

NUANCE

Exploring Regional Characteristics



Master Thesis Spring 2020
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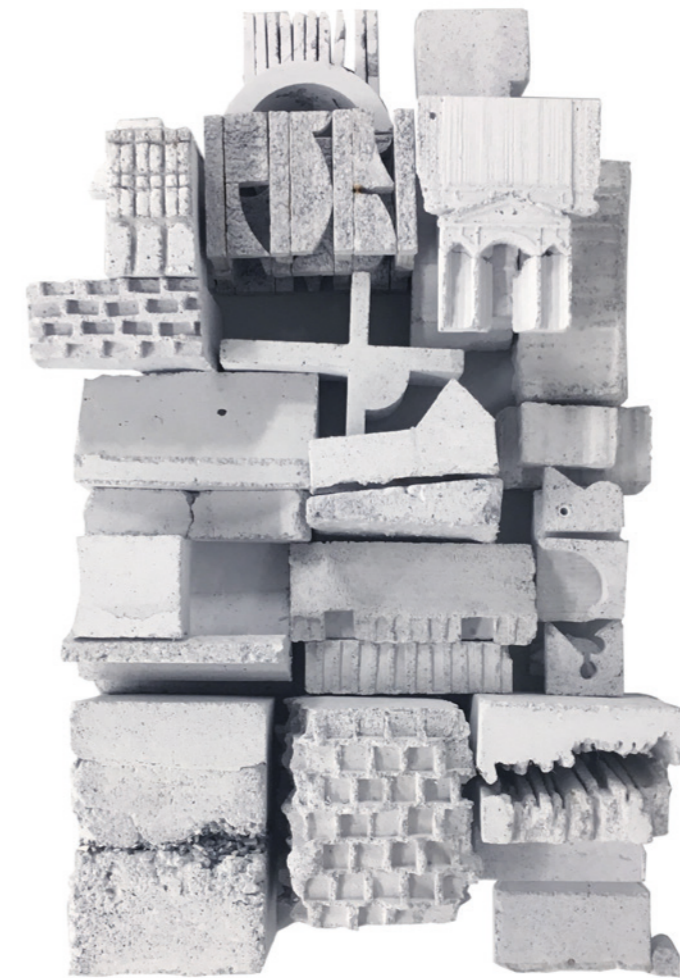
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ABSTRACT

This thesis is a search for regional nuances in Bohuslän, through explorations on carefully chosen references illustrated with mussel-based concrete. The out-come of the method and the material studies are manifested in a small-scaled factory where further experiments and explorations can be made in and on the material.

Bohuslän has a long history of harvesting the sea and the landscape that surrounds it. The vernacular architecture has been prominent through the history in the region, where utilizing the nearby environment has been essential. The site in this thesis, Klätta, is located in northern Bohuslän, there has been an industry for sea mussels on the site that has now closed due to outsourcing. Left on the site is an abandoned building and piles of mussel shells laying on the ground. The thesis strived to use the material and its characteristics as an aesthetic quality in a conversation between material and shape. The thesis take departure from critical regionalism and questions the usage of the modern accessibility of visual information and the effect it has on cultural identity.

It is developed through several interpretations of buildings and building components from Bohuslän, chosen for their representative qualities of elements that together defines a traditional architectural archetype of Bohuslän. The references used in this project are deliberately taken before the modernism movement because of its global intent. The chosen references do have global influences but are made with a local intent, therefore can be used as argument for a regional character.

The thesis uses a filtering approach, where the input (images) are interpreted and transformed by methods and materiality to an output that is more coherent with current techniques and/or design ideals. This approach is used both as a process for a deeper exploration and understanding of the images but also as a way of not using the references as a simple “copy & paste” technique. The thesis’ main emphasis is on the design methods used to reinterpret local references.

Keywords: Critical regionalism, paraphrase, mussel, concrete, references, re-interpretations, Bohuslän

MAIN QUESTIONS

- How does iterations through a method of paraphrasing on regional specific references effect the end design?
- How can one use an abstraction of a reference and not lose the intent of the original?
- How can a naturally occurring materials from a site be made into a material?
- What aesthetic qualities in mussel-concrete can be used as input to the design?

DELIMITATIONS

This thesis’s approach on mussel concrete is mainly from an aesthetic point of view. Meaning that its structural features is briefly investigated as support for argument but not thoroughly researched. The same goes for its economical and sustainable properties.

The projects industrial program is to be seen as a experimental workshop and therefore are not meant to be economical viable nor reach the standards of a conventional concrete plant.

The chosen reference images are not to be seen as definite but as representative samples of architecture in Bohuslän.

One of the key elements of critical regionalism is to reinterpret traditional building elements, but one should also deliberately include sources from other cultures. This thesis argues that a person of today has enough international influences that a personal, internal process will provide enough global tendencies to a project. Therefore, external references as a part of the method have not been deemed important for the project.

The thesis is based in a western context and westernized discourse in regards to regionalism and critical regionalism today.

BACKGROUND & THEORY

Today, information and communication are two important pillars of the modern globalized society. These two phenomena made a remarkable portion of the world capable of accessing any kind of visual information (Crudeli, 2018).

The architectural profession has a history and tradition of traveling all over the world to find architectural inspiration to bring home. With the accessibility of affordable transportation of today, to an even greater extent, tours like “The Grand Tour of Europe“ are being made. With platforms like Google, Pinterest or Archdaily one is bombarded with global inspiration at a daily basis. One could argue that it’s more often that the references that are being used tend to be taken out of context and forced into alien situations; searching for “house” can put you on the shores of Greece or in the north-east coast of Canada. Together they might be an inspiration for a house in Madrid. This procedure can be helpful but constantly taking projects out of its local context may also mean that the project loses some aspects of identity.

The usage of words like “regional” and “identity” are frequently used in conservative contexts where the objective is to exclude other cultures in order to obtain one’s own. When Kenneth Frampton described critical regionalism, he took his point of departure in a quote by Paul Ricoeur that addresses the conflict between being modern and at the same time being able to return to one’s roots. This is also the basis for critical regionalism, trying to bridge the gap backward in time without being devoured by it. This incorporates a complicated contradiction between highlighting and strengthening tradition and the region and, on the other hand, absorbing world culture and allowing oneself to develop and be inspired by other cultures to avoid stagnation and even regression (Grillner, 1994).

The easy access to distant information allows people to have a different and wider awareness of themselves and the territory that they belong to (Crudeli, 2018). In the age of communication, a perimeter that has a specific cultural identity that expresses place specific architectural features are hard to define. It does however, also give the opportunity to be part of a global discourse but at the same time be specific to the place one is situated. Meaning that there is a possibility to benefit from both world wide information and place specific tendencies (Frampton, 2018).

The point of departure in this thesis is critical regionalism, where the concept of regionalism indicate an approach to design giving priority to the identity of the particular rather than to universal dogmas.

One of the key elements of critical regionalism is to reinterpret traditional building elements, Grillner argues that when doing interpretation of traditional building elements, one must account for the originality, not making interpretations of objects that already has been interpreted to prevent a circle-argument of design (Grillner, 1994). Using building components, such as ornaments, includes an understanding that they already are an interpretation in the first place and a syntax of iterations. Therefore, this thesis deals with references as they are, with their whimsicality and intentions intact. It also does not reject the whimsical individualism and ornamentation of postmodern architecture but does strive to counter the placelessness and lack of identity of the international style by being inspired by local notions and precedents.

The site in this thesis, Klätta, is located in the northern Bohuslän, where

LOCATION & MATERIALITY

there has been an industry for mussels that is now closed due to outsourcing. Klätta is part of a small peninsula and is mostly an area for summer residences with small amount of tourism oriented businesses. This thesis proposed a renewal of the old mussel industry, but not as it once was. A new industrial building that deals primarily with the surplus of shells from the meat harvesting of mussels.

Bohuslän has a long history of harvesting the sea and the landscape that surrounds it. From using herring oil to protect buildings to using rocks as foundations. The vernacular architecture has been prominent through the history in the region, where utilizing the nearby setting has been essential.

Left on the site is an deserted 80’s building with piles of mussel shells laying on the ground. Although the factory in Klätta is shut down there is a growing industry of farmed mussels in Bohuslän because of the growing demand from restaurants but also as a part of cleaning the waters from pollution. One small mussel-bar in Ljungskile has over seven tons of shells as waste per season and the biggest company for farmed mussel in Bohuslän, Scanfjord, have a growing problem with their waste of shells.

Seashells has high CaO content and gets reactive when heated, thus making it possible as a partial substitute for cement as binder in concrete (Procedia Engineering, 2018). The studies that has been done in the subject surrounds mainly about the physical properties, and benefits from the material. This thesis strive to use the material and its characteristics as a aesthetic quality in a conversation between material and shape. Replacing not the binder but the aggregate with the intent of several expression that can be used for various situations.



PROGRAM

The machines and utilities in our design proposal are fitted for a smaller scale of production with the purpose of being an experimental-workshop where mussel-concrete can be tested for different design and materiality approaches.

The building itself is a reflection and a paraphrase of the thesis work, process of washing, crushing, heating, mixing and casting is represented in the building. There is also accommodations in the building with the intent of having workshops with artists, designers or enthusiasts that can visit, making it a destination by its own.

We identified five types of main usage of the building: artists, visitors, guided tours and workers. A flowchart was made of every type for further understanding of the connection between the different rooms within the building. Artists have the opportunity for a longer stay with a accessibility to rooms making it easier to have a long-term project, similar to the concept artists in residence.

PROGRAM

AREA:	SIZE:	LEVELS:
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WORKSHOP

Cast room	420 m ²	1-2
Office	130 m ²	1
Workshop	330 m ²	1-2
Outdoor workshop	350 m ²	1
Water collection	65 m ²	-

REPRESENTATION

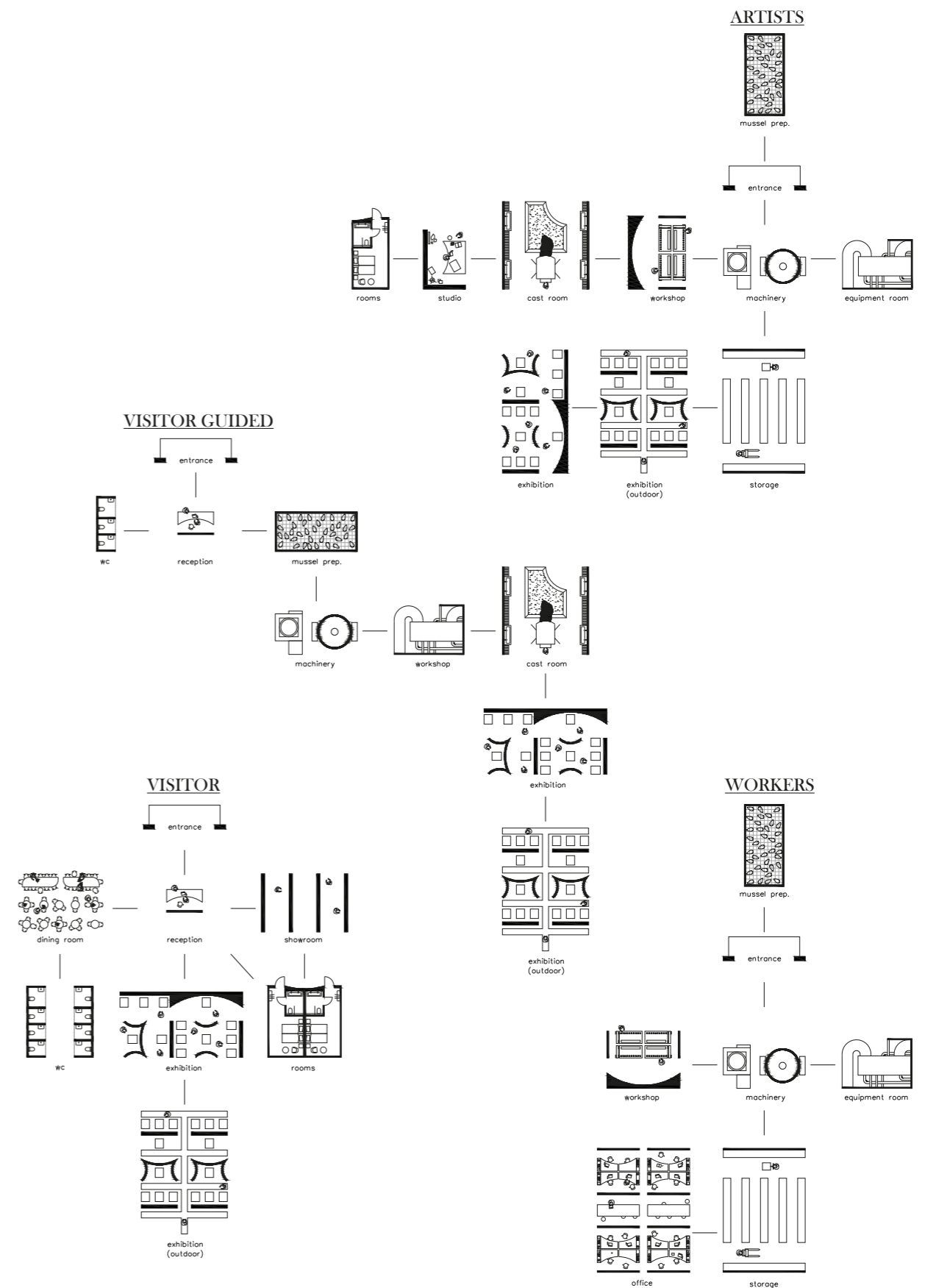
Rooms (6)	á 36 m ²	1
Studio (6)	(5) 20 m ² , (1)43 m ²	1
Exhibition	115 m ²	1
Reception	40 m ²	1
Restaurant	175 m ²	1

IN TOTAL: 1 804 m²

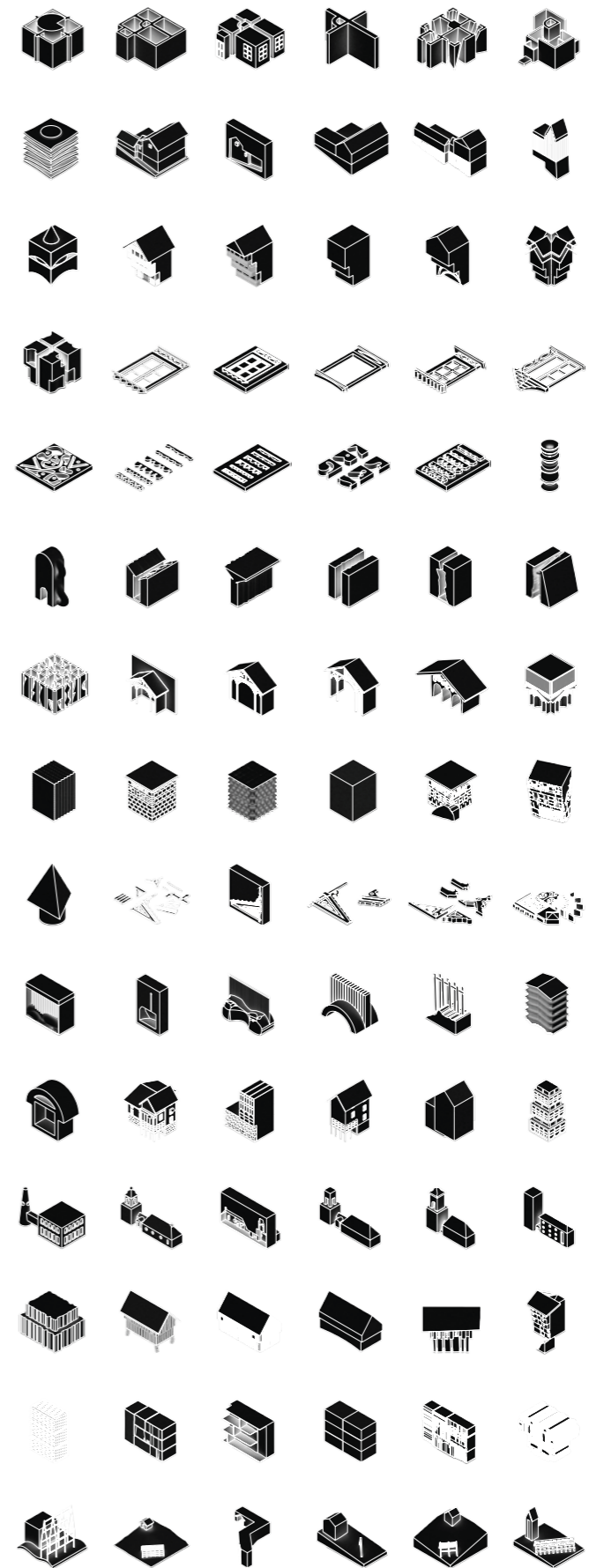
FOOTPRINT: 2100 m²

MACHINES

- Crusher
- Strainer
- Mixer
- Furnace
- 3D printer



METHOD



METHOD

“Artists today program forms more than they compose them: rather than transfigure a raw element (blank canvas, clay, etc.), they remix available forms and make use of data”

- Bourriaud

Bourriaud argues that contemporary artists tend to more navigate through already existing forms and reassemble them rather than to make new artwork, this goes for both artists and musicians. He argues that this type of artwork is no longer an endpoint product but rather a simple moment in an infinite chain of contributions.

Instead of looking at “typical” contemporary architecture from similar conditions, often found at Pinterest or Google, we were focusing on the nearby architecture in the region. Looking only at buildings in proximity to the site to contribute to a regional nuance.

One of the key aspects of this thesis is the reinterpretation of architectural elements and components from Bohuslän. The initial work in the thesis was to test different approaches on how to reinterpret an original design into a new design. The design varies in scales and detailing and is illustrated, after alterations, through castings. The outcome is then designed using the findings from previous steps. The notion of reinterpretation is a known attribute within writing, art and music where its called paraphrase, re-mix or sample. This thesis dealt with alterations and iterations similar to the way an artist or author uses a paraphrase; the input goes through the architect and becomes something new, with the original intent/essence still present.

In the method used, references were collected from books, archives and museums to get an overview of architectural elements from Bohuslän. The references were filtered through six different methods of paraphrasing. The outcome of each reference helped to form design guidelines that was used throughout the design process.

“A paraphrase is a restatement of the meaning of a text or passage using other words. The term itself is derived via Latin paraphrases from Greek, meaning additional manner of expression.”

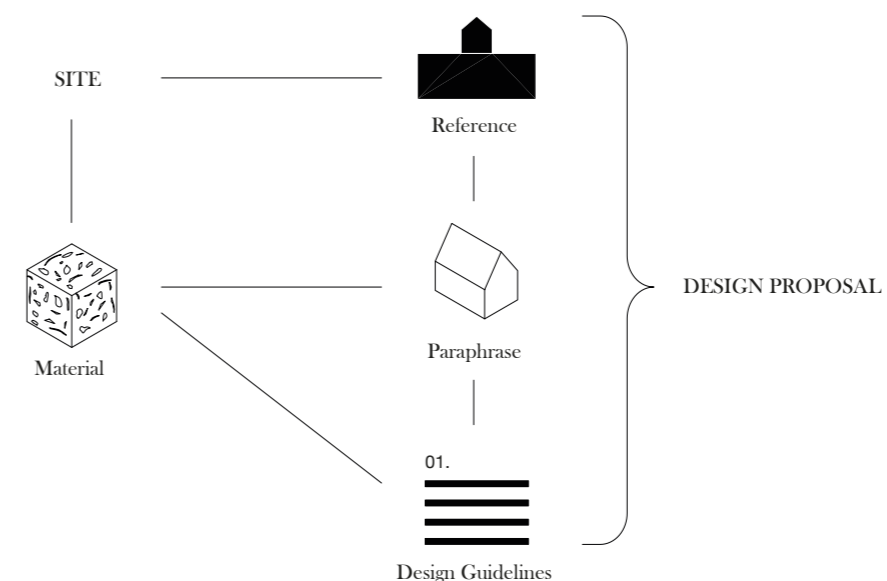
- Wikipedia

METHODS FOR REFERENCE PARAPHRASES

To avoid a repetitive result and to explore different aspects of each reference there was six different methods for the paraphrases (see below). The variations were chosen based on their process; some had a digital approach while other focused on physical models and so on.

To get a coherent result they all were made within a 10x10x10 cm boundary and with the intent of being casted in the mussel concrete. Some of the results of the methods included a contrast within the shape, therefore also was used as an investigation of materiality and not solely as a paraphrase of design.

- A: **DESCRIPTION:** Original (2D image) - Text (description of the element) - Interpretation of the text (new 3D element)
- B: **DEPICT:** Original (2D image) - Computational model - Abstraction in the form of a simplified pictogram
- C: **CASTING FOCUS:** Inspired by R. Whitread & FAT, explores the negative and/or positive forms; Original (2D image) - Computational model of negative and/or positive space
- D: **SIMPLIFY:** Original (2D image) - Remove all unnecessary information, simplify geometries and streamline
- E: **REPLACE:** Like traditional paraphrase paintings or photographs this keeps the composition of the element but replaces the parts with similar but different objects and/or materials; Original (2D image) - Physical model (concept model) - Computational model
- F: **COLLAGE:** Inspired by the graphic designer Ray Gun and his 90's work. An approach that distorts and bedraggles the printed image of the elements; Original (2D image) - Re-interpretation of the image/drawing - computational model of the new image



REFERENCES



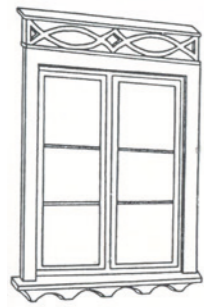
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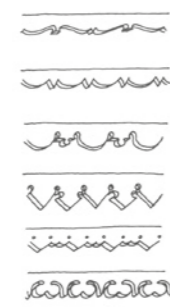


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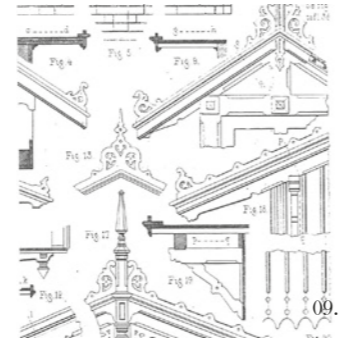
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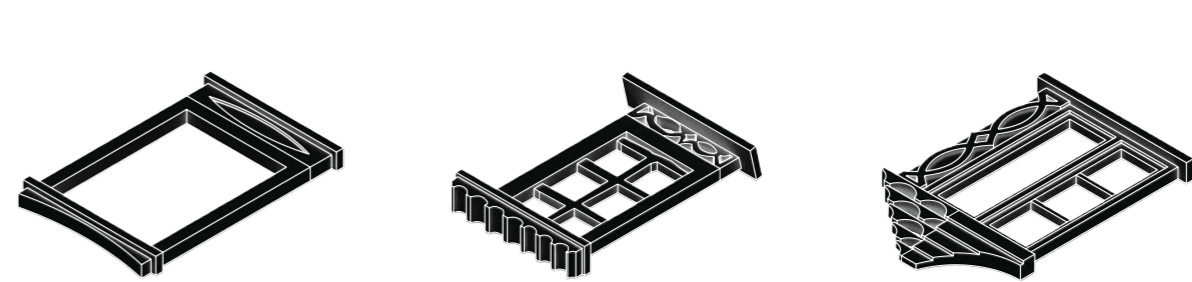
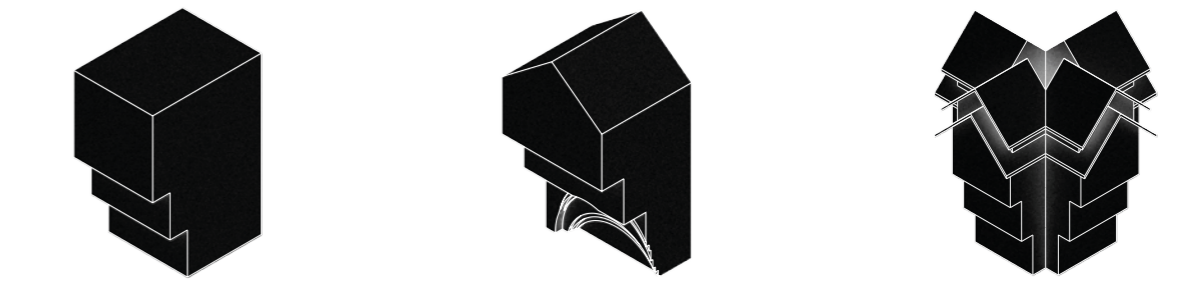
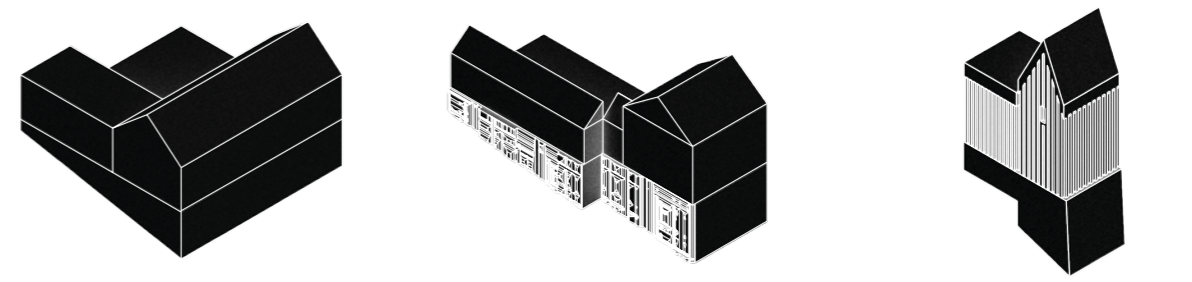
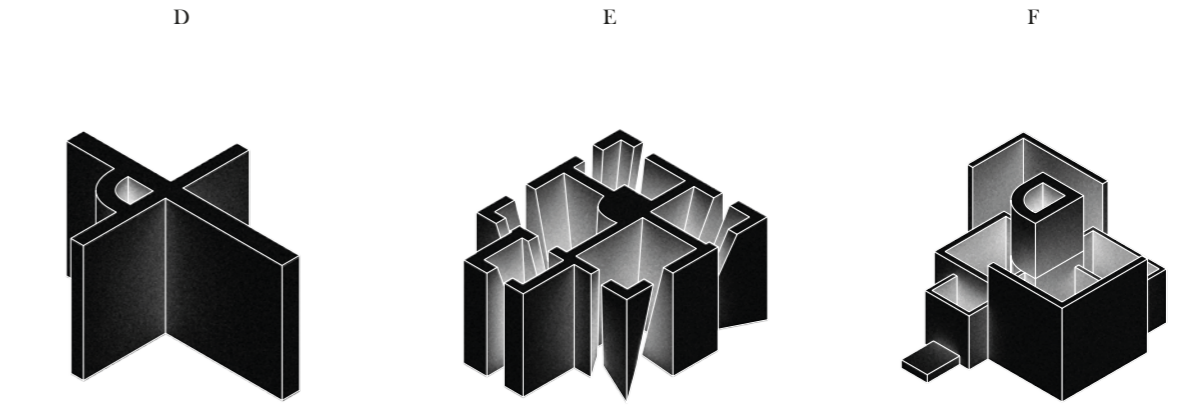
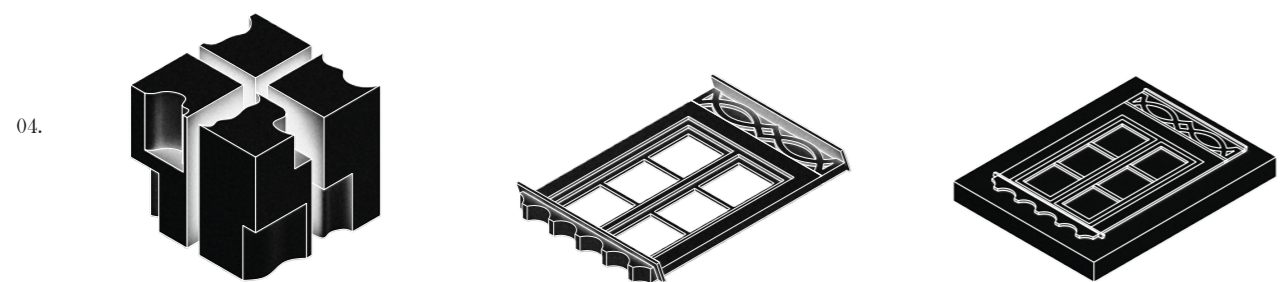
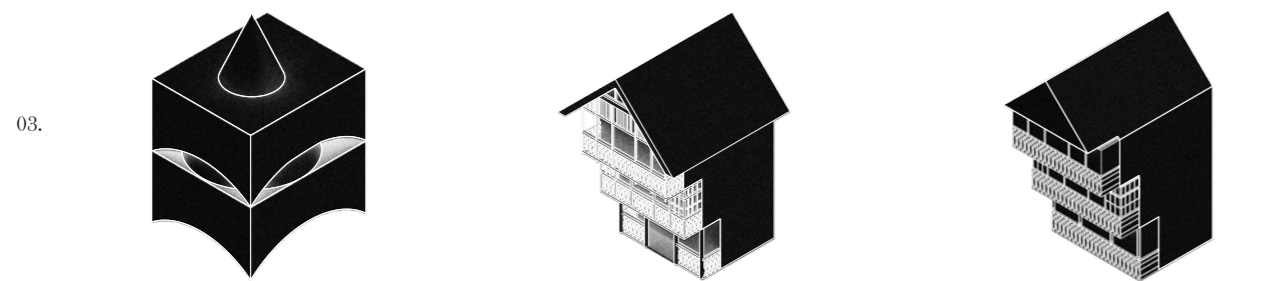
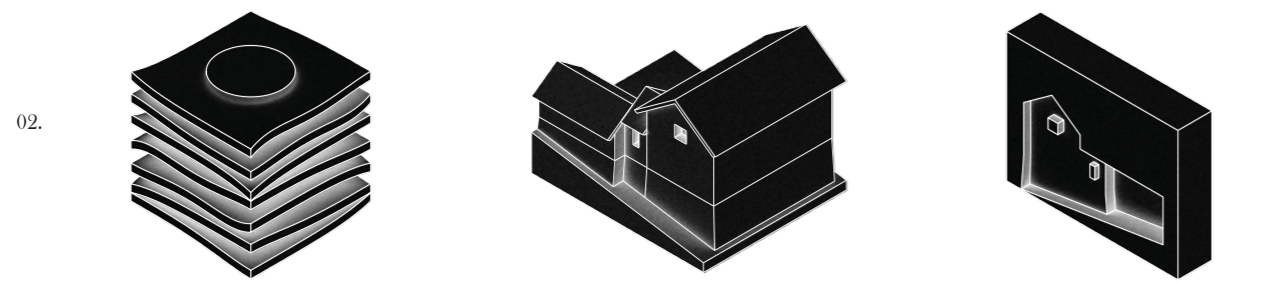
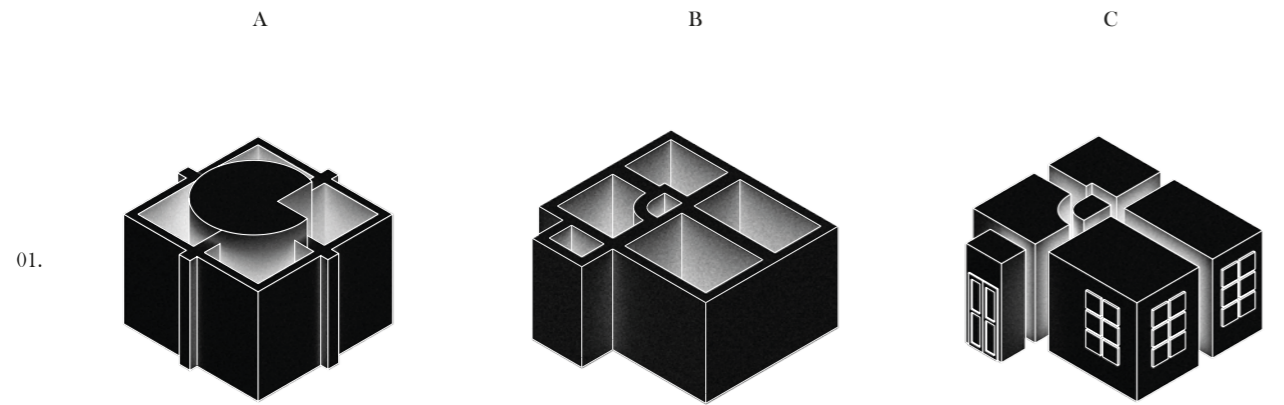


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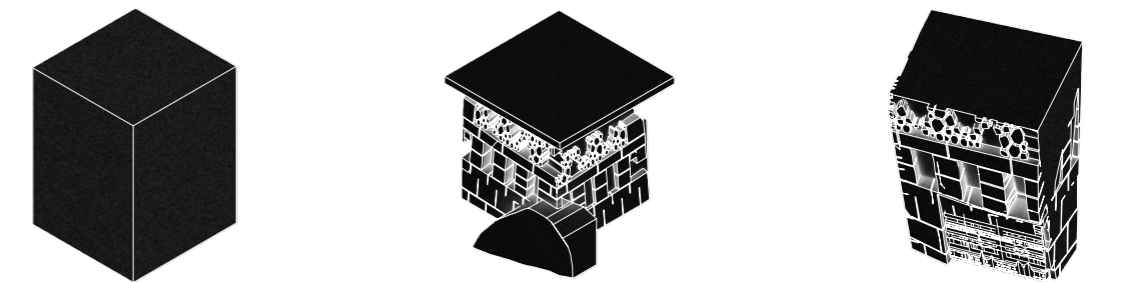
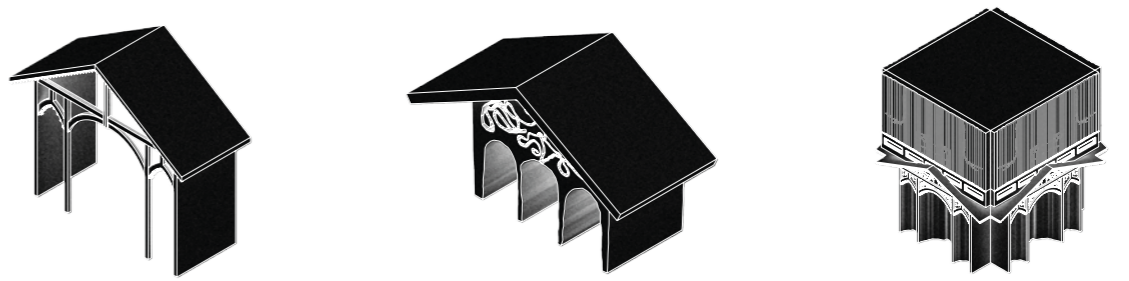
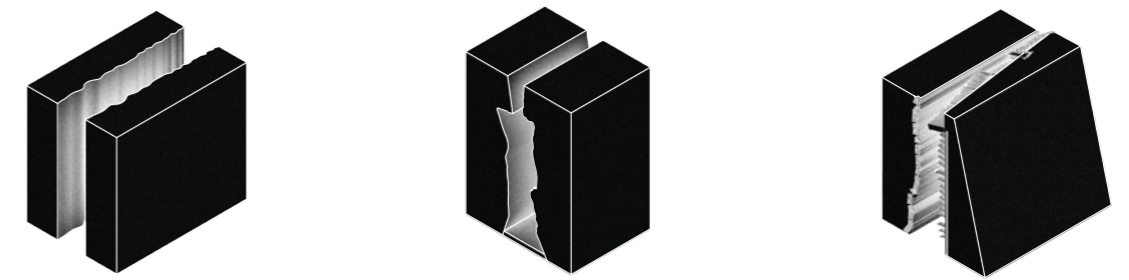
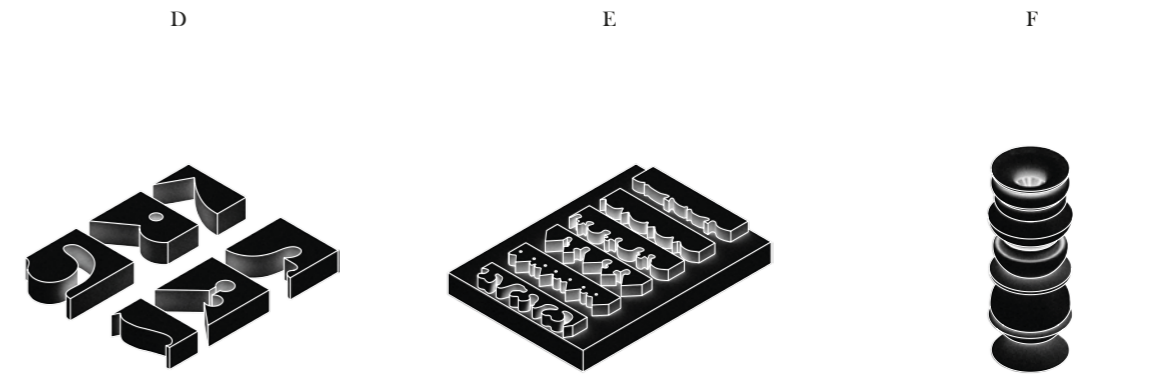
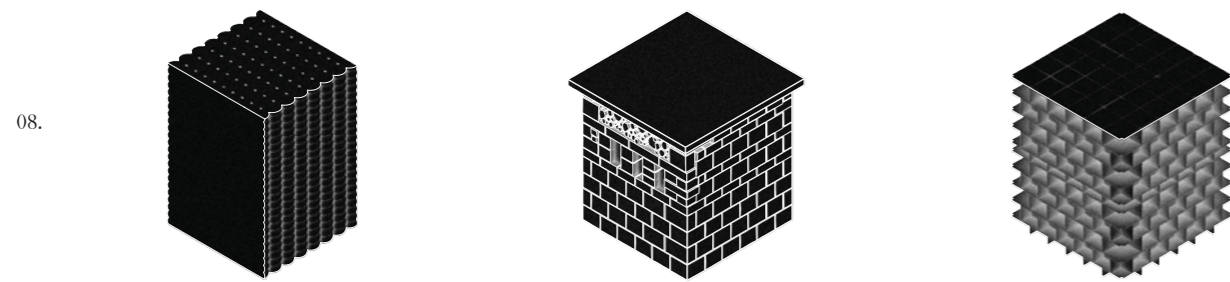
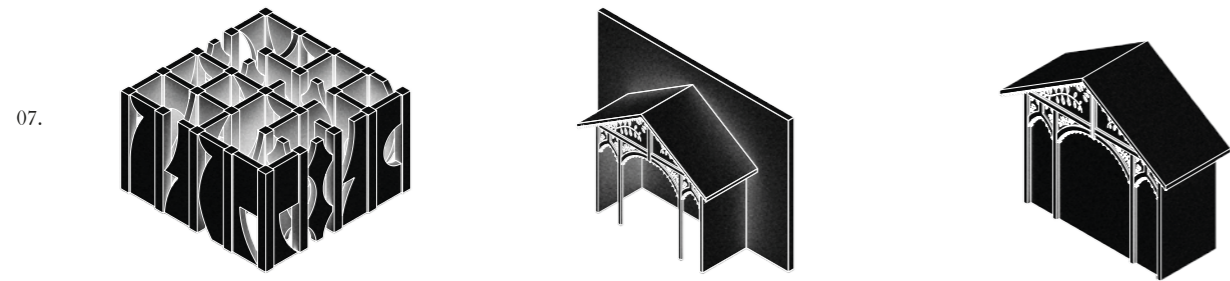
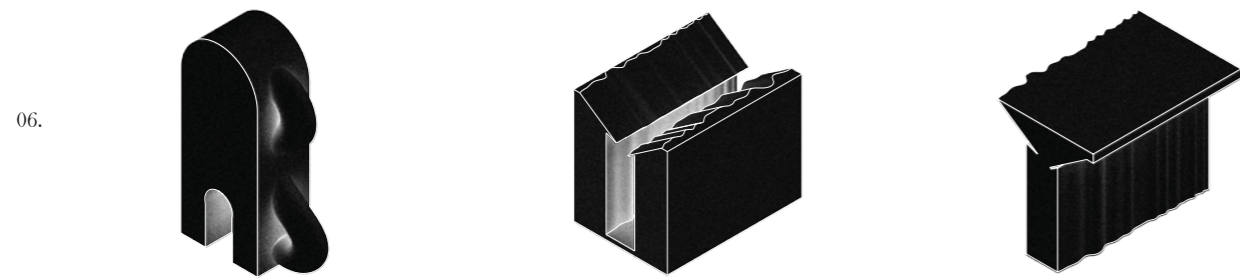
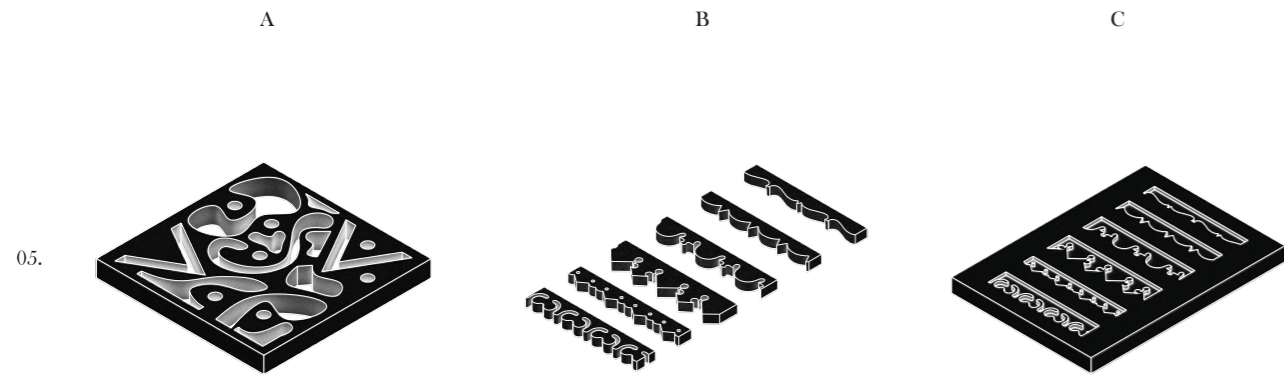
The images were chosen to represent buildings and building components in Bohuslän. The selection is a representation of multiple variations of each image; one approach to a detail may vary from village to village.

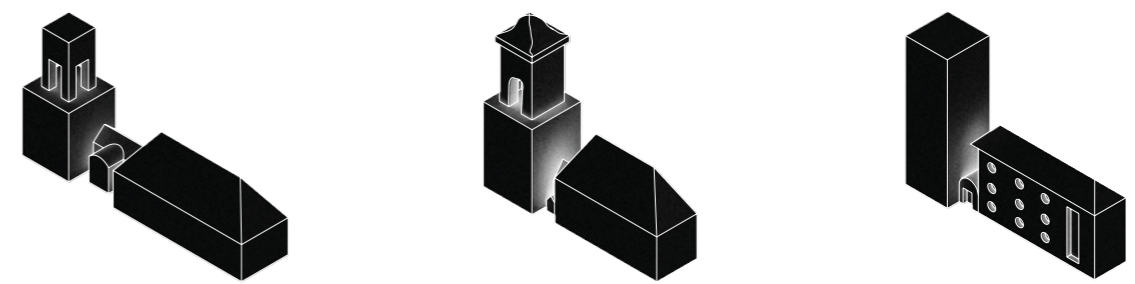
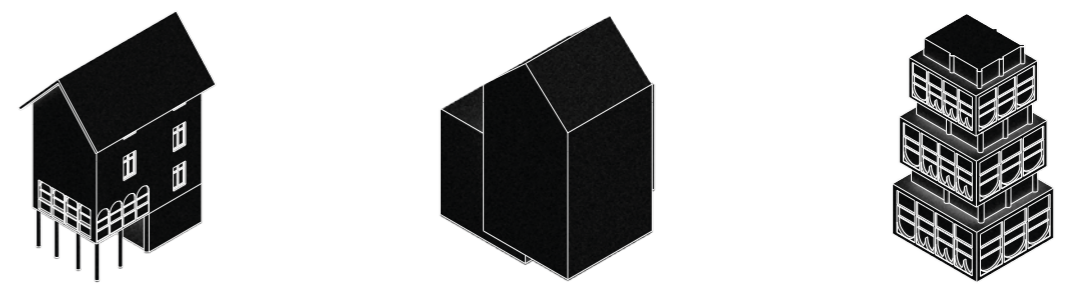
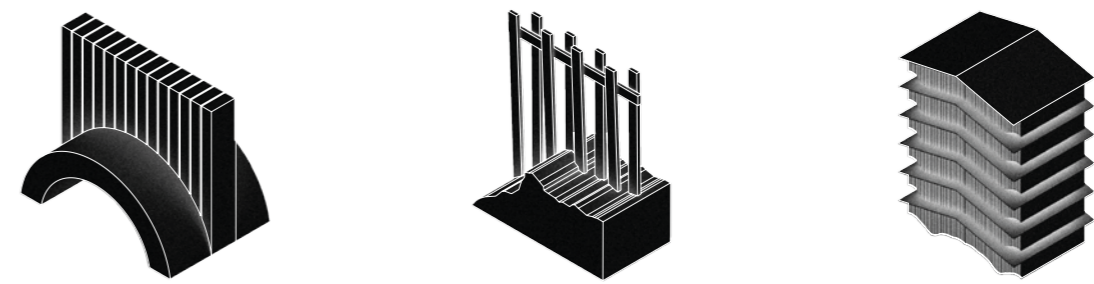
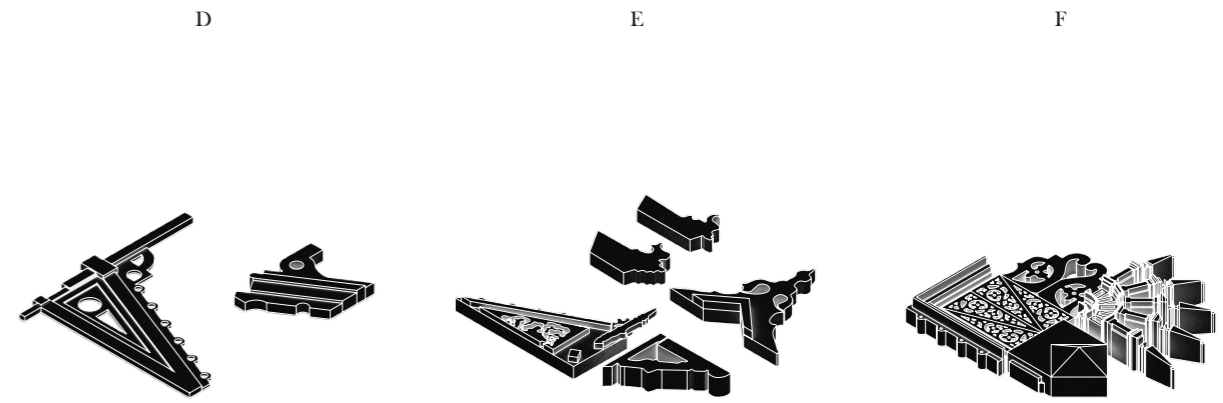
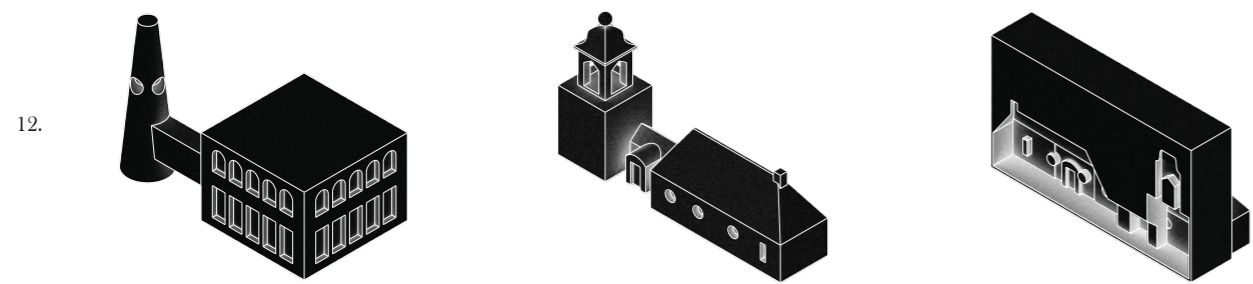
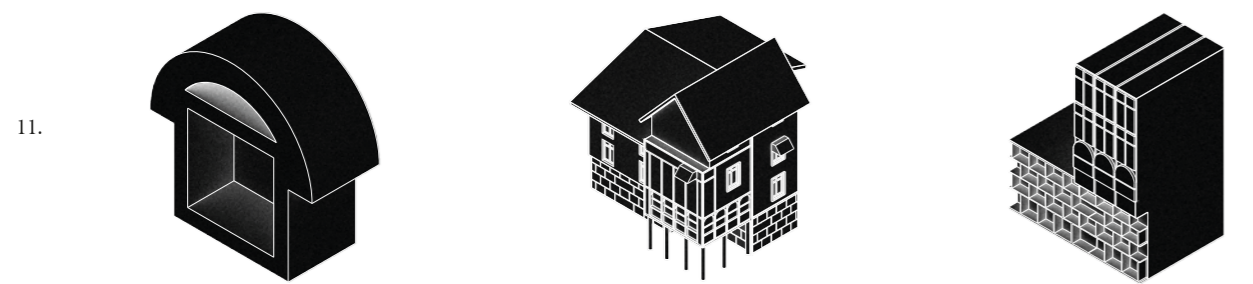
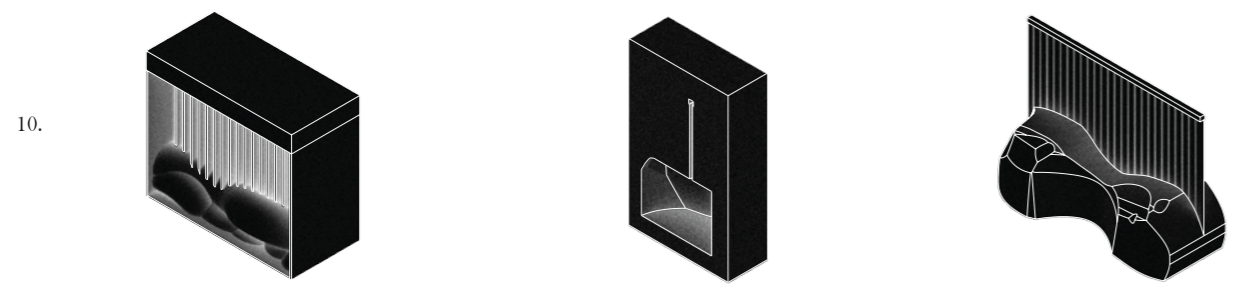
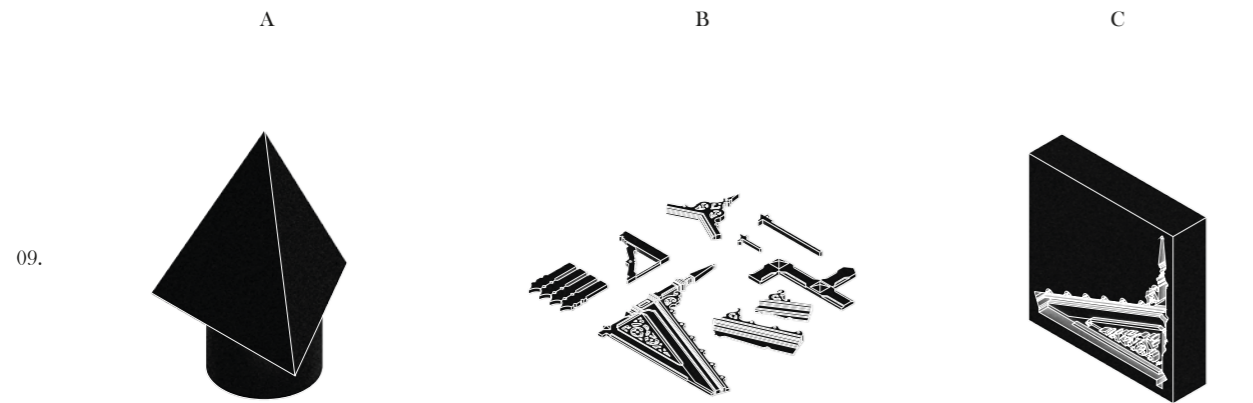
The references are, on purpose, mostly from the beginning of the 19th century. They were made with influence from other cultures and traditions without the intent for a global scene. While modernist architecture, with its internationalism and standardism, aims for a global intent or a universal truth.

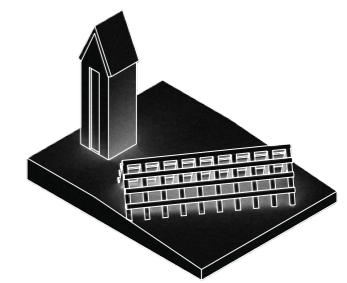
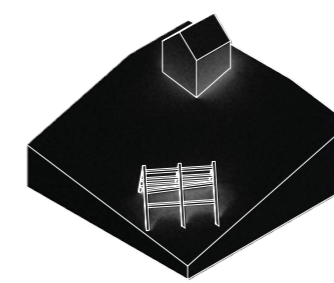
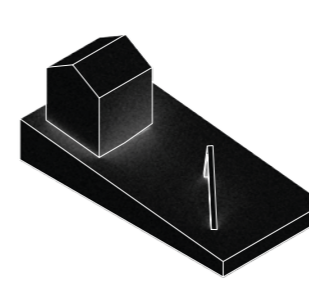
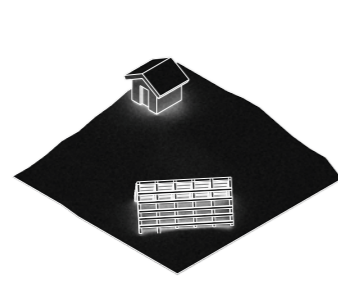
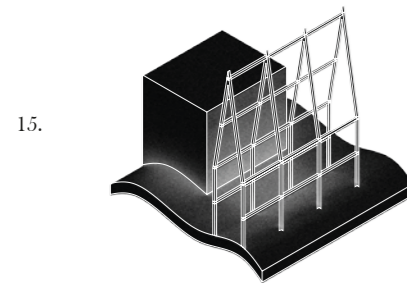
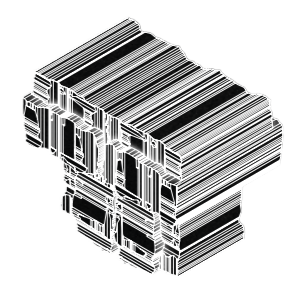
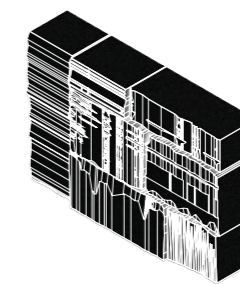
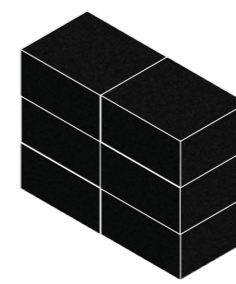
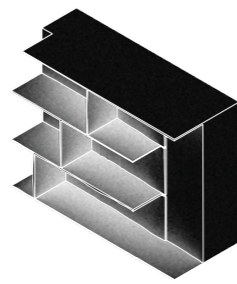
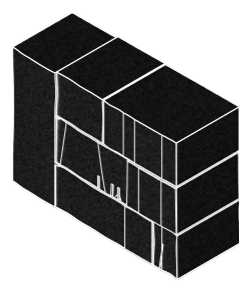
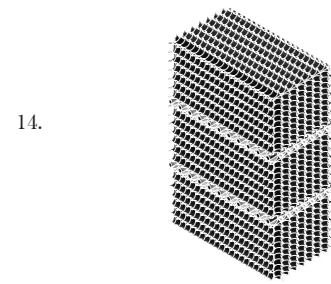
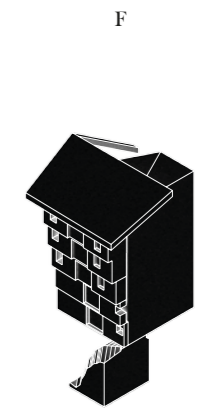
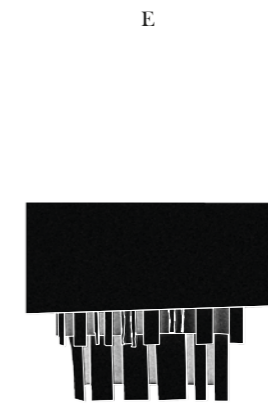
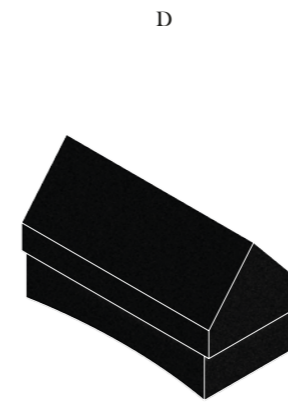
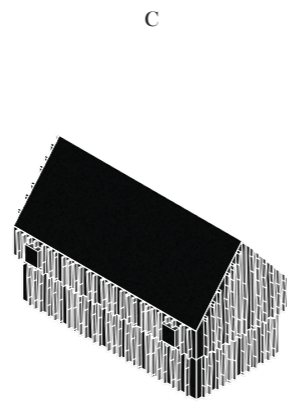
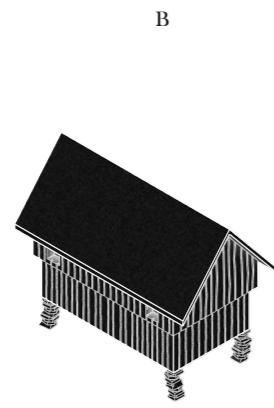
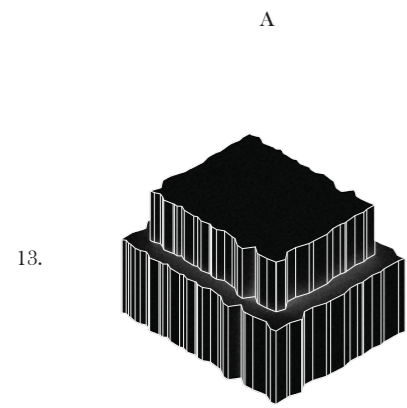
This thesis worked with references whose origin and purpose was for the local environment and context, thus representing a regional character.



* From Appendix "IV-Paraphrases" for more content.





