

# Re-produce the past for the future



**CHALMERS**

Re-produce the past for the future  
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Spring 2021

Master's Programme in Architecture and Urban Design  
Chalmers School of Architecture  
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## Abstract

Gothenburg is going through an extensive transformation. Central areas located around the harbor that in the past were reserved for Gothenburg's several important industries, is today under development, as many of the industries by time closed down.

The intent of this project is to build a connection between the past and the future to create a sense of continuation in the architectural landscape. Because, as time goes a significant cultural-historical period in Gothenburg risk to be forgotten.

The focus is to explore a set of methods to interpret references from that period of time in Gothenburg and reframe in four contemporary architectural proposals that reminiscence of a significant period of time in Gothenburg.

Since the birth of Gothenburg in 1600s the shipping industry has been the vein of the city. In the 1800s three shipyards were founded in Gothenburg that later developed to be the largest in Sweden; Göteborgs Mekaniska Verkstad, AB Lindholmens Varv and Eriksbergs Mekaniska Verkstads AB. The shipyards together with the import and export made Gothenburg to the most important harbor in Scandinavia in the beginning of the 1900s. Götaverken had in the 1930s become the largest shipbuilding company in the world with almost 6000 employees. But, the shipyard crisis in the 1970s had a large effect on the industry and an era of shipbuilding in Gothenburg ends.

The process of the project is structured under the word production. Production is described: the action of making or manufacturing from components or raw materials. Production relates to the situation of this project; the industry and the chain of acts that exist in an industrial production system where every part in the process are connected and dependent on each other in order to generate a product. The process is structured around three phases; form, operate and mount.

The starting point for this project is a set of specific drawings that could be traced back to Götaverken and the industrial landscape that once existed. The drawings dated 1915 are commissioned to be made at Götaverken and represent various mechanical components that were produced at the shipyard.

The project deals with the following question; how can we develop methods to materialize the connection between the past and future?

Keywords: industrial landscape, critical regionalism, context

## Critical regionalism for our time?

Within the practice of architecture today there is a strive to create architecture that connects to place and context.

This project is situated in Gothenburg, a city where many of the central areas are going through extensive transformations. Central areas located around the harbor that in the past were reserved for several important industries, is today under development, as many of the industries by time closed down. The intent of this project is to build a connection between the past and the future to create a sense of continuation in the architectural landscape. Because, as time goes that part of the history risk to be forgotten. The focus is to explore a set of methods to interpret references from a significant cultural-historical period of time in Gothenburg. These references are a set of drawings that were found in the research, they are dated 1915 and represent various mechanical components that were produced at the shipyard Götaverken. At first sight, I was intrigued by their aesthetics although I couldn't completely understand the function of the components. Then I was attracted by the idea of continuing the project to further explore these drawings.

To get influenced and borrow styles are a most common method within the architectural profession throughout history. In this project the focus is the interpretation of the found drawings. Could it be a link to the ideas of critical regionalism?

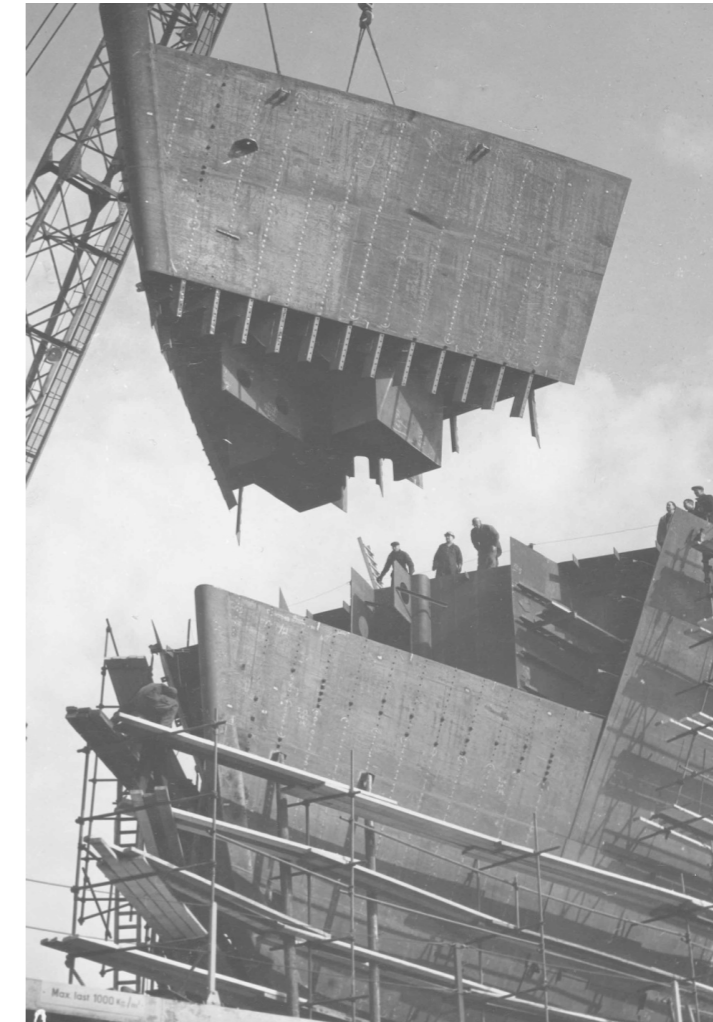
Critical regionalism is an approach to architecture with visions to build architecture that are rooted in the modern tradition and connected to a geographic and cultural context. It emerged in the early 1980s as counter-reaction to the Modernism which was criticized for its lack of identity and place lessness.

