INVENTING DRAWINGS

Investigating architectural representation through artworks, theory and drawing experiments

STUDENT BACKGROUND

Education

Master in Architecture and Urban Design, 2019 - 2020
Chalmers University of Technology

Courses:
- *AFT107 From idea to finished building*
- *ARK338 Material and detail*
- *ARK650 Sustainable development and the design profession*
- *ARK641 Masters Thesis preparation Course II*
- *ARK132 Matter Space Structure II*
- *ARK442 Design and communication tools*
- *ARK600 History, Theory and method 3*

Bachelor in Architecture, 2014-2017
Chalmers University of Technology

Other education

University of Gothenburg:
- IL1108 History of Aesthetics
(15,0 credits), 2013
- IL2108 History of Ideas and Science:
Contemporary Keywords: Concepts and
Power
(7,5 credits), 2018
- Academy of Music and Drama:
Direction: Musician, Improvisation,
Saxophone
(150 credits), 2011-2014

Practice

Krook & Tjäder Arkitekter
Gothenburg, Sweden
2017-2018
Architectural intern

Freelancing architect
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ABSTRACT

This thesis is an exploration of the role of drawings in the design and representation processes of architectural practice.

For architects, the drawing is often both the design tool and the product of his/her labour. Although they have different levels of detailing and finish, the sketch, the presentation drawing and the working drawing share many characteristics. The word design is both a noun and a verb. The same is valid for the word drawing. There is an inherent ambiguity in both of these notions. This double-edgedness is probed further in the work that follows.

The drawing is a mediating artefact. It is a materialisation of the ideas of the architect in the sketching process, and it instructs the builder or craftsperson on how to translate these ideas into matter. But it also instructs the designer – the person who draws. Drawings inform thoughts, which lead to more drawings, which lead to more thoughts, and so the wheel spins. That is the process of design.

Since architects tend to draw what they can build, and build what they can draw, as stated by architect and author William Mitchell, the limitations of the drawing will always affect the architecture and vice versa. I strongly believe that the limitations in this case are not to be seen as something negative per se, rather, they act as a necessary framework that lets us handle a complex reality.

Considering that there can be certain gains inherent in the reduction of reality into a drawing, I have tried to create alternative drawing techniques and representational methods to use as both a design method and as presentation material for the outlines of a design project.

Inventing drawings have been the main theme and the guiding words in the making of this thesis.

Keywords : Representation, Drawings, Design methodology, Sketches

CONTENTS

SUBJECT

"A dialogue can exist between what is designed and how it is designed, between design intention and working medium. The selected 'drawing' medium is not just a means to represent, but a means to design, informing what is designed, and vice versa."
(Jonathan Hill, 2002, p. 18)

The discourse of architectural representation has seen extensive writing. It is a theme that have occupied the minds of many architects and theorists since the renaissance, and even earlier.

What is valid for most ways of communication is also valid for architectural drawings, namely:
how something is being said is just as important as what is being said. And that is what makes the discussion on architectural representation ever relevant.

This thesis undertakes this theme in the form of two parallel tracks:

- *"Understanding representations"*:
A theoretical study of drawings and pictures, and a philosophical inquiry into what is the essence of representations.

and

- *"Making drawing inventions"*:
Drawing experiments in which theoretical concepts are transformed into sets of representational techniques.

The theoretical study is composed of analysis and discussion on a collection of representations. The selection of works is taken from a very broad spectrum—spanning from video games to architectural plan drawings to medieval iconographies— but they all have characteristics that are valuable in an architectural or design context. To be able to discuss the variety of reference images in a coherent way, the aim have been to work out a general theory and a terminology that is applicable on all these types of representations (see *Method - Understanding representations,* page 18)

The drawing experiments were conducted according to the an iterative method (see *Procedure - Inventing drawings*, page 29). They were then employed and synthesized to design and present outlines for a public building project on a chosen site (see *Outcome: design proposal,* page 33).

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THESIS QUESTIONS

- What is a drawing, and what does it do?

- What is drawing in relation to design?

- What is there to gain from integrating elements from other aesthetic fields into the representational processes of architecture? Are there certain qualities that one find in e.g. fine arts, that we can embrace, not only to make good looking presentation drawings, but also to enrich our design process and the practice of exploratory sketching?

- If we would dethrone the conventional representational methods of architecture and consider them just as valid as any other method, how would we then design and present our work? What possibilities could be unlocked with such an approach?

Track I :
Understanding representations

I.I. Project positioning

PHILOSOPHICAL STANDPOINTS

The following seven statements make up the conceptual framework of this thesis. Together they form an understanding of the importance of representations and drawings, and of their role in design practice.

1.   Chosen modes of representation conduct our realm of thought.

> *"Architectural drawing affects what might be called the architect´s field of visibility. It makes it possible to see some things more clearly by suppressing other things: Something gained, something lost[...] It never gives, nor can it give, a total picture of a project"*
> (Robin Evans, 1997, p. 199)

The reduction that takes place when converting ideas into representations frames our scope of thinking, in accordance to the representational method in use. The limitations that follow are not to be seen as something negative per se, rather, they act as a necessary framework that lets us handle a complex reality.

The drawing, or representation, is the medium through which an architect can formulate and elaborate intentions and ideas. Hence, the nature of a drawing prescribes what types of intentions that may be presented and elaborated. If e.g. a chosen drawing system has no character or scheme for signifying depth, then consequently it can not be used for elaborations concerning depth. And conversely, if a drawing system facilitates a particular way of using and manipulating certain signs, then the draftsman/designer will be "called for" by the drawing system to work in certain ways. Let us say that the chosen drawing system is *elevation* – a horisontal orthographic projection where the picture plane is most often parallel to a surface – then it leads the user to draw things that are parallel to the drawing plane. The chosen mode of representation is thereby affecting not only *how* something is presented, but also *what* is being (or might be) designed.

When considering the effect that the drawing systems have on our design practice, it becomes important for us to be aware of how they makes us draw, and thus, think.

Or as Robin Evans put it: "We have to understand architectural drawing as something that defines the things it transmits. (...) It does not necessarily dominate but always interacts with what it represents. ". (ibid. p. 199.)

2.   Conventional representational methods ≠ *the* truth.

> *"Realism is relative, determined by the system of rep-resentation standard for a given culture or person at a given time. Newer or older or alien systems are accounted artificial or unskilled."*
> (Nelson Goodman, 1967, p. 37)

Our conventional representational methods should be considered merely as good inventions. Neither of them can claim to be a faithful representation of the real. In the context of this thesis it may mainly concern the common types of architectural drawings such as plan, section, elevation, axonometry and linear perspective drawings, but in a broader sense it regards all representations, including photography and video. Realism in representation is relative, it is a matter of convention, habit and culture, rather than actual compliance (Goodman, pp. 34-39).

3.   The act of making a representation is most often an act of creation.

> *"In sum, effective representation and description require invention. They are creative. They inform each other; and they form, relate and distinguish objects. That nature imitates art is too timid a dictum. Nature is a product of art and discourse."*
> (Ibid. s. 33)

When a conception is manifested through representation, it starts to exist in the physical world. As stated above, the making of a representation can never be fully neutral. By extension, that means that every representation is a token of subjective understanding of what is represented. The impossibility of actual compliance between the representation and the represented would then mean that representations are creations, in the sense

that they did not exist before they were made.

The creative potential of representations lies also in its power to distinguish, point out, and present new perspectives. They are in a sense narrations, that can make us aware of things and notions that were invisible to us before represented. This "enlightening" capacity often characterises what we call good works of art.

4. For architects, the sketch and the final presentation drawing are basically different versions of the same thing.

> *"One of the big difficulties in architectural drawing is the vast distance between the clarity and specificity of technical language and the ambiguity and instability of poetic language"*
> (Susan C. Piedmont-Palladino, 2019, p.120)

The drawing is both the tool and the product of the architectural work. And the sketch and presentation drawings are very much alike, they are just positioned on different ends on a couple of scales*. These scales have a lot to do with each other, and sometimes they are intertwined. The aim of the scales presented below is to provide a vocabulary for discussing and comparing representations of different types – architectural, as well as others, such as artworks or maps. The scales are of:

- *mode of reference:* denotational vs imaginative (Bafna, 2008), (Goodman, 1967)
- *ambiguity vs clarity*
- *specificity vs generality*
- *scale and detailing*
- *concept vs percept* (Piedmont Paladino, 2019)
- *tentativity vs certainty* (Piedmont Paladino, 2019)
(See scale matrix diagram p. 27)

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* The presented list of scales is an open-ended construction that should allow for subjective interpretation. Scales are not fixed, and other scales may be added or combined. The lack of rigidity seemed necessary due to the generally complex nature of representations.

Notational vs Imaginative

Many writers have touched upon the difference that exists between a strict drawing and a loose sketch. Among them are Nelson Goodman, Richard Wollheim and Kendall Walton. Another scholar, Sonit Bafna, builds upon the systems of these writers in his text *How architectural drawings work – and what that implies for the role of representation in architecture*. Mainly grounded on Goodman´s concept of *modes of reference*, he asserts that strict architectural drawings work in the *notational mode*, while sketches and pictures that have more typically visual qualities, work in the *imaginative mode*. The former type of representation is read (and drawn) in an almost mechanical sense, matching pre-specified characters to referents, while the latter type relies on a form of perceptual capacity in the viewer (and draftsman).

In many architectural representations the lines between these modes of representations are blurred. Our representations often work in both modes simultaneously, or more specifically, they are made up of different types of parts: some notational and some imaginative. These different aspects are explored further in the drawing studies and the drawing experiments that make up the subsequent parts of this thesis.

Ambiguity vs Clarity

A general assumption about architectural drawings, is that they create a framework for the viewer to visualise the building or thing. He/she can then make judgement about the qualities of the design, based upon that mental image and not the drawing itself. Following that logic, it would be reasonable to assume that the more unambiguous, clear and detailed the drawing would be –the better the viewers internal vision would be for making well informed judgement about the building. But this is not the case in practice (well, it could be the case if a represented building was to be assessed by computational or other non-human interpretive tools. But as long as it is read by a person, it is not.) Drawings often need a level of ambiguity to be expressive. And it is also a question of a necessary reduction. The selection and curation of what to present, and with which level of clarity, is a crucial part of the architect's work.

In many cases denotational drawing schemes are more clear while imaginative ones are more ambiguous and tentative. Sometimes though, architects need to use notational tools to represent something that is not yet decided, and that thus needs some level of tentativity to be understood right. And respectively, there are situations where we need to use typically imaginative representational methods to show something that is actually not discussable.

This is one of the big challenges of architectural representation. The use of CAD and BIM-modelling highlights these issues even more, partly because a 3d-model of a building is scale-less. Its non-hierarchical, uninformed way of dealing with detailing has a potential of confusing what is certain or relevant design components, with what is not. The different stages

of design needs different levels of certainty. And in every stage, some parts need to be represented with more certainty than others.

Concept vs Percept

Concepts are idea based while percepts are based on forms of sensory experience. As an example, one can compare the general conception of a what a column is with the picture one gets inside one's head when imagining one. Everyone has their own different picture of a percept-column inside

their head. (Piedmont-Palladino, p. 19) Drawings use abstracted symbols that signify things. These abstractions often aim to signify concepts, but they always bear traces of percepts, partly because the signs have appearances and shapes that somehow corresponds with specific actual objects. Some argue that one simply can not draw a concept (ibid.). But actually one might do so, given that it is a case of total denotation so that the sign and what is signified has no perceptual likeness of any kind.

5. Design drawings work in the domain of "what if".

> *"Designers' drawings have different ends than the ones of artists, even if the means are the same. But they establish different relationships to the world. Designers match the world with their drawings, but the ultimate goal is to make the world match their drawings–to change the world"* (Piedmont-Palladino, 2019 p. 158)

The difference between descriptive drawings and design drawings – i.e. representations of things that exist versus representations of things that will (or may) come into existence – lies not in the appearance. It is rather a question of difference in intention. Design drawings are propositional in nature, whereas e.g. artworks often tend to be interpretive or mimetic. Professor and writer Susan Piedmont Palladino suggests that while descriptive drawings draw *from* the

world, design drawings draw *towards* the world. Nevertheless all design drawings must make use of descriptive or interpretive elements and parts, since existing conditions or building parts are seldomly designed. Hence, the design draftsperson needs to oscillate lissomely between the worlds of description, interpretation and proposition.

The difference between artworks and design drawings is also a question of

instrumentality. Is the work meant to serve as an instrument for something to be done, or is it a work in its own right? Instrumentality is an earmark of the architectural drawing, although it is not valid for all cases.

6. Drawings are mediating artefacts that allow for architects to process matter on a distance, with the hands of others.

The drawings is perhaps the main medium through which architects communicate. The instrumentality of drawings makes them stand out from the works of artists. Instead of working directly on the physical end product, as a sculptor, carpenter or painter would do, architects spend their time elaborating what will be an instruction for others to produce a building. Architects share this sort of distancing between practitioner and end product with composers of music. Their scores are instructions for musicians who in their turn perform and manifest the musical oeuvre. Goodman calls these types of indirect practices *Allographic* arts, whereas the direct practices of painters, sculptors and carpenters are called *Autographic* (Goodman, p. 120)

7. Reading a drawing means getting involved (consciously or not) in the representational procedure of that drawing.

When making a representation we construct, or make use of, a referential system. When someone reads a representation, he/she automatically gets involved with it trying to figure out how it was constructed, to be able to make sense out of it. We seek the inner logic of the representation, by mentally imitating the drawing procedure (Podro, 1987, referenced by Bafna, 2008, s. 548). Drawings therefore need to be internally consistent, i. e. they need to follow their own sets of rules to be able to be interpreted in the way that is intended. We often assume that the architectural drawing schemes are rigid and absolute and that their rules are fixed. But mostly, they are more flexible than we think. One example of that is Mies' plan drawing for his *Brick Country House* (see ref. drawing #21 below). By exploiting that said flexibility, still being consistent and clear, architects can make highly expressive and inventive drawings.

I.II. Key words and notions

Distinguishing

Analogy

Sample

Metaphor

Exemplification

Classification

Resemblance

Label

Depiction

Reference
Sign-signified
relationship

Picture

Symbol

Image

To picture oneself

Abstraction

Imaginative

Denotation

Imitation

Mimesis

Representation

Descriptive

Drawing (noun)

Aesthetic

Interpretive

Drawing (verb)

Instruction

Disegno

Expression

Suggestive

"The thinking hand"

Explanatory

Hint

Conjuration

Illustration

Projection

Evocation

Conveyance

Intimation

Reduction

Deception

KEY WORDS - INTERPRETED

Design
(Designare/designo, lat.)

Verb: To appoint, to purpose, to designate and thus to intend.

Noun: Ideas and intentions that manifest – and can be elaborated – through drawings.

Drawing (verb)
(own interpretation)

To draw forth:
from the physical world (i.e. descriptive drawing)

or

from the mind towards the physical world (i.e. design)

Representation
(according to Goodman)

"[I]nstantiations of particular systems of mapping between two domains, such that individual characters that constitute the domain of the work or artefact are associated with specific aspects of the represented world" (Bafna, 2011)

"The thinking hand"

Proverb that posits drawing as a way of thinking. When we draw we use a form of embodied knowledge. The act of representing is crucial for creativity. (The thinking hand is also the title of a book on this theme by J. Pallasmaa)

Mode of reference

Representations make use of symbolic systems. These systems work in a variety of ways and employ various sorts of interpretation in the viewer. E.g. cognitive, perceptual or maybe even synaesthetic ditto. Denotation is one form of reference, exemplification another. The mode of reference is linked to the level of abstraction.

Projection

"[M]appings of 2- or 3-dimensional figures onto planes or 3-dimensional surfaces."(Krishnamurti, 2011)
  Projection is the practice of representing or transferring objects onto a medium, following varied certain logics of optical or mathematical conventions.
Different projections have different uses, characteristics, aims and connotations.

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E.g. the Albertian linear perspective aims to depict how objects appears to the eyes of the body, while parallel projections refer to how objects are seen by "the inner eye" - i.e. how it is perceived in a conceptual, non-bodily sense. [*]

Projective geometry

Branch of mathematical study that evolved from the study of perspective. Introduced by french mathematician Gérard Desargues (1591 - 1661). (Biran, 2005)

Descriptive geometry

Branch of mathematics introduced by Beaux Arts-professor and military engineer Gaspard Monge (1746-1818). Descriptive geometry is based on parallel projection. (ibid.)

Non parallell projection:

- Linear perspective

Makes use of one, two or three vanishing points and a fixed viewing position (viewpoint) which is a counterpoint for the vanishing points. A fixed picture plane is used, and the image is a result of the intersection between the picture plane and the trajectories that stretch between the vantage point(s) and the viewpoint. [**]

- Loose perspective
(own term)

By not adhering strictly, but loosely to the principles that parallel lines shall converge towards <u>fixed</u> vanishing points, one can still create pictures that makes sense. In fact, artists have always bent these rules in favour of composition and appearance. Instead of vanishing points and viewpoints, one may use the term "stray centers".

- Almost parallel
(own term)

Almost parallels are "loose perspectives" where the vanishing point(s) are located so that the picture obtains many of the characteristics of an axonometry or oblique pro-

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[*]   This understanding of the attributes of different projections is presented by Massimo Scolari (2012, p. 326)
[**]   See Allen, S. (2000, pp. 1-26) for a discussion of projections and its historical context.

jection. These appear differently from other perspectives. See reference drawing #11 - Piranesi and #15 - Breugel for great examples of this kind of projection.

Stray Centers

The concept of stray centers or stray viewpoints was formulated by Paul Klee in the 1920s. It uses varying viewpoints and vanishing points instead of one. The concept is a form of critique of classic linear perspective. (Scolari, 2012, pp. 25-27)

Parallell projection:

In contrast to perspectives, there is no vanishing point in parallell projections. Or one may say that the vanishing point is located at infinity.

- Multiview
(orthographic)

E.g. plan, elevation, section views.

- Axonometry
(orthographic)

Can be either isometric, dimetric or trimetric. This depends on the relationship of the drawn x, y and z angles. The angles determine the measuring scale of each of the angles. (See diagram)

- Oblique Projection

In oblique projections one of the objects faces is presented orthographically.

E.g. - plan oblique: military perspective and and - elevation oblique: cavalier and cabinet projection.

Topological drawing schemes

A non- metric representational scheme for showing the relationship between nodes or objects. It provides a framework for a more abstract way of perceiving space problems in architecture (Stojakovic & Tepavc̆evic´, 2014). Often used in diagrams and Diagrammatical maps such as subway or bus maps

Trimetric

Dimetric

MX = MZ

Isometric

MX = MY = MZ

Cavalier

MX = MY = MZ

Cabinet

MZ = ½ MX = ½ MY

Elevation Oblique

Worms-eye

Military

"Top-down"

Plan Oblique

Combination
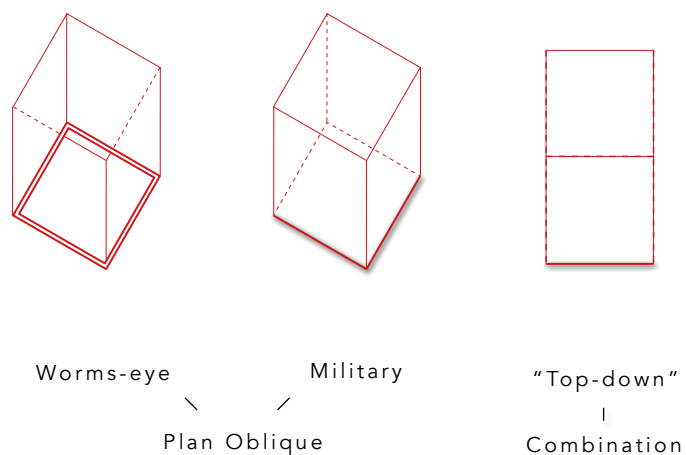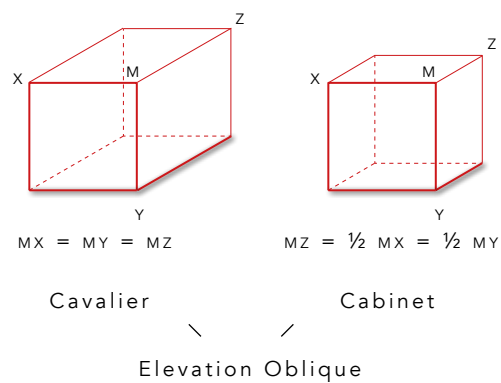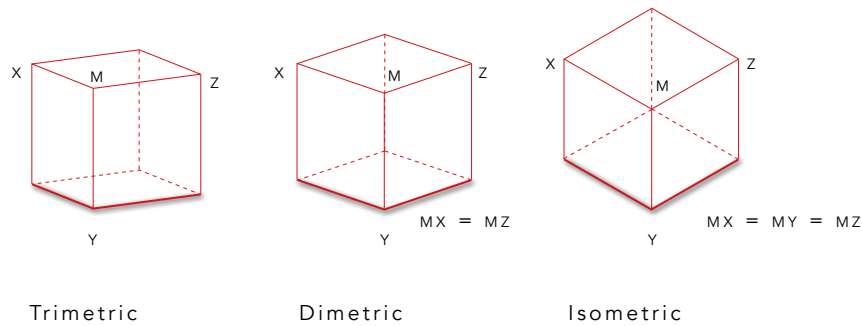
A cube drawn with different types of parallell projections (Mainly based on a definition presented by Roegel, D. (2001, p. 305))

I.III. Analysing reference representations

METHOD - Representation analysis

The following part dives into the inner logic of a number of study objects. These were gathered from widely different sources, following the assumption that architects can learn a lot from other aesthetic fields when it comes to producing representations. It contains studies and analyses of how these examples make use of tools such as composition, abstraction, projection, symbols, denotation, detailing, storytelling and scenery. A lot of facts concerning the hisorical context, style, media, meaning or discourse of the referenced images have been overlooked. Instead, the works of artists have been discussed based on how they appear to an architect, and thus, to a fellow maker of representations.

The presented method for understanding representations is partly built upon the philosophical concepts of Nelson Goodman, as presented in his book *Languages of Art: An Approach to a Theory of Symbols*. Here Goodman presents an approach where symbols are seen as objects that refer to other object. What makes them different is how they refer, i.e. their *mode of reference*. Goodman asserts that not only arts, but even science make use of symbols, and the main difference between the two are mainly the characteristics of these symbols. His concepts have proven helpful when trying to understand how ideas are transferred to symbols, lines and colour on a piece of paper or on a computer screen. His non-hierarchical way to describe different sorts of representations have worked as a guidance when comparing pictures which, from the first look, seems to have little in common. So in the manner of Goodman, this thesis have

taken a look at its reference imagery (drawings, artworks maps etc.)as representations in a wider sense.

Goodmans approach to representations is summed up well by Bafna: "In this theory, all representations are treated as instantiations of particular systems of mapping between two domains, such that individual characters that constitute the domain of the work or artefact are associated with specific aspects of the represented world. The critical point at which different representations distinguish themselves is in the specification of the system of characters. The individual characters constituting a representation can be discrete and countable or dense and uncountable, and similarly these characters can be mapped onto discrete an unambiguously distinct aspects of their referent domain or to referents which are not discrete."
(Bafna, 2008, p. 537. Own underlining.)