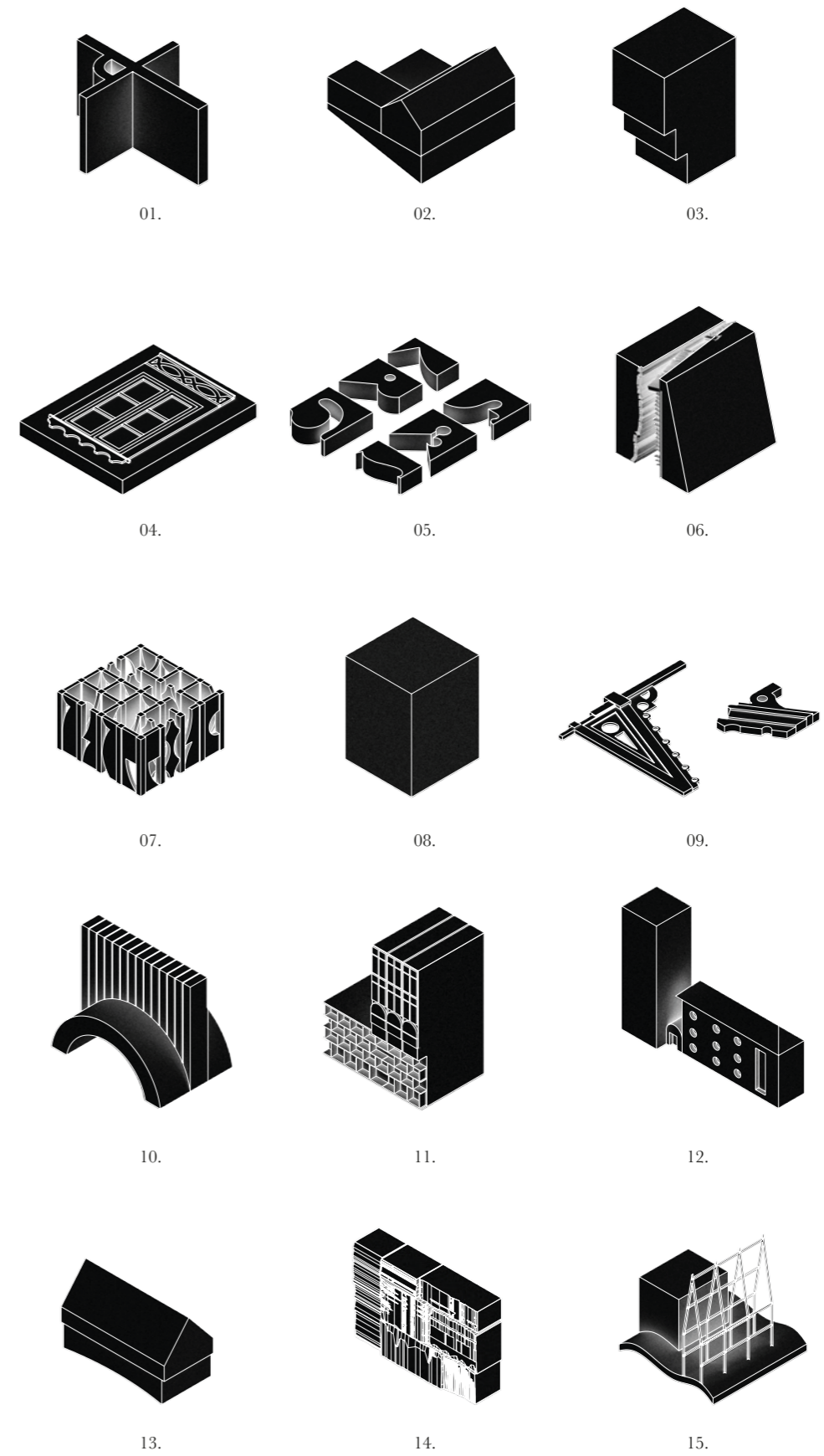


DESIGN GUIDELINES

From the previous step, paraphrases, a thorough evaluation was made based on their compiled qualities and one or two paraphrases from each reference where chosen for their representative qualities and casted. The evaluation led to fifteen design guidelines based upon the paraphrases and the references.

The guidelines was then used throughout the process as a conclusion of our investigations. They were also used as a tools for a coherent design strategy for the building by enabling a more subjective input of the reference images.

- 01: Room configuration: Cross with core.
- 02: Materiality: Variations in texture between levels.
- 03: Volume: Terraced volumes, the ones on top larger then the ones below.
- 04: Perforation in wall: Plasticity, additive, decorative.
- 05: Detail: Repetitive patterns, smaller parts, quadrant and arc.
- 06: Interior: Slim gap, wall texture, plasticity, light in front and above.
- 07: Detail: Decorative entrances, simple structures with decorative fillings.
- 08: Materiality: Multiple textures in the same material.
- 09: Detail: Decorative ending.
- 10: Meeting with ground: Man-made submissive to nature, per perpendicular vs organic.
- 11: Volume: Divided volume with scattered facade.
- 12: Volume: Clear separation of functions. (Joined by an entrance).
- 13: Volume & Materiality: High contrast relief in the facade and additive levels
- 14: Materiality: Blocks, additive, defined textures through subtraction.
- 15: Volume: Visible production.



MATERIALITY



MATERIAL EXPERIMENTS



*WC = White cement | BM = Burnt mussel | <1 = Crushed mussel < 1mm | 1-4 = Crushed mussel 1-4 mm | >4 = Crushed mussel >4 mm | W = Water | + = Grown mussel | - = Wild mussel
25



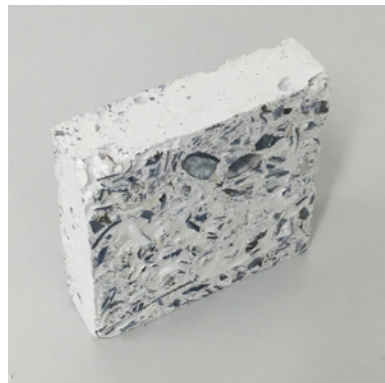
Casted against <1 powder, the result was a glittering, light lavender and fluent shape.

Casted against a rough birch, the result was a relief, light gray surface.

Left: The aim was to produce a material where both the binder and aggregate was mussel-based, where the binder would be crushed and heated. Through failed experiments and due to circumstances no such mixture was found.
Above: Other experiments were instead made with the intent of finding materiality that we could continue working with in a later stage of the project.

* See Appendix "II - Material Tests" for more content.

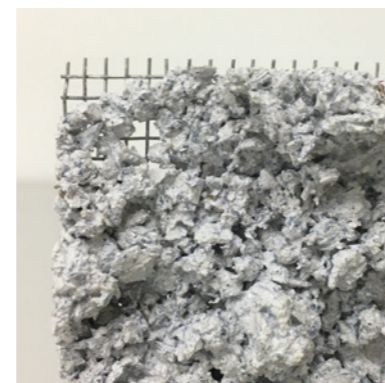
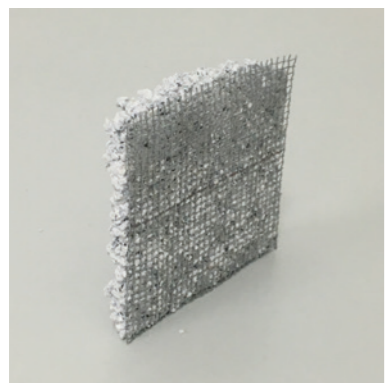
MATERIAL EXPERIMENTS



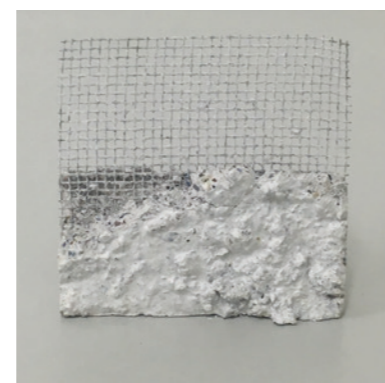
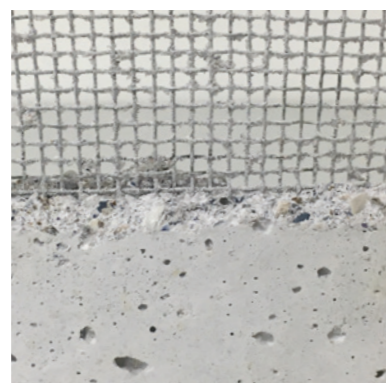
Bigger shells, visible after sanding.



Broken pieces to highlight the rough edge and smooth surface.



Rough concrete, dirt mix casted against mesh for stability



Mesh visible through splitting element.

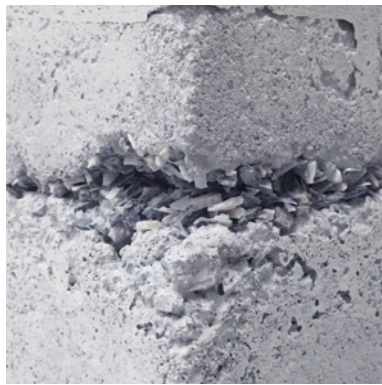


A point of failure test was conducted using two 10x10x10 cm cubes, one where the aggregation where sand and another using shells. The test showed that the mussel-concrete approximately has the load bearing qualities of brick.

Left: Further exploration were made in the material in search for an expression that displays the properties of mussels-concrete such as the brittleness.

* See Appendix "II - Material Tests" for more content.

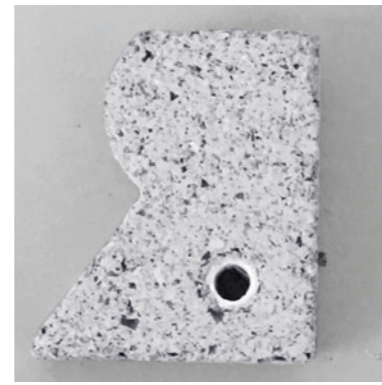
MATERIAL EXPERIMENTS



Different textures.



Coarse texture.



Mixture of materials.



Unintended broken pieces.



Unintended broken pieces.



Intended broken pieces.



Dry shell.



Dry mussel-concrete.



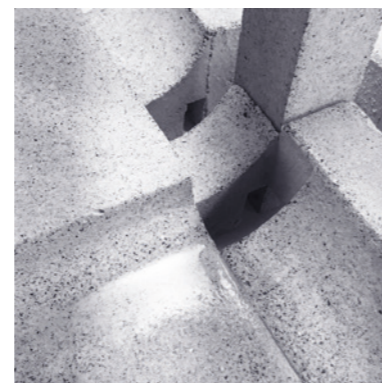
Dry model.



Wet shell.



Wet mussel-concrete.



Wet model.



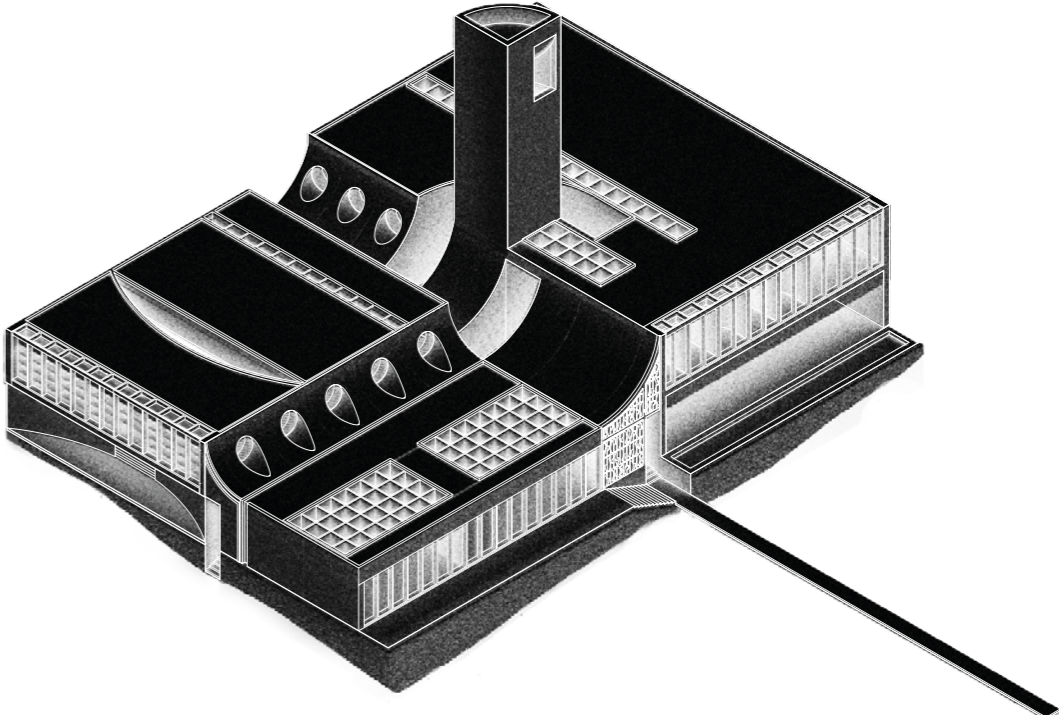
- | | | | |
|---------------------|--------------------------|-------------------------|---------------------|
| 01. Rough concrete | 03. Large shell concrete | 05. Pine | 07. Linen |
| 02. Broken concrete | 04. Small shell concrete | 06. Semi opaque plastic | 08. Stainless steel |

Upper left: The material provided unexpected properties during the making of models such as the brittleness and the effect from the molds.

Lower left: The mussel shells change their appearance to a darker nuance when they are wet and the mother of pearls emerge much clearer. This attribute is something that the concrete also have.

Above: For the design proposal a digitalization of the material tests were made and a selection of different variation of the mussel-concrete with other coherent materials were added to get a good interior composition between the materials.

DESIGN PROPOSAL



REGION



Bohuslän

* See Appendix "I - Site" for more content.

SITE



Siteplan, 1:2000

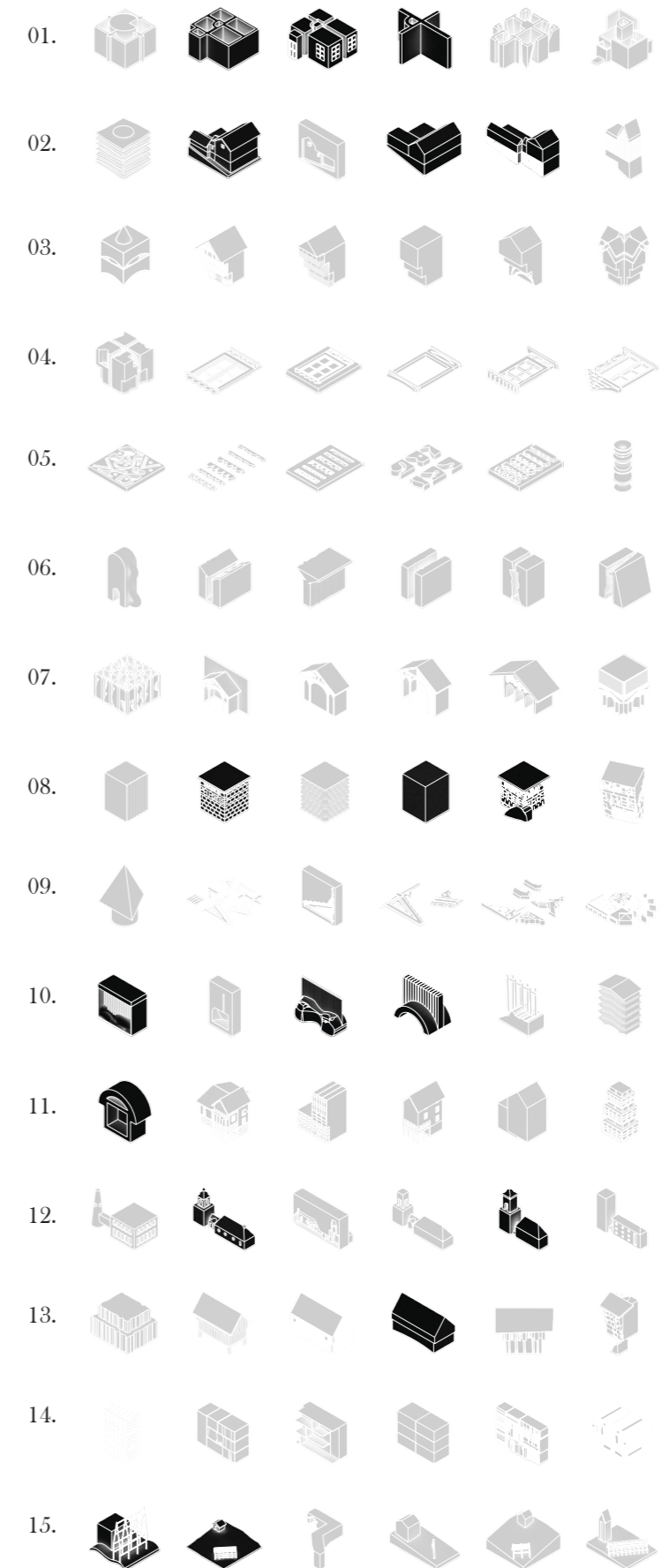
SITE



EXTERIOR - NORTH



- 01. The divided volume with central furnace derives from the cross-plan.
- 02. The foundation of the building has a rougher texture in contrast to the facade like the traditional wooden house with stone foundation.
- 08. Contrast in material within the same facade/volume.
- 10. The building is submissive to nature; the crawl space adjusts to the site while the height of the building is lower than the surrounding hills.
- 11. Large radius and simple geometry.
- 12. Two volumes are joined by an entrance. Multiple circular windows
- 13. Large semi-circle that creates an outdoor space.
- 15. Visible production; large windows to the studios, office, restaurant and exhibition.

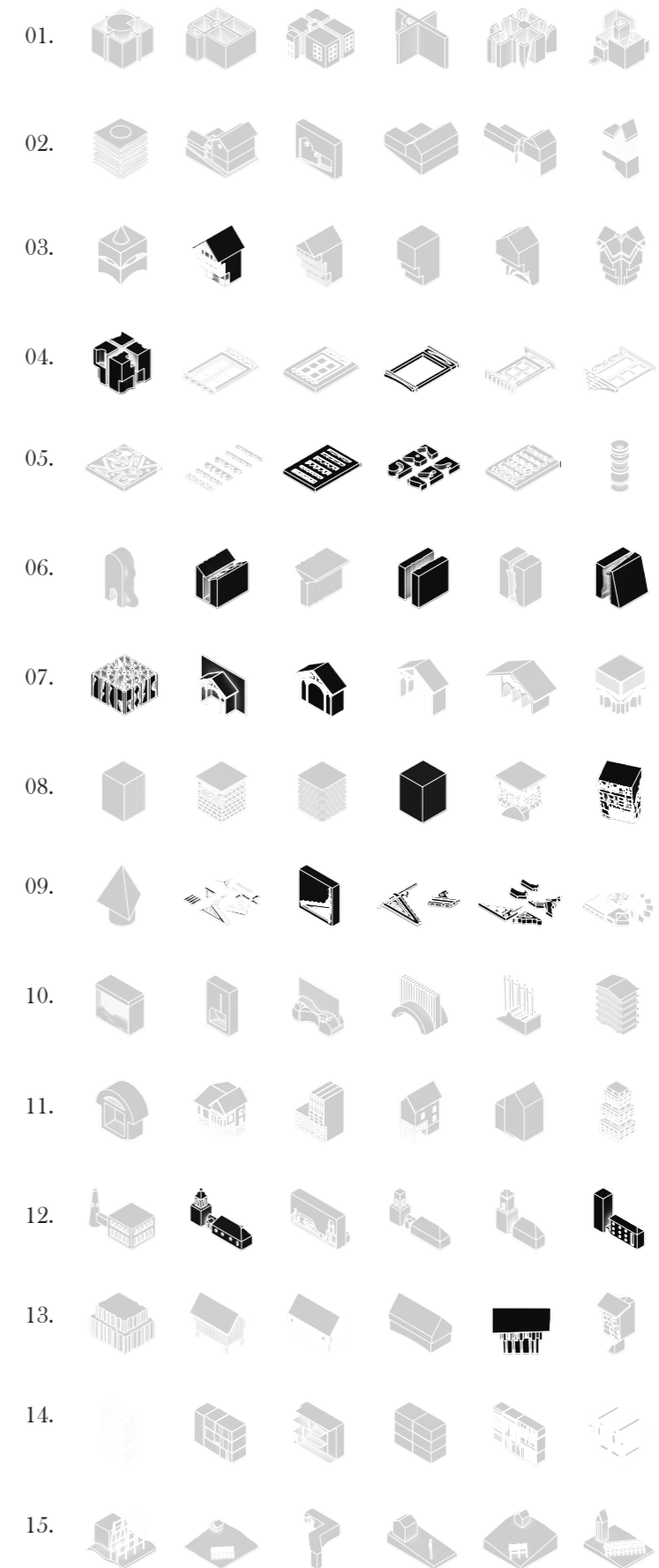


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

EXTERIOR - ENTRANCE



- 03. Small variations of the facade between the levels.
- 04. Entrance and window have a decorative approach.
- 05. Repetitive, simple patterns as ornaments.
- 06. Slim gap that creates corridors with light at end and above, similar to the clusters of small fishing cottage.
- 07. The outer limits and structure defines where the ornaments are placed for the entrance of the building.
- 08. The ornaments and walls in corridors differs in texture.
- 09. Meetings of facade elements are joined by metal strips in order to create a decorative ending/joints.
- 12. The main entrance is located between the two larger volumes that contains separate functions.
- 13. Irregularity of facade elements is a reinterpretation of high relief wooden facades.

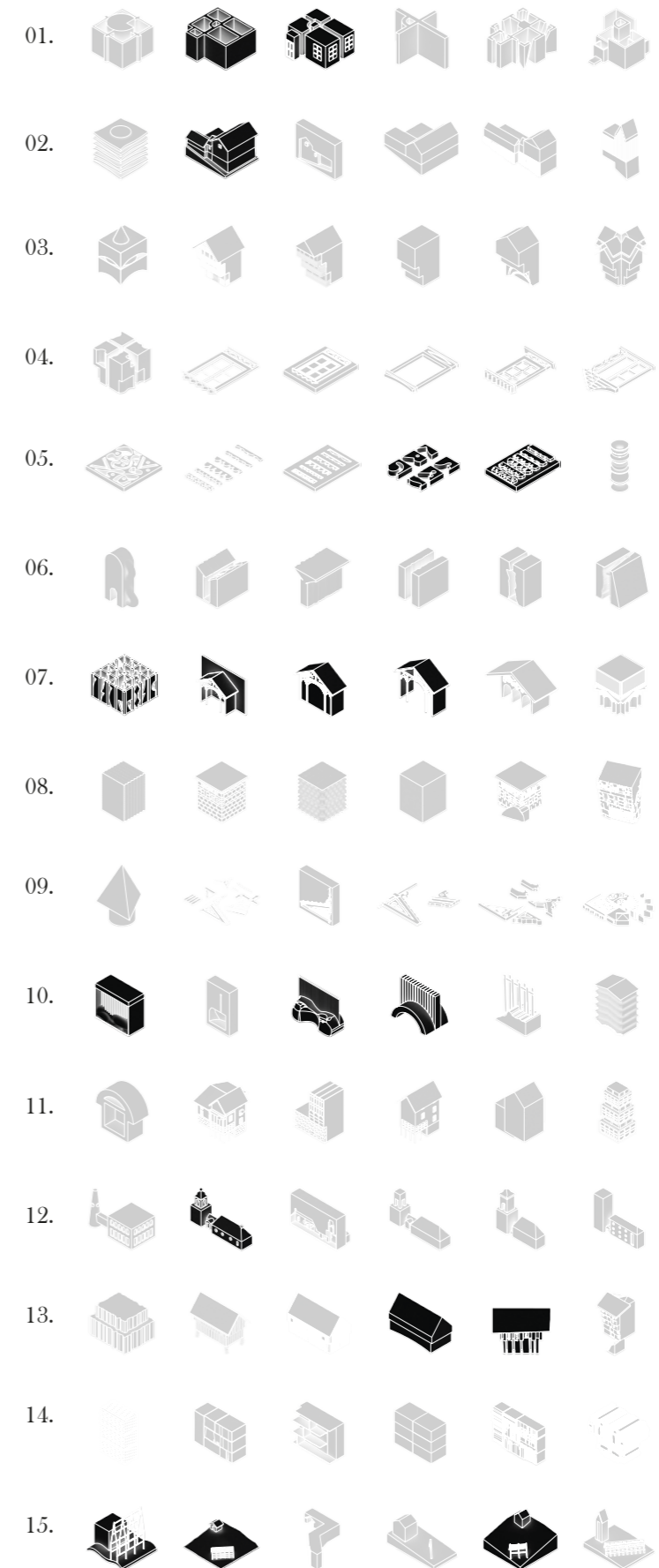


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

EXTERIOR - WEST



- 01. The divided volume with central furnace derives from the cross-plan.
- 02. The foundation of the building has a rougher texture in contrast to the facade like the traditional wooden house with stone foundation.
- 05. Repetitive, simple patterns as ornaments.
- 10. The building is submissive to nature; the crawl space adjusts to the site while the height of the building is lower than the surrounding hills.
- 12. Two volumes are joined by an entrance. Multiple circular windows
- 13. Level above creates a sheltered outdoor working space.
- 15. Visible production; large windows to the studios, restaurant, exhibition and workshop.

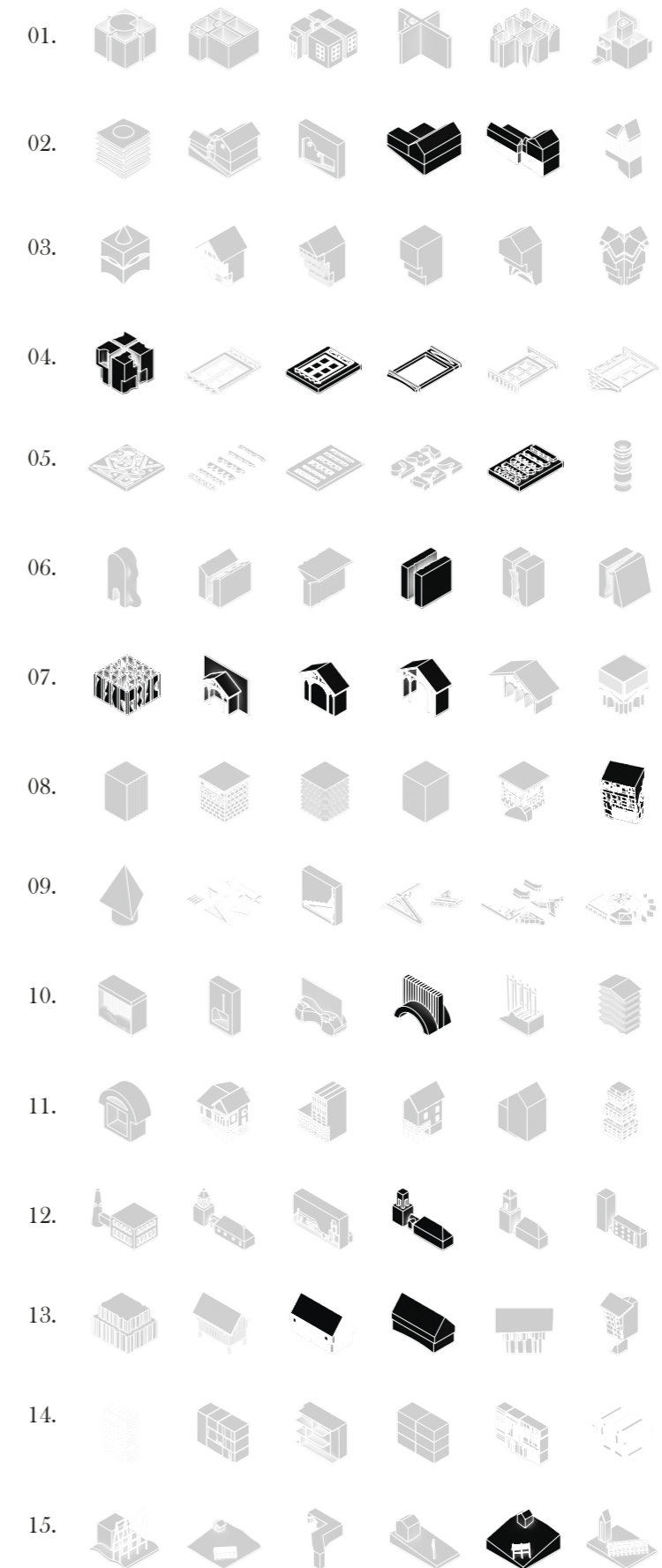


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

EXTERIOR - WEST

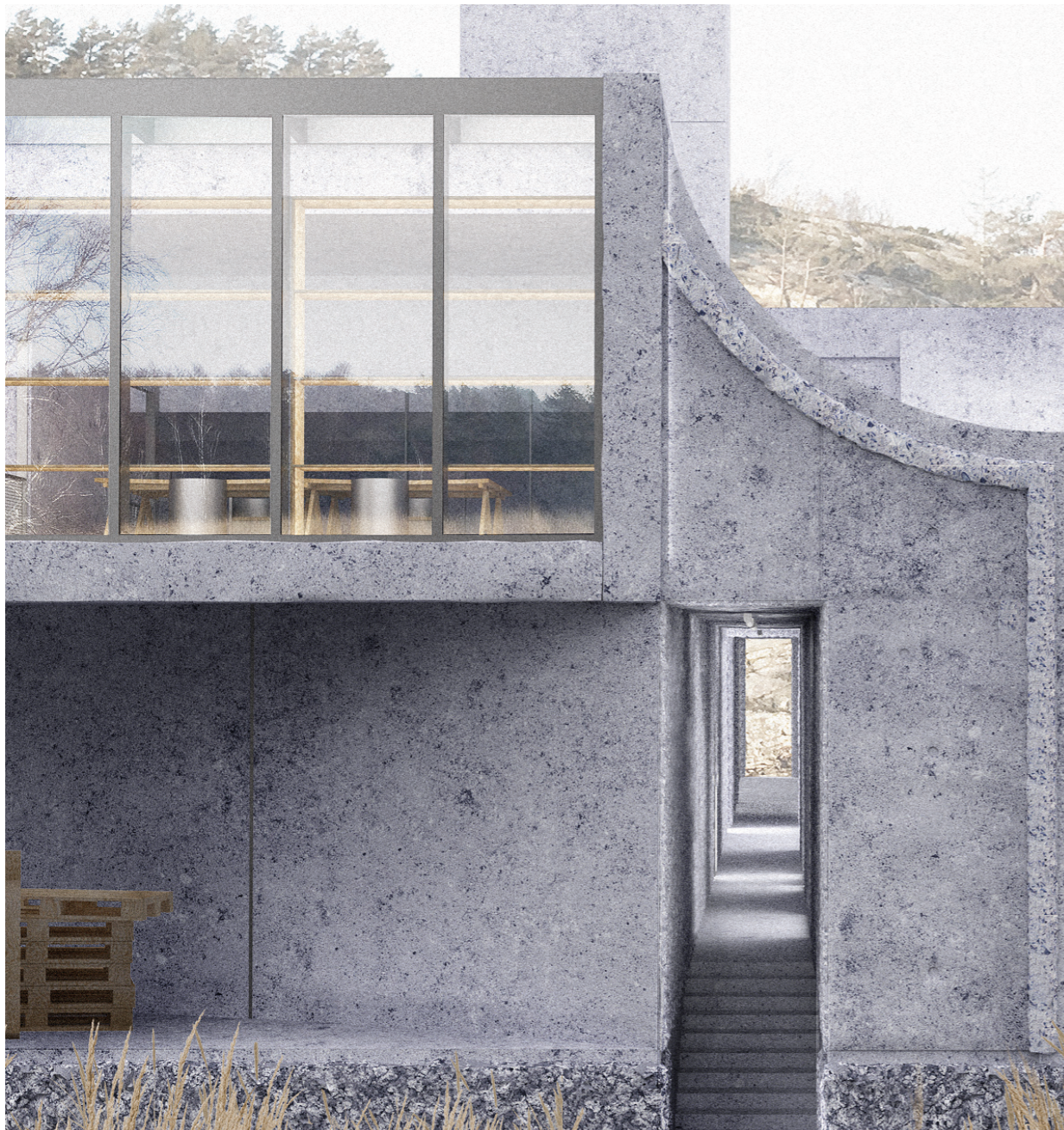


- 02. The foundation of the building has a rougher texture in contrast to the facade like the traditional wooden house with stone foundation.
- 04. Entrance have a decorative approach.
- 05. Repetitive, simple patterns as ornaments taken from one of the paraphrases from reference 07.
- 07. The outer limits and structure defines where the ornaments are placed for the entrance of the building.
- 08. The ornaments and walls in corridors differs in texture.
- 10. The building is submissive to nature; the crawl space adjusts to the site without heavy impact on the land.
- 12. The main entrance is located between the two larger volumes that contains separate functions.
- 13. Level above creates a sheltered outdoor working space.
- 15: The outdoor working space is visible for everyone.

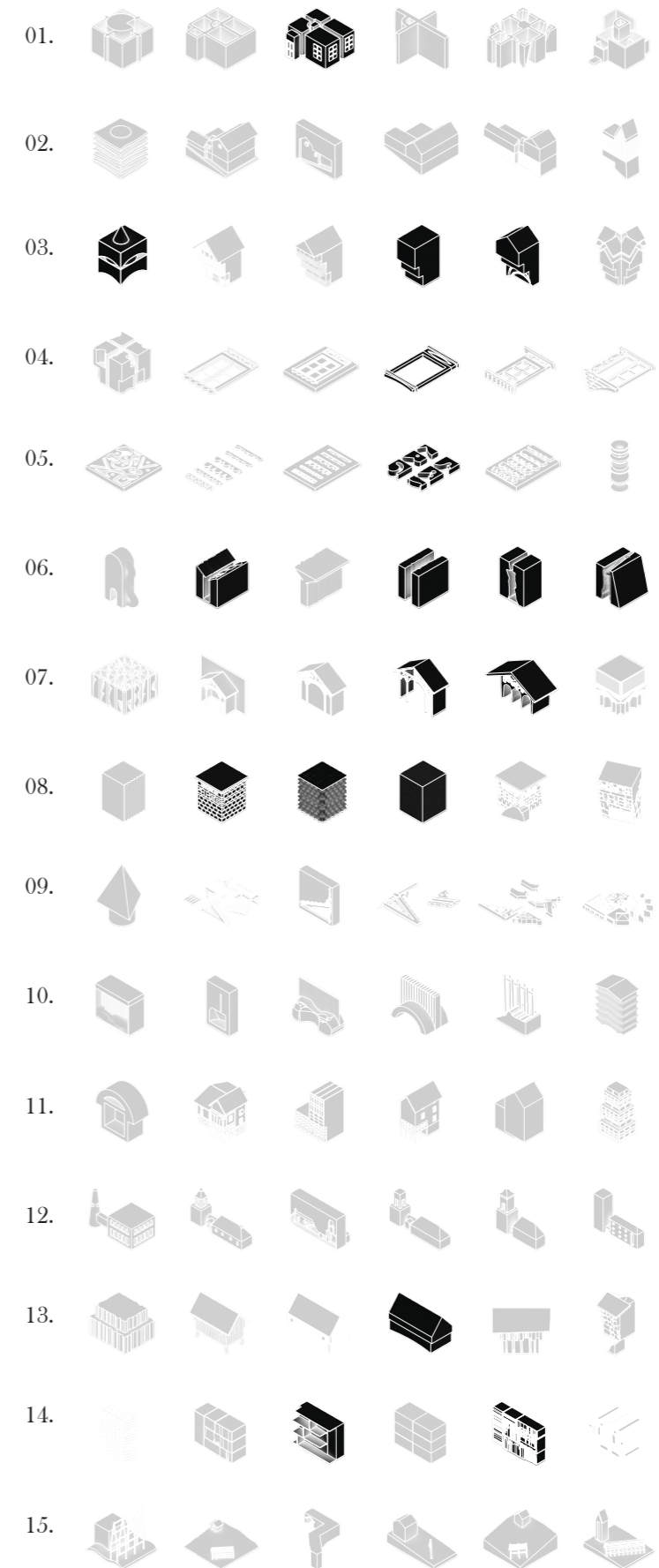


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

EXTERIOR - NORTH



- 01. The divided cross-plan creates narrow gaps that works as pathways through the building.
- 03. Variations in depth of the facade between levels.
- 04. Minimalistic approach to a decorative opening.
- 05. Simple ornament is added because of the complex geometry of nearby volume and facade.
- 06. Slim gap that creates corridors with light at end, side and above, similar to the clusters of small fishing cottage.
- 07. A chiseled concrete ornament for the entrance that follow the roofs radius and the vertical opening.
- 08. Difference in texture depending on their purpose; rough on the foundation, smooth for the facade and chiseled for ornament.
- 13. Large radius and simple geometry that creates a sheltered smaller outdoor space.
- 14. Subtraction of the ornament creates a different texture, chiseled.



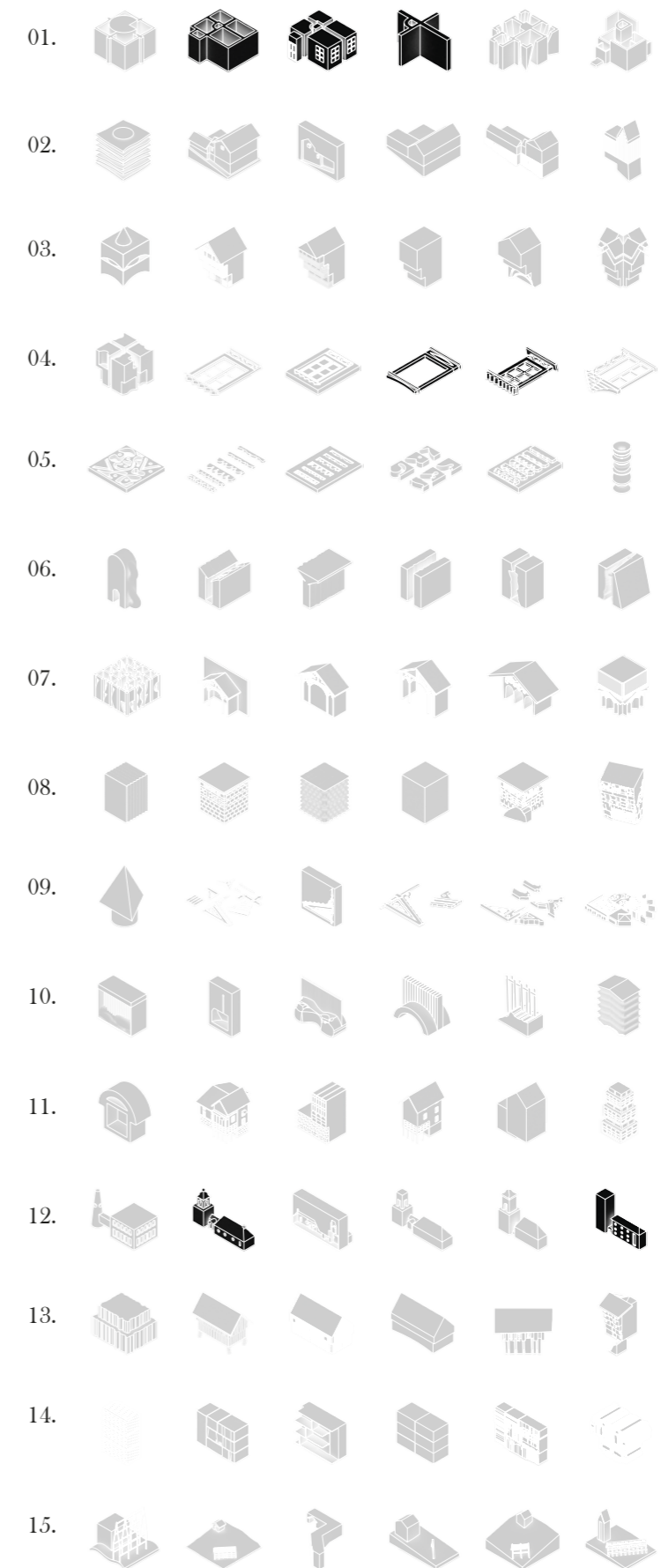
* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - WORKSHOP



The strictness and homogeneous materiality in the room is to give an ambience of tranquility. The focus of the interior is to highlight the production where the industrial elements such as tross and slops works as decorations.

- 01. The curved wall is a consequence of the furnace and creates a contrast to the perpendicular walls.
- 04. High sill height reminiscences of churches and factories. The mesh in the windows are wink to the mullion and fishing industry of Bohuslän.
- 12. Circular windows as seen in the paraphrases of a church.

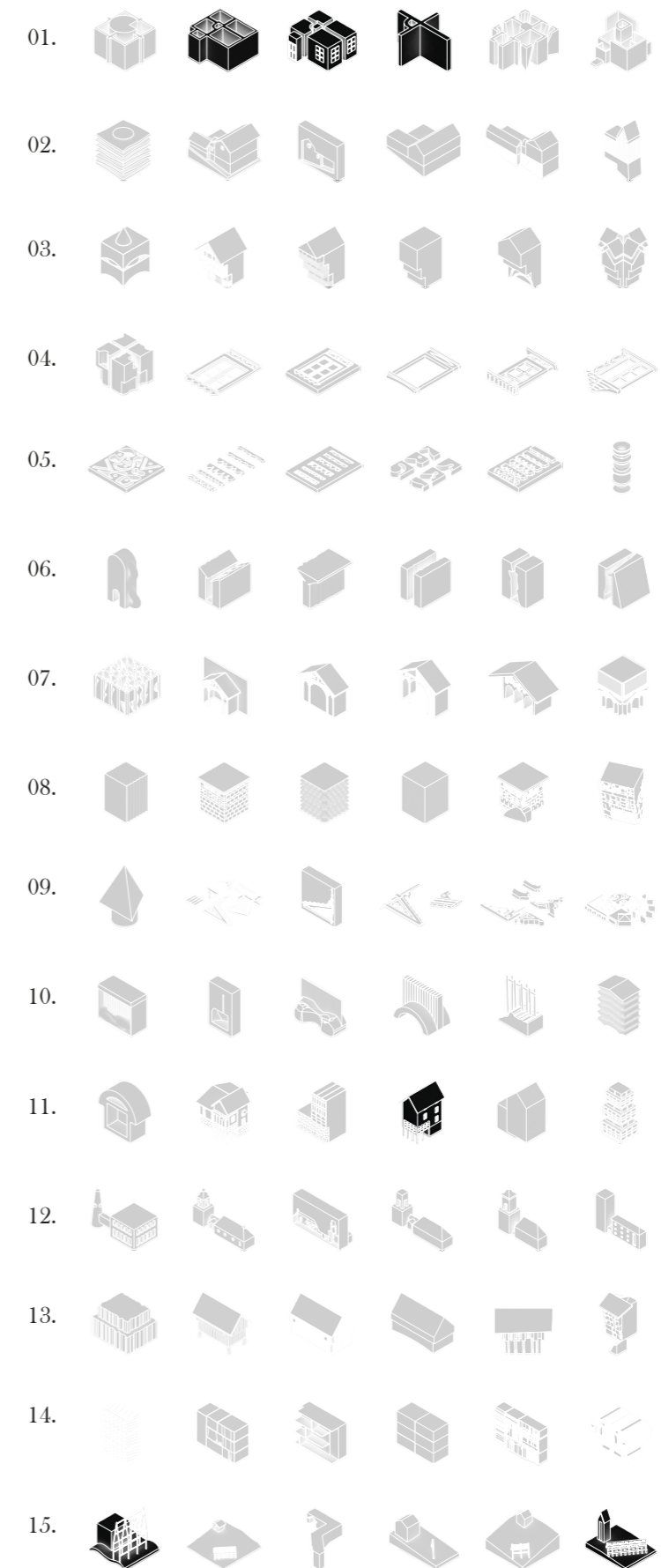


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - WORKSHOP



- 01. The curved wall is a consequence of the furnace and creates a contrast to the perpendicular walls.
- 11. The second floor is present and placed within the large volume as a way of showcasing an additive floor.
- 15. The workspace has a large opening to get a ocean view but also to let the public see the production from the outside. There is also a large window opening from the second floor down to the workspace so the guests as a view of the production.

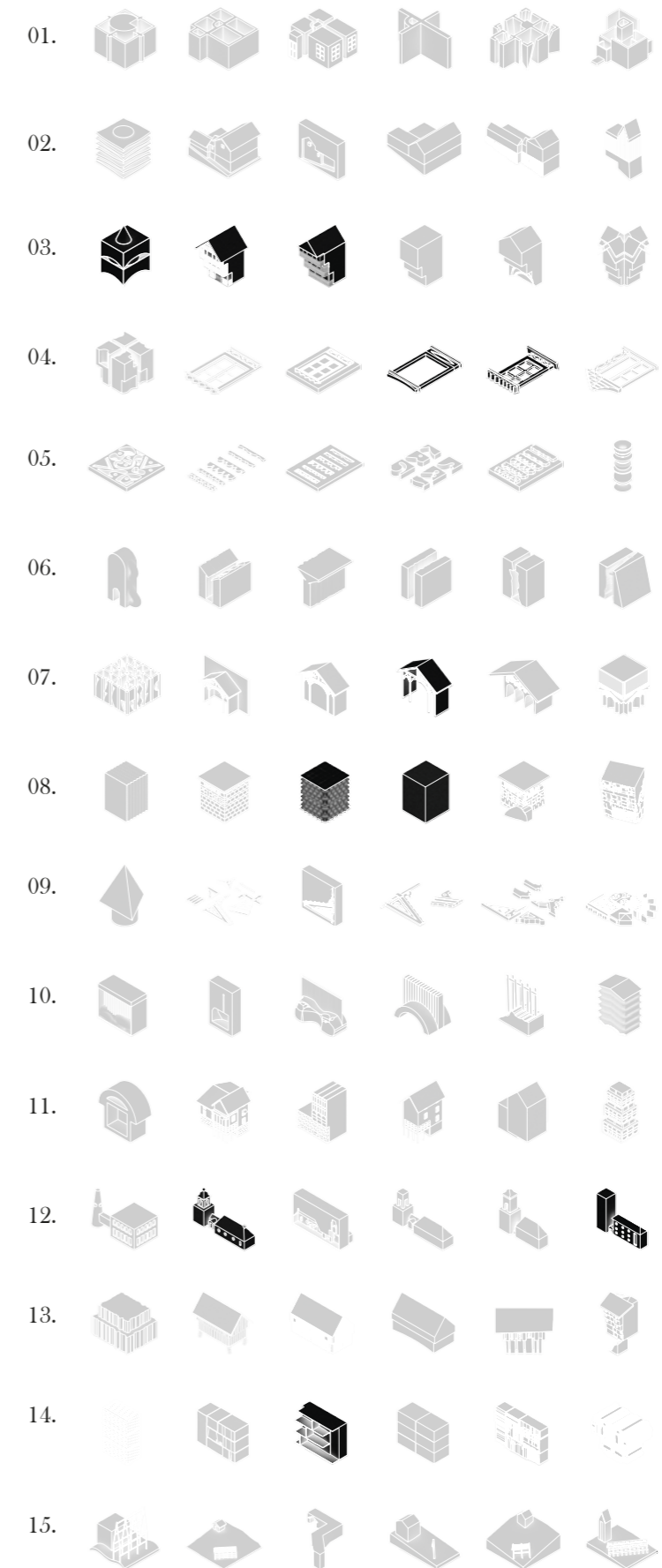


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - CASTING ROOM



- 03. Within the larger casting room the office is placed as a loft with a semi-circle giving a terraced encounter.
- 04. High sill height reminiscences of churches and factories. The mesh in the windows are wink to the mullion and fishing industry of Bohuslän.
- 07. The stucco on the walls made by chiseled concrete showcasing both the shells and the structure.
- 08. Different textures depending on their placement.
- 12. Circular windows as seen in the paraphrases of a church.
- 14. Subtraction of the material for the stucco creates a different texture.

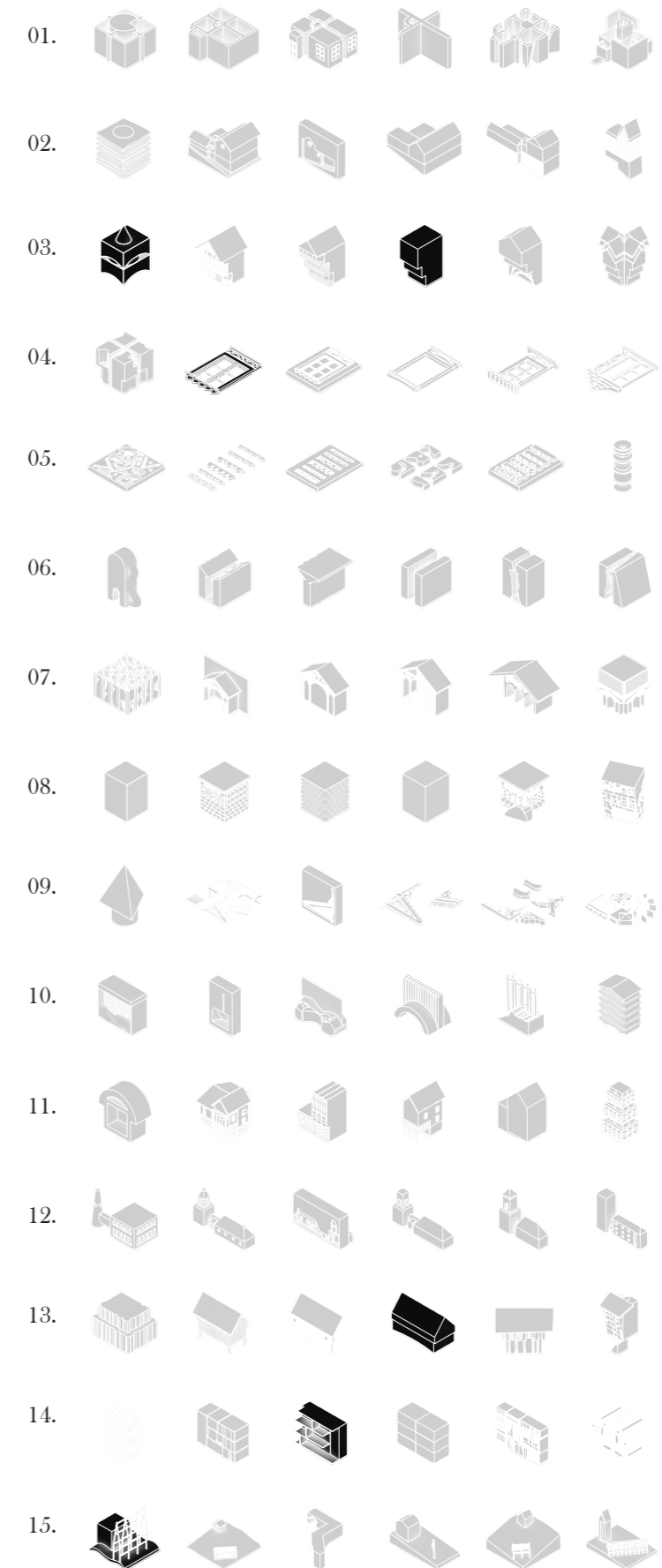


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - OFFICE



- 03. Within the larger casting room the office is placed as a loft with a semi-circle giving a terraced encounter.
- 04. The shelves placed at the windows resembles mullions.
- 13. The overhang of the office creates a sheltered outdoor space below.
- 14. Shelf structure is based from the paraphrase.
- 15. Visual connection between the casting room and office.

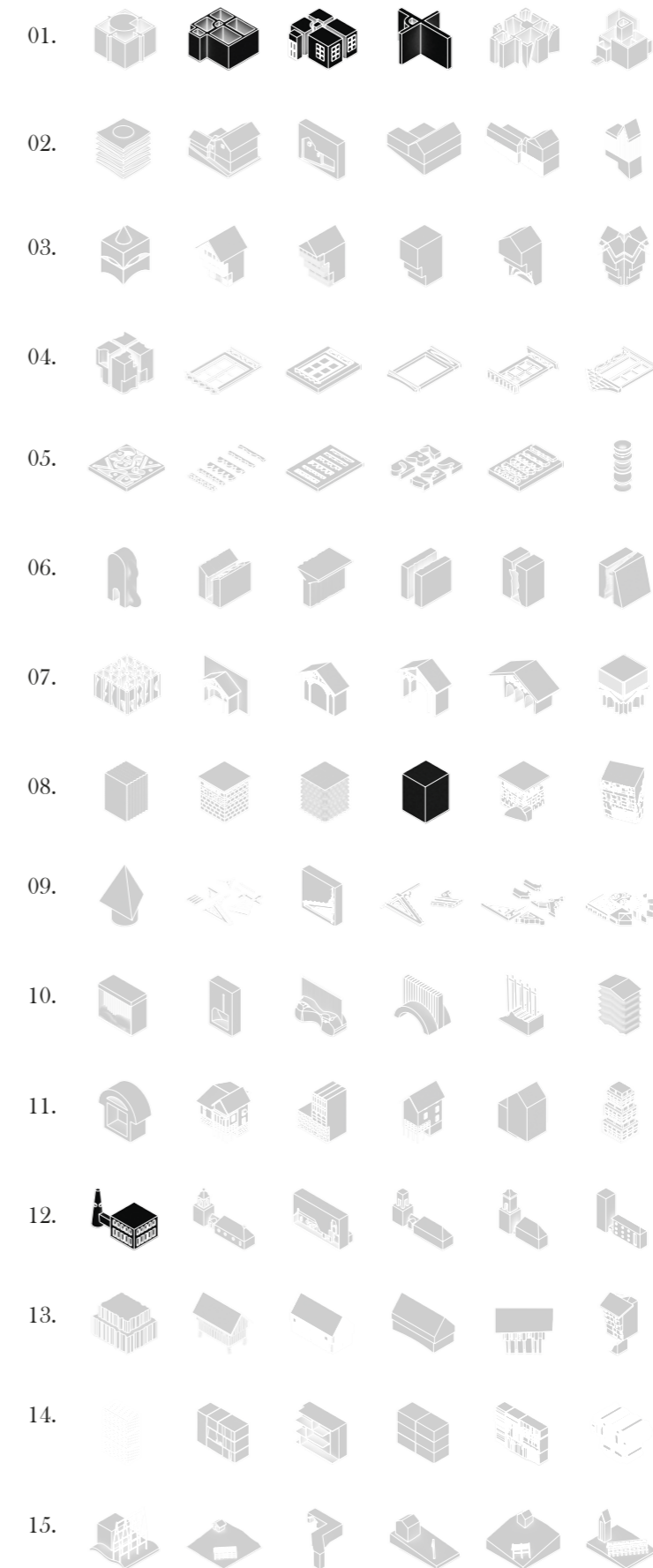


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - OBSERVATION ROOM



- 01. The design departed from the traditional cross-plan with a furnace at the center. In order to get a balanced composition of the design the chimney was enlarged, which enabled space for technical rooms, stairwell and an observation room at the top.
- 08. Same material with different texture.
- 12. Visible function in volume. Churches and lighthouses often works as landmarks because of their height for navigation.

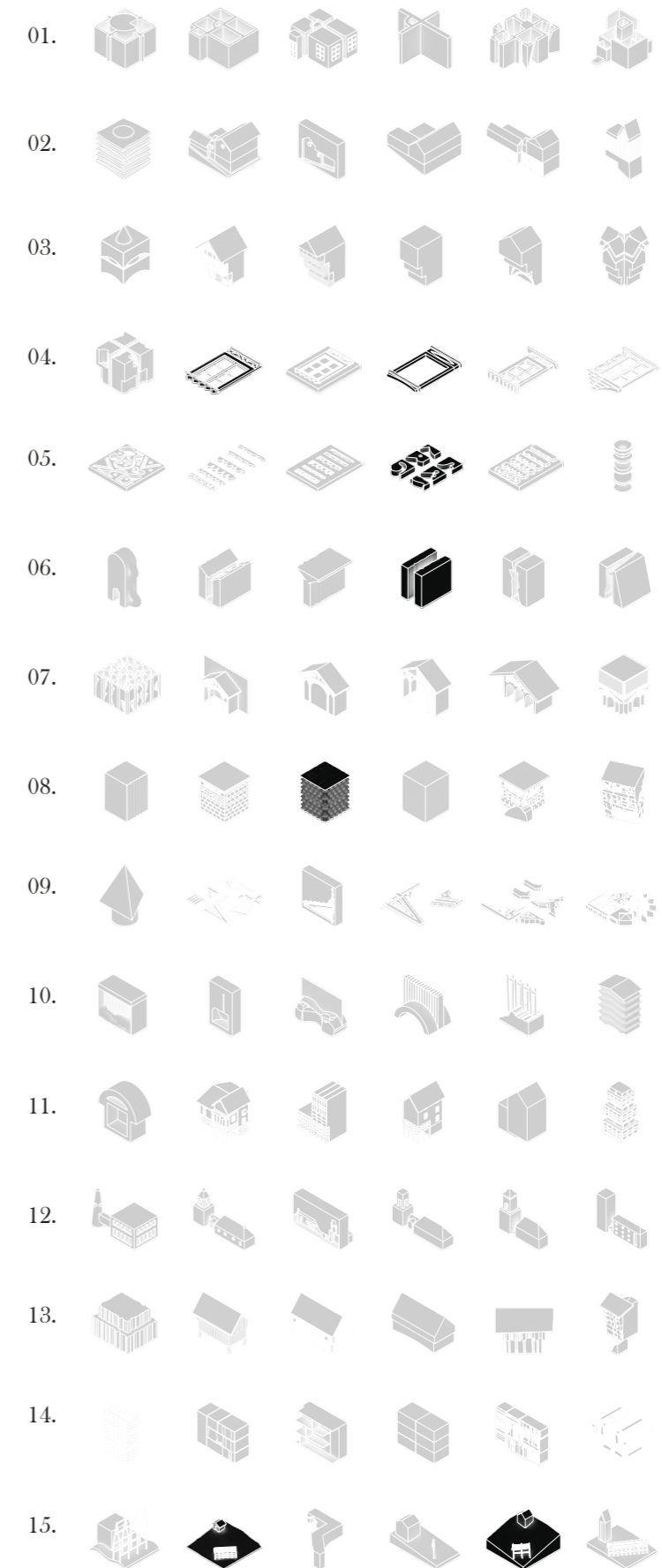


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - RESTAURANT



- 04. The window between the restaurant and the exhibition works as a decorative perforation in the wall.
- 05. The window frame is decorative due to its materiality of patterns created by the broken shells.
- 15. Visible function, framed view from restaurant to exhibition and into the outdoor corridor.

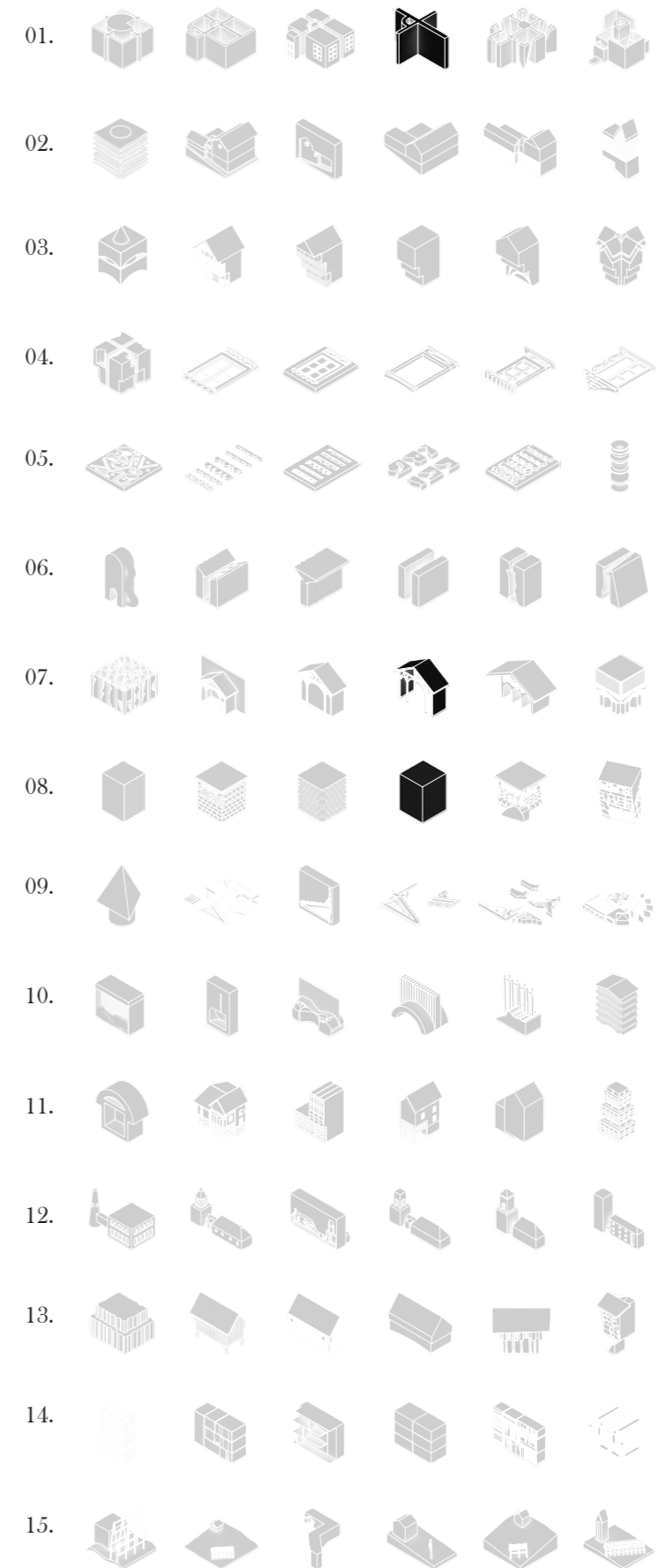


* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - ACCOMMODATION



- 01. The layout of the rooms are inspired by the cross-plan, with a fireplace central placed.
- 07. The entrance of the room is highlighted by the curved ceiling and its materiality.
- 08. Different texture within the same material.



