shows the seeming heaviness of the building due to the pitch black openings between the panels, which I now call openings but are from a distance not necessarily perceived as such. Opposed to the wood drying to which Herzog & de Meuron refer, this impenetrable blackness is not perceived at all as being open for air to pass through. Of course, this is caused by the fully closed box to which the facade is connected. On the other hand, **Fig. 57** represents the corner detail of the façade which opens up because of the way the fiber cement panels are mutually positioned. Whereas the in-between spaces remain rather dark, the corner detail forms a stronger approach of making observable that air is flowing through the structure and rain is dripping from the panels, unable to enter the structure. Both aspects can be stated to be experienced and therefore precede knowledge.

Such an uncoded consciousness, directly resulting from experience, is what we are looking for within phenomenology. The second case study building that was considered - Nottingham Contemporary - also embodies a perception affecting context. This is achieved by means of the concave concrete panels, physically representing a highly detailed lace pattern, and consequently forming a representing element of the past site-specific characteristics, since the museum is located in the former lacemaking part of Nottingham. This way of approaching both buildings shows the way in which users can interpret them through perception.

Showing resemblance with the thinking of Husserl on intentionality the relation between the object that is actually perceived (representing) and the recalled object or image (represented), Zaugg calls the duality of the representing and represented element an "intentional representation". As described in previous chapter the natural attitude in phenomenology pleads that this intentional act is not a reference to the real object but to the meaning of that which appears to me. Brodrück further states that »only the intention of the spectator can raise a difference between the actual boxes, and the image these boxes evoke«[12].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57

Fig. 56
façade, distant view
Ricola Storage Building

Fig. 57
façade, corner detail
Ricola Storage Building


58

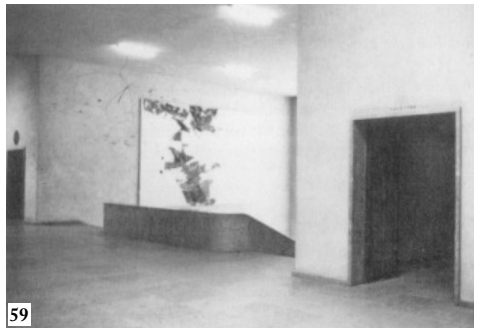
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Fig. 58
"Six colled rolled steel boxes"
hallway Kunstmuseum Basel

Fig. 59
transition space
hallway Kunstmuseum Basel

4. Gernot Böhme on atmospheres

In order to take a subsequent step towards the interlinking of the cladding tectonic and phenomenology, this chapter will consider in what way cladding atmospheres can be related to our perception of built spaces, by explaining philosophical theories of Gernot Böhme. His thinking on architecture considers the interlinking of architecture and the human body. It is Hermann Schmitz's theory on *Leiblichkeit* - explicated in next chapter - which forms an important reference for Böhme's notion of atmospheres.

In his essay "Atmosphere as the subject matter of architecture" - part of the aforementioned book "Herzog & de Meuron: natural history " - Böhme raises the question what really counts in architecture. After objecting the generally assumed importance of seeing considering our spatial experience, claiming that rooms need to be sensed (»*sie müssen gespürt oder erspürt werden*«[13], he answers this question by referring to, in his words, the sense that might be translated as "mood" (Befindlichkeit). At this point I strongly doubt whether the translation - part of the English version of the original book '*Herzog & de Meuron: Naturgeschichte*' - of "*spüren*" into "sense" is legitimate, since it is used in an essentially different way in Hermann Schmitz' theory. Here, the German word '*Spüren*' does not refer to the sensitive aspect as it is used by Merleau-Ponty in his theory, where the mind as an image is necessary when referring to the senses, since otherwise the talking about these senses would be meaningless.

Böhme continues his statement with: »A mood contributes to sensing where we are [...] a sense of 'whereness' refers to the character of the space in which we find ourselves. We sense what kind of space surrounds us. We sense its atmosphere.«[14] Böhme bases his philosophy concerning atmospheres, among others, on that of Merleau-Ponty and Schmitz, and labels atmospheres as »the primary "object" of perception. […] What is first and immediately perceived are neither sensations nor objects or their constellations, as gestalt psychology thought, but atmospheres, against which background the analytic regard distinguishes such things as objects, forms, colors, etc.«[15]. As stated in chapter 2, the perception of architecture

13
Böhme, G. (2006), p. 107

14
Ursprung, Ph. (2005), p. 414

15
Böhme, G. (1995), p. 48

occurs through all senses - i.e., not only through sight, but also through hearing, taste, smell, touch - and even through *leibliche Regungen*.

How can we define the atmosphere of the space that surrounds us, and of the elements and materials that define this space? A first definition of atmospheres is provided by Böhme - corresponding to that of Schmitz - in his book "*Atmosphäre und Architektur*" as »*ergreifende Gefühlsmächte* [(touching forces of feeling)]«[16]. In our daily experience of the spaces we encounter, atmospheres are characterized in many ways, leading from calm to tumultuous atmospheres, from cheerful to gloomy atmospheres etc. When claiming that atmospheres have a spatial character, we are actually saying that people are able to experience them through their bodies, in their being-to-the-world. Sensing the kind of space that surrounds us seems to be largely caused by its defining form and materials. In their transmission of a certain atmosphere, they are able to "tune" a space, depending on the qualities of form and material. According to Böhme, using the qualities cold or warm as an example, »the atmospheric sensing of a material to be cold or warm is its "synaesthetical character"«[17]. He then continues, saying that such synaesthetical characters can be generated through various objective properties, »"cold" through smooth and glassy surfaces, "warm" through wood character or matte surface«[19]. They are called "synaesthical characters" since these properties can belong to various sensory areas. Important to realize is the fact that such characters that are transmitted by materials are independent of the physical meaning of the character, i.e., the atmospheric sensing of a material to be cold or hot does not refer to the actual temperature of the material. A different understanding of synaesthetical characters will be discussed in next chapter on Schmitz' *Leibfilosofie*.

What does it exactly mean to experience atmospheres? Böhme provided the following description of the perception of atmospheres: »Part of the perception of atmospheres I sense in what kind of environment I am situated. This perception has two sides: at one side the surrounding, which transfers an atmospheric quality, at the other side me, while in my mood I am part of this atmosphere and become aware, that I am here at this moment. […] Conversely, atmospheres are the way in which things and surroundings present themselves.«[20] In the previous chapter the term intentionality was introduced, meaning that our interaction with the world requires "both the world (object) and the body (subject) to exist". Concerning the notion of atmospheres, at this point, the question rises in what way atmospheres intermediate between subject and object. Schmitz uses his philosophy of the *Leib* to tackle this dichotomy. Böhme states, in an excerpt on Schmitz, »if atmospheres are considered to be projections of moods that are generated as part of the bodily experience,

16
Böhme, G. (2006), p. 19

17
Böhme, G. (1995), p. 55

18
Böhme, G. (1995), p. 48

19
Böhme, G. (1995), p. 29

20
Böhme, G. (2006), p. 26

being relatively independent of the objects, they would need to be considered subjective.«[19]. The question rises whether we should actually attribute atmospheres to the subjects who experience them or rather to the objects or environments from which they proceed. An answer to this question can be found in Böhme's use of the term "quasi-objectivity", meaning that atmospheres are not purely objective and certainly not purely subjective. He underpins this statement with reference to the aforementioned "forces of feeling", by stating that »several subjects are able to agree upon the existence of a certain atmosphere« and that »atmospheres are experienced subject-independent in a first encounter: the subject feels itself touched, moved by the atmosphere, feels itself affected«[20].

5. Hermann Schmitz on *Leiblichkeit*

15 Böhme, G. (1995), p. 55

19 Brodrück, R. (2010), p. 45

21 Schmitz, H. (1966), p. 19

Concerning phenomenology of architecture and of cladding tectonic particularly, "suggestions of movement" and "synaesthetical characters" are important terms, of which the essence can only be sufficiently explained by addressing Hermann Schmitz' *Leibfilosofie*. In addition to Hermann Schmitz' books "*Der Leib im Spiegel der Kunst*" (1966) and "*Subjektivität*" (1968), in which he provides a clear and comprehensive description of the contribution of suggestions of movement and synaesthetical characters to his *Leibfilosofie,* Ralph Brodrücks essays "*Einleibung en de architectonische vorm*" and "*de lijfelijke communicatie van muziek en architectuur*", in which he considers the experience of music and architectural form in relation to *Einleibung*, will be considered in this chapter. Before explaining both terms, Schmitz' use of the term "*Leib*" needs some clarification to be able to understand his thinking.

the *Leib*

The term *Leib* is used by Schmitz in his theory as a clear distinction from the word *Körper*. This distinction, which can be found in German and also in Dutch, is not part of the English vocabulary. Along with a few other essential terms that would lose their meaning or confuse the reader when being translated, the word *Leib* is used throughout this text. Whereas the *Körper* refers to the body and its sensory perception, the *Leib* considers the affectivity of the body (*leibliches Befinden*), leaving out all senses. Although *der Leib*, due to its use as a noun, seems to be a thing, it should be realized and remembered that the *Leib* - in Schmitz use of this word - is a system of experiences instead of a thing with a physical boundary and surface. Compared to Merleau-Ponty, it can be seen as a fundamental difference that is made by Schmitz. In Schmitz's words: »The own human *Leib* is considered to be that, which he is able to sense from himself in the area of his body, without supporting him with the five senses and the sensory body schema«[21]. Terming them *leibliche Regungen* - those excitations which makes oneself aware of his own *Leib* - Schmitz provides divergent examples such as »fear, pain, itch, tickling, uneasiness, exhale and inhale«[21]. In his aforementioned book "*Der Leib im Spiegel der Kunst*", Schmitz defines five categories of being

situated *leiblich*, which are *Engung und Weitung* (narrowing and widening), *Spannung und Schwellung* (tension and swelling), *Intensität und Rhythmus* (intensity and rhythm), *Richtung* (direction), and *protopatische und epikritische Tendenz* (protopathic and epicritic tendency).

The importance of the *Leib* can be linked to architecture, since it complements the human body. »The decisive experience takes place only when we take part through our [physical] presence in the space formed or created by architecture. This participation is an affective tendency by which our mood is attuned to the nature of a space, to its atmosphere. […] man is the size of architecture.«[22] What should be added to this is an explanation of the extent of the *Leib*. When referring to the body we know that it has a rather fixed size of its own and that it is connected to the three-dimensional space surrounding it. This does not count for the *Leib*; with reference to the *Leib*, the term "space" should be conceived as a sphere, having a less defined and permanent character when compared to the aforementioned three-dimensional space. Schmitz describes the *Leib* to be »a pre-dimensional volume. [...] It possesses dynamic in narrowing and widening«[23]. Böhme elaborates on this by explaining that »the *leibliche* space is neither the place that one occupies with his body, nor the volume that constitutes the body. [...] [it] transcends the limits of one's body«[24]. The next two sections will show how tectonic expression can be related to the experience of one's own *Leib*, through suggestions of movement and synaesthetical characters, which can be seen as powerful experiences. An example of such an experience could be the aforementioned "swelling" which is experienced at one's own *Leib* when being proud, and is corrspondingly known - in the same resonance - in our built environment.

<u>suggestions of movement</u>

According to Ralph Brodrück in his excerpt on Schmitz – "*Einleibung en de architectonische vorm*", a coherence between tectonic expression and our *Leib* can be found in Schmitz's philosophical thinking; »the understanding of the perception as *leibliche Kommunikation* or *Einleibung* enables Schmitz to profoundly explain the expression of architectonic form«[19]. Referring to Schmitz's magnum opus "*System der Philosophie*", Brodrück states that »Schmitz is able to position the theme of *Stütze und Last* [(support and load)], which according to Schopenhauer is the only permanent theme in architecture, within his theory of the *Leib*«[20].

Of special interest for tectonic expression is the way in which Schopenhauer elaborates on his stated theme of support and load by saying that »the joists need the column to stress the earth; the arch needs to carry itself and is only through the mediation of pillars able to

22 Ursprung, Ph. (2005), pp. 414-415

23 Schmitz, H. (2007), p. 17

24 Böhme, G. (2006), pp. 88-89

20 Brodrück, R. (2010), p. 44

satisfy its strive for the earth etc. Though precisely at these forced detours, precisely through these inhibitions unfold clearly and manifold the forces that form an internal presence of the stone mass.«[25] Brodrück claims, referring to Schmitz, that this citation of »Schopenhauer allows us to relate the meaning of architectural forms with that of Schmitz's theory of *Leiblichkeit*. The formal characters that are discovered by Schopenhauer are dynamic which means that we are dealing with a play of suggestions of movement, of the "sinking down" and the counterparting "striving holding up", and the fact that Schopenhauer discovers an antagonism in this play, indicates the importance of the antagonism – the competition of tension and swelling – in relation to the *Leiblichkeit*.«[26] After considering this formulation by Schopenhauer, the question remains from which outer appearances the statically opposing support an load can be experienced. Schmitz indicates that the answer to this question resides in the meaning of the art-form in relation to the *Leib*, claiming that »the relationship between support and load is in its dynamic primarily perceived at one's own *Leib* and, therefore, the perceived suggestions of movement are to be found again as *Gestaltsverläufe*«[26].

In the chapter "core-form and art-form" of this book, the Doric column and its inextricably related entasis were mentioned, as an example of the relationship between core-form and art-form, symbolically expressing present forces. Schmitz refers to the same entasis to exemplify his stated relationship between tectonic expression and *Leiblichkeit*, and to read the suggestions of movement that emphasize the play of forces of support and load in the overall formation of the temples of which these columns are part. Schmitz describes the entasis, referring to Krauss, as »the bulbous swelling of the column shaft […] at which as a result of an internally present expanding force the surface seems to be driven out and tightened until bursting, expressed through and held together with twenty flutings«[27]. Schmitz reacts on this by saying that »the collaboration of powerful swelling with binding tension, and its representation through the flutings, enable narrowing, widening, and direction to become embodied in the Doric column. [...] its shape represents an upwardly focussing *leibliche* intensity.«[28]. In addition to the *Gestaltsverläufe* of rounded forms, to which the Doric column and entasis belong, Schmitz further describes those of straight forms. He considers the difference between rounded and straight forms, by claiming that »in an arched shape the beholder is able to resonate, since it invites, by way of the transition between convexity and concavity, and the sliding transformation of its direction, the majority of categories of *leiblichen Befindens* – narrowing, widening, direction, tension, swelling, intensity, rhythm, protopathic tendency – to participate in its *Gestaltverlauf*. […] The *Gestaltverlauf* of elementary straight forms is *leiblich* unsaturated«[29].

25
Schmitz, H. (1966), p. 210

26
Schmitz, H. (1966), p. 211

27
Schmitz, H. (1966), p. 213

28
Schmitz, H. (1966), pp. 213-214

29
Schmitz, H. (1966), p. 52

30
Schmitz, H. (1968), p. 52

31
Schmitz, H. (1968), p. 85

32
Schmitz, H. (1968), p. 53

33
Schmitz, H. (1968), p. 54

synaesthetical characters

In addition to the suggestions of movement, the synaesthetical characters entail a further equivalent within *leibliches Spüren*. In his book "*Subjektivität*", Hermann Schmitz provides a clear and comprehensive description of the contribution of synaesthetical characters to his *Leibfilosofie*. He states that »synaesthesia are more than just two different phenomena which are connected temporarily or spatially«[30]. In previous chapter it was stated that, according to Böhme, »the atmospheric sensing of a material to be cold or warm is its "synaesthetical character"«[15]. There seems to be a crucial difference though, when comparing Böhme's and Schmitz' conception of synaesthetical characters. The quoted description that Böhme provides, is a reduction of Schmitz' approach. According to Böhme, the synaesthetical character deals with a constellation of individual qualities, whereas Schmitz considers it as a situation in which one is subjected and in which one experiences *leiblich*. It is Schmitz who considers this *leibliches Spüren* to transcend experience through the senses, by claiming that »the *eigenleibliches Spüren* provides in the highest degree encroaching and undeniable phenomena, which in their existence impress in a much more drastical way«[31].

Referring to »the chaotic relation between the *Leiblichkeit* and that which we perceive«[31], Schmitz states that the synaesthetical character is *leiblich* in its origin and mirrors itself in different sensorial areas. This shows that *leibliches Spüren* and sensory perception are not separated but intertwined in human experience. Schmitz continues that the so-called "intermodal characteristics" form such a part of every sensory quality, that within the perceived there exists a shimmer between separate sensory qualities and common synaesthetical character. Schmitz exemplifies this statement using softness as an example, showing the impossibility to interchange the characteristics of a sense with another sense, e.g., formability and resilience as characteristics of touch are not transmissible to hearing, smell, taste, or sight. Schmitz concludes that »an accordance, which motivates the mentioning of softness in every case, cannot be denied. However, it seems to be undefinable as long as it can only be read from the objective, specifically differentiated sensory qualities«[32]. Thus, what we are looking for is the common relation of these single sensory qualities to the *leibliches Spüren*.

To explicate this relation, Schmitz refers to the "heaviness" of sound. The aforementioned impossibility to interchange the characteristics of a sense with another sense, becomes immediately clear when comparing the heaviness of sound - its "property of mass" - to the physical mass. Schmitz refers to van Hornborstel who recognizes that »the dark sound is wide, large, heavy, but also syrupy, diffuse, loose, soft, and blunt«[33]. Schmitz comments on this awareness by saying that this form of heaviness does not match the heaviness as it is

34
Brodrück, (2013), p. 5

experienced in physical objects, whereas the defined properties do match the heaviness which is experienced at the own *Leib*.

The gravity of sound and that of physical objects such as buildings, which is experienced equivalently at the own Leib through suggestions of movement, is further explained in Brodrück's essay "*de lijfelijke communicatie van muziek en architectuur*". Here Brodrück refers to a tectonic description of the St.-Basiliuskerk in Bruge, qualifying it as: »'the heavy materiality', 'the oppressive character of the space', 'stubby columns', and 'the enclosing force'«[34]. He further explains the comparable suggestion of movement of »'the high, light nave [which] rises from the wide expanding forest of pillars'«[34] at the Vrouwekathedraal in Antwerp, and that of »the first trumpet in Bach's *Et exspecto resurrectionem* which is also expressed as 'rising'«[34]. According to Brodrück, these »rising suggestions of movement ... as well as the clear synaesthetical character of the light in the high windows and the timbre of the trumpet, become each other's equivalent because a lightness which is experienced at the own *Leib* is reincarnated in all of these qualifications.«[34]

6. case study projects

The concepts that were introduced and discussed in previous chapters - system of signs, representing elements, represented elements, intentional representation, phenomena, atmospheres, sensation, *leibliches Spüren*, *Gestaltsverläufe*, suggestions of movement, synaesthetical characters - will be displayed and questioned by analyzing two case studies. The first case study that will be considered is the philosophical table "Thinking Tectonic Drapery" and the second case study is the industrial building "*Brikkenbouw*".

Thinking Tectonic Drapery - philosophical table

Whereas the location and positioning of the philosophical table - balancing within one of the wall cuts of Gordon Matta-Clark's Four Way Wall - does not necessarily requests the level of expressiveness as it is apparent in the design, the totality of the table transcends that it is not superfluous. This expressiveness is an inherent part of the image that focusses on the vertically placed cloth (**Fig. 60**), showing that it is not a table that can be lifted and moved to a different spot or location. It contains a play of forces, an inner tension which provides the table a certain lightness, a working from the inside to the outside which peculiarizes the connection of the table with the building.