When architect Kenneth Frampton, one of the front figures, describes critical regionalism he refers to a quote by philosopher Paul Ricour which ends "...There is this paradox: how to become modern and to return to sources; how to revive an old, dormant civilization and take part in universal civilization." (Frampton,1983) What

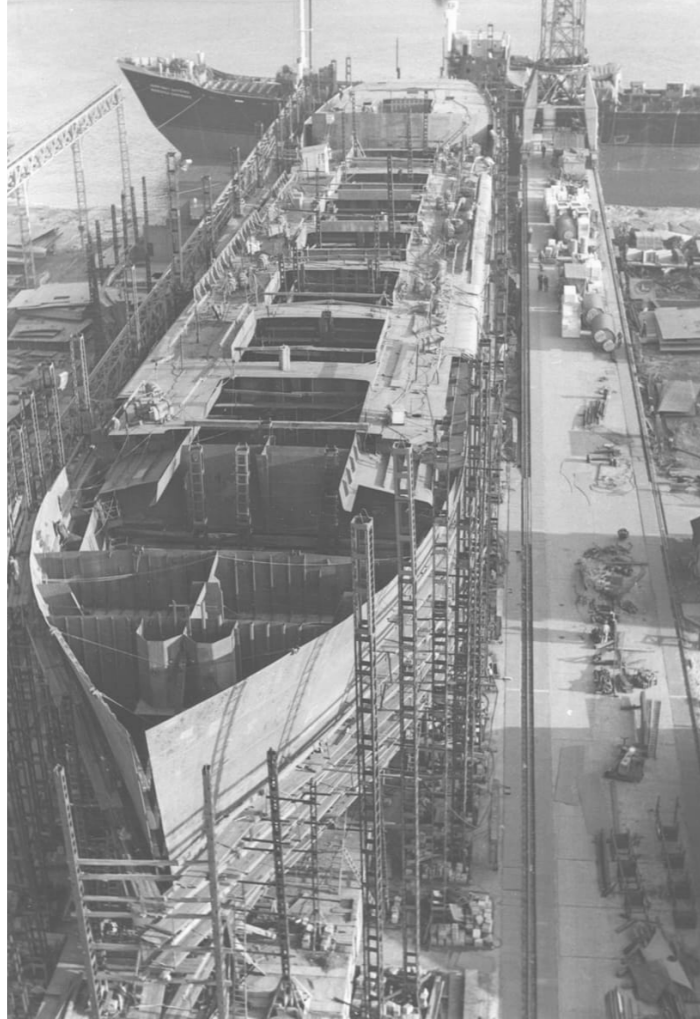
Frampton then addresses is this conflict in one hand being modern and on the other hand be able to return to ones roots. This is the fundamental principal of critical regionalism; to manage that gap backwards in time without being deducted by it. This forms a contradiction between high lightening and strengthening the tradition and region and on the other hand absorb the world culture and get inspired by other cultures to avoid stagnation and regression. (Grillner,1994)