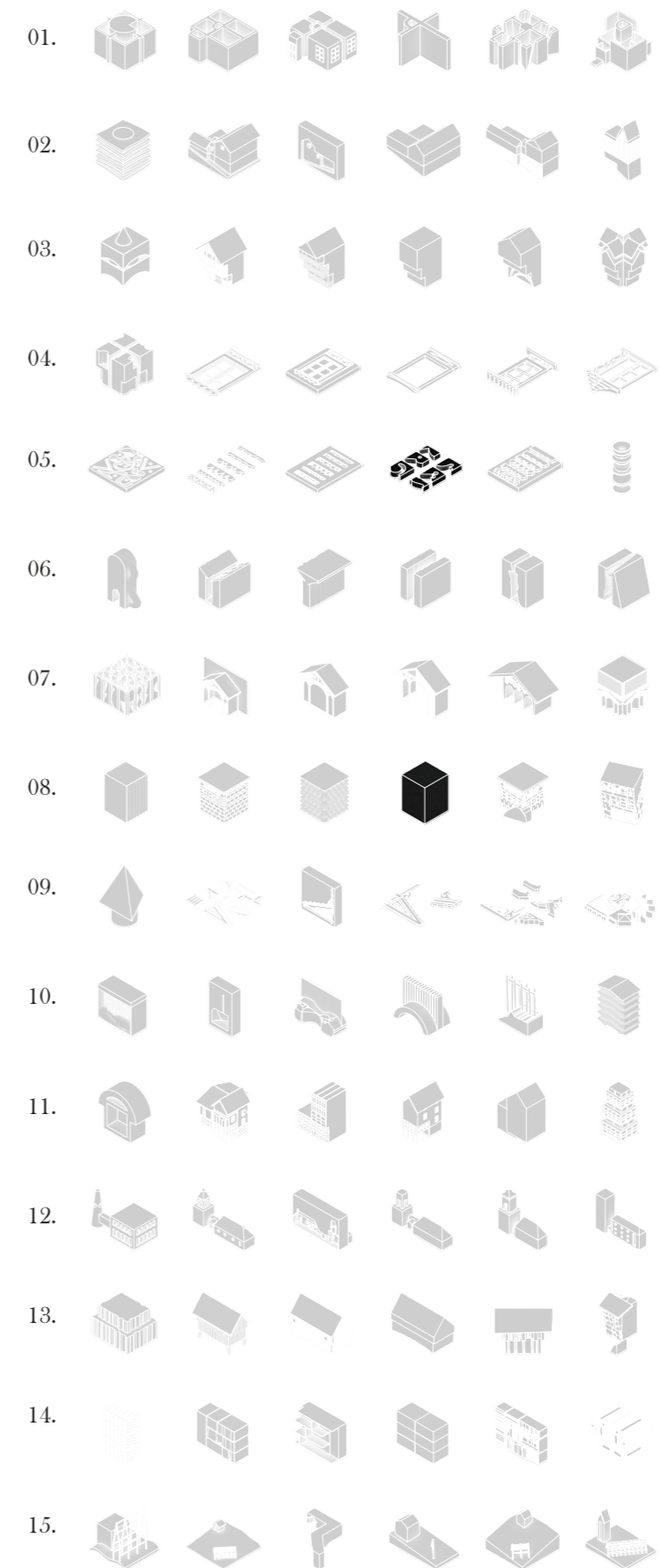
* All paraphrases have been included in the design, the ones highlighted are illustrated in the view (left).

INTERIOR - STUDIO

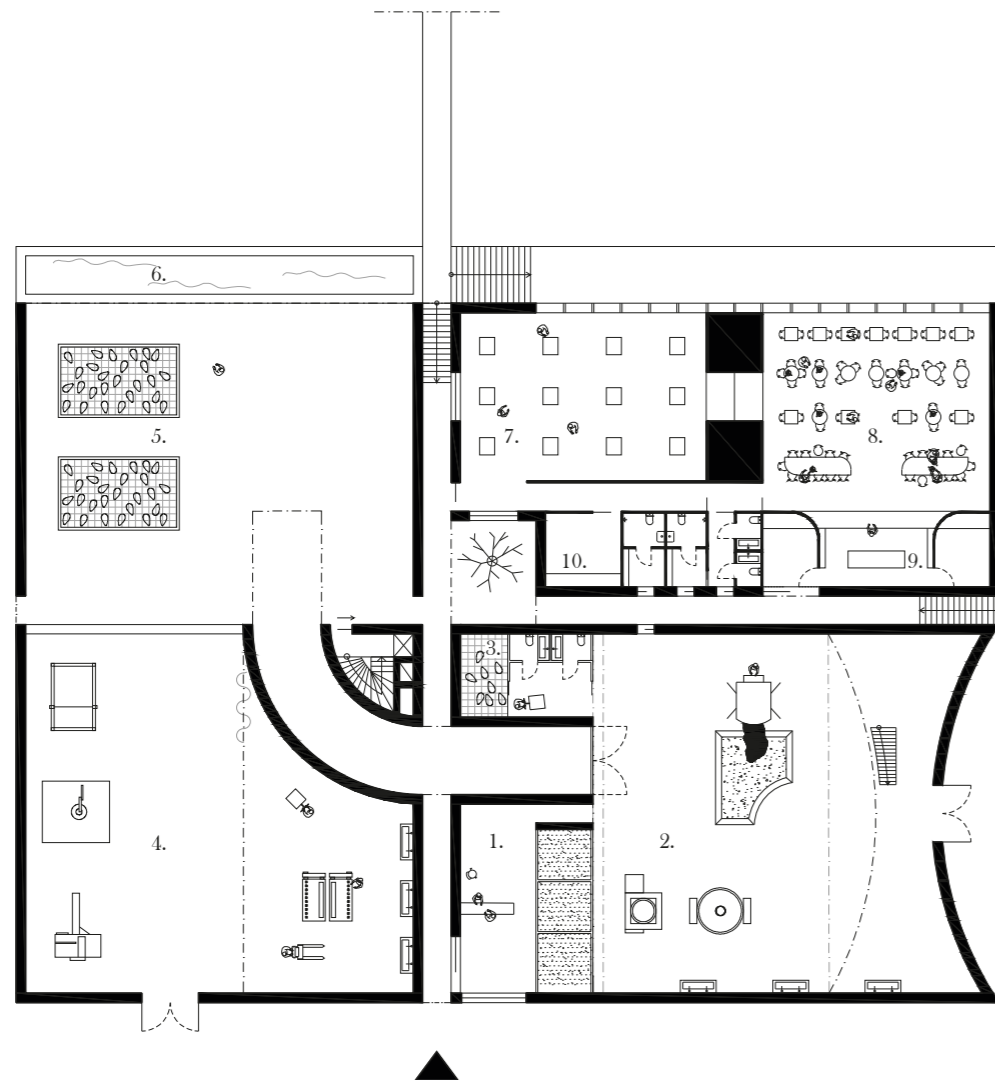


The studios follow the same logic as the workshop has, where the ascetic approach is to give a calm open space.

- 05. Instead of traditionally additive ornaments the plan and section of the studio has been influenced by traditional ornaments from Bohuslän creating a variation of spaces in the studio.
- 08. In contrast to the smooth homogeneous materiality in most part of the studio, a curved ceiling in the entrance is added, similar to the accommodations.

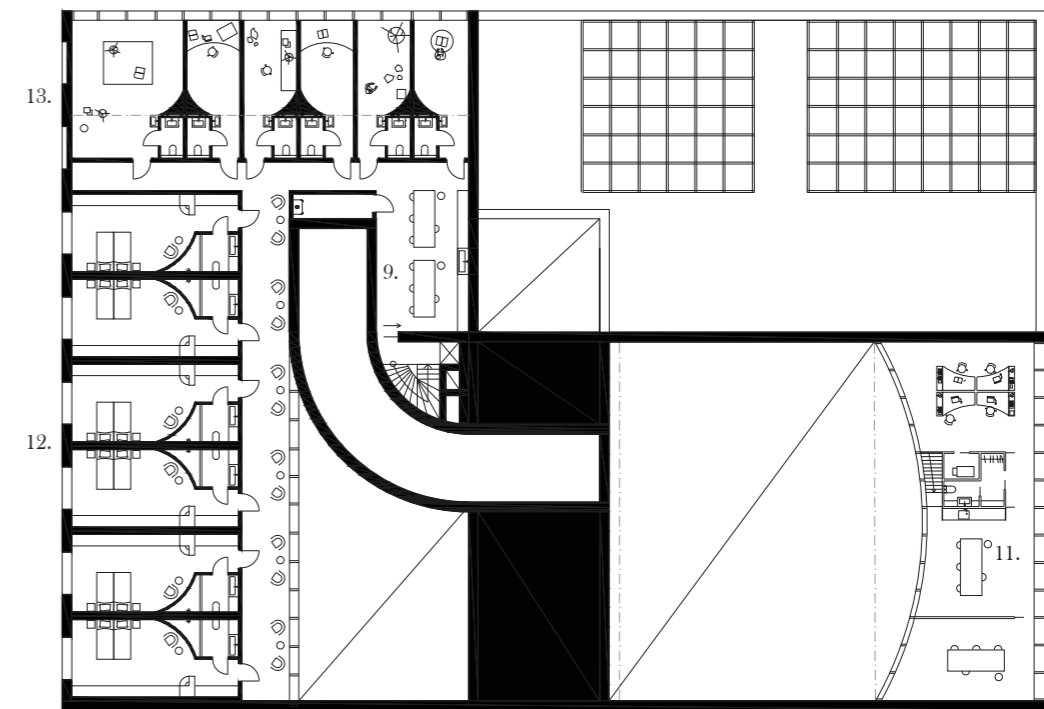


PLAN



First Floor

- | | | | |
|----|-------------------|-----|-----------------|
| 1. | Lobby | 6. | Water reservoir |
| 2. | Cast room | 7. | Exhibition |
| 3. | Oven | 8. | Restaurant |
| 4. | Workshop | 9. | Kitchen |
| 5. | Outdoor workspace | 10. | Storage |

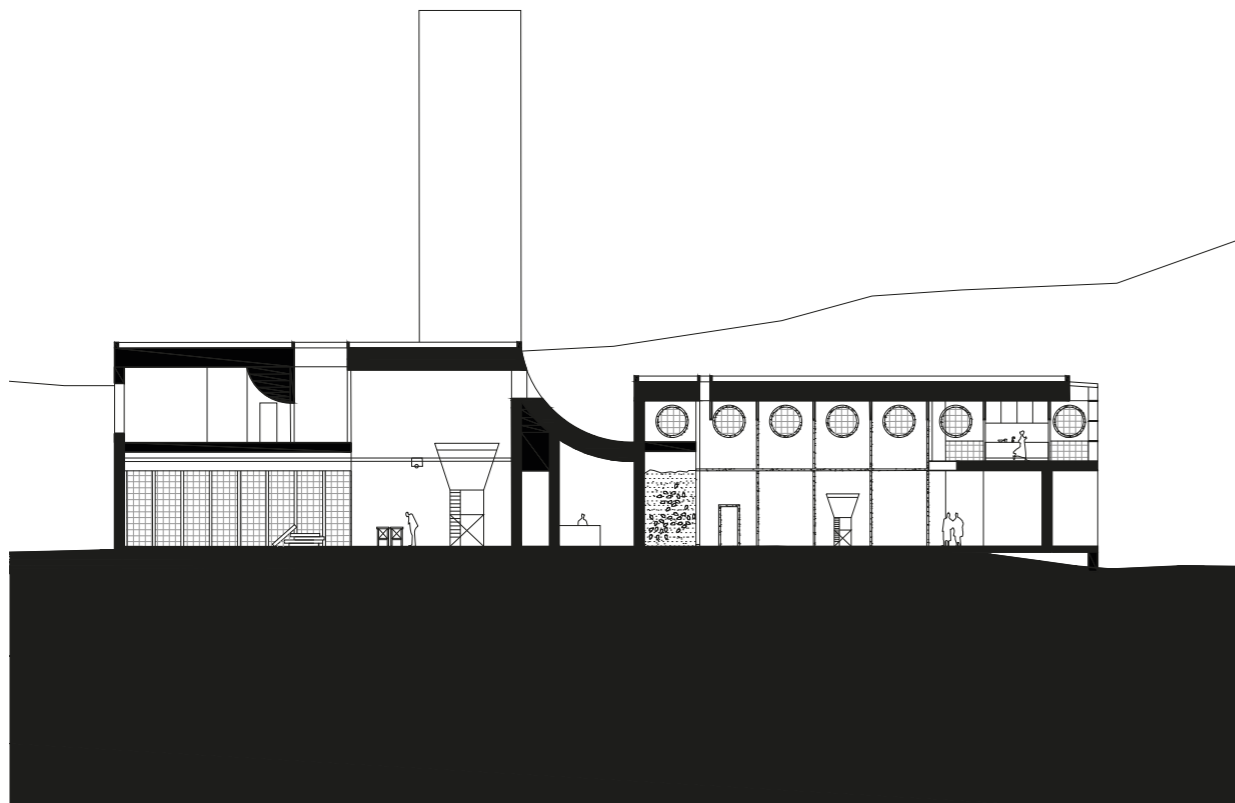
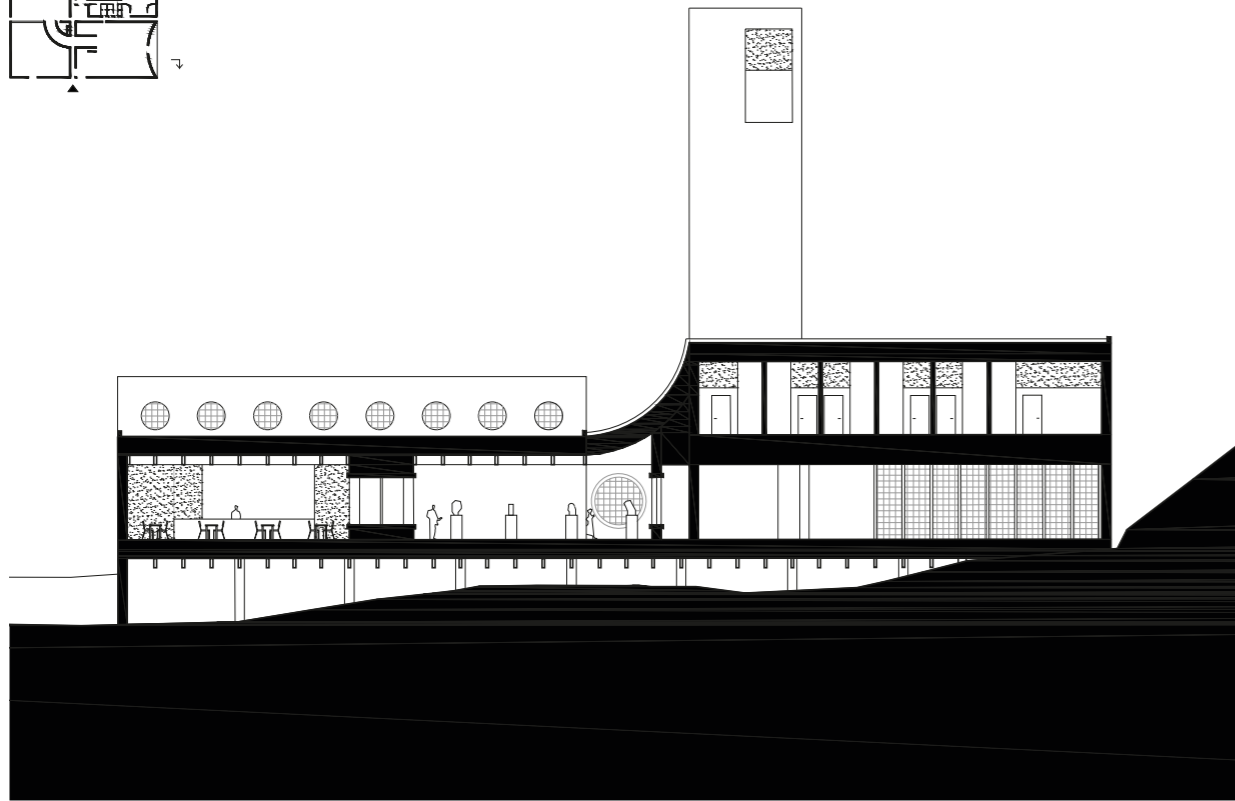
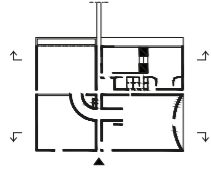


Second Floor

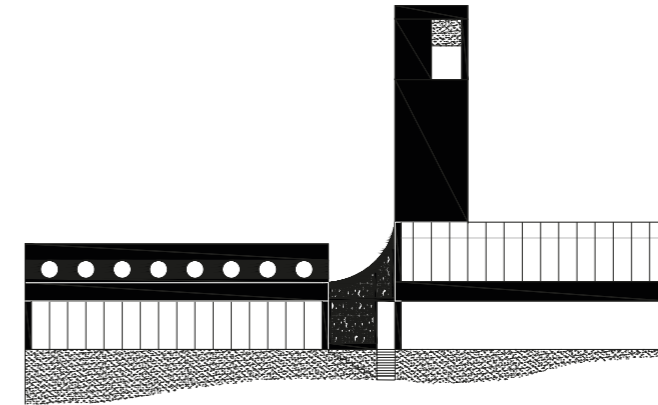
- | | |
|-----|---------------|
| 11. | Office |
| 12. | Accomodations |
| 13. | Studios |



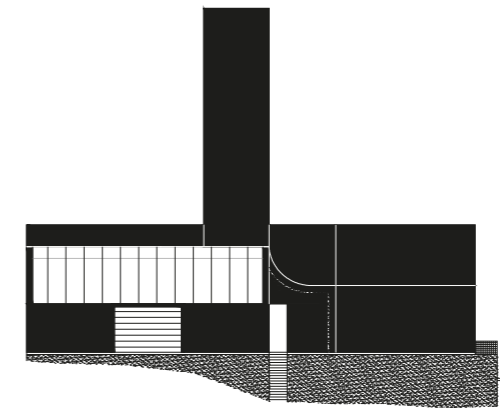
SECTIONS



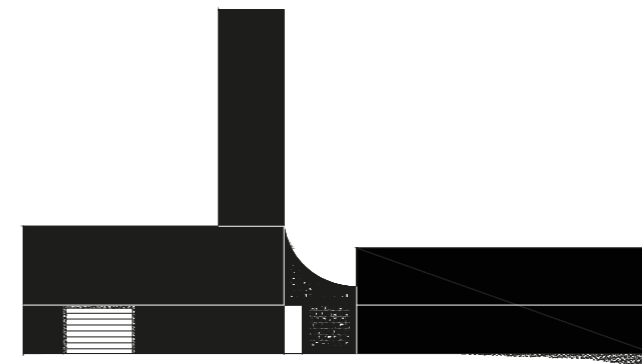
ELEVATIONS



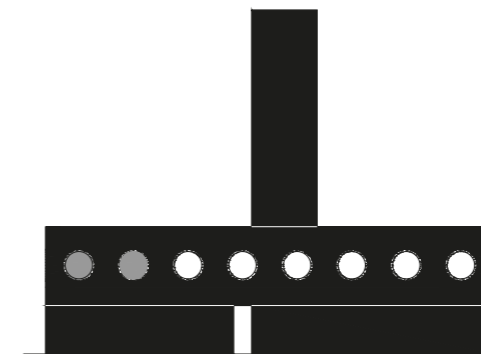
West



North

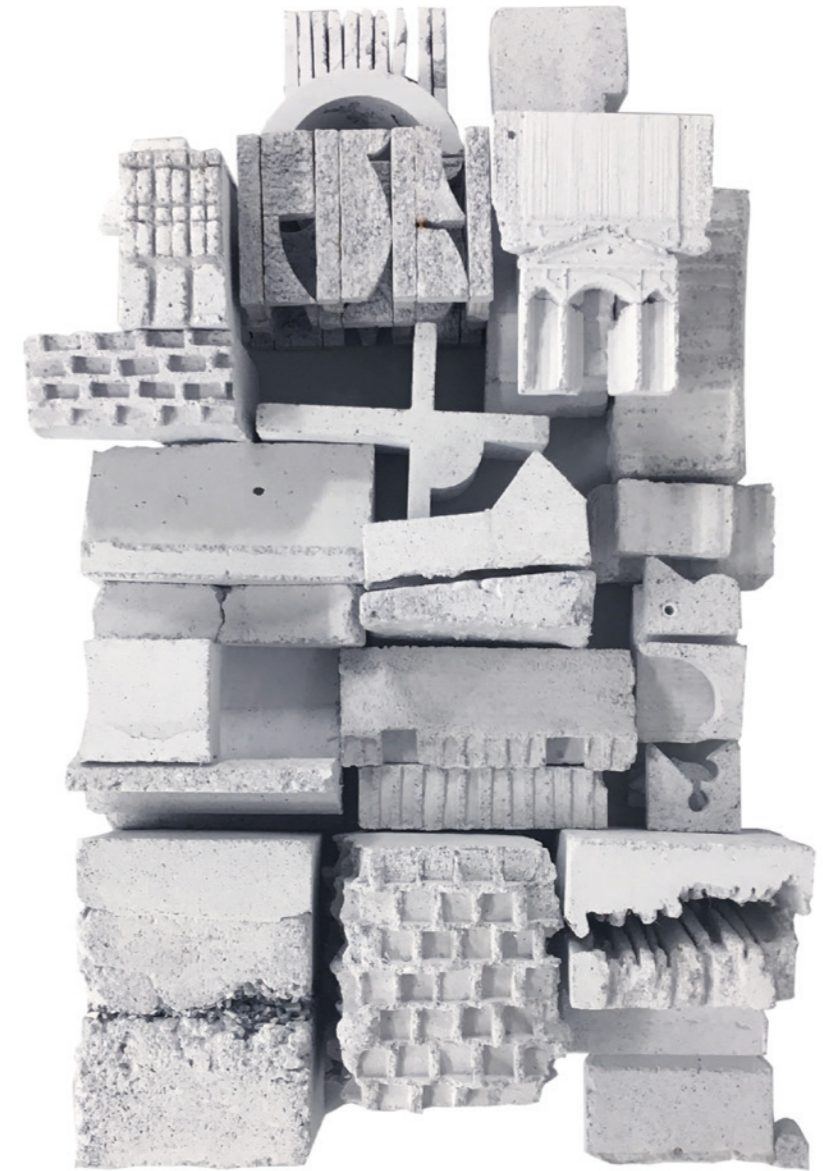


East

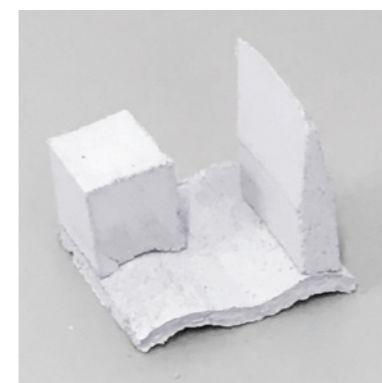


South

MODELS



PARAPHRASES

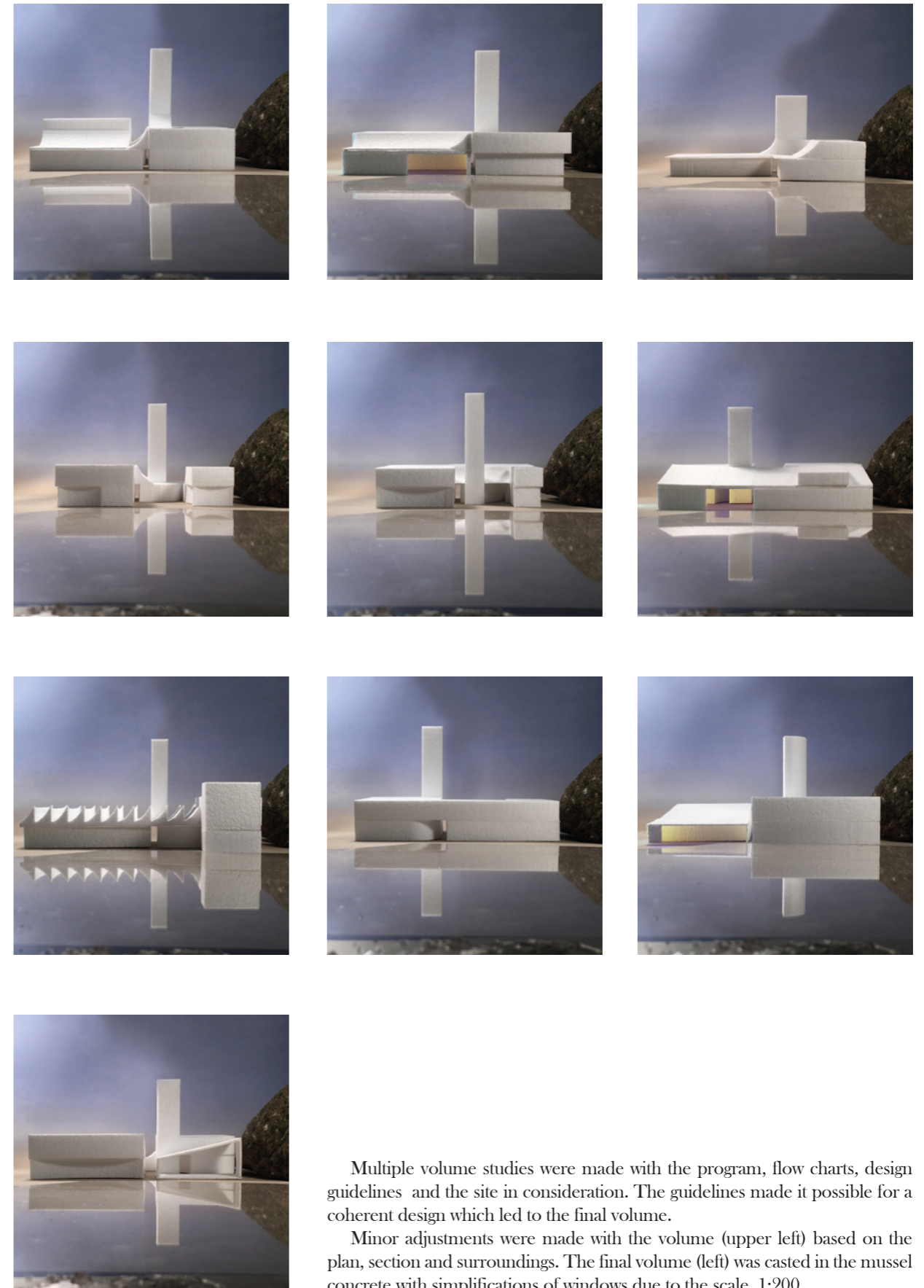


Selected paraphrases that represented the references in their essence were chosen for casting. The material for the castings were also a test in which variations of mixtures were made; course and fine crushed shells. There were also testing in different casting method in search for a more tactile surface.

VOLUME



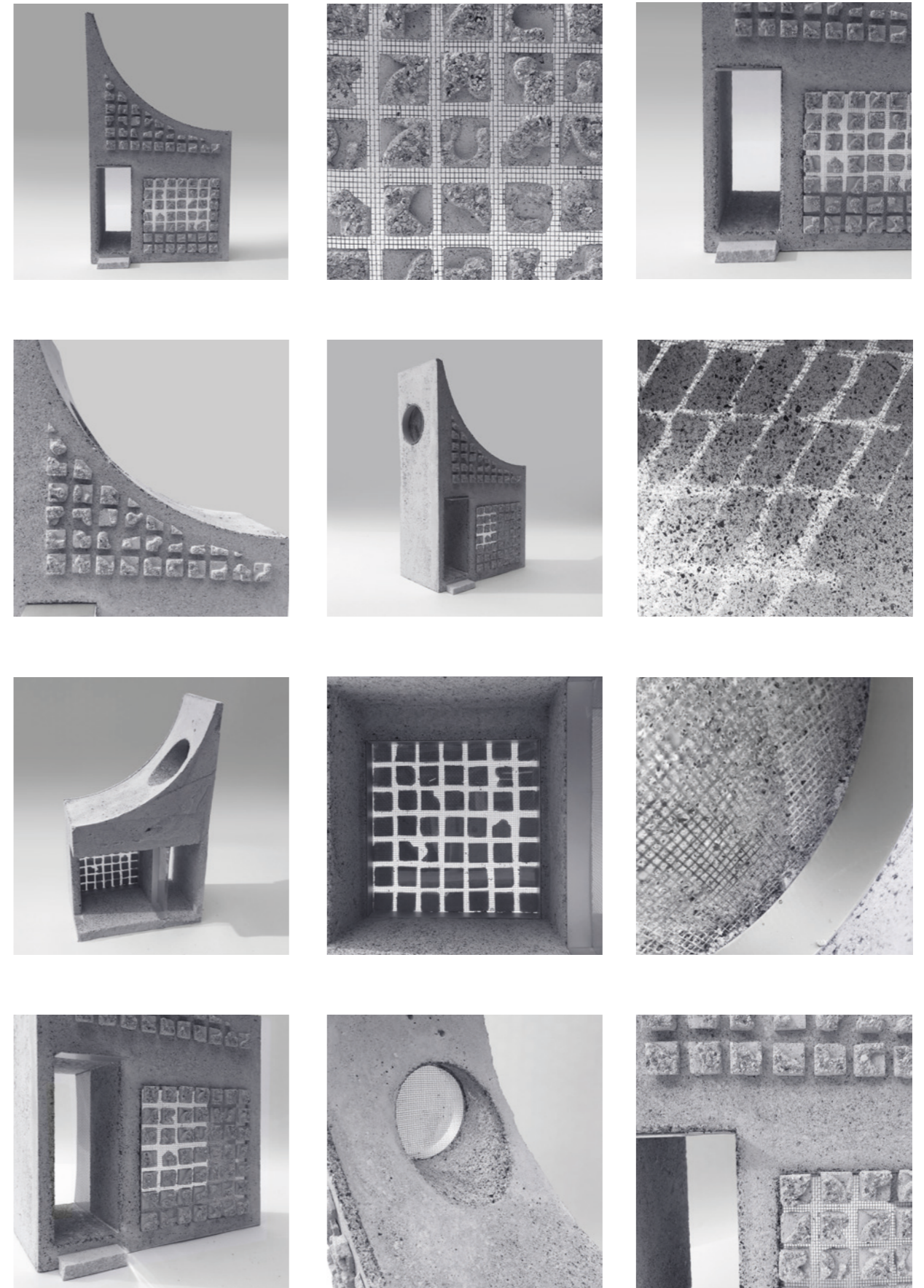
VOLUME STUDIES



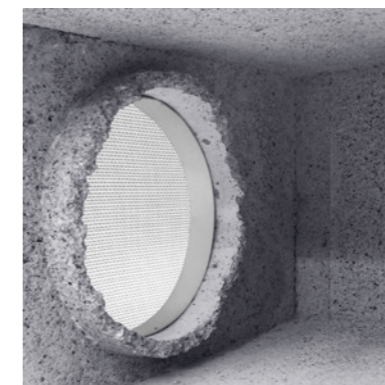
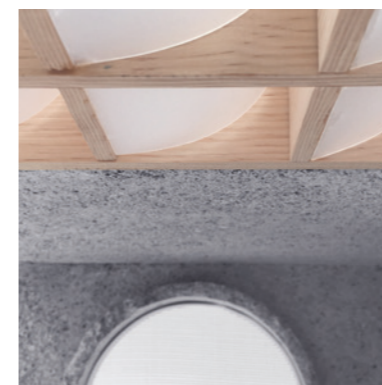
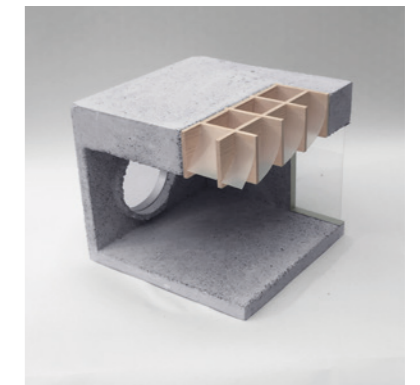
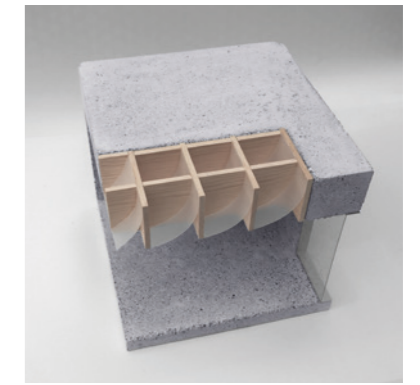
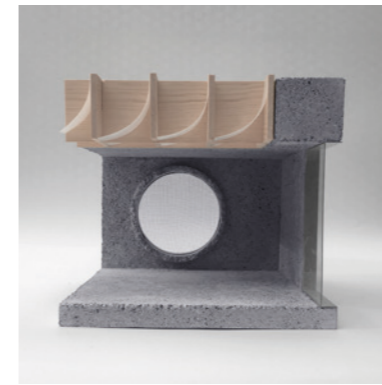
Multiple volume studies were made with the program, flow charts, design guidelines and the site in consideration. The guidelines made it possible for a coherent design which led to the final volume.

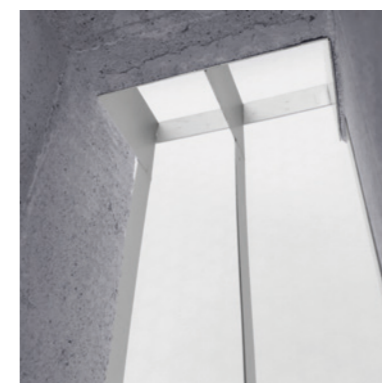
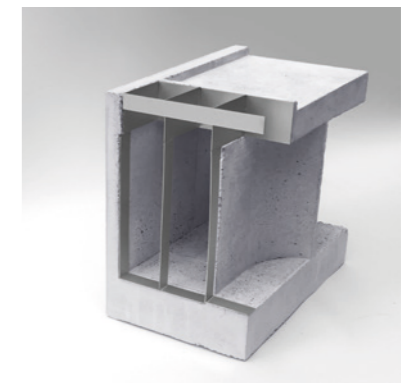
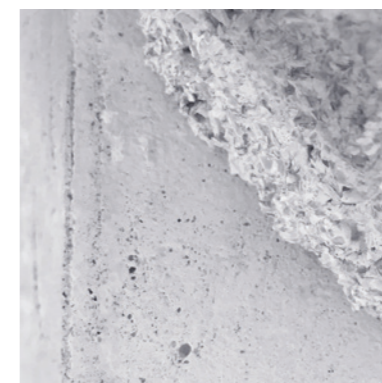
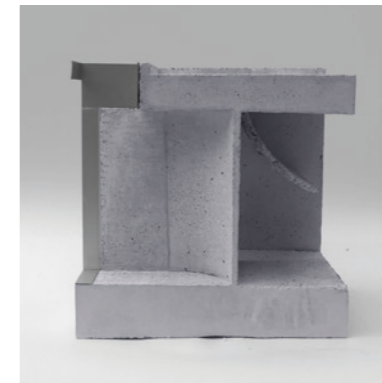
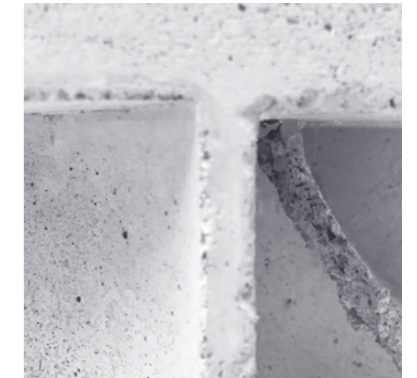
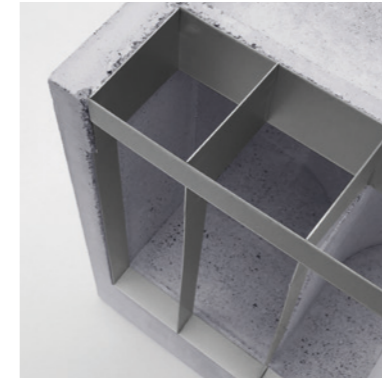
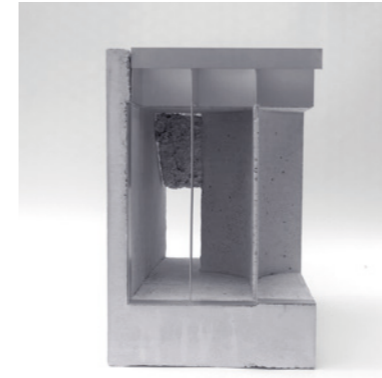
Minor adjustments were made with the volume (upper left) based on the plan, section and surroundings. The final volume (left) was casted in the mussel concrete with simplifications of windows due to the scale, 1:200.

1:20 ENTRANCE



1:20 EXHIBITION





CONCLUSION

This thesis is a research by design project which tries to represent regional nuances in the built environment of Bohuslän. It does so through the design of a small scaled mussel concrete plant in Klätta. The project has been undertaken with the intent to find, depict and reinterpret the regional style of Bohuslän by abstracting reference images through a method of paraphrasing and a local and unexplored material – mussel concrete. The initial intention was to make a concrete where both the binder and aggregation were replaced by mussel shells with the purpose of exploring the aesthetic qualities of the material. Early in the process it was discovered that it would not be possible to find an acceptable mixture for the binder using burnt mussel shells in the amount of time given, therefore the decision to use white cement was made. Mussel shells as a replacement for sand as aggregation were functional, the mussel-concrete does however seem to lose some of its constructive strength in comparison to concrete with sand, through a point of failure test the mussel-concrete approximately has the load bearing qualities of brick. The perks of mussel-concrete from our knowledge is primarily its aesthetic qualities and the usage of a raw material that other businesses have a problem to dispose of. Its aesthetic qualities and its possibilities of many variations in texture has been a driving force and a constant inspiration during the design of this project.

Our interest in reference pictures derived from the bombardment of inspirational images taken out of context found on Pinterest or other equivalent sites. We question how the choices of images may affect the end design and what possibilities that holds. In this case the project strives for regionalism without being romantic but as a way of mixing local and historic design aesthetic with global tendencies. We propose a design strategy that explores traditional elements without copying them or trying to replicate a certain style. As an opposition to the many global tendencies of past and present we looked to the discourse of critical regionalism as a sound way of exploring regionalism. We have in this thesis cherry-picked the parts of critical regionalism that we agree with and avoided others, such as "rejects the whimsical individualism and ornamentation of Postmodern architecture" (Wikipedia: Critical Regionalism). This project is not a critical regionalism project per se but departs from its way of thinking about the past and the present in designing. In regards to the quote by Paul Ricoeur (that addresses the conflict between being modern and at the same time being able to return to one's roots), that Frampton used to describe critical regionalism is re-phrased into "the conflict between being contemporary and at the same time being able to return to one's roots", the method used in this project made that conflict into a conversation rather than two things being in opposition to one another. The essence of the method which is letting the input (local and historic) go through the architect and become something new, with the original intent/essence still present, it helps to fulfill the basics for critical regionalism - trying to bridge the gap backward in time without being devoured by it.

The strong point of this thesis is its method of using reference images and re-working them which in turn leads to a constant flow of inspiration. In terms of whether the design of the project shows regional characteristics can of course be questioned. The method used in Nuance would benefit to be applied on variation of scales and programs. A different choice of region would also further build a layer of complexity to the method and would bring a stronger argument for the case. In conclusion we do however think that the project shows a subjective aesthetics but the usage of local reference images is the main reason for the shapes, form and materiality and therefore regional nuances can be seen in the final design.

STUDENT BACKGROUND

KALLE HELLMARK,

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CREAM architects
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Werner Arkitekter
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Chalmers University of Technology
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Steneby , Carpentry
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Bornstein Lyckefors Architects
2016 -

Chalmers University of Technology
2014 - 2016

Royal Danish Academy of Fine Arts, Architecture
2013 - 2014

Chalmers University of Technology
2012 - 2013

KV Konstskola, Art
2010 - 2012

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Figure 01 - 06. Werne, F., & Östnäs, S. (1983). *Bygge i Bohuslän*. Stockholm, Sverige: Wahlström & Widstrand

Figure 07. Unknown/ Bohusläns museum (1950). Familjegrupp på veranda Skär 1:1 Skee sn. UMFA53046:0002 [Image]. Retrieved 2019-10-07 from <https://digitaltmuseum.se/011014289584/umfa53046-0002>

Figure 08. Kjellén, A. (2020). *Carlstens fästning*.

Figure 09 - 10. Werne, F., & Östnäs, S. (1983). *Bygge i Bohuslän*. Stockholm, Sverige: Wahlström & Widstrand

Figure 11. Unknown/ Bohusläns museum (1895 - 1905). Reinholdska villan från hamnen. UMFA53278:0309 [Image]. Retrieved 2019-10-07 from <https://digitaltmuseum.se/011014338115/enligt-text-som-medfoljde-bilden-reinholdska-villan-fran-hamnen>

Figure 12. Werne, F., & Östnäs, S. (1983). *Bygge i Bohuslän*. Stockholm, Sverige: Wahlström & Widstrand

Figure 13. Bohusläns museum (1940 - 1950). Smögen. UMFA53489:0051 [Image]. Retrieved 2019-10-07 from <https://digitaltmuseum.se/011014348413/text-pa-kortet-smogen>

Figure 14. Andersson, U./Bohusläns museum (1977). Bohusläns samhälls- och näringsliv. 2. STENINDUSTRIN. UMFA54360:0459 [Image]. Retrieved 2020-02-01 from <https://digitaltmuseum.se/011014430540/bohuslans-samhalls-och-naringsliv-2-stenindustrin-film-14-text-som-medfoljde>

Figure 15. Skoglund, G. /Bohusläns museum (1950 - 1960). UMFA55076:0665 [Image]. Retrieved 2020-02-01 from <https://digitaltmuseum.se/011014498735/umfa55076-0665>



APPENDIX

I

Site



The Peninsula

The site in this thesis is located in the north of Bohuslän on a small peninsula called Klätta. The peninsula was exploited in the 1970's and is mostly an area for summer residences with very small amount of tourism-oriented businesses.

Kalle has visited the site every summer and has a close personal relation to the site and Angelina has been visiting the site for the past 6 years.

The photos above and to the upper right is the road that mark the entrance to the peninsula, located near the ocean.



Approaching the Site

Once on the peninsula the main road follows the landscape with its many curves and its up and down hills. The exit that leads to the site is almost hidden when arriving to the peninsula and once on the side road one has to almost guess what turns to make to get to the site. Gravelled roads with many potholes lead the way forward and in the end the road is semi-overgrown by trees that hit the car.

We found the site through our many walks and boat trips around the peninsula, trying to buy fresh mussels and oysters, when finally arriving to the site we found it was closed.





The Site

The site is located in the west side of Klätta, in the middle of Sannäsforden. Travelling with boat is the fastest way to get to nearest store while the car is the alternative to get to the nearby coastal villages such as Grebbestad or Tanum. Along the coast of Bohuslän is several tourist attractions, from the stone carving of Tanum to Kosterhavet. The area around Klätta does not have a clear destination and the movement of the highway has drawn the attention away from Klätta.

On the site today is an abandoned mussel factory that is natural shelters from harsh winds from south and west due to the surrounding landscape. The building is on a platform with its outer limits made by the left overs from the industry; massive piles of mussel shells.





Materials on Site

When first arriving to the site we noticed two prominent fields; the reeds and the mussel shells. We think these two fields is very important for the site atmosphere and has been prominent throughout the process, making its a central part of room configuration, volume etc.

It was from the piles of mussel shells that the idea of mussel-concrete came to us, we wanted to incorporate the material found on the site into the building.

The reeds to the north has a small stream flowing through it which has been taken in to consideration when working with the volume.



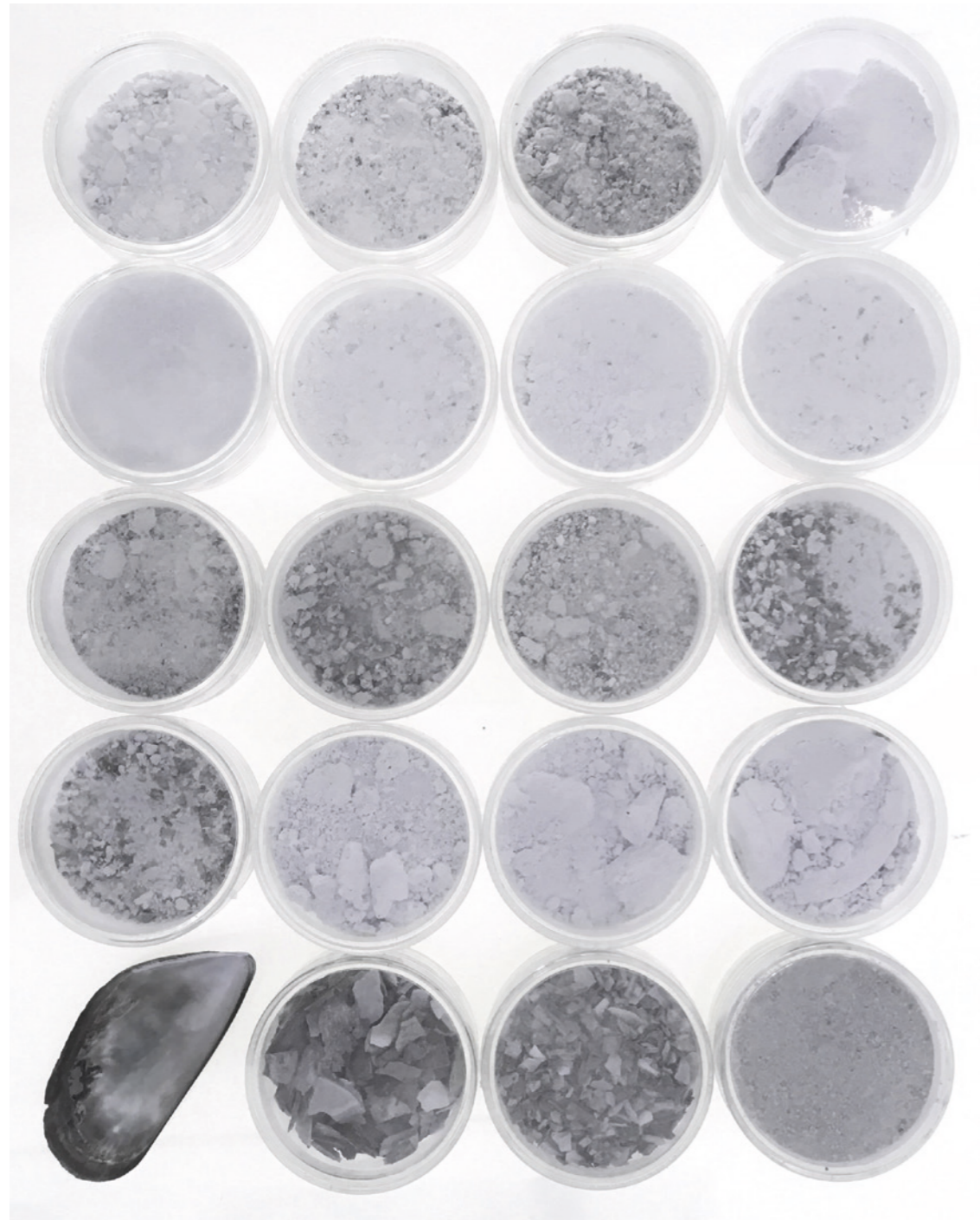
The Bay

Just west of the site is a small bay. It opens up towards Sannäs fjorden and provides a panorama view of the ocean for the building. North of the site is a small stream that flows out to the bay with fields of reeds surrounding the stream. This bay is perhaps the primary direction for the site providing a route for boats but foremost a beautiful view from the inside of the building.



II

Material tests



Introduction

On the site today is huge piles of mussel shells left from the industry. We wanted to incorporate the shells in the building in casting as a nuance of the site in the building.

We took departure from a scientific report where they researched to replace the binder in concrete with crushed and burned mussels. Our interest was not primarily in the materials technical properties but rather its aesthetic qualities.

We did some initial test of crushed and burned mussels but shifted our focus to the materials own properties; the fragility and brittleness.

A big part of our material exploration was to find a material where the colour of the mussels, the light purple nuance, is visible and the mussels itself as the aggregate.

MATERIAL TESTS: BINDER

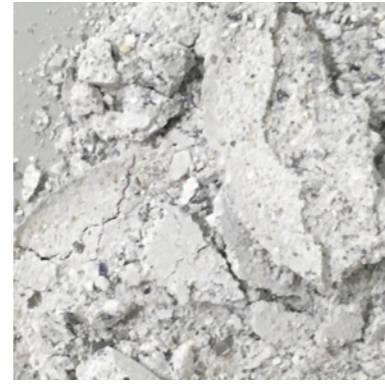
A
+
820°C
2 h



A1: BM 34% <1 32% W 34%

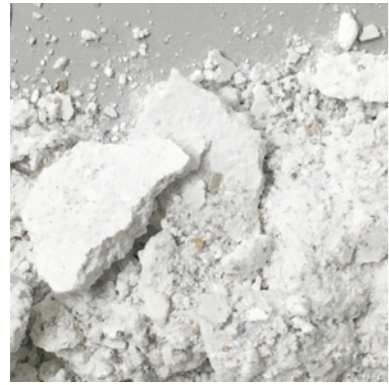


A2: BM 71% W 29%



A3: BM 48% <1 24% W 29%

B
-
820°C
2 h



B1: BM 71% W 29%

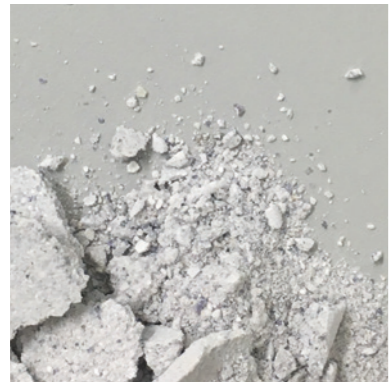


B2: BM 52% 1-4 28% W 20%



B3: BM 38% <1 21% 1-4 22% W 19%

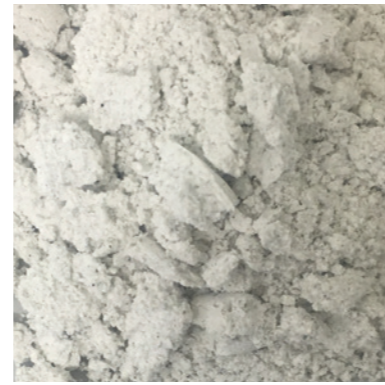
C
-
820°C
4 h



B4: BM 35% <1 40% W 25%

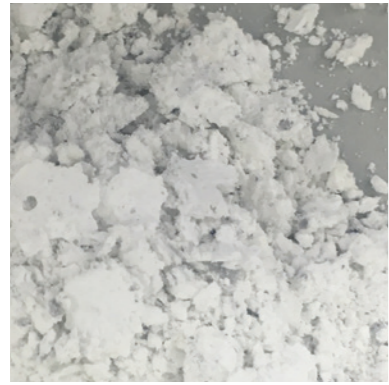


B5: BM 41% 1-4 42% W 17%

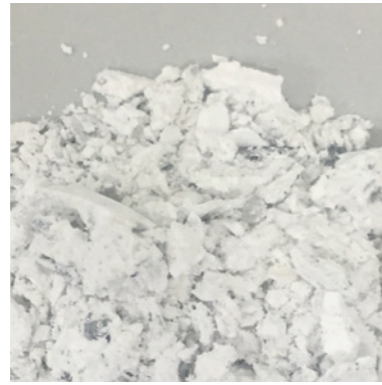


C1: BM 78% W 22%

D
+
820°C
4 h



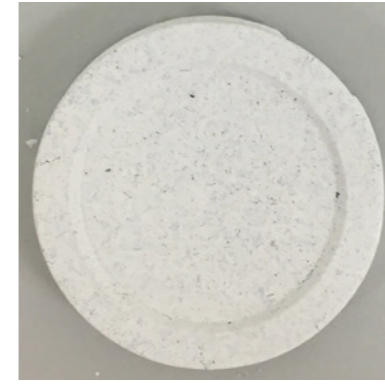
C2: BM 68% W 32%



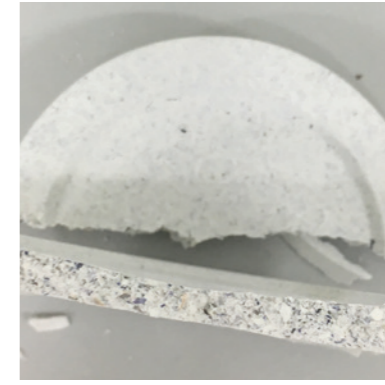
D1: BM 68% W 32%



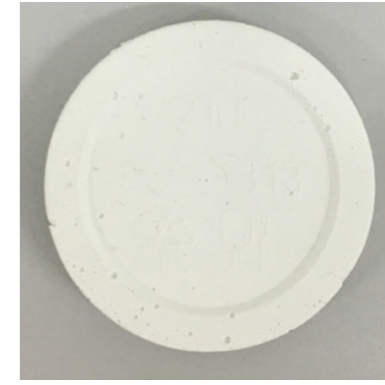
D2: BM 62% W 38%



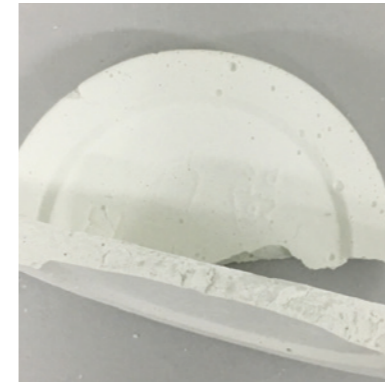
E1: WC 34% BM 32% W34%



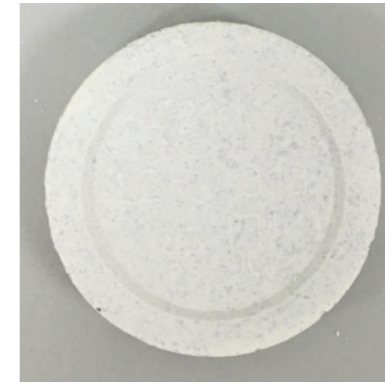
E1



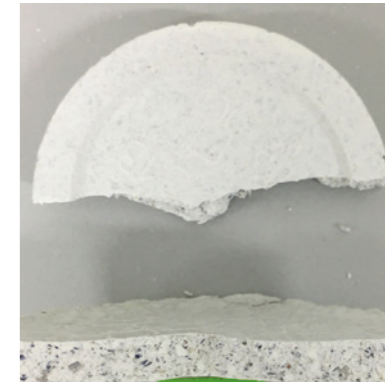
E2: WC 71% W 29%



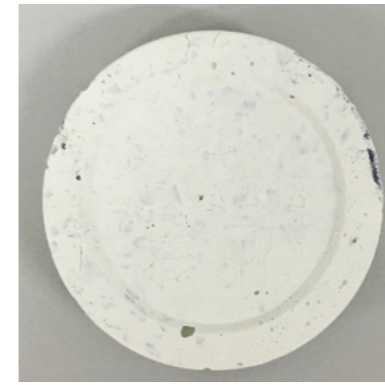
E2



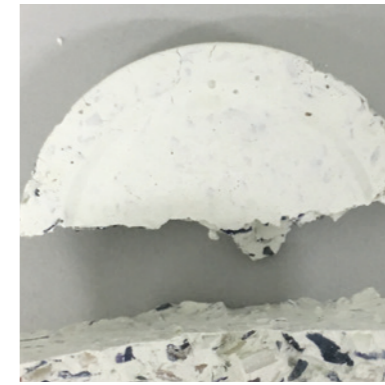
E3: WC 48% BM 24% W 29%



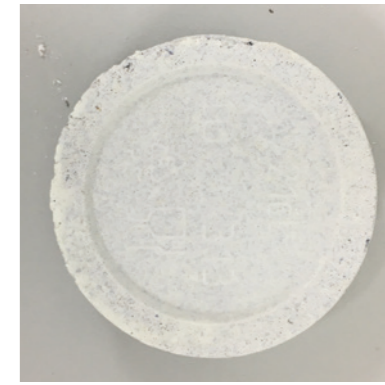
E3



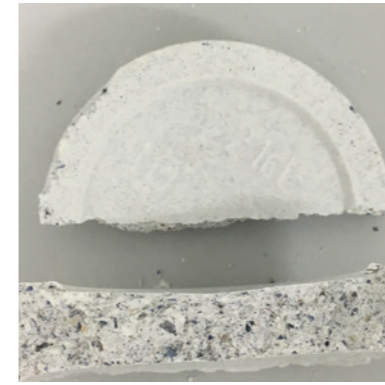
E4: WC 41% 1-4 42% W 17%



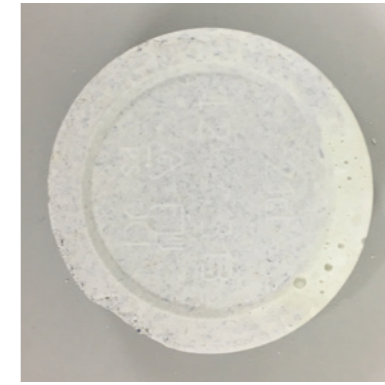
E4



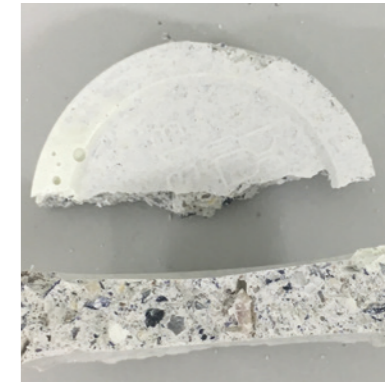
F1: WC 31% <1 47% W 22%



F1

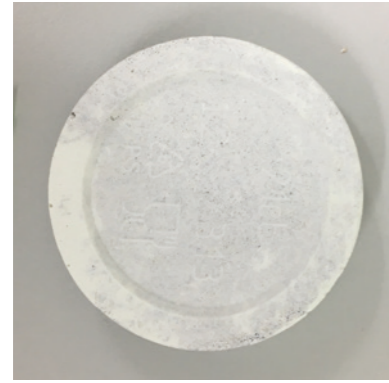


F2: WC 45% 1-4 23% W 32%

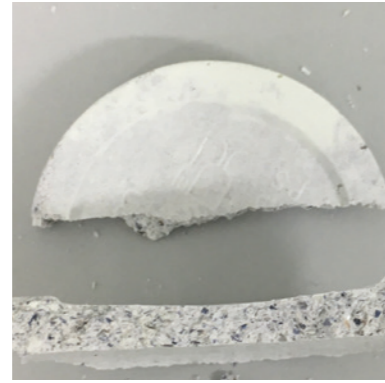


F2

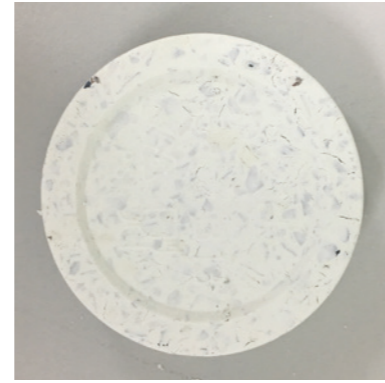
MATERIAL TESTS: BINDER



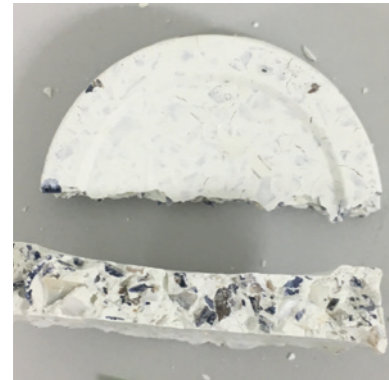
F3: WC 26% <1 52% W 22%



F3



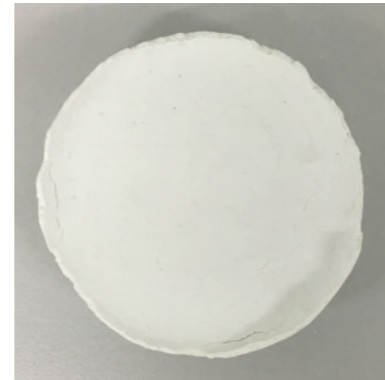
F4: WC 33% 1-4 50% W 17%



F4



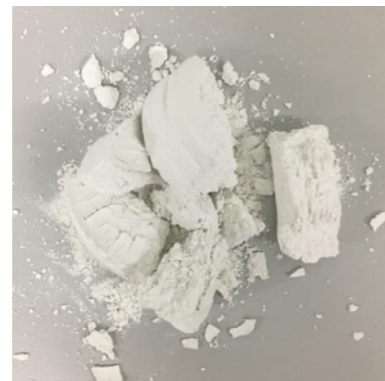
G1: WC 67% W 33%



G1



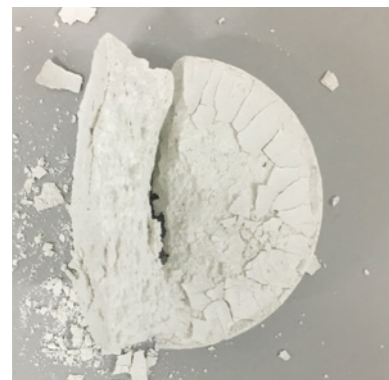
G2: WC 33% BM 33% W 33%



G2



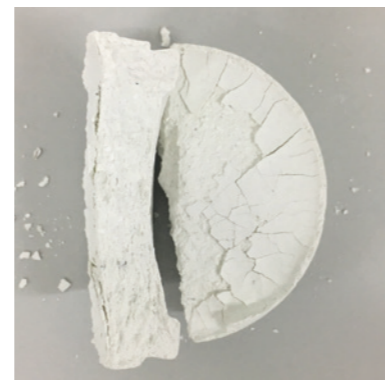
G3: WC 40% BM 27% W 33%



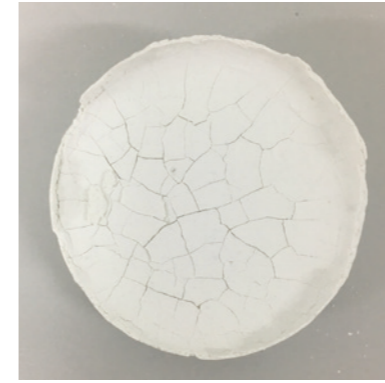
G3



G4: WC 47% BM 20% W 33%



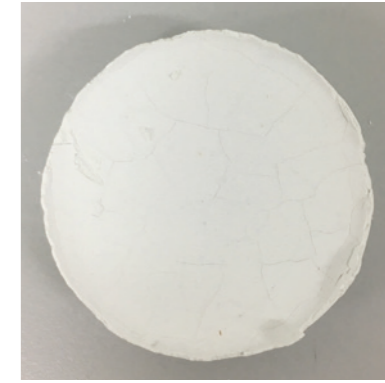
G4



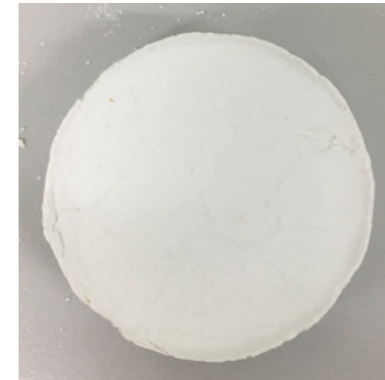
G5: WC 53% BM 13% W 33%



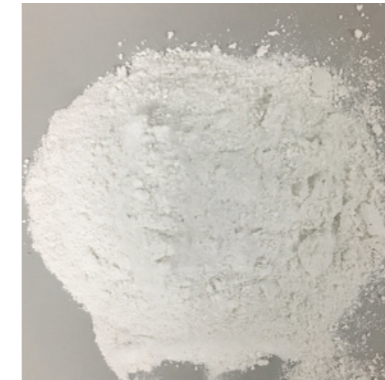
G5



G6: WC 60% BM 7% W 33%



G6



G7: BM 90% W 10%



Ö1: WC 42% <1 16% 1-4 16% W 26%

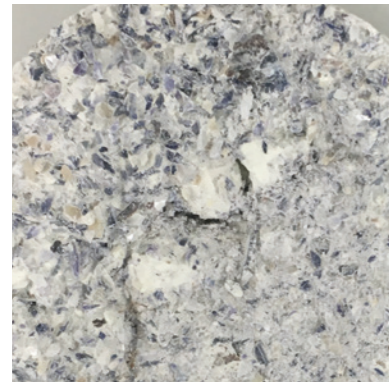
About

We did initial experiments with different mixture of burnt mussels as the binder for concrete. The burnt concrete was heated up to 320°C for 2-6 hours to make it reactive. Though a complete replacement of cement wasn't successful a 10% replacement showed the most likeness to regular concrete.