When approaching the tectonic of the philosophical table from a phenomenological point of view, the vertically stretched cloth - restoring stability and ensuring that the table is kept at a horizontal plane by absorbing the enormous moment of the exaggerated cantilever - is the element at which tectonic and phenomenology become intertwined. The actual tension that is introduced and which stresses the cloth can be perceived, without reference to a theoretical separation between structure, forces, and symbolism - as we have seen in Bötticher's, Semper's and Frampton's theories. In the appearance of the table, the dichotomy of forces and expression is unified and made perceptible, making physical the difference between perception and knowledge. Whereas, for example, a concrete rectangular column does not physically express the forces which it absorbs and transfers, in case of the philosophical table the deviating expression of the table cloth immediately brings to the

Fig. 60
Thinking Tectonic Drapery
philosophical table

observer's attention that something is going on; a play of forces is displayed and perceived. This awareness does not rely on knowledge, but merely emanates from that which is experienced, without being acquainted with code language or mechanics. In case of the concrete rectangular column, the play of forces is not expressively clear, causing that the object first needs to be analyzed before conclusions can be drawn. This shows the fundamental difference between perception and knowledge.

When considering the table as something that is perceived in its totality, individual aspects can be extracted; e.g., one could question the apparent uselessness of the object as a regular table due to its irregular surface, or how the balance of the table is guaranteed. When the cloth is stressed with a tensile force this means that something is manifested within the cloth which will be experienced as a play of forces. The possible separation between appearance and the technical aspect by the user succeeds this perception, and forms an inherent aspect of this table. Instead of using symbolism to explain the play of forces, as Semper strived for and in which the symbols need to be known and recognized accordingly, in case of the philosophical table no knowledge of any code is needed to perceive and read the play of forces that is apparent in the cloth, keeping the table in horizontal position. The forces display a suggestion of movement which is observed as "downwardly flowing energy", enhanced through the shininess of the glass fiber cloth. The shineness improves the perception of the curves that directly result from the active forces and the way in which the wooden structure transfers the forces to the cloth. Interesting is the way in which the four wooden beams are exposed to the observer, drawing his attention to the cross sections or cuts that provide a thought image of the beams being amputated. The way the beams penetrate the cloth, physically expresses their dependence to remain in horizontal position.

Sphinx' *Brikkenbouw*

The terms and concepts that were introduced in previous chapters and are applied to the first case study, will now be considered in relation to the *Brikkenbouw*. It will become clear that they barely correspond to the conceptual framework as we now it in architectural theory, which resulted in a mere absence of those concepts in today's architectural practice. Especially the rational approach of which factory buildings such as the *Brikkenbouw* can be seen as an example, should be named with this awareness. Guided and characterized by progressions in modern technology, the rational approach of designing such buildings limited its attention of the way people - in this case employees - experience the building to those aspects which are neccessary for increased productivity. The awareness that spaces are designed for people to be bodily and *Leiblich* present, arousing certain feelings through

their atmospheric qualities, is negelected completely.

Although the *Brikkenbouw* is a good example of an utmost functional building, it was chosen as the central object of this graduation project. Interesting is therefore the question whether this building was chosen because it fortuitously fitted the theoretical framework of the cladding tectonic, or because this building fascinated me from the very first moment. If the latter is the case, it means that in the *Brikkenbouw* and its surroundings, certain aspects are present and transcended to the passersby's perception of this place which were considered to be valuable. It needs to be shown that those aspects which fascinated me and the way they are present at this specific site can be made intersubjective - i.e., taking them out of my personal subjective sphere - by showing that these are aspects which you, the reader, would also be able to experience when encountering this very building. To achieve this, I will focus on two pictures in which the Brikkenbouw is apparent.

The current division of the Sphinx site into the southern *Sphinxpark* and the northern parking lot is a very strong one, causing a focus on each place when being bodily present, strengthened since the complete site is still surrounded by the factory wall. **Fig. 61** and **Fig. 62** show the atmospheric qualities of both places, and especially in **Fig. 62** the functioning of the *Brikkenbouw* as a stage for the divergent activities that take place. Referring to Böhme, it is the *Brikkenbouw*, inter alia, that in its transmission of a certain atmosphere, it is able to "tune" the space.

In previous chapter, synaesthetical characters and suggestions of movement were stated to be those experiences through which the cladding tectonic can be related to one's own *Leib*, and therefore, according to Schmitz, can be seen as more powerful experiences when compared to sensory perception. Whereas suggestions of movement are likely not to be perceived when approaching this building, the initial perception of the *Brikkenbouw* (**Fig. 61**) was dominated through the experience of the synaesthetical characters "feathery" and "heavy", by its appearance in which the building seems to consist of two volumes - a virginal white, feathery and standing volume and a dark, heavy and downwardly pressing volume - of which the former seems to carry the latter. This unexpected and aberrant appearance is mainly caused by the white surface and the thick, dark delimiting line of bitumen. This line visually separates both volumes, inside and outside, though is perceived as belonging to the white. After the synaesthetical characters of heaviness were experienced through the *Leib*, one starts to read the white volume as a layer which is added onto the building. As in Richard Artschwager's work "Description of table" (1964) (**Fig. 65**), the *Brikkenbouw*

can be experienced both as the image of an object and as the object itself. What unites this art work and the encountered building is their exploration of the vagaries of perception; a viewer is not certain of what exactly he is looking at, resulting from an alienation through transformation. By adding a thin layer of differently colored laminate veneer, Artschwager transforms a basic cube into something which can be perceived as a table with a cloth on top of a table surface and emptiness underneath. A comparable transformation in perception came about after the demolition of the adjacent factory halls, leaving behind both the image of those halls and the alienated *Brikkenbouw* itself. This is what Husserl and Merleua-Ponty termed "intentionality", meaning that a perceived object can provide references to a thought object or recalled object. According to the phenomenological reduction of the natural attitude, which alludes to the return to the things and the world, such intentional acts are not a reference to the real object but to the meaning of that which appears to the observer. The essence of the image of the halls should therefore not be sought for in the actual halls, the physical matter that used to surround the Brikkenbouw, but rather in the meaning the thought image of these halls is able to transcend to the observer.

Based on the perceptions that were discussed, reason shows us that both surface and line - palimpsest - are traces of the factory halls that used to surround the *Brikkenbouw*. As a result of the demolishment of the factory halls, the layers of paint and bitumen are converted into architectural means of expression, causing the observer to mentally recall these halls and their interior. Consequently, I feel bodily present in these halls when moving between the three remaining buildings *Brikkenbouw*, *Eiffel*, and *Gebouw B,* all of them showing their interiorized exterior walls. As such, the factory halls are experienced as a phantom limb. It can be stated that the demolishment of the surrounding halls freed the *Brikkenbouw* from being engulfed, though simultaneously left behind the trace of what used to be the Sphinx factory. The perception of the *Brikkenbouw*, along with the other remaining buildings showing such traces, entails a strong presence of the halls as a phantom limb - meaning that their presence can still be felt - while being physically removed and disposed. Similar to the physical tension that formes a vital part of the philosophical table - as a direct result of the amputation of its left wing - the amputation of the factory halls from the enclosed *Brikkenbouw* causes a metaphysical tension of the present absence of the factory halls.

The perception of the phantom limb and in particular the white walls that remained after the demolishment of all factory halls, questions the ambiguity of interior and exterior, of inside-out and outside-in, that is captured in the thought image this palimpsest establishes. When approaching the *Brikkenbouw* from the parking lot, i.e., from its north and

east façade, only one door provides the opportunity to pass through, to go from one side to the other, from the former interior to a new exterior atmosphere. This exterior atmosphere which is experienced when entering the building is colored by the current state of the building, allowing exterior phenomena to enter the interior and to be perceived as such.


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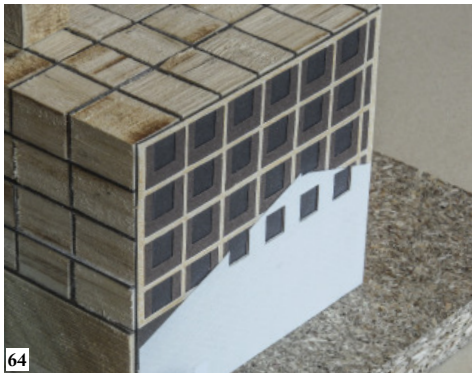
62


63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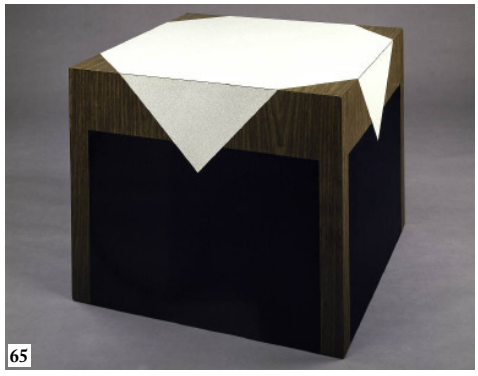
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Fig. 61
Sphinx' Brikkenbouw
view from parking lot

Fig. 62
Sphinx' Brikkenbouw
view from *Sphinxpark*

Fig. 63
exterior atmosphere
Brikkenbouw

Fig. 64
study model, scale 1:200

Fig. 65
Description of table (1964)
Richard Artschwager

7. conclusion

In this section, a concise summary of the discussed theories of Merleau-Ponty, Remy Zaugg, Gernot Böhme, and Hermann Schmitz will be provided, guided by some concluding thoughts on phenomenology in relation to cladding tectonic. The insights that are gained from the phenomenological analysis of the *Brikkenbouw* are used to guide its redesign, which will be explained in part V.

In part II it was explained that the forces within a built object that are passed to the foundation are expressed symbolically in the classical tectonic, meaning that the actual forces are not visible but visualized with theoretical code language. As stated in this part on the phenomenology of cladding tectonic, the phenomenology differs in an essential way. It basically means that to experience a thing or mood - in this case a tectonic expression or cladding atmosphere - it should be perceived. Instead of focussing on knowledge and code language to make expressive the apparent forces within a built object, phenomenology focusses on experiencing that which is perceived through the senses and even more intensely, as stated by Hermann Schmitz, through *leibliches Spüren*. This resembles Merleau-Ponty's view that before things are ascribed a theoretical meaning through the intentionality of the conscious, they already are given meaning resulting from the way we relate ourselves to these things. In architecture, the experience through the *Leib* is mainly guided by suggestions of movement and synaesthetical characters.

As showed in both case studies, buildings or objects do not need to be an accumulation of separately nameable characteristics, but are situations with which one shares experiences from his or her *leibliche* resonance. Based on this *leibliches Spüren*, the analysis of the Brikkenbouw was driven by the strong believe that this building and the way it is situated in its contextual environment contains a certain feeling or "mood", which was expected to be an inextricable part of this specific place. Guided by the "light" and the "heavy" as synaesthetical characters which are transcended by the object which is perceived, it was shown that the feeling and perception that were transmitted directly by the expressive potential of, in this

case, the cladded *Brikkenbouw*, can be made inter-subjectively observable and discussable. This entails the important consequence of being able to leave the subjective sphere and touch that on which science is based.

The interaction of subject and object forms an important aspect of the way in which we perceive the world and more specifically how we experience atmospheres. This can be further exemplified with the feeling certain buildings or objects arouse within its observers, e.g., the Bruder Klauss Chapel and the Kolumba Museum which are both designed by Peter Zumthor. Based on my own experience of visiting both buildings on different occasions, the feelings that visitors *Spüren* are generally corresponding. In Böhme's words, several subjects are able to agree upon the existence of a certain atmosphere, which is experienced subject-independent in a first encounter. In case of the Bruder Klauss Chapel, the transcended atmosphere is based on a strong suggestion of movement, drawing the visitor's view instantly towards the point where the building opens up to the sky, controlling the atmosperic qualities of the interior, as all types of weather are able to penetrate the opening and as such interact which the materials that are used. Silence can be considered an important synaesthetical character of this building, not only due to its function of a building that is used for prayer and reflection, but even more as a silence that is experience through the *Leib* in the way the light penetrates the skylight.

Could according to the described observation and Böhme's statement be determined that the feeling is an inherent part of those buildings? If so, than it exists first and foremost outside of oneself, meaning that only the feeling of this feeling should be considered as a subjective activity, allowing feelings to be intersubjectively discussable. The actual feeling as a subjective activity can be seen as the willingness of building visitors to attentively approach it. In accordance, as is clearly discussed in Zaugg's approach of Judd's sequence of boxes, this willingness is that which, in this case, a museum adds to the work of art.

IV. position statement

This chapter will provide a concise statement of the position I want to take in relation to the cladding tectonic in architecture. This positioning was formed and colored as part of the theoretical research throughout part II and III, from which two approaches three "stages" of the cladding tectonic can be discerned, which are the rational tectonic of the *Brikkenbouw*, the art-form as a symbollic expression of the core-form as it was stated in Bötticher's and Semper's theory, and the cladding tectonic which is perceived phenomenologically as it is present in the philosophical table and even in the cladded exterior walls of the *Brikkenbouw*. The position will be stated by focussing on the sub-questions that were formulated in the introductory chapter of this book.

The second sub-question on the way in which the cladding tectonic can provide embodied knowledge to direct the analytic ways of knowing the world, implicitly refers to the Merleau-Ponty's remark that it is not the intention of phenomenology to reject knowledge and science but to return to that which preceeds all knowledge, instead of merely averting the way in which we are exposed to the world. One could say that an overemphasize on knowledge and theory directed us away from the most essential things, which in my point of view - in accordance with the aforementioned philosophers - are our bodily presence in and to the world. Interesting in this conception would therefore be the analysis and designing of buildings which besides practical functioning and esthetical value, both important features of a building, also consider them as situation which can bring about experiences from one's *leibliche* resonance. According to this way of approaching the design assignment, when compared to conventional analytic methods of gathering knowledge about a building or location, its is the expressive quality that might be experienced *leiblich*, which is sought for. Such an analysis and design are applied to the *Brikkenbouw* which is used as a case study throughout this research. In case of the *Brikkenbouw*, for example, the first sub-question of how its tectonic is related to its topos and typos, was in the end preceded with a precise description of how it was perceived when having limited background information about the building and site at that time.

Instead of theorizing on the problematic reciprocity between core-form and art-form, and in doing so trying to find any clues within the existing rational *Brikkenbouw*, to which the theoretical code language that was postulated by Bötticher will be restricted in adding meaning,

Whereas the theoretical code language on cladding tectonic which was postulated by Bötticher - the problematic reciprocity between core-form and art-form - and Semper will be restricted in adding meaning to the rational *Brikkenbouw* and its topos and typos, the phenomenological approach already showed in the different case studies that a greater meaning might be achieved when visitors are touched by a certain atmosphere or physicality, instead of the consideration of the concrete structure of the *Brikkenbouw*, which in no way seems to address the intensity of *leibliches Spüren*. As a consequence, the synaesthetical characters and thought images that were experienced when being physically present at the Sphinx site were used as a reference point for the redesign of the *Brikkenbouw*.

V. redesign

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1. introduction

Parallel to the thorough research into the theoretical and phenomenological approach of the cladding tectonic, a redesign is provided for the *Brikkenbouw*. The findings that were described in part II and especially in part III will be used as starting point of this architectural assignment. Important is the awareness that this redesign is used as a case study within this research and as such will not only apply those findings that were extracted but also will be used, in next chapter, as means to reflect upon the research.

The main part of this chapter, describing and visualizing the actual redesign of the Brikkenbouw, is subdivided into three parts: masterplan, building, and detail. These three levels of scale have played an important role in the process of this project, all of them guided by an intense research through physical modeling. At an early stage of the design process an urban model in scale 1:500 was made in such a way that not only aspects such as density, proportion, materiality, etc. were made perceptible, but at least as important a sought-after expression of the atmosphere which characterizes this very location. Subsequently and additionally, four other scales - 1:200, 1:50, 1:25, 1:5 - were used to test and make palpable the thoughts and ideas that were generated as part of the design process. It should be mentioned that they are all working models, meaning that their worth mainly resides in its strong ability to guide the processes of thinking, and that they should not be considered as mere presentational objects. Accordingly, each of the three chapters - masterplan, design, and detail - will firstly focus on the models that were made, of which the pictures in te best case transcend the intended atmospheres and make perceptible how the design will be used, after which technical drawings will show the practical aspect of the design decisions that were made.

Fig. 66
physical study models
Sphinx' Brikkenbouw

2. location

For the sake of completeness, a short description of the location of the *Brikkenbouw* will be provided in this chapter. **Fig. 67** is able to tell the story of this site in a striking way. It shows how industrial Sphinx site was turned into an abandoned place after the demolishment of nearly all factory buildings, and how consequently the southern part became a natural area. This demolishment, residing at the border between the industrial and post-industrial era, is used as a central theme for the reconsideration of the *Brikkenbouw*, after the present absence of factory halls surrounding the *Brikkenbouw* was perceived as an expressive potential of the palimpsest, depicting the traces of history. This is set out in chapter III.6, in which the *Brikkenbouw* is used as a case study to consider the way in which the building can be related to the theme of cladding tectonic in a phenomenological way.