REFERENCE DRAWINGS AND ARTWORK - SORTED IN THEMES

Projection - oblique

1. *Schiele 1*

2. *Doshi*

3. *Anon. Persia*

Reversed perspective

4. *P. Picasso 1*

5. *Rublev*

Illustrating complex interrelations

6. *von Humboldt*

7. *R. Picasso*

Perspectival ventures

8. *Schiele 2*

9. *P. Picasso 2*

Monumentality / sublimity
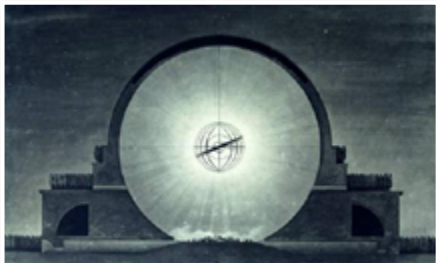
10. *Boullée*

11. *Piranesi*

Composite

12. *Sheraton*
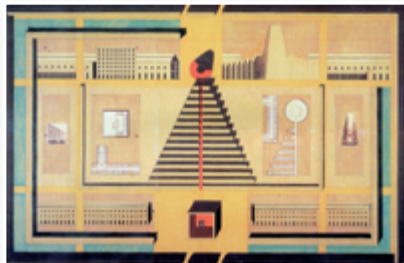
13. *Rossi*

Scale / detail / maximalism

14. *Utagawa*

15. *Breugel*
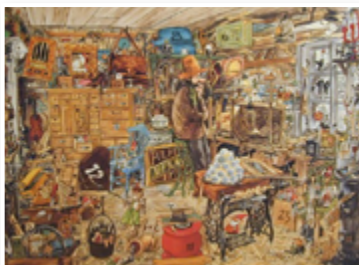
16. *Nordqvist*

Abstraction / denotation

17. *"Kunit"*
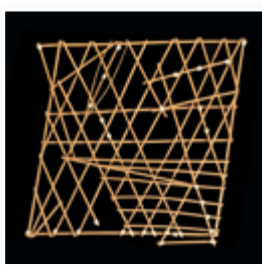
18. *Trad. Marshall Islands*
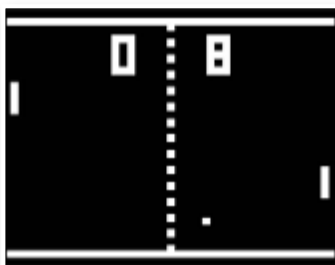
19. *"Atari"*
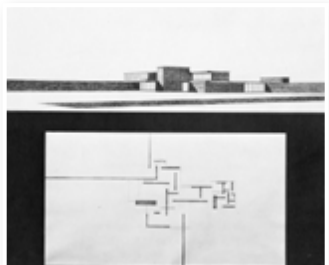
20. *Mies van der Rohe*

Illusionary shifts

21. *Andersson*

22. *Escher*
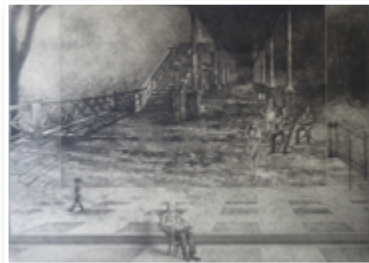
23. *Milton*

Uncategorized

24. *Östlin*

25. *Schiele 3*

THEME: PROJECTION, OBLIQUE

2. Bird´s eye street view, low cost housing project in indore, India, Balkrishna Doshi and Vastu Shilpa Foundation, 1990. With own annotations

Contrasting use of projection. Own sketch.
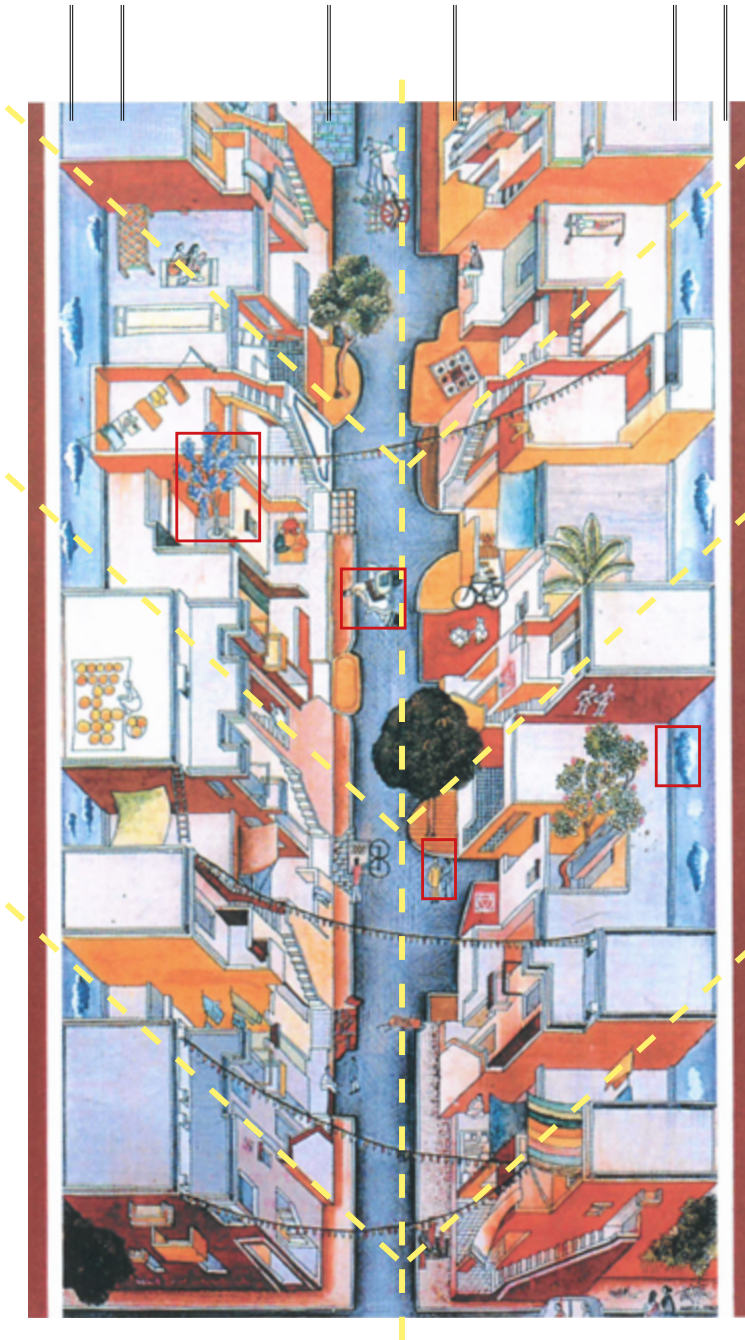
This is an unusual design drawing from the architectural sphere. Doshi's drawing style is influenced by classical Indian codes of representation.

Composition:
A central vertical axis. The picture surface is quite equally saturated with details and events.

Projection:
Mixed parallel projections: "Fishbone-ish" plan-oblique projection is used for buildings. People, vehicles, trees and clouds are not skewed as the buildings, but are drawn as in an elevation or rotated elevation.

Composition:
The use of parallel projection with the street as an axis, emphasises that this drawing is about the street, and what happens around the street. Had the picture employed a vantage point, as in figure 1.1 below, the centralized area would have been more in focus. Some of the continuous, ever-flowing aspects of the street would then have been lost, and the picture would have appeared more as a snippet of time than of a flow.

The sky is drawn as welts on both sides of the rows of buildings. This is one of the more odd but fascinating features of this picture. It somehow depicts the certain relationship between the rooftops and the sky, and the clouds are painted as how they would appear from the viewpoint on the street.

THEME: REVERSED PERSPECTIVE

5. Annunciation, Iconostasis - Andrei Rublev, (1405)

Composition:
Clear foreground and background, used for the stageing of a certain biblical situation.

Projection:
Background: A form of reversed perspective

Foreground: Elevation-ish and oblique parallel projection

Comments:
Different forms of reversed perspective were widely used before the conquest of the linear perspective in the western world. As opposed to perspective drawings or axonometric drawings, this form of drawing logic emphasizes the objetcs as individual entities, at the expense of accurately describing the space between them.

The focus on the acting figures (Archangel Gabriel and virgin Mary) is partly acheived by their scale but also enhanced by the difference in projection between them and the background.
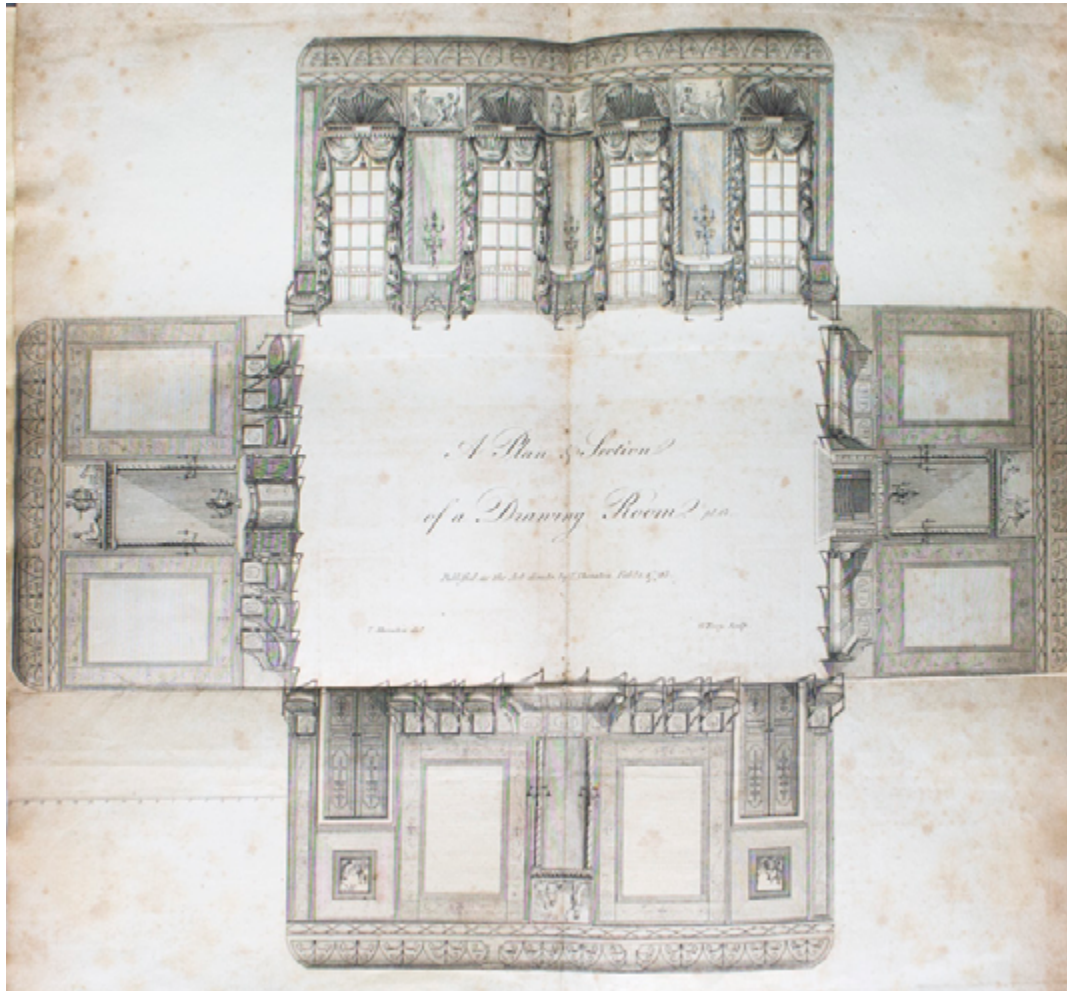
12. The cabinet-maker and upholsterer's drawing-book, Thomas Sheraton, 1802

Projection:
Composite multi-view with elevations "folded out" from a plan. Each elevation employs a fishbone-like/oblique or "almost axon" projection.

Comments:
Drawings of this sort are called *Developed Surface Plans*. Its layout allows for, or one might say *promotes*, elaborate interior elevations. As can be read in an essay by Robin Evans, these types of drawings were popular in England from the 1750s, but its popularity decayed in the turn of the century. This was partly due to the effect on, or compatibility with, the floor plans of the buildings: When drawing in this mode, rooms tend to be somewhat concentric. Every room stands for itself as a complete stylized entity. Although that could be well suited for certain floor typologies, it was clearly ill suited for others. (Evans, 1997, pp. 194-231).

15. "Dutch Proverbs" Pieter Bruegel the elder, 1559. With own annotations.

Projection:
"Almost parallel"- perspective, leaning towards oblique projection. Multiple or unclear viewpoints. Parallel lines converge towards an undefined area in the upper right part of the picture, right below where the ship is. This perspectival construction makes the painting dynamic, and makes it non-centralized, and somewhat impossible to grasp in its fullness

Composition:
The painting is rather equally saturated with details, colour and contrasts. Although most things happen around a diagonal axis between the lower left and upper right corner. This axis coincides with the picture's valley. The axis binds together the foreground with the middle-ground and background, and creates a certain dynamic as it attracts the attention towards the ship and horizon. The picture has an ability to maintain sharpness and detail in the portrayed objects and situations in both near and far distances. This is partly thanks to its tweaked perspective projection, and also because distant figures are occasionally painted bigger than their surroundings.

THEME: ABSTRACTION / DENOTATION
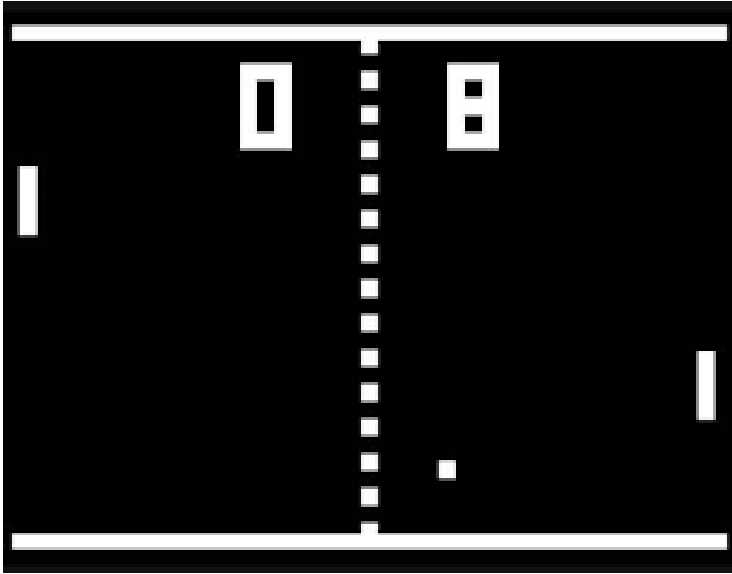
19. Snippet from the 70s Atari video game "Pong"

Composition:
Picture shows a flat abstraction of a table-tennis game, seen from above. Current game score is shown on upper part of the "table"

Projection:
Plan (top view parallel-projection)

Comments:
Most viewers have no difficulty reading this low detailed, extreme abstraction as some sort of mutated table-tennis. The motion of the game is what helps us interpret it, and it thus works as a legend for the symbols. The name and the progress of the game also play its part in our understanding of this representation.

Mode of reference:
Denotational: The game is a clear symbol scheme, where the dot, digits and lines—vertical, horizontal, dotted, continuous, long and short— refers to certain physical objects. Not by looking anything like them, but by imitating some aspect of how they work.

25

THEME: ABSTRACTION / DENOTATION
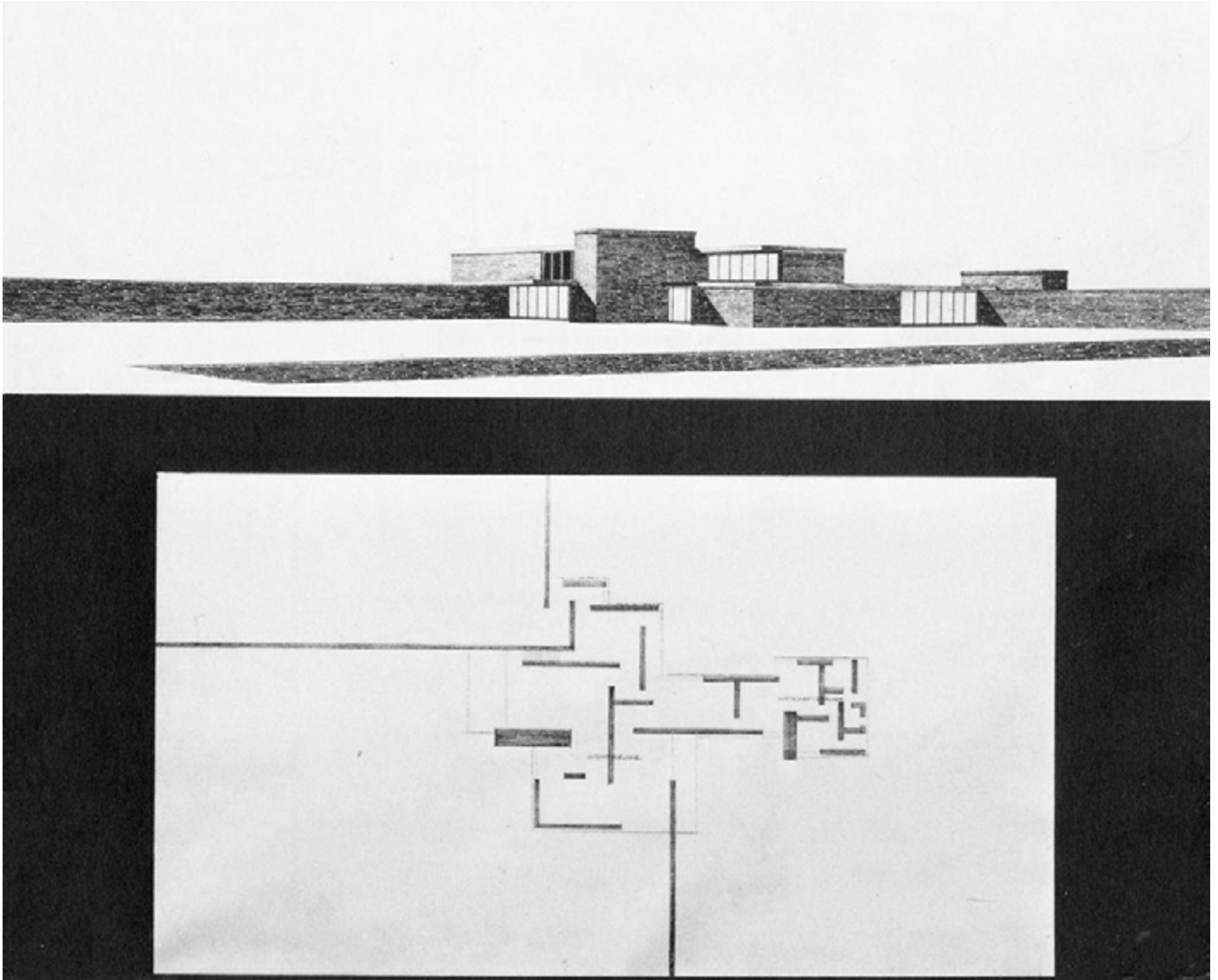
20. Brick Country house, Perspective and conceptual plan, Mies van der Rohe, 1924

Projection:
Two point-perspective (above) and plan (below)

Comments:
As the two drawings are exposed together, they specify each other's meanings reciprocally. The not-so-abstracted perspective is fairly comprehensible by itself while the conceptual plan require a bit more support to be interpreted. One may say that the conceptual plan is an abstracted plan drawing, i.e. an abstracted abstraction. It does not strictly follow the symbolic scheme of plan drawings, but it employs a reduction of its main feature: that figure-ground symbolize matter and space.

If the *"Pong"*-abstraction (fig. 19) makes use of motion as a legend, The Brick House plan makes use of the perspective as ditto.

Modes of reference:
Imaginative (above) and loosely denotational (below)
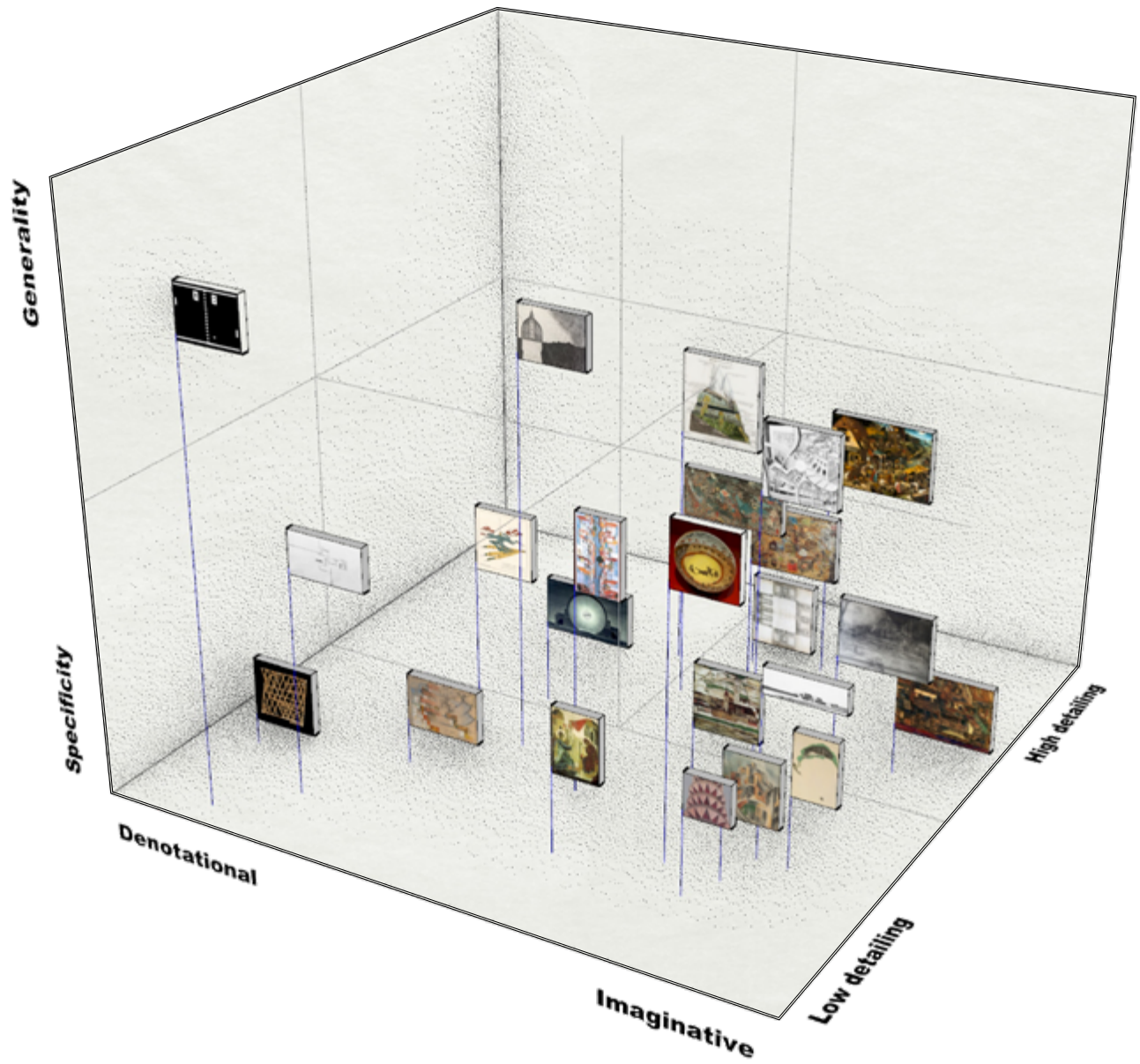
Track II:
Inventing Drawings

II.I. Procedure, approach and outcome

PROCEDURE - INVENTING DRAWINGS

Step by step procedure for developing unconventional architectural representations

Formulate conceptual scripts

Produce many sketches - according to scripts
These make up a bank of concepts to develop further

- Medium: ink pen or charcoal on A4 (some exceptions were done). An analog method is chosen for the directness between idea and output, and also because of its possible tentative characteristics.
- Sketches can be representations of design ideas, or simply doodles that are loosely connected to architecture, or even visual reflections of theoretical concepts.
- Work intuitively.
- Avoid criticism and assessment in this step.
- Existing techniques may be used as a starting point, but then try to change some variables or the application of the existing method.

Choose interesting and/or successful sketches

Refine, iterate, elaborate

- Consider switching medium – e.g. watercoulour, photoshop collage, rhino, acrylic paint etc. but stick to 2d media.
- Steer experiments towards design aspects. Work gradually towards the scope of a design proposal.
- Repeat drawing in double or half scale
      or/and
- Switch object but use same rep. method
      or/and
- Superimpose
      or/and
- Challenge the image's use of scale or scales
      or/and
- Other manipulations

Assess and analyze sketches

- Comment on the sketches and assess them in regard to:

  - Architectural qualities. Does this particular method highlight or encourage to elaborate certain architectural elements or qualities?
  - Denotationality–imaginativity spectrum
  - Tentativity–certainty spectrum
  - Ambiguity–clarity spectrum
  - Detailing / scale / scales
  - Descriptive vs design mode
  - Projection
  - Other thoughts

Present outlines for design proposal in the form of refined drawing inventions
(See following pages)
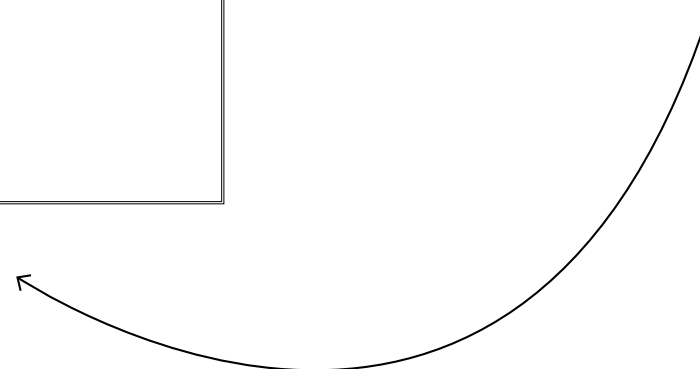
APPROACH

The plan and the section, as well as axonometric, linear perspective and elevation drawings are all methods which architects use frequently. One could say that handling these methods is partly what our craft consists of. They are forms of symbolic languages that have their own set of rules and grammar. We, architects, specialize in using these techniques, and the skill with we reproduce them is a form of embodied knowledge.

This thesis have not striven to get rid of these techniques. The goal has not been to replace these ways of drawing, but rather to evolve and challenge what is already there. So rather than throwing the baby out with the bathwater, existing (and sometimes abandoned) techniques have been used as a springboard to explore something partly new. *Tweaking, manipulating, distorting, combining* and *playing with levels of ambiguity* have been the modes of working.

The following part of this thesis is an exposition of the results of a number of drawing experiments. Their outcome was refined and finally synthesized as composite drawings that present outlines for the design of an interpretive centre at Välen nature reserve in Västra Frölunda, Gothenburg. These composite drawings are presented on the following pages

The preceding experiments were all executed following certain scripts as a part of a step by step process. A diagram of this method is presented above.

Subsequently, all scripts (listed A-L) and their outcome are presented and discussed. Some of these drawings were made with the mentioned program and site in mind, while others are unspecified trials of drawing techniques.