We then went into exploration of the material with the intent of making a concrete where the mussels colour and texture is present.

To be able to control the colour nuance of the concrete we used a mussel powder (<1mm grains) mixed with white cement instead of traditional grey cement.

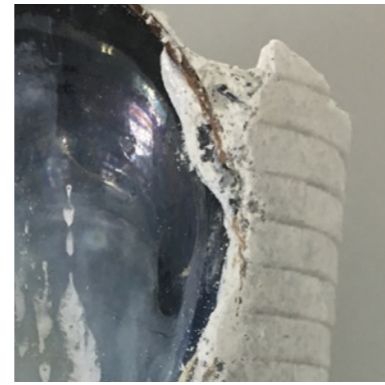
MATERIAL TESTS: EXPRESSION



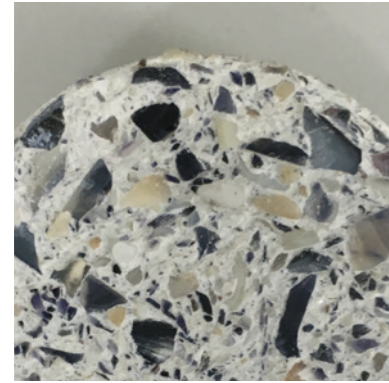
Ö2: WC 35% <1 24% 1-4 24% W 18%



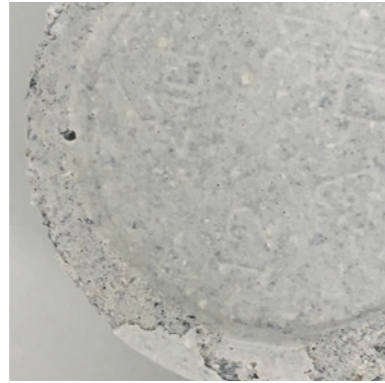
Ö3: WC 35% <1 24% 1-4 24% W 18



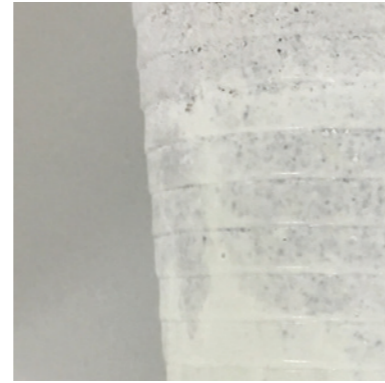
Ö4:



Ö5: WC 35% <1 24% 1-4 24% W 18%



Ö6: WC 25% <1 33% 1-4 25% W 17%



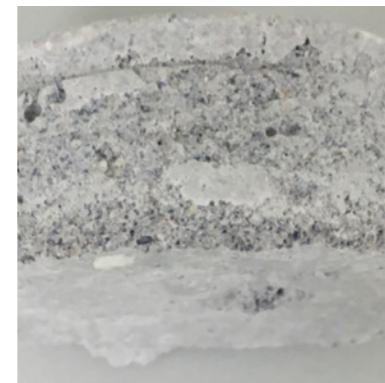
Ö7:



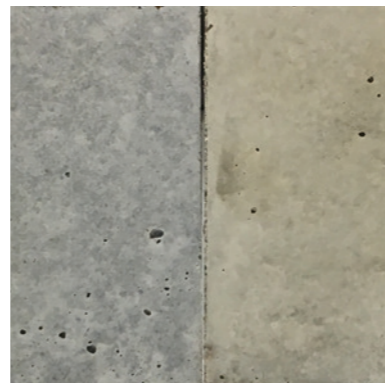
Ö8: WC 20% <1 20% 1-4 40% W 20%



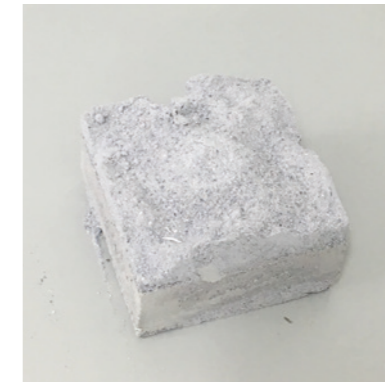
Ö9: WC 27% 1-4 55% W 18%



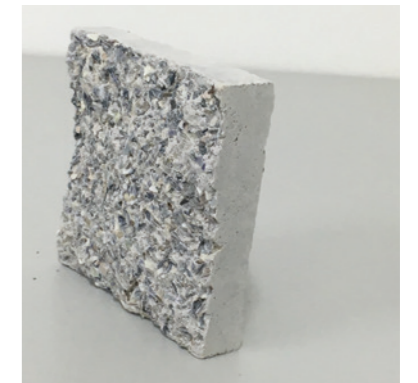
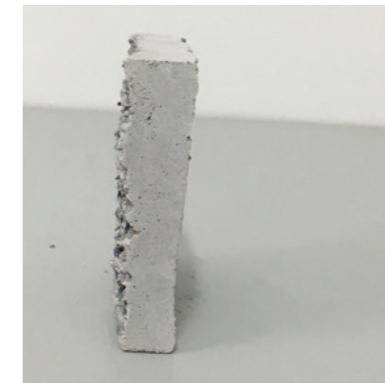
Ö10: WC 15% <1 62% W 23%



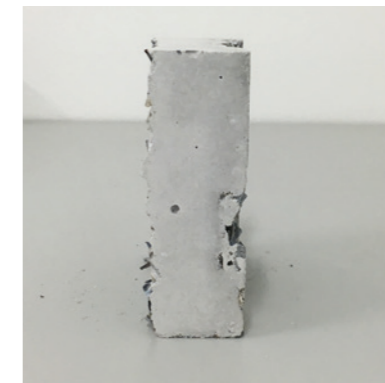
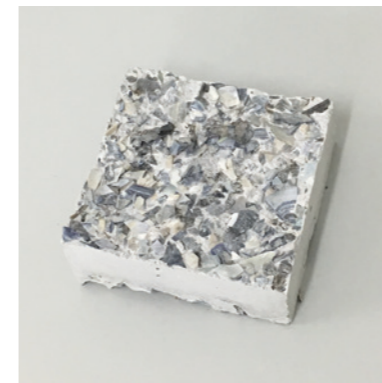
Concrete mixture using sand vs crushed mussel



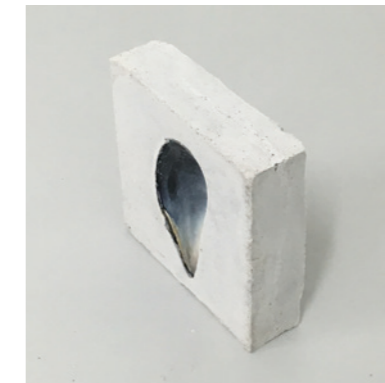
Casted against <1 powder, the result was a glittering, light lavender and fluent shape.



Casted against 1-4 powder.



Casted against > 4.

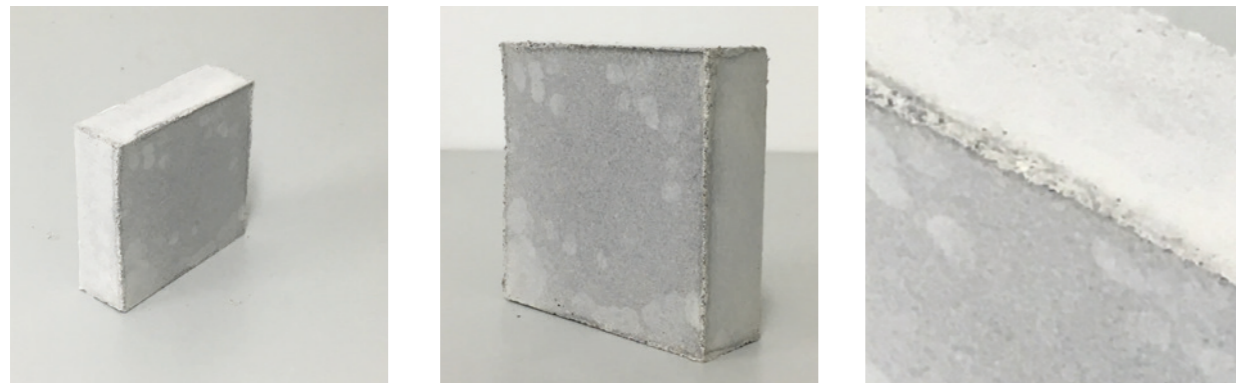


*WC = White cement | BM = Bunt mussel | <1 = Crushed mussel <1mm | 1-4 = Crushed mussel 1-4 mm | >4 = Crushed mussel >4mm | W = Water | + = Grown mussel | - = Wild mussel

MATERIAL TESTS: EXPRESSION



Casted against a rough birch, the result was a relieved, light grey surface



Casted against acrylic sheets



Before: Shells in rows, later to be sanded



After: Shells in rows, broken shells and sanded with rough paper



Before: Uncrushed shells where placed in the mold, the result was uncontrolled holes in the cast



After: Sanded with rough paper



Before: Uncrushed shells where placed in the mold, the result was uncontrolled holes in the cast



After: Sanded with rough paper

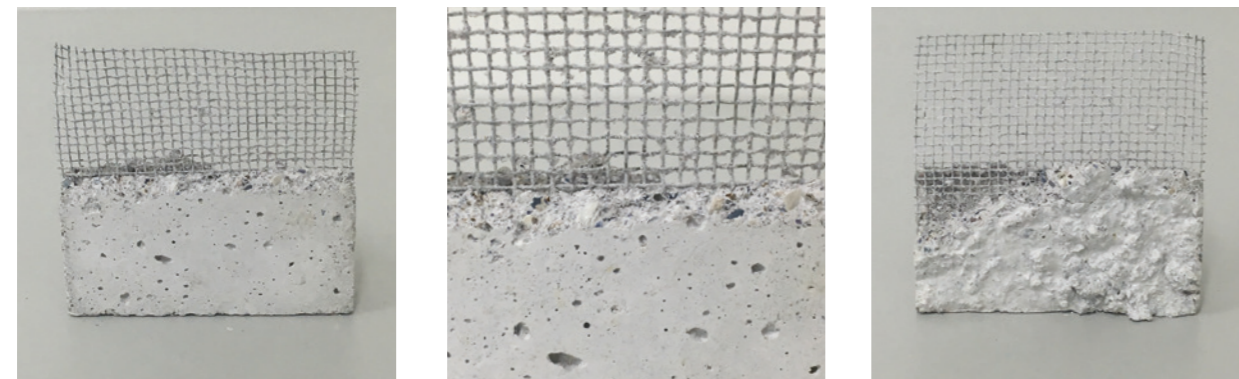
MATERIAL TESTS: EXPRESSION



Sanded surfaces with different roughness



Casted against metall mesh, mix with less water



Break with a mesh inserted



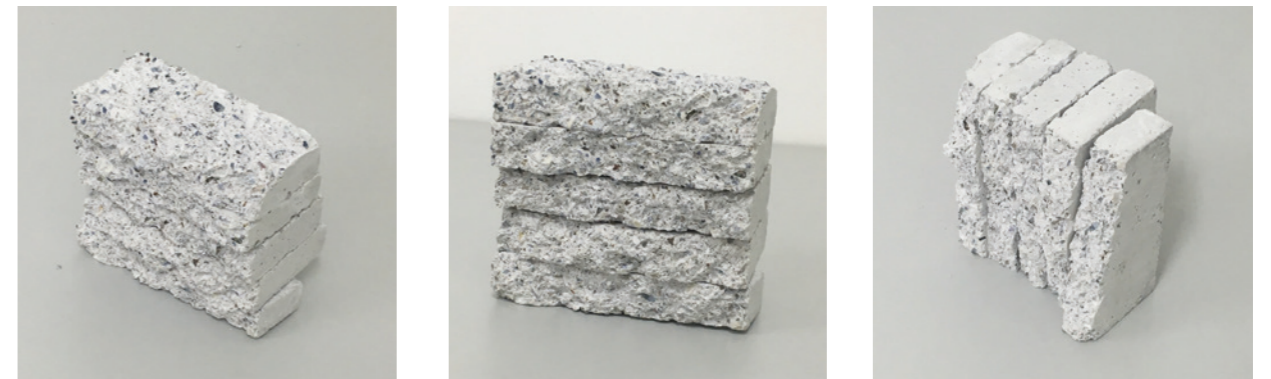
Mesh still intact



Sanded with rough paper



Sanded with rough paper



Broken pieces stacked

About

Through the initial material test with the material we found that its characteristic properties was its brittleness and its fragility. A feature of the material that, when broken, reveals its inner structure in a aesthetic pleasant way which is something we incorporated into the final design.



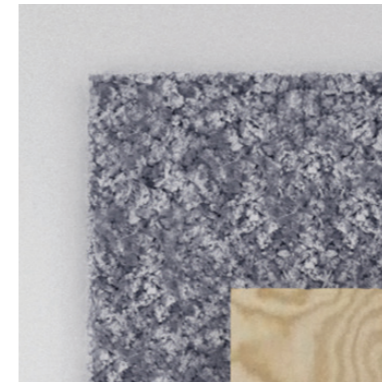
Cement + sand: 45 ton



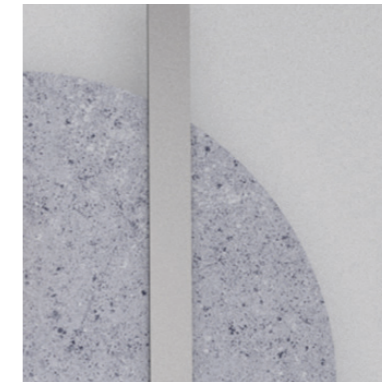
Cement + mussel: 15 ton

Test

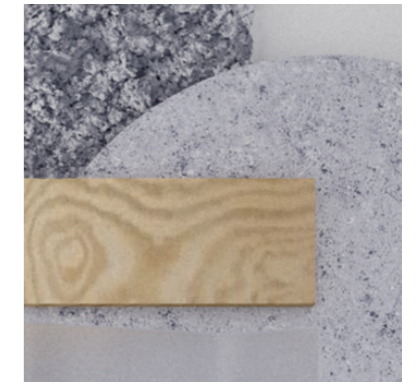
When replacing sand and gravel with mussels of different sizes the point of failure for a cube (10x10x10cm) was 15 tonnes, which is the same as brick. The dimensions of the building is done according to that.



Sprayed mussel concrete



Smooth/gloss mussel concrete



Plywood, pine



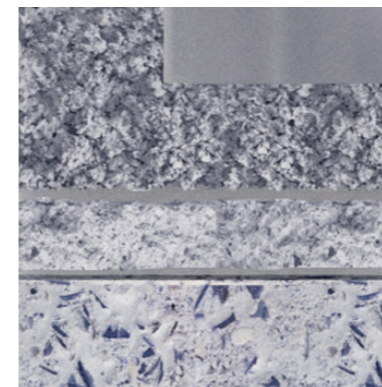
Stainless steel



Plastic curtain



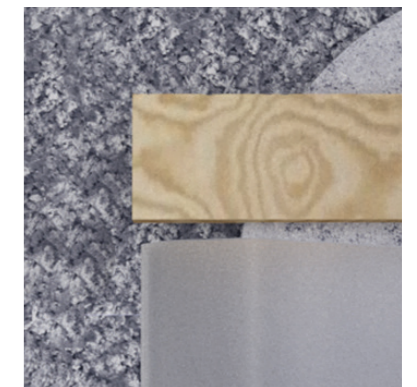
Linen fabric, nature



Cracked mussel concrete



Mussel concrete terrazzo



About

For the design proposal a digitalization of the material tests were made and a selection of different variation of the mussel-concrete with other coherent materials were added to get a good interior composition between the materials.

Reflection

The aim was to produce a material where both the binder and aggregate was mussel-based, where the binder would be crushed and then heated. Through experiments we can conclude that this will not be possible in this project and further experiments could be done in this subject.

Due to circumstances we didn't change the variables as much as originally intended, lower temperature for a longer time was mentioned in the report we read.

Our aim was to explore the aesthetic properties of the material rather than the technical. Some technical experiments was made for some basic knowledge of the material but the main focus remained central throughout the project.

III

References



01.



02.



03.



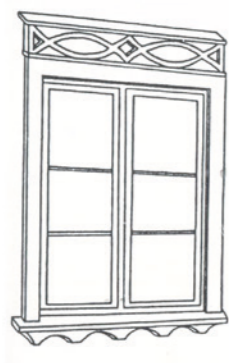
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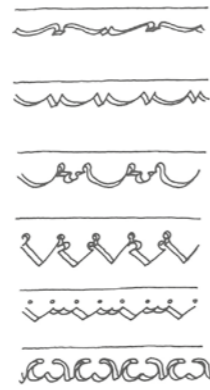


15.



04.

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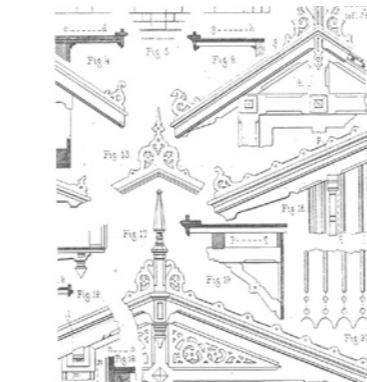
06.



07.



08.



09.



10.



11.



12.

Introduction

To get a broad variety of references and to get a deeper understanding of the region we've collected references through museums, archives, books and site visits. The initial number of references were nearly 50, ranging from detail to barns. Through an evaluation process the references was cut down to 15, based on their representative content. Many of them were essentially the same and could be categorized, each chosen reference is a result of these categories.

The references are, on purpose, mostly from the beginning from 19th century. They were made with influence from other cultures and traditions without the intent for a global scene. While modernist architecture, with its internationalism and standardism, aims for a global intent or a universal truth.

01.

Typical plan for house in Bohuslän, so called "dubbelhus".
Strong graphical elements, fireplace central.

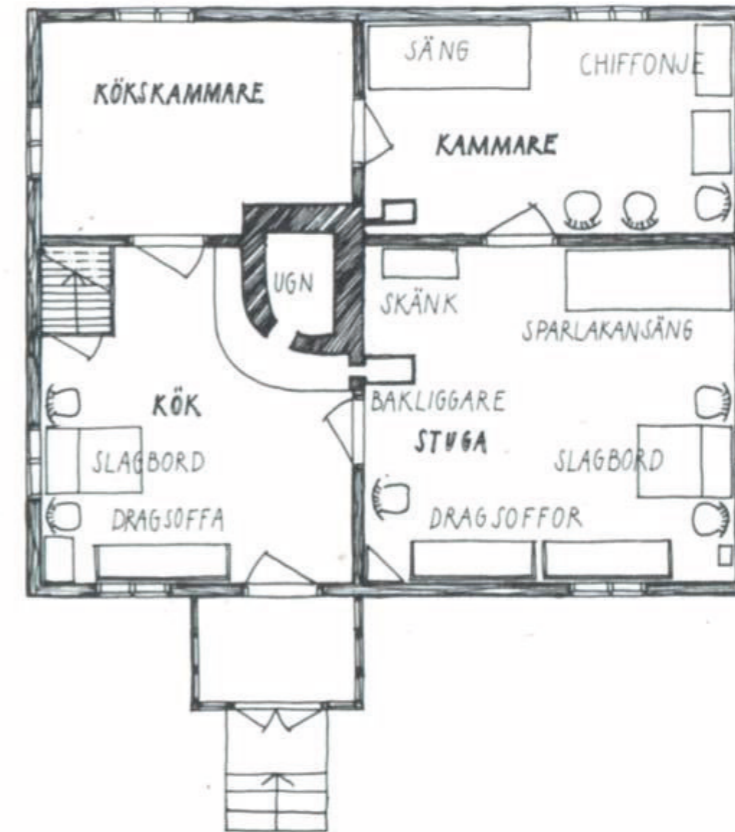


Figure 01. Werne, F., & Östnäs, S. (1983). Bygge i Bohuslän. Stockholm, Sverige: Wahlström & Widstrand

02.

Rocks stacked on top of each other creates a foundation that is adjustable to nature. The foundation and building differs in material



Figure 02. Werne, F., & Östnäs, S. (1983). Bygge i Bohuslän. Stockholm, Sverige: Wahlström & Widstrand

03.

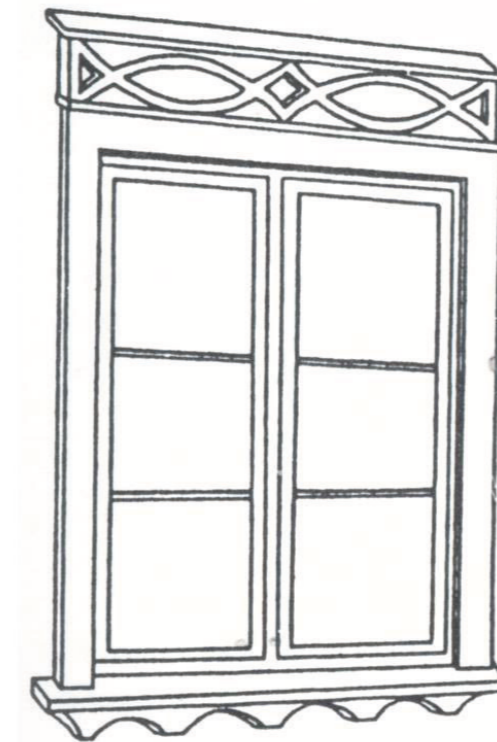
Decorative gavel with repetitive patterns. The gradient of volume.



Figure 03. Werne, F., & Östnäs, S. (1983). Bygge i Bohuslän. Stockholm, Sverige: Wahlström & Widstrand

04.

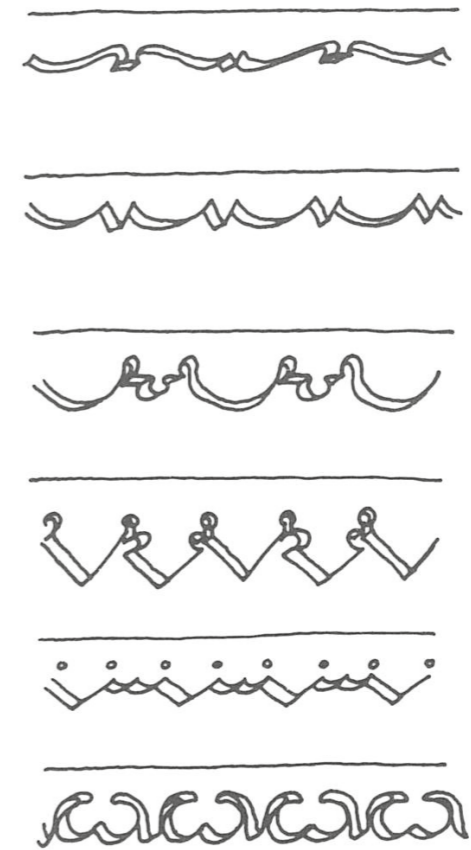
An example of a typical window decorations.



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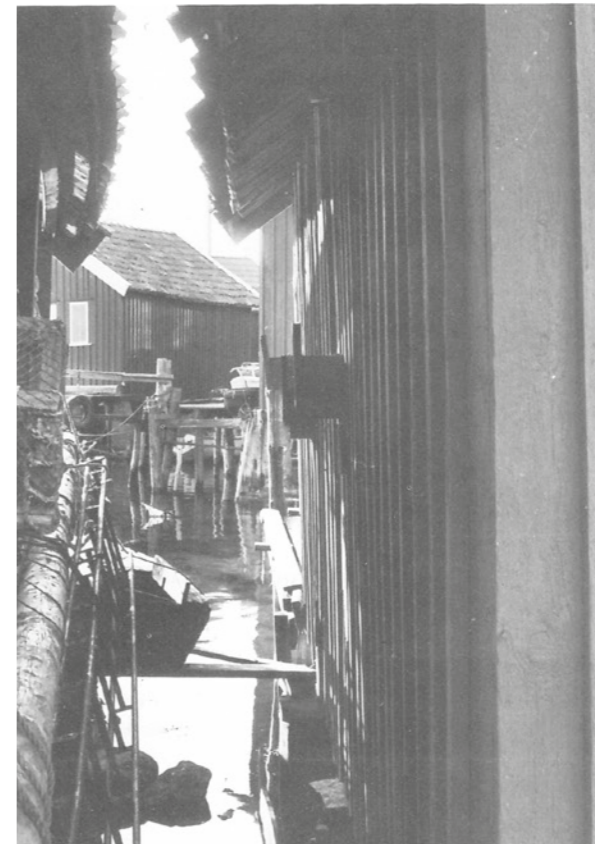
05.

Different patterns used for endings of roofs and window details.



06.

A narrow alley between fishing cabins, found in many places in Bohuslän.



07.

Decorative entrance with intriguing detailing.



Figure 07. Unknown/ Bohusläns museum (1950). Familjegrupp på veranda Skär 1:1 Skee sn. UMFA530460002 [Image]. Retrieved 2020-02-01 from <https://digitalmuseum.se/011014289584/umfa530460002>

08.

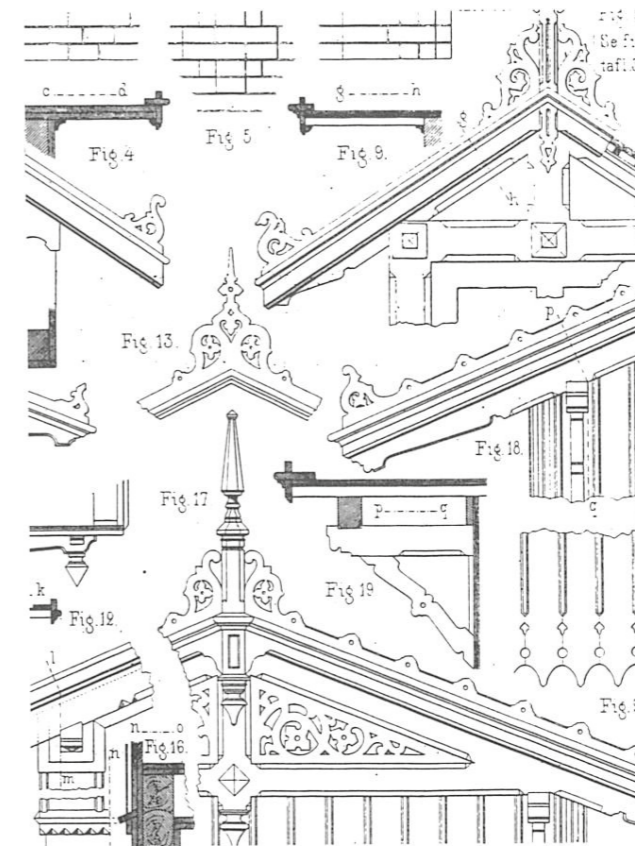
Changes in size and tactility within the same material.



Figure 08. Kjellén, A. (2020). Carlstens fästning

09.

Studies of decorative endings and details.



10.

Fence submissive to nature.



Figure 10. Werne, F., & Östnäs, S. (1983). Bygge i Bohuslän. Stockholm, Sverige: Wahlström & Widstrand

11.

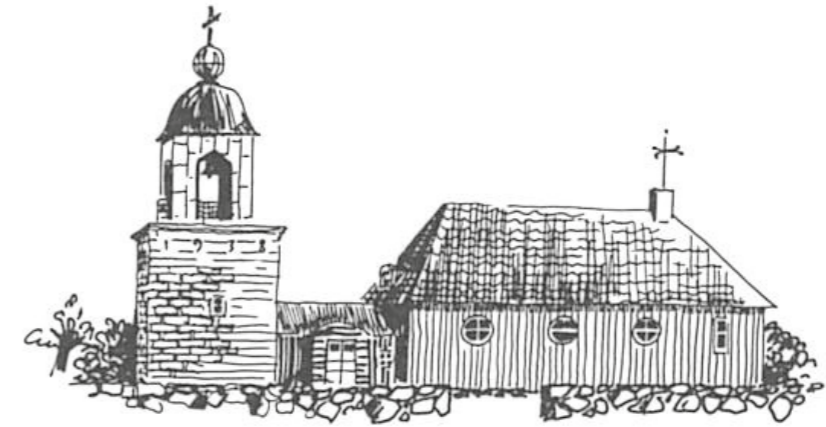
House with various attachment and variety in textures, shapes, forms etc.



Figure 11. Unknown/ Bohusläns museum (1895 - 1905). Reinholdska villan från hamnen. UMFA53278:0309 [Image]. Retrieved 2020-02-01 from <https://digitalmuseum.se/011014338115/enligt-text-som-medfoljde-bilden-reinholdska-villan-fran-hamnen>

12.

Church from Bohuslän, visible function and difference in materiality. Difference in height; horizontal vs vertical



13.

Boathouse in Smögen that has grown over the years.
Additive levels over time for function results in irregularity.



14.

Stone foundation. Typical for placement of houses in slanted landscapes.



Figure 14. Andersson, U. /Bohusläns museum (1977). Bohusläns samhälls- och näringsliv. 2. STENINDUSTRIN. UMFA54360:0459 [Image]. Retrieved 2020-02-01 from <https://digitalmuseum.se/011014430540/bohuslans-samhalls-och-naringsliv-2-stenindustrin-film-14-text-som-medfoljde>

15.

Small island with structure and house for drying fish.
Common in villages with old fish-industry



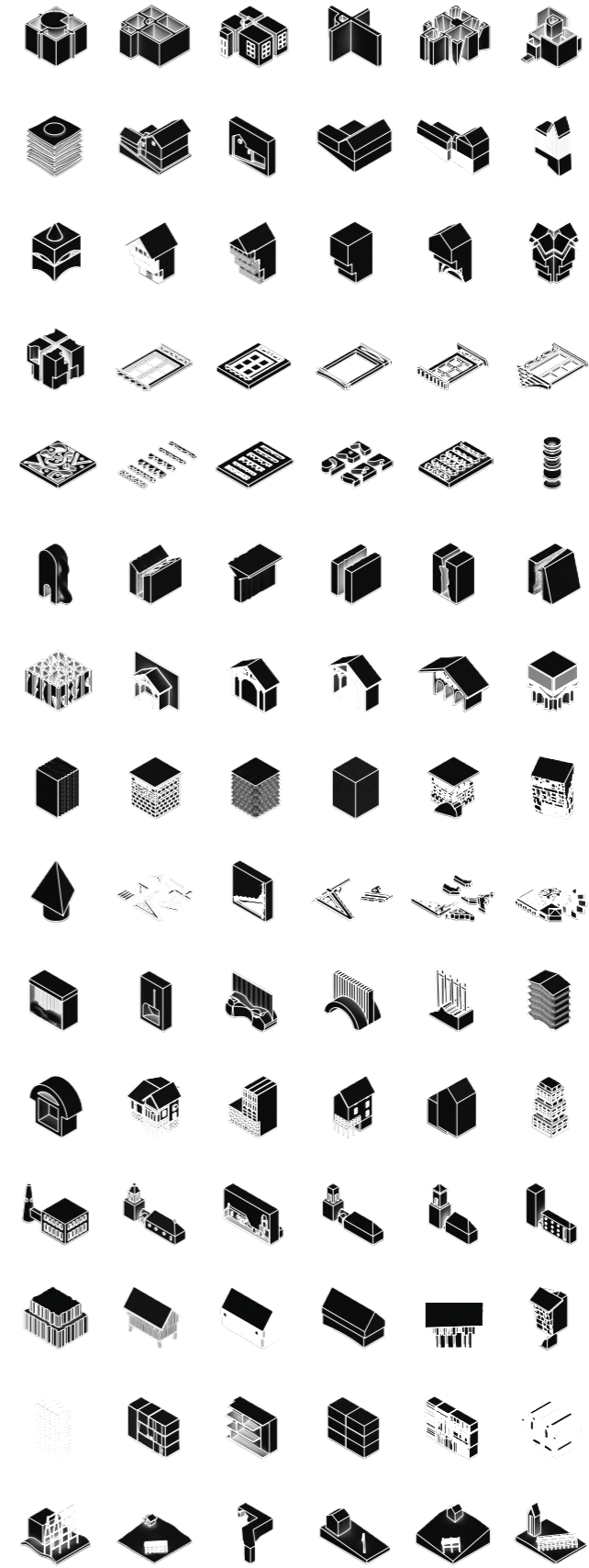
Reflection

The chosen references was the starting point of the process, therefore had great impact on the end result. The process was consciously driven by subjectivity with the paraphrasing as a central part. But the references were also chosen from a purely subjective perspective; we chose what we liked and what was interesting in shape, pattern, texture etc. The time-frame, in which the references were chosen, worked as a boundary to shorten the range of architectural styles, but with the argument previously explained.

We do not argue that these pictures of references is a consensus of what regional architecture in Bohuslän is, but rather what Bohuslän is for us.

IV

Paraphrases



A

B

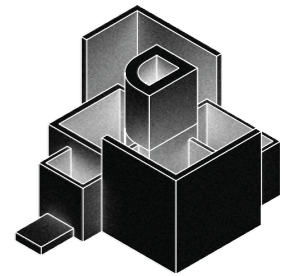
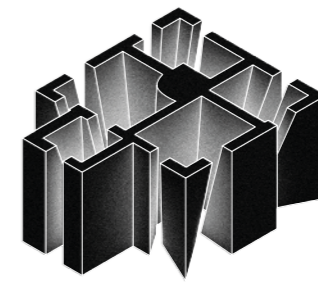
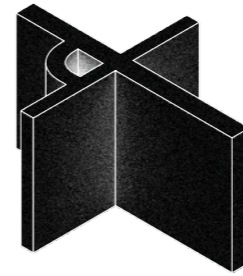
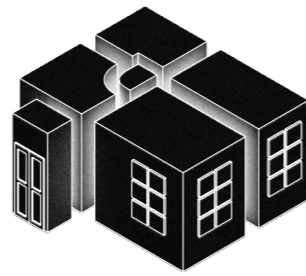
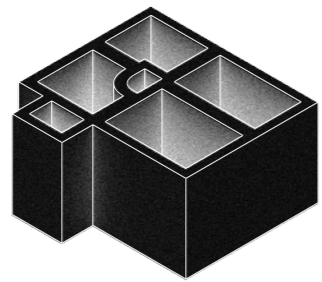
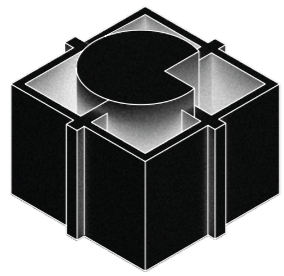
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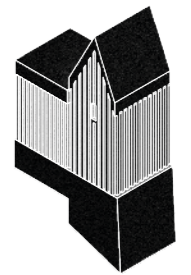
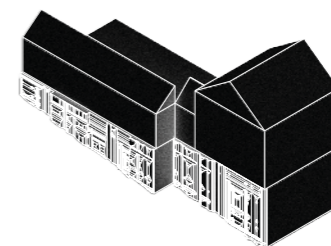
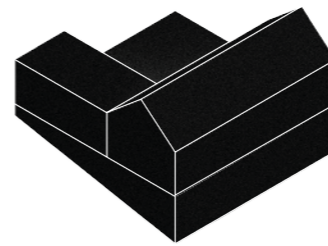
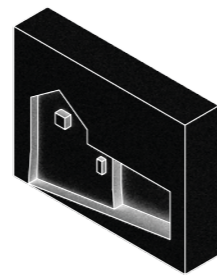
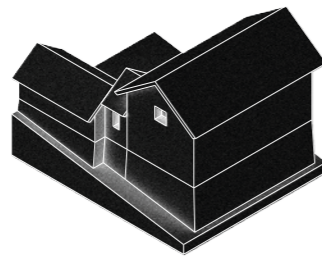
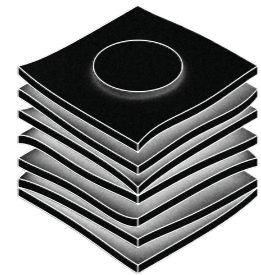
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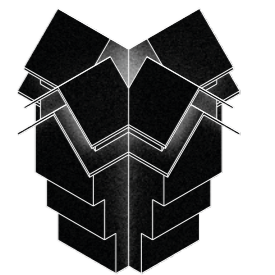
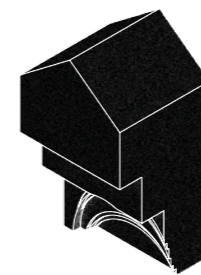
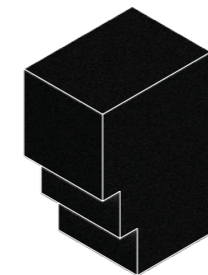
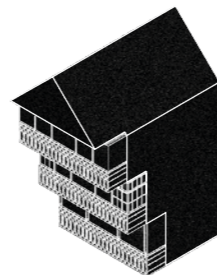
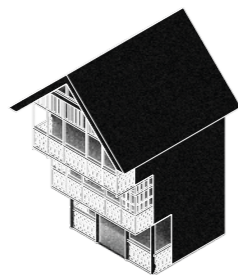
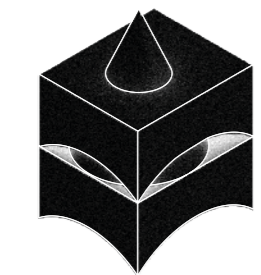
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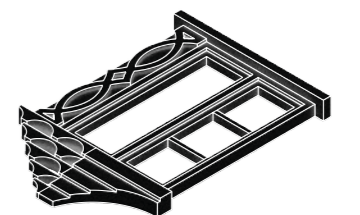
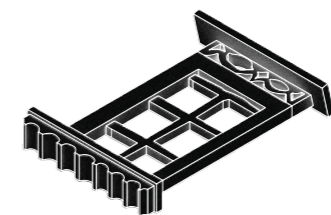
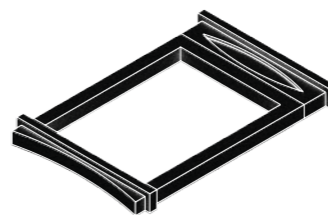
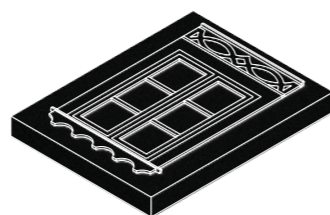
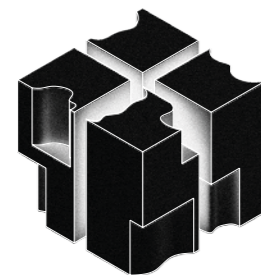
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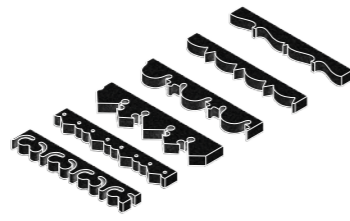
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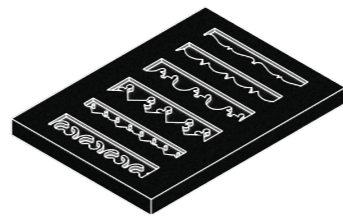
05. A



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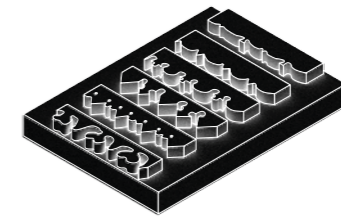
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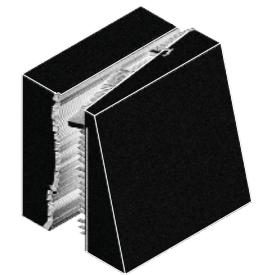
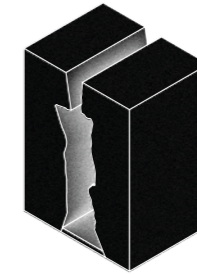
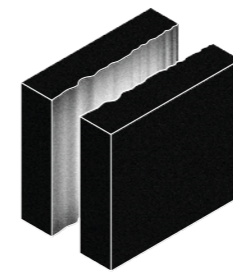
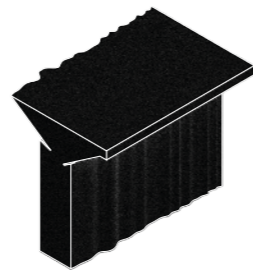
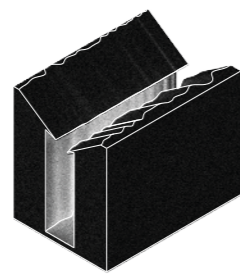
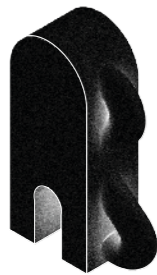
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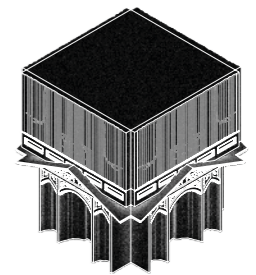
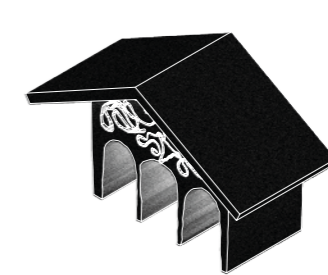
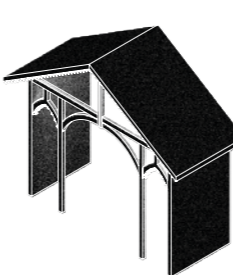
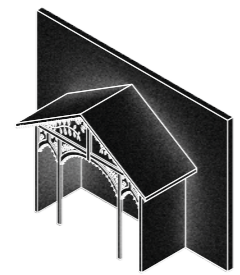
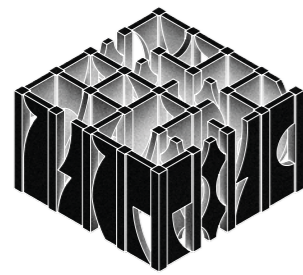
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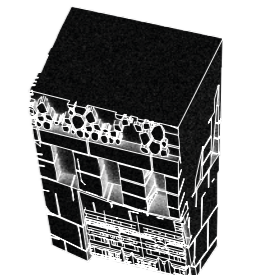
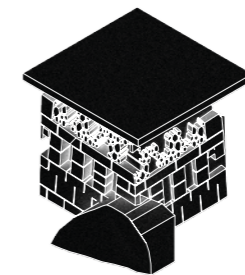
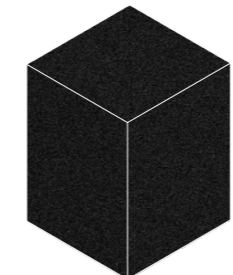
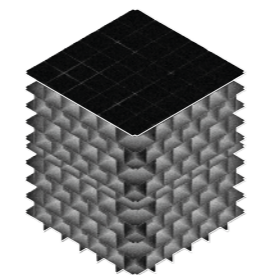
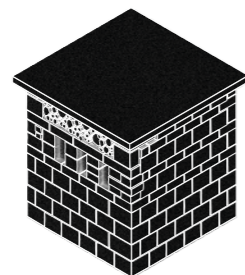
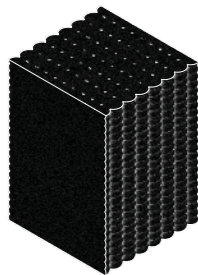
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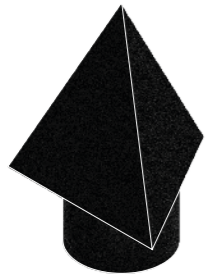
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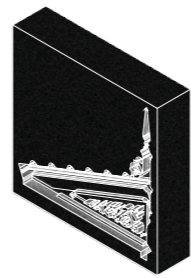
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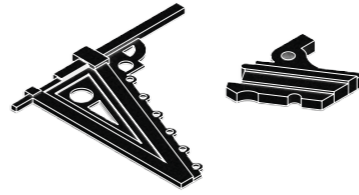
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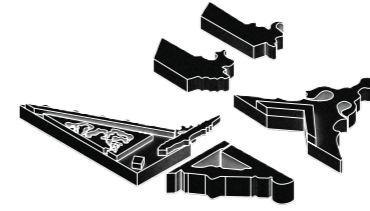
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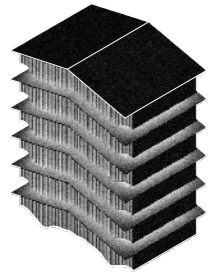
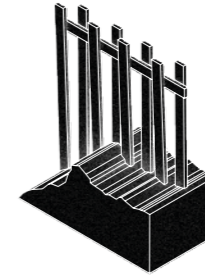
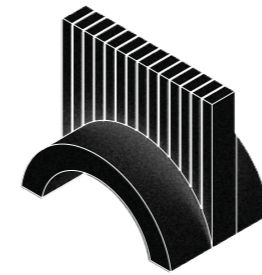
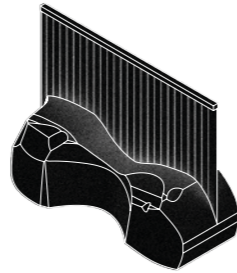
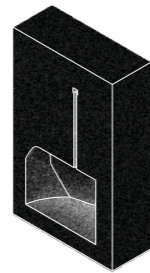
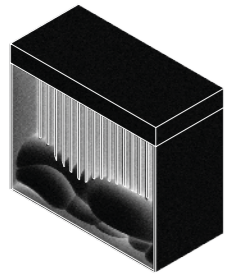
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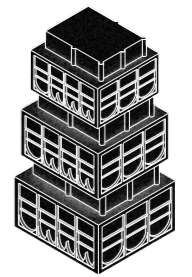
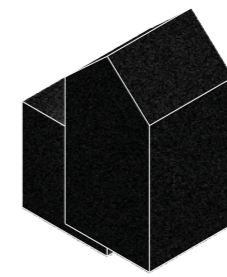
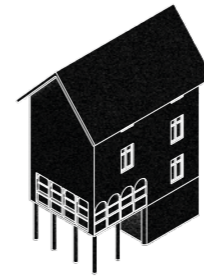
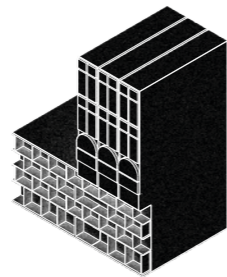
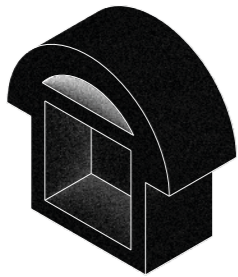
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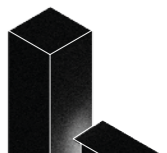
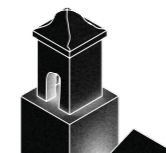
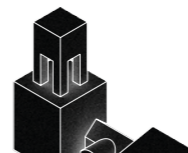
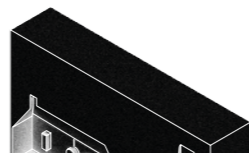
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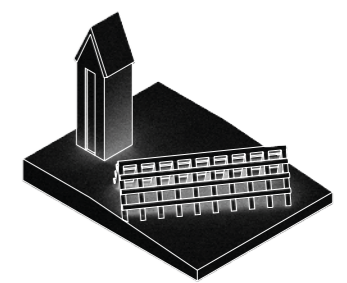
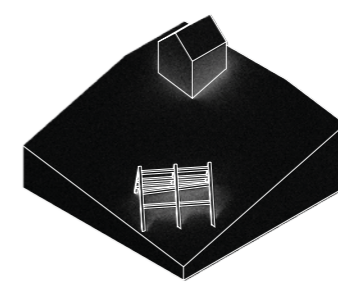
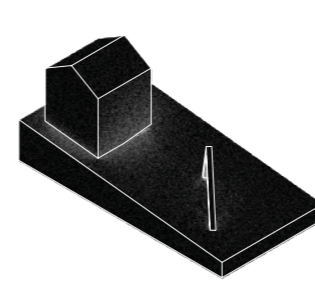
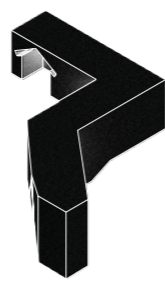
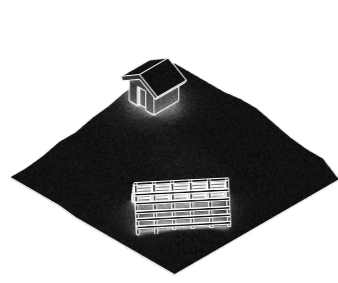
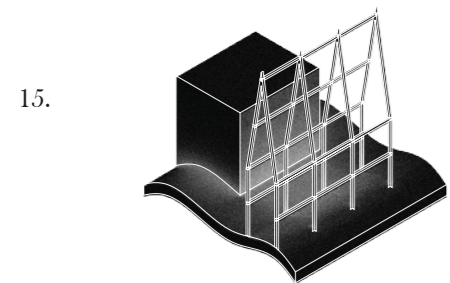
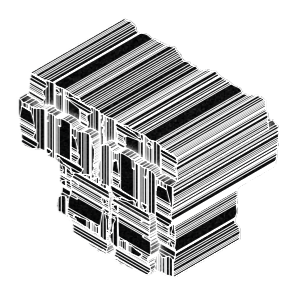
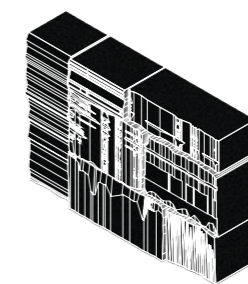
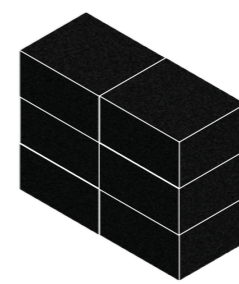
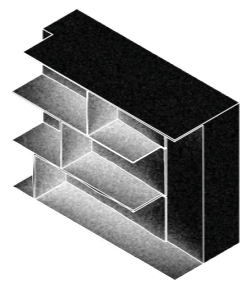
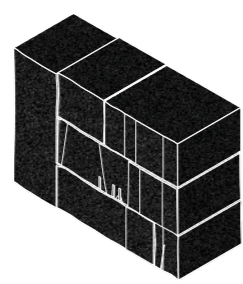
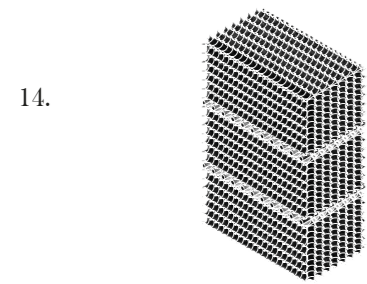
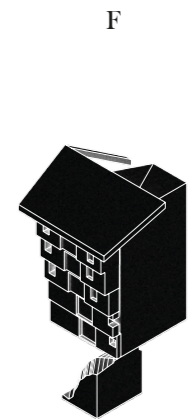
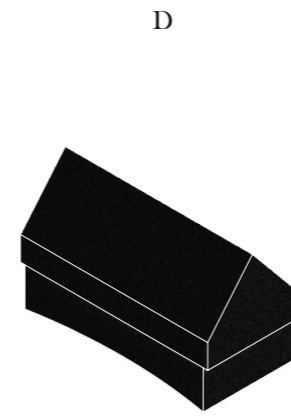
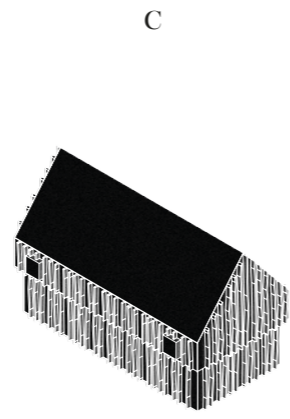
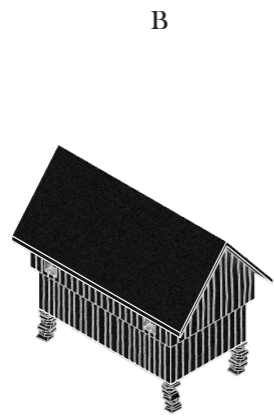
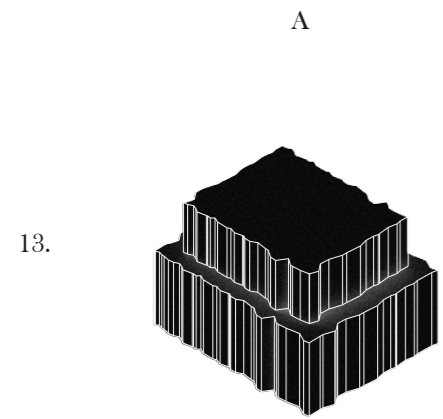


11.



12.