One can wonder about the actuality of a text written almost forty years ago. In a recent written essay "Critical Regionalism for our time" the authors claim that the resonance and impact that Frampton's text had on architectural culture is undeniable. Frampton arguing against ideas of sign, symbol or irony, brings notions about authenticity, tactility, materiality and tectonics, perspectives that concerns ecological, economic and political challenges that the architectural profession are facing today. "But beyond that, Frampton's text has a compelling character: it frames new forms of practices and new imperatives linked to place and context." (Szacka, Patteeuw,2019)

One of the key elements in critical regionalism is reinterpretation of traditional building elements, signs, typical form expressions, that are taken out of its context and placed in a new. This could be read as a fusion between a semiological and phenomenological strategy – signs that are translated into history and at the same time gives recognizable associations and a sense of affinity to the place. This is also the parallel drawn to this project where the interpretation of the references, the historical drawings that that could be traced



Ship under construction at Götaverken.  
Source: Sjöfartsmuseet Akvariet, Sjöhistoriska museet



Ship under construction at Götaverken.  
Source: Sjöfartsmuseet Akvariet, Sjöhistoriska museet

## A history of trade and shipbuilding industry

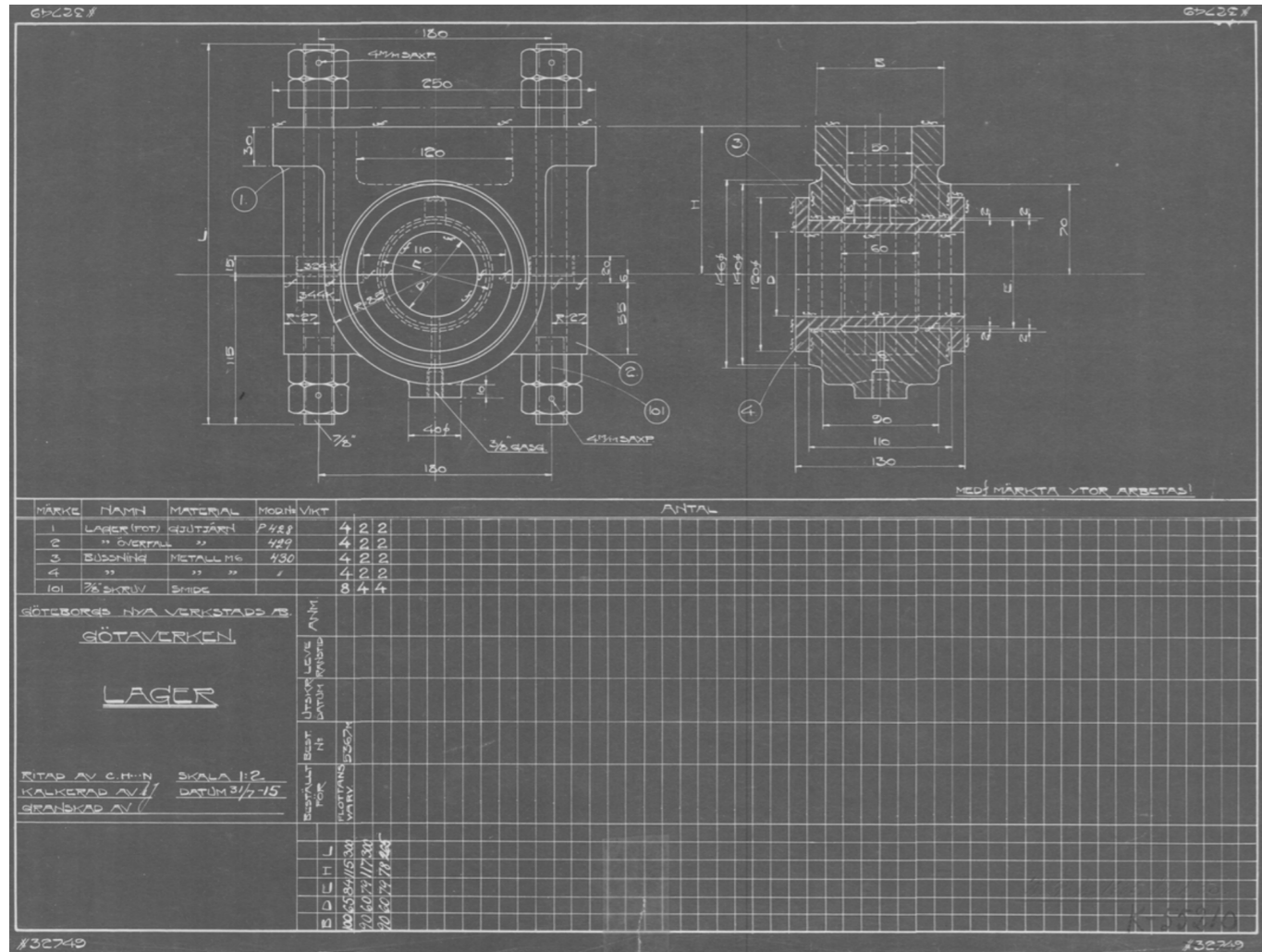
In the 1700s Gothenburg harbor became an important trading center in northern Europe. The foundation of Ostindiska Kompaniet, the first international trading company in Sweden, opened up the possibility to ship goods to China and the Far east. The export of iron and timber together with sugar and tobacco and the fishing of herring were other industries that benefited the economy at that time.