SITE

Välen Nature Reserve 1:8000
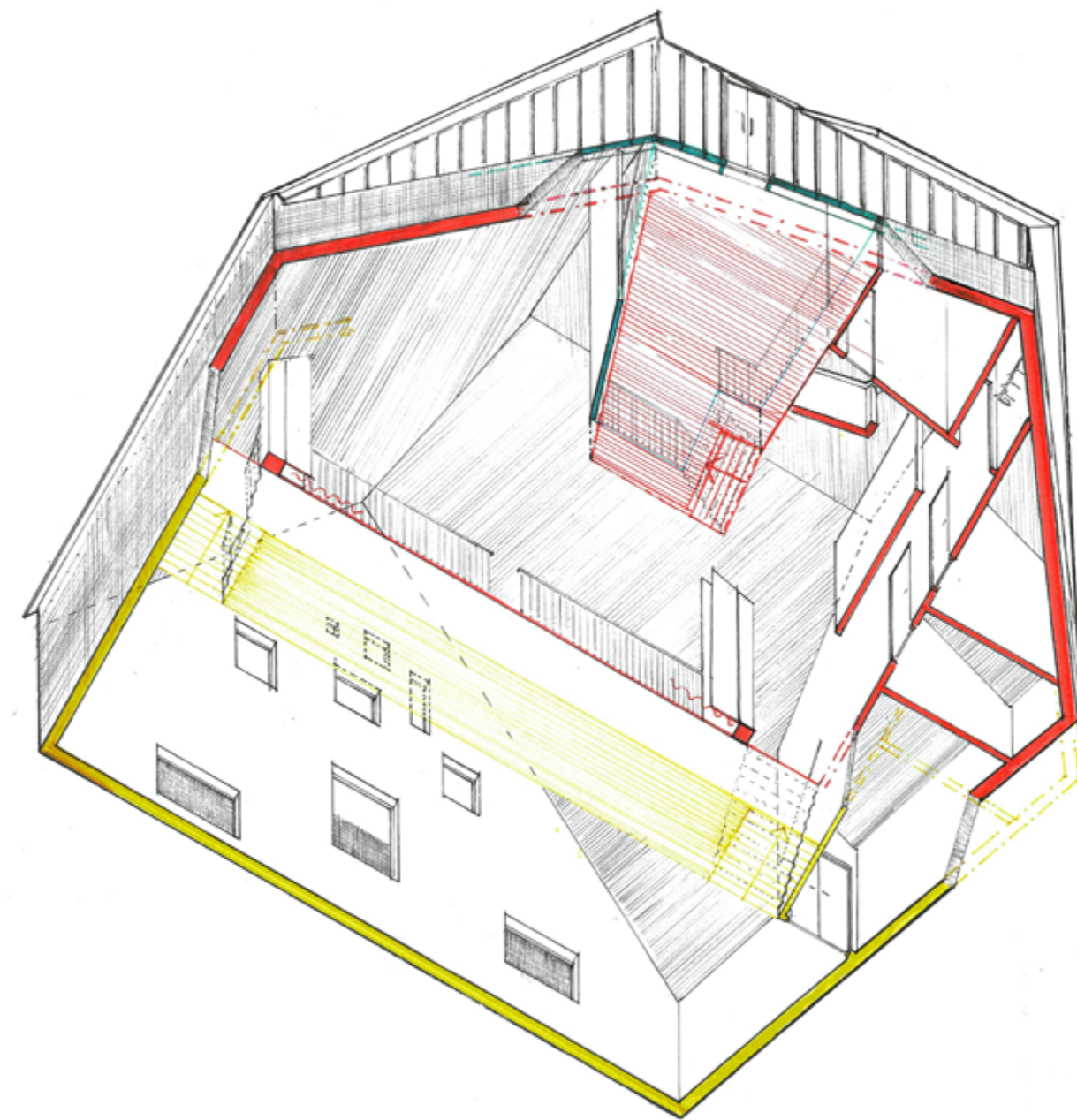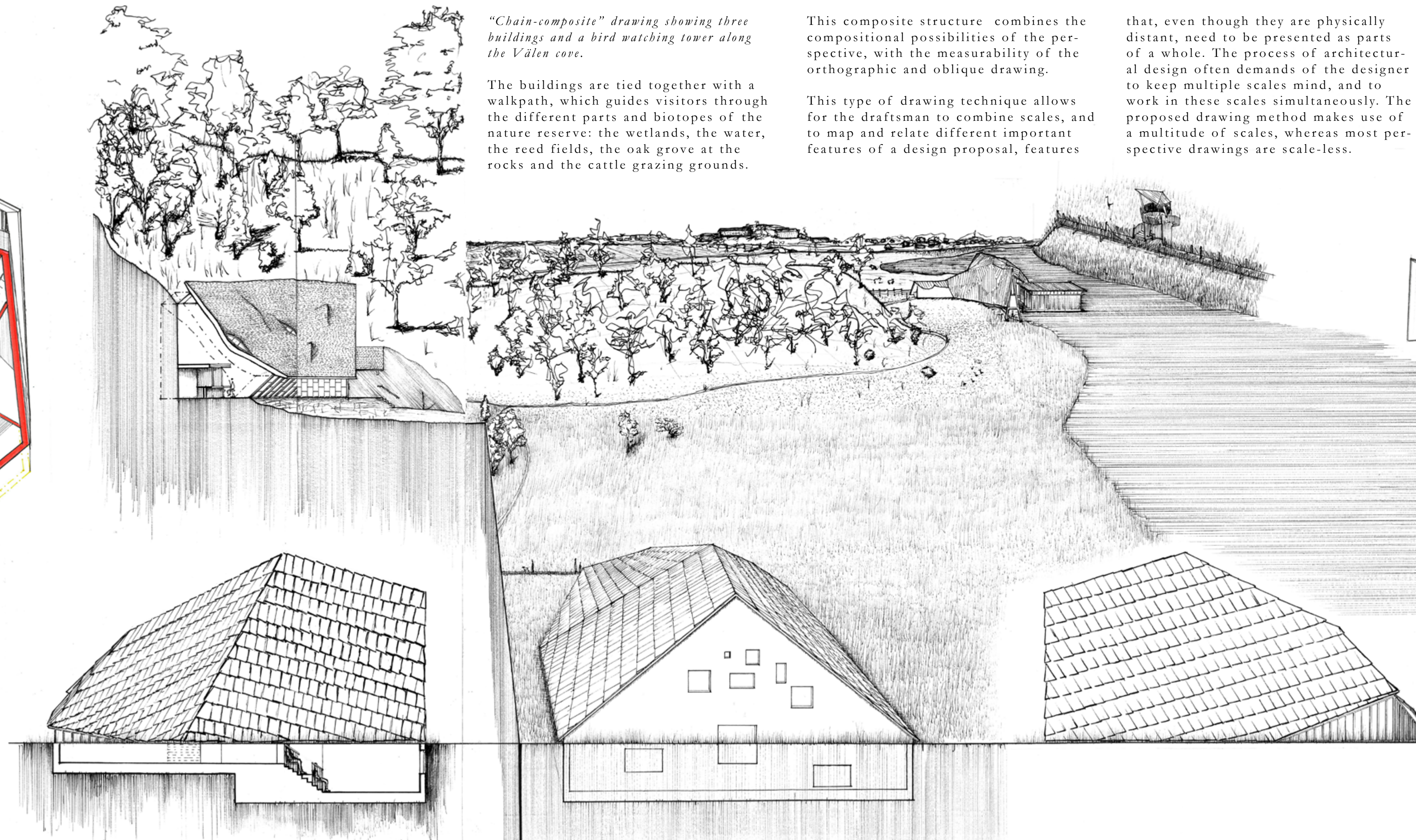
"Chain-composite" drawing showing three buildings and a bird watching tower along the Vålen cove.

The buildings are tied together with a walkpath, which guides visitors through the different parts and biotopes of the nature reserve: the wetlands, the water, the reed fields, the oak grove at the rocks and the cattle grazing grounds.

This composite structure combines the compositional possibilities of the perspective, with the measurability of the orthographic and oblique drawing.

This type of drawing technique allows for the draftsman to combine scales, and to map and relate different important features of a design proposal, features that, even though they are physically distant, need to be presented as parts of a whole. The process of architectural design often demands of the designer to keep multiple scales mind, and to work in these scales simultaneously. The proposed drawing method makes use of a multitude of scales, whereas most perspective drawings are scale-less.

Ground level

– 1 m

– 2.5 m

Välen Nature Reserve 1:2000

0 20m 100m

"Legend drawing" or reading instructions for chain-composite above.

Section Oblique 1:300

East Elevation 1:300

Axonometry (Trimetric) 1:300

Elevation Oblique 1:450

Perspective

East Elevation 1:150

East Elevation 1:150

South Elevation 1:150

Worm's eye plan oblique 1:150

Section 1:150

Sub-earth Elevation
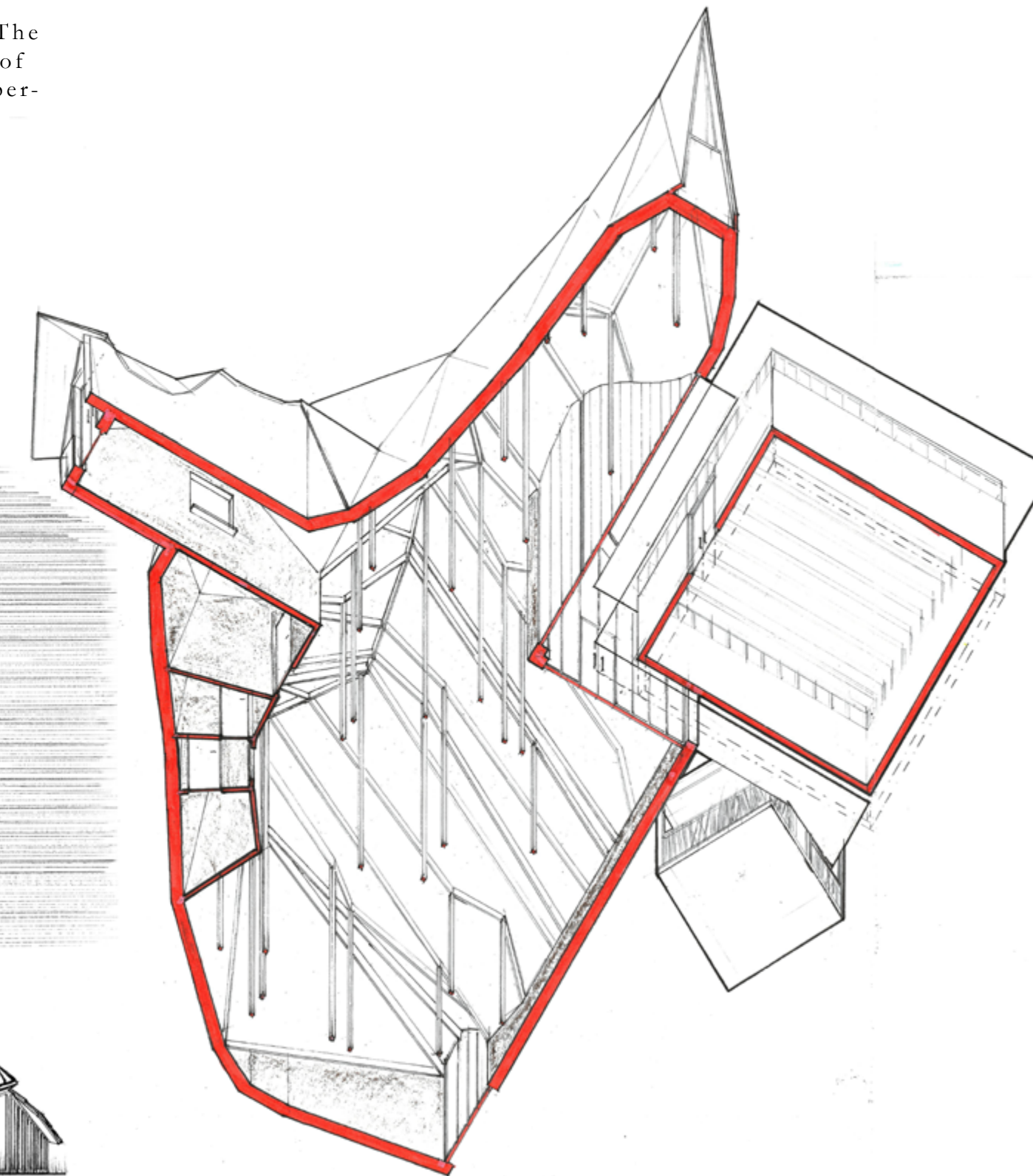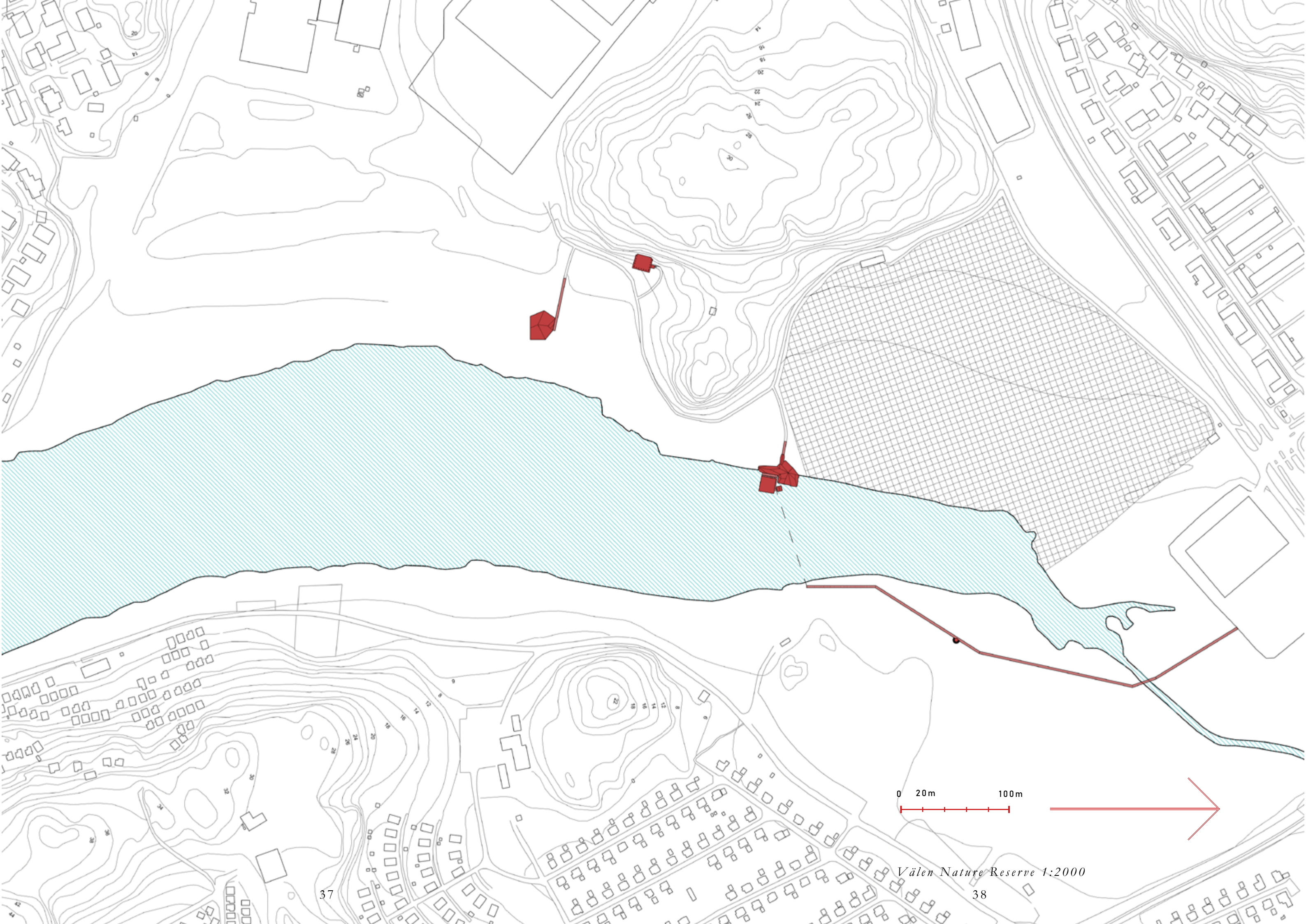
Worms eye Plan Oblique 1:150
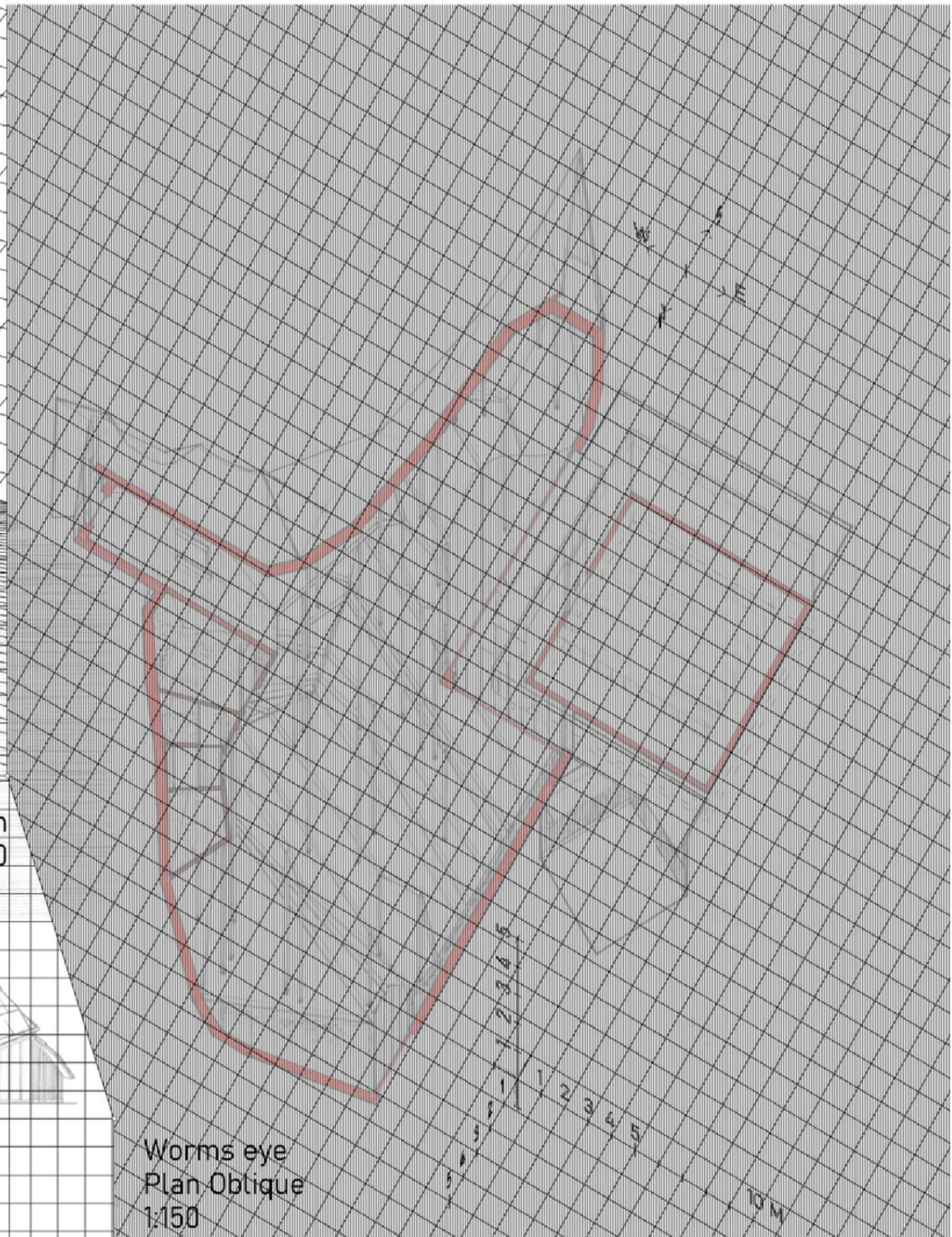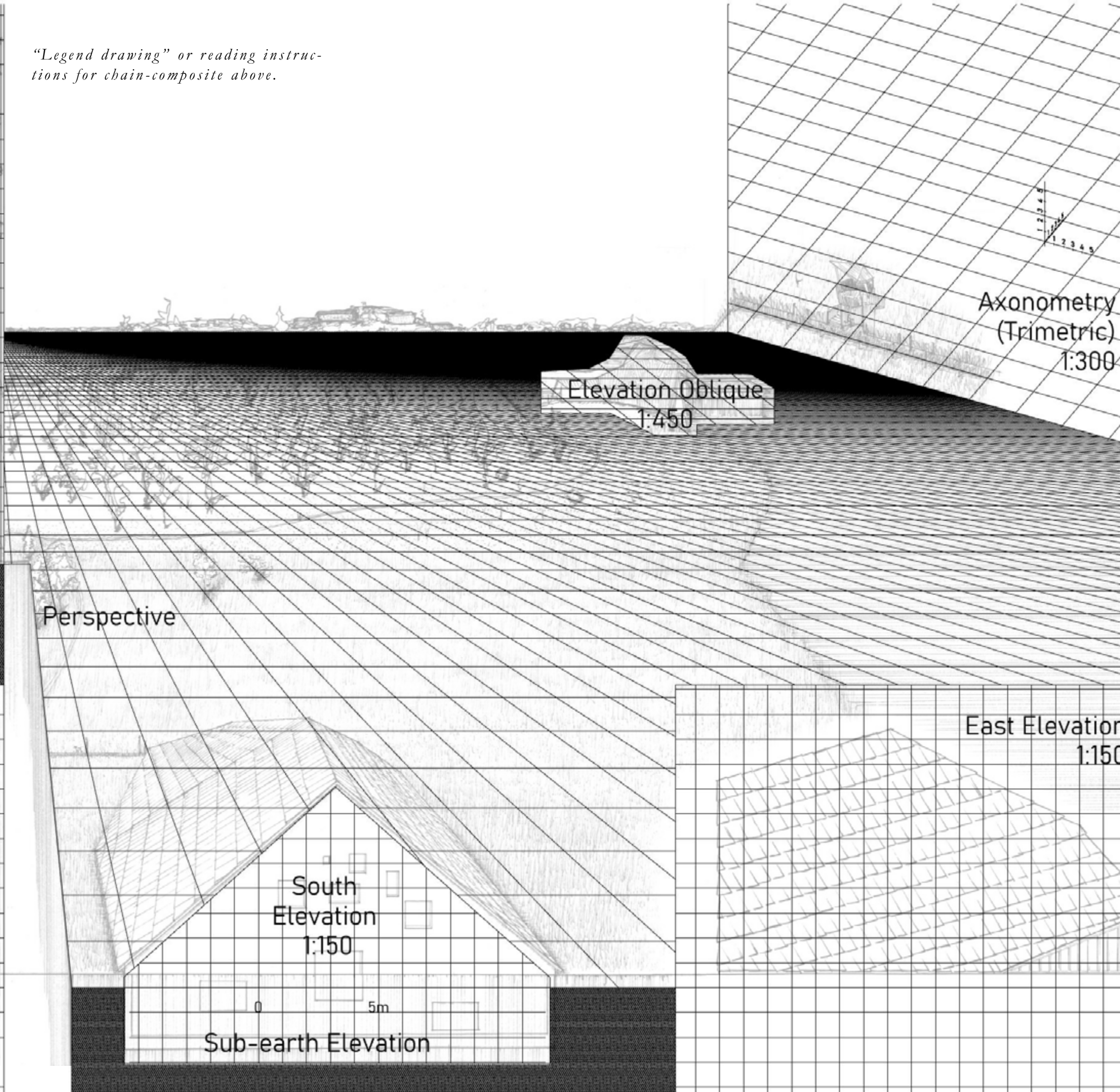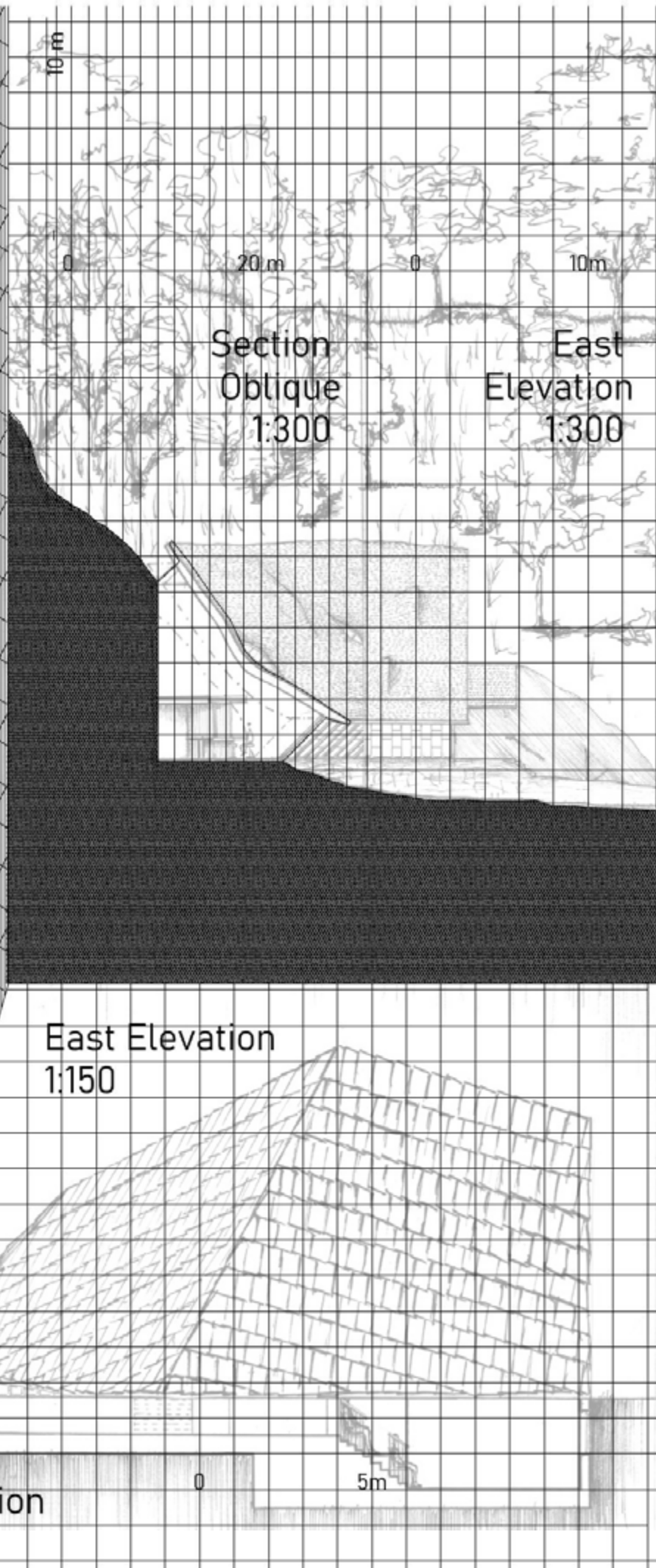
II.II. Preceding sketches and scripts