METHODS

- A: DESCRIPTION: Original (2D image) - Text (description of the element) - Interpretation of the text (new 3D element)
- B: DEPICT: Original (2D image) - Computational model - Abstraction in the form of a simplified pictogram
- C: CASTING FOCUS: Inspired by R. Whiteread & FAT, explores the negative and/or positive forms; Original (2D image) - Computational model of negative and/or positive space
- D: SIMPLIFY: Original (2D image) - Remove all unnecessary information, simplify geometries and streamline
- E: REPLACE: Like traditional paraphrase paintings or photographs this keeps the composition of the element but replaces the parts with similar but different objects and/or materials; Original (2D image) - Physical model (concept model) - Computational model
- F: COLLAGE: Inspired by the graphic designer Ray Gun and his 90's work. An approach that distorts and bedruggles the printed image of the elements; Original (2D image) - Re-interpretation of the image/drawing - computational model of the new image

Introduction

The paraphrases were made by using six different methods in order to iterate and personalize the original images.

The methods were used to contribute to a coherent design language between us and to find a red line between the paraphrases.

The variations of the different methods contributed to different aspects of the references, some more abstract and some more puristic and pointing out the core of what we thought was essential in each reference.

Some of the methods needed a more extensive process such as A, E and F which is shown in this appendix.

METHOD: A - DESCRIPTIONS

01. Simple geometrical boundary with clear separation. Centrepiece is heavy with a touch of difference.
02. Layers; Soft, stacked, vertical smooth.
03. Descending volume with extreme patterns, with an ascending top. Detailing is divided.
04. Quadrants + splines.
05. Ornaments; splines, dot, V:s
06. Centred motive with light. Disruptive objects in irregular formations.
07. Simple construction with extreme decorative detailing in its fillings.
08. One material where the joints and meetings differs in texture.
09. Pointy triangle top.
10. One line above a curve, connected through perpendicular lines.
11. Two level house with clear difference between the floors, a top that reaches to the sky. Outer limits are well done.
12. Three part volume: higher one with rounded shapes. Bigger at bottom. Smaller part - like bridge. Bigger volume - Lower than first. Rounded openings at the top of volume.
13. Two rudimentary quadrants on top of each other with irregularities both in the shape and on the sides.
14. Rough blocks that hold together by smaller parts in the joints.
15. Bottom smooth, small, closed and solid geometry on the left, slender and brittle structure on the right.

About

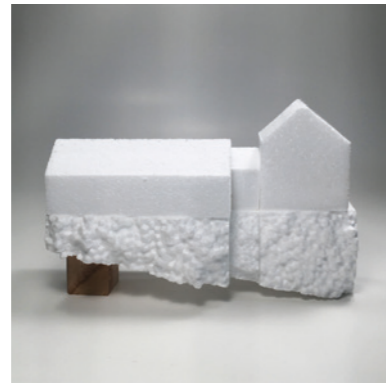
For method A (Descriptions) we described the images in a manner that didn't instantly reveal what it was. Then switched half of them and made interpretations solemnly made from the text.

Some of the results ended up quite strange e.g. 02-A, while other was a clear focus on the reference.

METHOD: E - REPLACE



01.



02.



03.



13.



14.



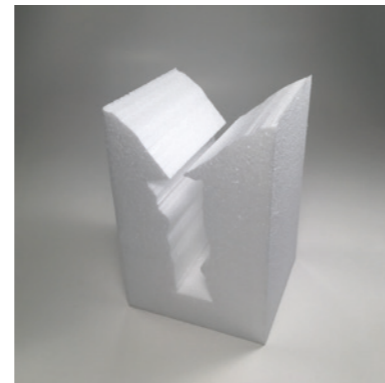
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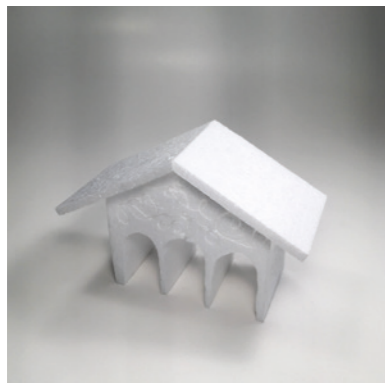
04.



05.



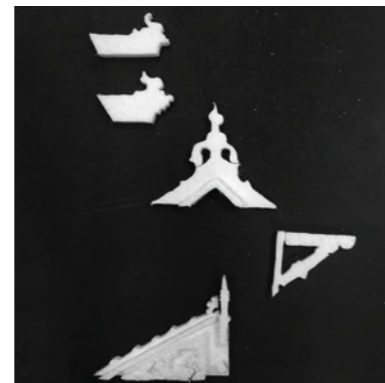
06.



07.



08.



09.



10.



11.



12.

About

For method E (Replace) we made models based on the pictures in different materials based on their level of detail. We then tried to copy the original images by taking photos of the models with the same angles as the original. In some of the cases we changed the angle to represent the models in best way as possible.

METHOD: F - COLLAGE



01.



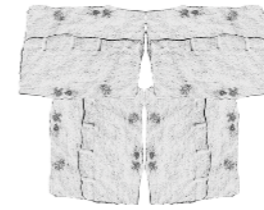
02.



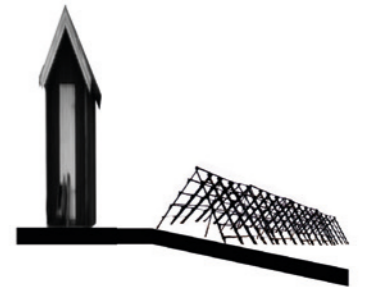
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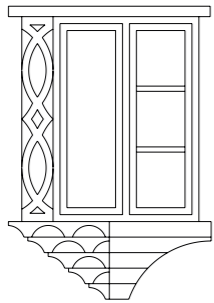
13.



14.



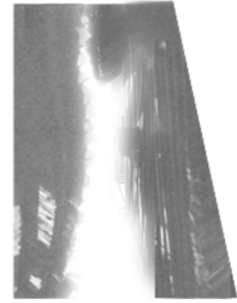
15.



04.



05.



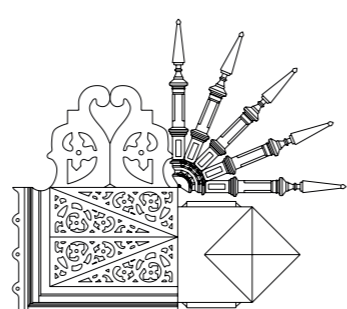
06.



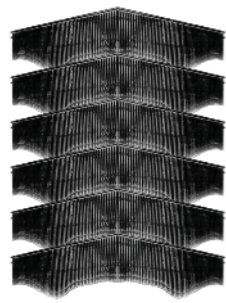
07.



08.



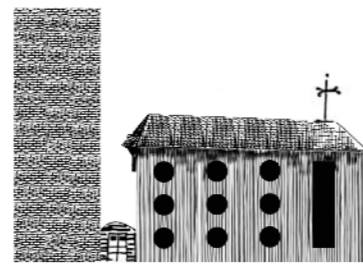
09.



10.



11.



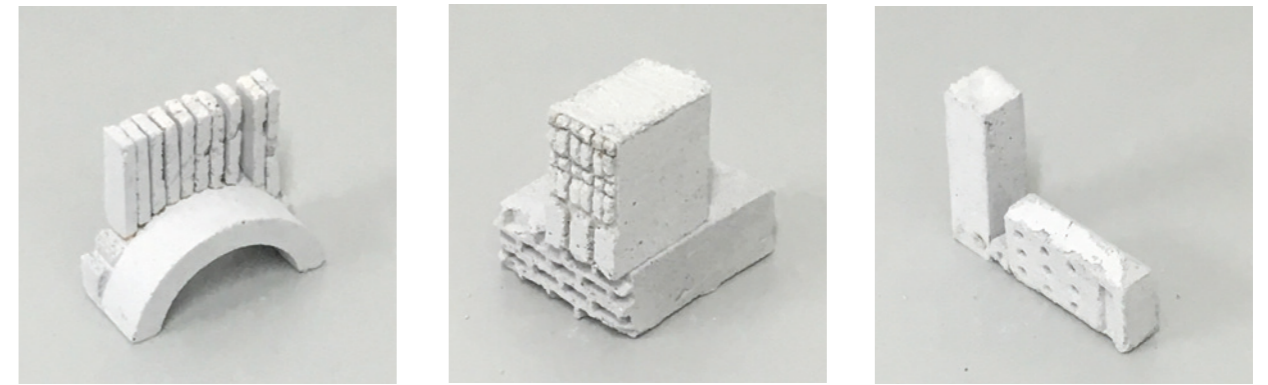
12.

About

For method F (Collage) the images were distorted, multiplied, offset, dragged etc. with the original intent still showing.

V

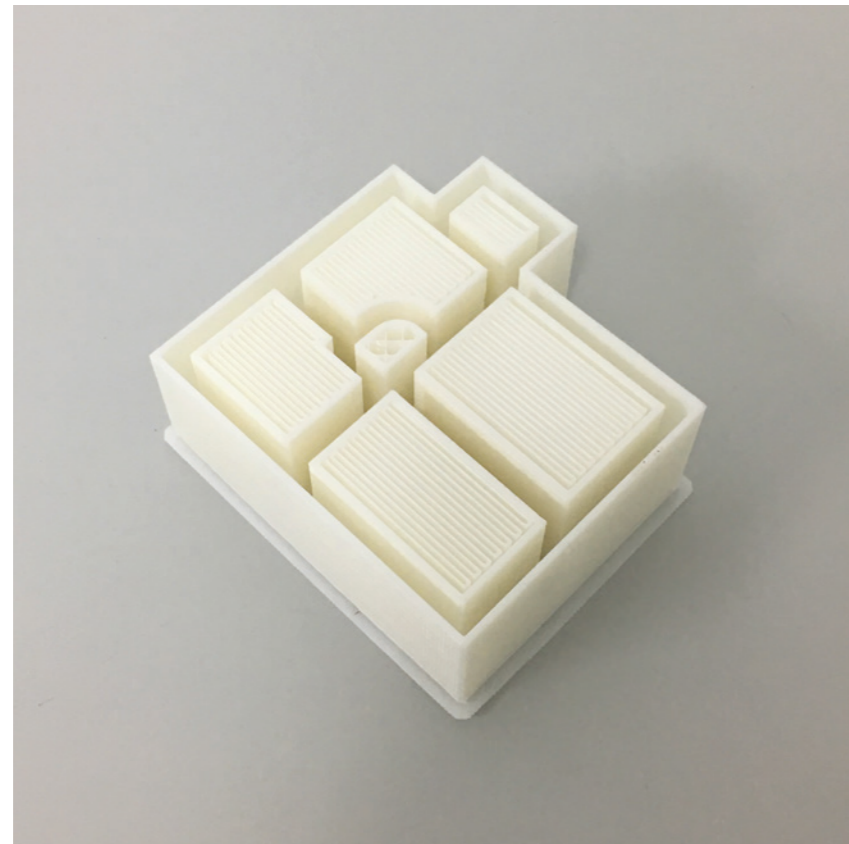
Molds & Casts



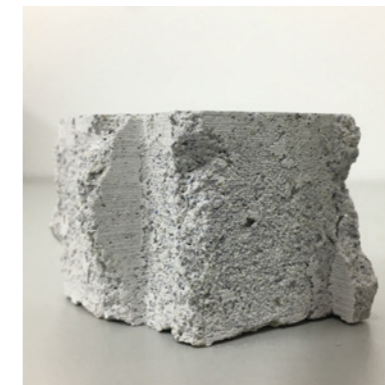
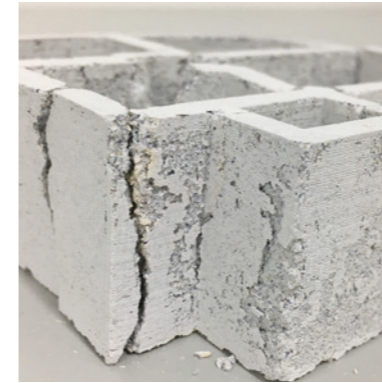
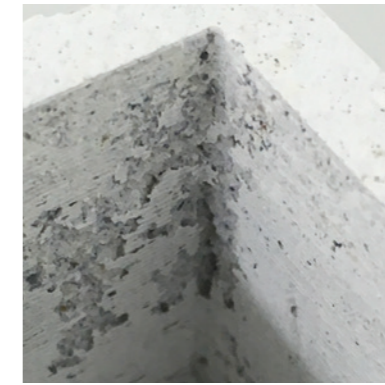
Introduction

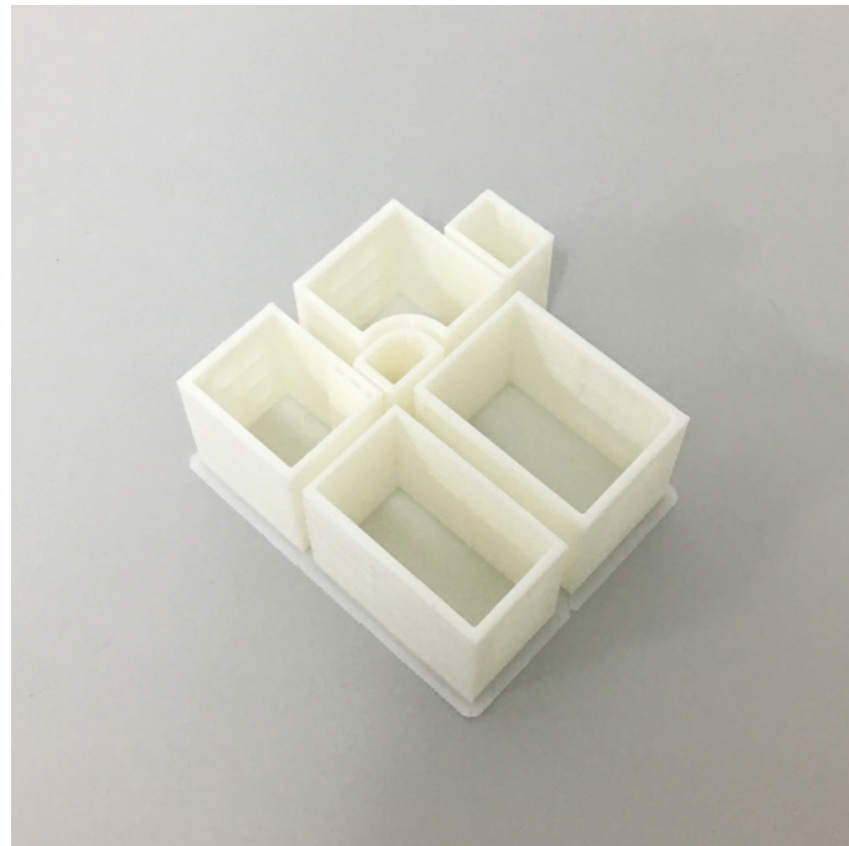
To test the materiality in the mussel concrete, in relationship to the form exploration we did several casting tests with the paraphrases . Trying to highlight different surfaces within the same shape, different mixes of concrete or different surface-textures. We also started with the material exploration of fragility by purposely making slim models that would break when the molds were taken off.

The outer limits of the models was 10x10x10cm, making the models in some cases very small and losing the detailing by breaking. We used this aspect as a tool for design; including the fragility in the design of e.g. window details.

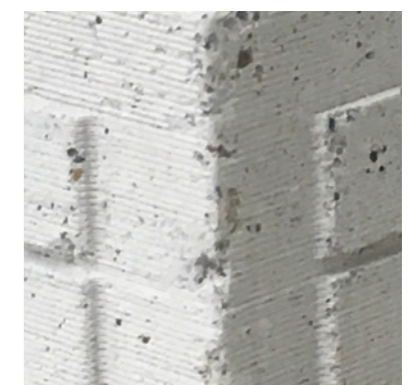
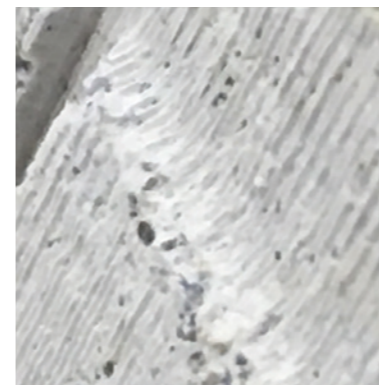
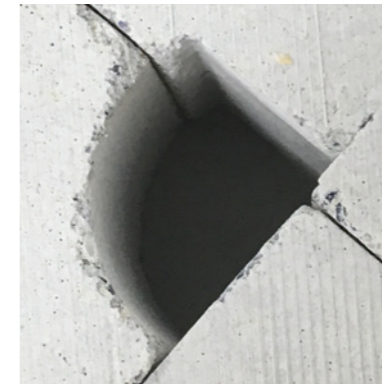
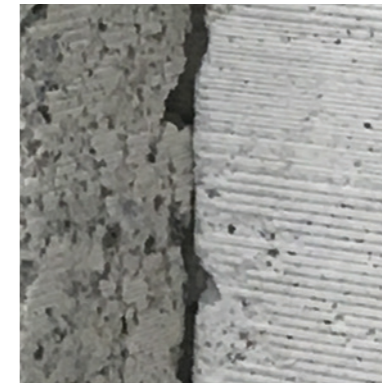


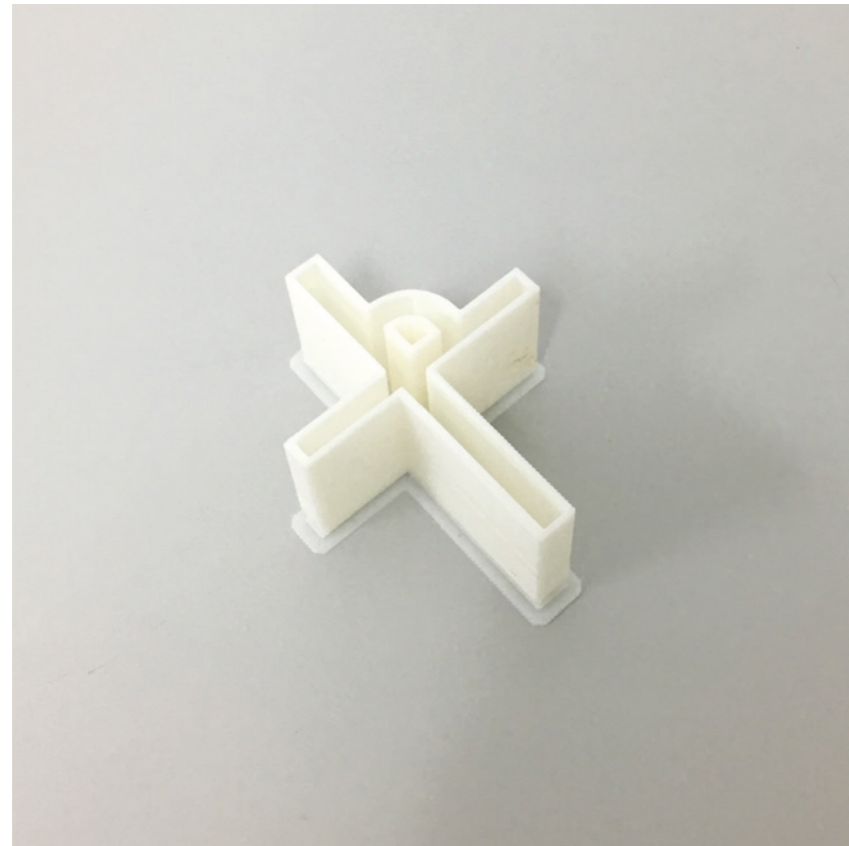
01_B



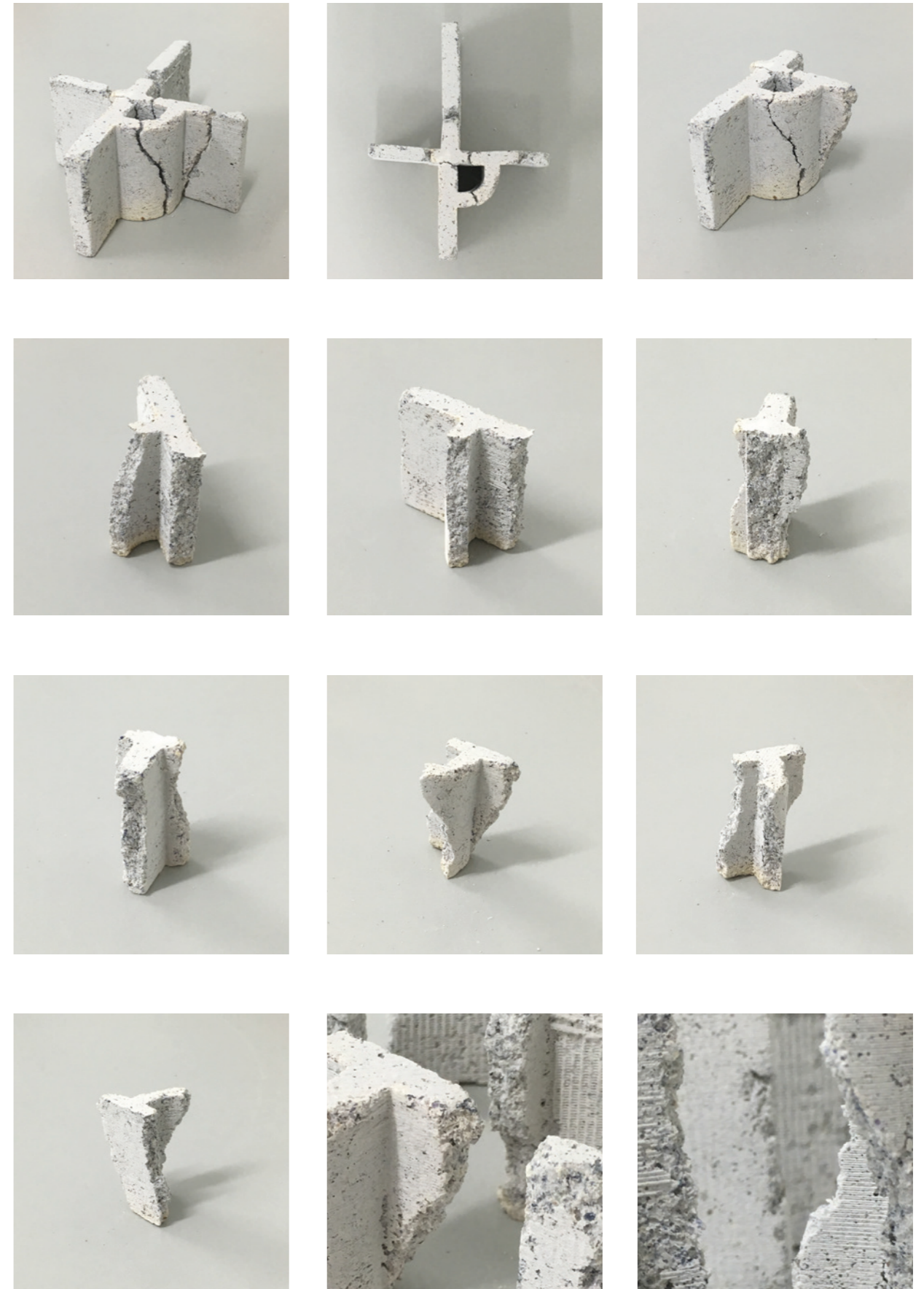


01_C



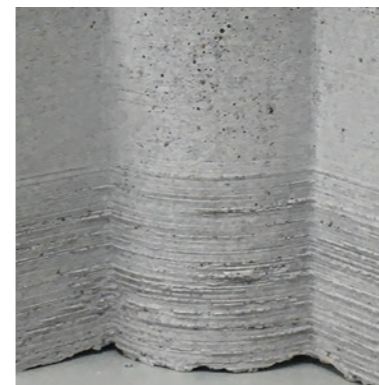
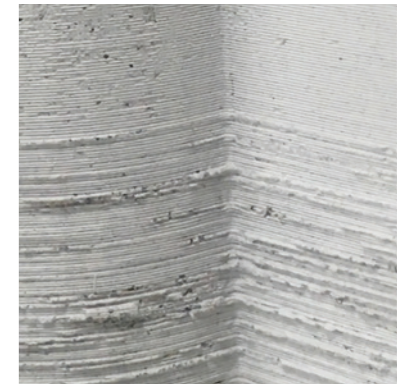
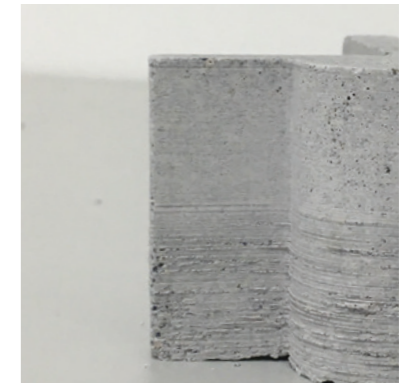
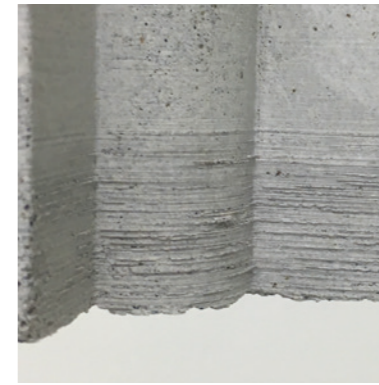
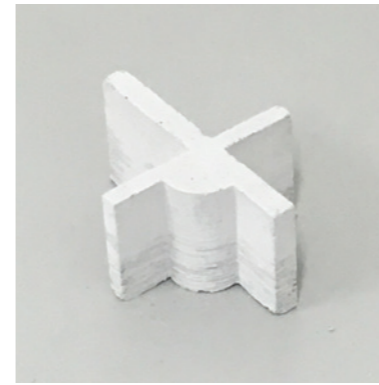


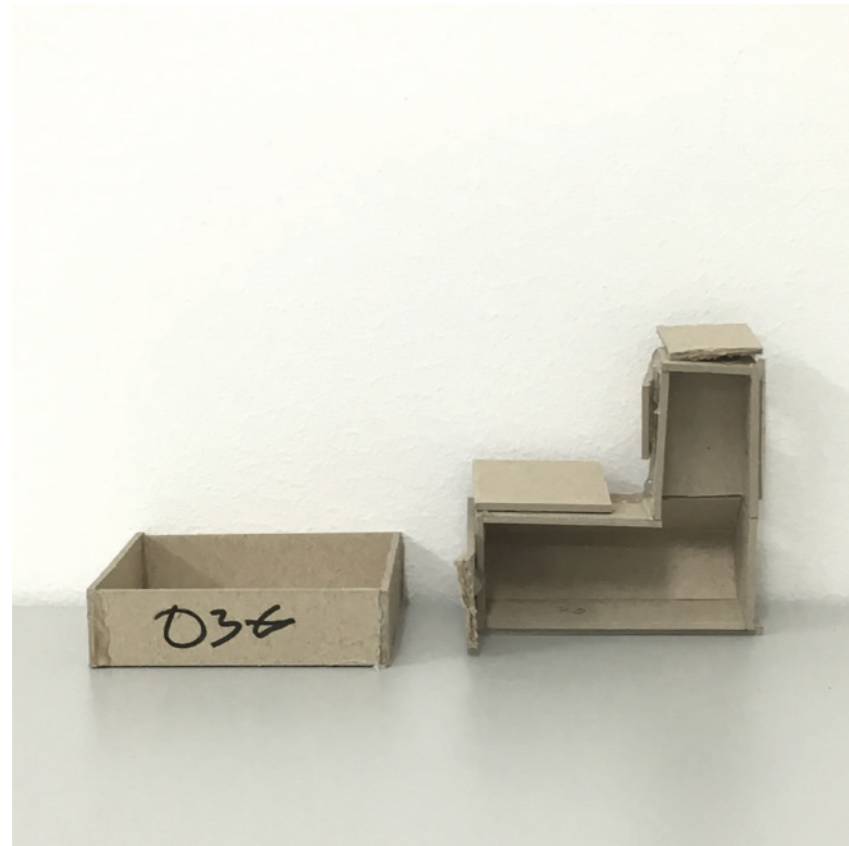
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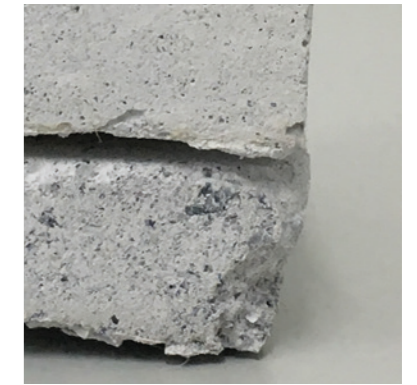
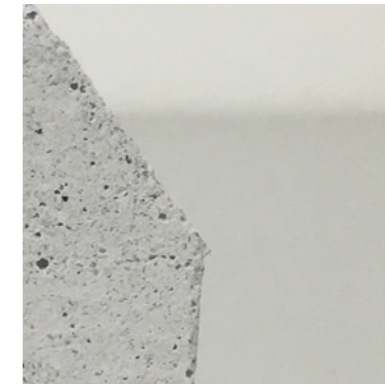
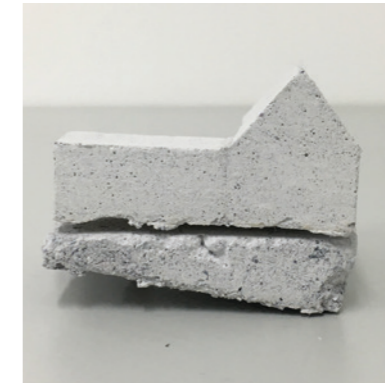


01_D



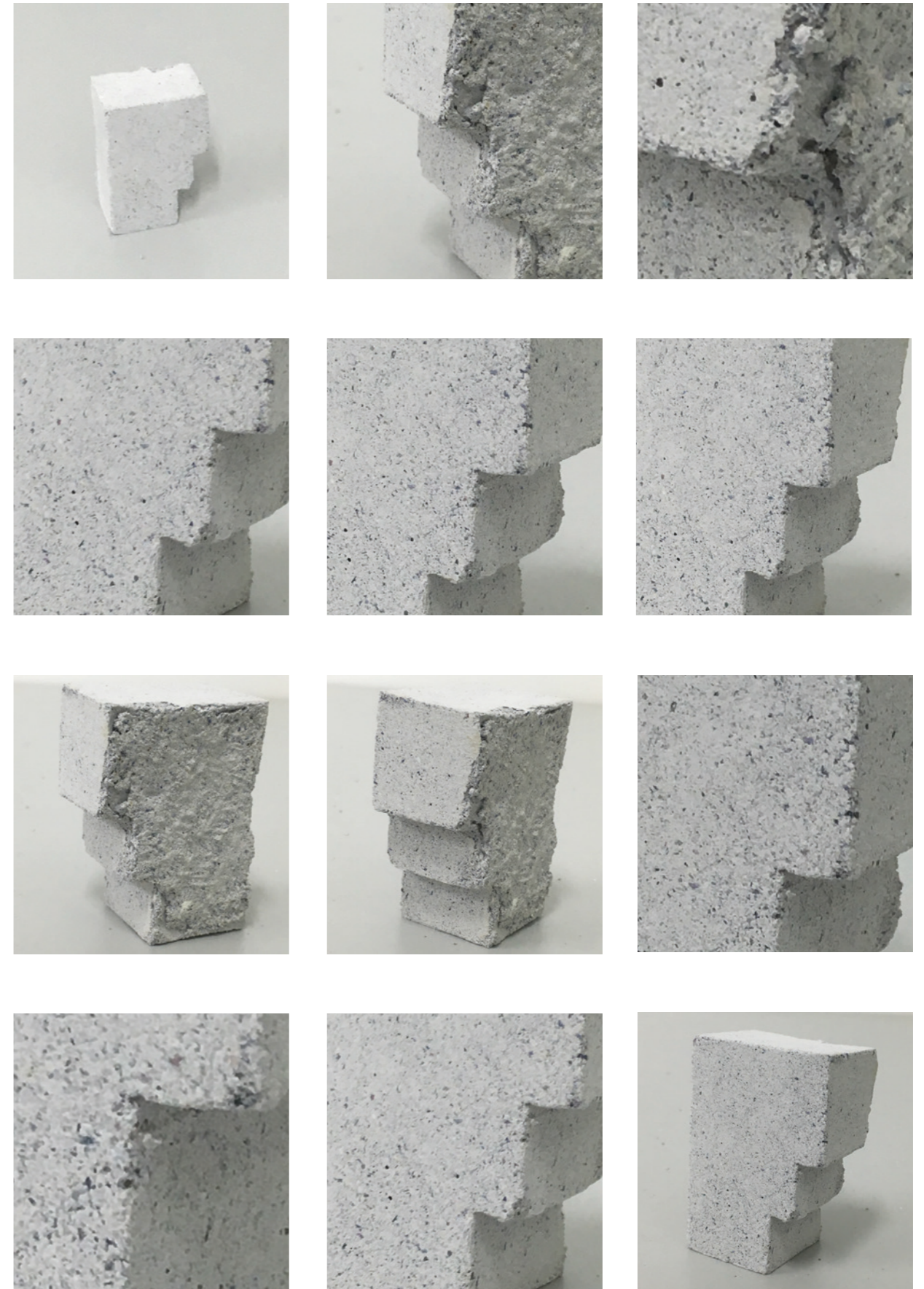


02_D



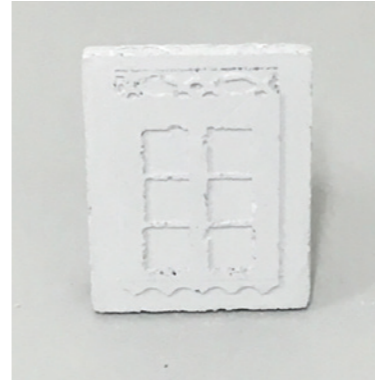


03_D



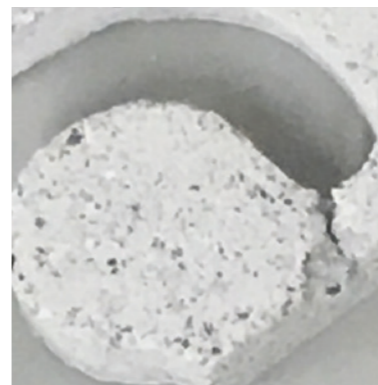
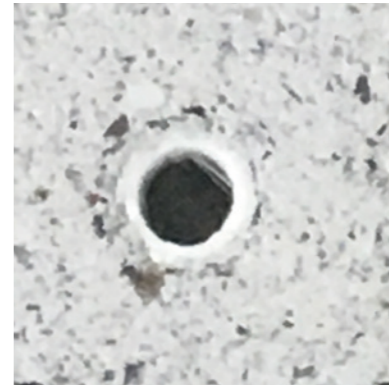
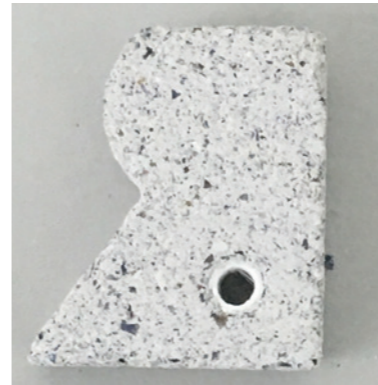
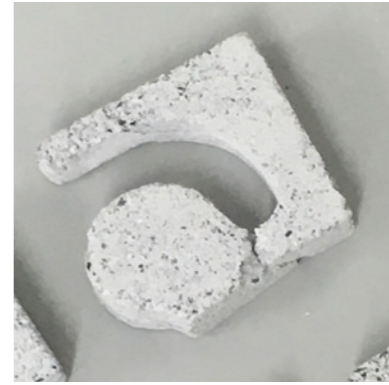
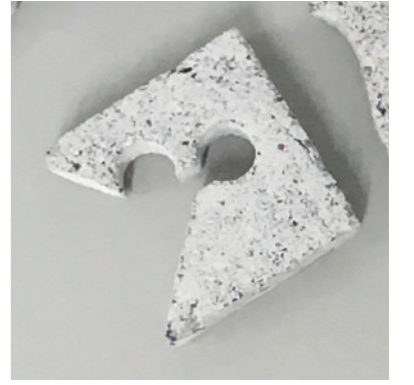
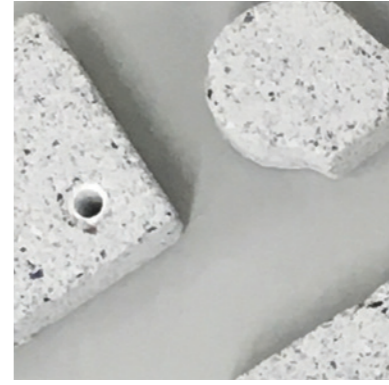


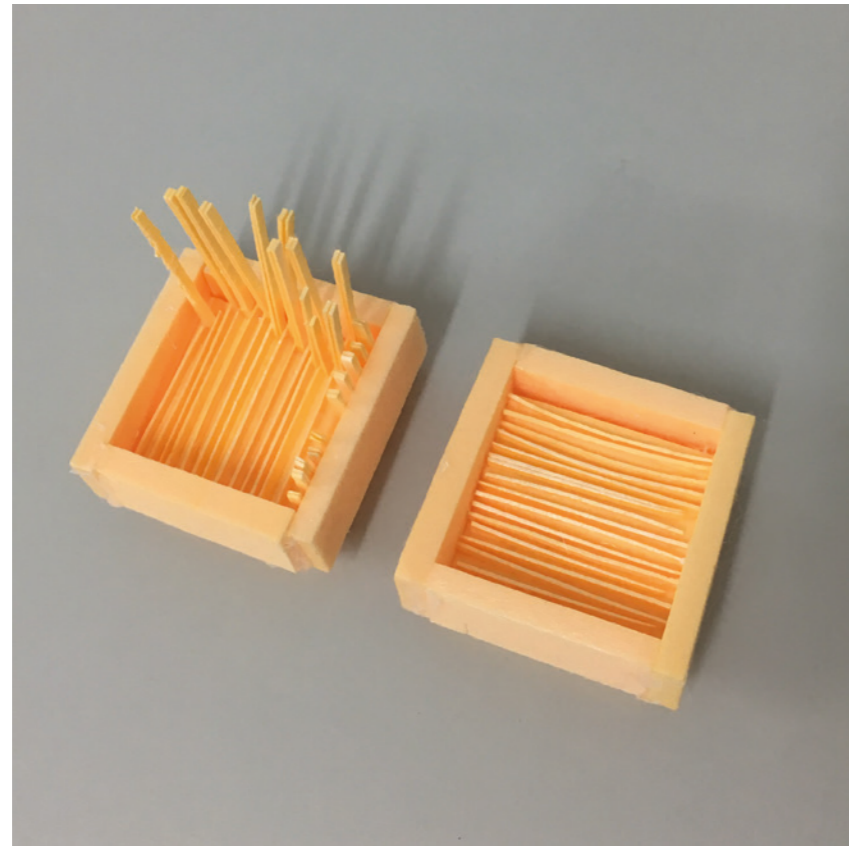
04_C





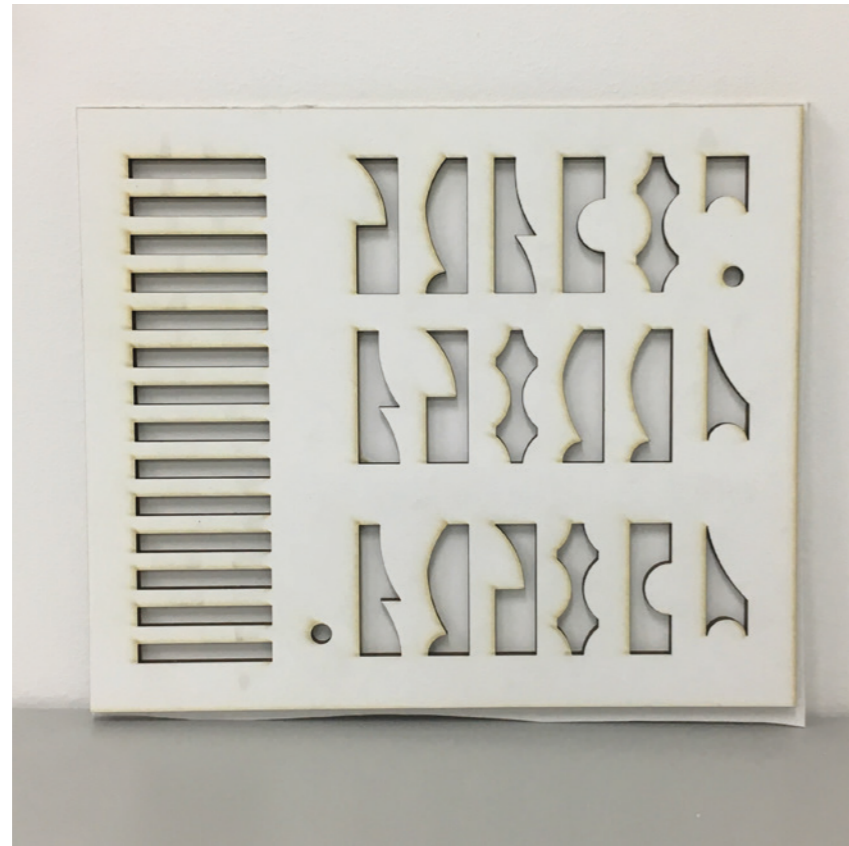
05_D



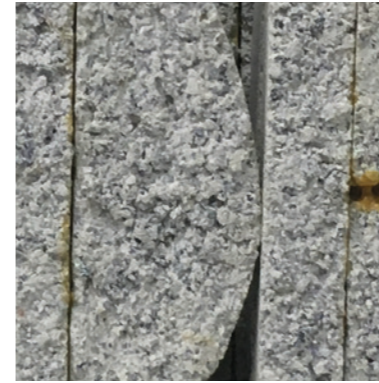
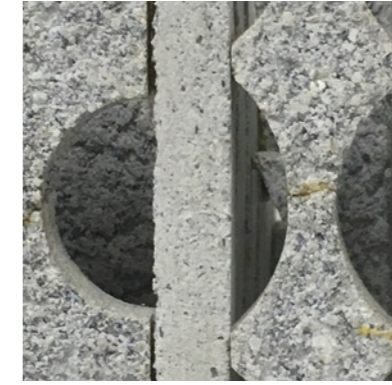


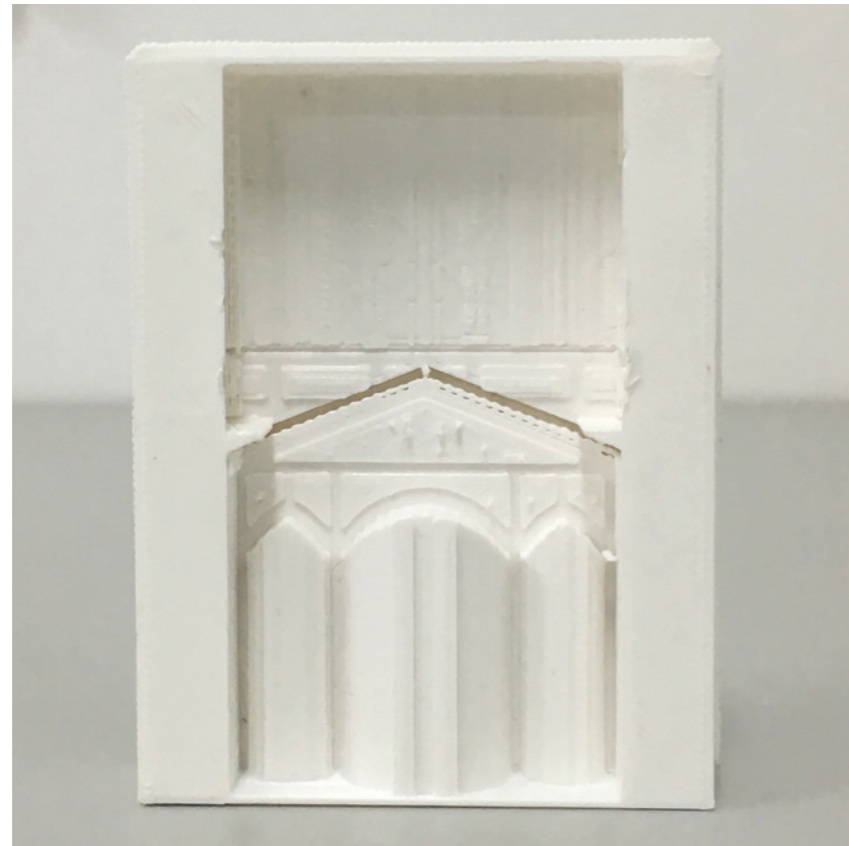
06_F



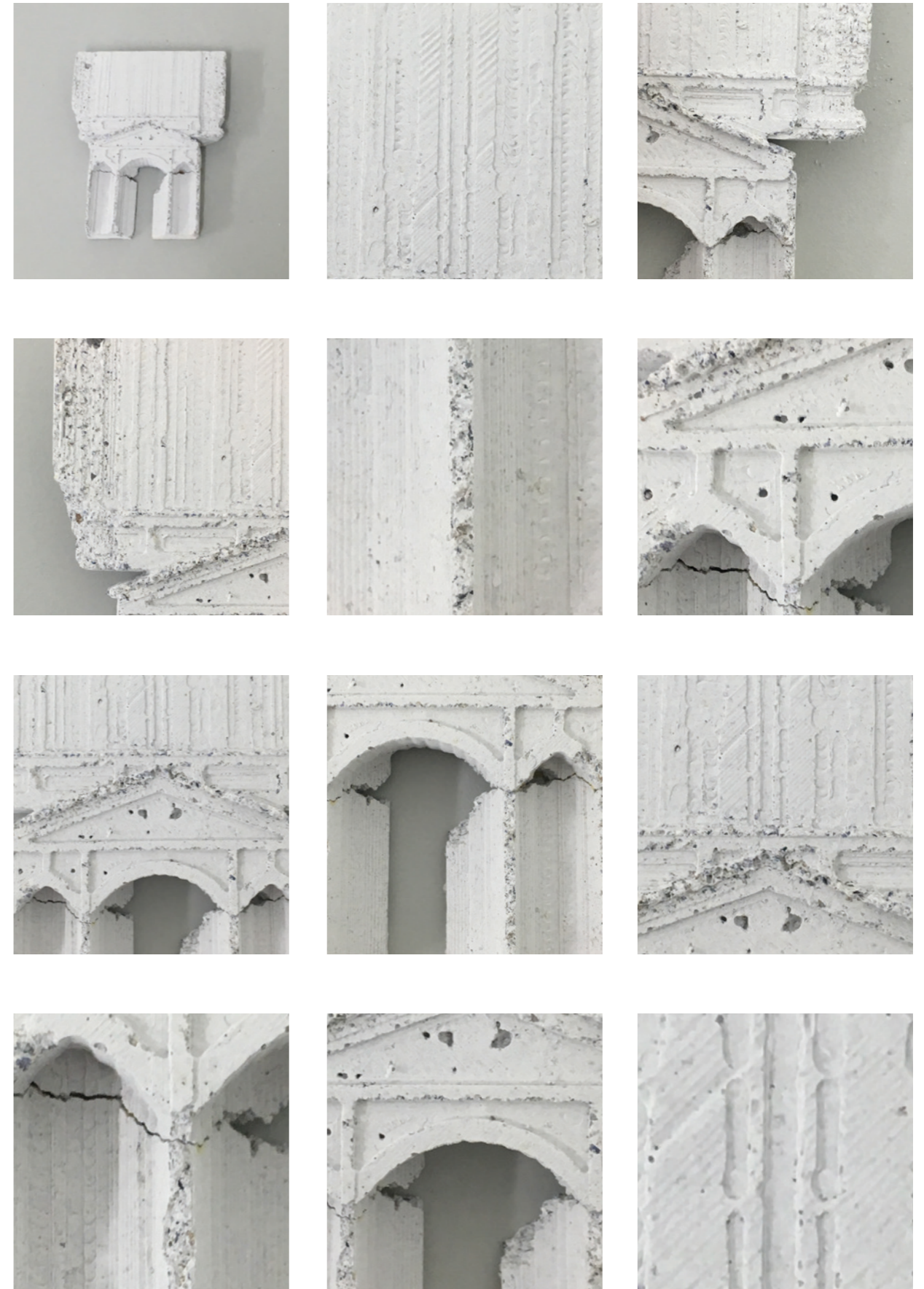


07_A



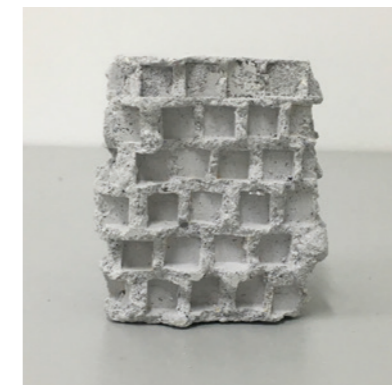
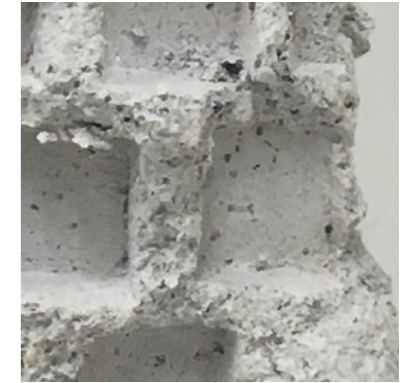
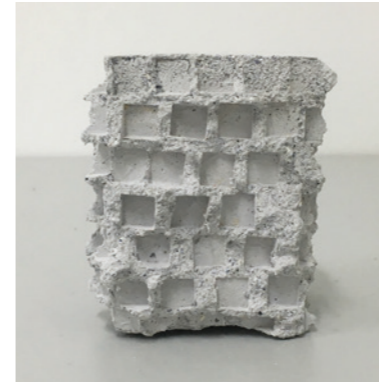
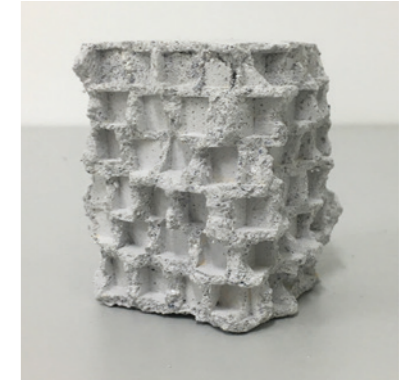


07_F



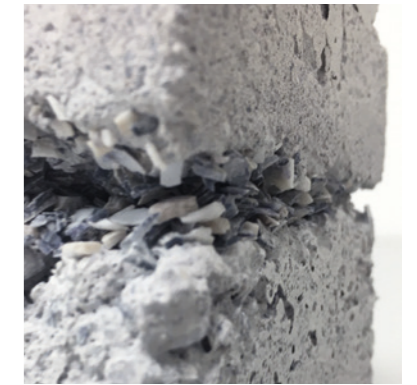
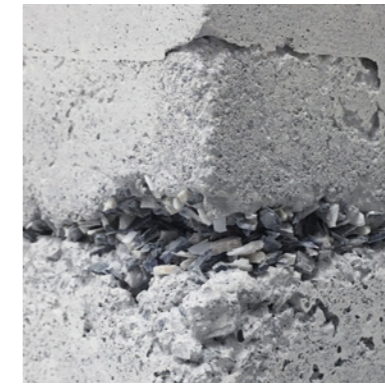
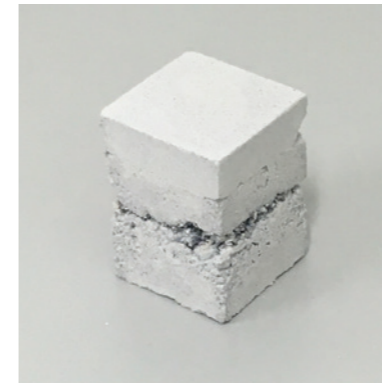


08_C



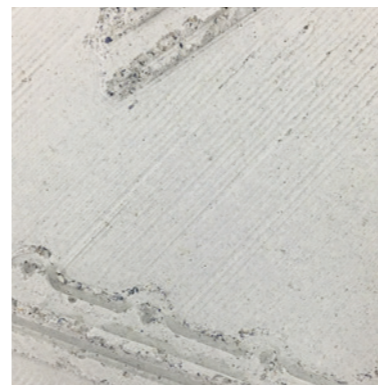
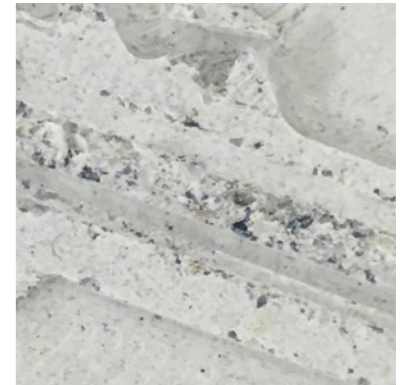
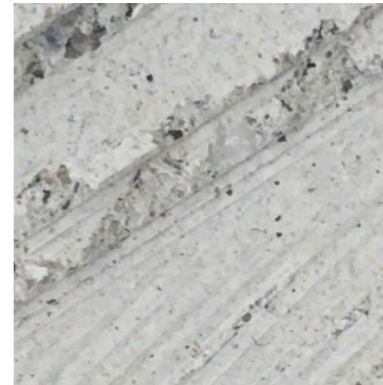
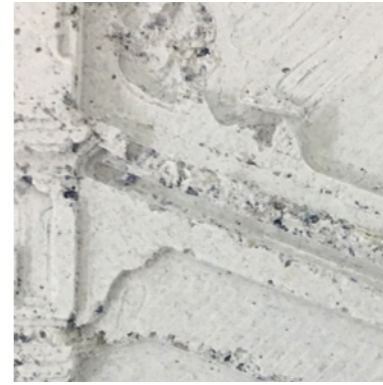
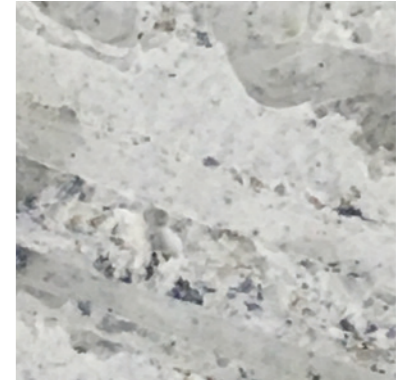


08_D



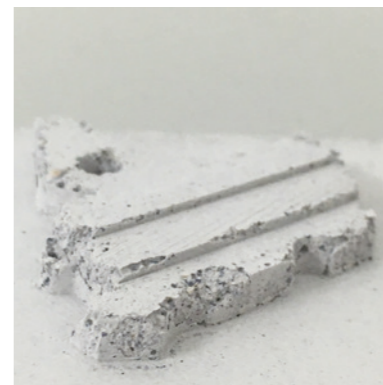
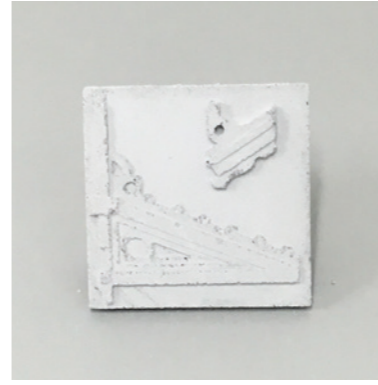


09_C



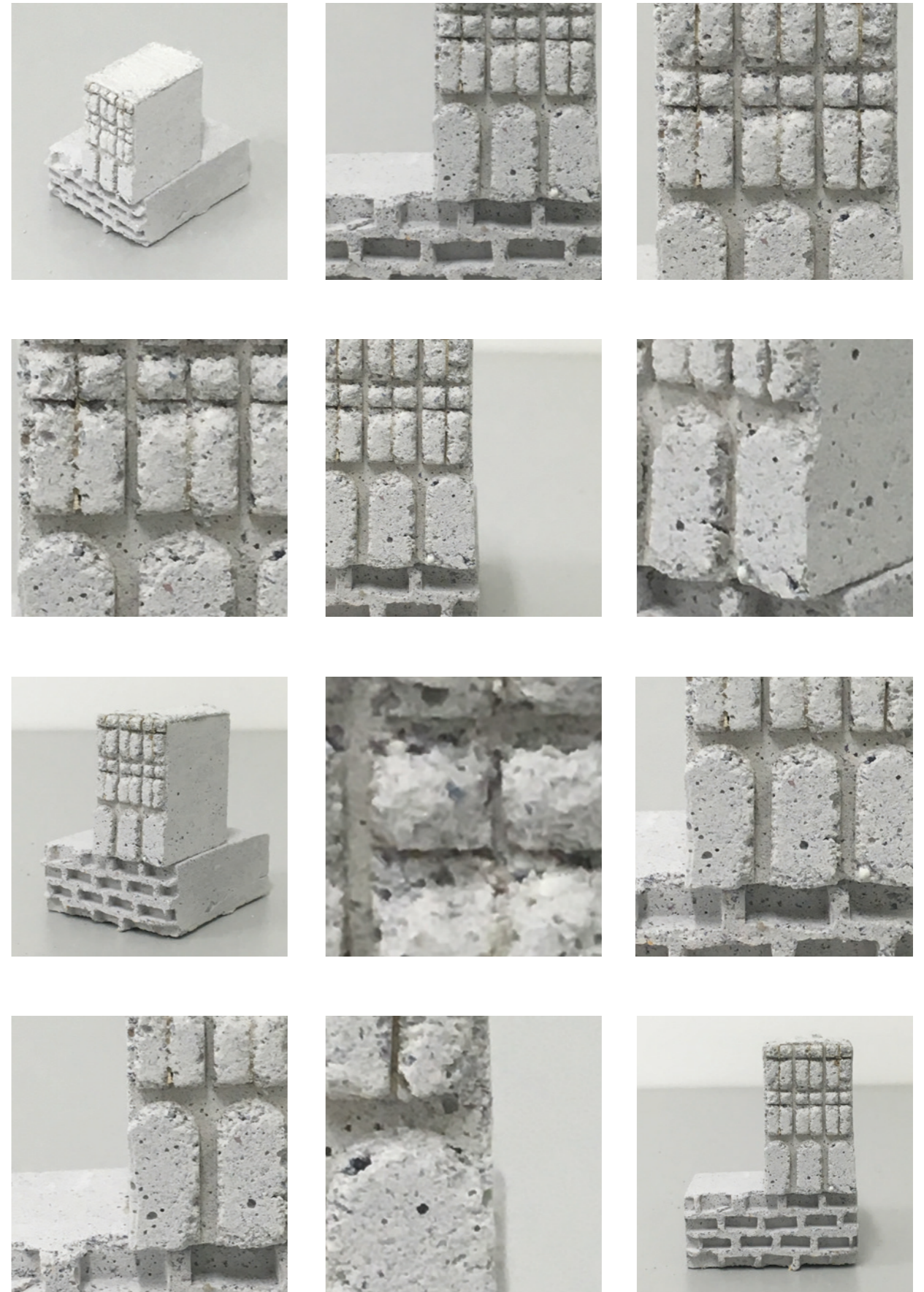


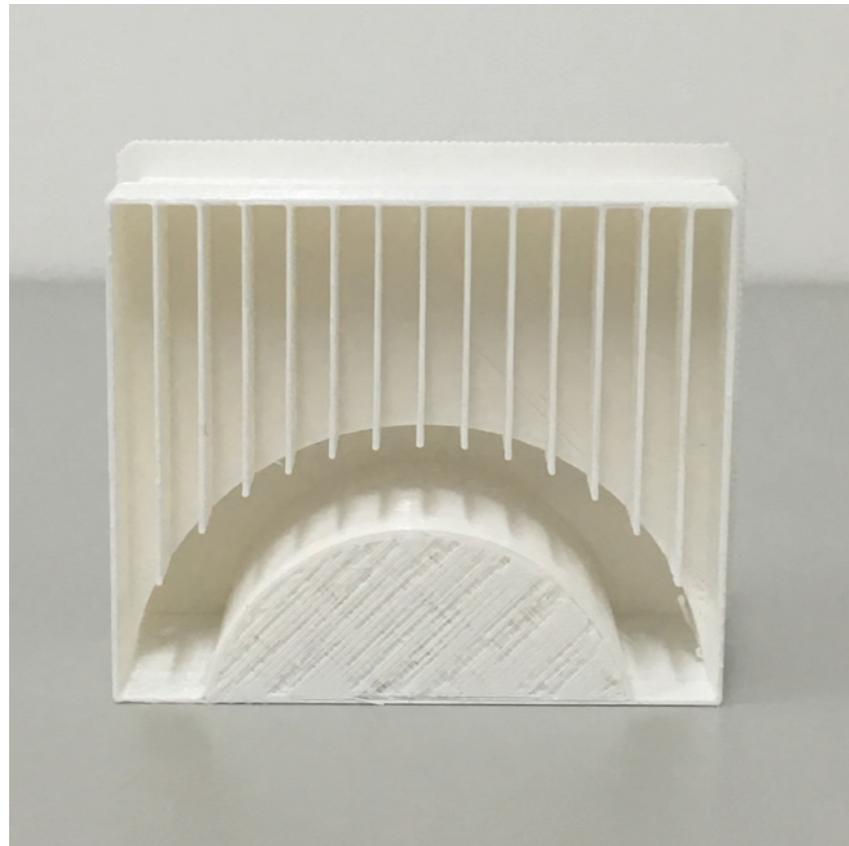
09_D



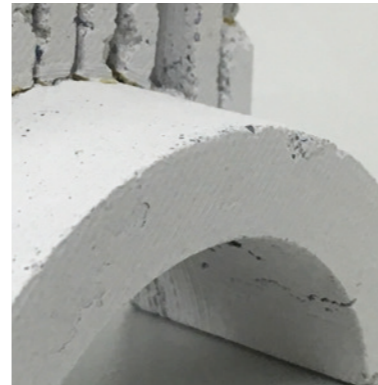
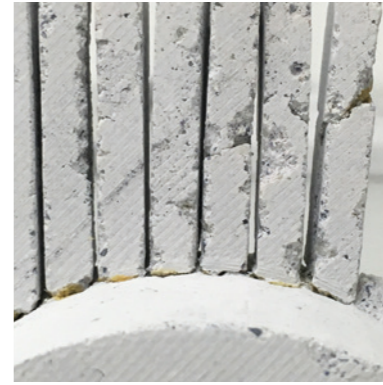
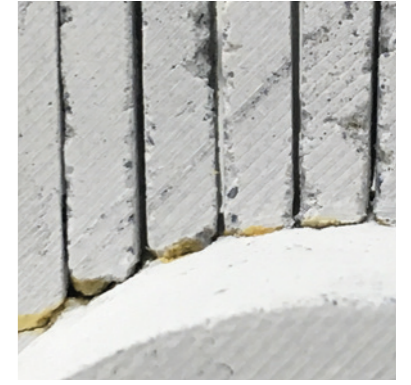
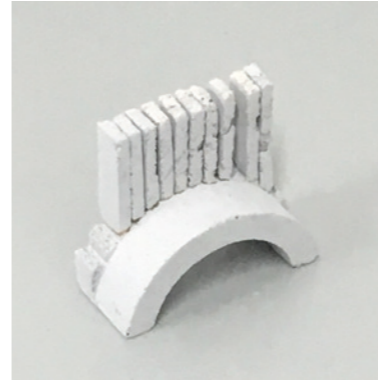