In the 1800s three shipyards were founded in Gothenburg that later developed to be the largest in Sweden; Göteborgs Mekaniska Verkstad, AB Lindholmens Varv and Eriksbergs Mekaniska Verkstads AB.

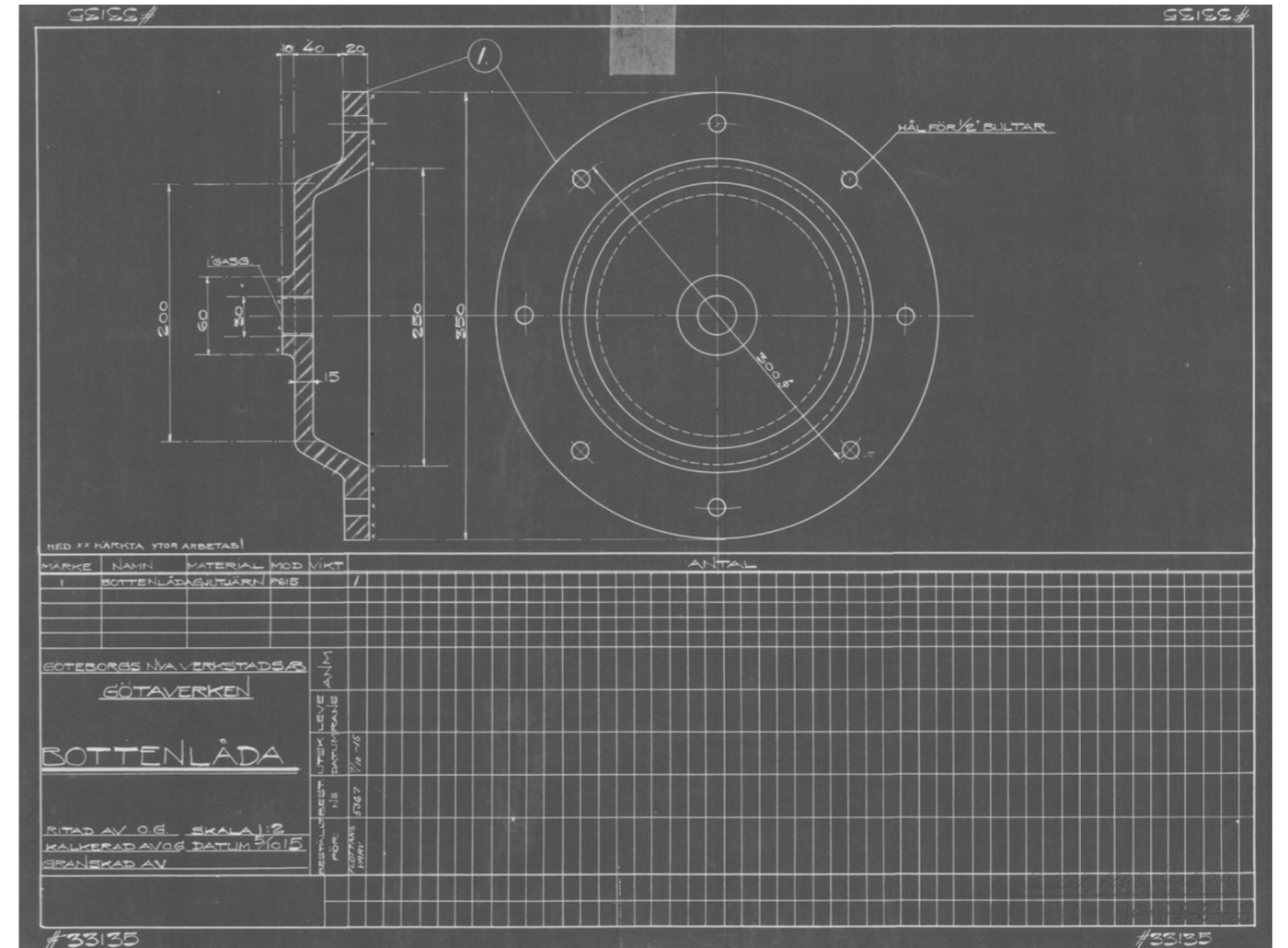
In the beginning of the 1900s Gothenburg had become the most important harbor in Scandinavia, the dominating industries were shipping lines and shipyards. In the 1930's Götaverken was the largest shipbuilding company in the world with almost 6000 employees. But, the shipyard crisis in the 1970s had a large effect on the industry and an era of shipbuilding in Gothenburg ends. Today, the harbor areas previously reserved for various industries are transformed into new residential areas and others are under development.