DRAWING EXPERIMENTS - FIRST DRAFTS - SORTED UNDER 12 SCRIPTED CONCEPTS

A: Reversed / modulated significance
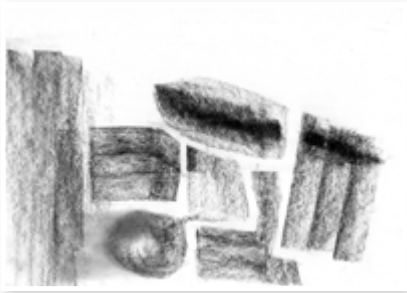
A1
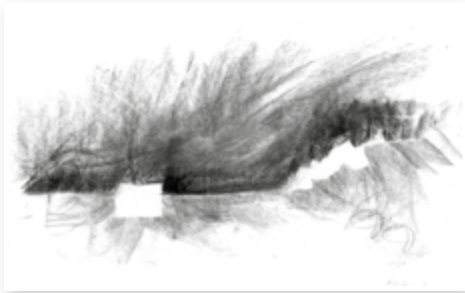
A2

B: Developed surfaces

B1
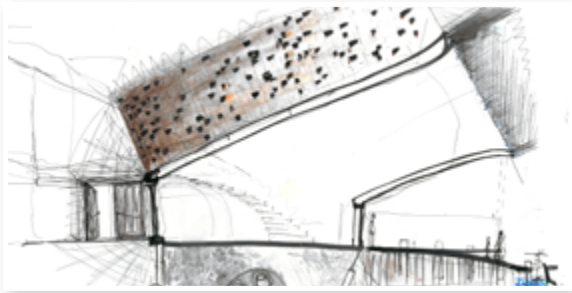
B2

C: Transparency
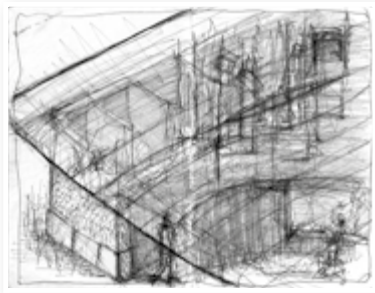
C1

D: Reversed perspectives

D1

D2

E: Expanding from bodies

E1

E2

F: Breugel-esque / landscape perspective with multiple scales

F1

F2

G: Expanding from (mis)interpreted image

G1

G2

H: Composite
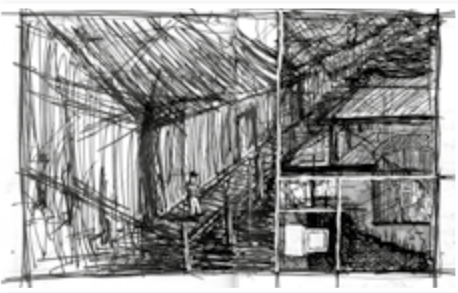
H1
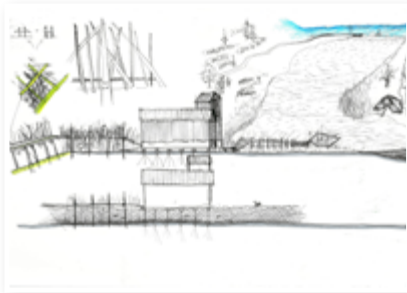
H2

I: Escheresque/illusional composite
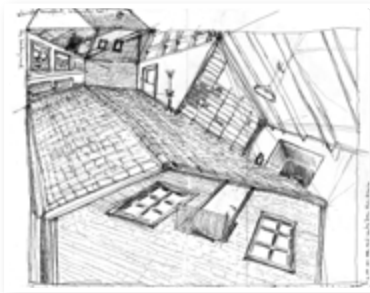
I1

I2

J: Oddly shaped canvas

J1

K: Loose linear perspectives / situations
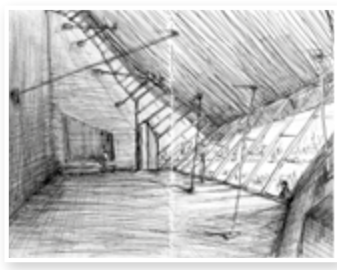
K1

K2

L: Uncategorized orthographic experiments

L1

L2

REVERSED / MODULATED SIGNIFICANCE
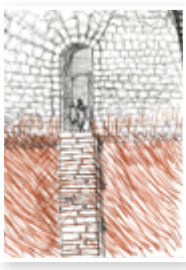
Script A

1. Choose a denotational scheme/system.

2. Invert the symbolic reference order of the chosen scheme.

3. Consider the possibility to dissolve symbolic dichotomies into gradients.

4. Draw in any chosen scale.

A1. "Inverted" plan
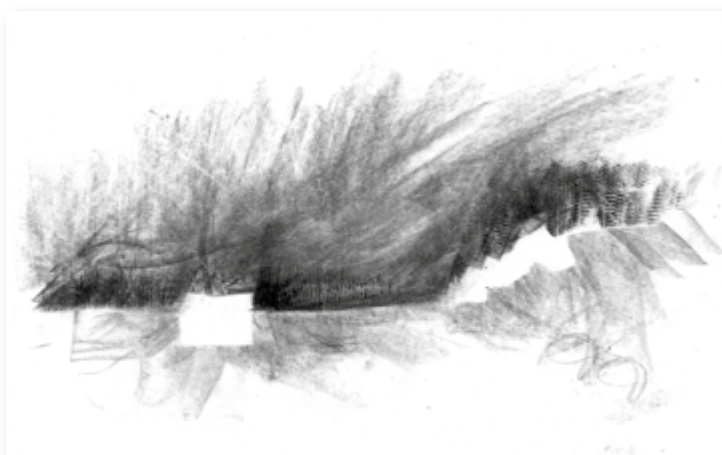
A2. "Inverted Landscape section"

REVERSED / MODULATED SIGNIFICANCE

Drawing experiment assessment
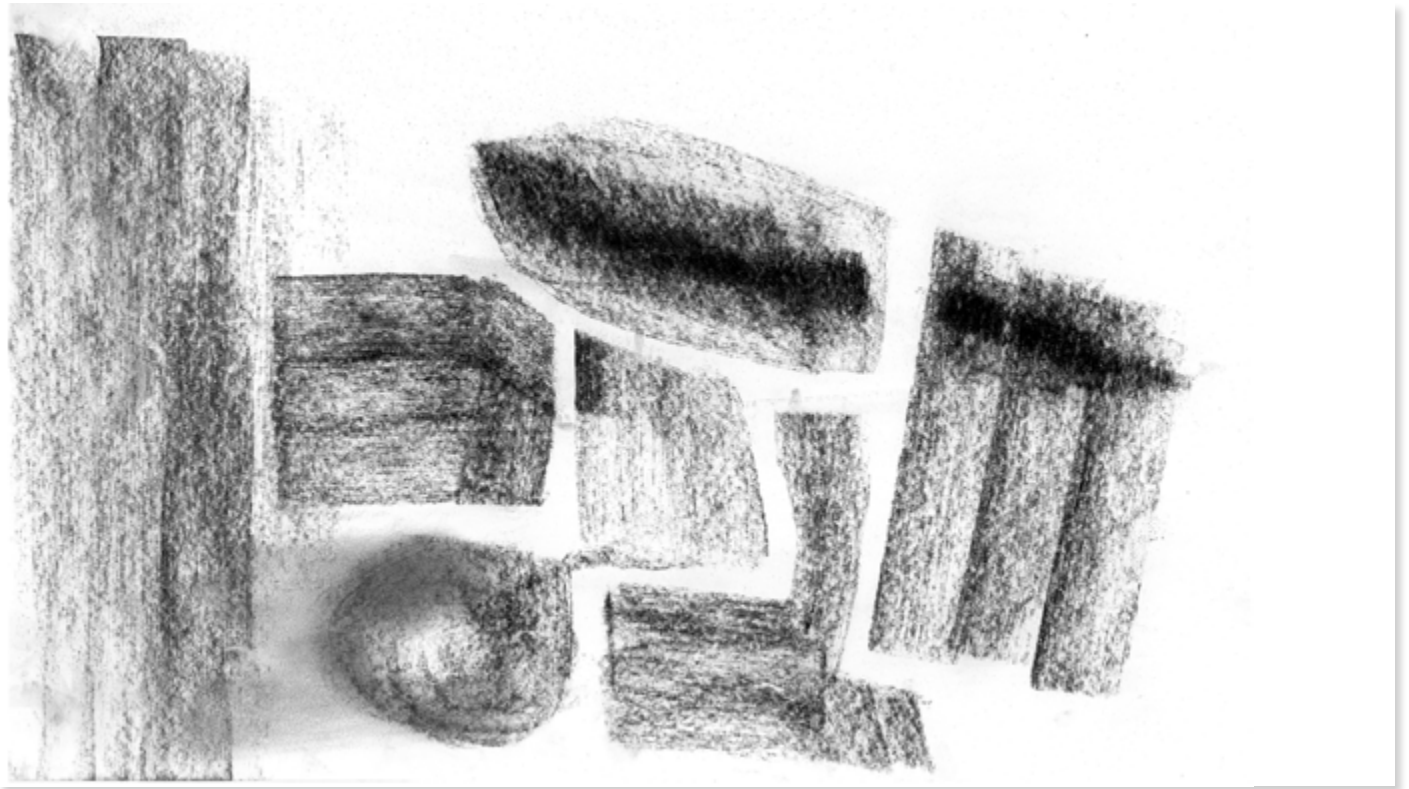
A1. "Inverted" plan drawing, charcoal on paper, unspecified content.

Projection:
Parallel top view (plan, figure ground)

Scale:
Somewhere between 1:50 and 1:500

Comments:
This study challenges the symbolic language of the plan drawing and how it works as a sketch tool. Normally the drawn denote or signify *poché** or matter, while the spaces where the canvas is left untouched denote space or void. This drawing is made as if the symbolic scheme worked the other way around – dark parts=space and white parts=poché or walls. Designing in this mode means drawing space instead of drawing frames for space. It can be seen as an analogy of carving out spaces of a solid block of clay, while conventional plan drawing would be an analogy of placing dividing walls in an open space.

The side of a charcoal stick, laid down flat, made it easy to draw patches. When trying this method of drawing, the charcoal's variations of darkness gave birth to the thought that more darkness would mean more space, as if the relationship between space and matter would be a floating scale instead of a dichotomy. If built, that scale could possibly be materialised as ceiling height, inclinations of the floor, density of furniture or pendant lamps or something else.

---

*   *"Areas of an architectural plan or section that are filled in, often by cross-hatching or solid black, to show wall thicknesses, floor thicknesses and all other solid areas that intersect the plane of the section cut." Source: Wikipedia*

DEVELOPED SURFACES

Script B

- Make alterations of the developed surface plan (see below). Explore picture compositions techniques that expose multiple surfaces in the same composition.
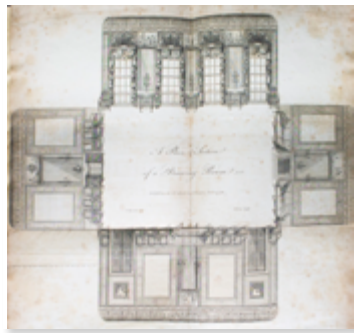
Reference.
The cabinet-maker
and upholsterer's
drawing-book,
Thomas Sheraton,
1802
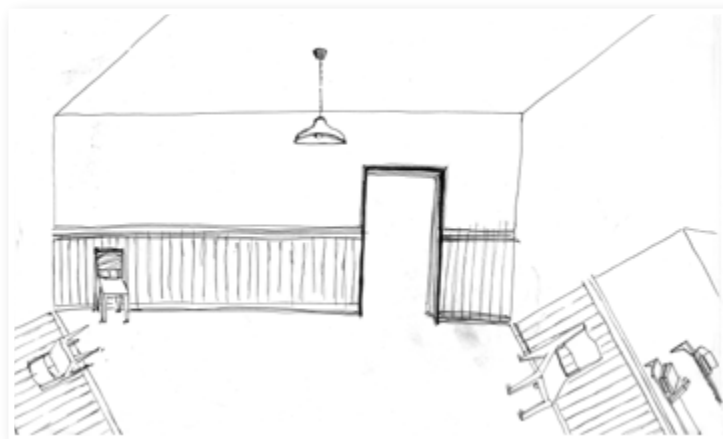
B1. "Oblique developed surface plan"
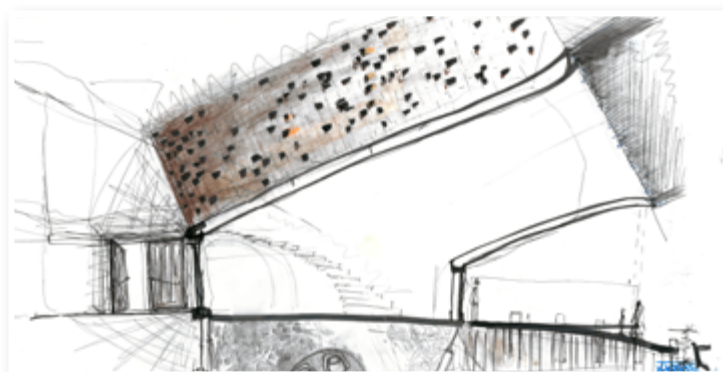
B2. "Developed surface section"

DEVELOPED SURFACES
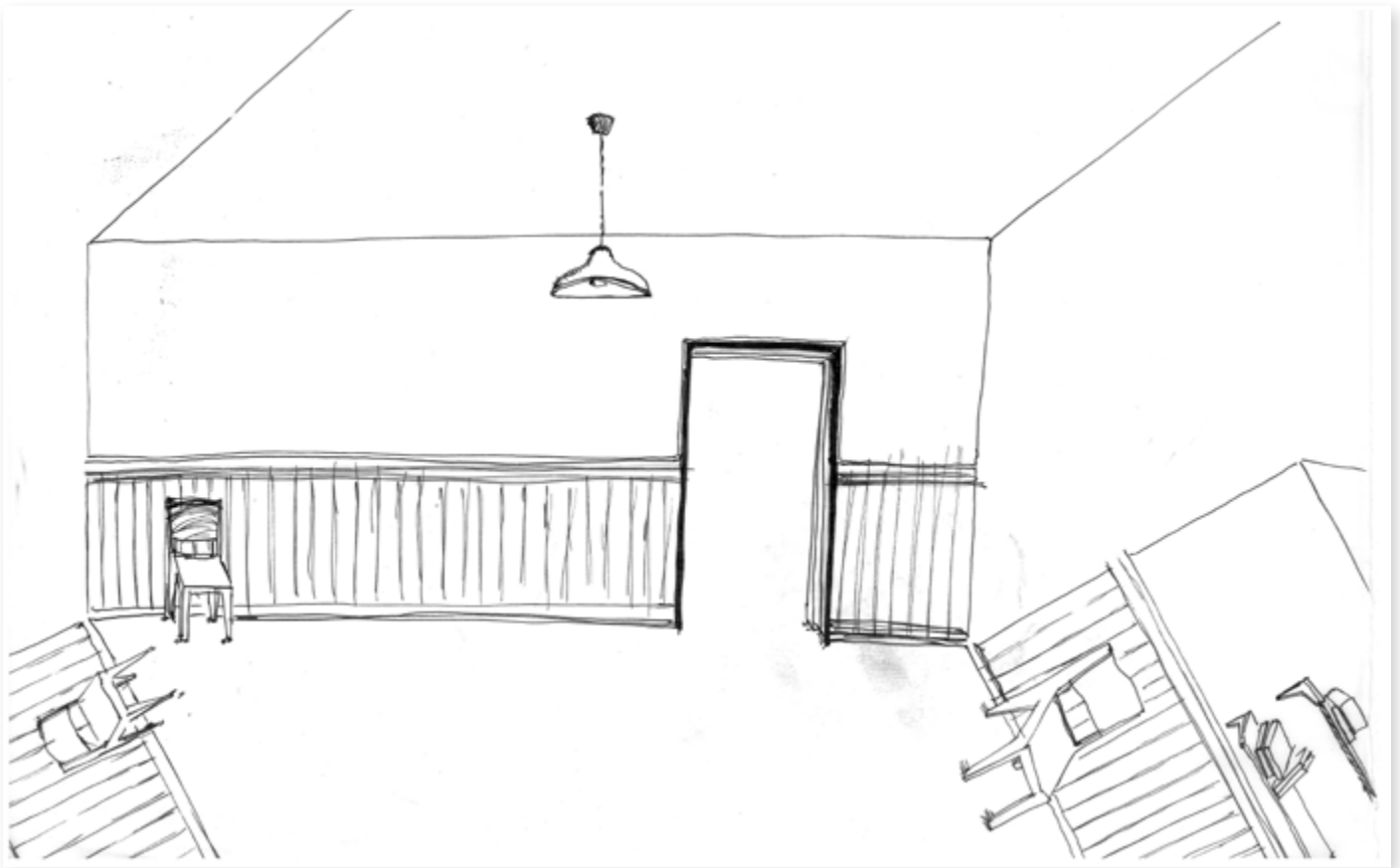
B1. "Oblique developed surface plan", free hand drawing, unspecified content.

Projection:
Several linked oblique interior elevations

This study utilizes the reference drawing´s way of folding out adjacent surfaces. It exaggerates this effect by adding a ceiling surface above the elevations. This logic follows the same type of fish-bone principle that is found in the elevations of the reference drawing.

Rather than being centred around the floor plan, this drawing is instead developed from one of the elevations.

Comments:
Although it gives a distorted and non-spatial view, this type of drawing composition provides for schematic way of drawing interiors. It allows the designer to work on how interior surfaces relate to each other, and to refine the meetings between these. (However, this refinement have not been done in the drawing itself, but the possibility was noted when assessing it.) Furniture have been drawn right next to the wall just as in Sheratons drawing. This tells something about the difficulty of furnishing rooms with this sort of drawing.

TRANSPARENCY

Script C

- Explore various ways of representing objects behind objects by superimposing them. Use textured surfaces, hatches, line weights and contours to help make sense of the image and to create a sense of space.
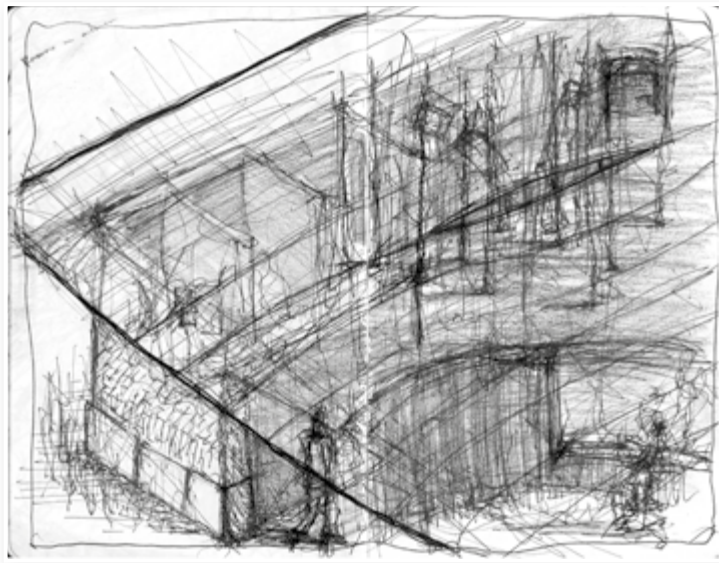
C1. "Transparent roof exterior axon."

REVERSED PERSPECTIVES

"Is it true that perspective as it is claimed by its sup-porters, expresses the true nature of things and therefore should be everywhere and always understood as the absolute condition of artistic truth? Or is it only a scheme, only one among many schemes of representation, corre-sponding not to the universal world view but only one possible understanding of the world, connected to a par-ticular sensibility and cognizance?"
Mathematician and polymath Father Pavel Florensky, in his article "Reverse Perspective" 1919. (Pavlopoulos, 2011)

Script D

- Draw with a projection in which parallel lines converge towards the picture plane/viewer.
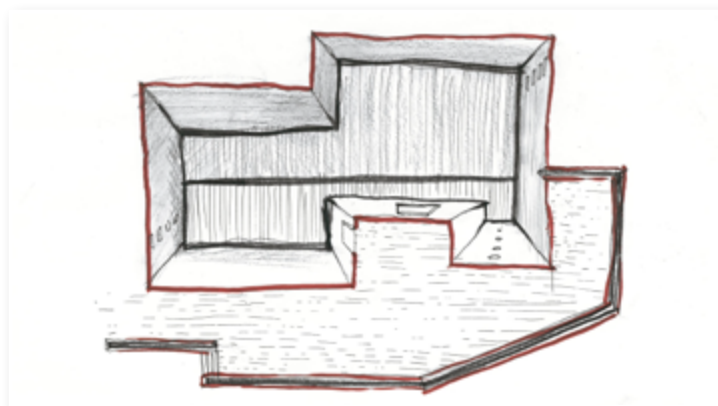
D1. "Reverse perspective site plan"

D2. "Reverse perspective exterior"

EXPANDING FROM BODIES

Script E

1. Draw people, in situations or at least with postures. They may have little or no obvious spatial relation to each other.

2. Construct some form of perspectival logic that puts them in a spatial relationship.

3. Add stuff.
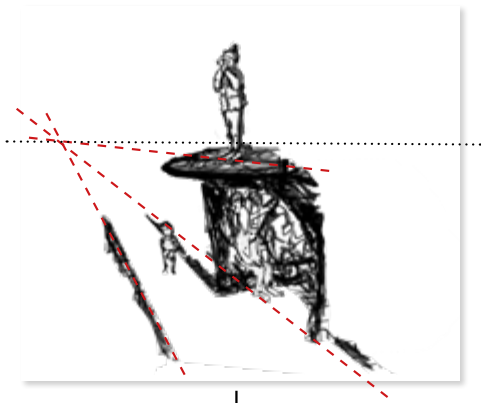
E1. *"Bird watching tower", perspective*
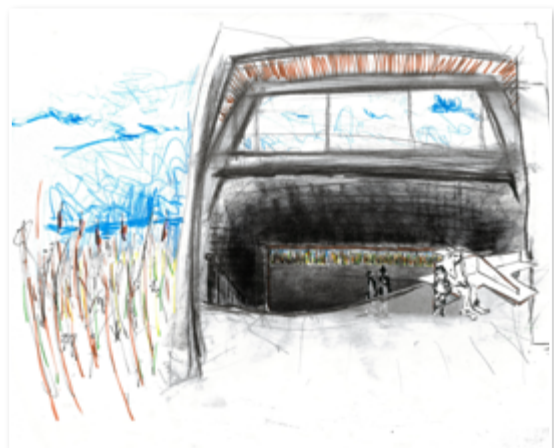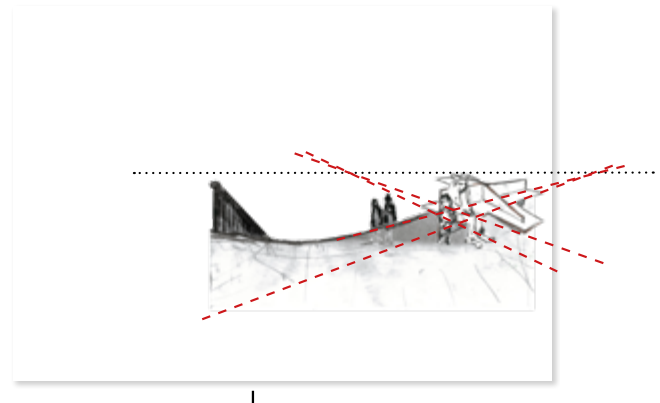
E2. *"Hall with sub-earth window and skylight", section perspective*

"There is absolutely no necessity for a single viewpoint, for some time now, though not that long, we have been able to do without it"
Paul Klee, lecture on perspective at Bauhaus 1921. (Scolari, 2012)

Script F

- Compose the picture so that it frames buildings or objects in a landscape. Pay attention to spatial situation between the buildings/objects and how they relate to each other.