Fig. 67
aerial view of site after demolishments

3. masterplan

As a result of the provisionally cancelling of the urban planning execution, as shown in **map 1**, the former Sphinx site became a place for experiments, allowing serious thought about the treatment of this specific place and what kind of programming would suit best to it. Following pages show a layered approach of the adaptation of the site. Within the masterplan most of the park in its current use is kept to allow a continuation of the vitality which it showed during the past few years. The *Brikkenbouw* as a creative hub will receive an important function and positioning within the area. At or adjacent to the Sphinx site, four remaining buildings were considered historically important and therefore will be intertwined in the masterplan. Especially the St.Andrieskapel will be made open to the public again, as it embodies a long and though history. The picture of Robert Mangold's painting called 'Four colors' was borrowed and adjusted since it perfectly shows how the

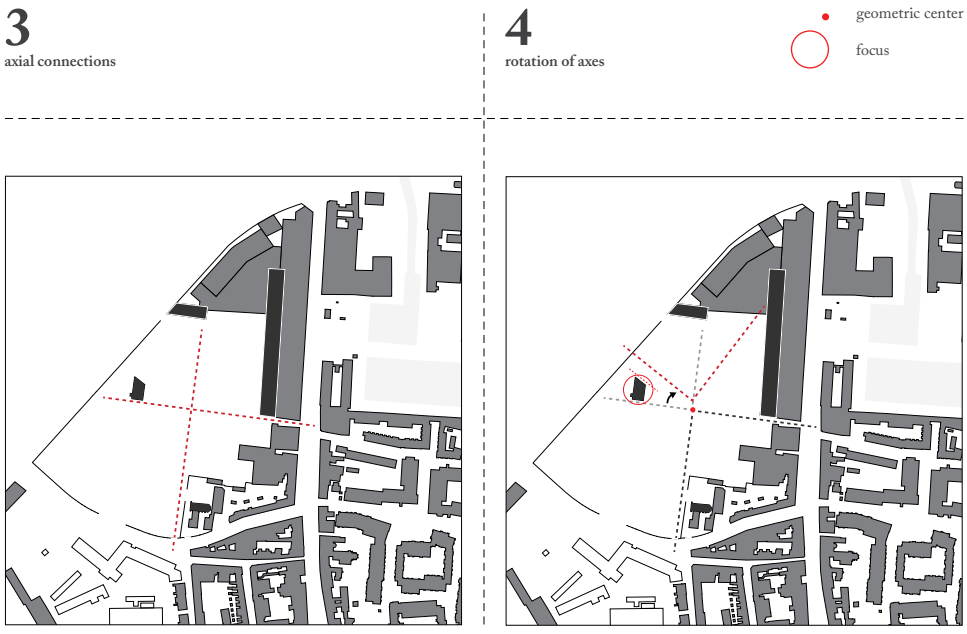
1
postponed plan

2
remains with historical value

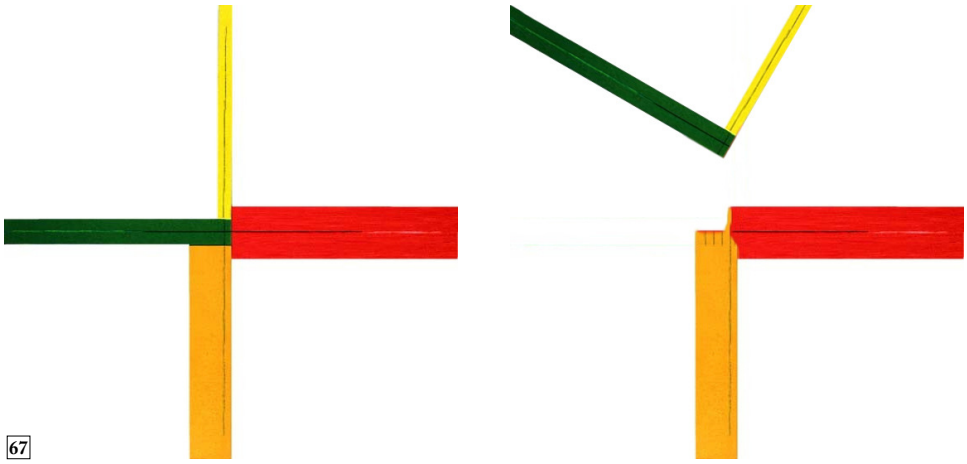
1 *Brikkenbouw*
2 *Gebouw B*
3 *Eiffel*
4 *Boschpoort*
5 *St. Andrieskapel*
6 *St. Andriespoort*

masterplan, design decisions
scale 1:3000

axial configuration came about. In the historical analysis of chapter II.4, guided by maps of different periods of time, it became clear that two perpendicularly placed axis formed important elements to connect the different locations of the factory. Whereas the majority of factory buildings were demolished throughout the existence of the Sphinx factory, these axes stayed at their initial place. This important and specific feature of the location is used as a starting point. As it is expressed in the distortion of Mangold's painting, by rotating two branches the green is placed nearly perpendicular to the factory wall and entails at the place where it would touch the wall a new entrance from the site to the future residential area in the north (**Fig. 67**). As displayed in map 4, this rotation causes the *Brikkenbouw* to be a stronger part of the Sphinxpark and simultaneously activate the inclinated side of this building. the fragmented residential area in the southeast will be completed to form an entrance street to the center of the Sphinx site. This street will be formed together with public buildings that will define the square that is created in front of the enormous *Eiffel*. In the northwest, an additional residential area will be built to bridge the gap to the planned expansion of the city to the north. The physical model is used to determine the dimensions and scale of the different added buildings and to get grip on the atmospheric qualities which are apparent at this place.



masterplan, design decisions
scale 1:3000



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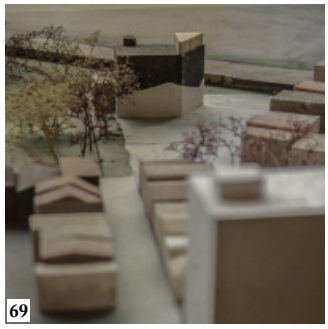

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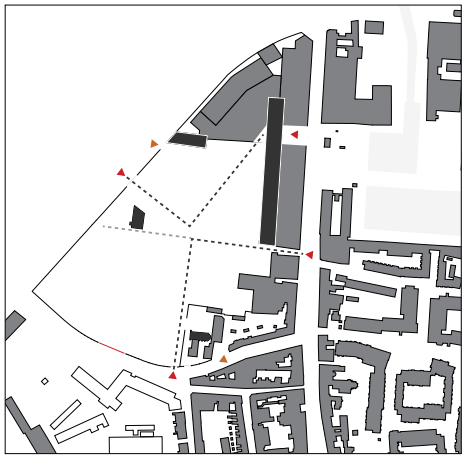
Fig. 67
"Four colors"
Robert Mangold

Fig. 68, 69, 70
aerial views
Sphinx site

5
site accesses



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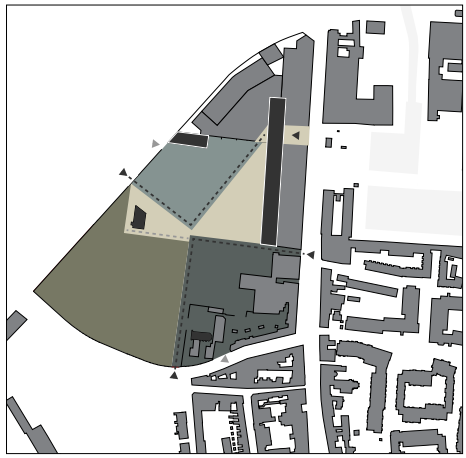
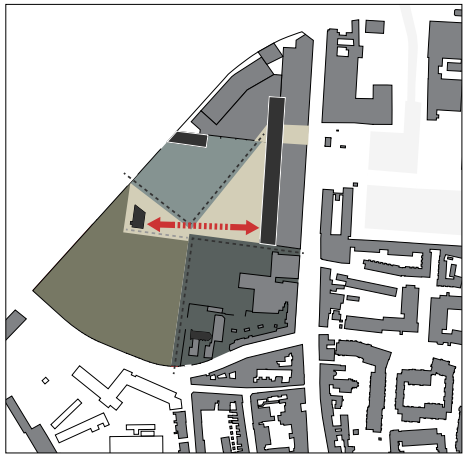
urban layering

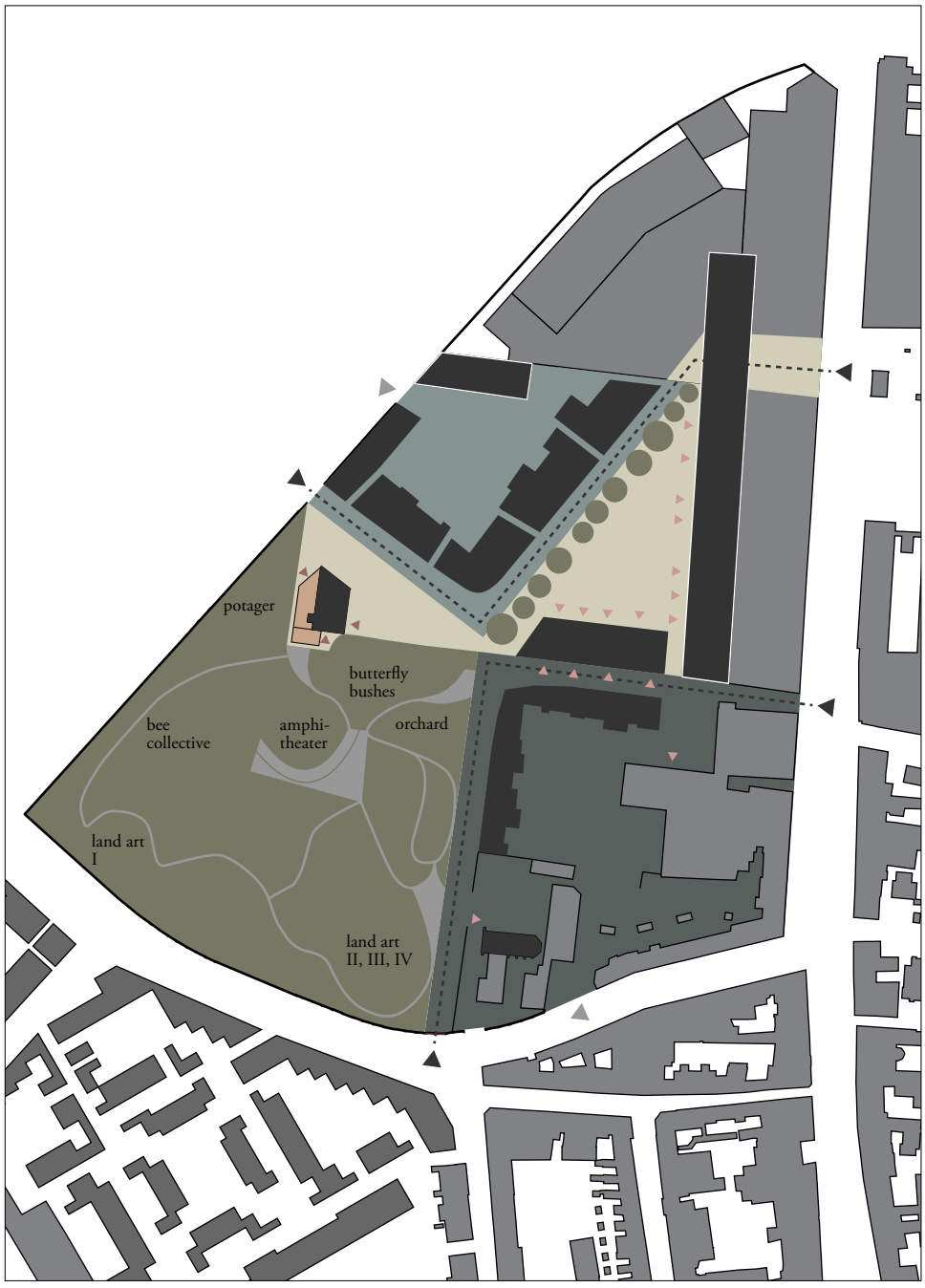


7
increased tension between *Brikkenbouw* and *Eiffel*



8
relating site to surrounding city structure

masterplan, design decisions
scale 1:3000



masterplan
scale 1:1000

Fig. 71
aerial view
Sphinx site

4. phenomenological approach

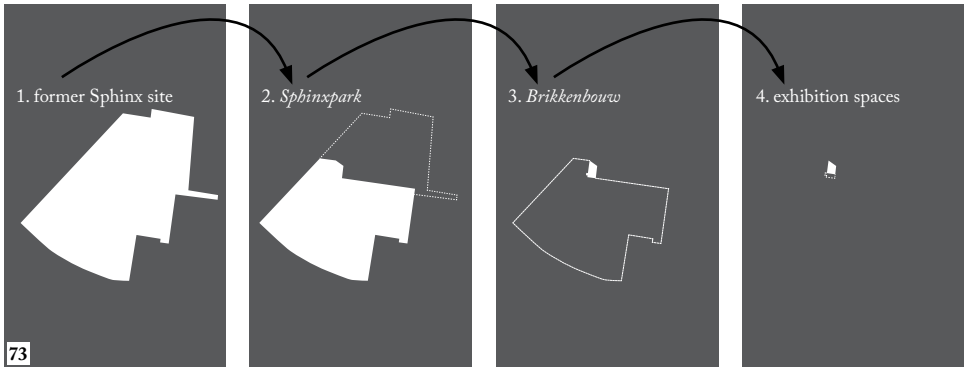
Whereas the theoretical code language on cladding tectonic which was postulated by Bötticher - the problematic reciprocity between core-form and art-form - and Semper will be restricted in adding meaning to the rational *Brikkenbouw* and its topos and typos, the phenomenological approach already showed in the different case studies that a greater meaning might be achieved when visitors are touched by a certain atmosphere or physicality, instead of the consideration of the concrete structure of the *Brikkenbouw*, which in no way seems to address the intenisty of *leibliches Spüren*. As a consequence, the synesthetical characters and thought image that were experienced when being physically present at the Sphinx site are used as a reference point for the redesign of the *Brikkenbouw*.

It was shown that the current division of the walled site into the Sphinxpark and the parking lot created divergent atmospheres as a result of the physical en sensory disjunction of both places. When considering the remaining Brikkenbouw, its unexpected and aberrant appearance is able to transcend the synaesthetical characters of "feathery" and "heavy" due to the combination of the white layer of paint and the dark appearance of the original building. The white layer of paint and pitch black has the additional ability to evoke the image of what used to be the factory halls that surrounded the Brikkenbouw completely. Since intentional acts were stated not to form a reference to the real object, the essence of the layer of paint should be sought for in the in the meaning the thought image transcends to the observer. This meaning was described to be the questioning of the ambiguous relation between interior and exterior, since the halls remain strongly present as a phantom limb.

The painted exterior walls of the Brikkenbouw are as a result of this presence perceived as interior walls. Opposed to this thought image of the former halls, transcending an interior character to its surroundings, when entering the building through the only usable door at the ground floor, this ambiguous experience is even amplified due to the contrasting experience of the interior as an exterior atmosphere. The ambiguity of inside and outside

could be considered as a specific experience which inextricably belongs to the location, and is mainly caused by the presence and appearance of the palimpsest which was left visible after the physical amputation of the enclosing halls, together with exterior characteristics which are present at the interior of the building. When entering the Brikkenbouw one is confronted with rusty beams, broken windows through which the wind diligently blows and rain is free to enter, the noise of traffic that is using the adjacent street, etc. This specific inner-outer experience at the different scales is used as a reference point for the reinterpretation of this building, encountering different spatial qualities in which one is captured in subsequent spheres.

72



73

Fig. 72
Sphinx' Brikkenbouw
view from parking lot

Fig. 73
inner experience

5. architectural brief

The economic crisis does not merely threaten future developments, it also provides opportunities for dissidence and innovation. An interesting example of such opportunities can be found at the southern part of the former Sphinx site. As a result of the provisionally cancelling of the urban planning execution, it became a place for experiments from Spring 2012. A bottom-up initiative turned the fallow southern part of the Sphinx terrain into an urban park (**Fig. x**). This park shows the incredible vitality of nature at the former industrial site, which has had a strong own will during the past five years of fallowness. A place like this should not be manipulated, but more effectively needs to be guided in a certain direction. Instead of planning a complete park as a top-down approach, the bottom-up approach proved to be much more efficient at this location. What can be learned from this is to leave certain things at their place and allow them to flourish, allow new and innovative forms of inhabitation to arise.

The Sphinxpark currently offers room for divergent activities, such as walking, gardening, cultivating, picnicking, discovering, partying, dancing, singing, playing, exhibiting, discussing. In case of city gardening, to elaborate on one of these activities, an area between the *Brikkenbouw* and the factory wall is turned into a place where crops are grown. The most important themes of this garden are food, experimentation, cooperation, and gathering. One can in an accessible way join this project and meet other people at the Sphinxpark. To allow an extension of these activities and answer the need for a fixed meeting space near the park the 'Brikkenbouw' will be refurbished into an inner experience. Its refurbishment will be strongly based on the aforementioned activities and their character, which in the best case would lead to an environment in which the freedom that is apparent in the park also can be experienced. The *Brikkenbouw* will become a place where one can meet other people in an accessible way and can introduce own initiatives and activities, a creative place for urban gardening, organic food, markets, discussions or debates, lectures, exhibitions, performances, workshops, education, and social interaction. In addition to a social meeting place, the *Brikkenbouw* will also provide space for individuals, companies or organizations

that contribute somehow to a better environment. They can make use of spaces for flexible workplaces, training, workshops, discussions, meetings and presentations. The refurbished *Brikkenbouw* will provide following rooms:

- halls for:
  exhibitions, workshops, and market
- reception
- wardrobe
- bar
- bistro
- kitchen
- terrace
- restrooms
- shop
- storage
- office
- flexible workplaces
- multi-functional room for:
  exhibitions, presentations, discussions and workshops
- meeting space

Fig. 74
cultural activity
Sphinxpark

6. building design: outer experience

The model pictures on this page show how the existing and the new are interconnected. The added volume breaks through the existing building at two different places. The first and largest extension is that at the west side of the building, strongly related to the sphinx-park and in particular its urban gardening. The volume is two stories high and as such fits neatly into the thought image of the former factory halls. The exterior expression of the new structure can be referred back to the aformentioned ambiguity of inner and outer. The timber frame construction which is at the interior of the Brikkenbouw applied to carry the wall finishing and provide space for insulation, is extended to create comparably an inner sphere which within an existing structure. In case of the extension this reference structure would be the image of the halls which can be experienced through the palimpsest. The timber frame visibly remains uncladded and in that way the inner atmospheric qualities


75


76

Fig. 75
added volume
study model, scale 1:200

Fig. 76
interrelation of exisitng and new
study model, scale 1:200

Fig. 77
mould storage
Brikkenbouw interior

Fig. 78
moulds stored in wooden crates
Brikkenbouw interior

Fig. 79
new volume as reference to mould storage
Brikkenbouw exterior, study model, scale 1:50

are stressed. In addition, the volume at the west also provides a reference to the initial use of the Brikkenbouw, which used to be a storage for molds that were used in the adjecent halls for the production of earthenwork artifacts. In a resembling way in which the moulds were perceived to be at the inside or in-between of the crates, in case of the extension fiber cement panels are stored into the façade, of which the detail drawings will explain the way they will be perceived to be loose from the wooden crate or structure.

Visitors who approach the building from the north can enter the addition and gradually move into a sequence of rooms with interior characteristics, which are completely cladded from the inside, not only for reasons of insulation but even more to create certain atmospheres and add meaning to the way users perceive this building. The entrance hall and the hall on the first floor, both providing double-high spaces, are intended to lack a specific function and consequently provide flexible room for divergent activities. These interior spaces with exterior qualities are through an existing staircase directly connected with a roof terrace. To provide sufficient room for own interpretations of the building and its spaces by the future users, it is tried to restrict the design of these spaces, leaving the constructional materials uncladded and unchanged. The actual lining, as an encountered treatment of the 'Sphinxpark', is to be provided by the inhabitants themselves, were the constructional materials are left bare.

When designing the building, regarding atmosphere, spatiality, materiality, and illumination, different autonomous interior spaces are defined within the existing concrete structure. They are smaller and lower rooms that are connected to the halls, which all have a specific function, such as a foyer with bar, a bistro with kitchen, a café, a meeting room, a shop, and a staircase to connect these spaces with spaces on the upper floors, consisting of an office, flexible workspaces, and exhibition spaces; they all have a relatively small size and particular character, ensuring that the exterior is never far away, and that there is a strong sense of where you are. All the use spaces of the building are side-lit. In case of these clothed interior spaces, in contrast to those with exterior qualities, the responsibility for the atmosphere and character lies to a much greater degree with the designer.