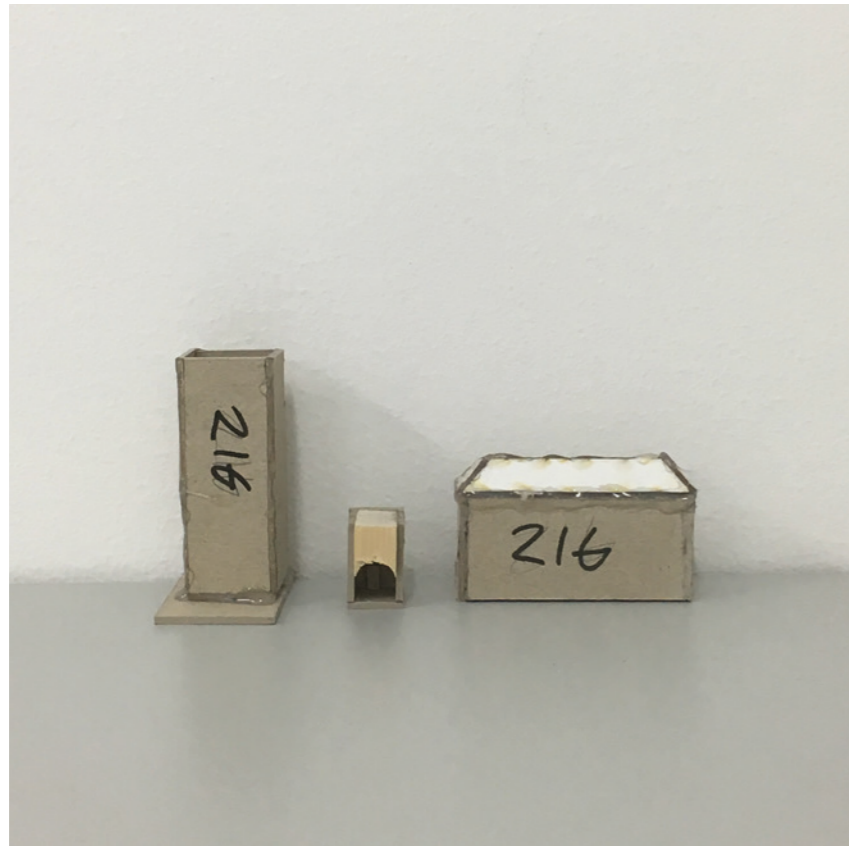
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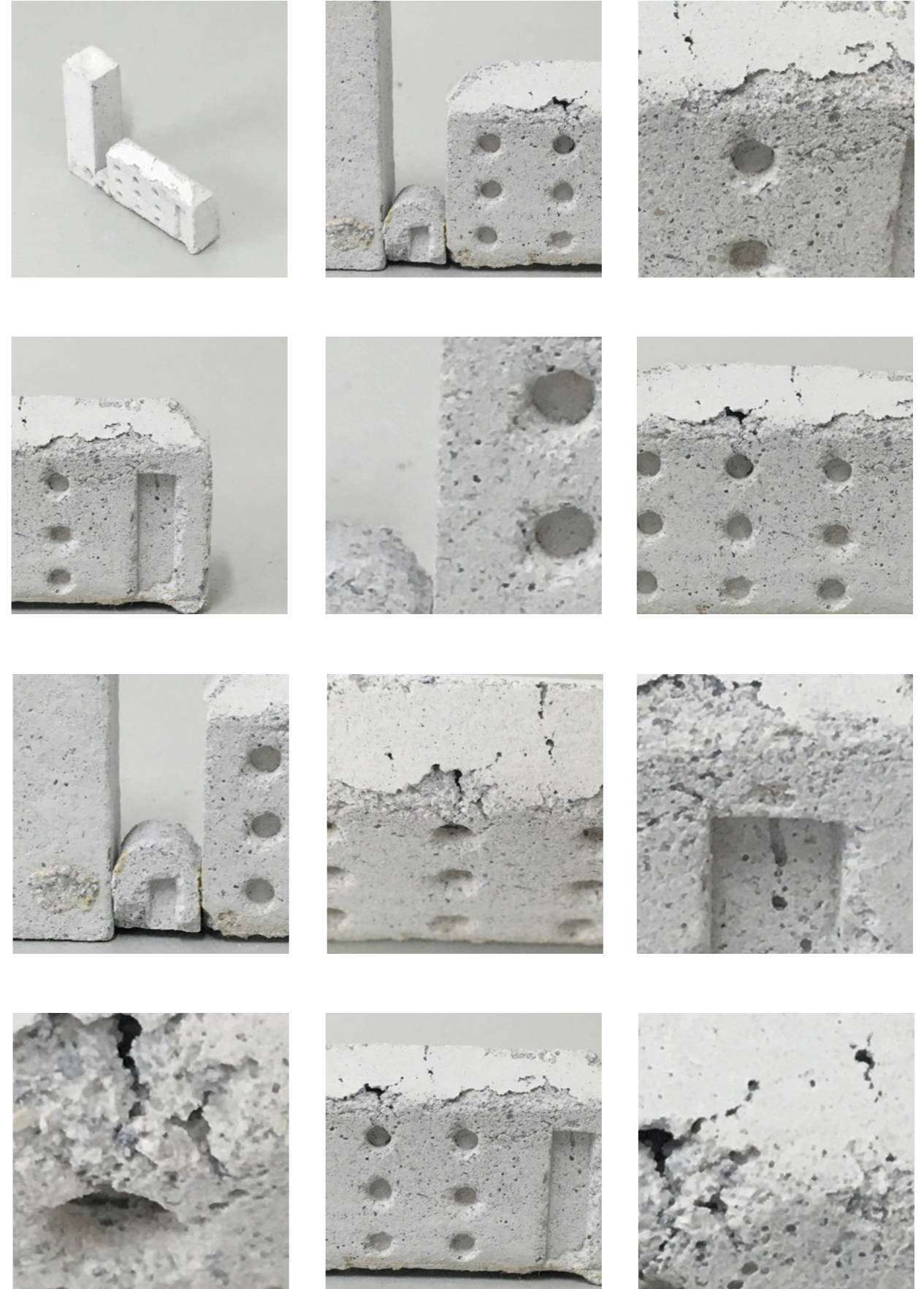


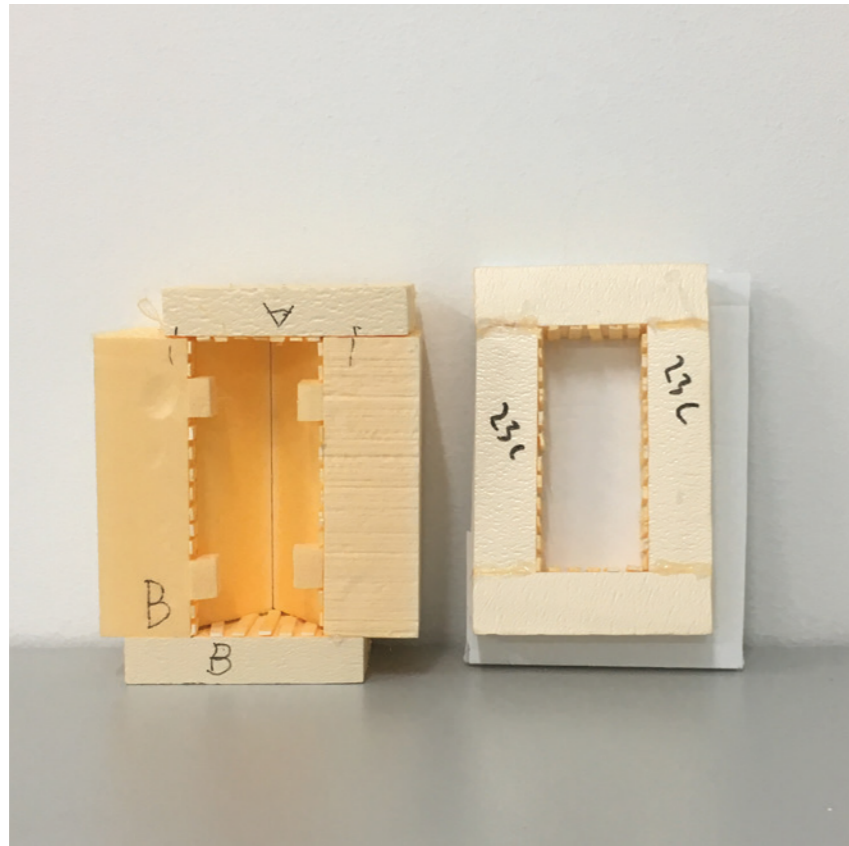
10_D



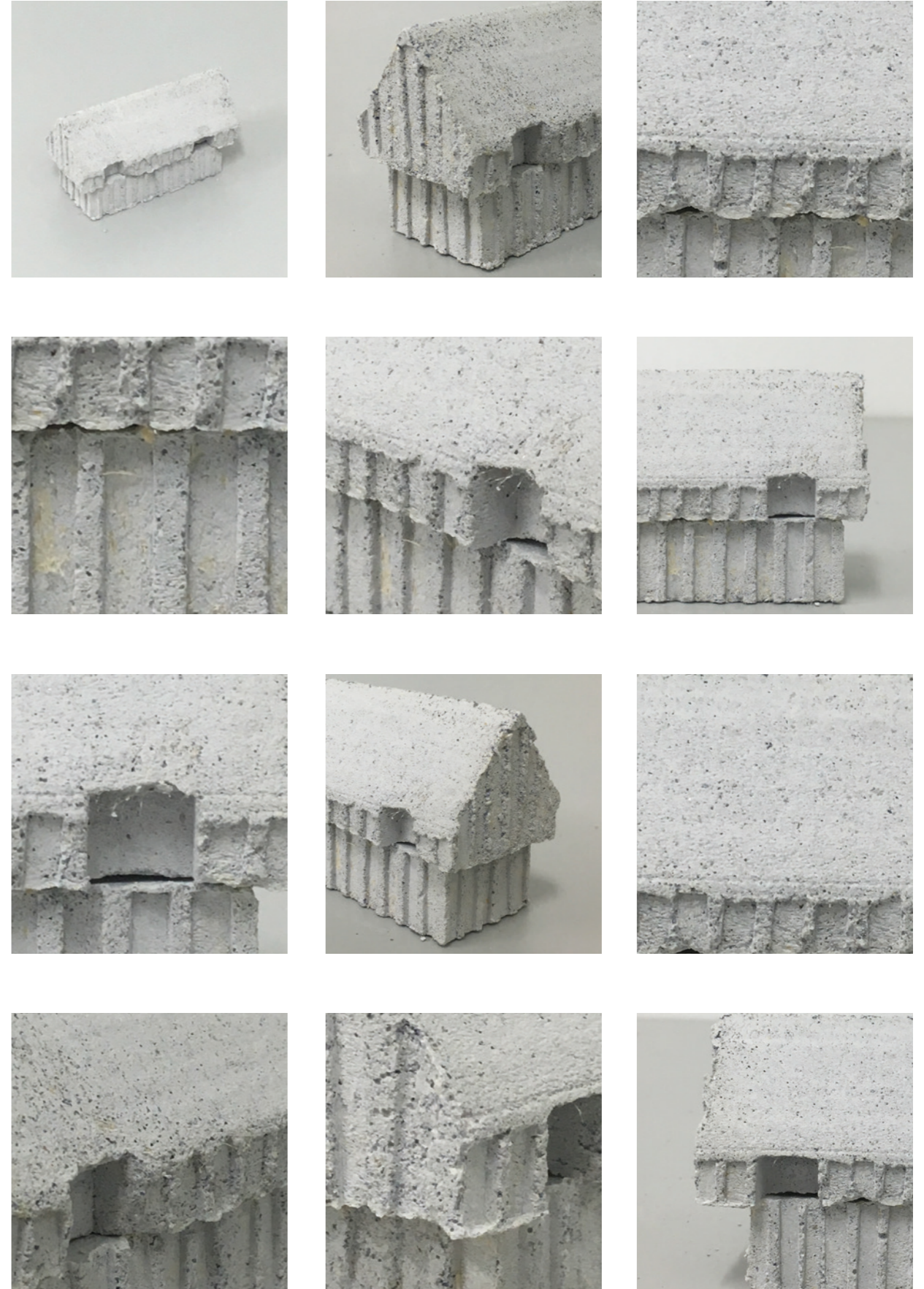


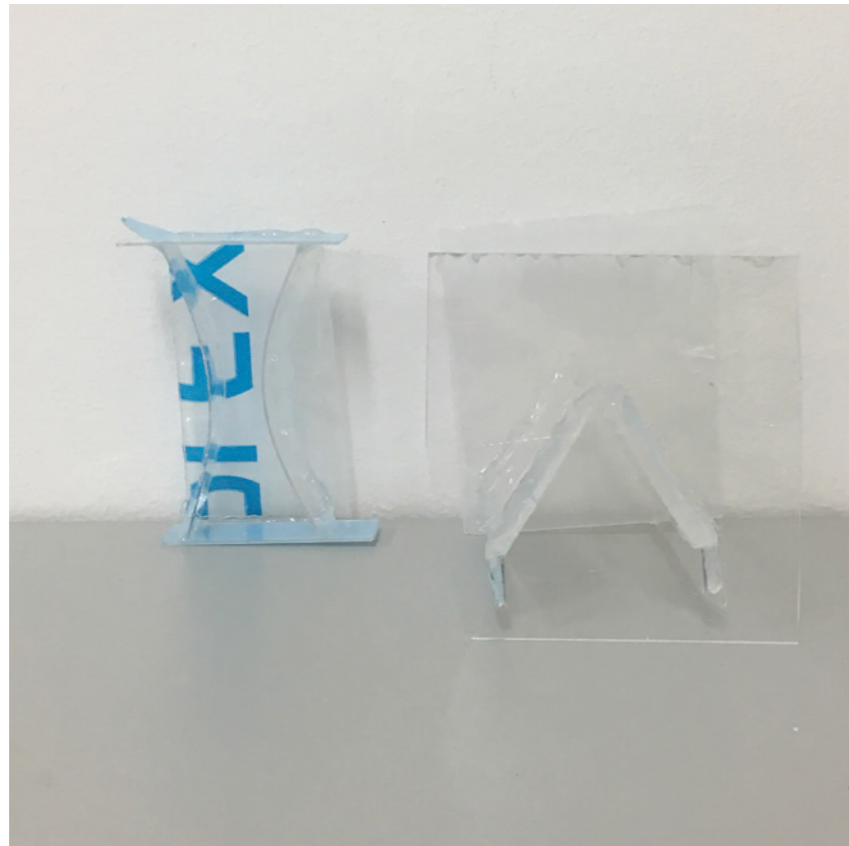
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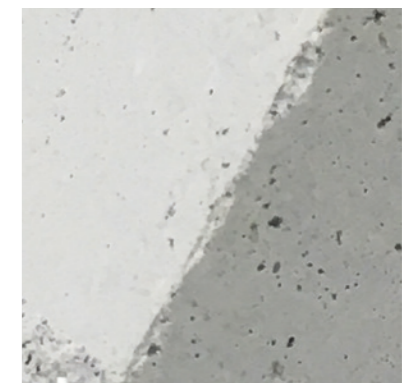
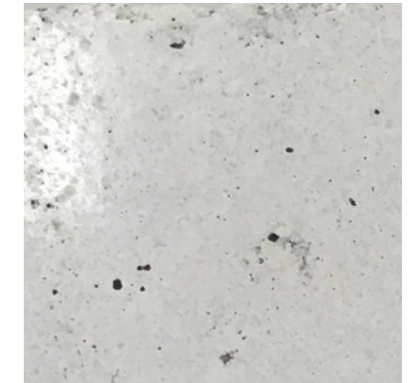
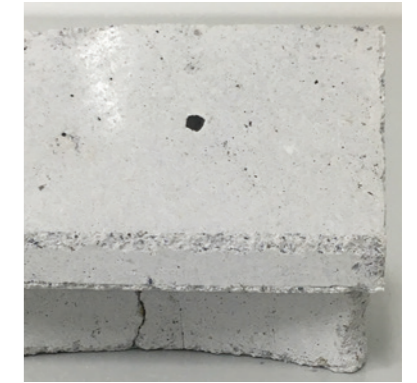
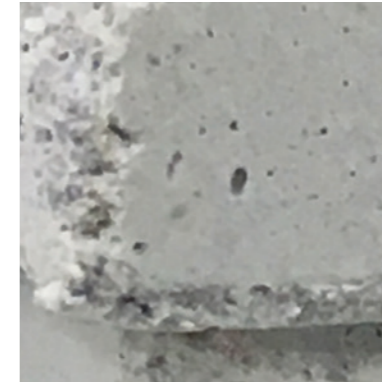
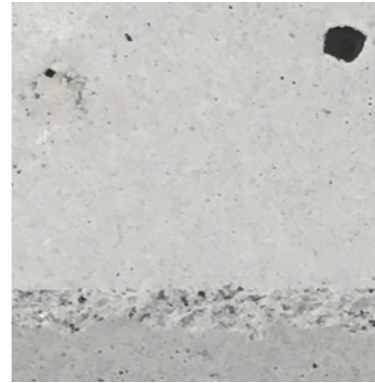
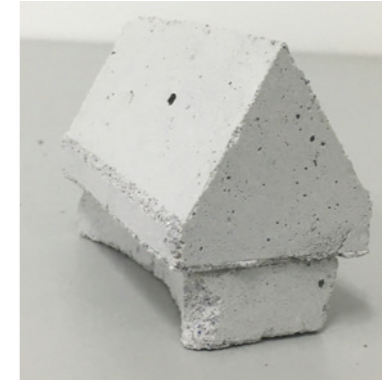


13_C





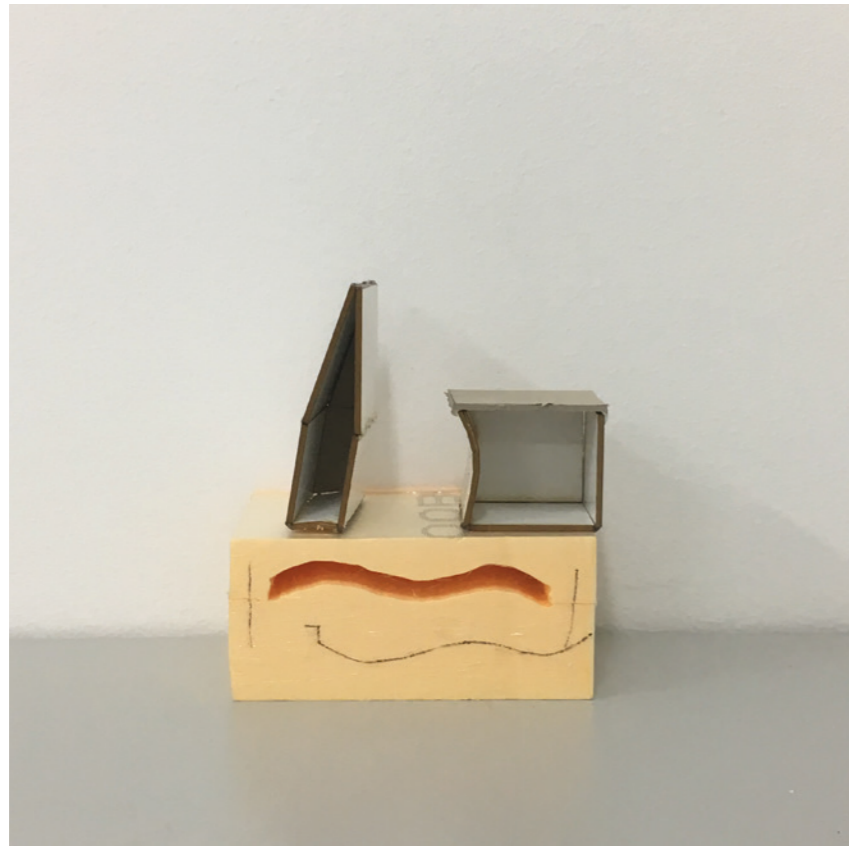
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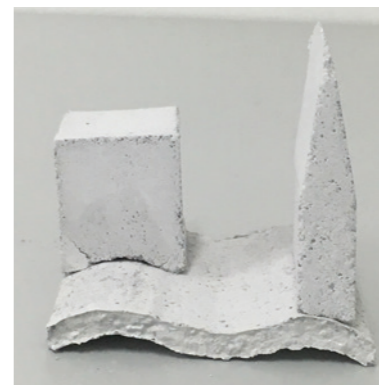
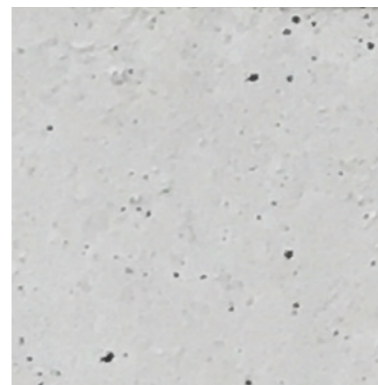
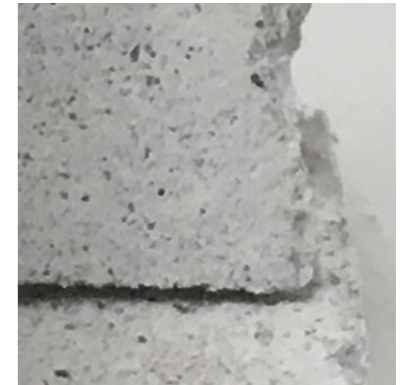
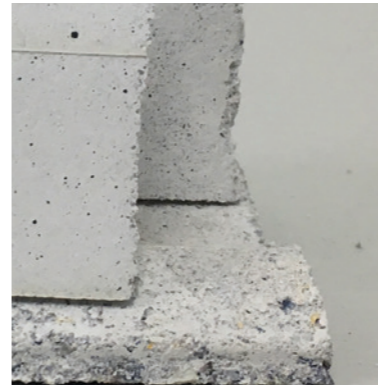
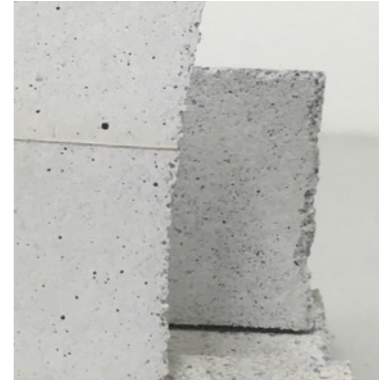
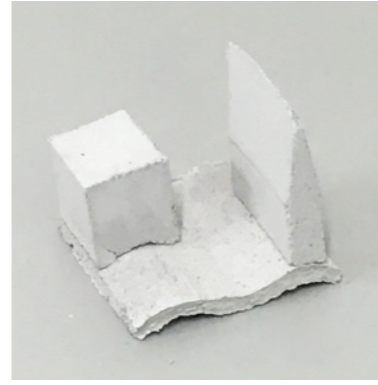


14_E

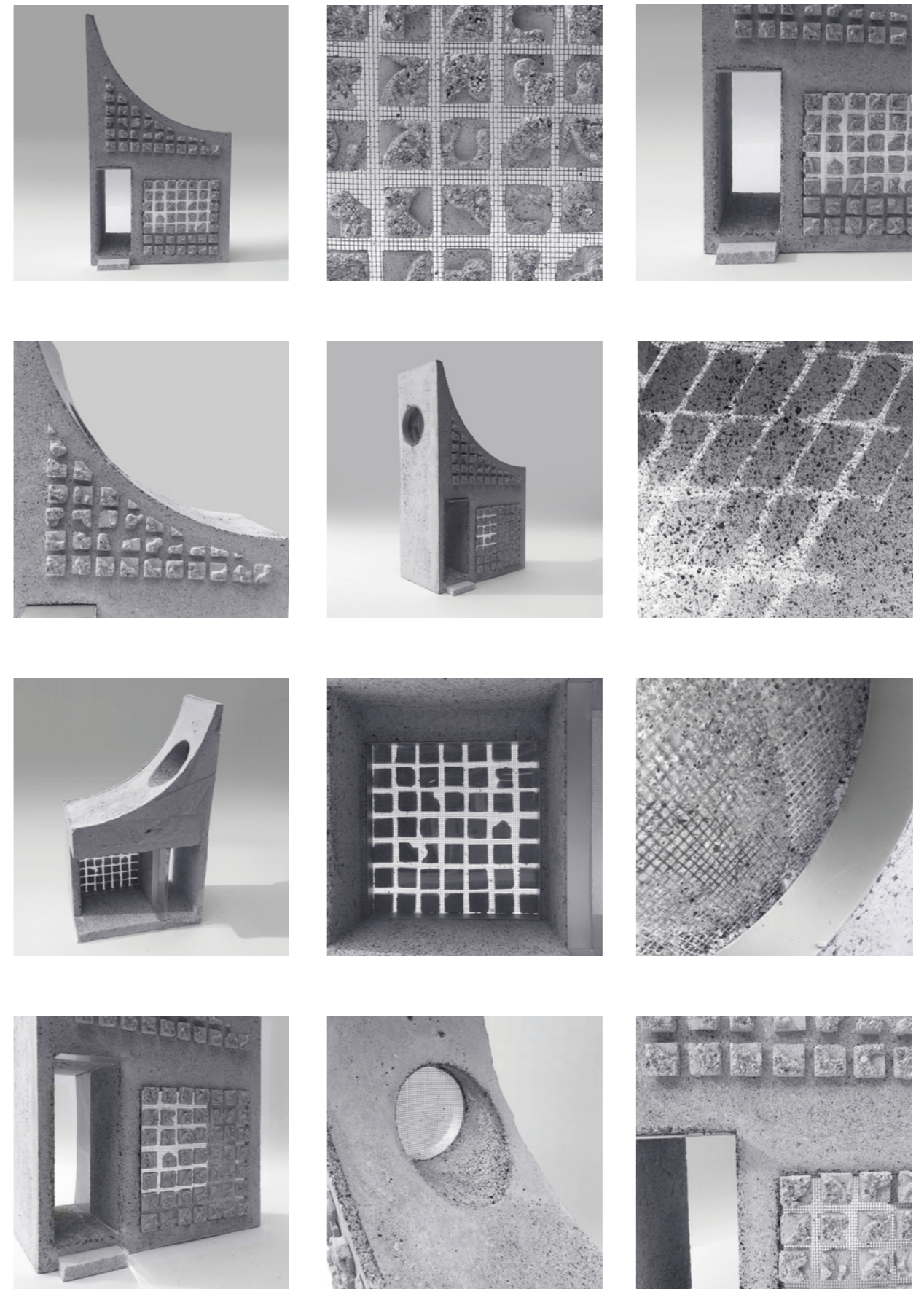




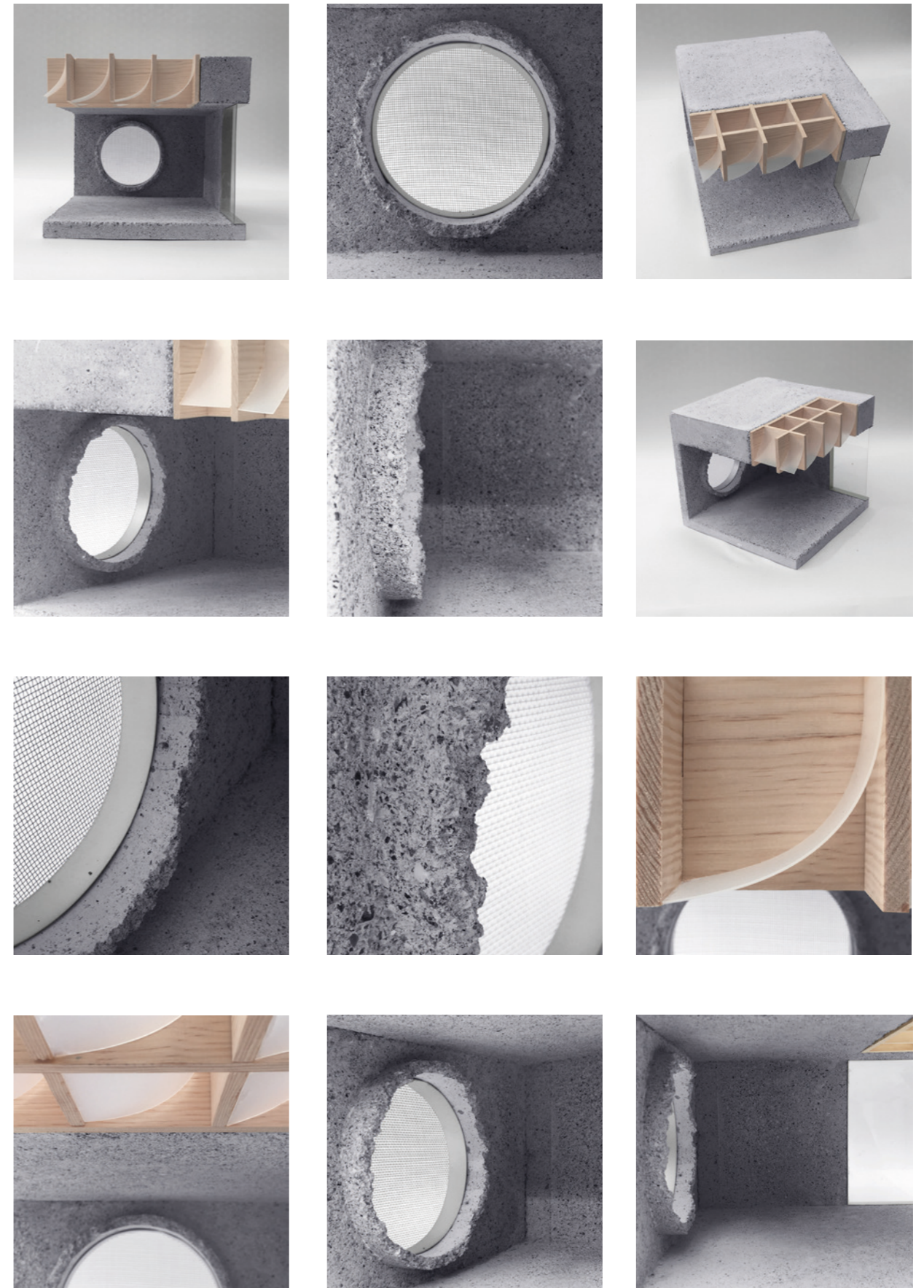
15_A



1:20 ENTRANCE



1:20 EXHIBITION




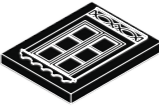







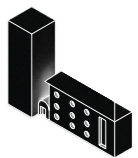
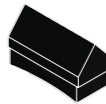






VI

Design Guidelines

GUIDELINES

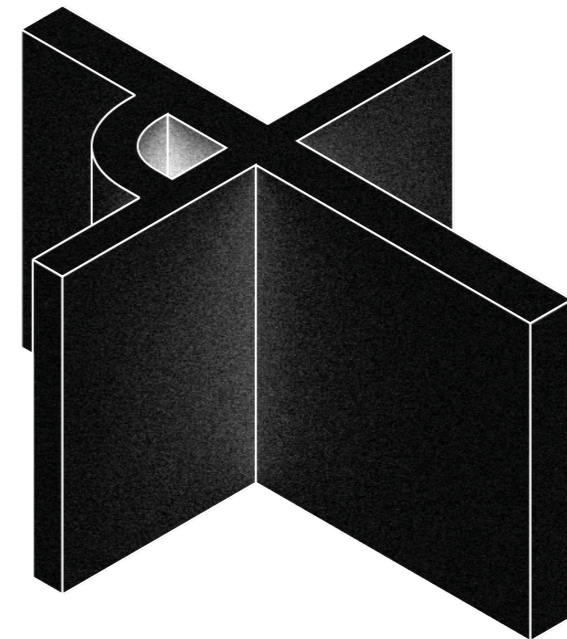
- | | | | | |
|-----|---|---|---|---|
| 01. | Room configuration: Cross with core. |  |  |  |
| | | 01. | 02. | 03. |
| 02. | Materiality: Variations in texture between levels. | | | |
| 03. | Volume: Terraced volumes, the ones on top larger than the ones below. | | | |
| 04. | Perforation in wall: Plasticity, additive, decorative. |  |  |  |
| | | 04. | 05. | 06. |
| 05. | Detail: Repetitive patterns, smaller parts, quadrant and arc. | | | |
| 06. | Interior: Slim gap, wall texture, plasticity, light in front and above. | | | |
| 07. | Detail: Decorative entrances, simple structures with decorative fillings. |  |  |  |
| | | 07. | 08. | 09. |
| 08. | Materiality: Multiple textures in the same material. | | | |
| 09. | Detail: Decorative ending. | | | |
| 10. | Meeting with ground: Man-made submissive to nature, perpendicular vs organic. |  |  |  |
| | | 10. | 11. | 12. |
| 11. | Volume: Divided volume with scattered facade. | | | |
| 12. | Volume: Clear separation of functions. (Joined by an entrance). | | | |
| 13. | Volume & Materiality: High contrast relief in the facade and additive levels | | | |
| 14. | Materiality: Blocks, additive, defined textures through subtraction. |  |  |  |
| | | 13. | 14. | 15. |
| 15. | Volume: Visible production. | | | |

Introduction

From the previous steps evaluation was made based on their compiled qualities. The evaluation led to fifteen design guidelines based on the paraphrases from each reference. Each guideline is representative for each original reference, the chosen paraphrase to illustrate the design guideline is the one that represent the guideline the best. In some cases all of the paraphrases were used to form the guidelines.

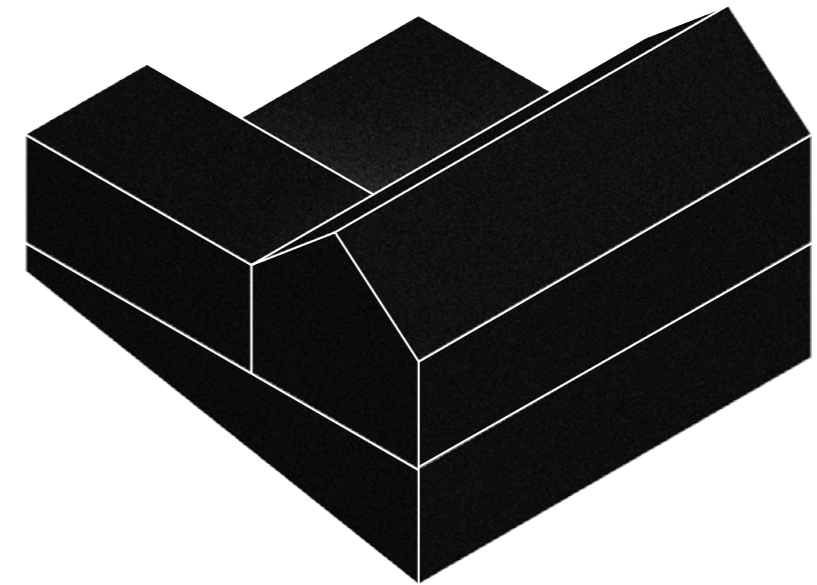
01.

Room configuration: Cross with core



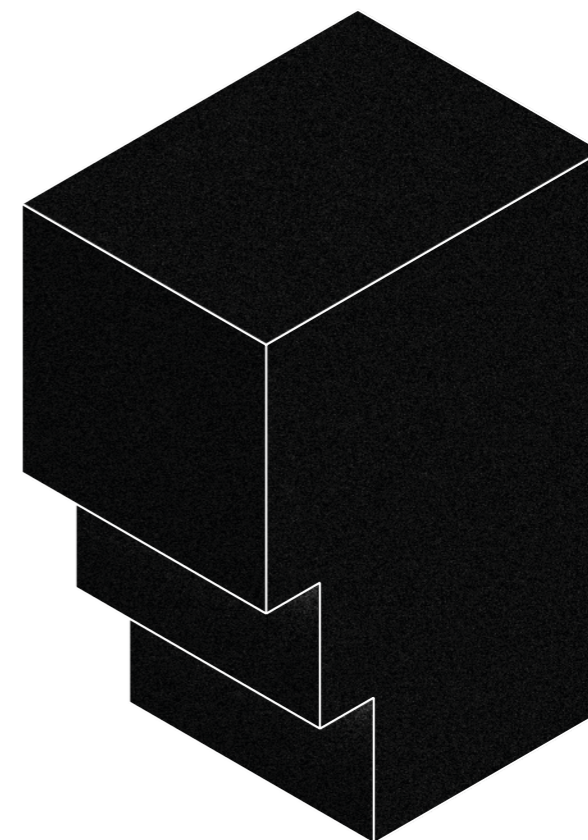
02.

Materiality: Variations in texture between levels.



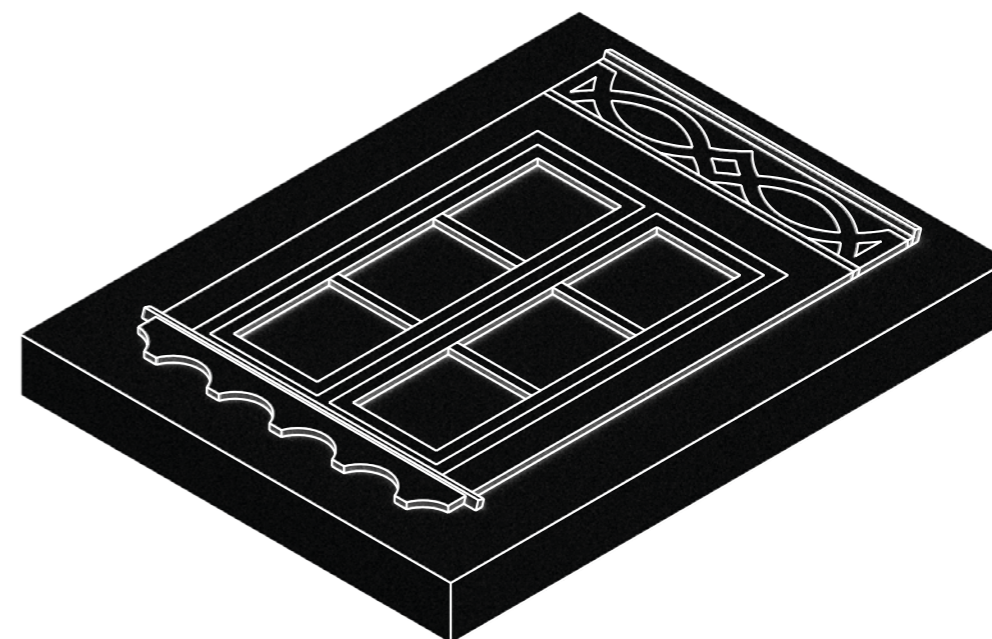
03.

Volyme: Terraced volymes, the ones on top larger then the ones below



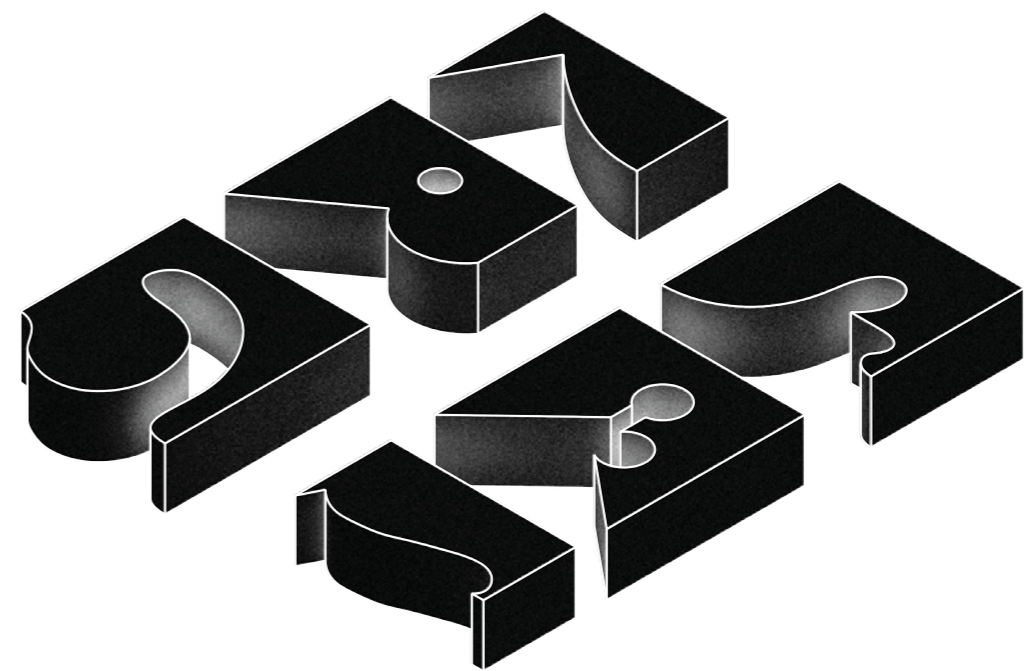
04.

Perforation in wall: Plasticity, additive, decorative



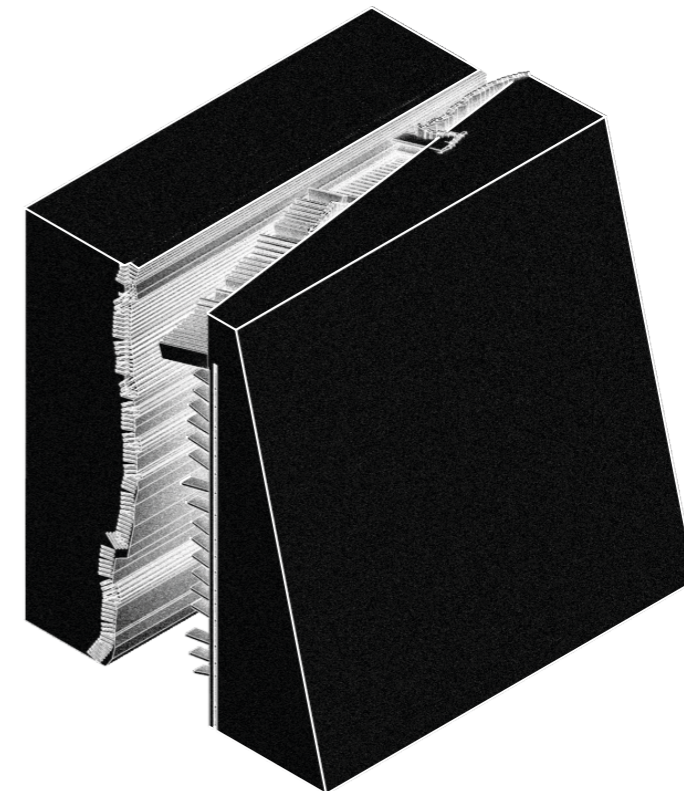
05.

Detail: Repetative patterns, smaller parts, quadrant and arc



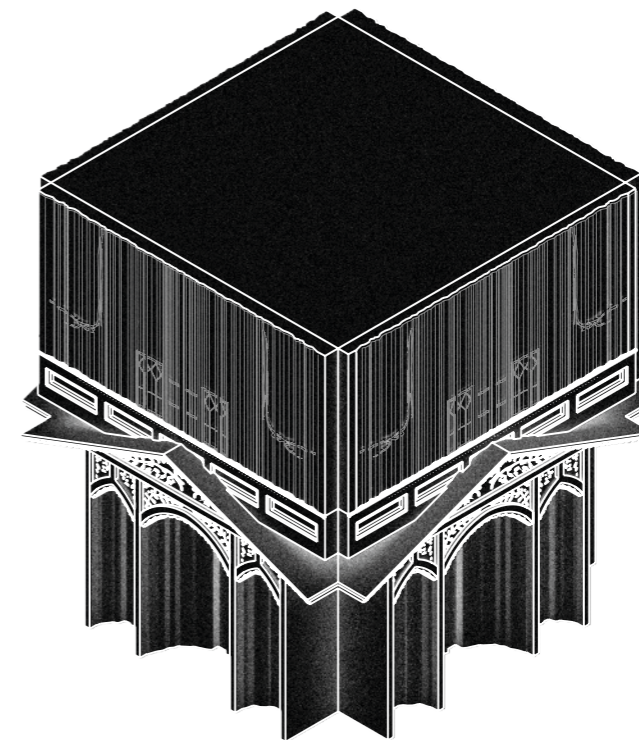
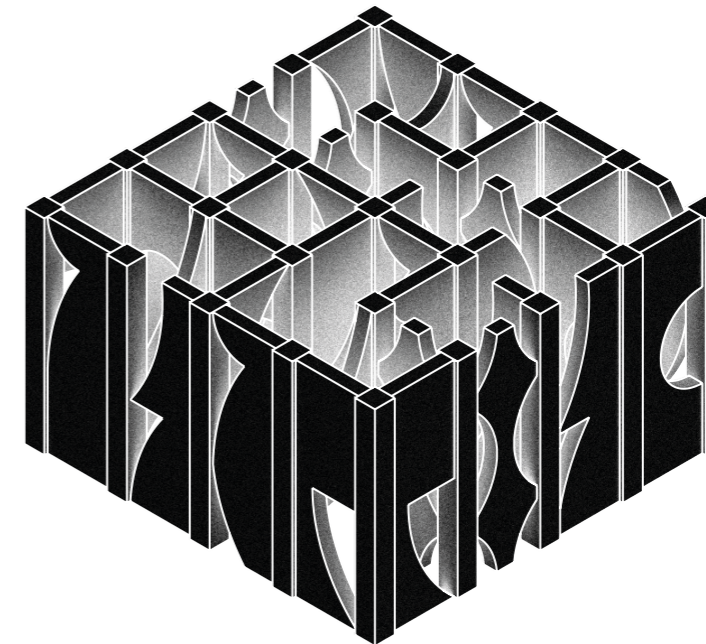
06.

Interior: Slim gap, wall texture, plasticity, light in front and above



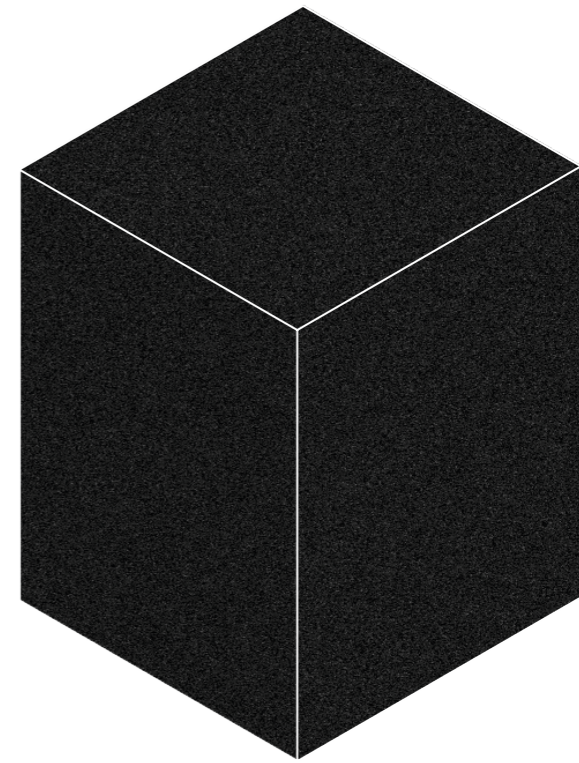
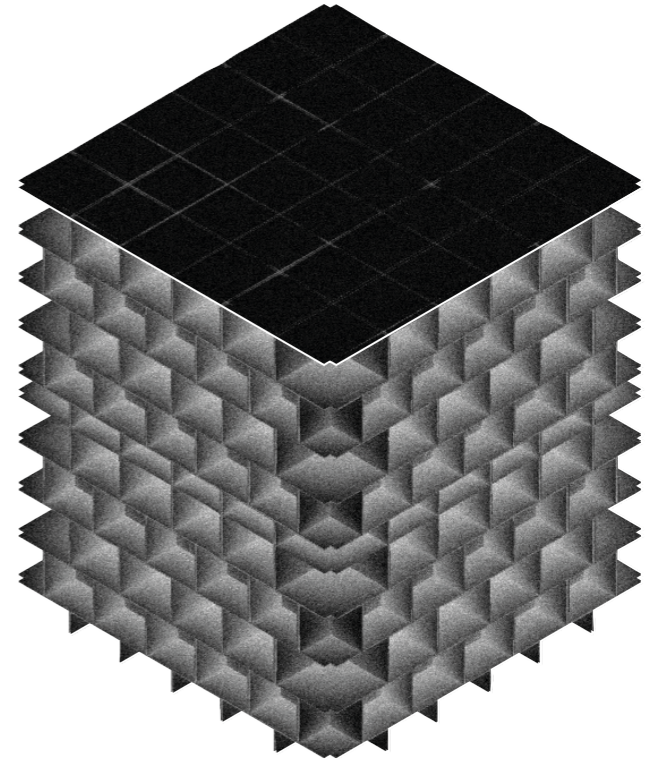
07.

Detail: Decorative entrances, simple structures with decorative fillings



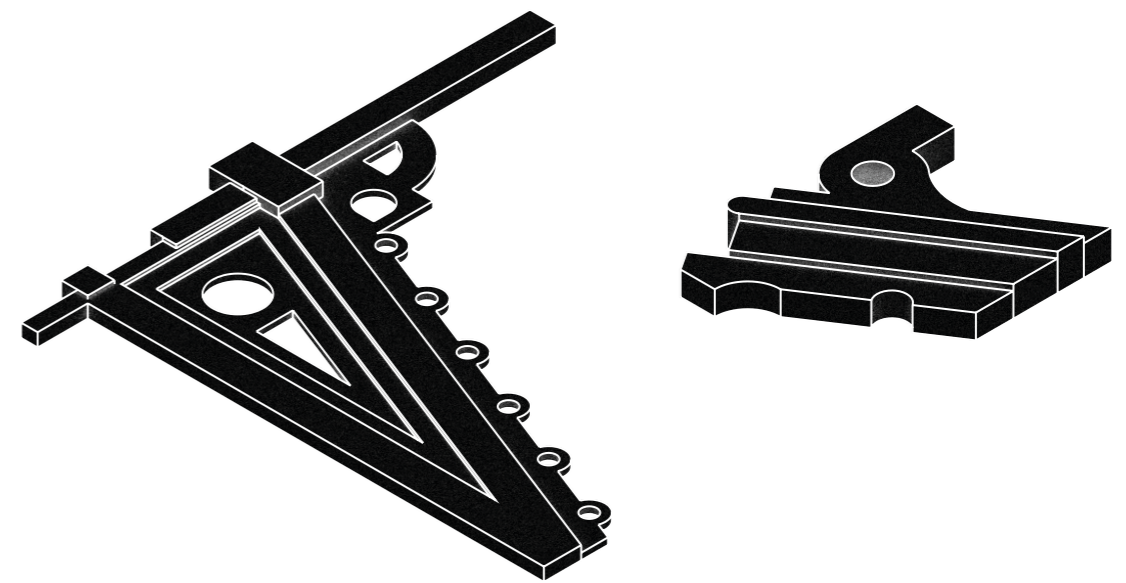
08.

Materiality: Multiple textures in the same material.



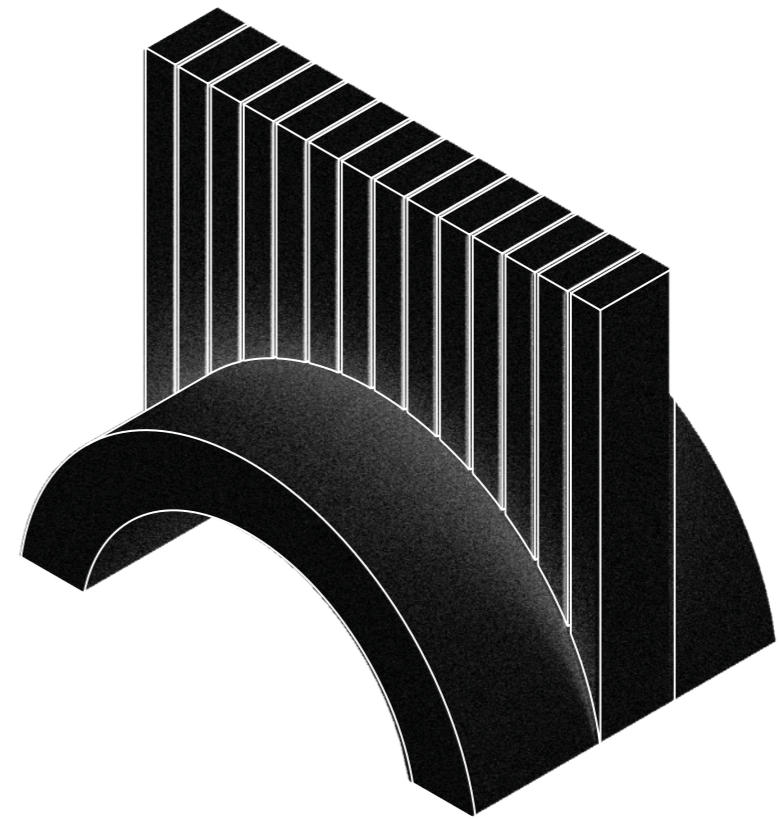
09.

Detail: Decorative ending



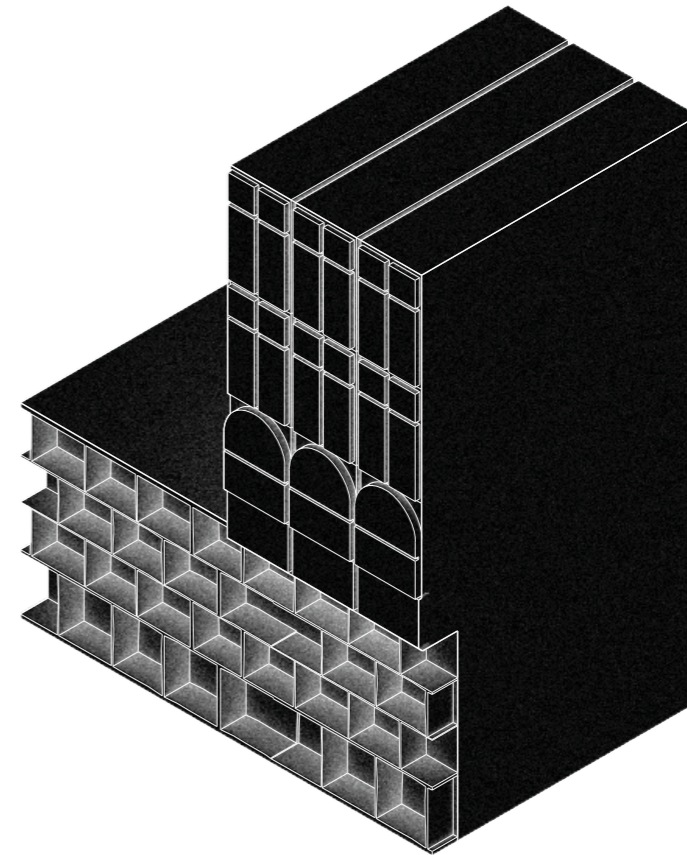
10.

Meeting with ground: Man-made submissive to nature, perpendicular vs organic.