- Use a loose form of linear perspective that leans toward axonometric projection ("almost parallel"). Instead of one specified vantage point, use "stray centers" to make the right things fit on the canvas.

- Consider using different view angles in different zones of the canvas, and be rather consistent in each zone.

References:
"Dutch Proverbs" Pieter Bruegel the elder, 1559

Triptych, ukiyo-e (woodcut), Utagawa Kuniyoshi, 1800s

F1. "Bruegel-esque 1"

F2. "Bruegel-esque 2"

Drawing experiment assessment
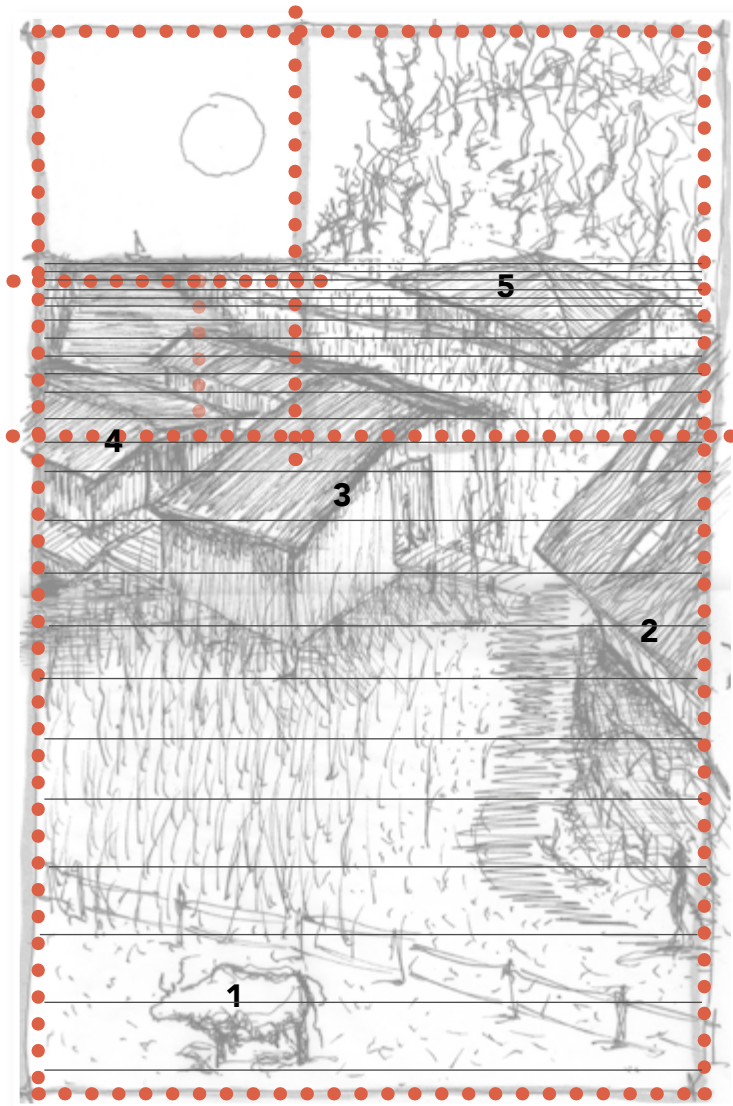
Composition of F2

Location with numbered reference points

Projection:
"Almost parallel" perspective with varying viewpoints.

Composition
The drawing was composed to contain four buildings along a path on the coastline of the Välen reserve. The canvas was divided into sections prior to drawing. Viewpoint varies slightly between each section, to make important features fit in the drawing. The division also affected the layout and framing of the composition. Numbers are added to relate objects to corresponding positions on the site map below.

Comments:
This drawing puts itself somewhere between a staged landscape perspective and an axonometry site plan. While an axonometries would give an overview that puts the viewer in a detached and distant position, this type of drawing allows for the viewer to be more involved with the picture. This because of its view angle and the close foreground. And while regular perspectives would compress and blur the distant parts of a picture, this type of drawing may provide a possibility to keep some amount of articulateness even in the distance. And if one would somehow adjust the projection in certain sections of the drawing, so that some parts would have "local" parallel projection, it could even have some amount of measurability.

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EXPANDING FROM A (MIS)INTERPRETED IMAGE

Script G

1. Use an existing image or drawing of something.

2. Trace interesting parts, without considering what the image is of, but only how it appears. In other words, pay attention only to the *sign* and not to what is being *signified,* or *referred to.*

3. Add a scale and adjust orientation

4. Continue drawing independently of photo.
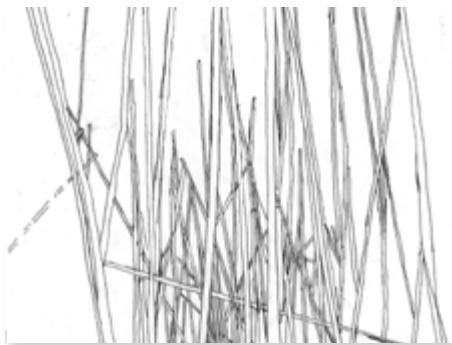
G1. *"Footbridge railing"*
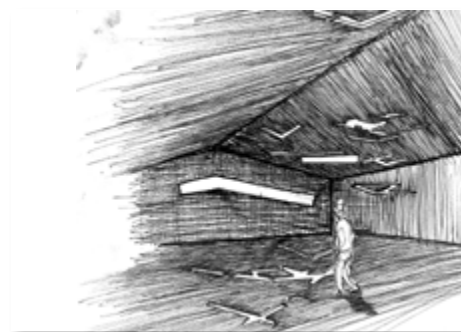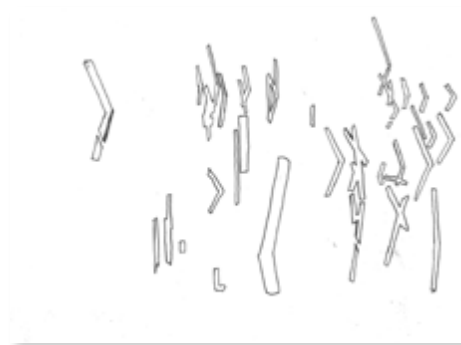
G2. *"Window placement"*

EXPANDING FROM A (MIS)INTERPRETED IMAGE

Drawing experiment assessment
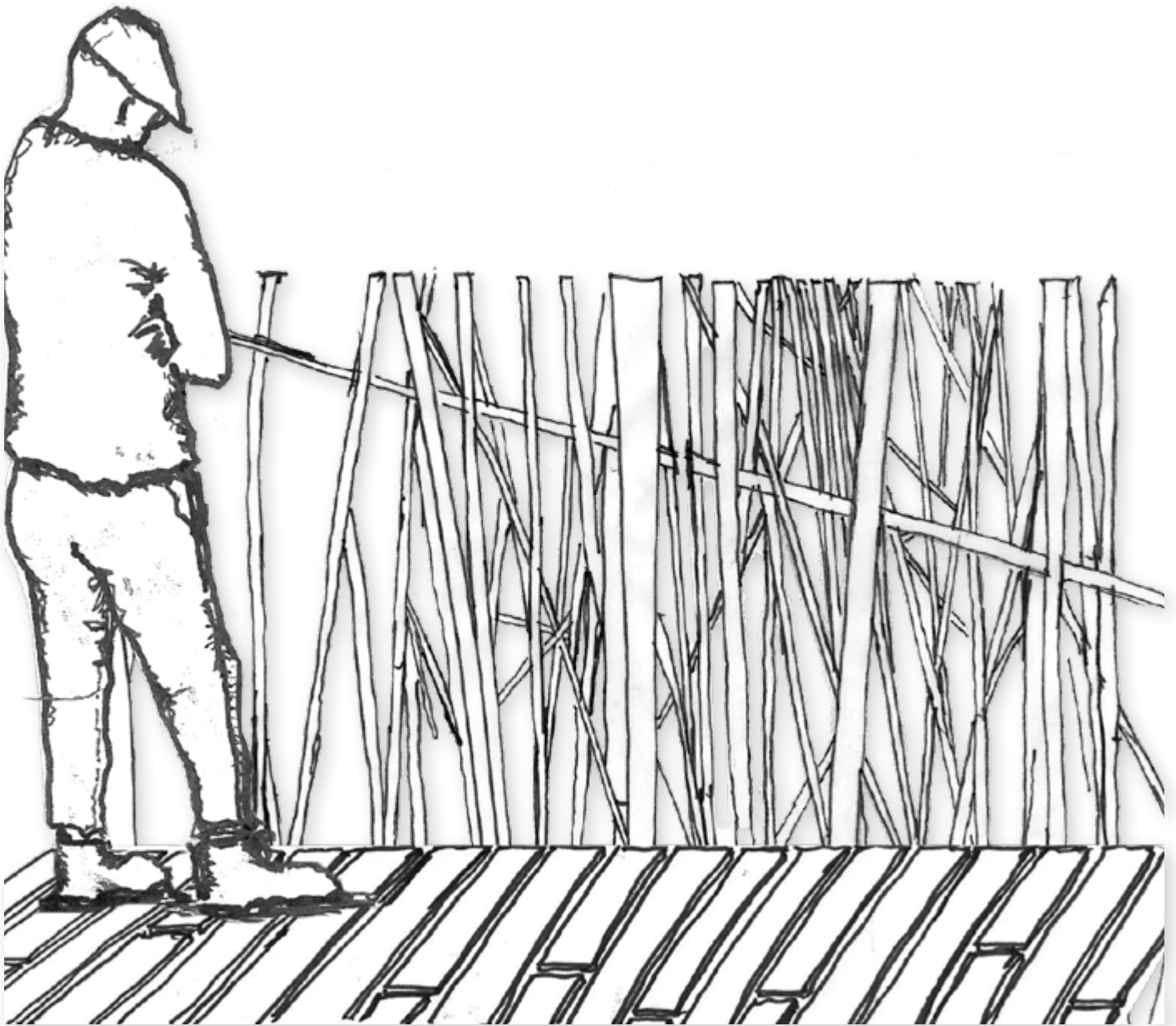
G1. *Footbridge railing from reed contours*

Traced image:
Photo of reeds at Välen.

Comments:
This drawing captures a certain char-acteristic of the site, namely the jitter of straws of reeds. It then takes a step towards transforming the appear-ance of that characteristic into an architectural element: a railing for a footbridge.

COMPOSITE

Script H

1. Divide canvas into smaller zones.

2. Use different projections and /or representational techniques in each zone.

3. Compose the picture so that the drawn objects stretches from one zone to another. Pay attention to the crossing of lines, and which projections to use in which parts, so that the drawing becomes coherent and gets some form of narrative.

H1. "House with berthage and raft-house"
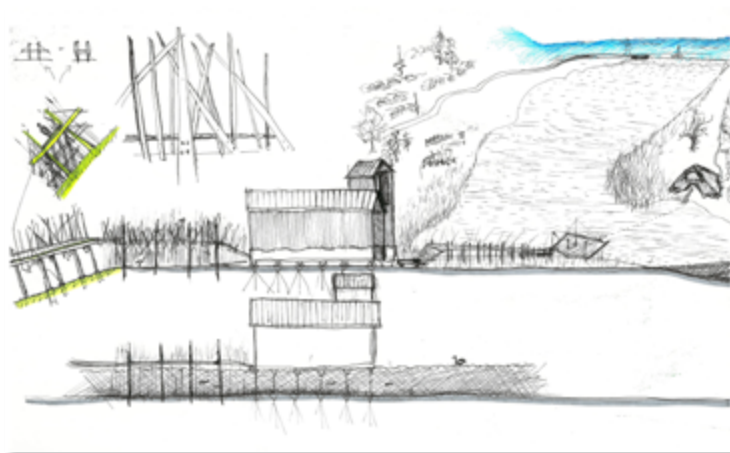
H2. "Floating house at high and low water level."

COMPOSITE

Drawing experiment assessment
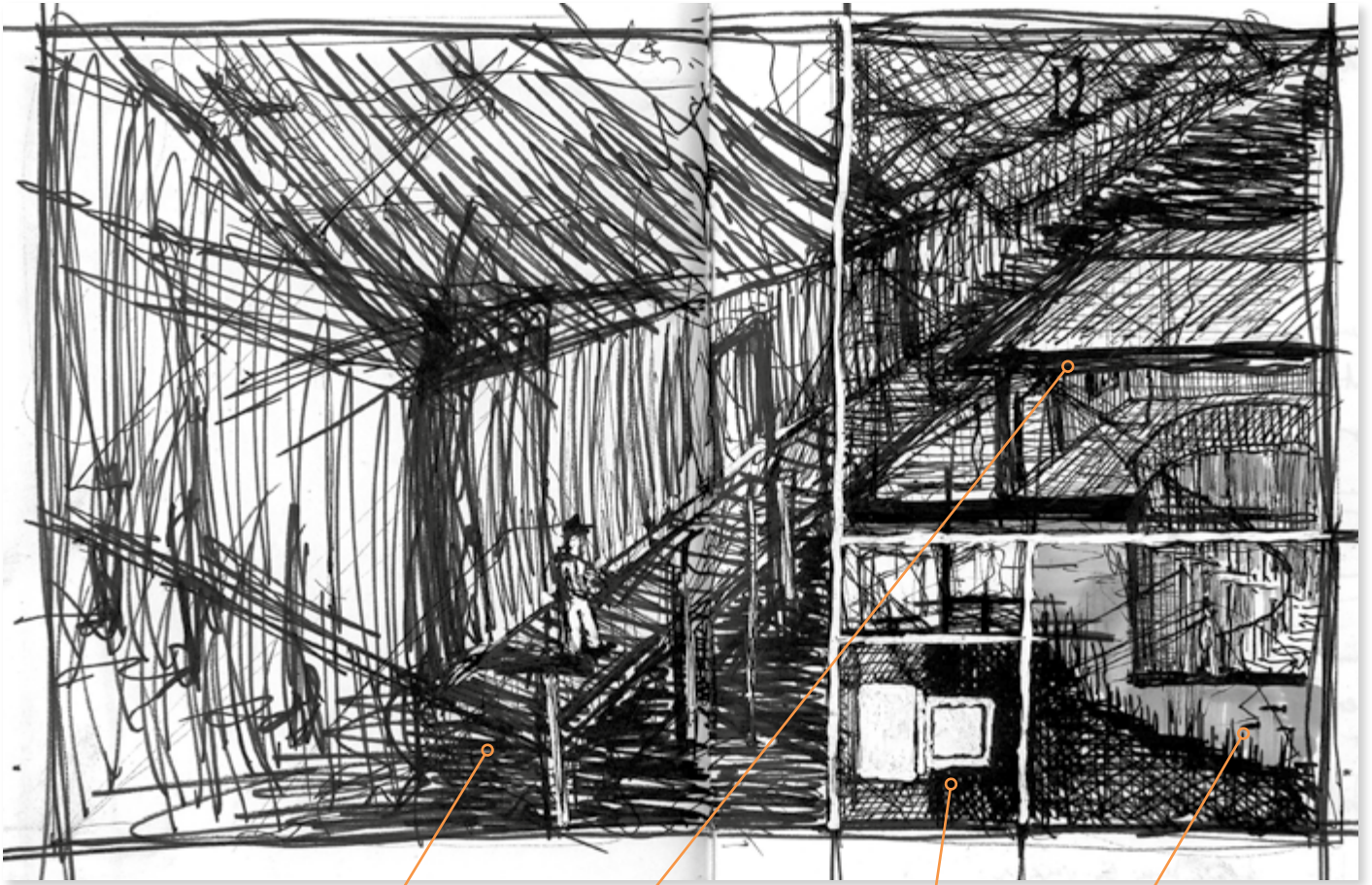
H1. Composite drawing of house with berthage and raft-house with underwater room, ink pen and tipp-ex on paper.

Projections:
2-point perspective, oblique section (cabinet proj.), plan, section. The drawing uses different projections for different part of the drawn objects.

Composition:
The canvas is divided into sections following the golden ratio. The object stretches over the regions' boundaries following a clockwise spiral.

Comments:
The sketch shows a house with a berthage on the coastline of the Välen cove. Connected to the berthage is a floating house, in which one can descend a spiral set of stairs into an underwater observatory. The sketch explores and emphasize the verge between land and water. The composition allows for the compression of several important design features into one drawing. Adding a legend that shows the scales of the different parts might work as a reading instruction.

ESCHER-ESQUE/ILLUSIONAL COMPOSITE

Script I

- Make drawings that misuse or overuse the methods
of linear perspective.
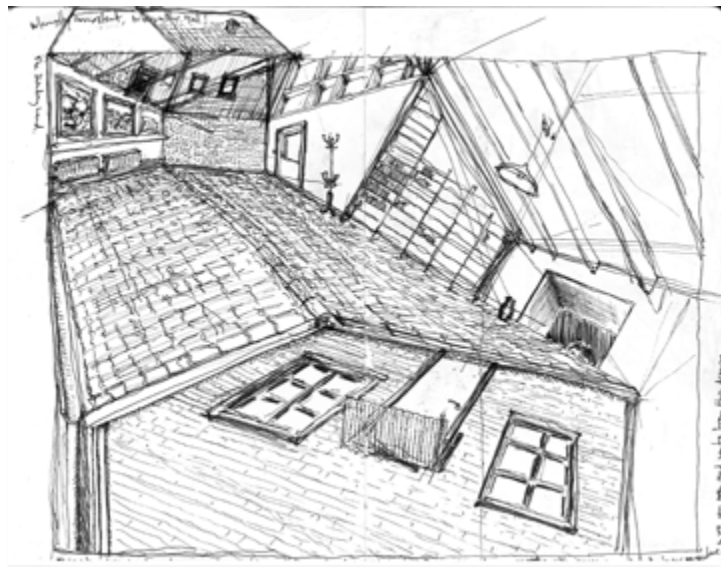
I1. "Escher-esque accumulation"

I2. "Superimposed views of a room"

ESCHER-ESQUE/ILLUSIONAL COMPOSITE

Drawing experiment assessment
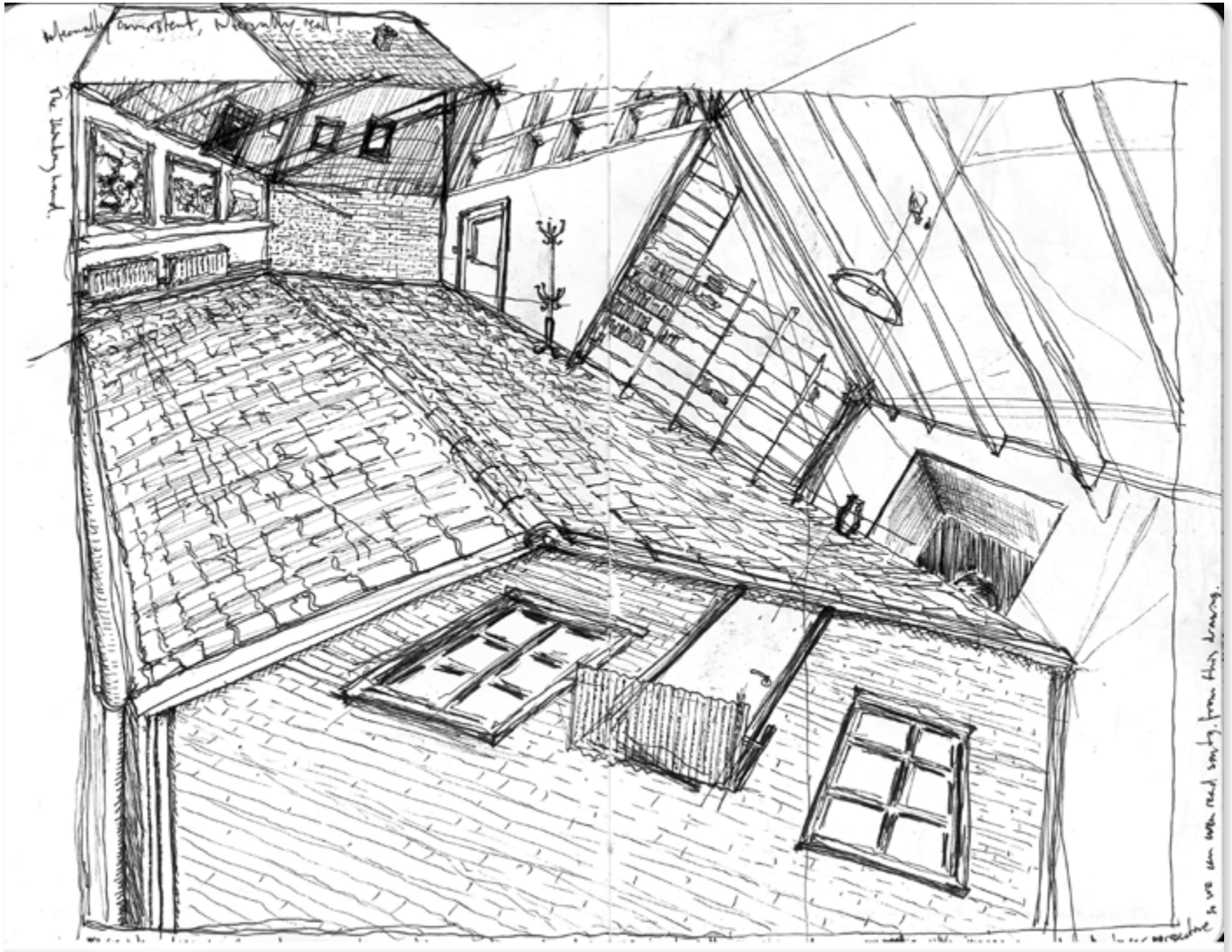
I1. Escher-esque accumulation of random architectural elements, ink pen on paper

Projection:
Mostly 1, 2 or 3 point perspective, with some axonometric exceptions.

Comments:
This drawing was made in an intuitive way. It is a play with the conventions of linear perspective and it has some of the characteristics of an exquisite corpse drawing. The drawing is not meant to represent a coherent building, but is rather an agglomeration of random building elements that came to mind when drawing. Each part of the drawing has its own logic of projection.

This drawing says something about how well trained our minds are in interpreting linear perspective and giving meaning to blurry lines. Even though the drawing is inconsistent, and has many conflicting and incoherent parts, we still want to give it a meaning when looking at it.

ESCHER-ESQUE/ILLUSIONAL COMPOSITE

Drawing experiment assessment
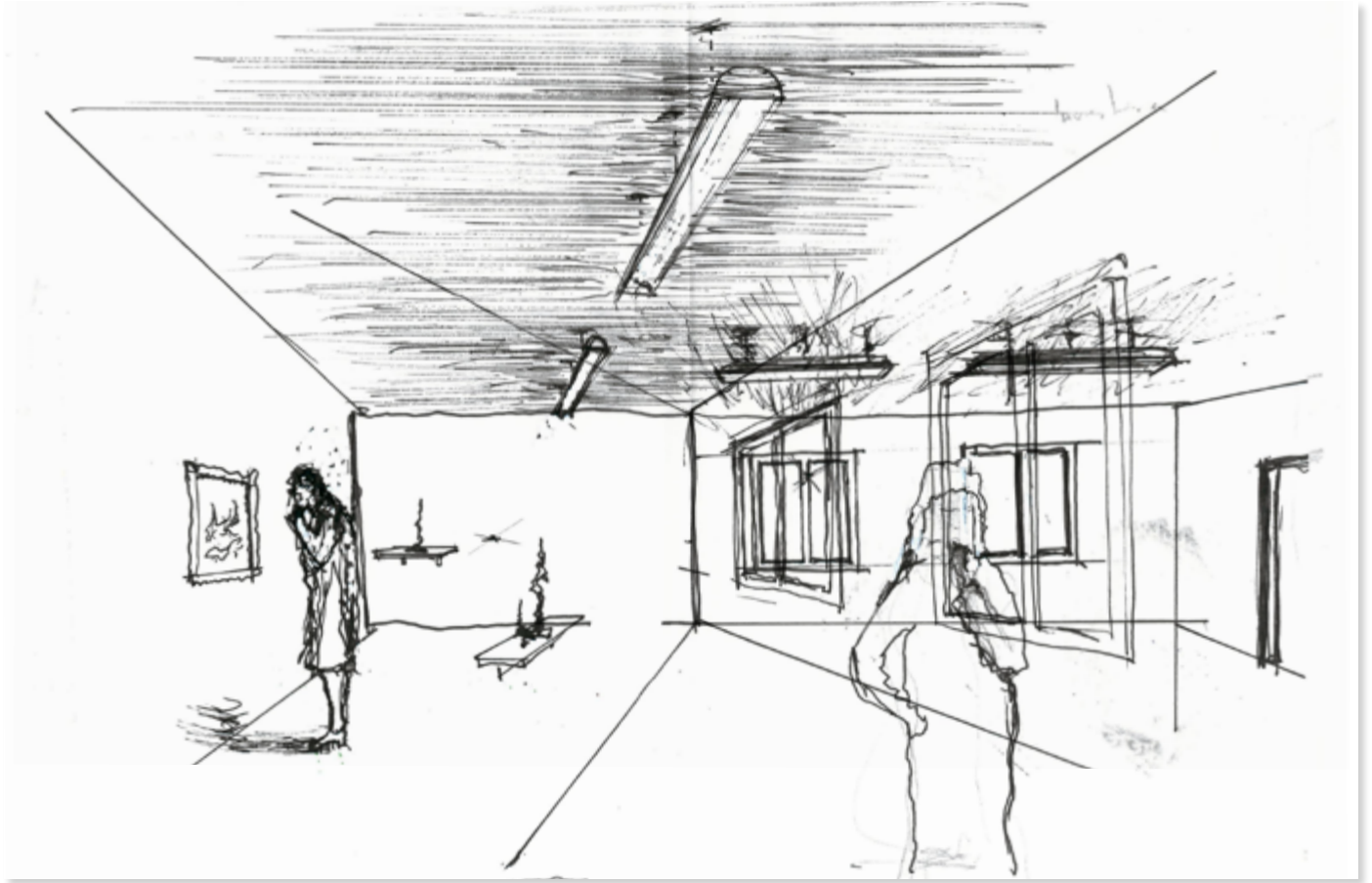
I2. Superimposed views of a room with a lady watching a painting, pen on paper

Projection:
Two perpendicular 1-point perspective views, superimposed. The two views coincide at one of the corners of the drawn room. The two vantage points are marked by small x-signs on the facing walls.