The program of requirements for the spaces can be divided into four groups of rooms: both flexible halls, the defined spaces of foyer, bistro, café, meeting room and shop, the working spaces on the second and third floor, and the exhibition spaces on the fourth floor with extensions to the two upper floors. Each of these groups of rooms is characterized by its own individual spatiality, and, inextricably linked with this, its own material use, its own

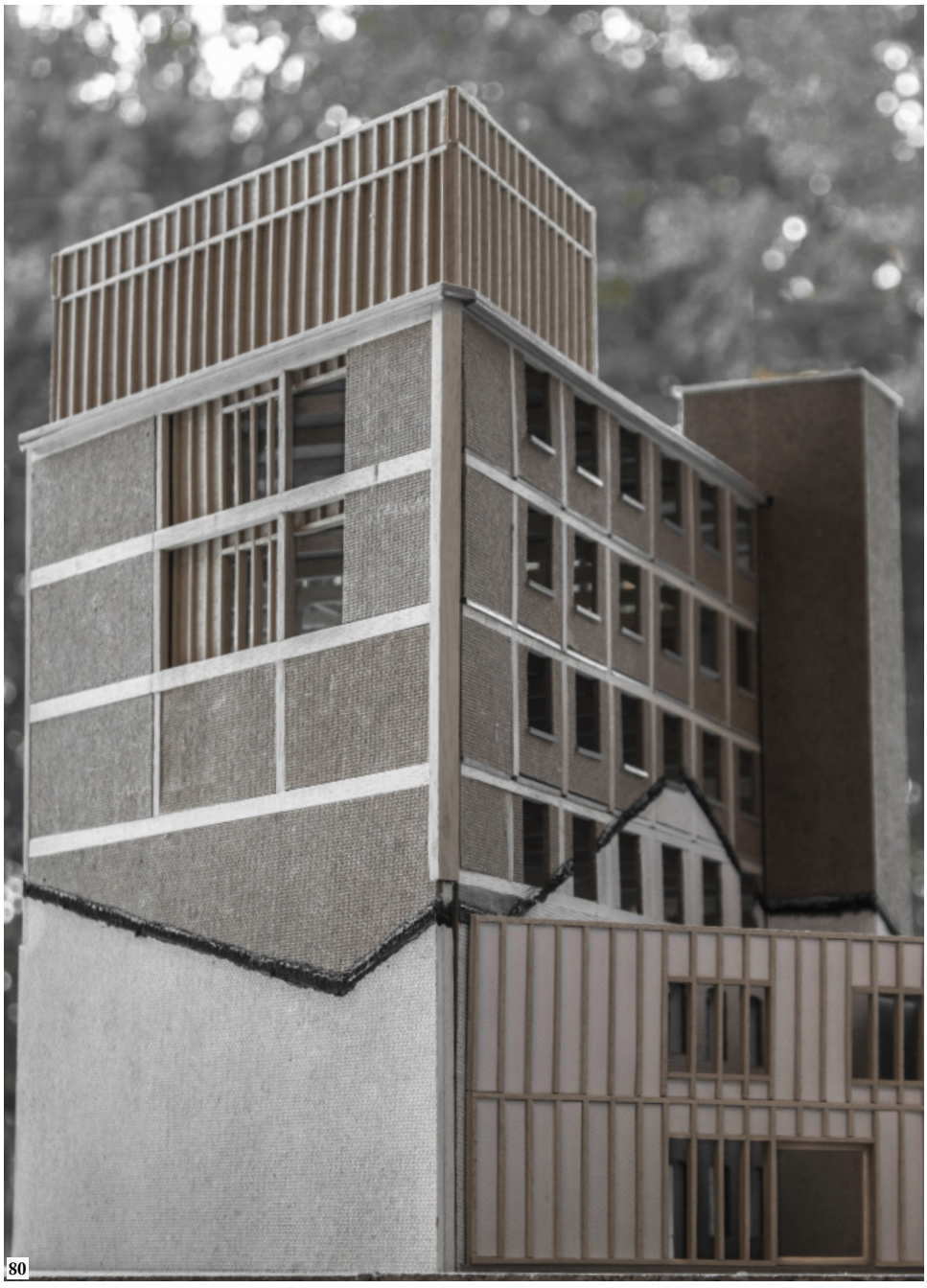


Fig. 80
interrelation of existing and new,
study model, scale 1:50

way of lining the rooms to create the right atmospheres.

The project is designed from the inside out, firstly cladding the existing structure and exterior walls, only then determining the added exterior walls. The first two floors of the building date from 1875 and are built using different building methods when compared to the upper four floors of the encountered building. After removing the inclined roof in 1925, these two floors functioned as a base on which the concrete skeleton would be built. As part of the current redesign this base comprises the spacious halls, forming a transition space between the park and the cladded interior spaces. This is what makes the entry from the Sphinxpark gradual; the actual entrance door is placed far inside the building.

The material combinations and hierarchies in the interior change along with the changing functions and atmospheres of the different spaces. The wooden wall covering is used wherever a domestic atmosphere is desired. The building is structured like a piece of music. Each material is first introduced alone like a musical theme, and then combined with one another. In the rising movement of the square and entrance hall towards the roof terrace, each time, one of the two materials passes the theme on to the next group of rooms.

Fig. 81
entrance from parking lot
study model, scale 1:25

82

83

Fig. 82
hall on ground floor
study model, scale 1:25

Fig. 83
entrance from Sphinxpark
study model, scale 1:50

Fig. 84
hall on first floor
study model, scale 1:25

Fig. 85
hall on ground floor
study model, scale 1:25

Fig. 86
spatial view on second floor
study model, scale 1:25

7. building design: inner experience

The double-high exhibition space on the 4th and 5th floor can be seen as the most intens experience in this building when referring to the way in which cladding tectonic is related to one's body or *Leib* in a phenomenological way. The theories on *leibliches Spüren* and the way synaesthetical characters present themselves to the *Leib* are used as a guidance in trying to achieve an intense experience of this exhibition space and the way in which the cladding tectonic expresses itself. In part III, synaesthetical characters were stated to be those experiences through which the cladding tectonic can be related to one's own *Leib*, and therefore, according to Schmitz, can be seen as powerful experiences. The meaning which was transcended through the palimpsest during an initial visit of the Sphinx site, and was made intersubjectively discussable in part III through the use of Herman Schmitz' theories on the *Leib*, will form the central theme of the way in which the cladded exhibition room wil present or relate itself to the visitor and vice versa.

Four study models (**Fig. 87 - Fig. 90**) were made to design and reflect upon this experience and the way in which the cladded structural element were perceived phenomenologically. When comparing the uncladded column (**Fig. 86** and **Fig. 87**) to the cladded columns, its rational form language is weakend when cladding it with different materials - polyether foam, recycled cotton, felt - which all have their own characteristics and as such influence the experience of the cladded structure. The different materials that were tested share characteristics which bring about comparable synaesthetical characters. In case of the exhibition room in the *Brikkenbouw*, which is meant to be the most inner experience of all rooms, the synaesthetical characters of silence and softness are experienced *leiblich* as soon as one enters the room. The way of cladding the structure with felt, as can be seen in **Fig. 90**, is used for the final design of the exhibition room. The base of the column as it is displayed, is additionally wrapped with insulating foam to be able to condition the room, to physically separate the warm interior from the cold exterior. In addition to this practical aspect, it plays an important role in the expression of the column and relates itself to the human body.

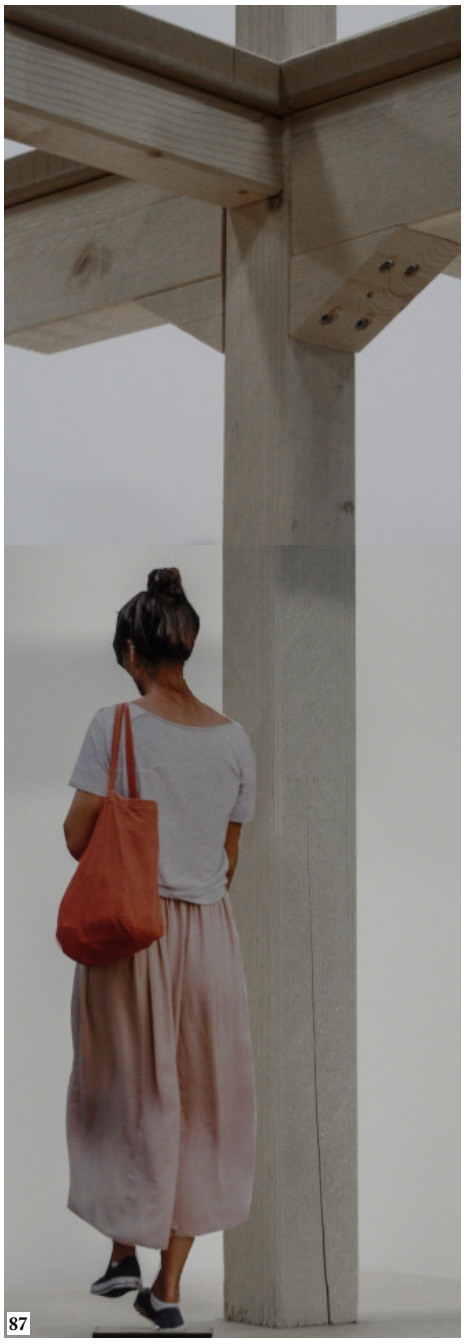


Fig. 87
uncladded structure
study model, scale 1:5

Fig. 88
cladded structure, polyether foam
study model, scale 1:5

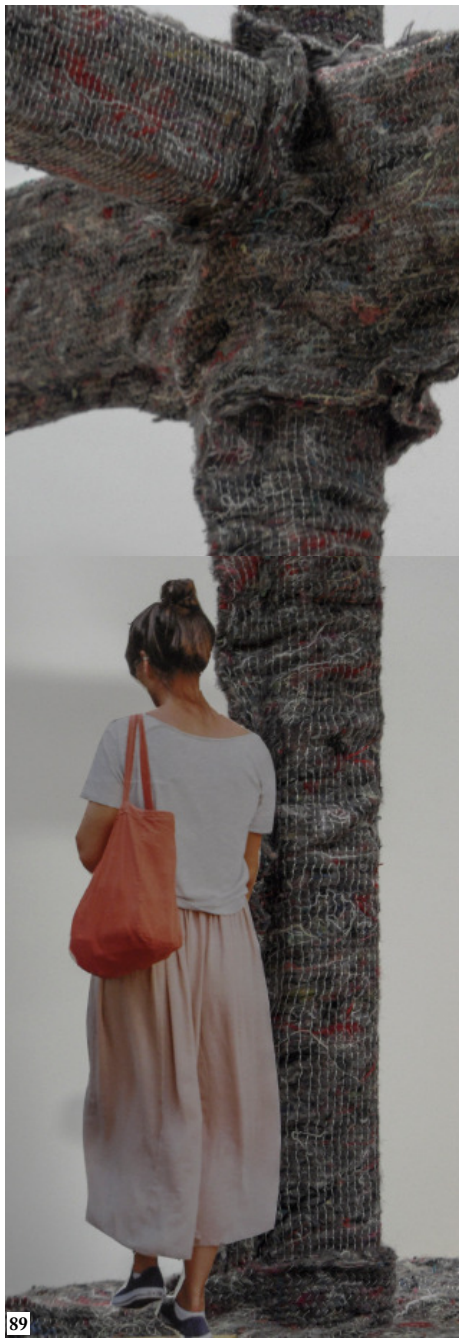


Fig. 89
cladded structure, recycled cotton
study model, scale 1:5

Fig. 90
cladded structure, felt
study model, scale 1:5

Fig. 91
cladded exhibition room, floor 5
study model, scale 1:25

Fig. 92
cladded exhibition room, floor 4
study model, scale 1:25

Fig. 91
cladded exhibition room, floor 5
study model, scale 1:25

Fig. 92
cladded exhibition room, floor 4
study model, scale 1:25

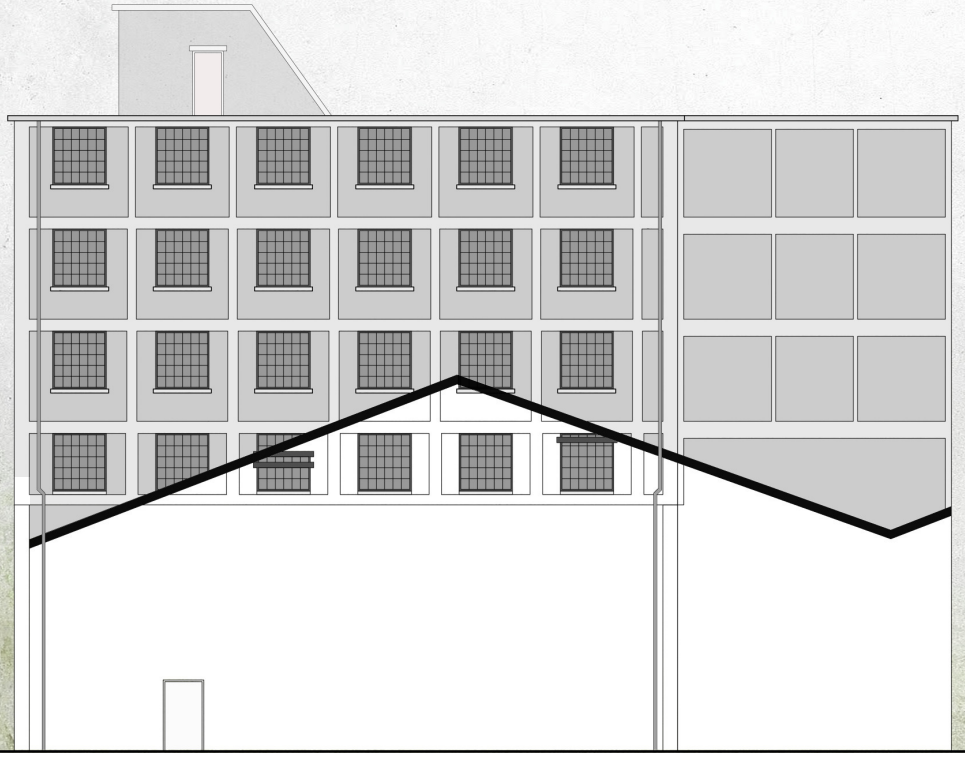
Fig. 95
exhibition room, floor 6
study model, scale 1:25

In addition the the way the cladding is room and cladding are perceived *leiblich*, the mental image which the way of interconnecting the pieces of felt to be able to wrap the structure forms an imporatant aspect in the perception of the way they are perceived. This can be compared to the expression of the way in which the concrete columns are made, as a direct result of theit formal language and wooden texture. The resulting detail creates the mental image of the inside of the cloths one is wearing, were it touches the warm body.

The upper level of the Brikkenbouw, which forms an addition to the original building mass, is meant to be a brighter space, where one can feel the outside again in leaving the building and entering the roof terrace. The staircase and charcteristic corner of the Brikkenbouw are illuminated from above (**Fig. 96**). The wooden beam structure in the ceiling is left visible, in the same way as it was done in the kitchen and meeting room at the ground floor and first floor of the added volume. The fiber cement cladding or infills, used at the exterior of the added volume at the west of the Brikkenbouw, are covering the timber frame structure at the interior, and in that way strenghten the ambiguity of the inner and outer which forms an inherent part of the original Brikkenbouw, of the way it was found, experienced and interpreted.

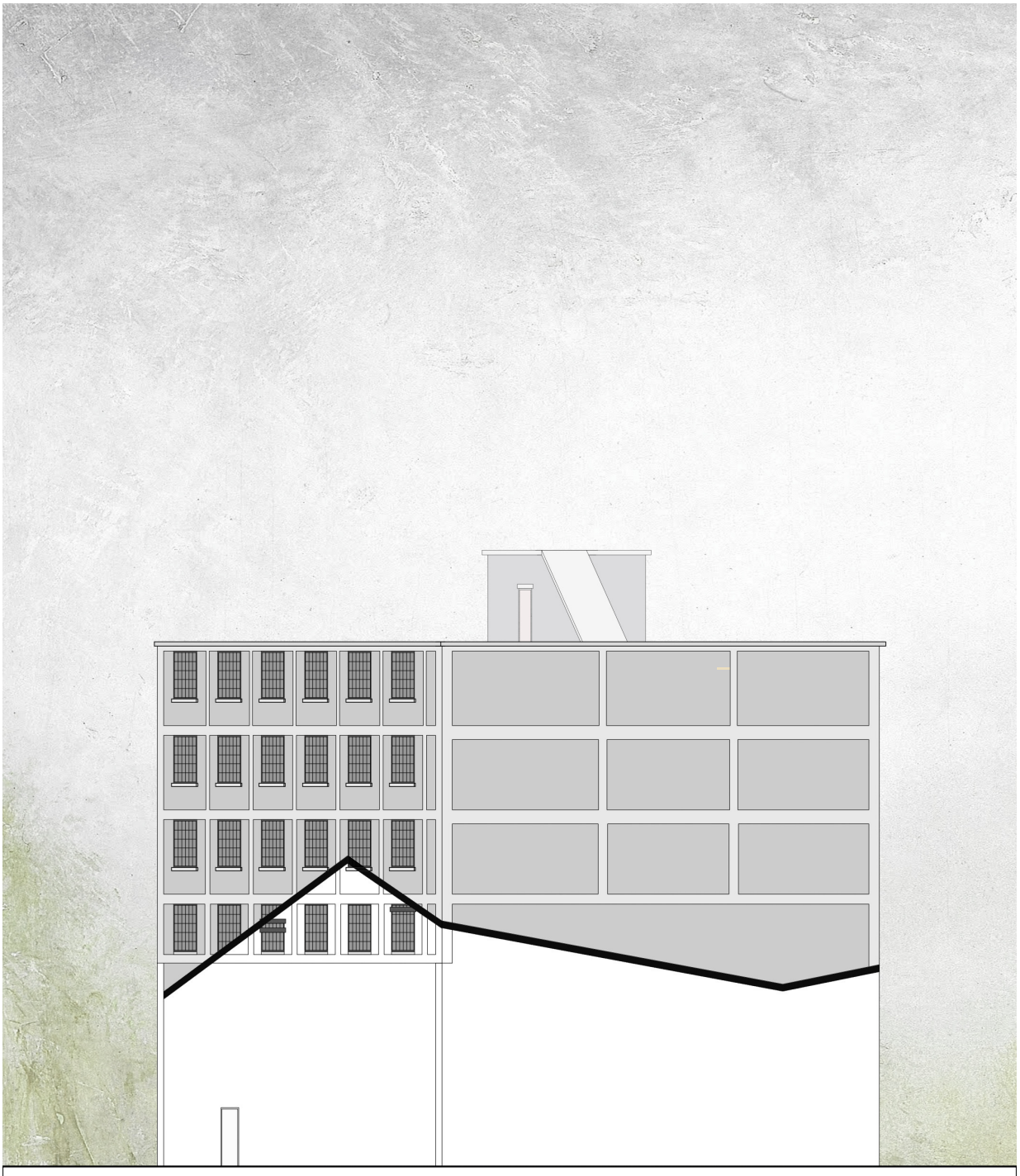
Fig. 96
exhibition room, floor 6
study model, scale 1:25