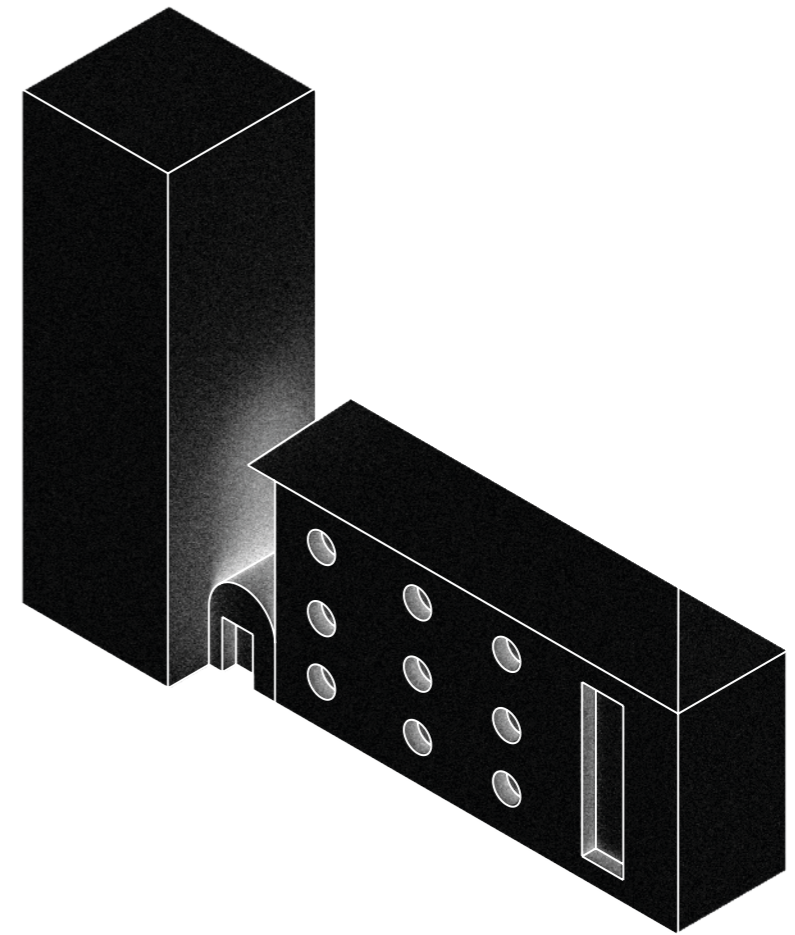
11.

Volyme: Divided volume with scattered facade.



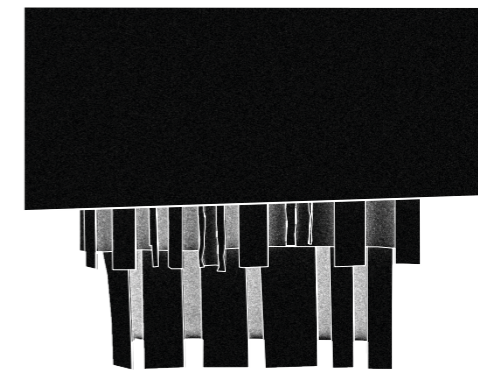
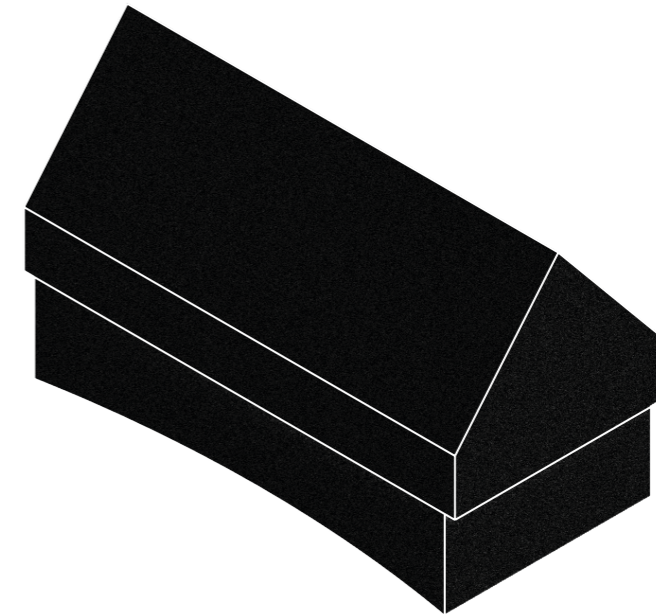
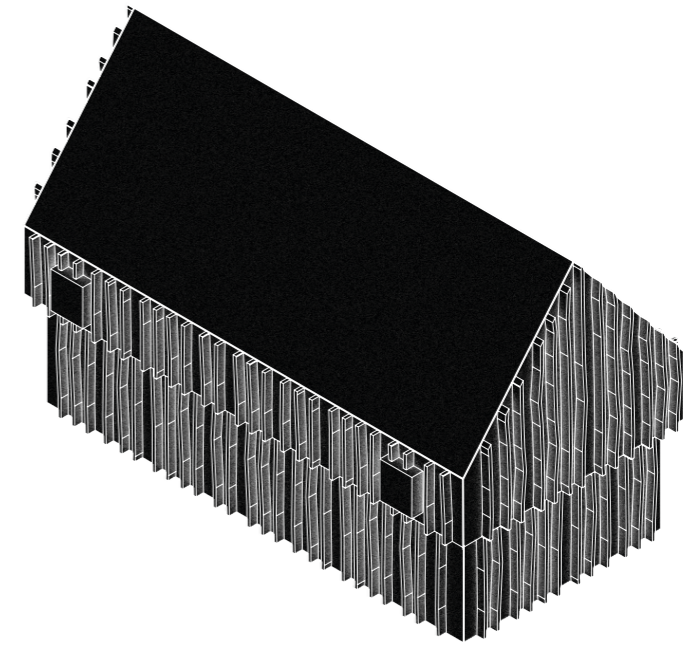
12.

Volyme: Clear separation of functions. (Joined by an entrance).



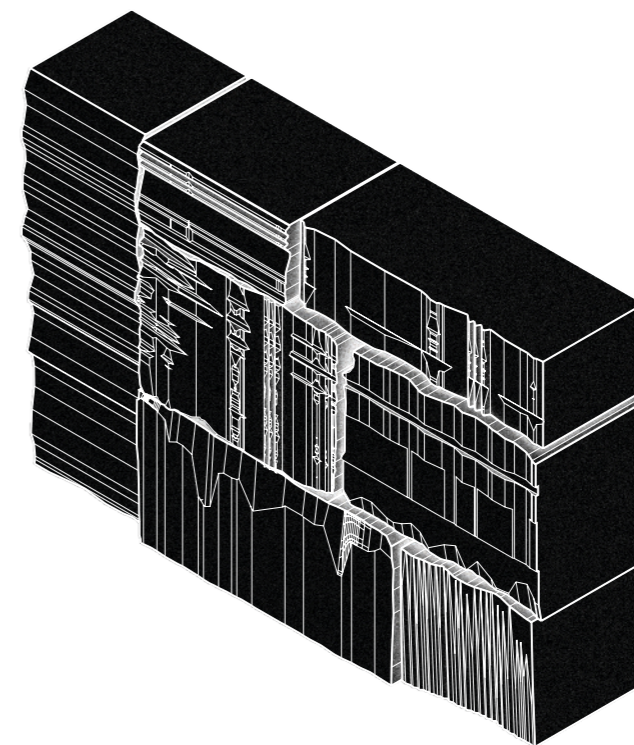
13.

Volyme & Materiality: High contrast relief in the facade and additative levels



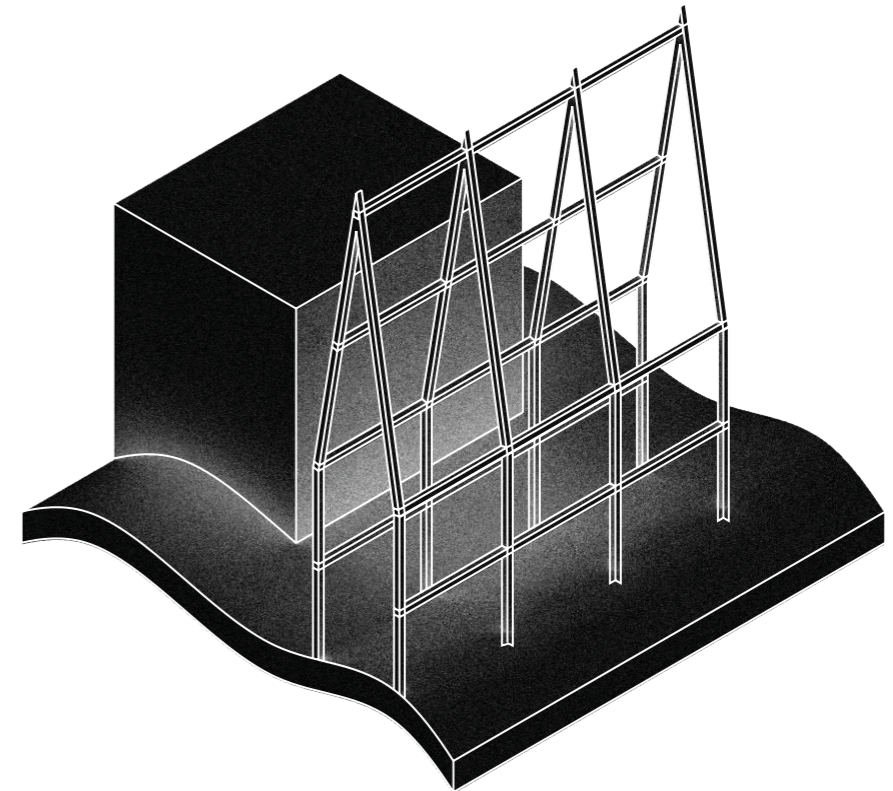
14.

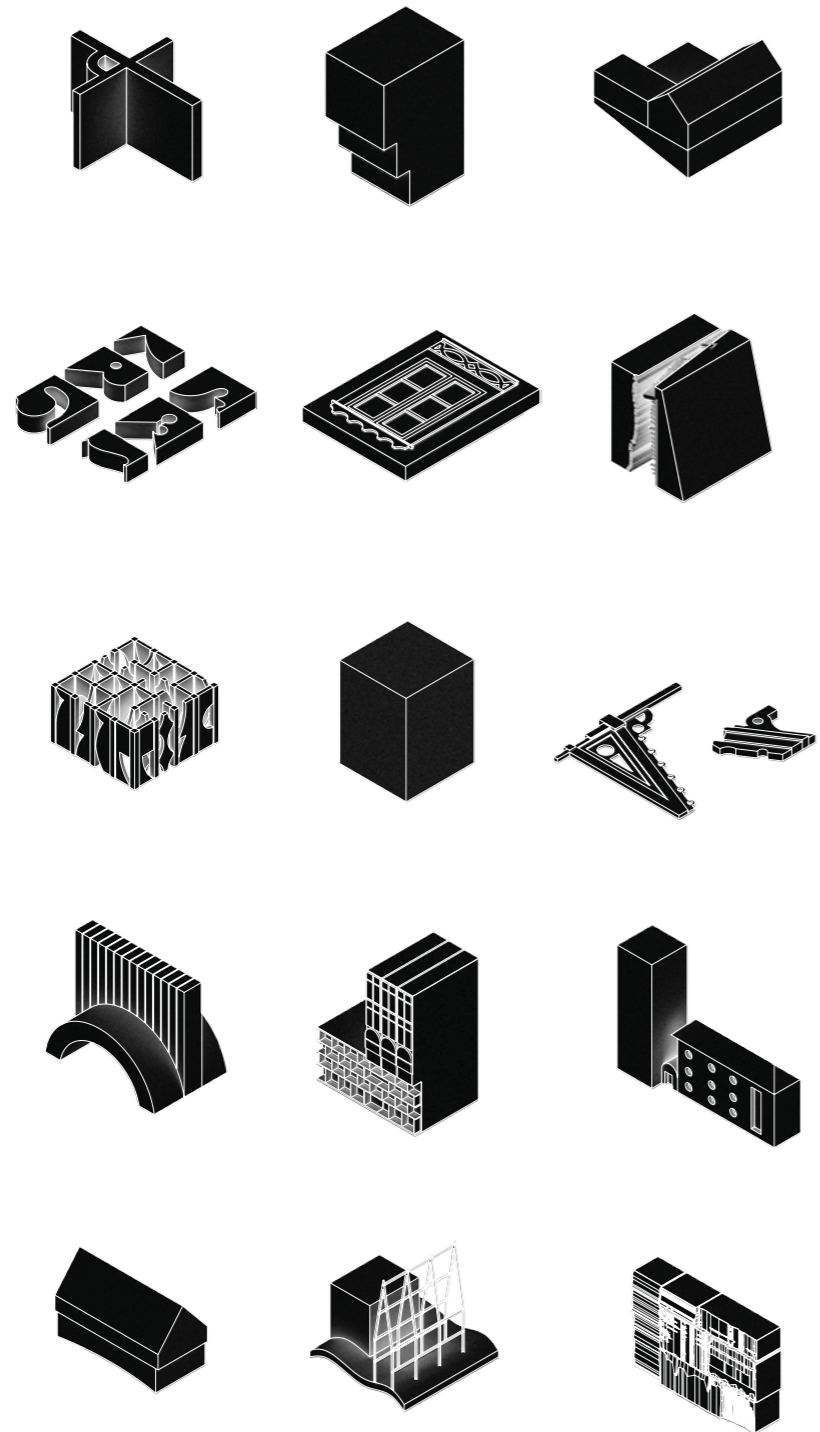
Materiality: Blocks, additive, defined textures through subtraction.



15.

Volyme: Visible production.



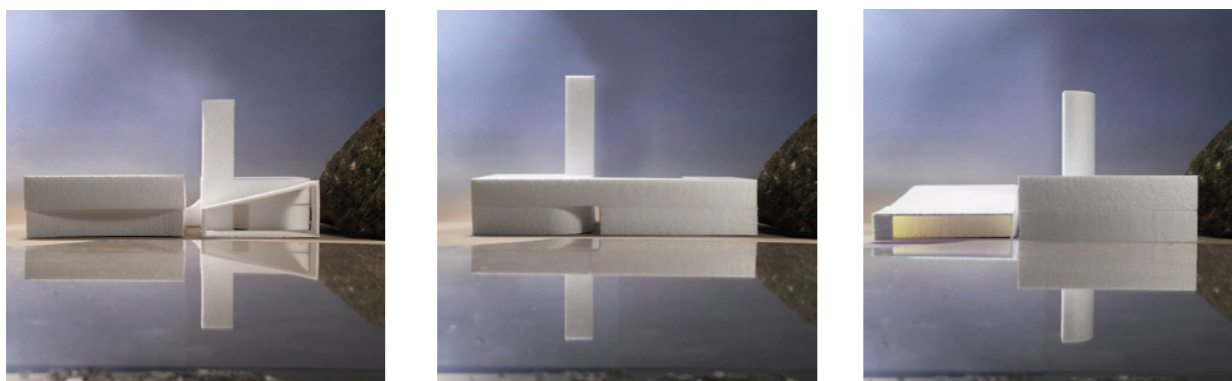
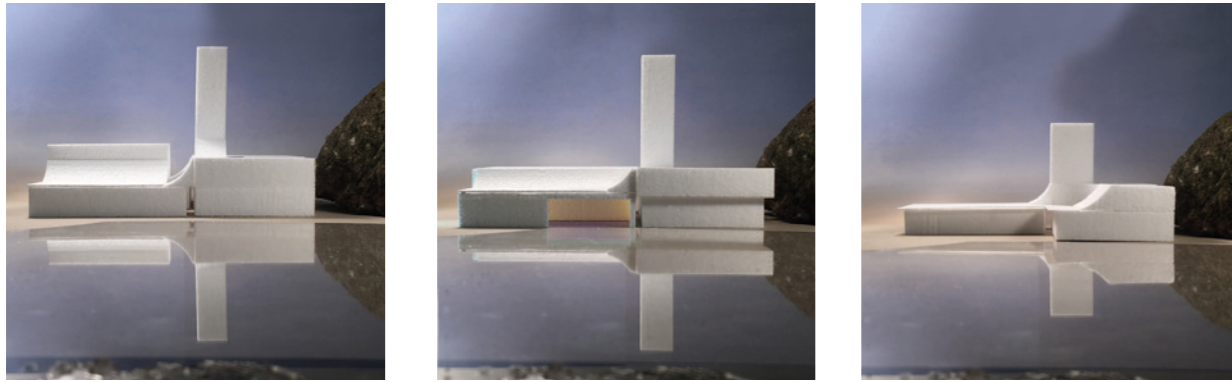


Reflection

The design guidelines is product of a process were the initial references has been altered into paraphrases and given a digital and casted 3D shape. The guidelines was then formed and used throughout the project. These guidelines is a result of a subjective process and would therefore change if any of the perimeters were to change or maybe even if we did it again. This was the original intent with the process; that the result isn't a stagnate result that could be used again but keep the personal relationship to the region.

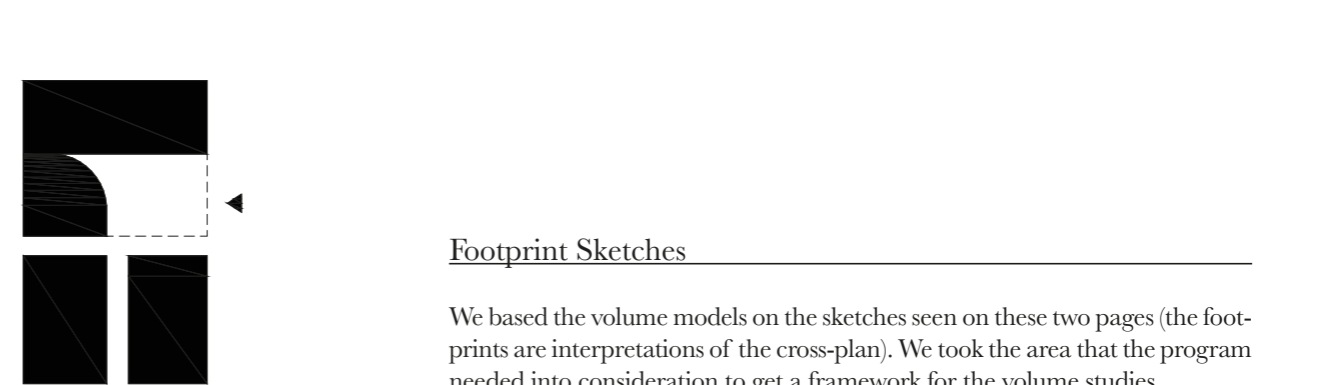
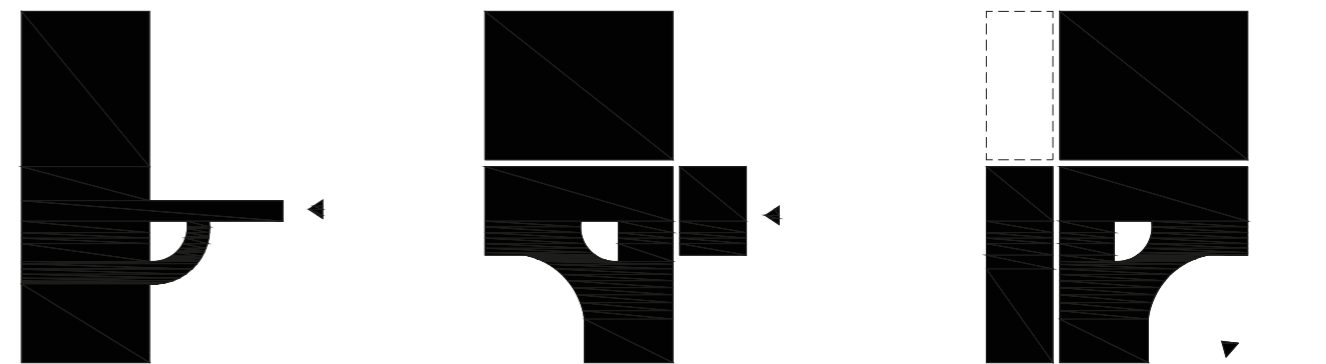
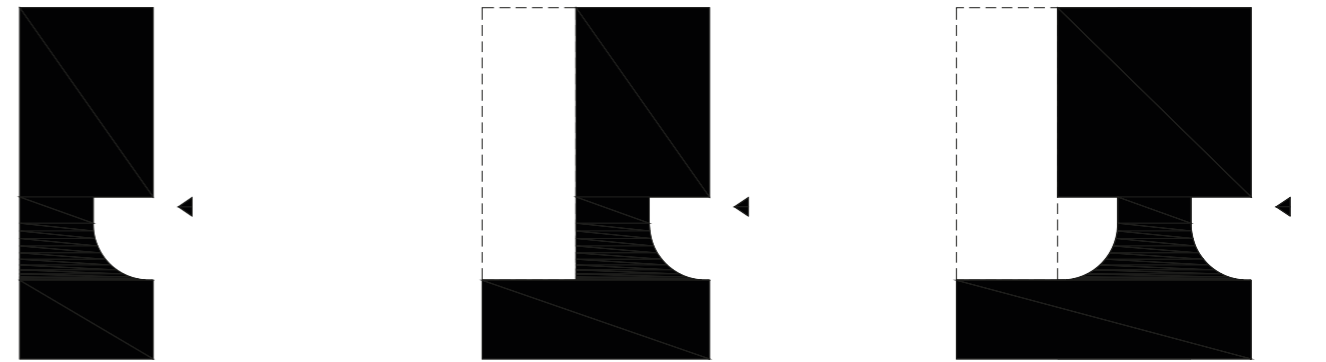
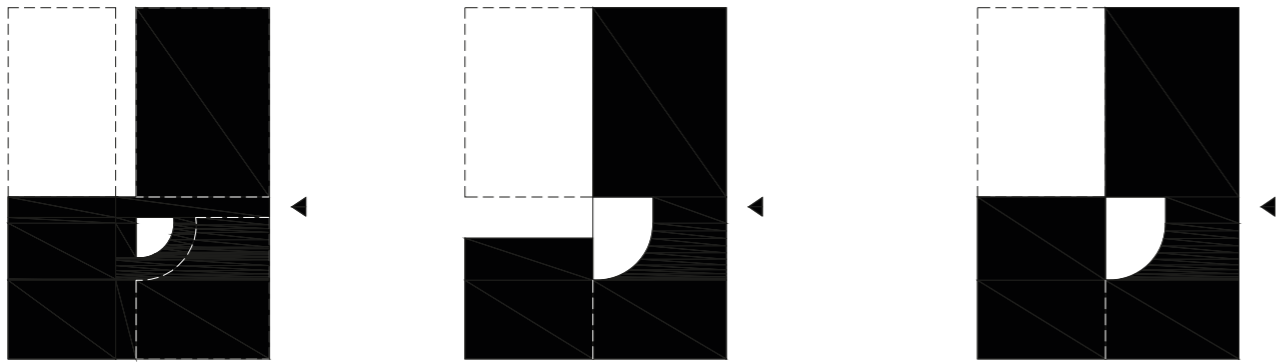
VII

Volume



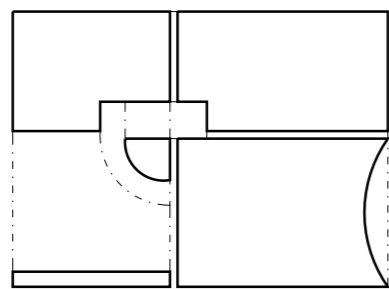
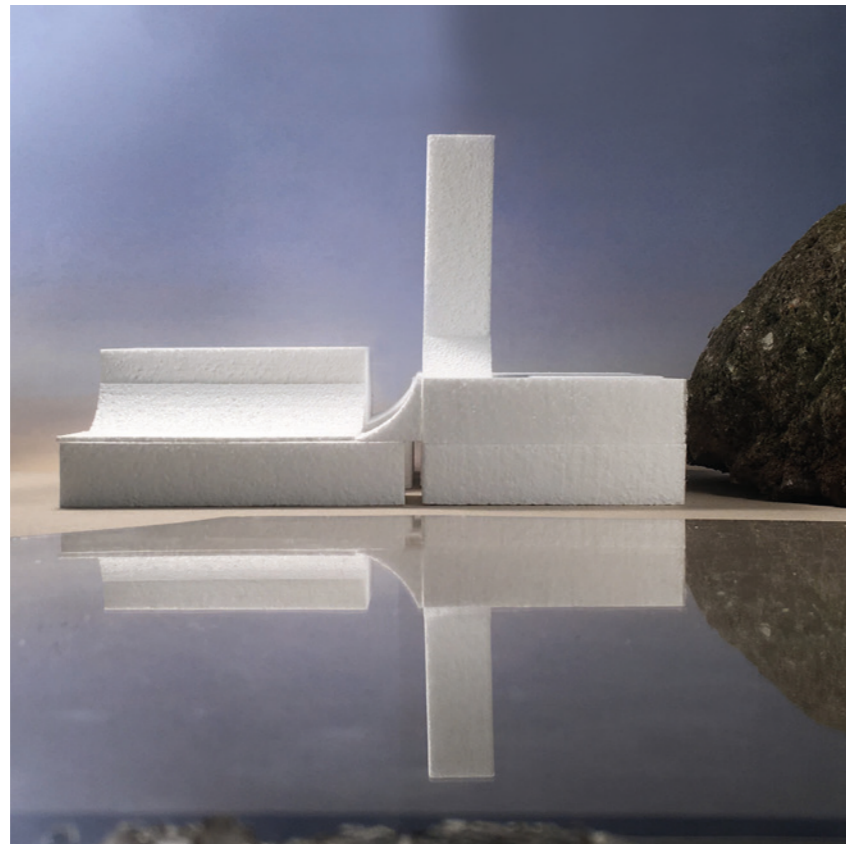
Introduction

The site provides with some restraints for the building. To test the program on the site and how it adapts with its viewpoints, heights, landscape we did several volume tests were this was investigated. Difference in height, scale, levels, area and volume was tested. It was also a tool for a more coherent design and to implicate the design guidelines that was set before.

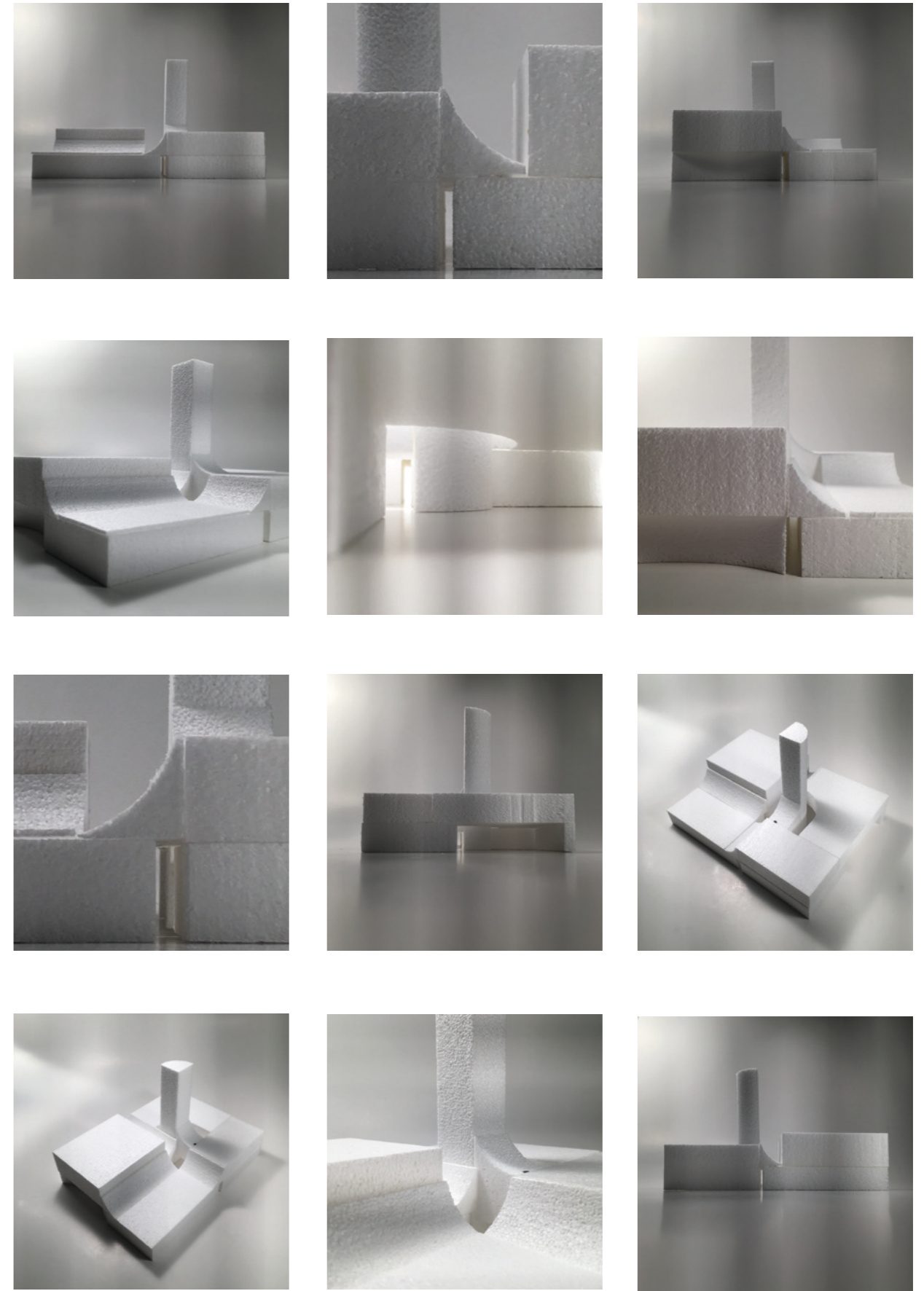


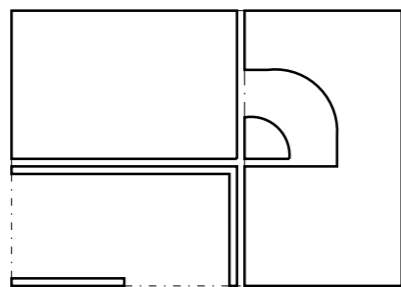
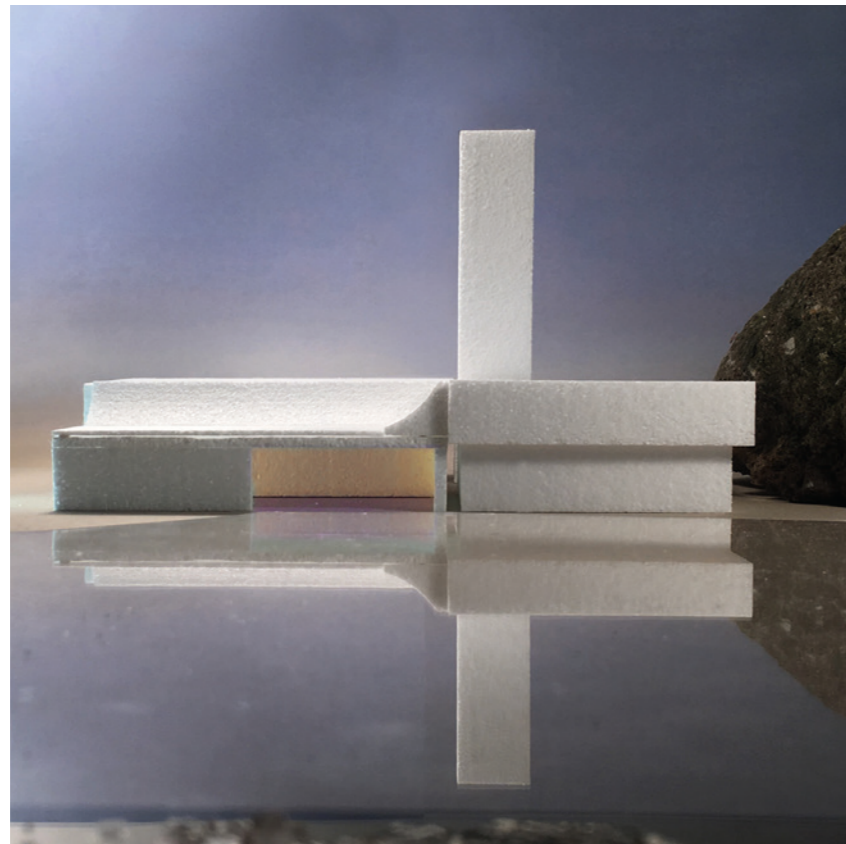
Footprint Sketches

We based the volume models on the sketches seen on these two pages (the footprints are interpretations of the cross-plan). We took the area that the program needed into consideration to get a framework for the volume studies.



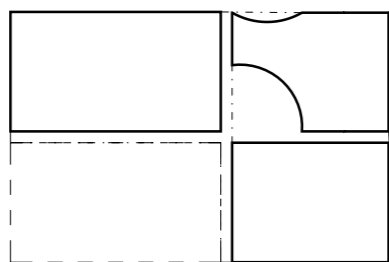
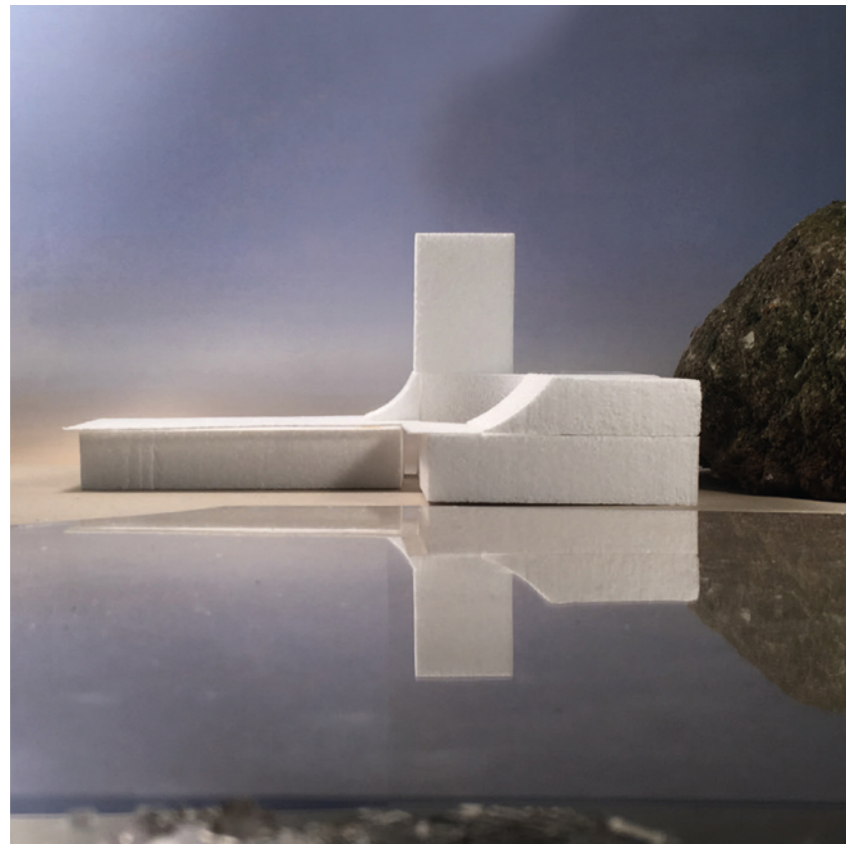
A: 1 290 m² + 315 m² (outdoor)



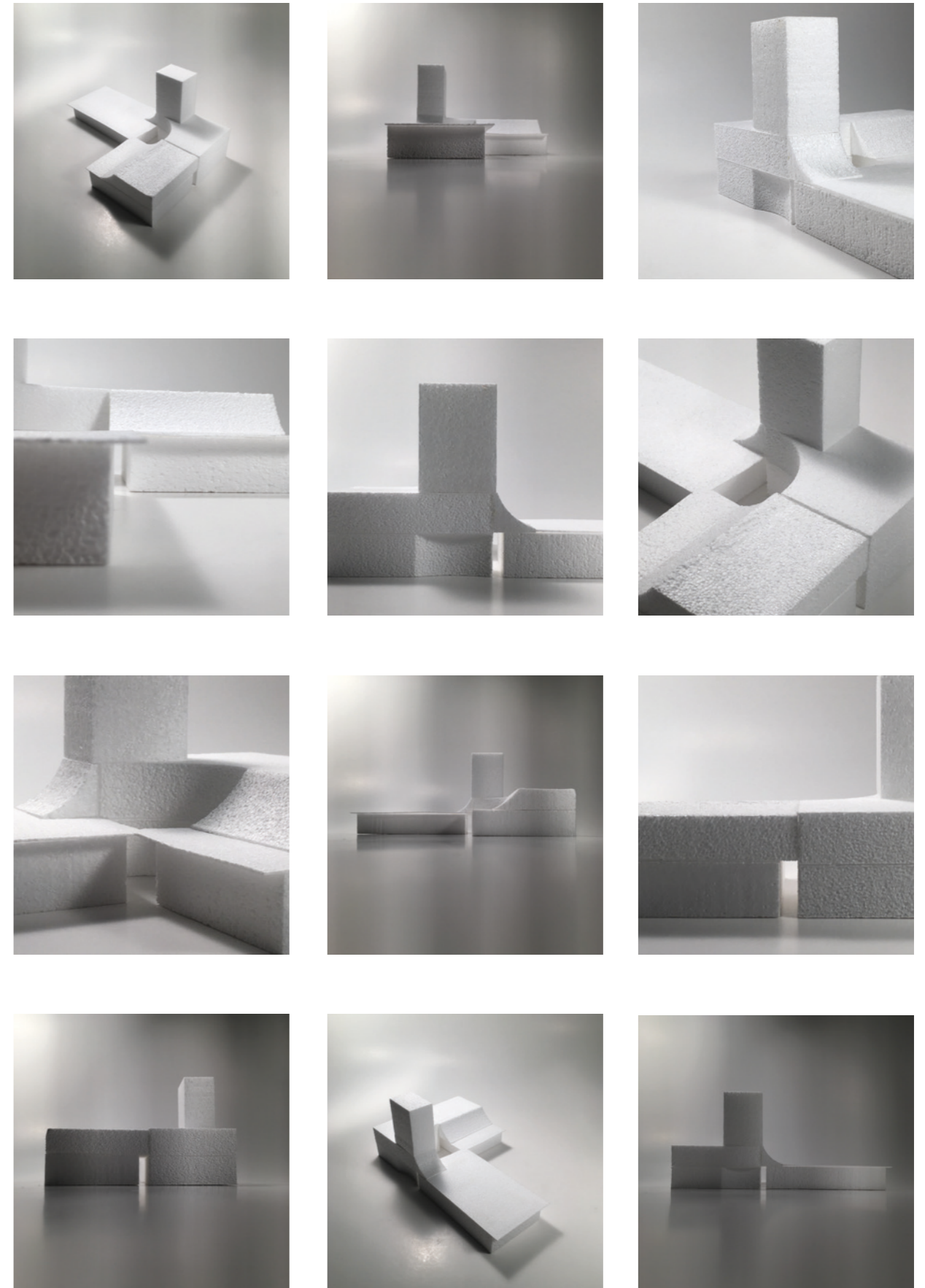


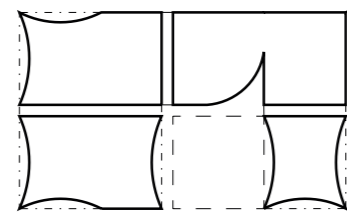
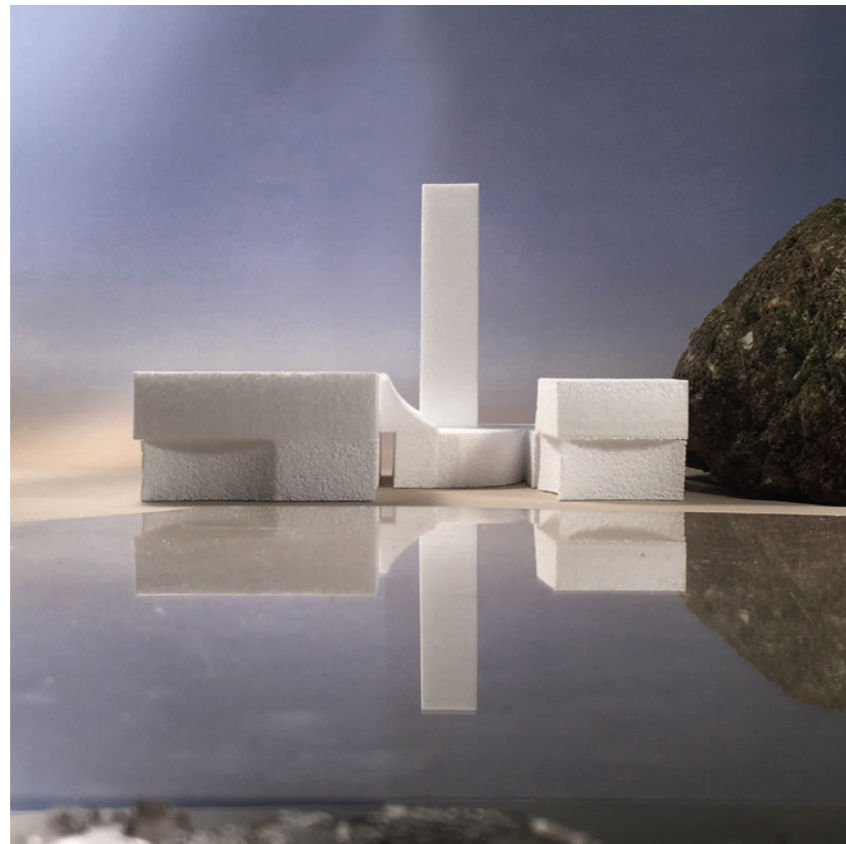
B: 1 225 m² + 460 m² (outdoor)



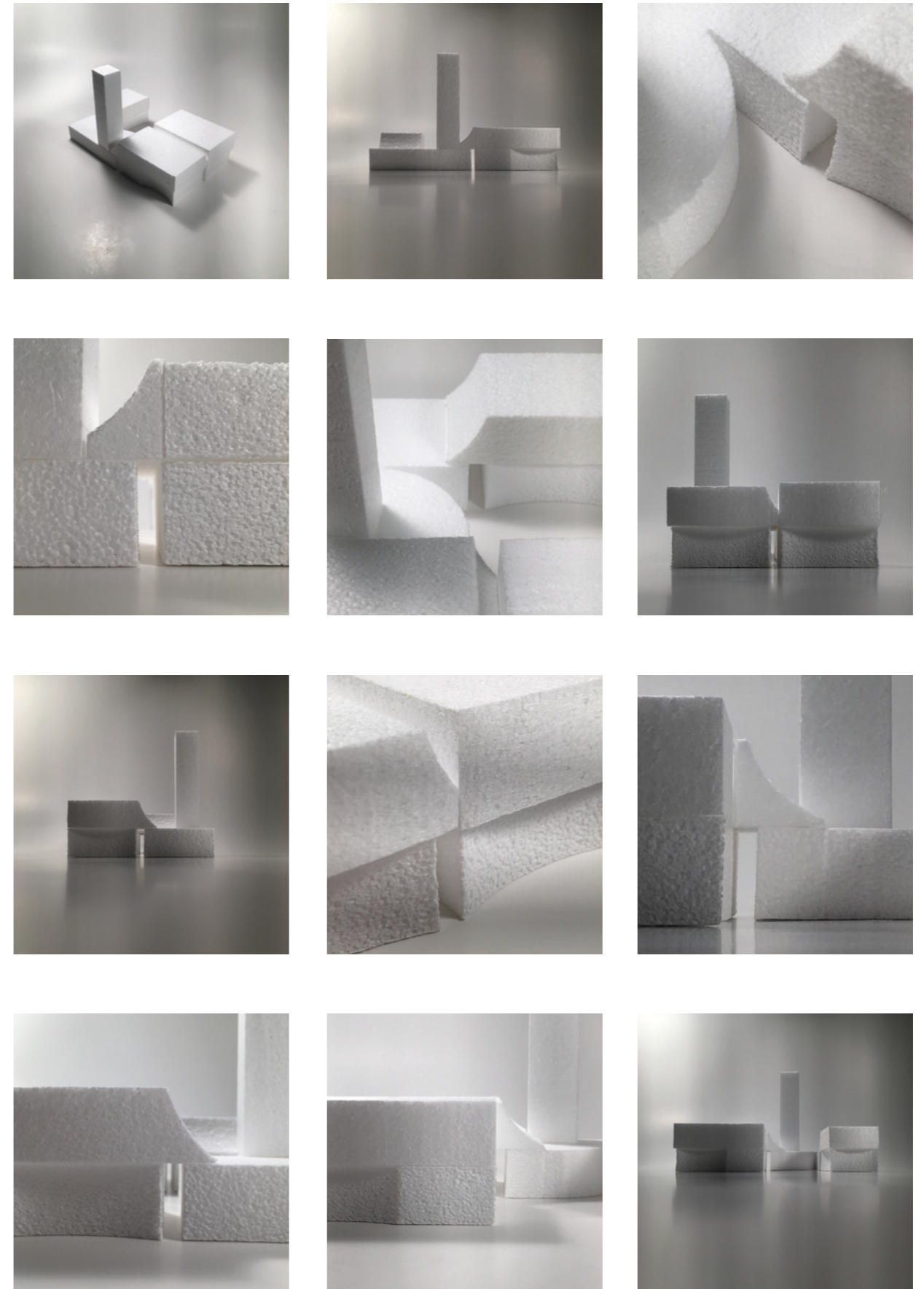


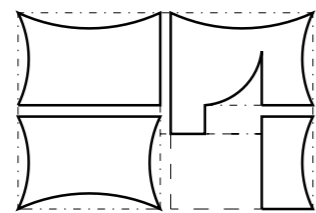
C: 1 020 m² + 440 m² (outdoor)



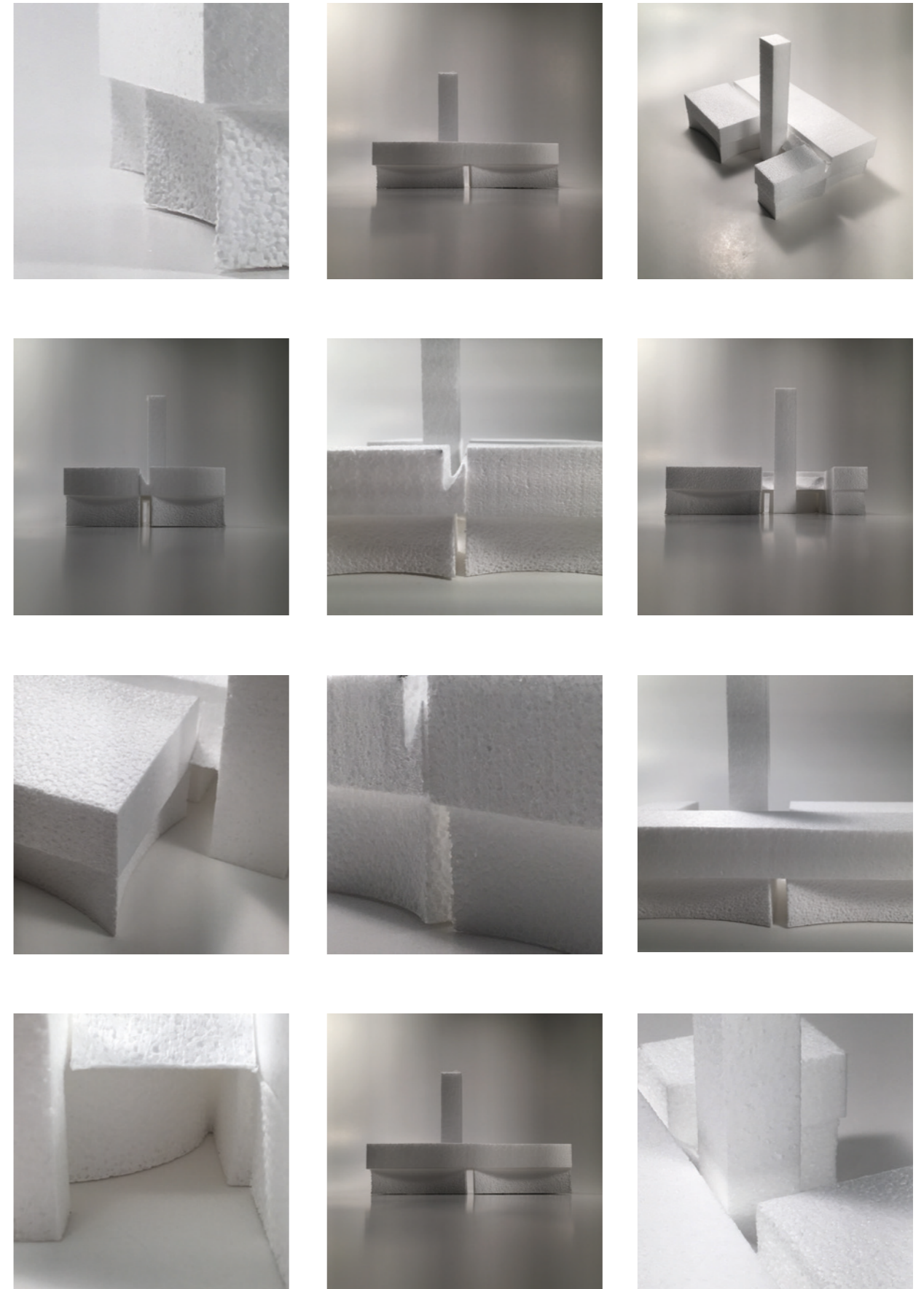


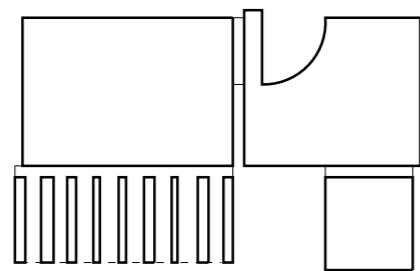
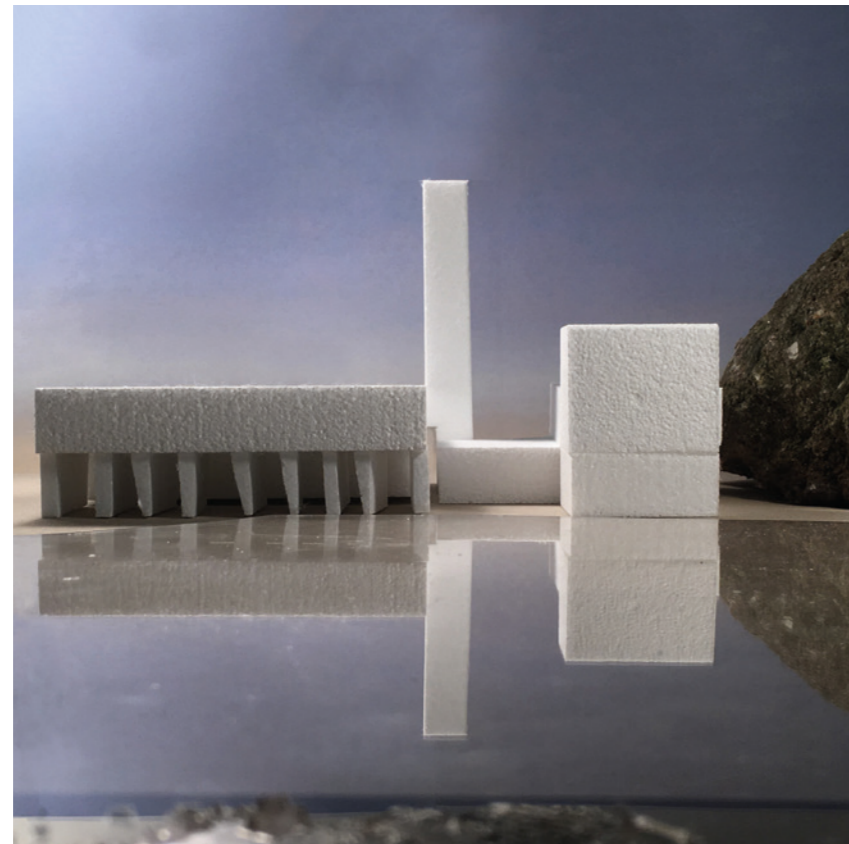
D: 775 m2 + 150 m2 (outdoor)





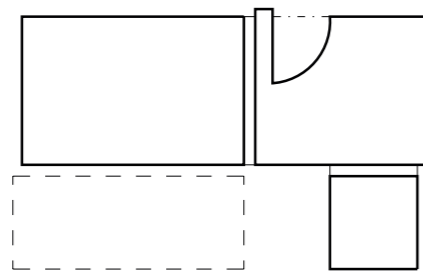
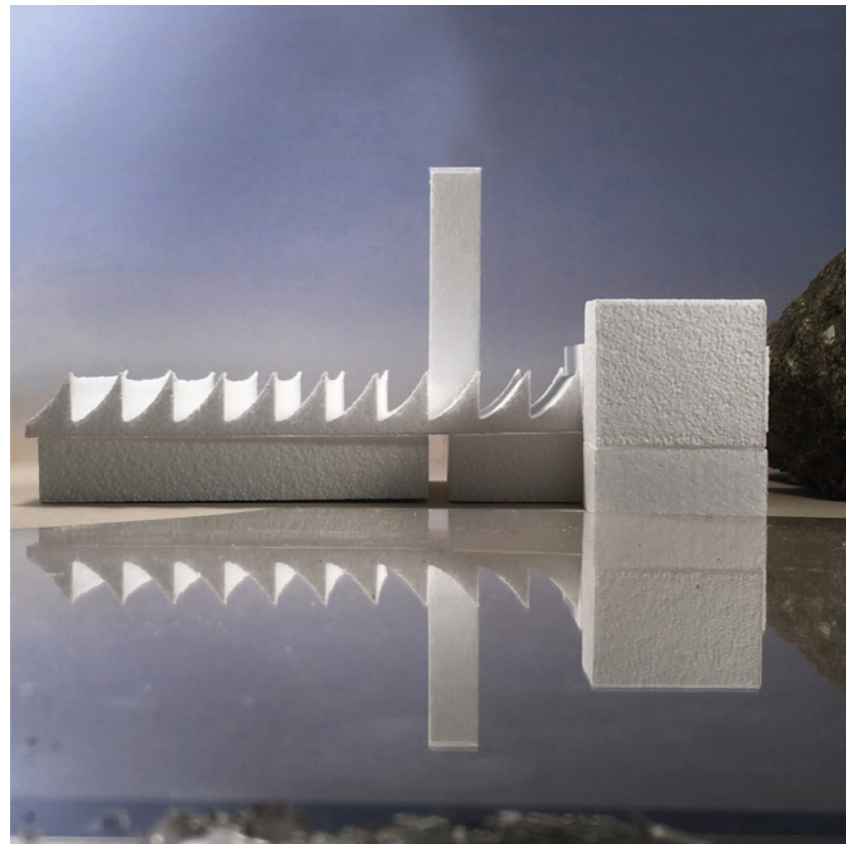
E: 640 m² + 120 m² (outdoor)



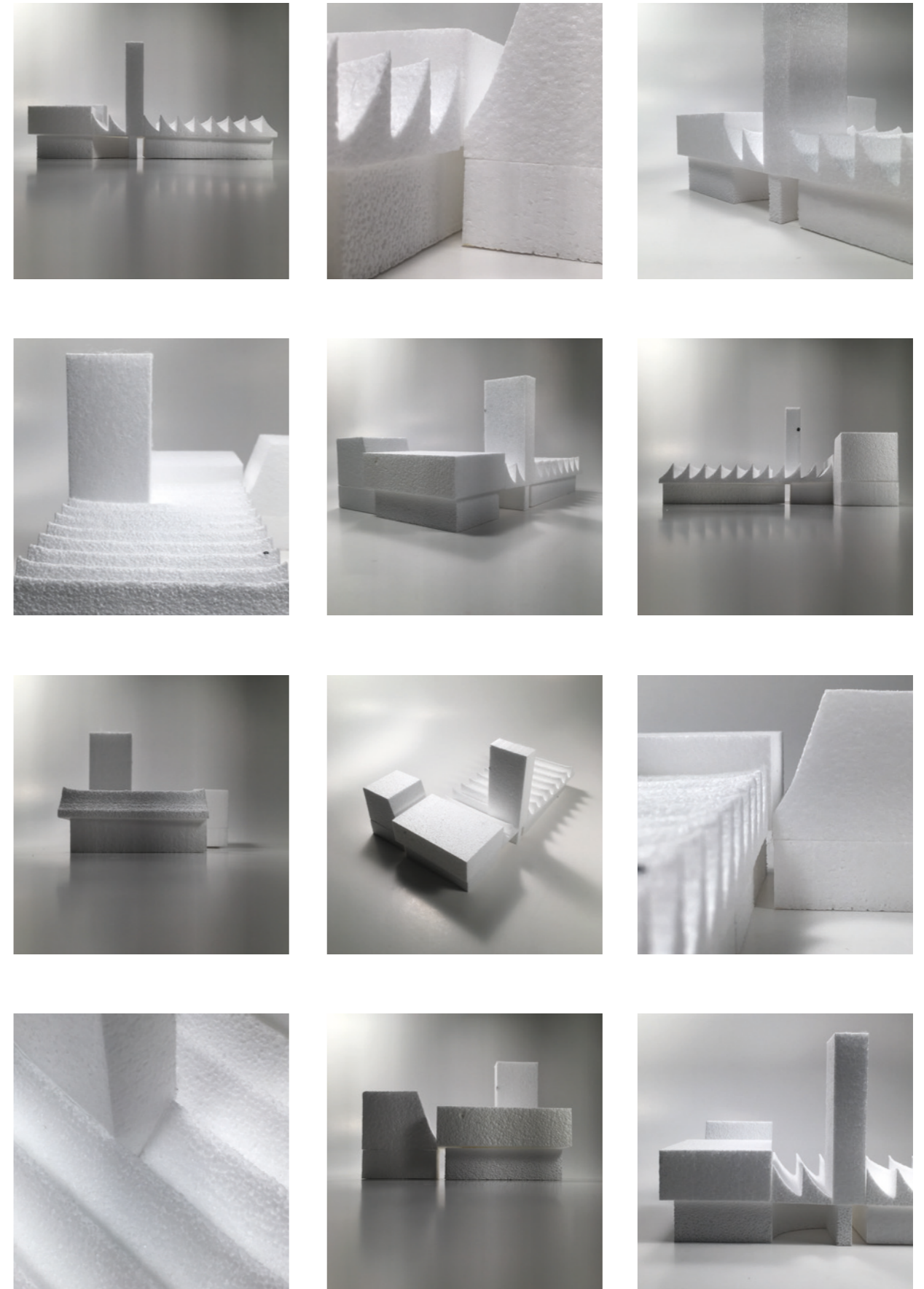


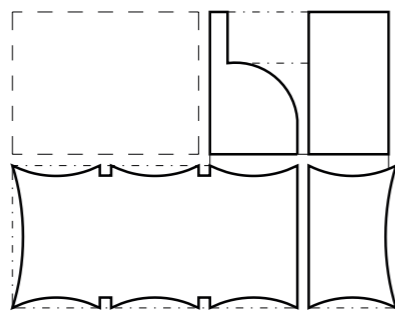
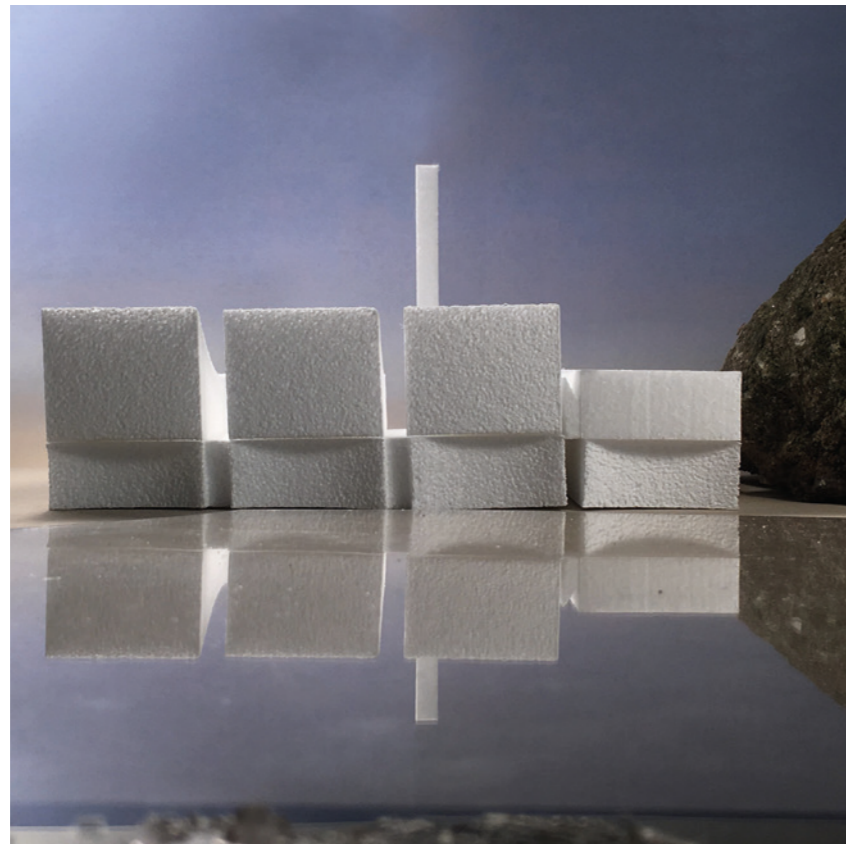
F: 1 080 m2 + 500 m2 (outdoor)