Comments:
The drawing shows a room from two angles. The sketch mode with contour lines facilitated this way of drawing, since it leaves a lot of blank spaces. The line weights or even line colours could be elaborated to make it clearer what it see-through and what is not. Since the facing walls appear as elevations, this drawing provides a way of displaying multiple adjacent elevations with a sense of space. The method could be expanded to cover all interior walls of a room.
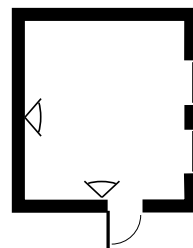
Marked positions of the two view-points
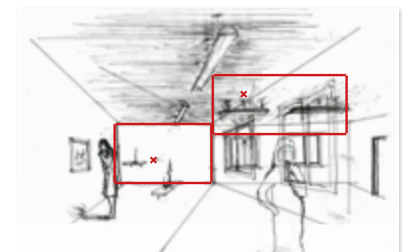
The farther walls appear as elevations. Vanishing points are marked by X

ODDLY SHAPED CANVAS

Script J

1. Use a weirdly shaped canvas, use either something found or cut your own shape.

2. Fill the canvas. Adjust the projection throughout the drawing and pay attention to the relationship between the drawn object and the edges of the canvas. Turn the canvas as you like whilst drawing.
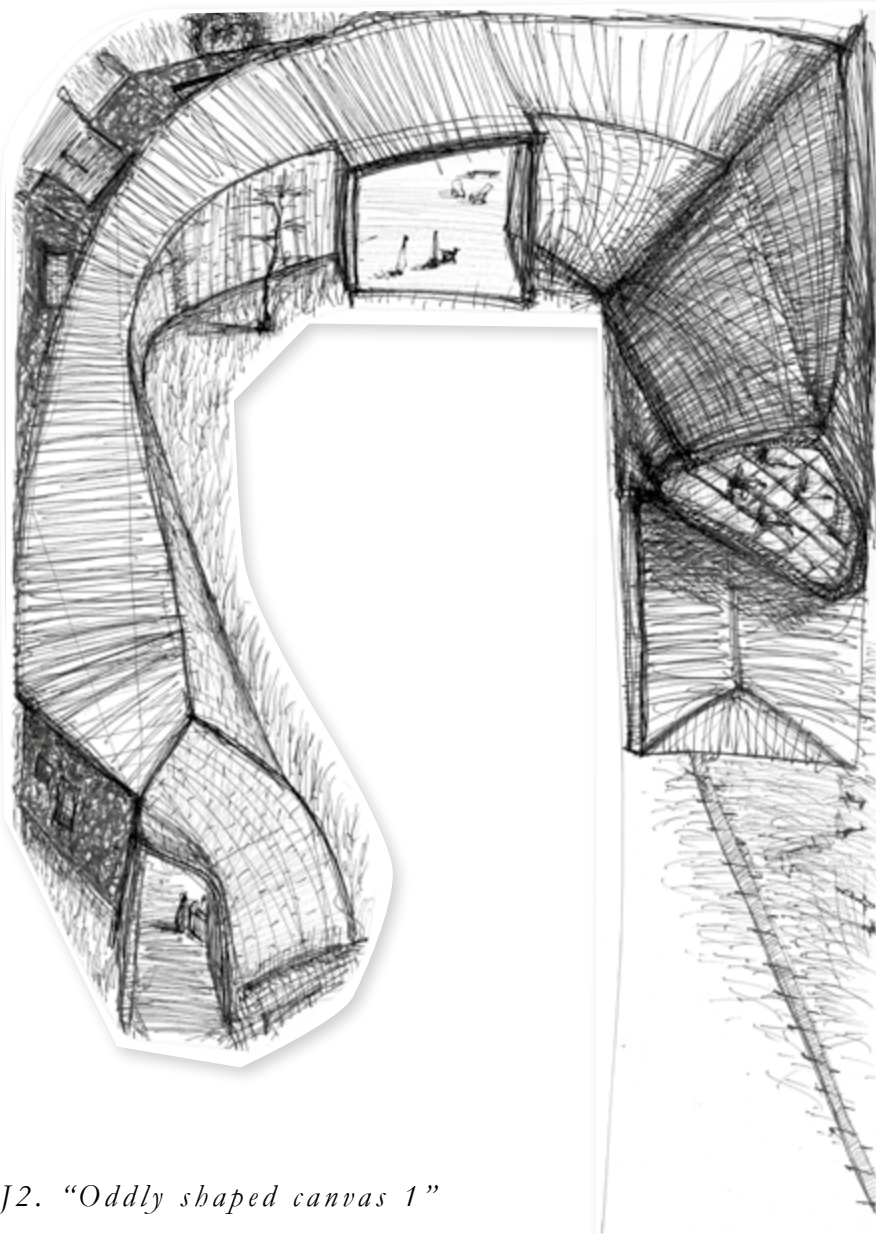
J2. "Oddly shaped canvas 1"

Projection: Mixed loose reverse perspectives.

Composition: The canvas was arbitrarily cut into a u-shape prior to drawing. The drawn building happened to get a similar shape.

Comments: This experiment is a reflection on the fact that we normally draw on rectangular or square canvases/papers/screens. This may play a part in fact that most buildings are rectangular or square shaped. The experiment also wants to highlight the role of the canvas edge or frame in the composition.

The drawing have an odd appearance and looks distorted. But even though it might be hard to read, the drawing documents a couple of important features of an emerging idea of a building. These are e.g. articulations of apertures, entrances and sculptural shapes of roof and walls

"Even at the height of renaissance perspective inquiry, there are many more examples of work that bend the rules of linear perspective than of works that adhere rigidly to them. And often the former are more pictorially interesting than the latter, precisely because of the tendency of perspectival representation to compromise the overall balance of a composition, plunging the whole work into a cone-shaped catastrophe." (Scolari, 2011, p. 27)

Script K

- Draw loose perspectives of interior situations. Adjust the projection to fit important architectural features into the drawing

- Strive for a sense of being involved with, "inside" or enclosed by the picture. Tools for achieving this might be: deliberately positioned viewpoints and a frame-like picture composition.
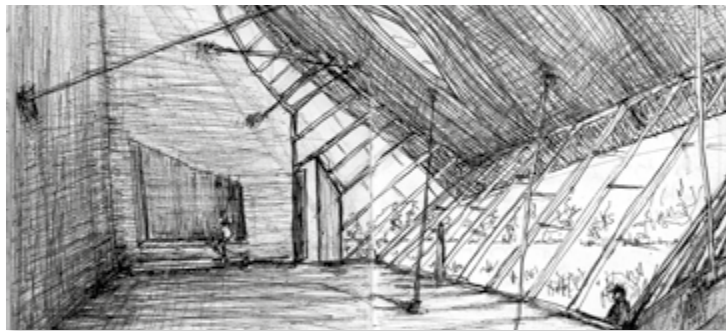
K1. "Loose perspective interior 1"

K2. "Loose perspective interior 2"

LOOSE LINEAR PERSPECTIVE/SITUATIONS

Drawing experiment assessment
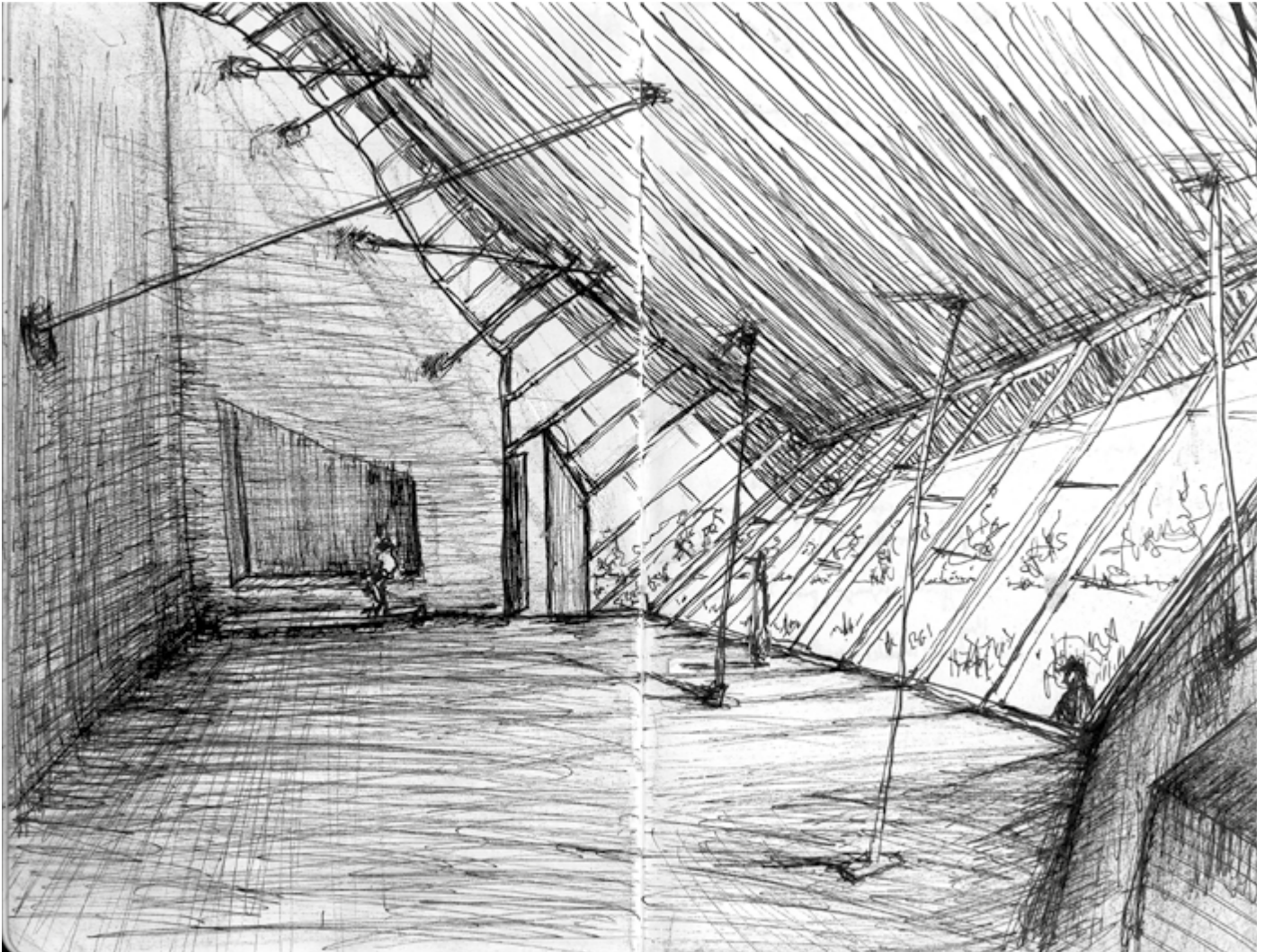
K1. Wide angle perspective of rock-shelter-hall with view of cove

Projection:
Loose 1-point (rather "1-stray center") perspective. The facing interior wall is basically drawn as an elevation, and the rest of the picture uses a wide angle, almost fish-eye pro-jection.

Comments:
This perspective drawing may appear somewhat ordinary. But it makes use of Paul Klees idea of Stray centers instead of a fixed vantage point, as formulated by Paul Klee. Both drawings K1 and K2 explore the idea of a hall carved out in a rock.
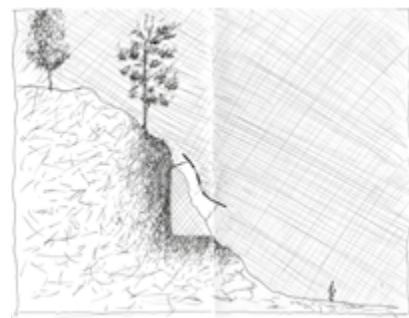
Concept scetch, section

OTHER ORTHOGRAPHIC EXPERIMENTS

"All the artists of the late antiquity [...] understood that the use of parallell projections is not so much the restitution of a view perceived by the eyes of the body, but - as Plotinus suggests _ of an image that is seen by the inner eye, which annuls the distance between the thing and the observer in a process of identification"
Scolari, 2012, p. 326
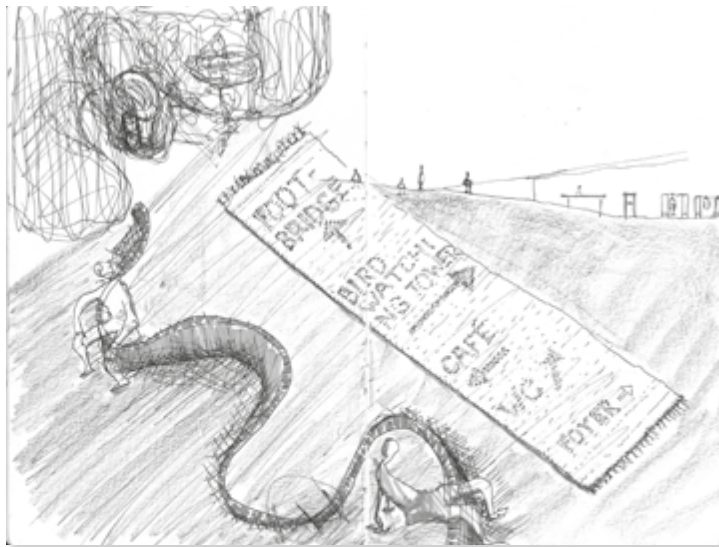
L1. "Ortho 1"

L2. "Ortho 2"

II.III Elaborations and iterations

DRAWING EXPERIMENTS - ELABORATIONS AND ITERATIONS

Reversed / modulated significance
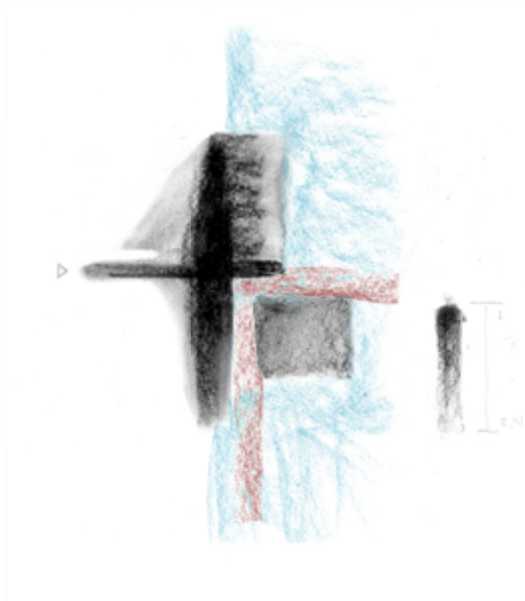
*A*1*

*A*2*

*A*3*

Expanding from (mis)interpreted image

*G*1*

Oddly shaped canvas

*J*1*

Composite

*H*1*

*HK*1*

*HK*3*

Loose linear perspectives / situations

*K*1*

*K*2*

*HK*2*
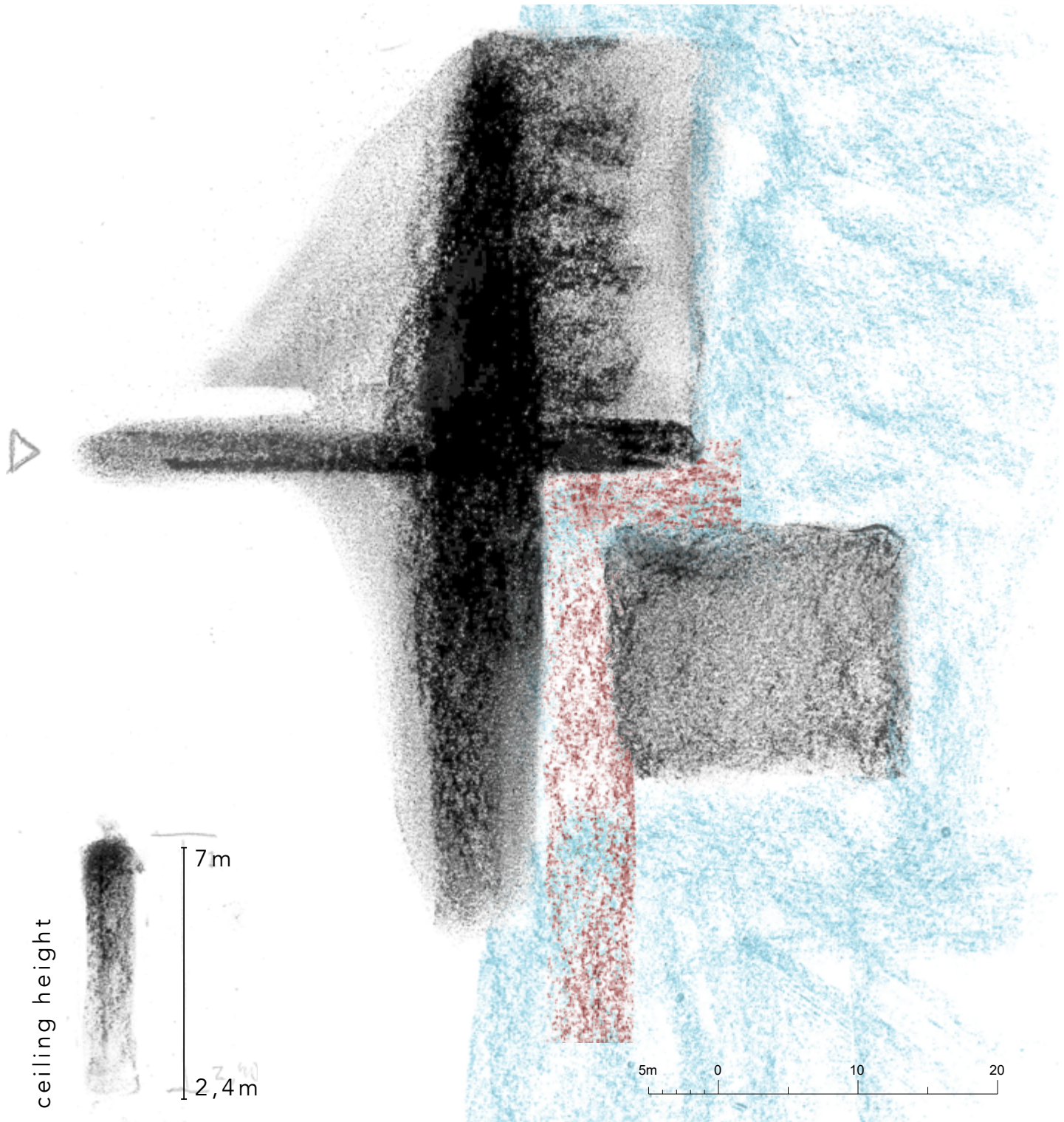
A*1 "Inverted" plan - exhibition hall and raft-like building, plan 1:200. Charcoal and crayon on paper

Comments:

The drawing scheme of experiment A1 is here used for drawing the shape of two adjacent buildings: one exhibition hall with a nave, and one raft-like house. A berthage connects the two buildings. A scale of ceiling height has been applied to the black-white gradient.
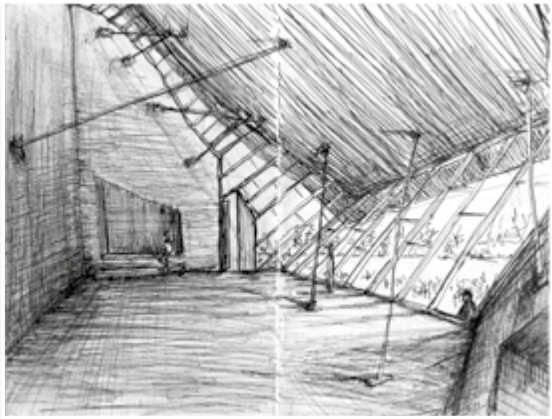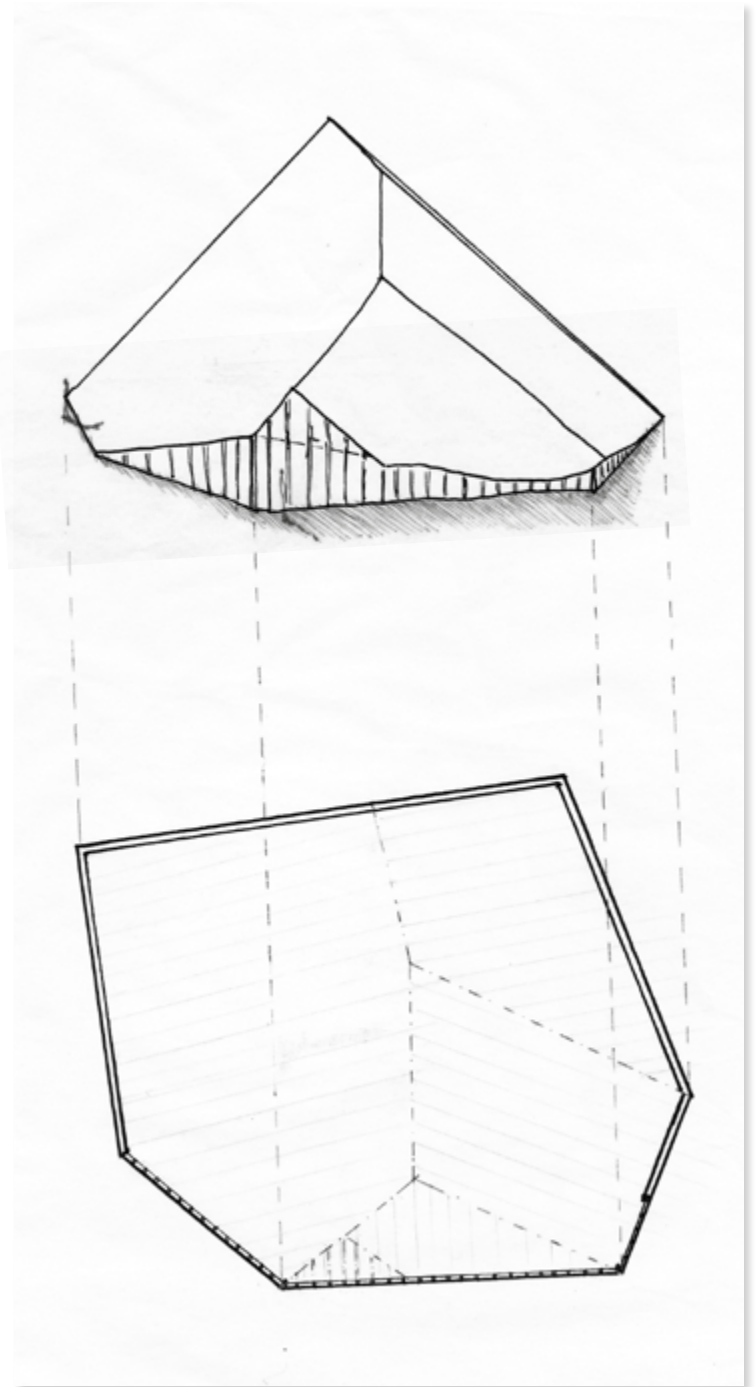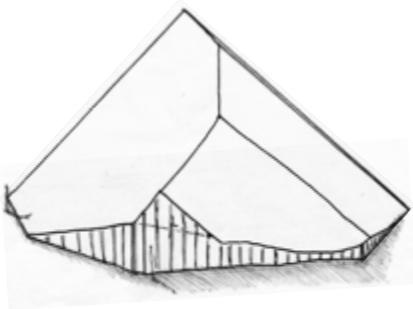
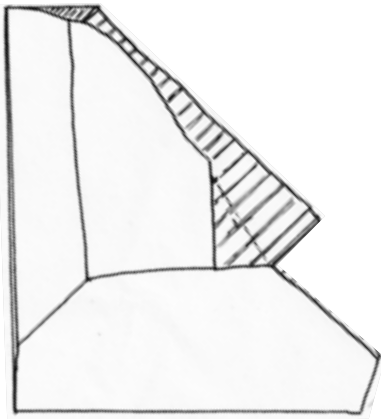71
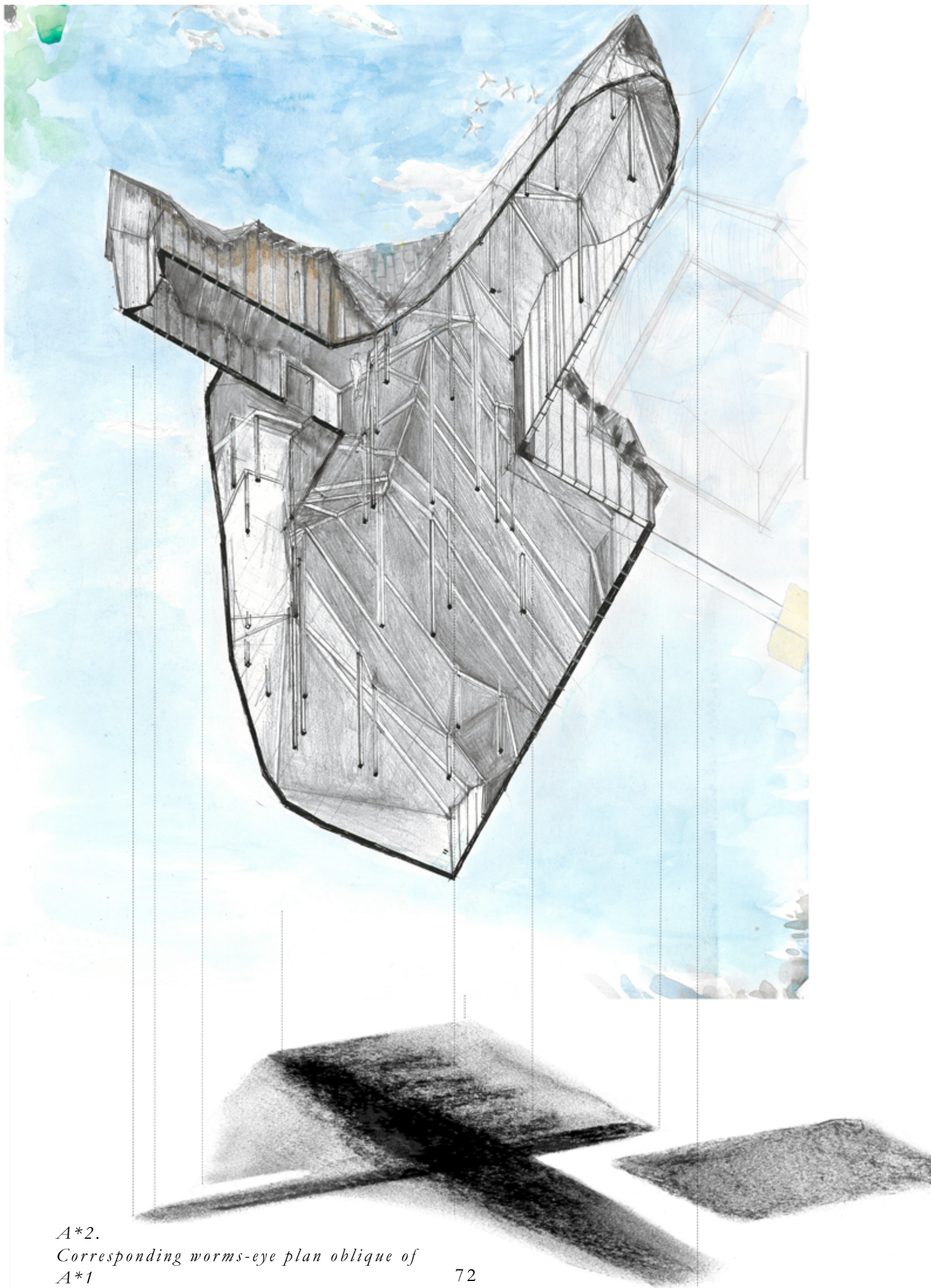
A*2.
Corresponding worms-eye plan oblique of
A*1