7. drawings

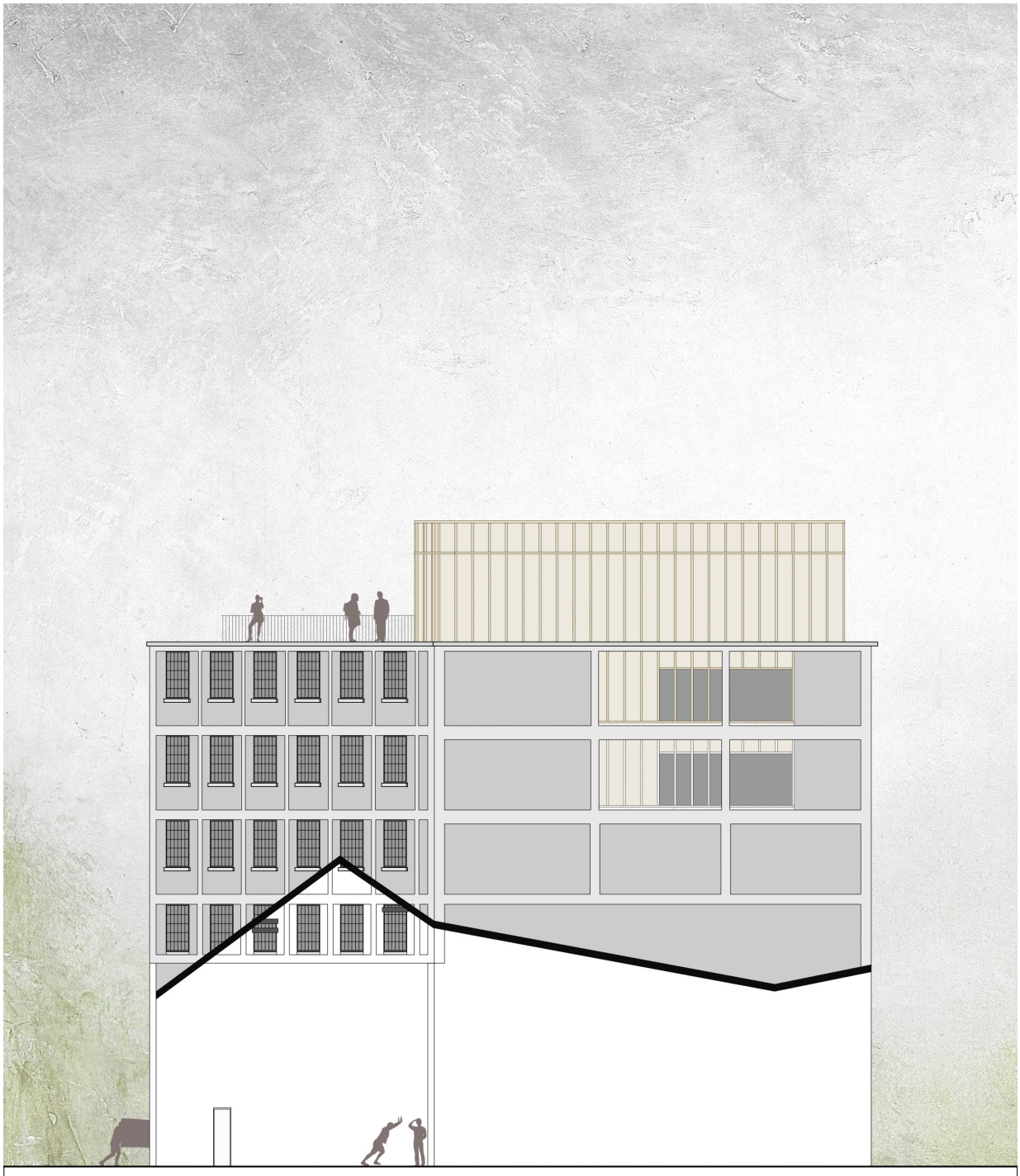


existing elevation east
scale 1:200

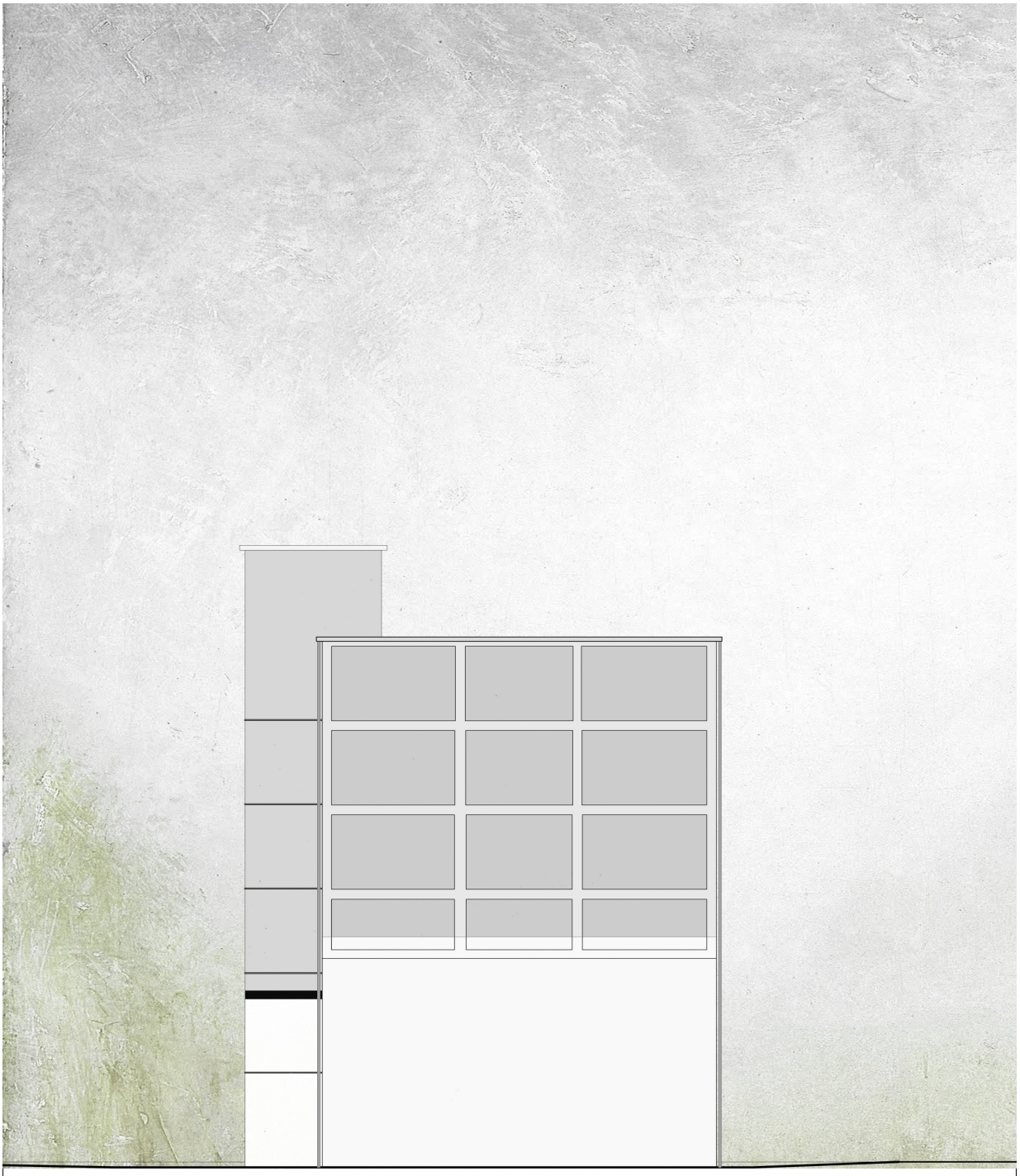
new elevation east
scale 1:200



existing elevation northeast
scale 1:200



new elevation northeast
scale 1:200

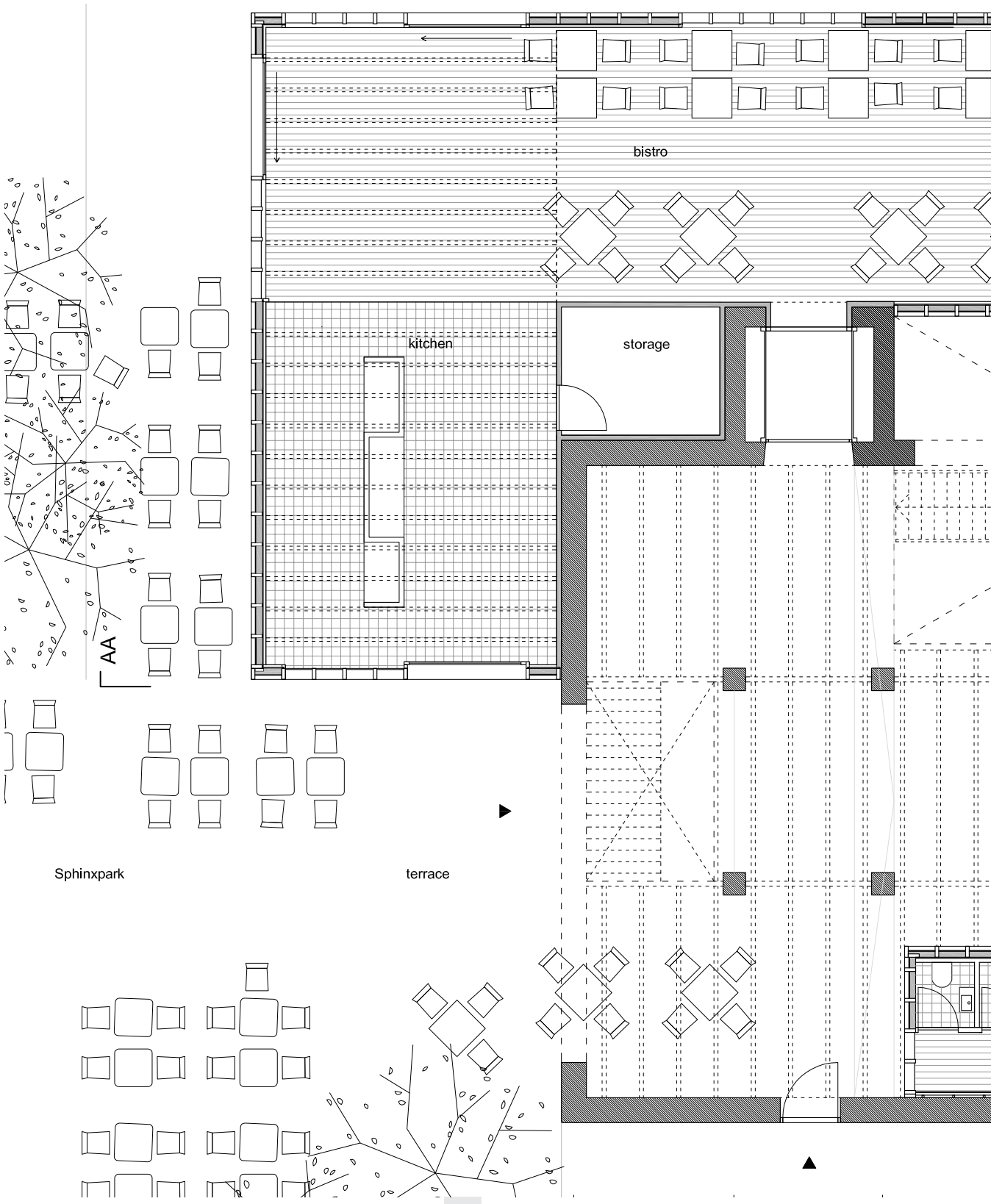


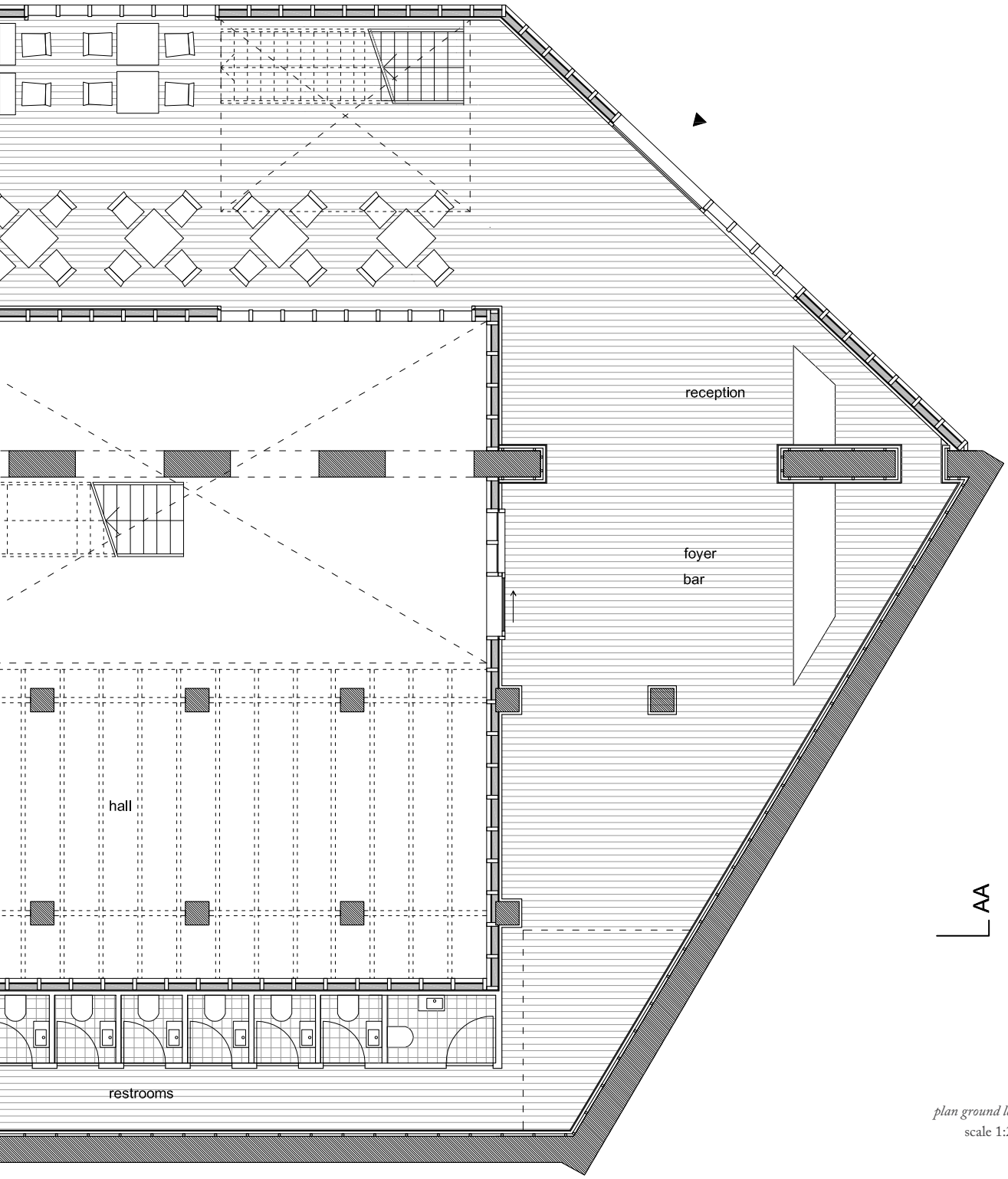
existing elevation south
scale 1:200

new elevation south
scale 1:200

existing elevation west
scale 1:200

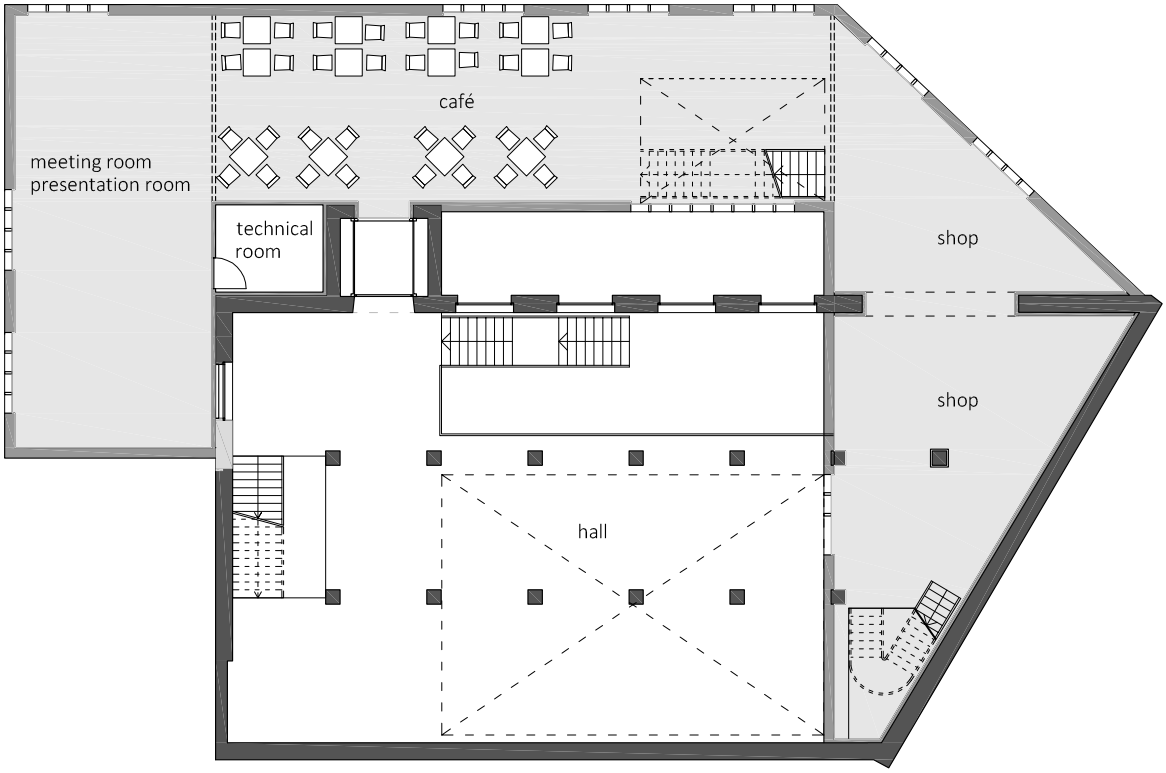
new elevation west
scale 1:200


bistro
kitchen
storage
AA
Sphinxpark
terrace

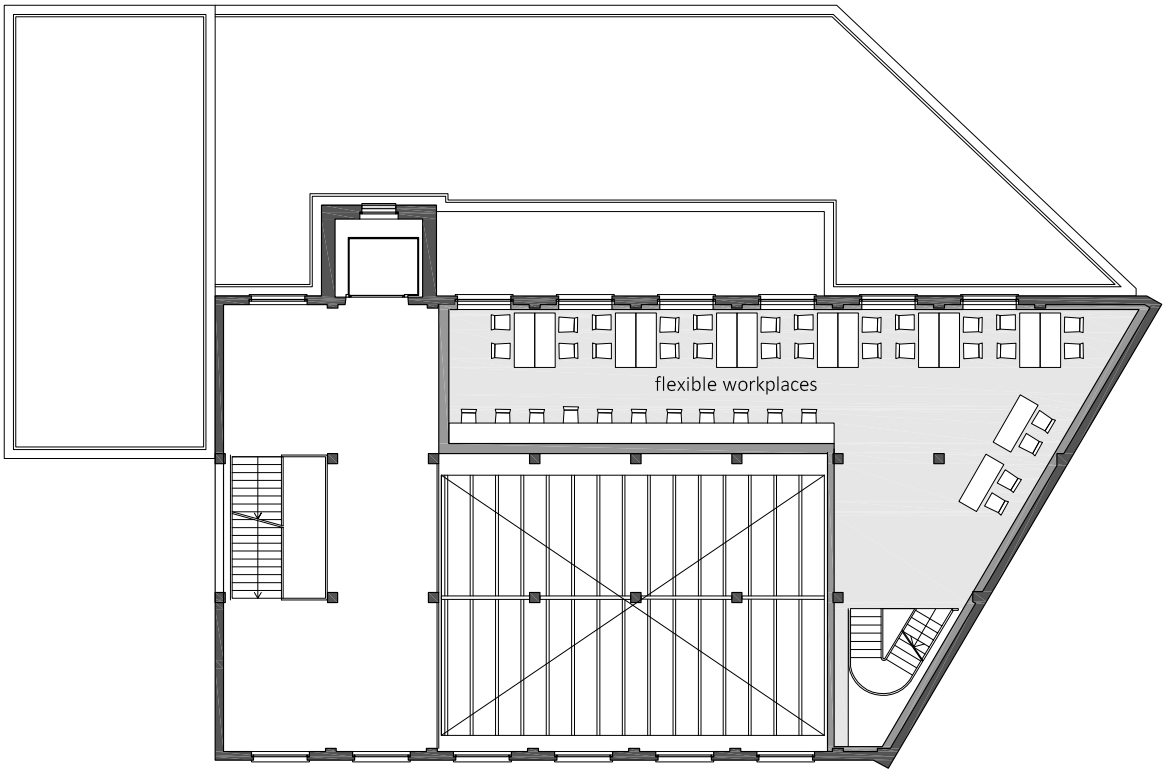