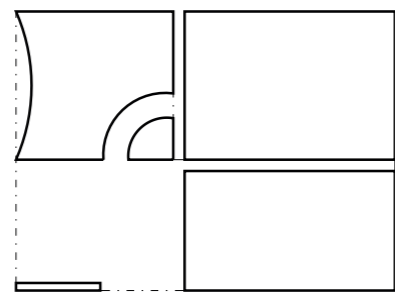
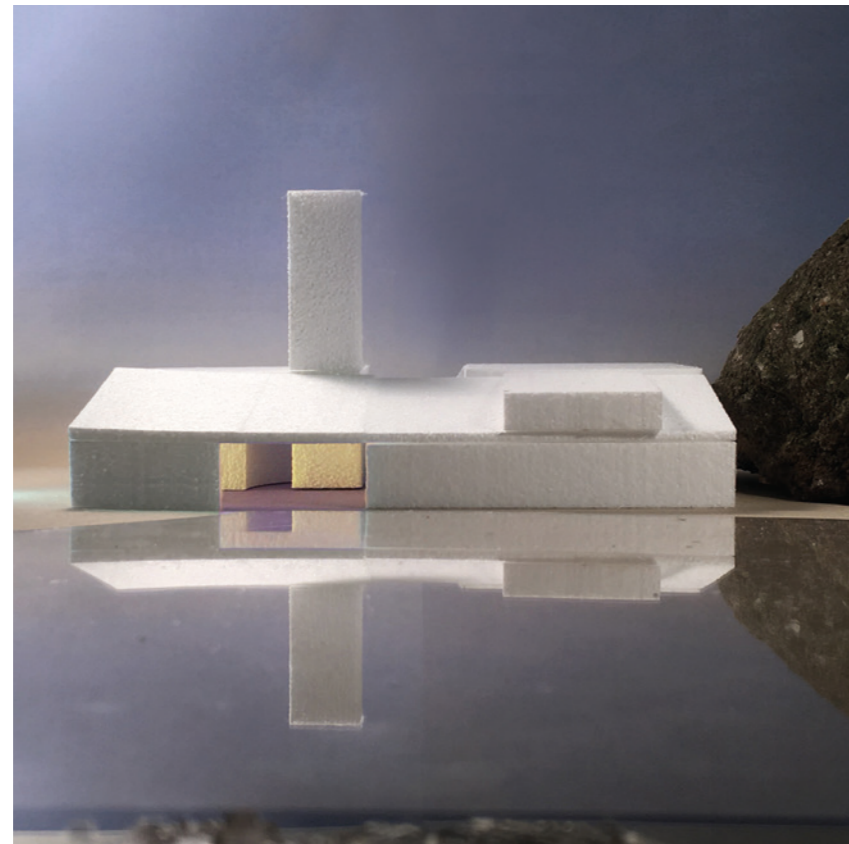
G: 1 100 m² + 500 m² (outdoor)



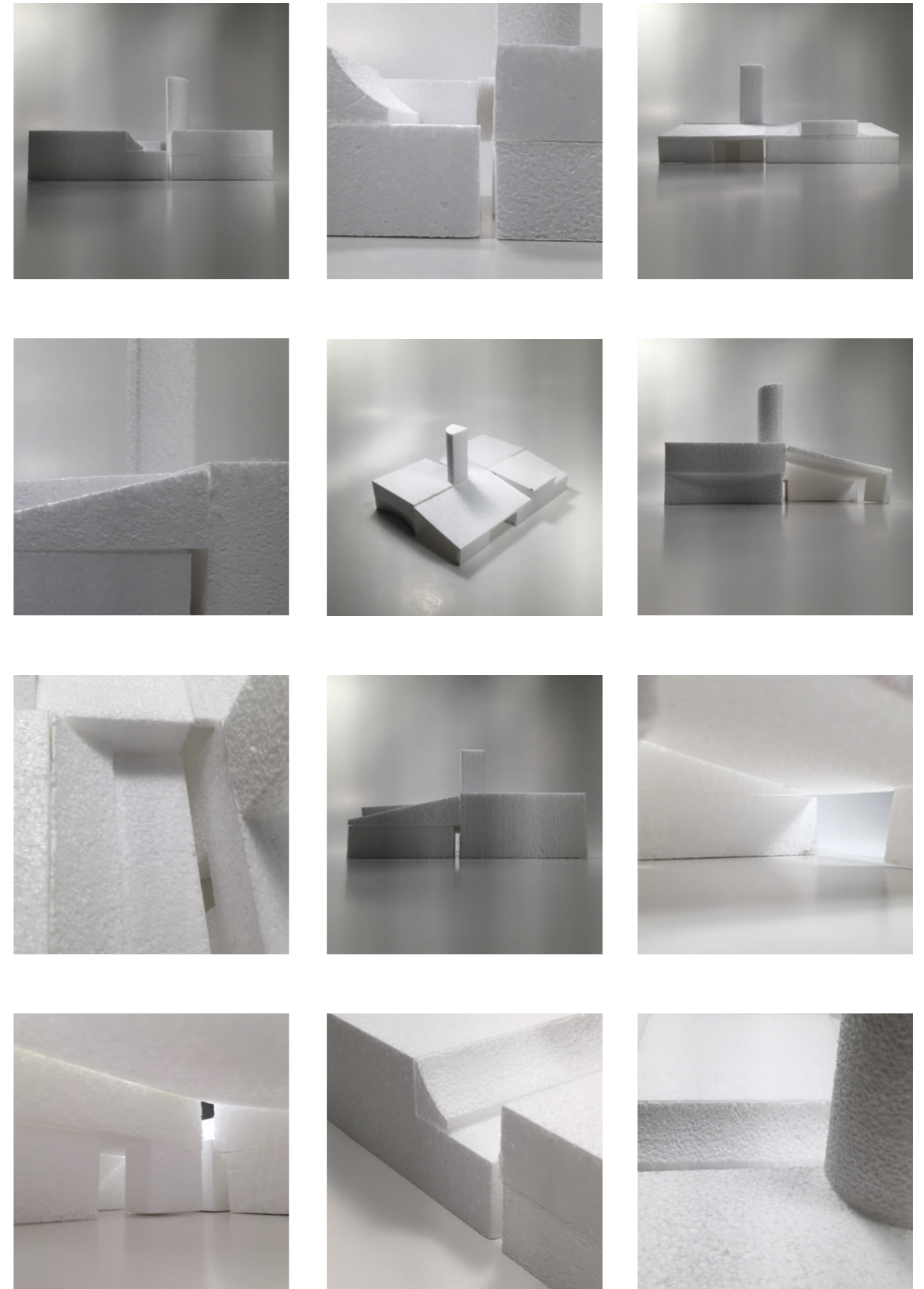


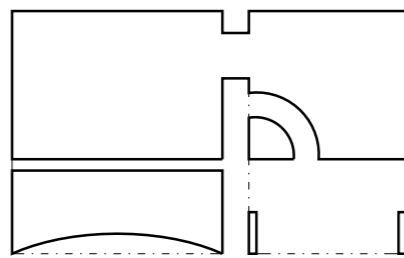
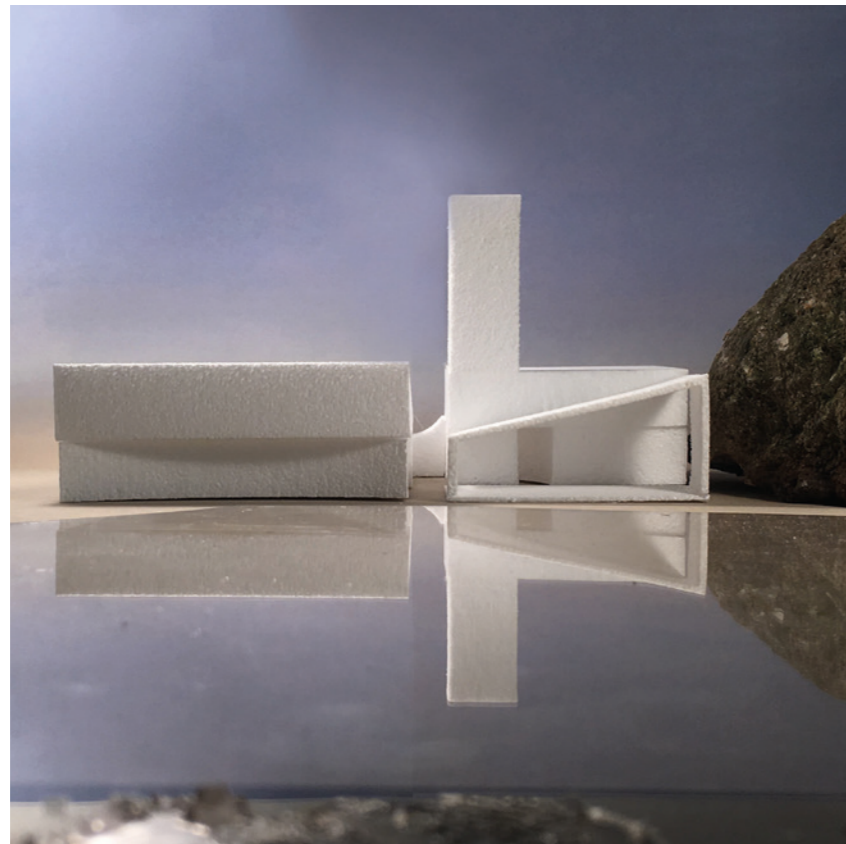
H: 1 150 m² + 460 m² (outdoor)



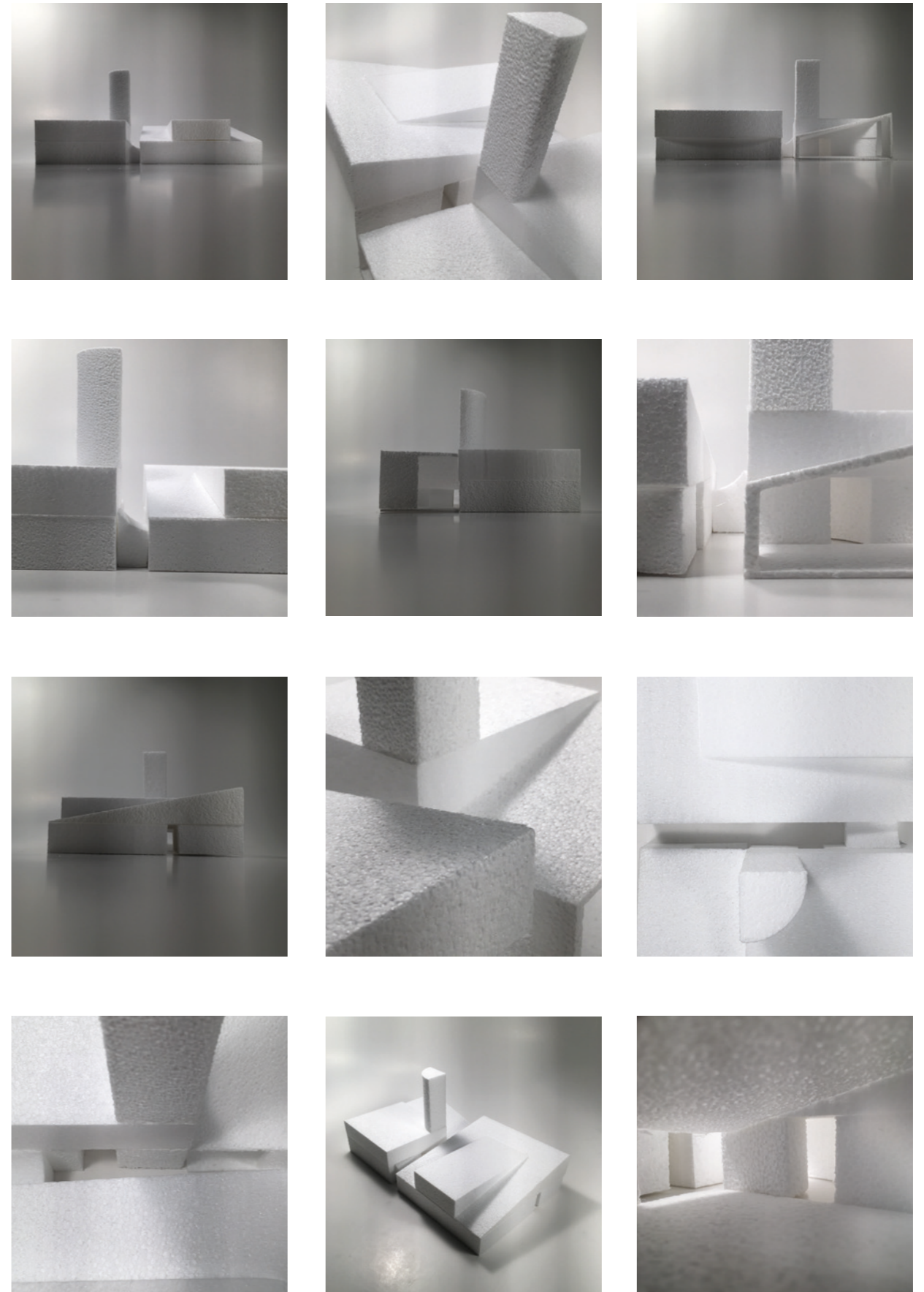


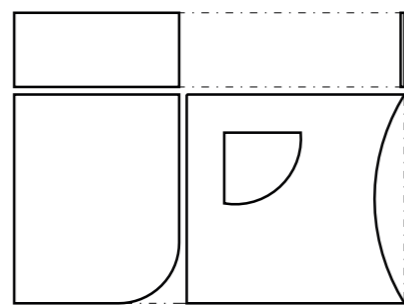
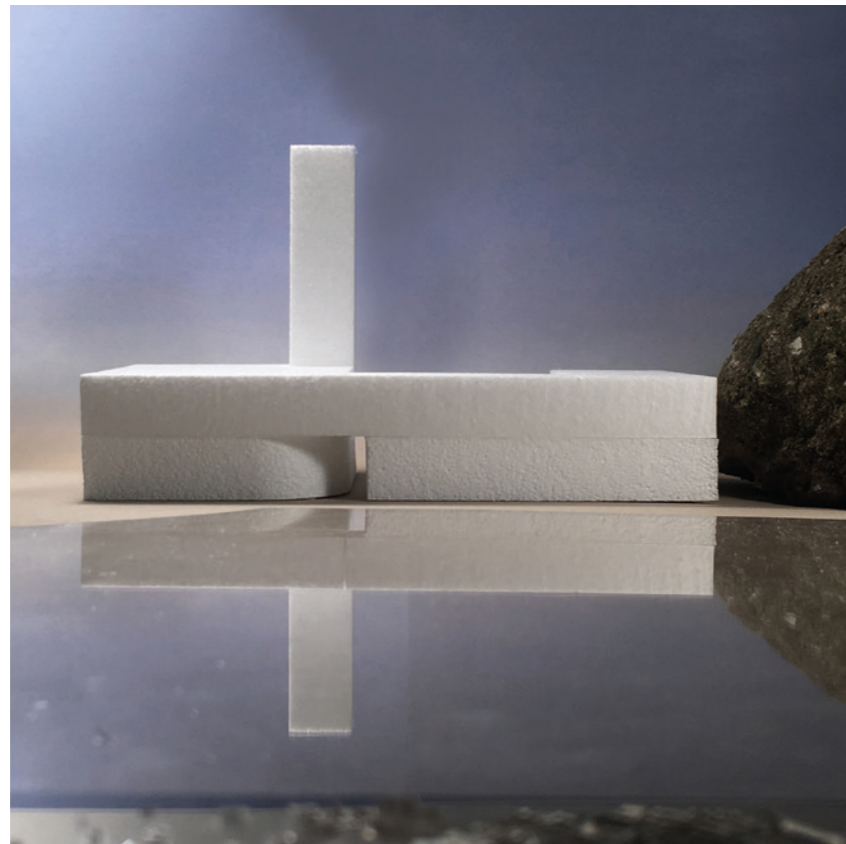
I: 1 320 m2 + 350 m2 (outdoor)



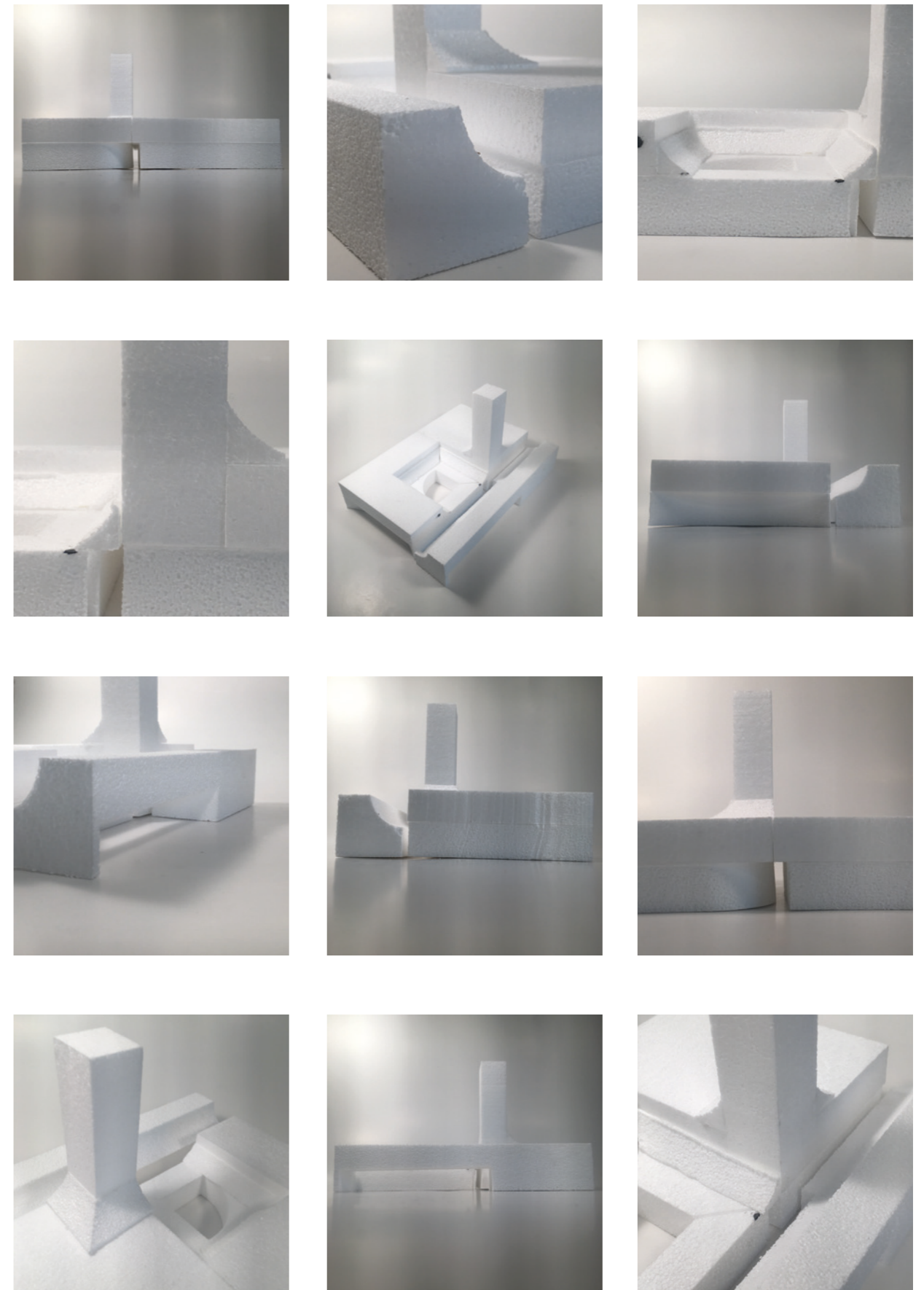


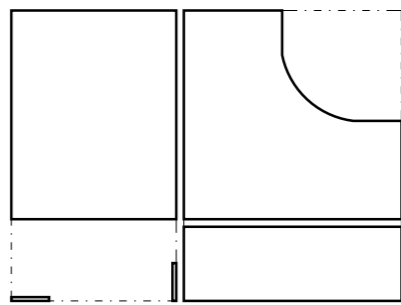
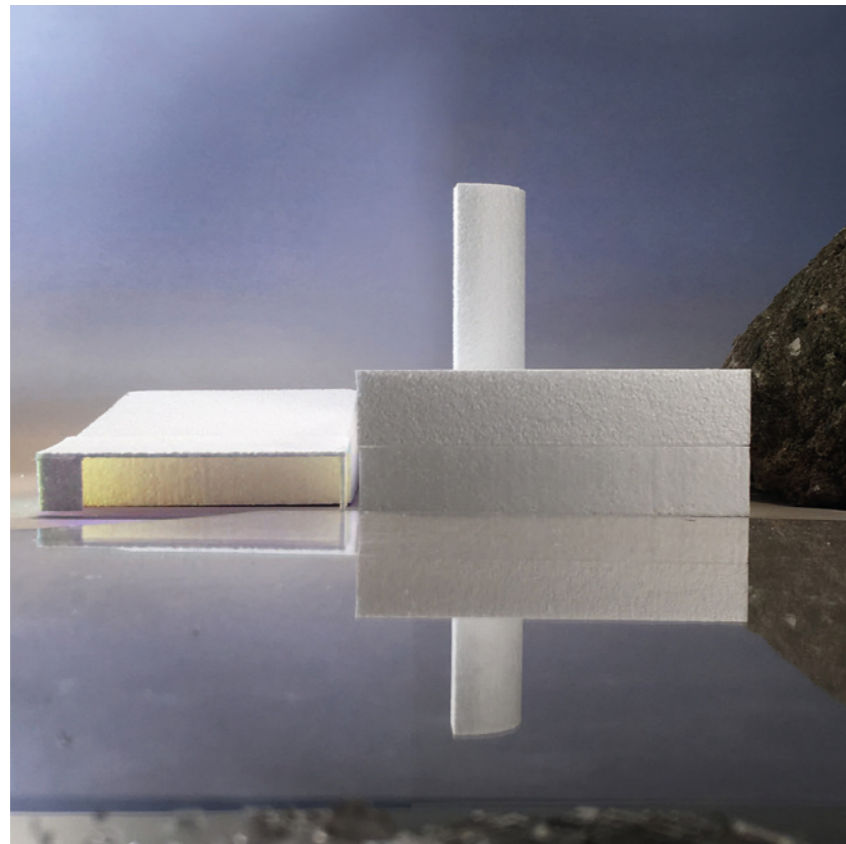
J: 1 190 m² + 260 m² (outdoor)



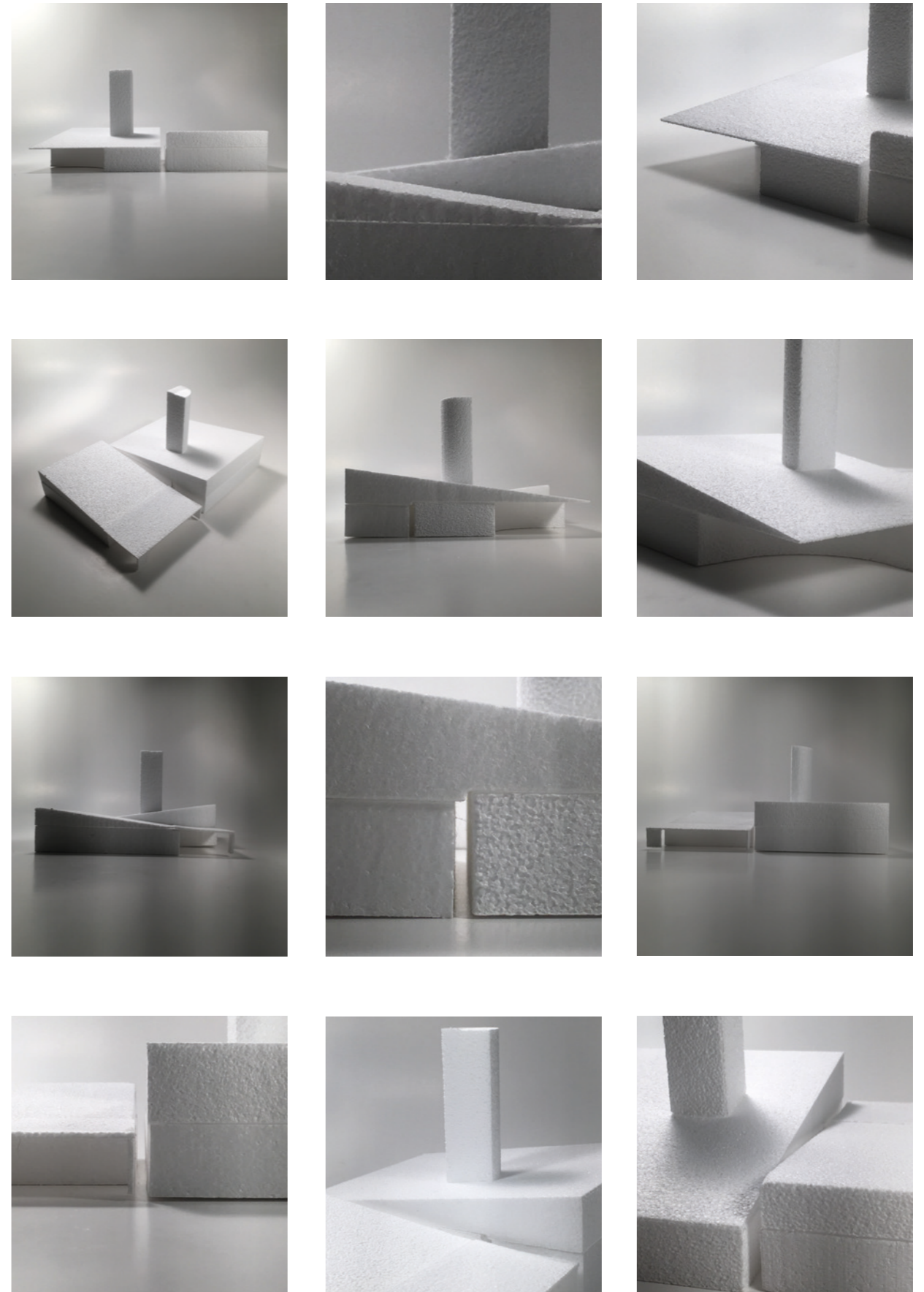


K: 1 450 m² + 290 m² (outdoor)

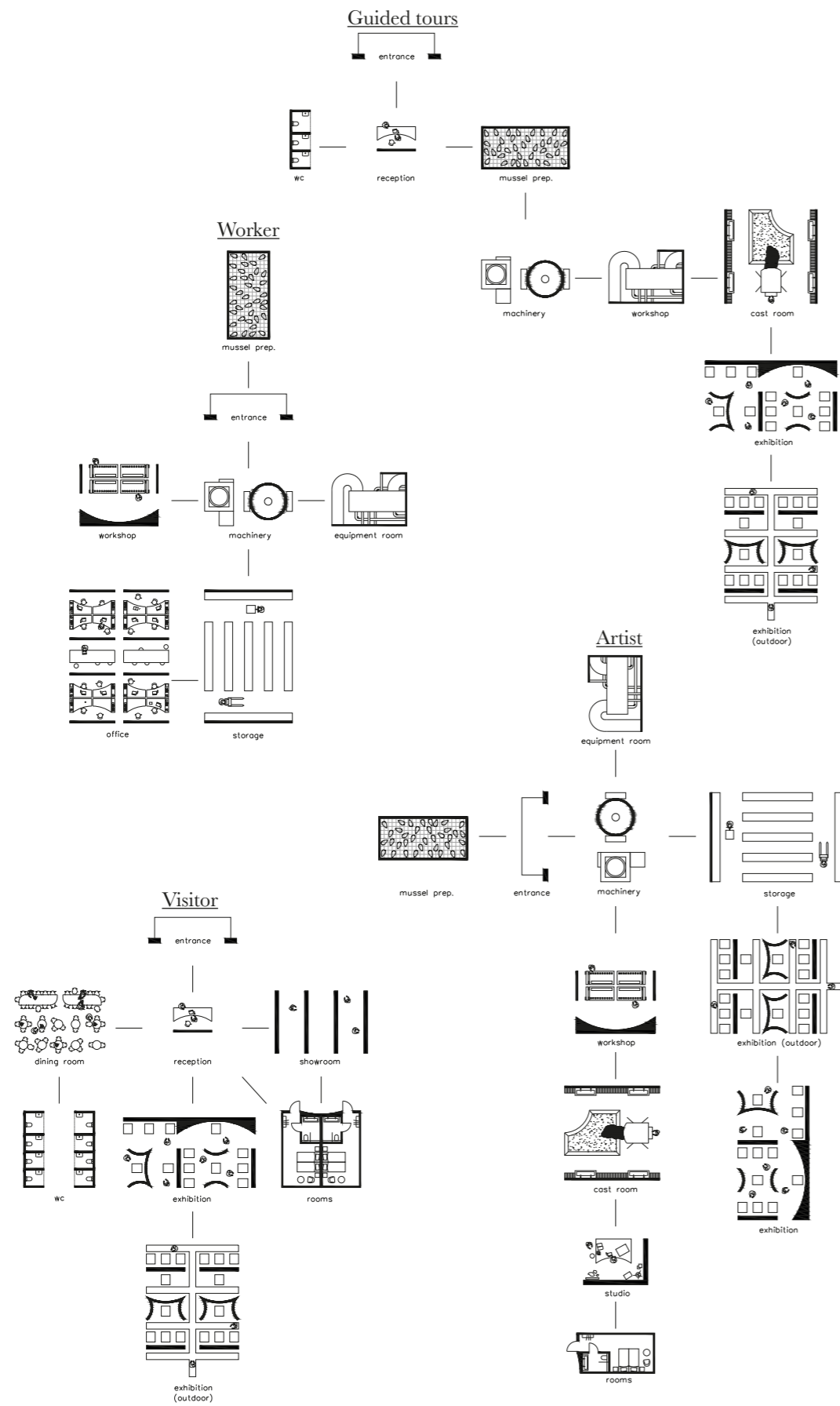




L: 1 450 m² + 450 m² (outdoor)

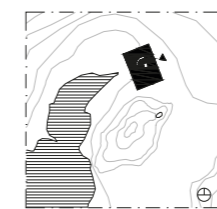
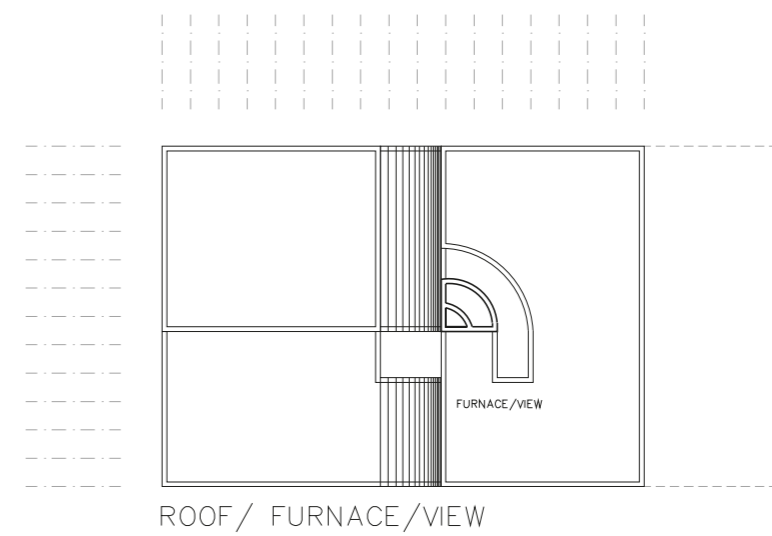
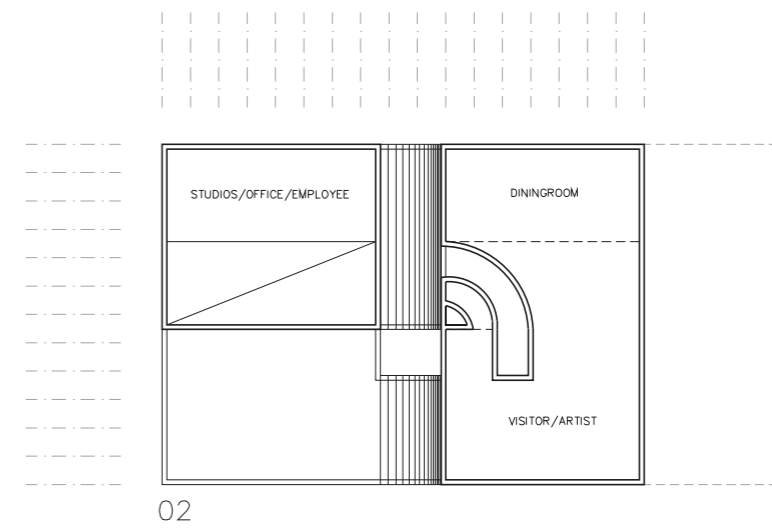
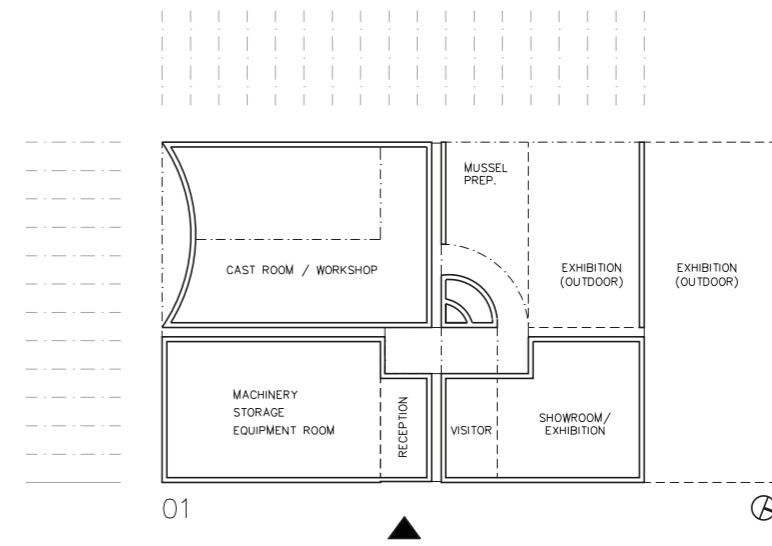
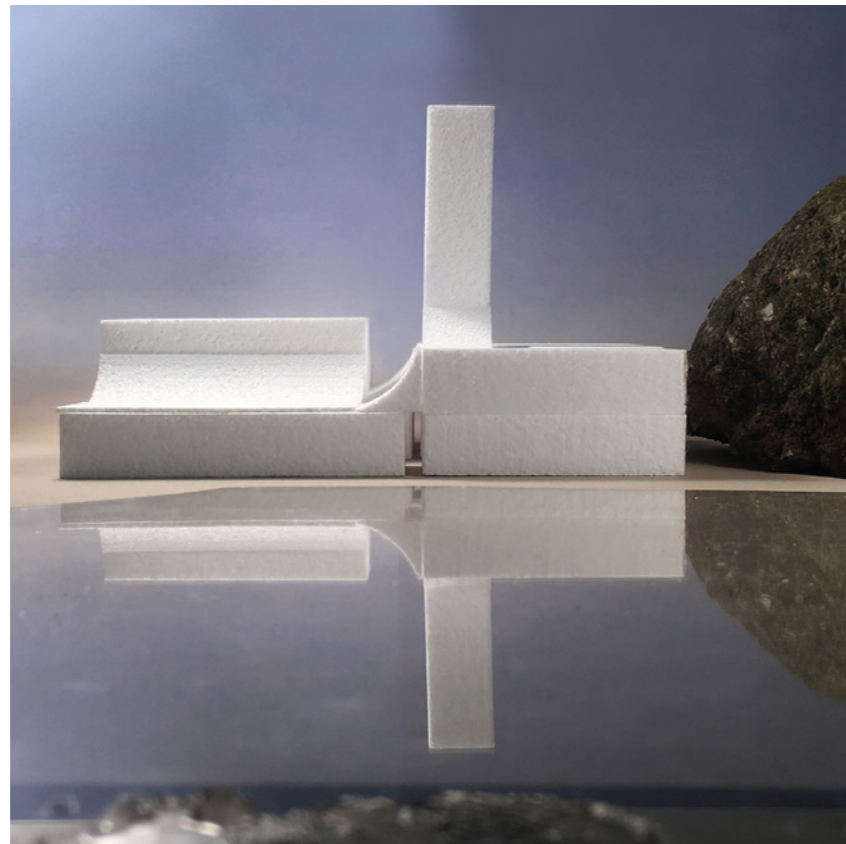


FLOW CHART

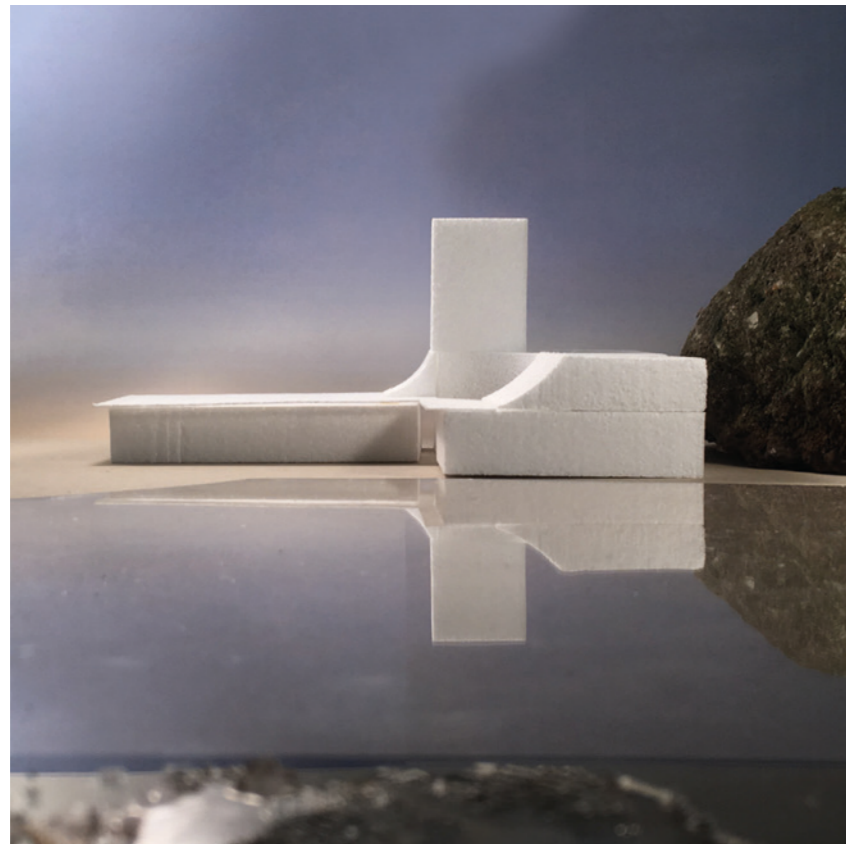


About

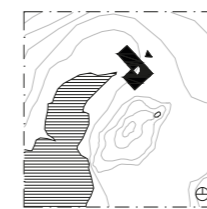
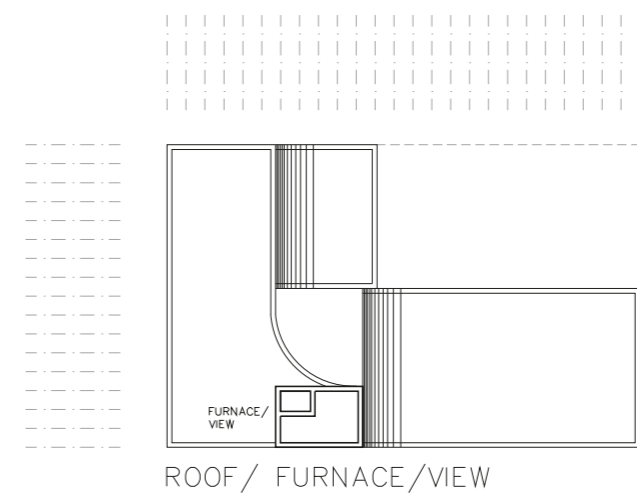
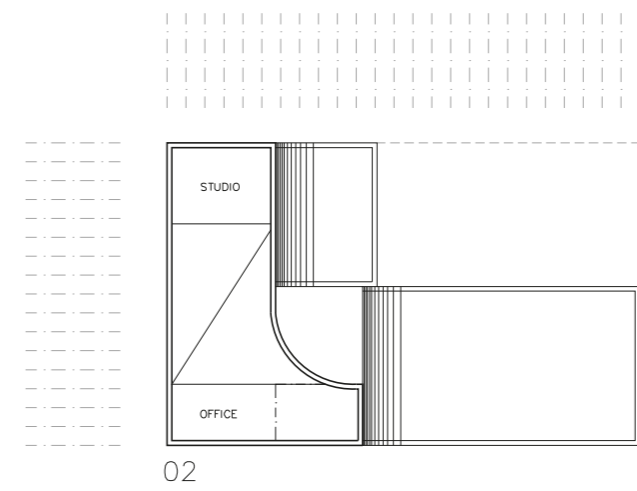
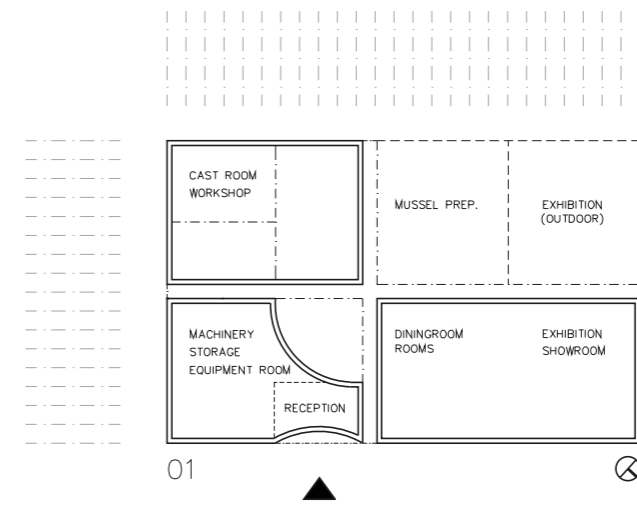
We started with a list of essential rooms in the building, based upon our own process including the initial sketches to the final casting. To further understand the logistic within the building we did different flow-charts of different users that will occur. We then used these flowcharts and some of the guidelines as base for initial sketches of plans. Selected plans were chosen, based on their relation to the program and guidelines, for volume test. Chosen volumes were then crash-tested with the programs applied to the footprint, giving basic, reasonable layout of the plans.



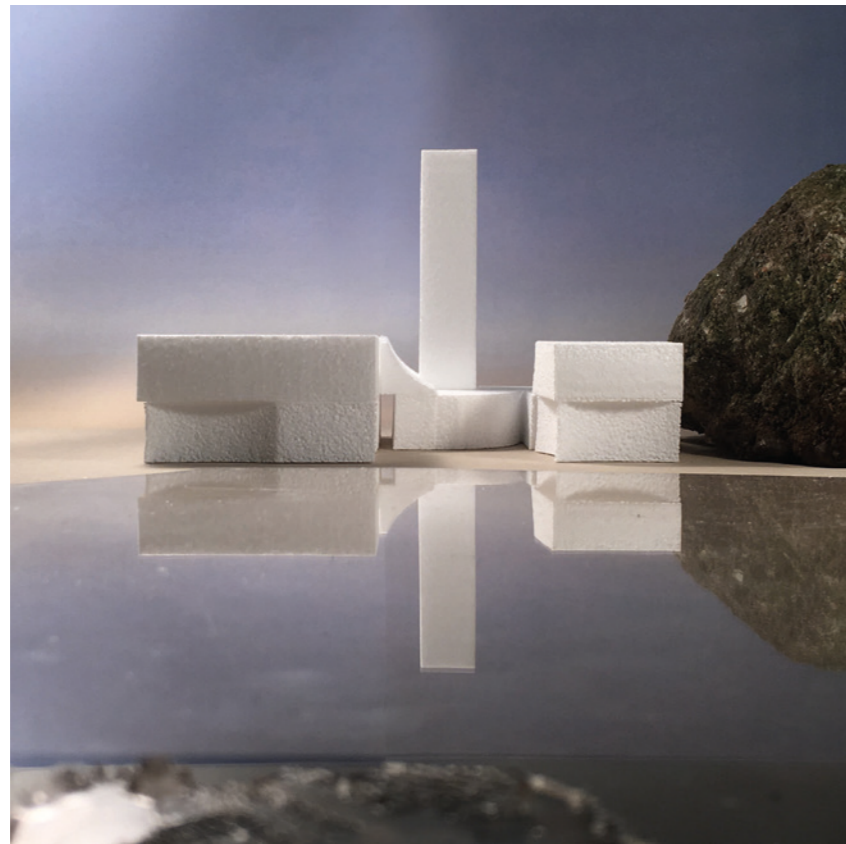
ORIENTATION



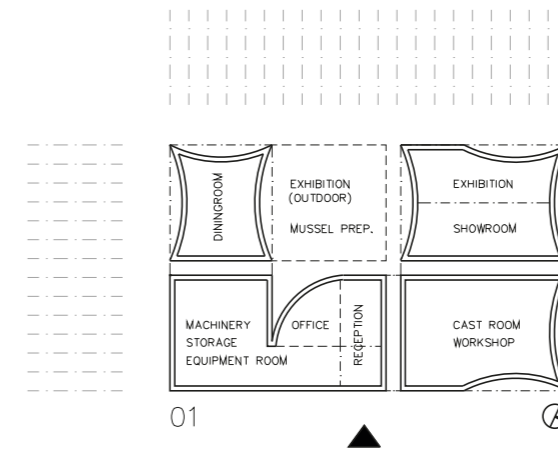
C



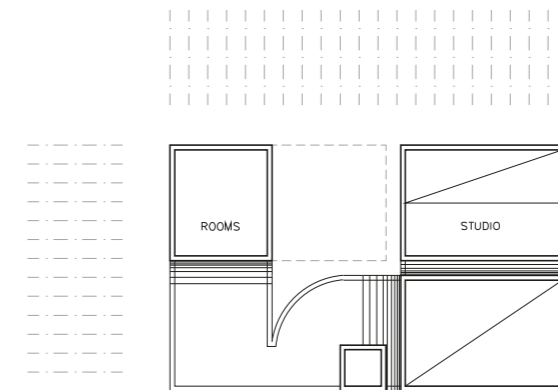
ORIENTATION



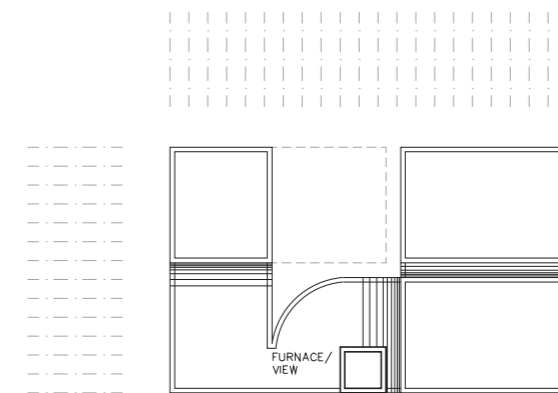
D



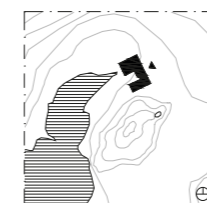
01



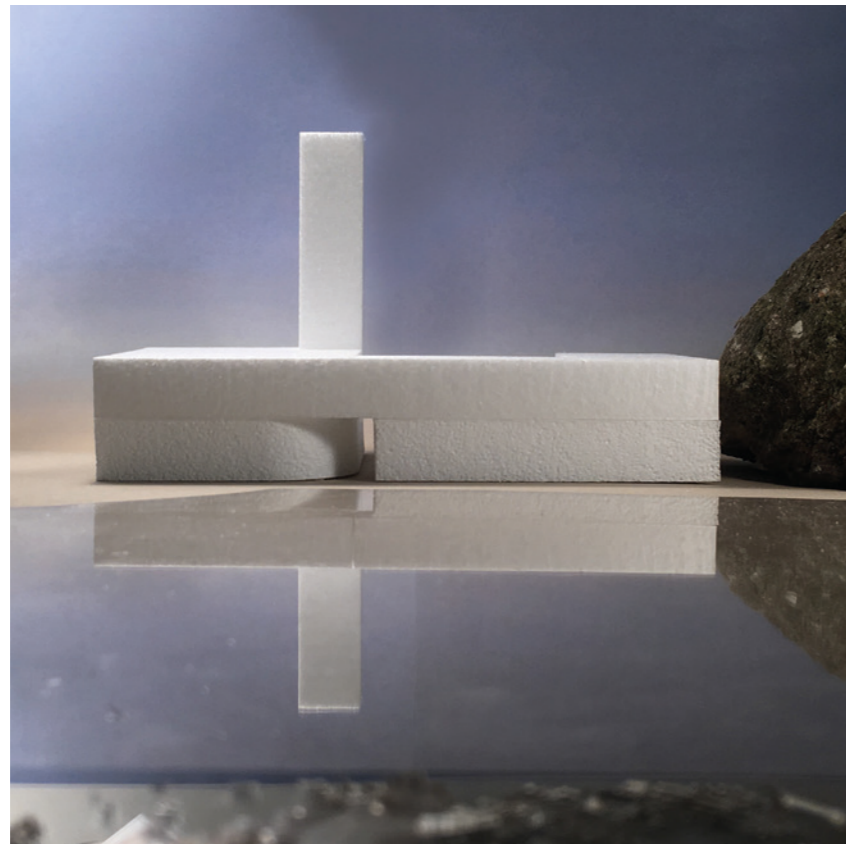
02



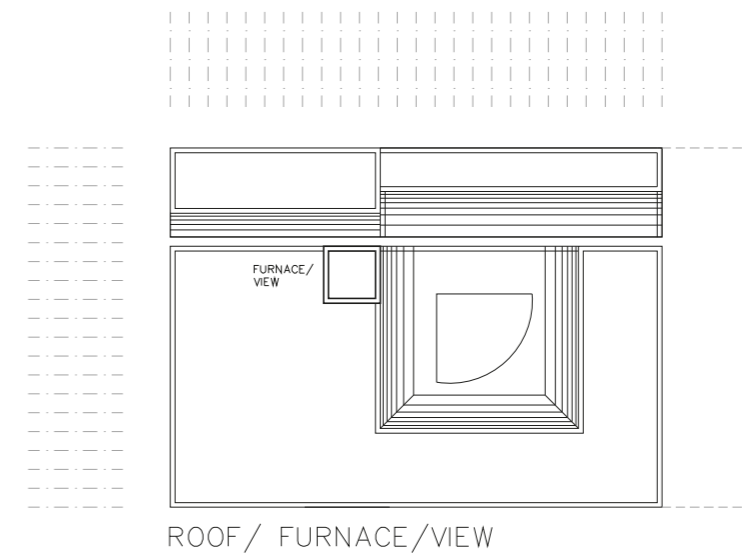
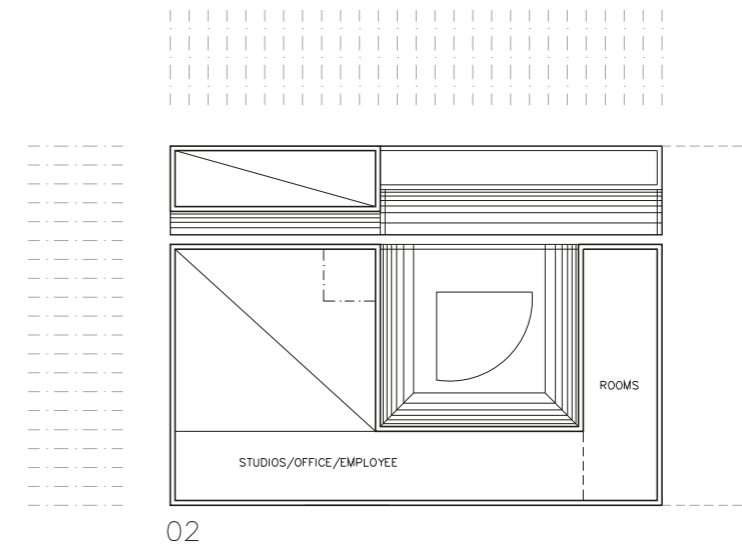
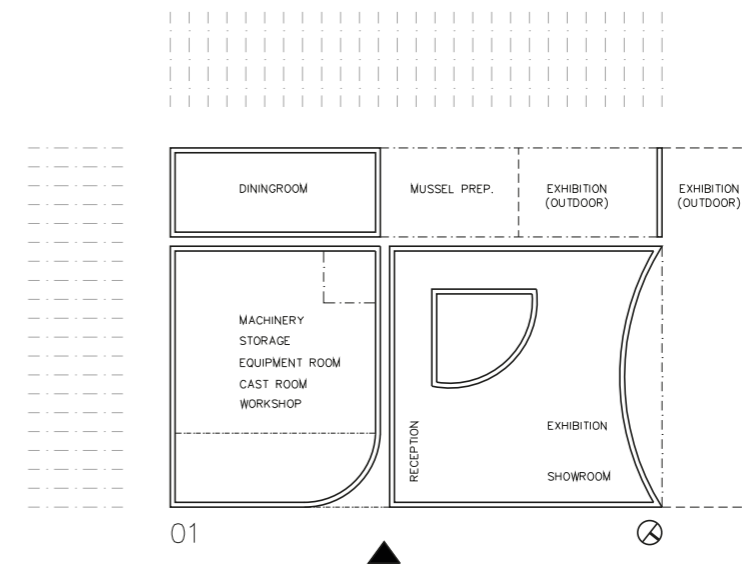
ROOF / FURNACE / VIEW



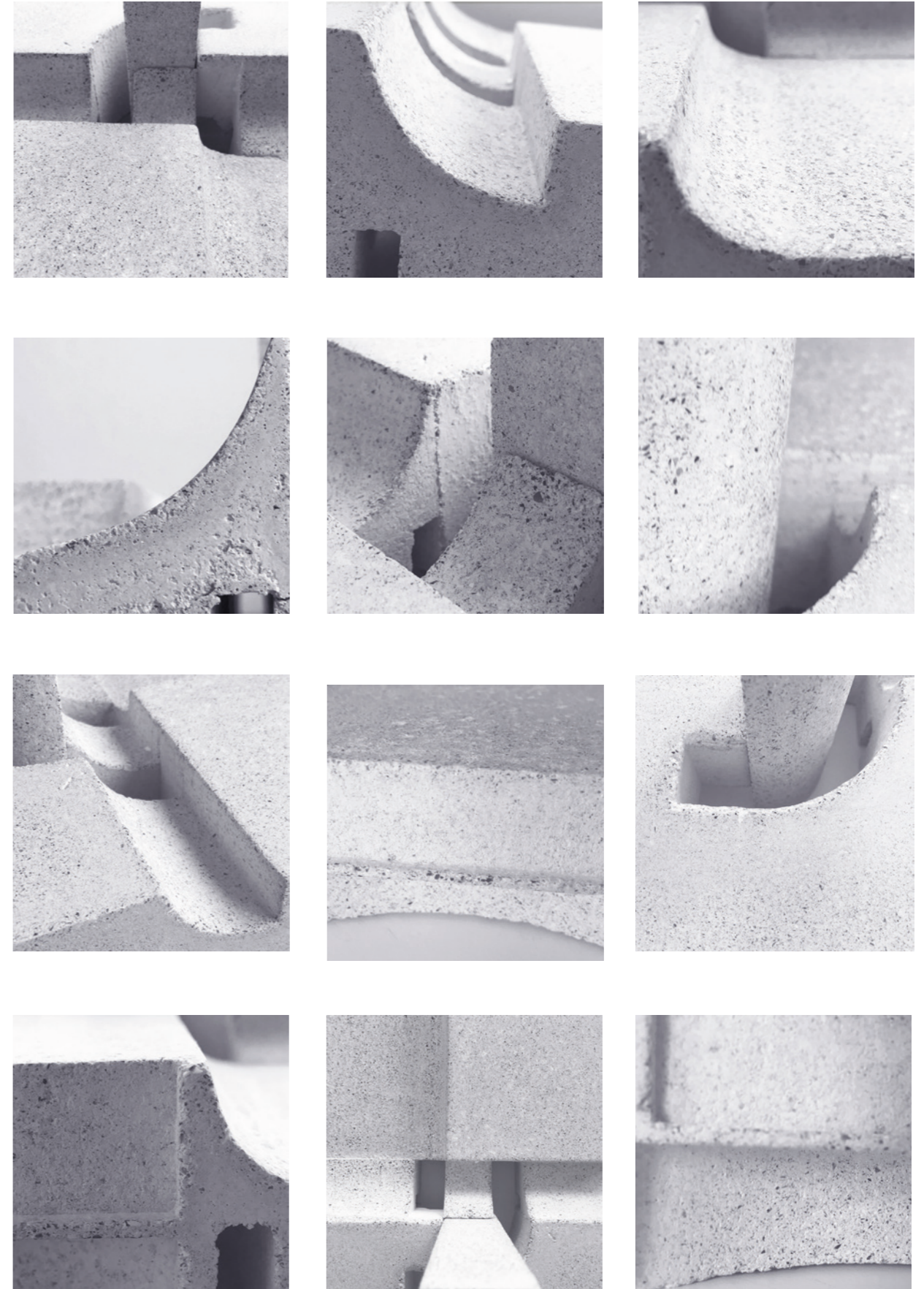
ORIENTATION



K



ORIENTATION



Reflection

The volume studies gave us a coherent design approach for the large scale in the project. The set scale (1:200) was purely meant for testing the volume, with that in mind some of the volumes needed an explanation for where the perforations in the wall is needed. There was also the aspect of facade material where some of the façades needed a difference in the material to highlight some parts of the design guidelines.

Though we chose four (A, C, D, K) models to investigate further in plan and in the end chose one (A) for the final design proposal we took elements that we found throughout the volume-process and incubated them in the final design.

The design proposal included some tweaking to the chosen volume and some adjustments due to the landscape, placement of windows and materiality.