*A*3. Masses of nature and buildings, concept site section, collage*
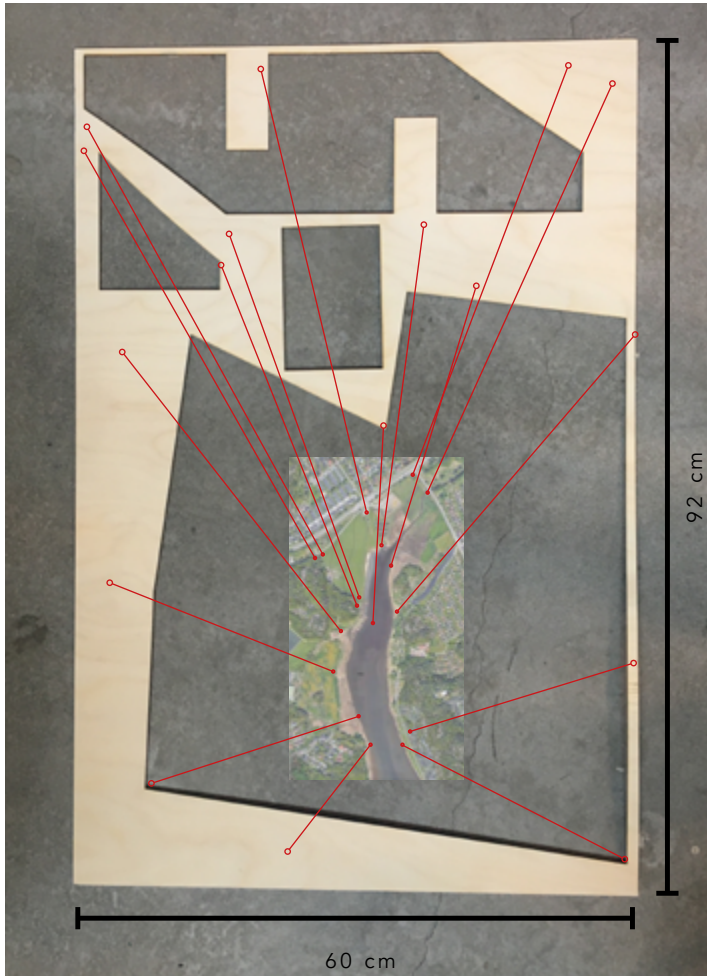
L1   ↓

↻

↗

G*1. "Pitched roof monolith building"
Loose exterior perspective with corresponding
plan

ELABORATIONS: oddly shaped canvas

Comments:

The method of drawing on an oddly shaped sheet was elaborated in a larger format. A found waste plywood sheet for a canvas. It had large holes in it when found. It was found suitable for a large scale site map, with several added buildings. A lot of reference points were used for the composition (see left). Different projections were used in different parts, to make the important parts fit.
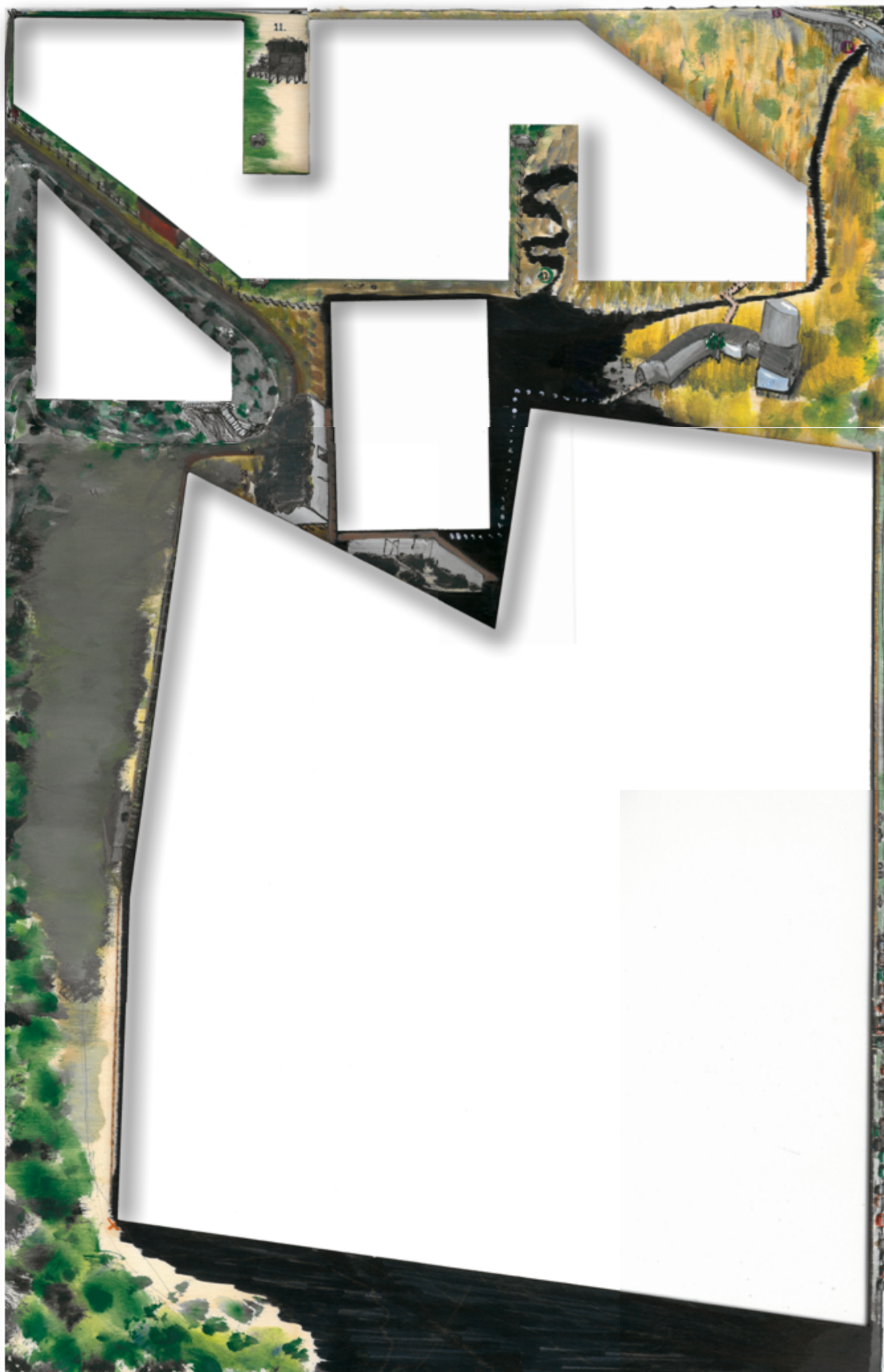
Drawing on such a big canvas with rather small areas to draw on, created interesting compositional opportunities.
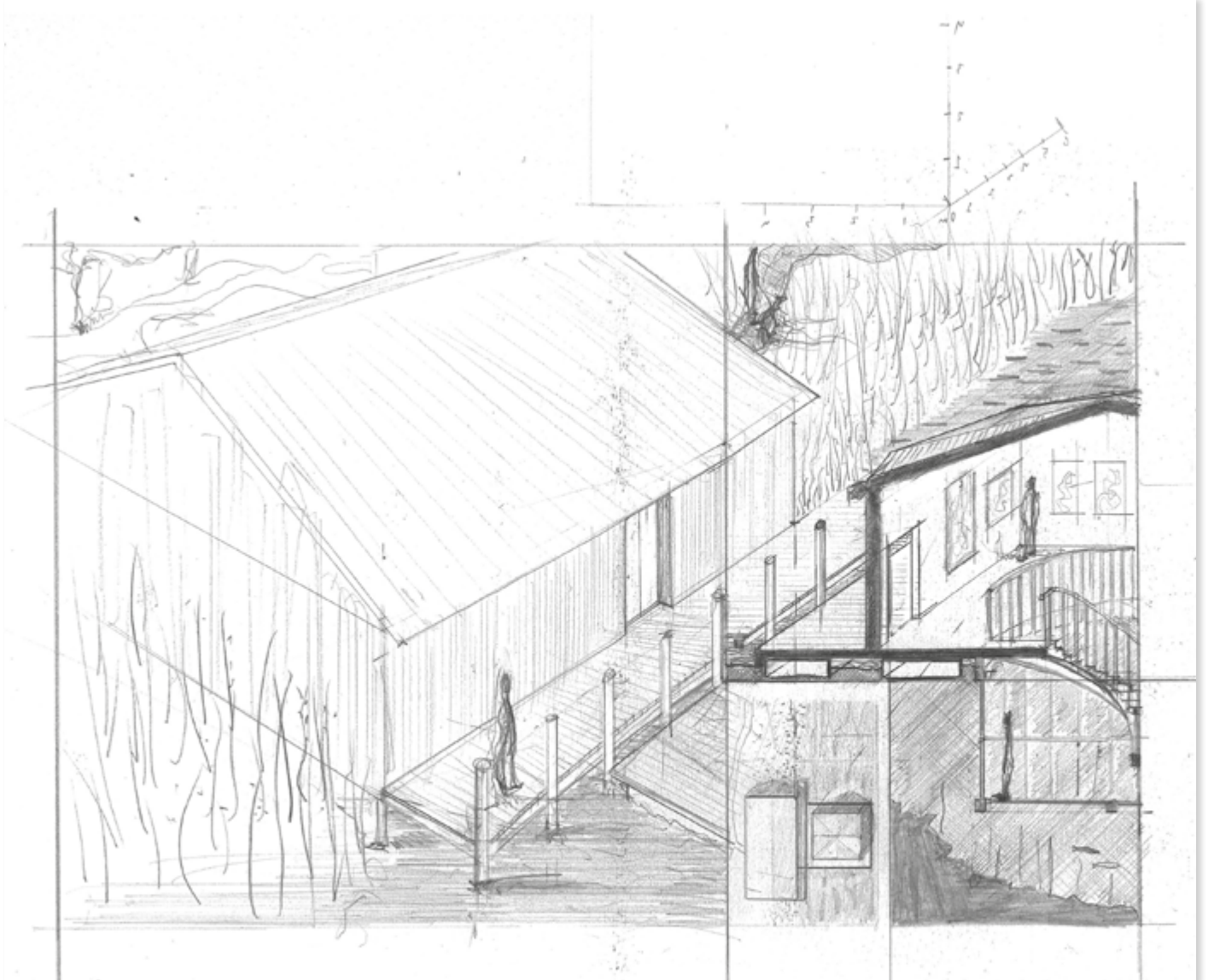
Facing page:
J*1.   "Oddly shaped site map", acrylic paint and pencil on found plywood sheet.
Projection: varies
Scales: varies, 1:500 where parallel projection is uesd

ELABORATIONS: Composite

H*1. Iteration of H1 with increased accuracy and measurability
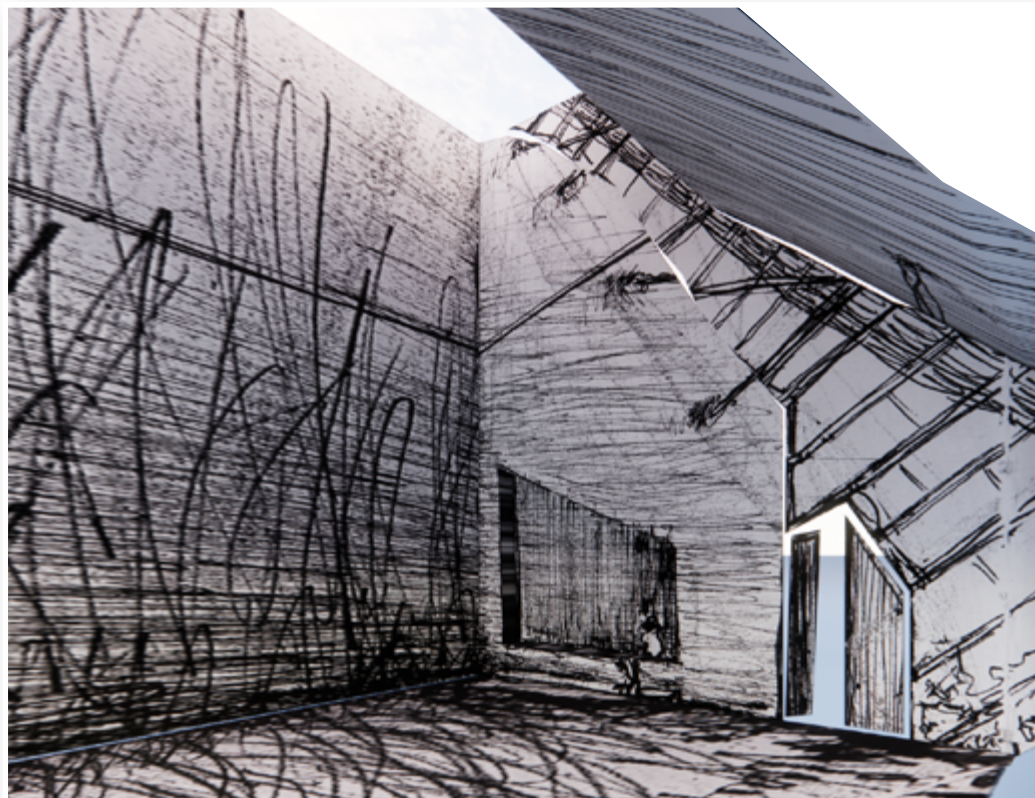

H1

K*1 Computer generated image tracing of K1

K*2 Render of 3d-model with sections of K1 mapped onto surfaces.
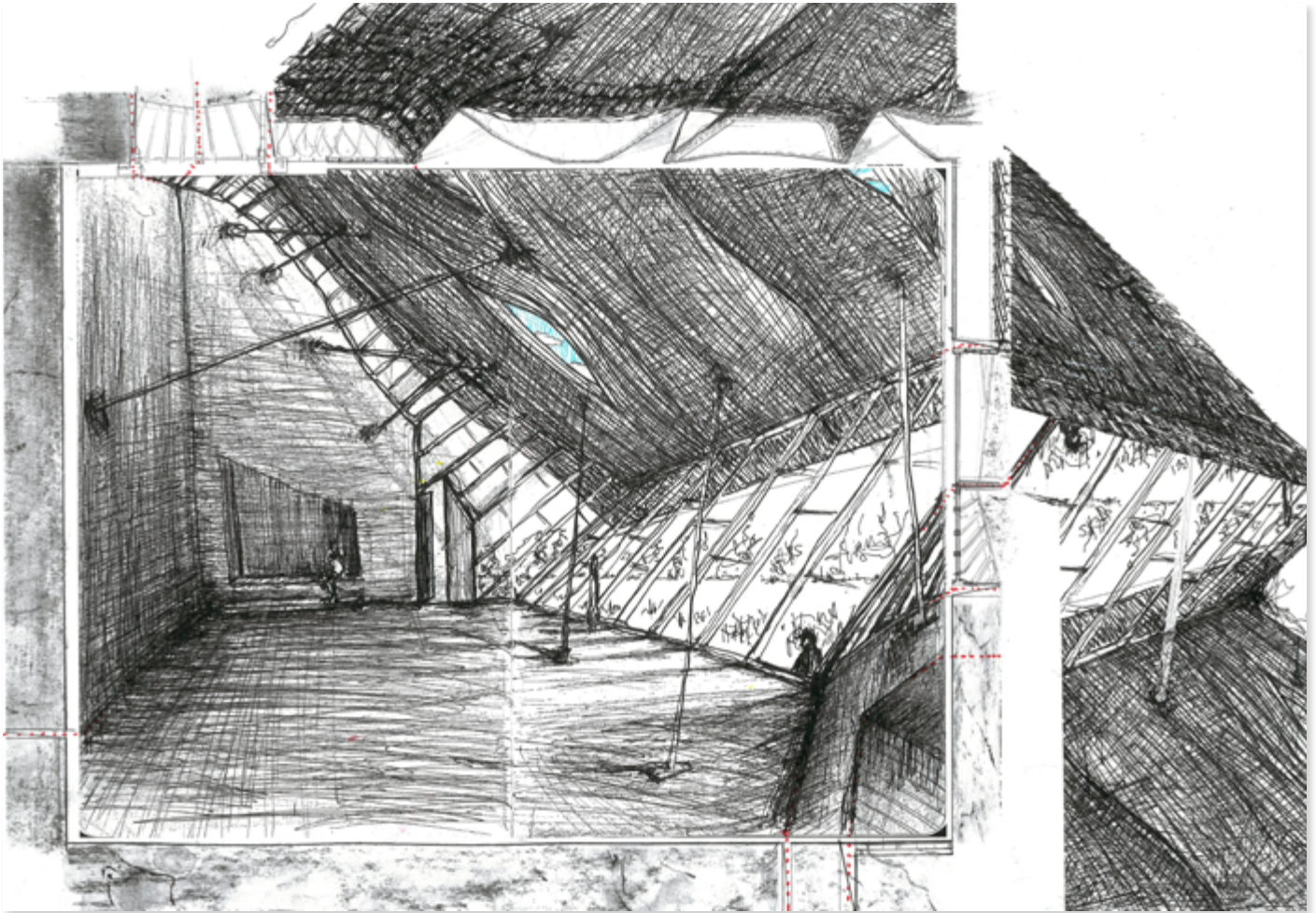
HK*1. Composite expansion of K1. Picture frame as section cut.

Above:
HK*1. Composite expansion of K1. Picture frame as section cut

Left:
HK*2. Legend for reading the scales and projections of HK*1
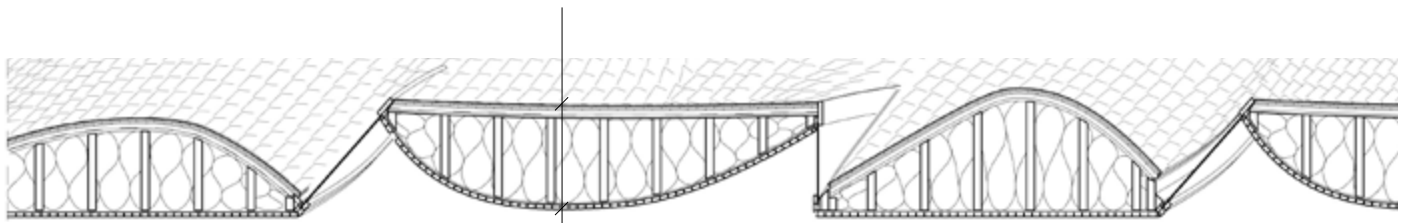
```
5-25     WOOD SHINGLES
5-25            "
5-25            "
25       VERT. BATTENS cc 600
25       HORIS. BATTENS cc 150
         ROOFING FELT
20       CONSTR. PLYWOOD
..       SOFT INLSULATOION
80-450 GLUE LAM. WOODEN BEAMS
         INDIVIDUALLY SHAPE-SAWN
20       CONSTR. PLYWOOD
12       WOODEN LATHS (STAINED FIR)
```
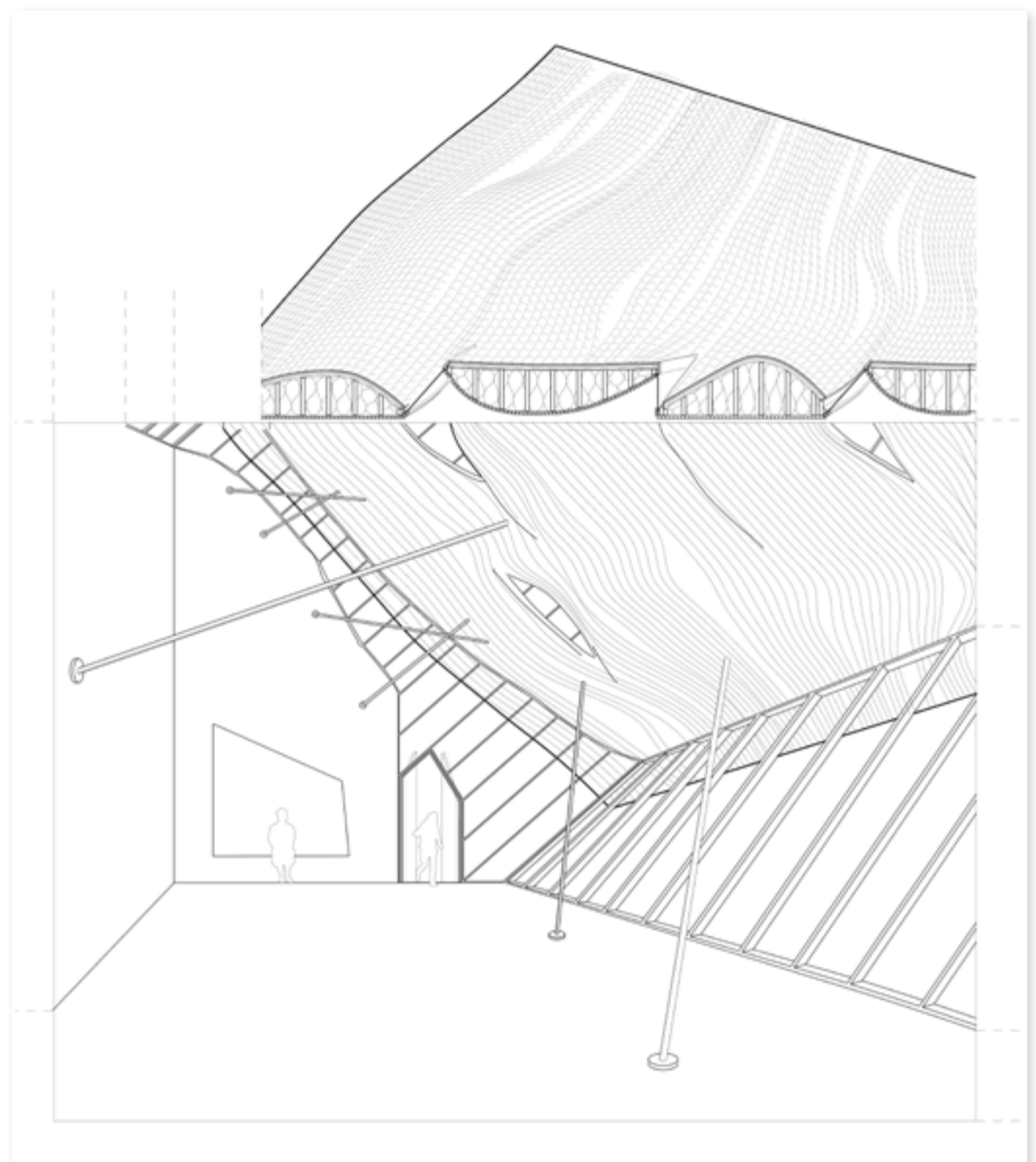
Above:
HK*3. Excerpt
with annotations

Left:
HK*3. Iteration
of HK*1 with
higher accuracy

Conclusion and reflections

CONCLUSION

The drawing is a thing, through which we can think about architecture, and through which we can formulate intentions of design. The particularities of each of the methods that we use for drawing exert influence on *how* and to some extent *what* we draw – and thus, *think.*

This thesis have, with the help of theoretical reasoning, reference studies and conducted experiments, given substance to that argument. It has also dug into the question of what a drawing, i.e. representation, is. It might not have delivered an exhaustive answer to what a drawing *is,* however, it has presented numerous examples of what a drawing *can be,* and how it *can* relate to design practice.