plan ground level
scale 1:200

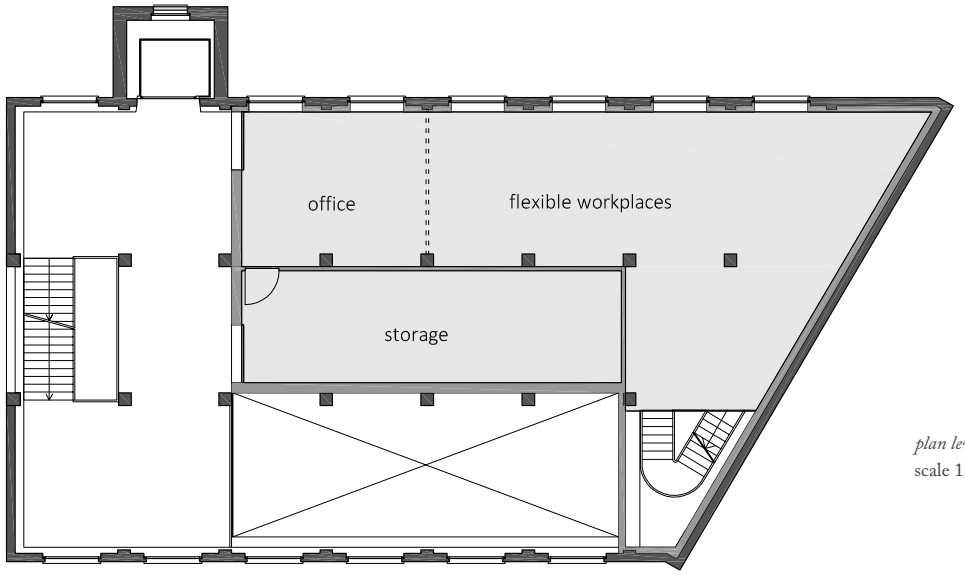
longitudinal section
scale 1:200



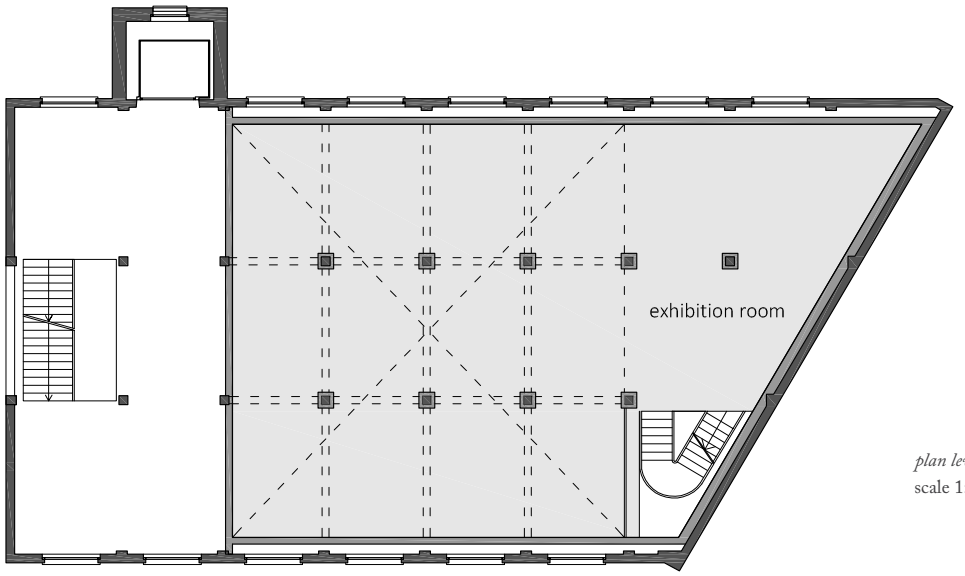
plan level 1
scale 1:200



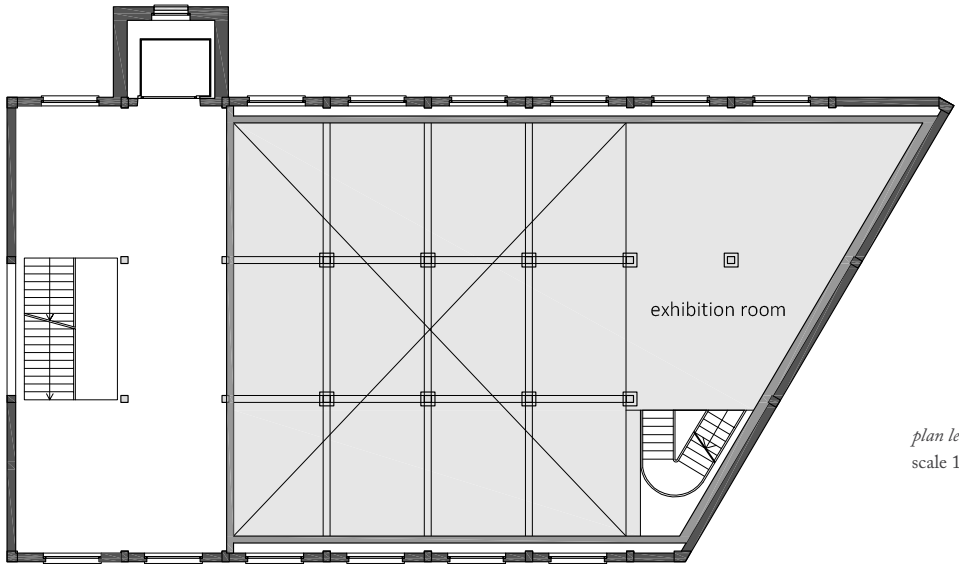
plan level 2
scale 1:200



plan level 3
scale 1:200



plan level 4
scale 1:200



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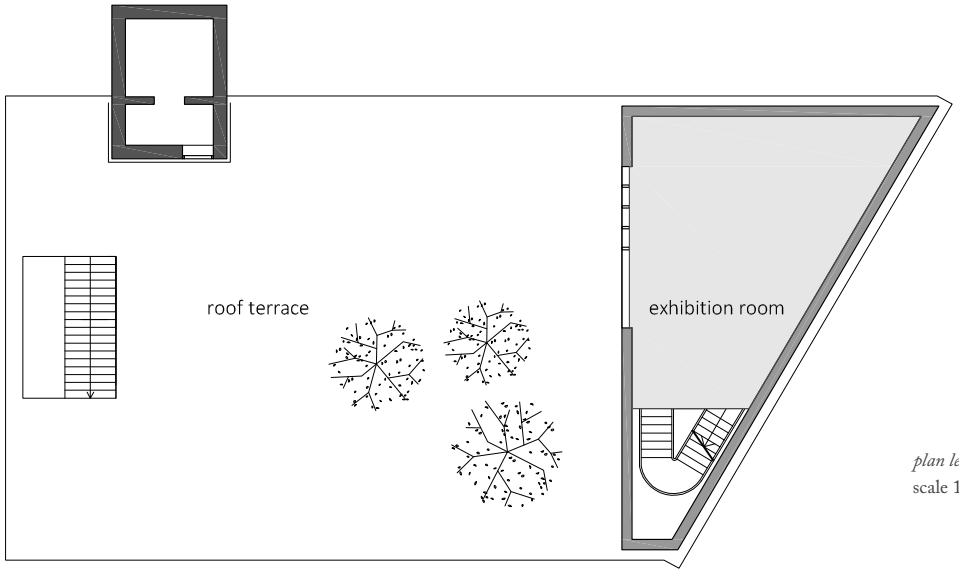
scale 1:200



plan level 6
scale 1:200

97

8. details

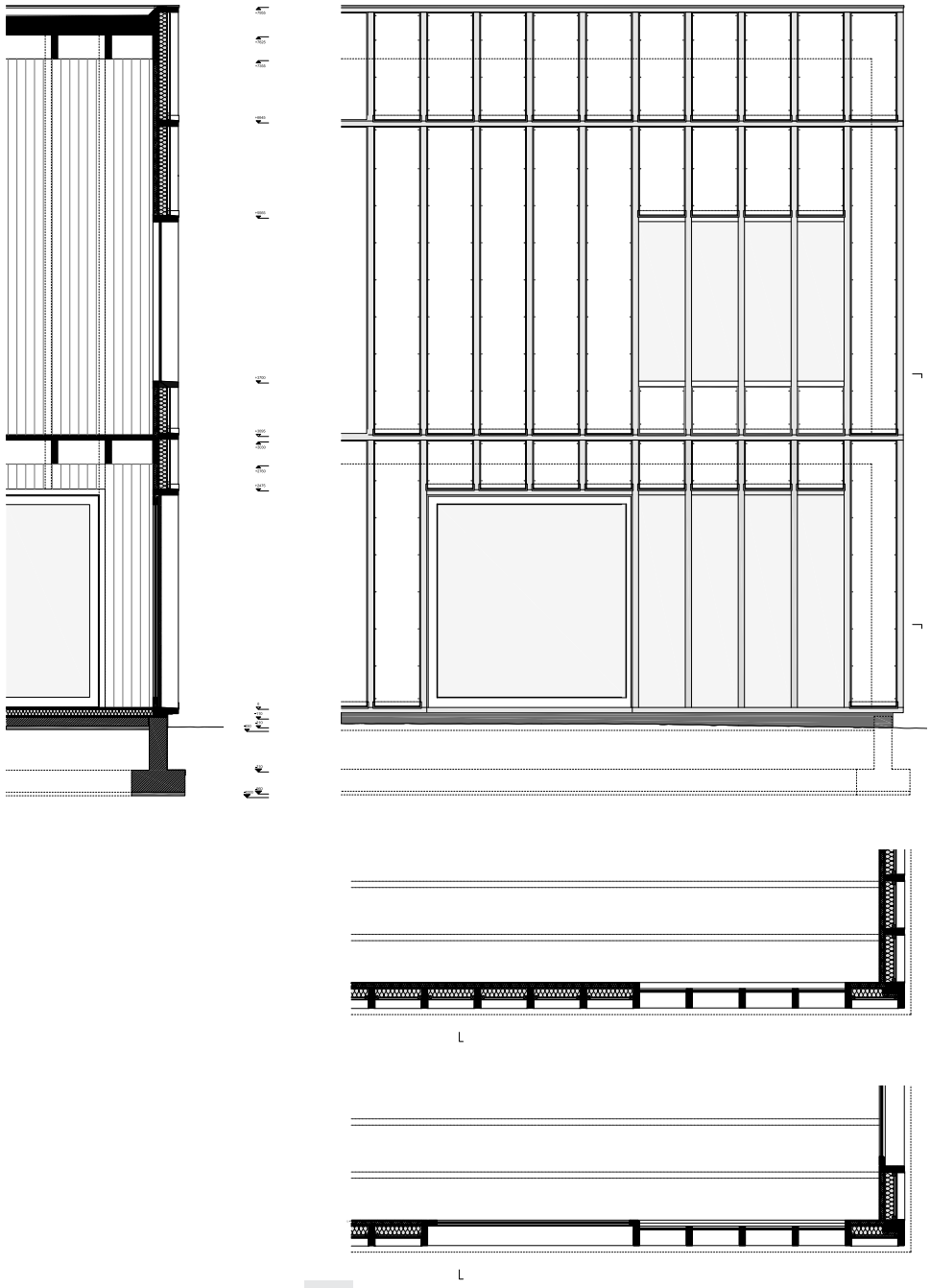
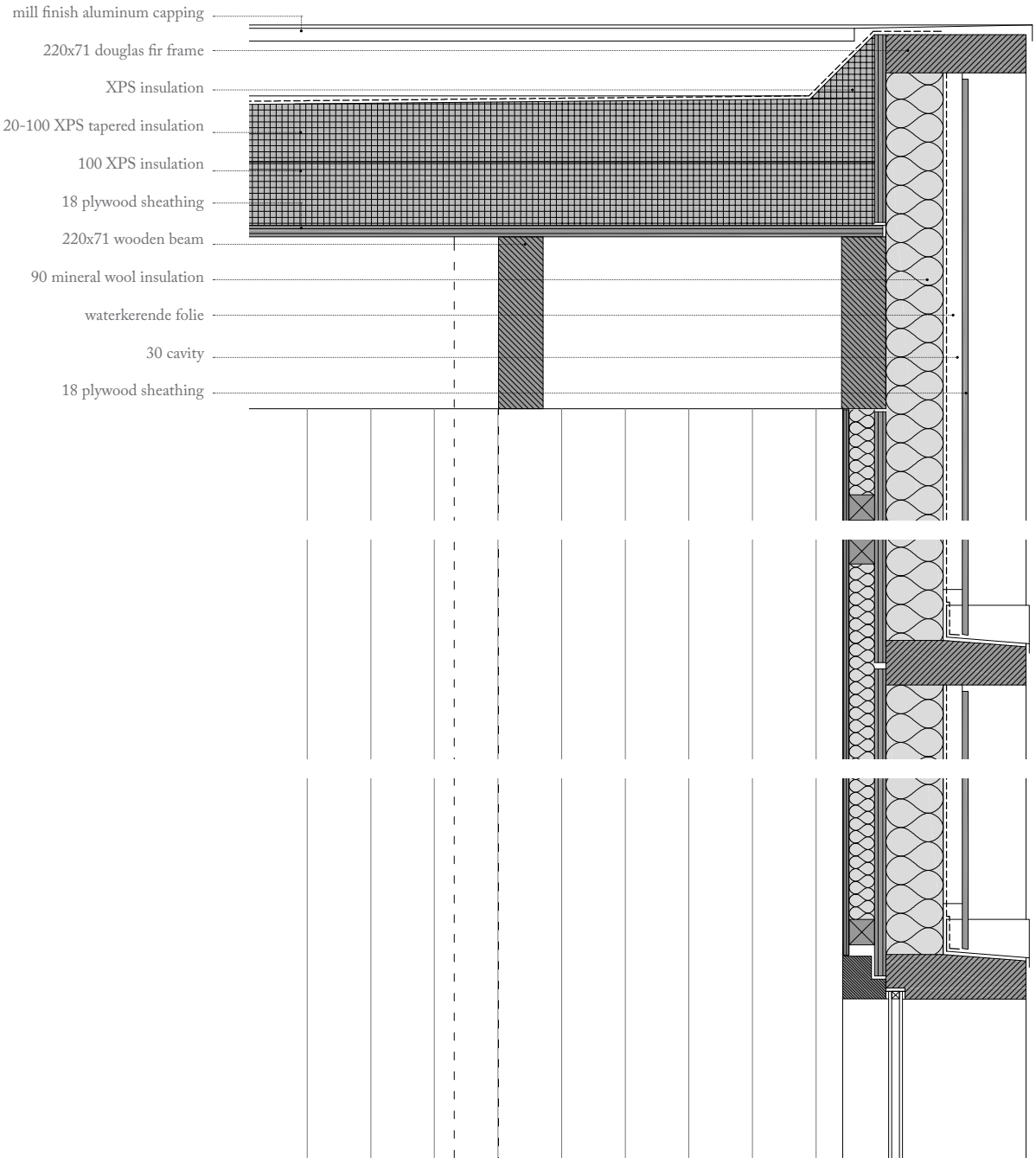
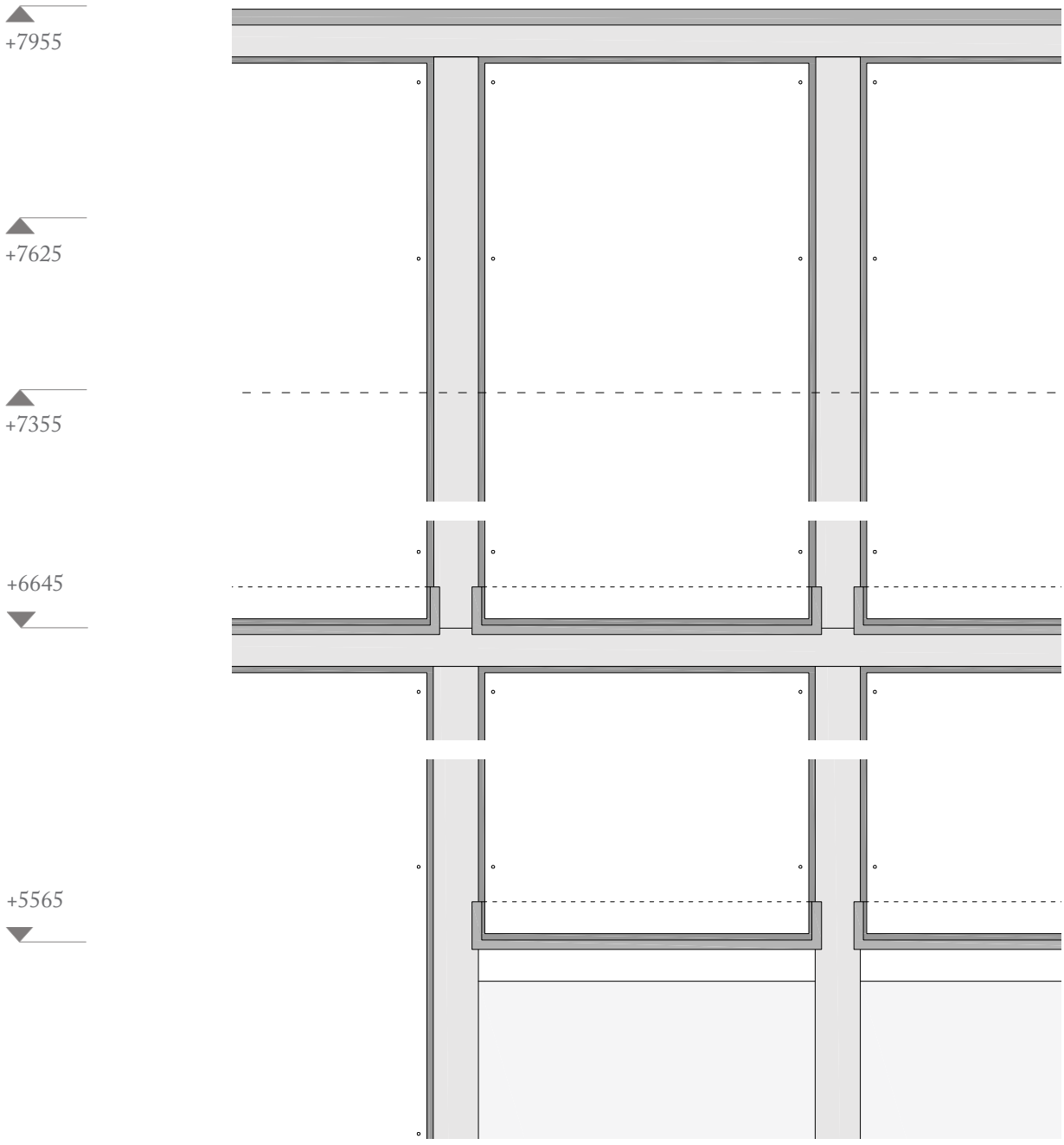