The curiosity to understand more about the industrial history of Gothenburg led me to these references, old drawings from 1915 that could be traced back to Götaverken, one of the largest shipyards in Gothenburg at that time. At first I was intrigued by the aesthetics of the drawings and the information they had; the names. I could understand them as some sort of mechanical components, probably smaller parts to be assembled to something bigger with connection to the shipbuilding. Some of the drawings are presented in the following pages.





Original drawing from Götaverken. Source: Digitalmuseum, Marinmuseum. Component 32-33.



Original drawing from Götaverken. Source: Digitalmuseum, Marinmuseum

## References

### Method and representation

In this project the references are used as tools of inspiration to support the process and focus has been on the strategies rather than the aesthetics.

1. The drawing language used in patent drawings and engineering drawings.

2. Pezo von Ellrichshausen

The images, often axonometric oil paintings or pencil drawings, by architect Pezo von Ellrichshausen represent a vision of architecture. The clean images show a ideal object without presence of surrounded circumstances, but many of the images infact can be linked to actual built projects.

3. TEN Studio

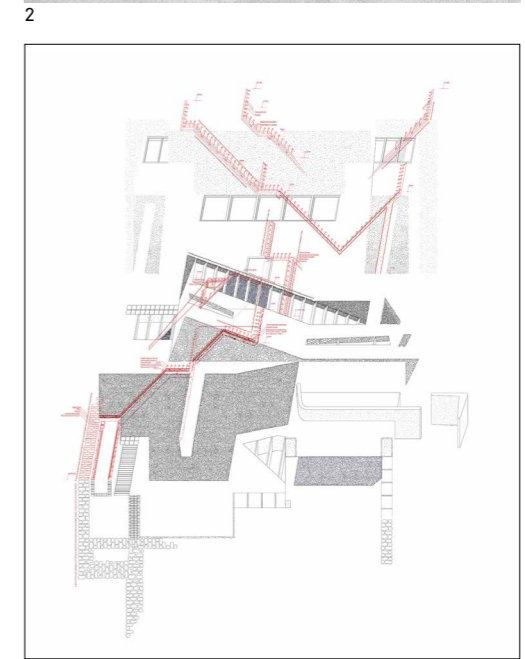
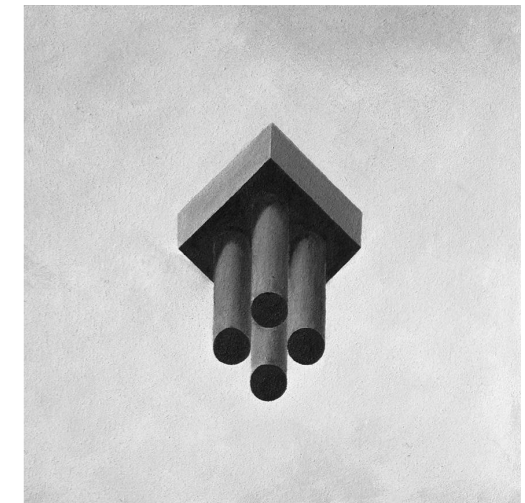
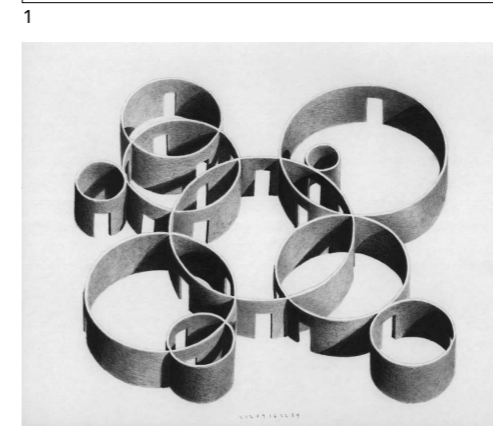
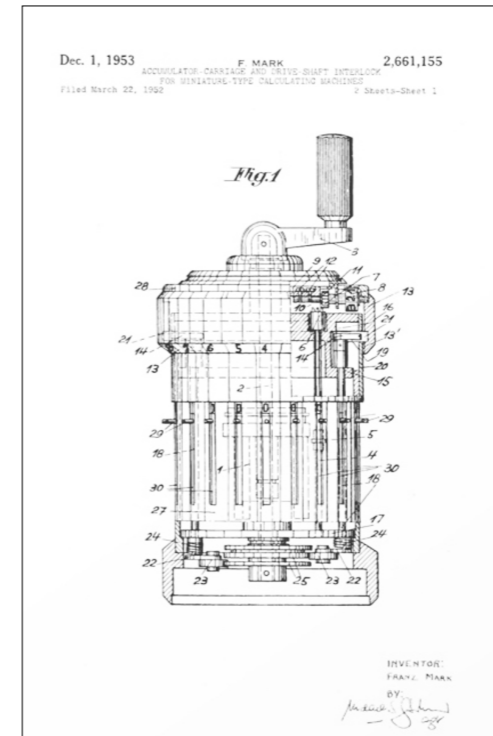
The representation drawing by TEN mix lines with surfaces in a illustrative and almost complex way.