The deployed approach of dethroning and partly avoiding the plan and section drawings proved to be helpful, in that it created a need for inventing drawing methods (or remodelling old ones). Additionally, by "dwelling in the representational void" left by these techniques, one gains a deeper understanding of what they actually are and in which situations – which are not all situations – they are crucial.

Reflections: reference drawings

- The selection of reference drawings was done according to their promise of usefulness in an architectural or design context. But also, they were chosen because they were found aesthetically striking. And after having analysed them, and having built up a vocabulary for talking about them, I noticed that many of them

had something in common. Namely, they share some attributes regarding their mode of reference. What unites them is that they seem to exploit the friction that is found on the threshold between the notational and the depictive. *This* might be the reason behind them being identified as promising. May possibly that same friction be one of the hallmarks of design drawing?

Reflections: Drawing experiments

- Many of the techniques used in the drawing experiments and final outcome proved to be difficult to read. This, though, was an expected flaw, since viewers have little or no prior experience of reading such drawings. Are not all types of drawings difficult to read before having been accustomed to their principles? But although the invented drawings appear complicated, odd or chaotic, they have aimed to be internally consistent within their particular drawing scheme. And furthermore, in some cases the difficulties that one may have in decoding a drawing might actually play a part in heightening the suggestive or evocative qualities of it.

A general conclusion would be that the most successful experiments were those which partly made use of familiar drawing schemes. It were those that tweaked these familiar schemes: adding variables to them, combining them and sometimes misusing them. By that they balanced between acquaintanceship and novelty.

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Appendix:
Reference drawings and artworks

PROJECTION: OBLIQUE

1.

These works are examples of oblique parallel projections. They all represent depth in a non perspective way. This approach allows for a sort of continuity and equality of the depicted objects and surroundings. What separates oblique projections from axonometries is that here, some faces appear parallell to the picture plane.

2.   3.

1. *Stein on the Danube, oil on canvas, Egon Schiele, 1913*

2. *Balkrishna Doshi, "Miniature perspective painting of a lively street", Aranya Low Cost Housing, Indore, India, 1990.*

3. *Tahmina Comes into Rustam's Chamber, Anonymous, Persia c.1434*

REVERSED PERSPECTIVE

Both before and after the conquest of linear perspective, various drawing inventions have been used to construct views. In these examples parallel lines seem to converge towards the viewer, instead of towards a vanishing point, as they would have done in a linear perspective.

4.

5.

4. *The Reservoir, Horta de Ebro, Pablo Picasso 1909*

5. *Iconostasis - Andrei Rublev, "Annunciation" (1405)*

ILLUSTRATING COMPLEX INTERRELATIONS

6.
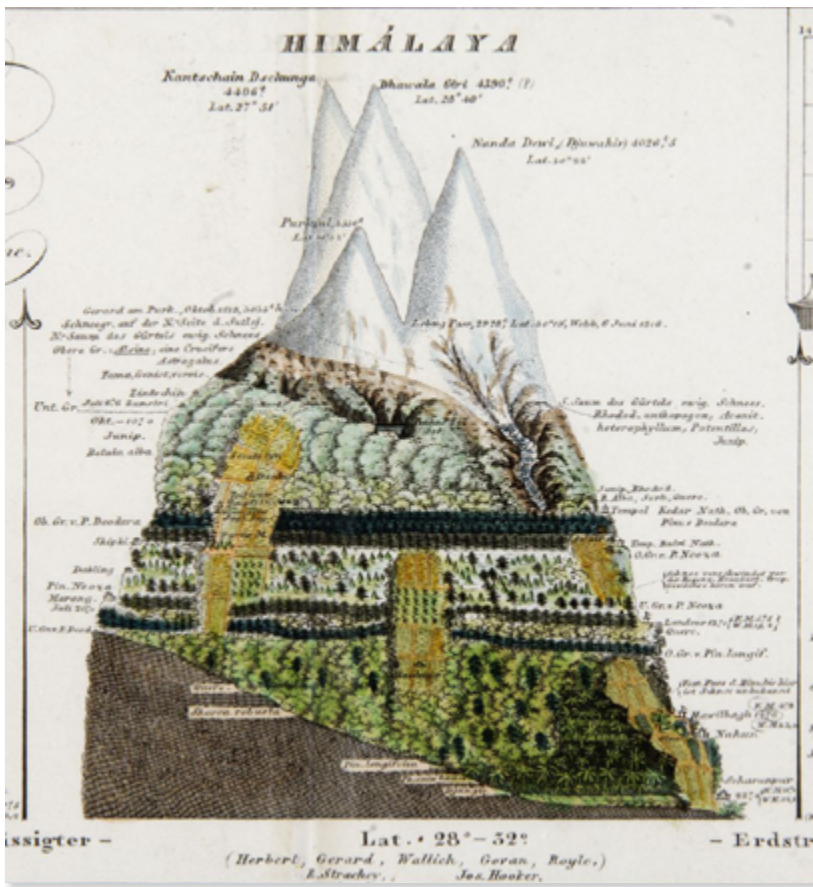
These examples illustrate complex interrelations and systems. By their schematic attitude towards depiction, they make hidden interrelations visible. Through these illustrations we can understand the world in new ways.
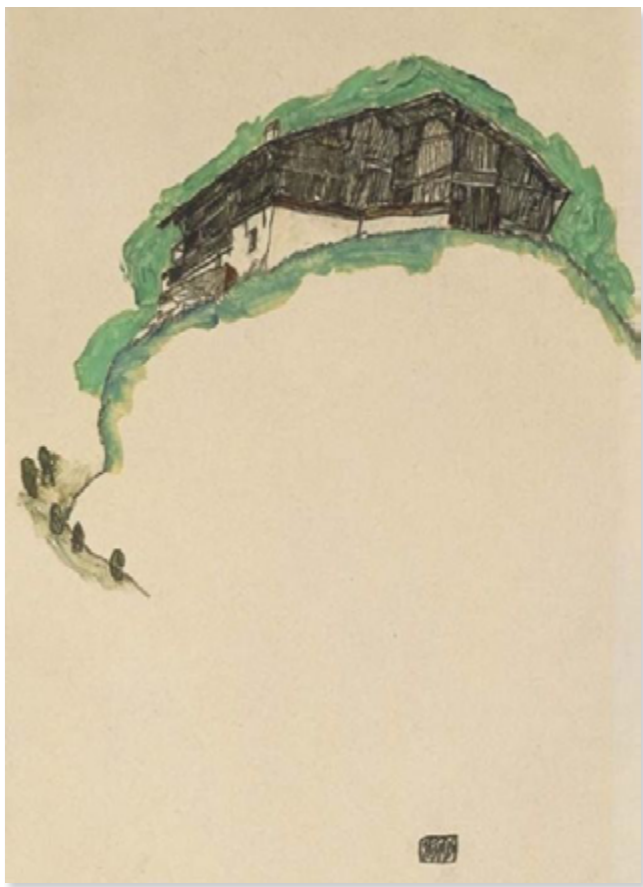

7.
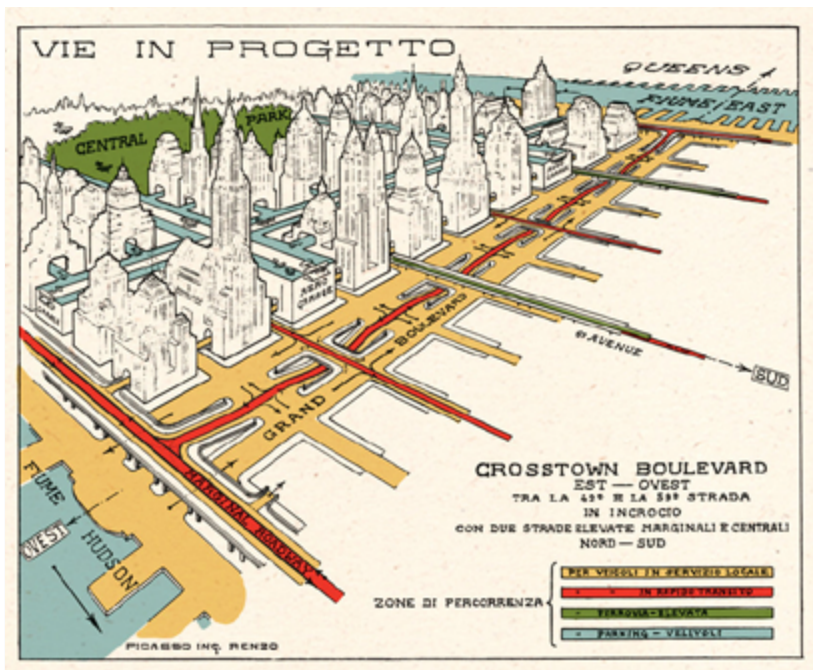
6. Himalaya, Alexander von humboldt, from H. Berghaus, 1851, Physikalischer Atlas, vol.V, plate No.1

7. New York Crosstown Boulevard, Renzo Picasso, 1929

PERSPECTIVAL VENTURES

8.

Here, linear perspective is tweaked and taken to an extreme. The Schiele painting shows a house on a hill, as it would appear to a visitor ascending the hill. The Picasso example is painted on a ceramic bowl. The geometry of the canvas allows for a highly immersive view of a bull fighting arena.

9.

8. Farmhouse on a hill, Egon Schiele, 1917

9. Ceramic bowl with painting of bull fighting arena, Pablo Picasso

SUBLIMITY AND MONUMENTALITY

10.

Here are two images which with some really sublime qualities. They are engaging in an imposing, almost intimidating way.

11.
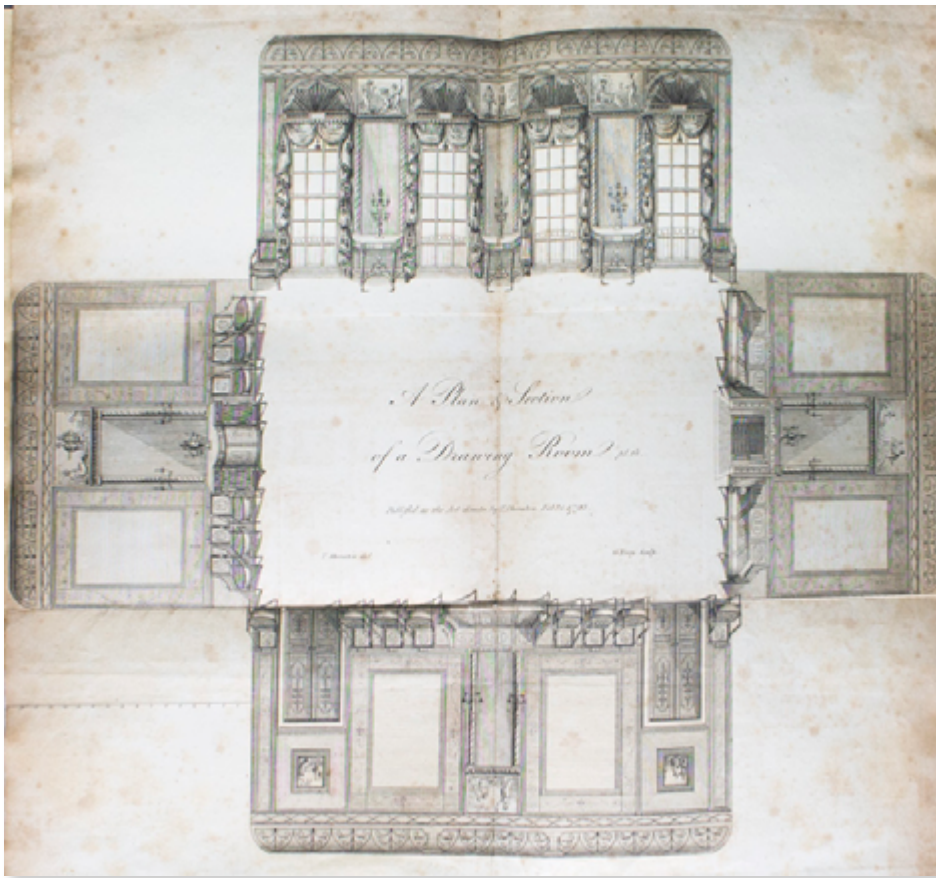
10. The Lion Bas-Reliefs, etching, part of the Carceri Series, Giovanni Battista Piranesi, 1750

11. Cenotaph for Isaac Newton, section, Etienne Louis Boullée, 1784

COMPOSITE

12.

By a careful disposition of projections, these exaples combine multiple architectural drawings into one composition. This provides for a coherent understanding of the drawn projects - something that would have been impossible, or at least very difficult if the components had been presented apart from each other.

13.
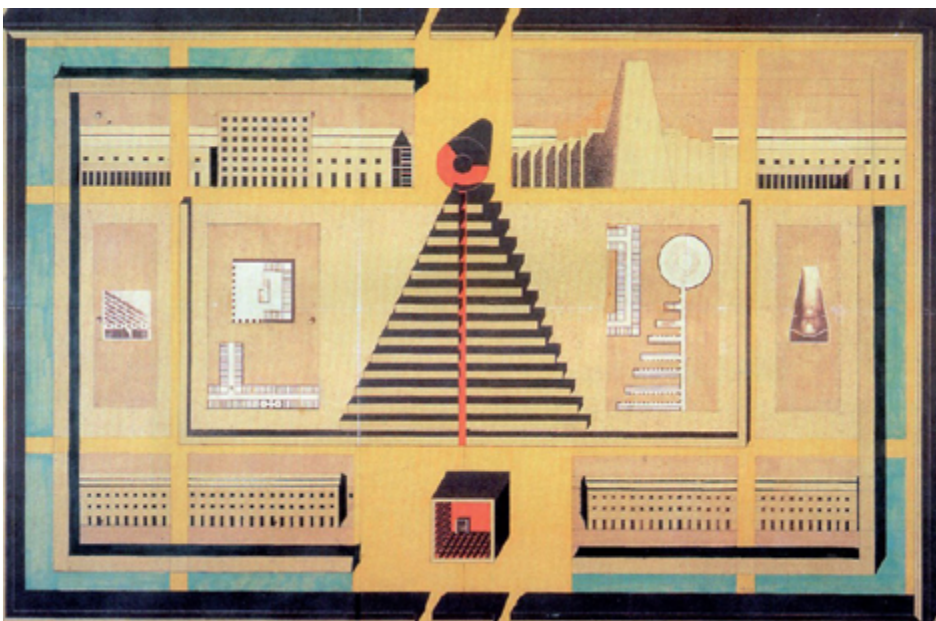
12. The cabinet-maker and upholsterer's drawing-book, Thomas Sheraton, 1802

13. San Cataldo Cemetery proposal, Aldo Rossi, 1971

14.

15.

These three works, all from different periods and contexts, share a tendency towards maximalism. They are all rather equally saturated with details, colour and contrasts. The artworks maintain sharpness and detail in portrayed objects and situations in both near and far distances. They are very dynamic, and not so centralized, which makes them evocative and somewhat impossible to grasp in their fullness. The compositions are made possible thanks to their tweaking of the rules of perspective

16.

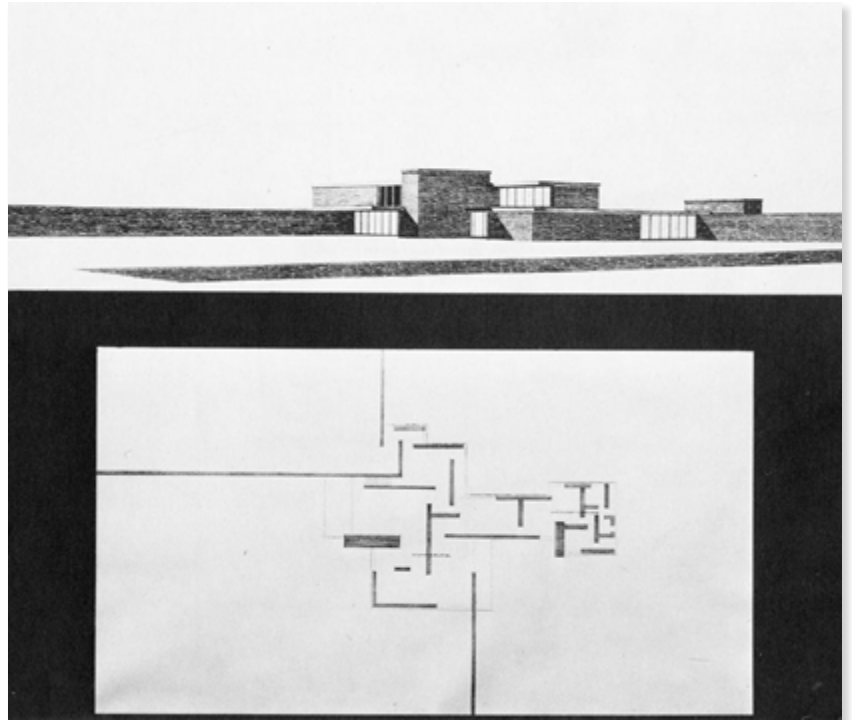14. *Triptych, ukiyo-e (woodcut), Utagawa Kuniyoshi, 1800s*

15. *Dutch Proverbs, Pieter Bruegel the elder, 1559*

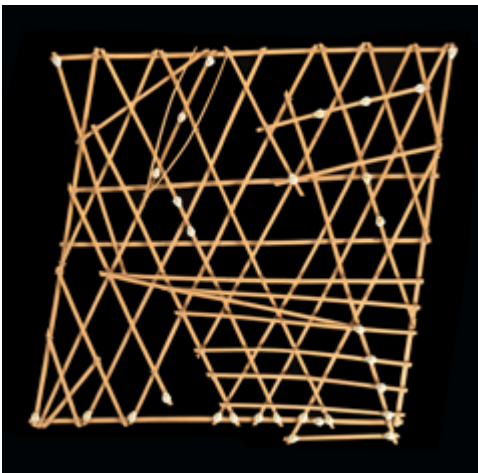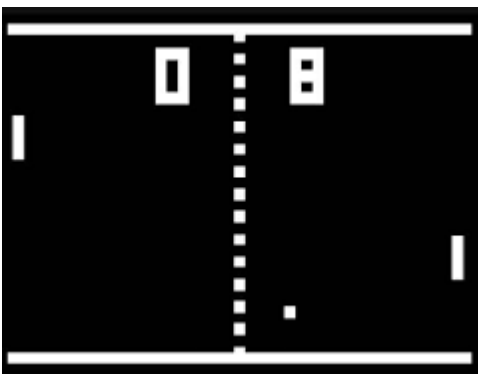16. *Pettson & Findus illustrated advent calendar, Sven Nordqvist, 1993*

17.

20.

18.

19.

These representations all use highly abstracted denotations to represent things. Their mode of reference have almost nothing to do with resemblance. #20 is a very conceptual plan drawing whose ambiguous lines gets comprehensible when presented with the perspective above. #19 is a video game, which share a plan drawings attributes. #17 and #18 are indigenous navigational charts. One uses bamboo sticks to represent ocean currents, wind patterns and wave swells and seashells for groups of islands. The other one is a piece of carved wood, in which recesses denote coves and bays at the coastline of Greenland.

17. Inuit carthography on top of modern map. Carved wooden map over a part of greenland's coastline. By "Kunit", 1800s

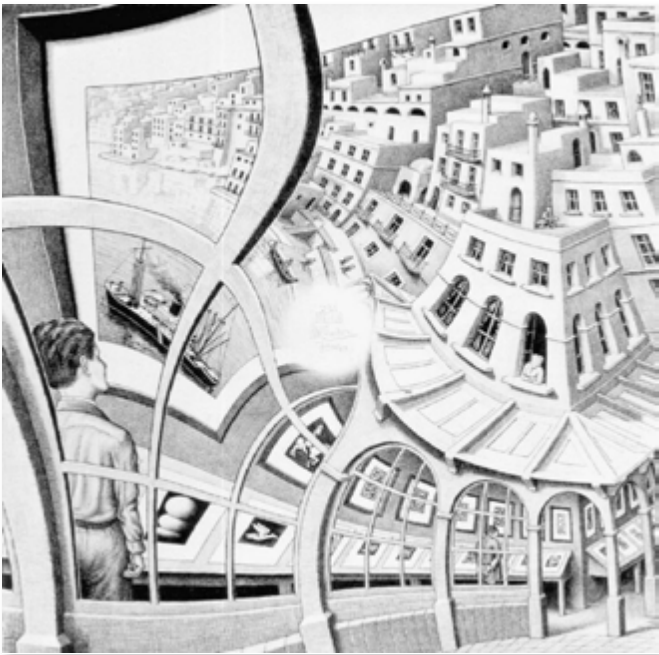*18. Traditional "Rebbelib": navigational stick chart from Marshall Island Region.*

19. Snippet from video game "Pong", Atari, 1970s

*20. Brick Country house, Perspective and conceptual plan, Mies van der Rohe, 1924*

21.

22.

Some images have the ability provoke strong dream-like sensations in the viewer. They operate outside of ordinary optical conventions, and by utilizing uncertainty and ambiguity they become highly evocative. Some could argue that these types of "unclear" representations do not have a place in architectural practice, but actually they may play a big part. Drawings and images like these may be crucial for setting a certain type of tenor for a project and they can give a hint of hidden qualities. They also play an important counterpart to drawings that seem to diminish buildings into convenient commodities, since they provide representations of something unfathomable.

23.

20. *Amateur, oil on canvas, Karin "Mamma" Andersson, 2004*

21. *Print Gallery, lithograph, M. C. Escher, 1956*

22. *Passage II, engraving, Peter Milton, 1971*
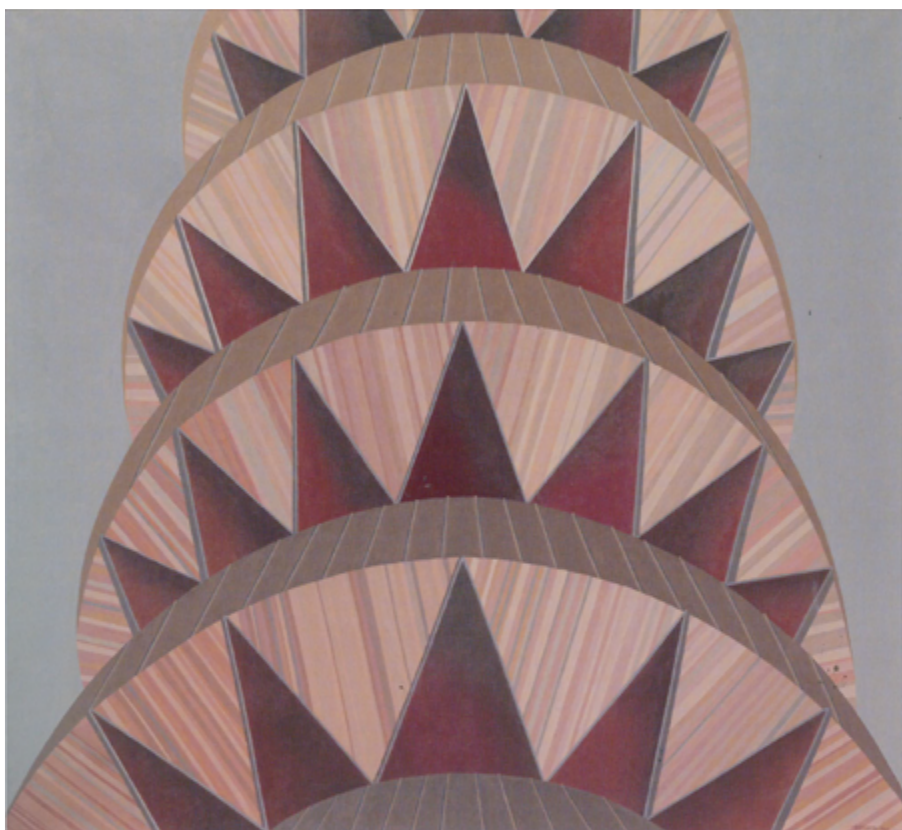
UNCATEGORIZED

24.

These last two images have not been categorized, but both are represent strong interpretations of architecture. One is graphic and rather minimalistic while the other is more mellow and atmospheric, but both stand for a re-reading of something that is built.

25.

24. Chrysler Building, Barbro Östlin. 1962

25. Houses on the Moldau Krumad, Egon Schiele, 1910