Fig. 97
Brikkenbouw extension
study model, scale 1:50


mill finish aluminum capping
220x71 douglas fir frame
XPS insulation
20-100 XPS tapered insulation
100 XPS insulation
18 plywood sheathing
220x71 wooden beam
90 mineral wool insulation
waterkerende folie
30 cavity
18 plywood sheathing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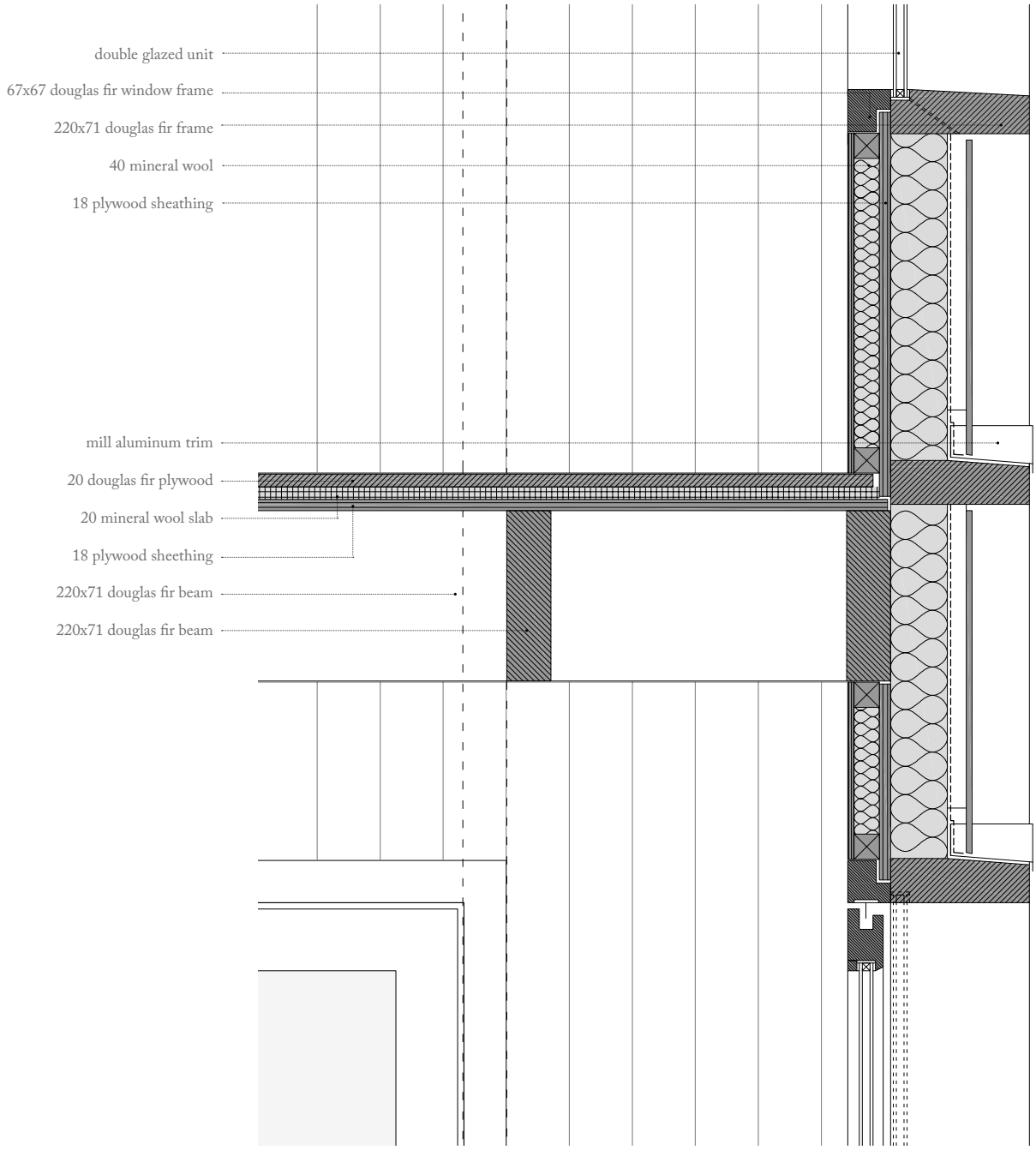
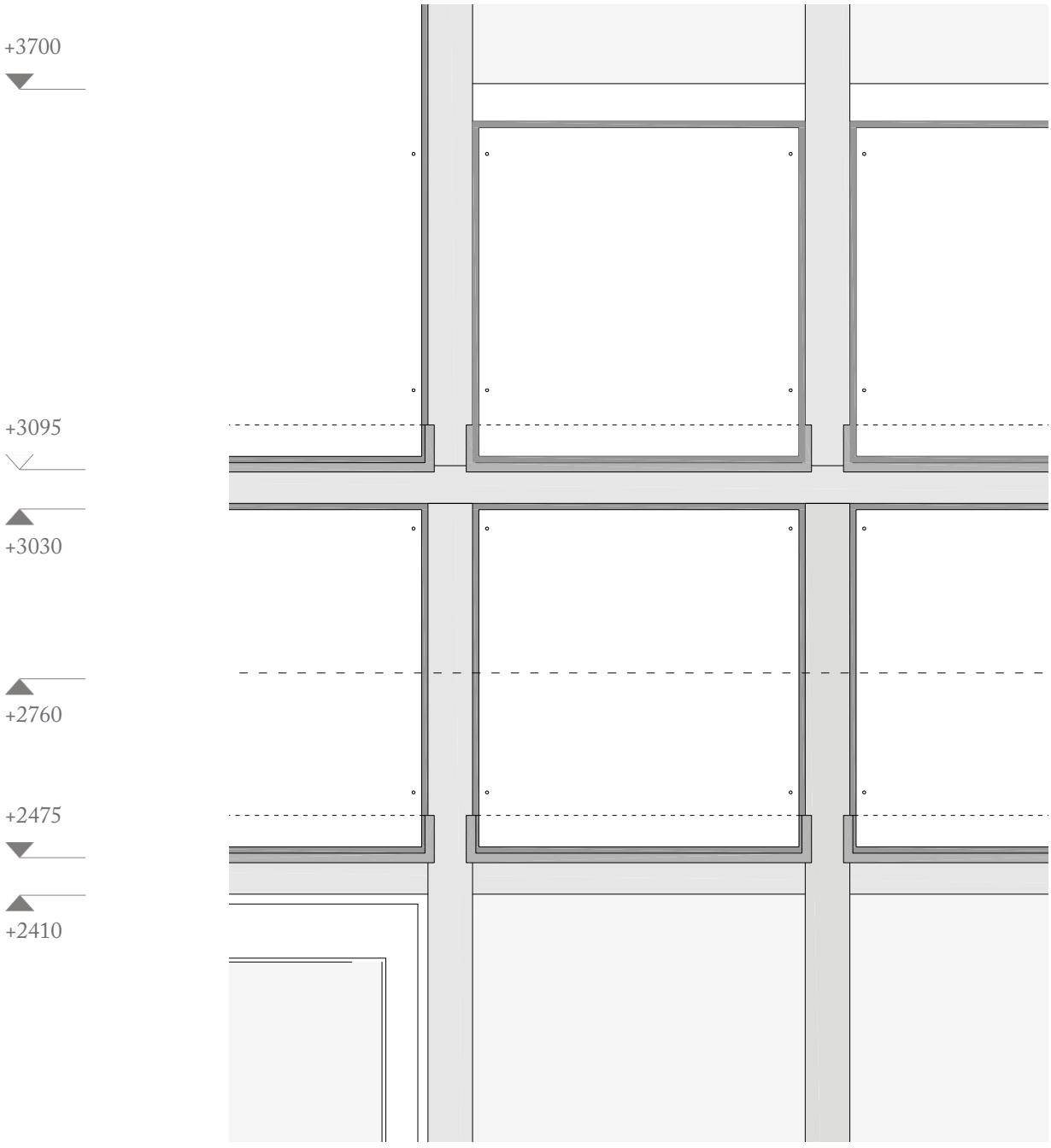
+7625
+7355
+6645
+5565


double glazed unit
67x67 douglas fir window frame
220x71 douglas fir frame
40 mineral wool
18 plywood sheathing
mill aluminum trim
20 douglas fir plywood
20 mineral wool slab
18 plywood sheething
220x71 douglas fir beam
220x71 douglas fir beam


+3700
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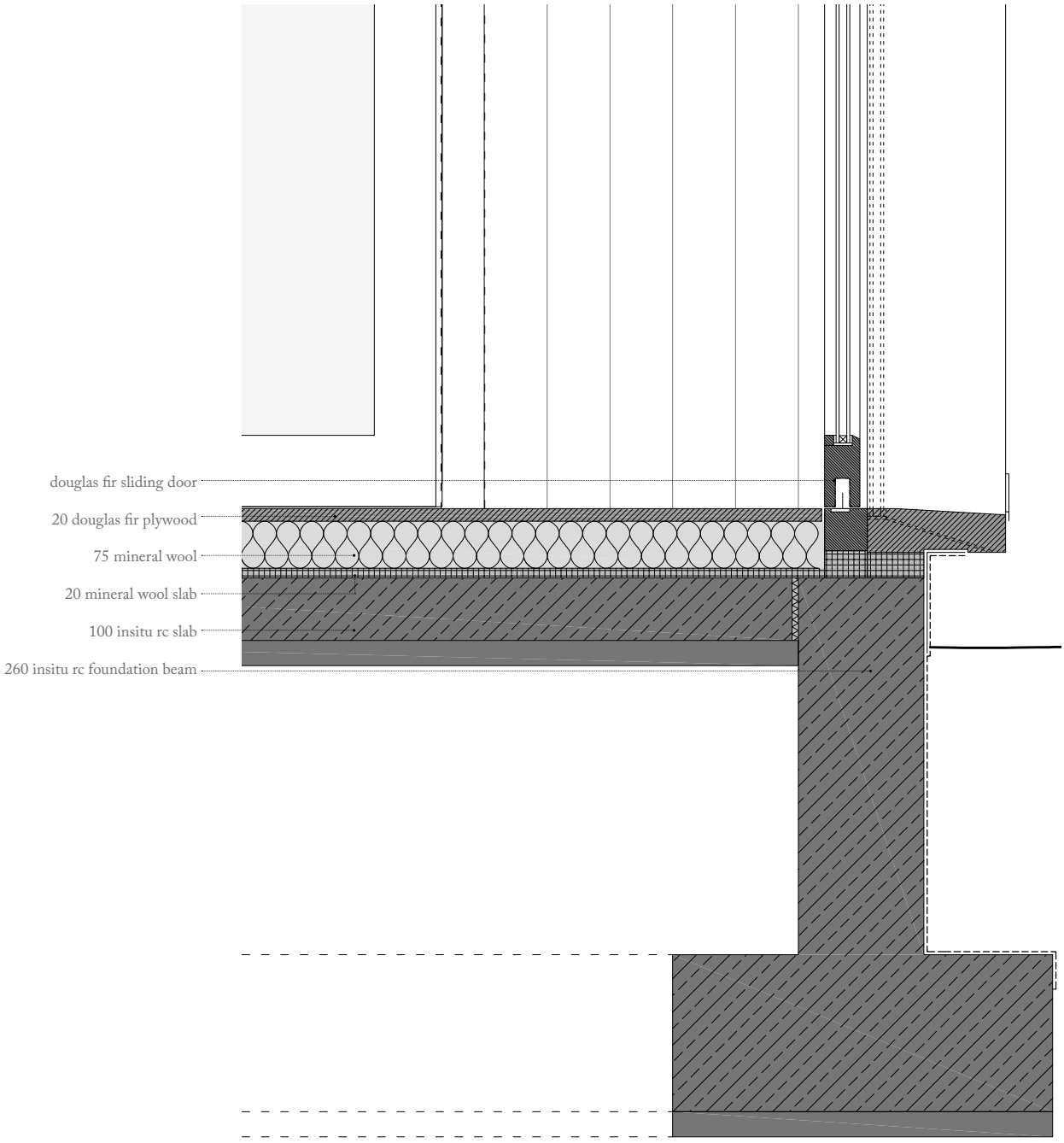
+3030
+2760
+2475
+2410


douglas fir sliding door
20 douglas fir plywood
75 mineral wool
20 mineral wool slab
100 insitu rc slab
260 insitu rc foundation beam


0
-110
-250
-250
-710
-960
-1000

98

6. detail

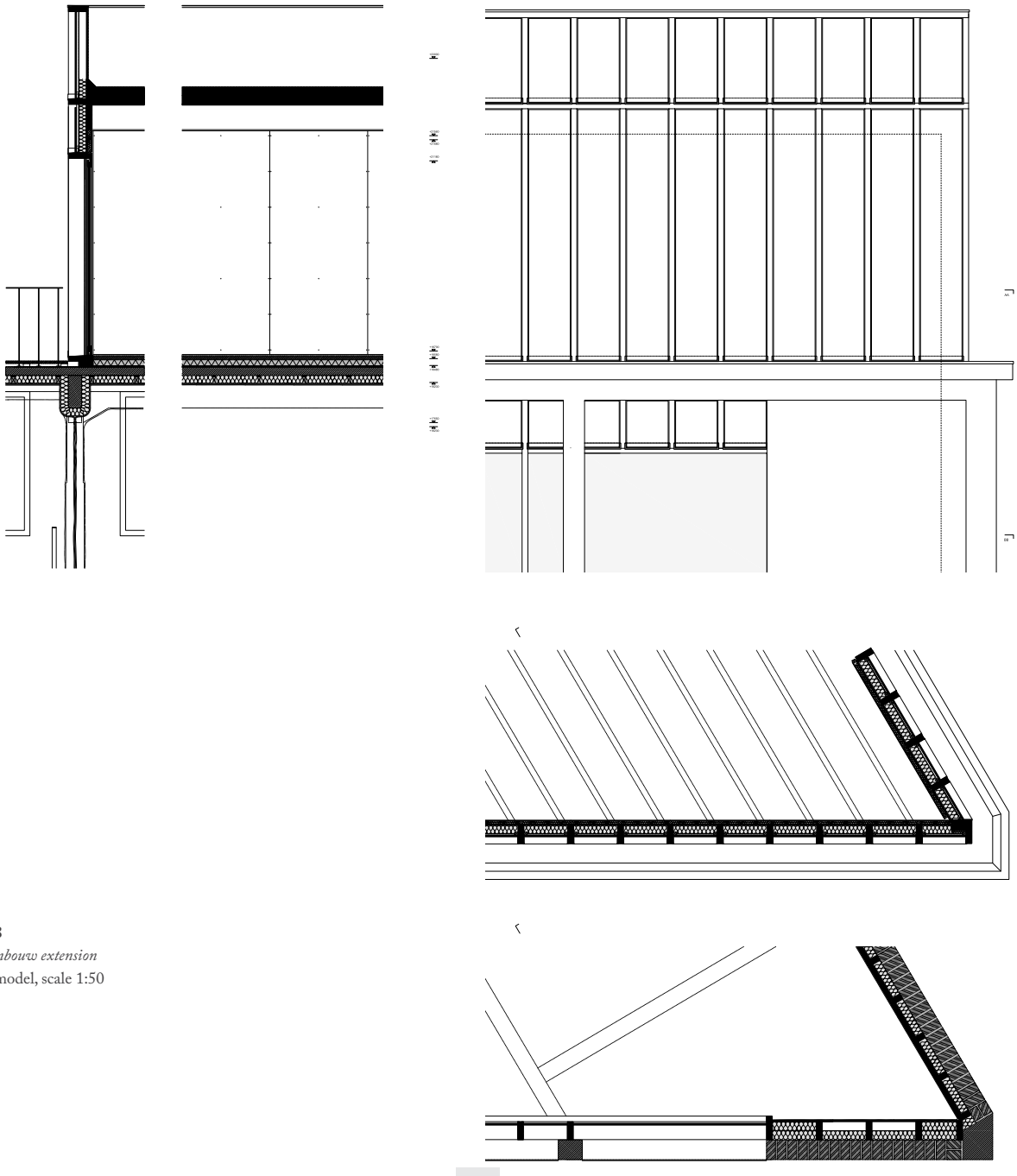
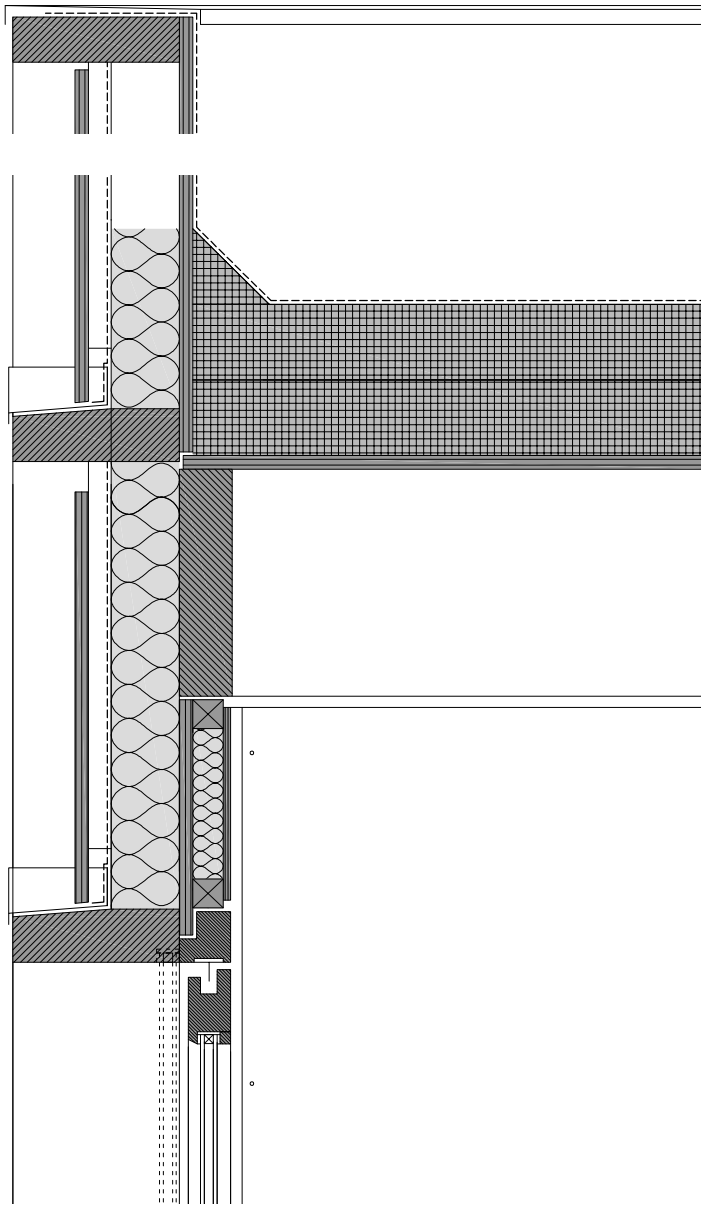
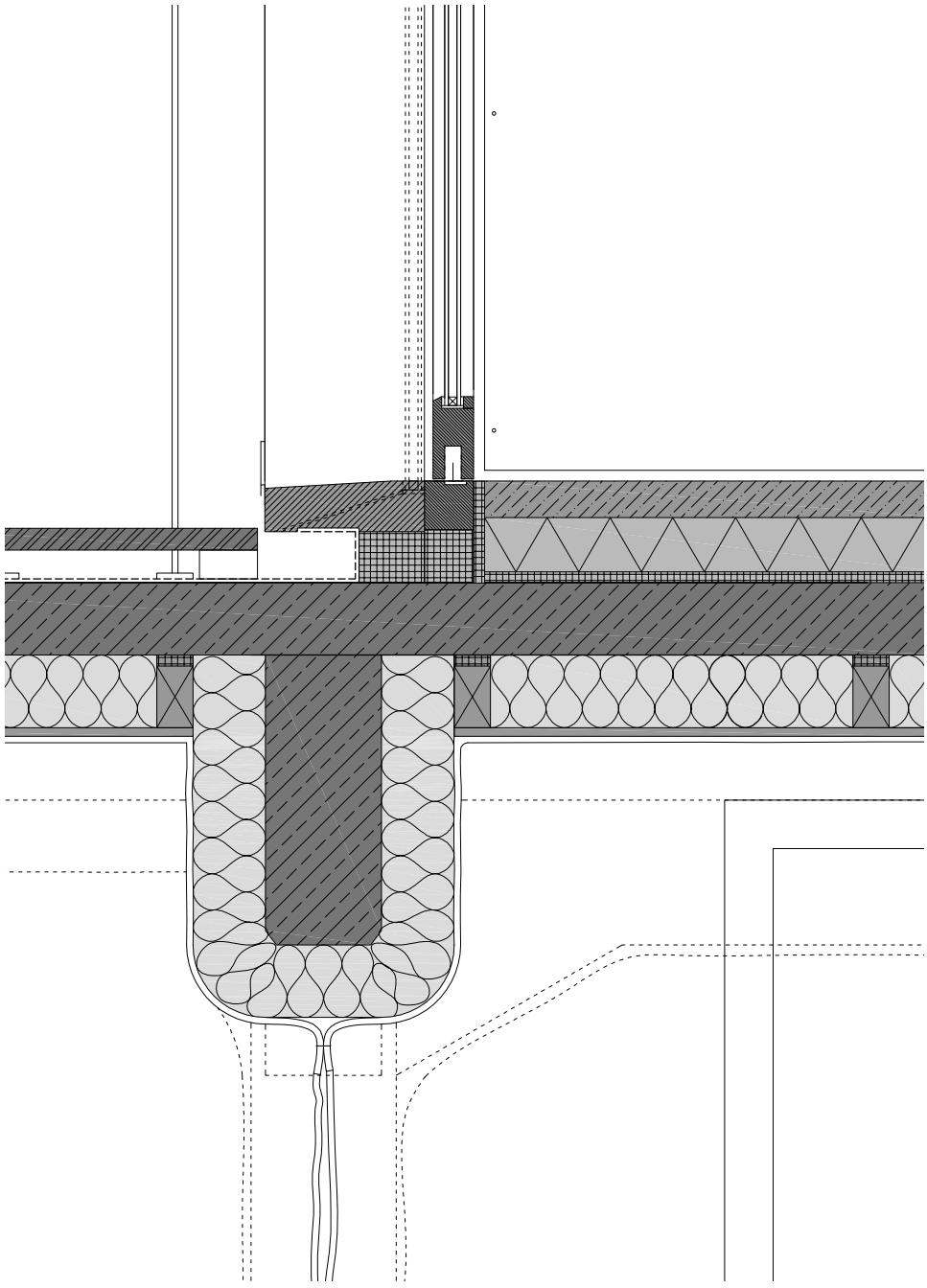
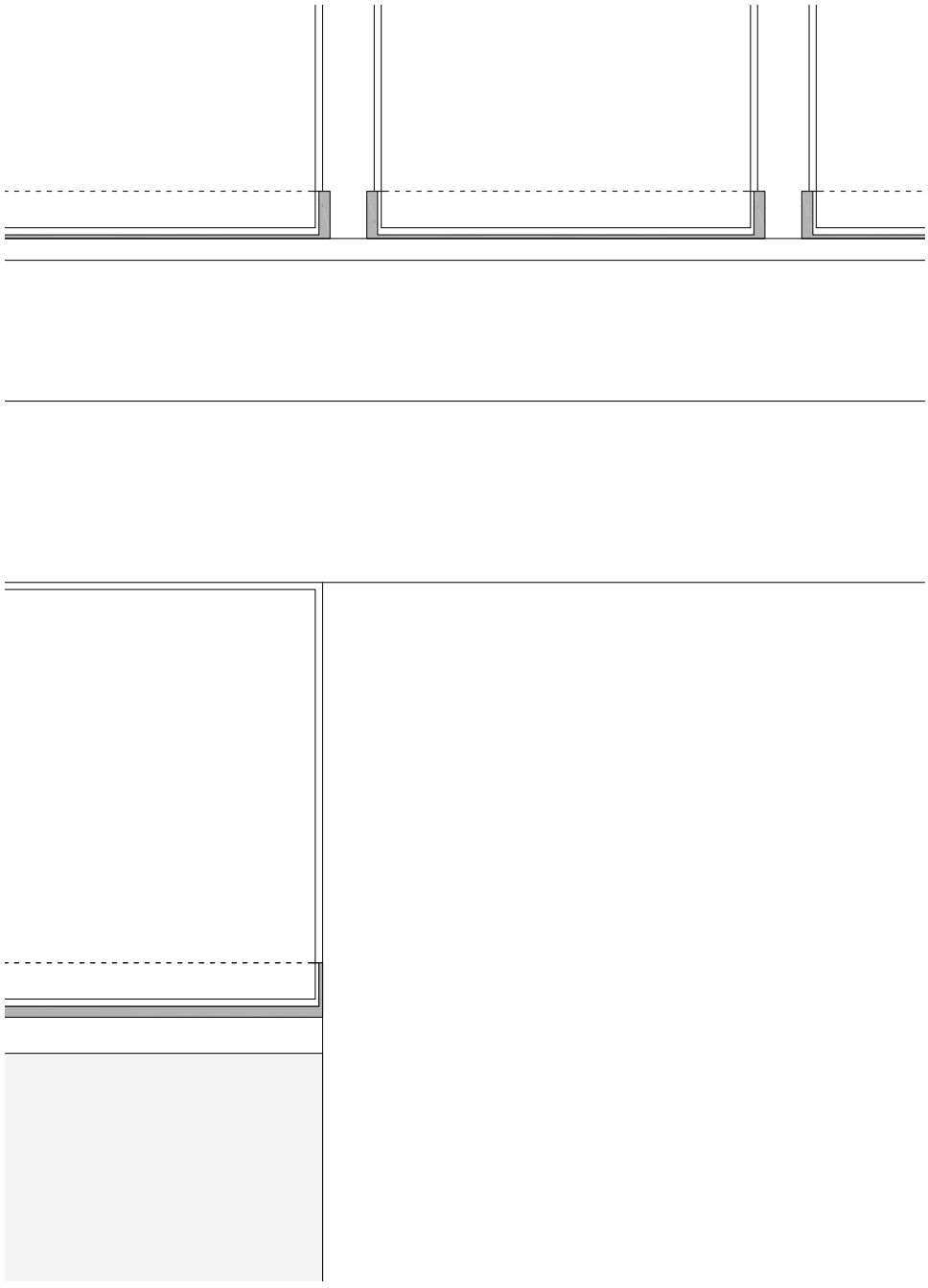
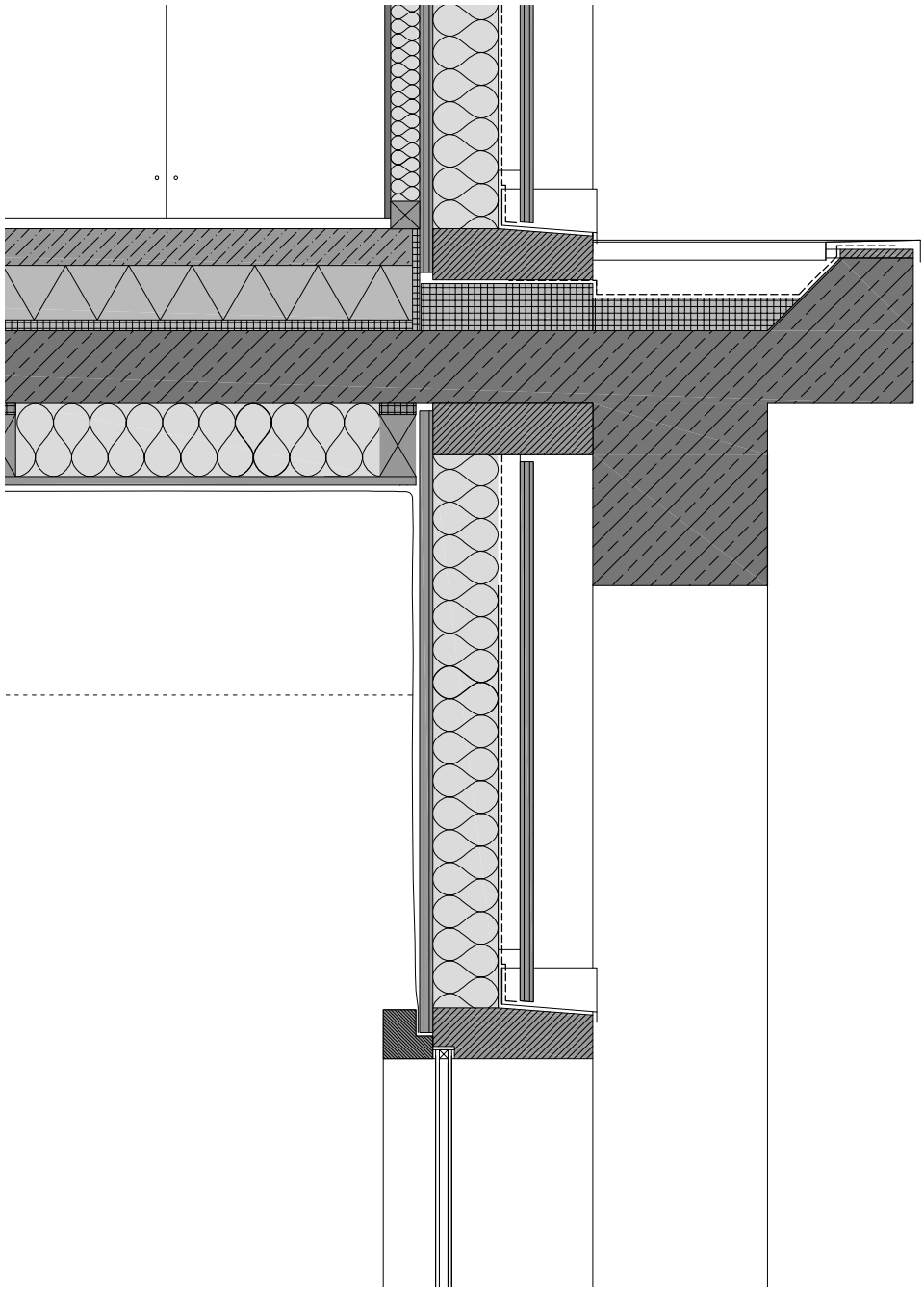


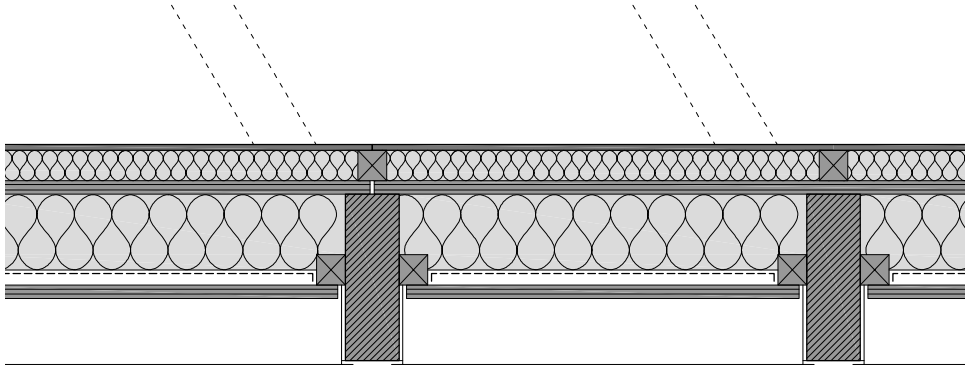
Fig. 98
Brikkenbouw extension
study model, scale 1:50

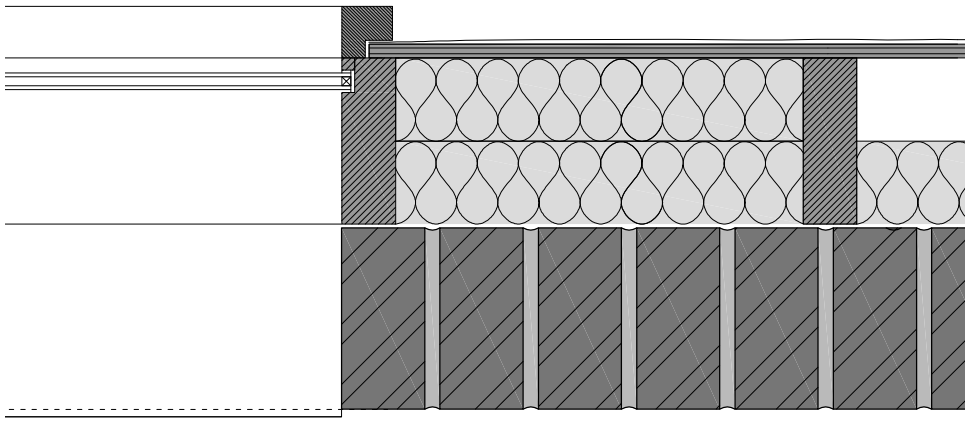


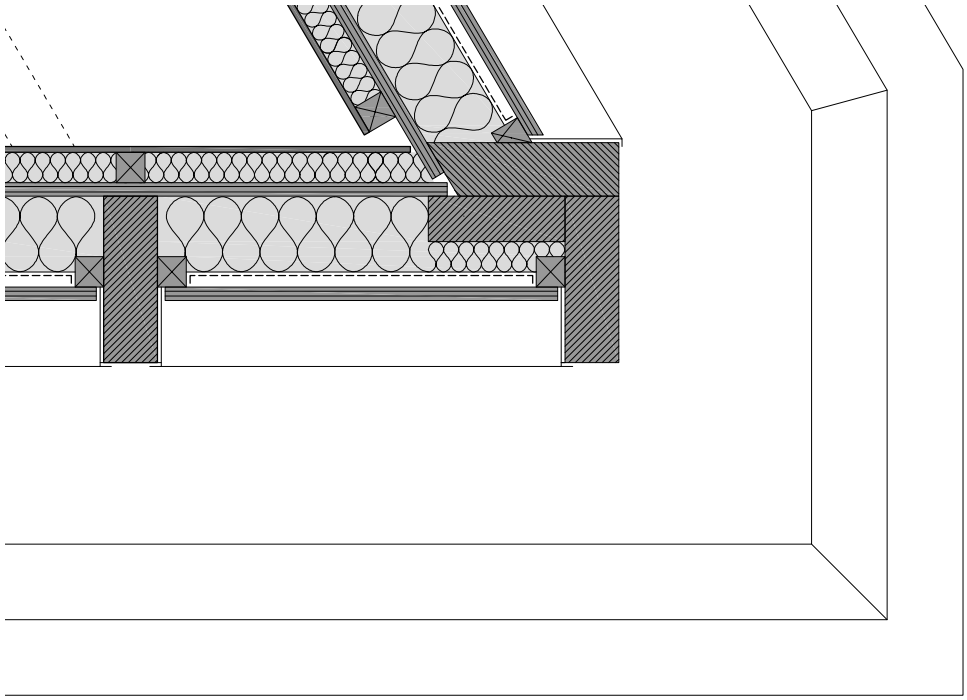


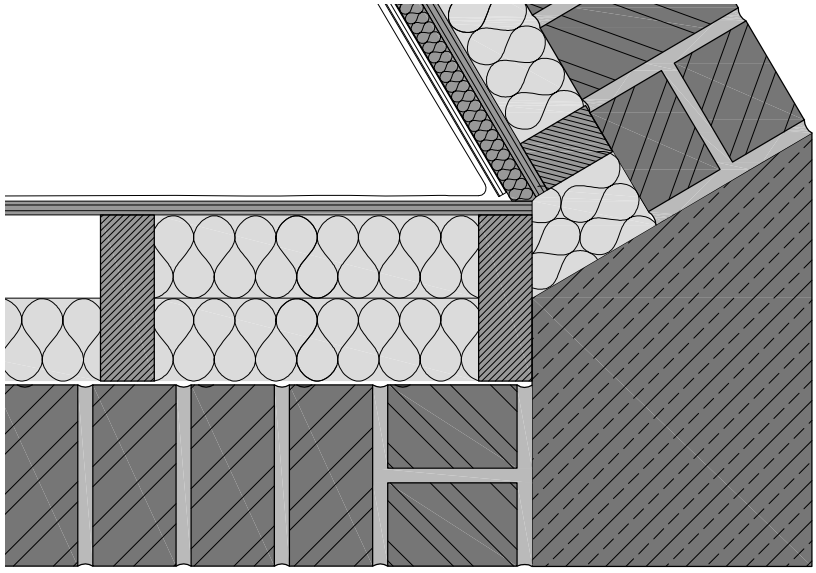












VI. reflection

The reflection on theory and design, on the way these research methods are interrelated, forms the last part of this graduation project. It should be mentioned that both theory and design have played an equally important part in conducting research. Parallel to the thorough research into the theme of tectonic, the redesign that was provided for the Brikkenbouw - in addition to the usual application of theory to provide a basis on which design decision can be based - was used as a case study and consequently as a means to reflect upon the research.

In principle, the redesign of the case study shows the importance of the phenomenological aspect of the cladding tectonic, which distances itself from the more rational approach as it was displayed in the discussion of the theories of Karl Bötticher, Gottfried Semper, and Kenneth Frampton. Especially the phenomenology of Hermann Schmitz touches an area of the way in which we experience architecture that distances itself from sensory perception and as such is able to take into account the rather unprocurable aspects of the architectural profession. In addition to a mere application of the theories that were studied, the design additionally forms a reciprocity in the way it discusses the theories that were and consequently reflects upon those theories.

The case study questioned the importance of the way in which architecture is perceived, by physically discussing the theories of Remy Zaugg, Gernot Böhme, and Hermann Schmitz. In the end it provided the conclusion that considering our perception of architecture, the *leibliches Spüren* should be seen as the most fundamental and powerful aspects. Especially the way in which the design of the exhibition space was conducted, questioned the interrelation of experience through the senses and experience through the *Leib*. Whereas the latter is to the utmost extent left unconsidered in architecture, this cladding exercise made aware the powerful potentials that are neglected incessantly.

The conclusions that were drawn from the phenomenological approach would not

correspond to those of theory, and therefore the extension of this research on cladding tectonic showed the importance of the way architecture is actually perceived though the human body, instead of merely theorizing on, in case of this research, the problematic reciprocity between core-form and art-form. The design even strengthened the awareness that it is not the theoretical code language, as core-form and art-form were called in the introductory chapter of part II, which should be considered when pursuing meaningful buildings that are able to transfer their essential being to its users.

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