4. House 13; House parts collected, MOS Architects

This project shows a way of working with form and building elements that can be assembled in different ways and still maintain a common language.

5. House 14, MOS Architects

In this project different elements are categorized and then assembled. House assembled; 1 roof, 3 windows, 1 door, 1 chimney, 2 skylights, 1 fire pit.



## Process and method

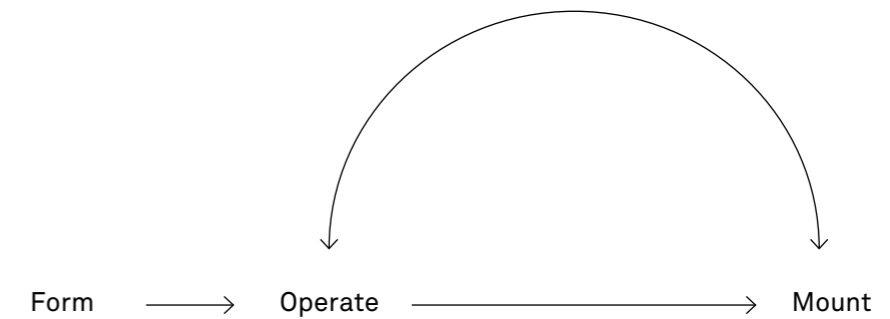
Production – *Production is the action of making or manufacturing from components or raw materials*

The process of the project is structured under the word production. Production relates to the situation of this project; the industry and the chain of acts that exist in an industrial production system where every part in the process are connected and dependent on the act before and after in order to generate a product. The process is structured around three phases; form, operate and mount.

In the first phase *form* the raw material is gathered and introduced. The raw material is the references found in the initial research and consists of a set of drawings dated 1915 and represent various mechanical components that where produced at the shipyard Götaverken.

In the second phase *operate* the focus is to explore a set of methods to interpret the references and translate these non-architectural components into architectural elements to combinate.

In the third phase *mount* the outcome of explorations is reframed in four contemporary architecture proposals placed in the harbor areas close to the shipyard's former location.



## Phase 1: Form

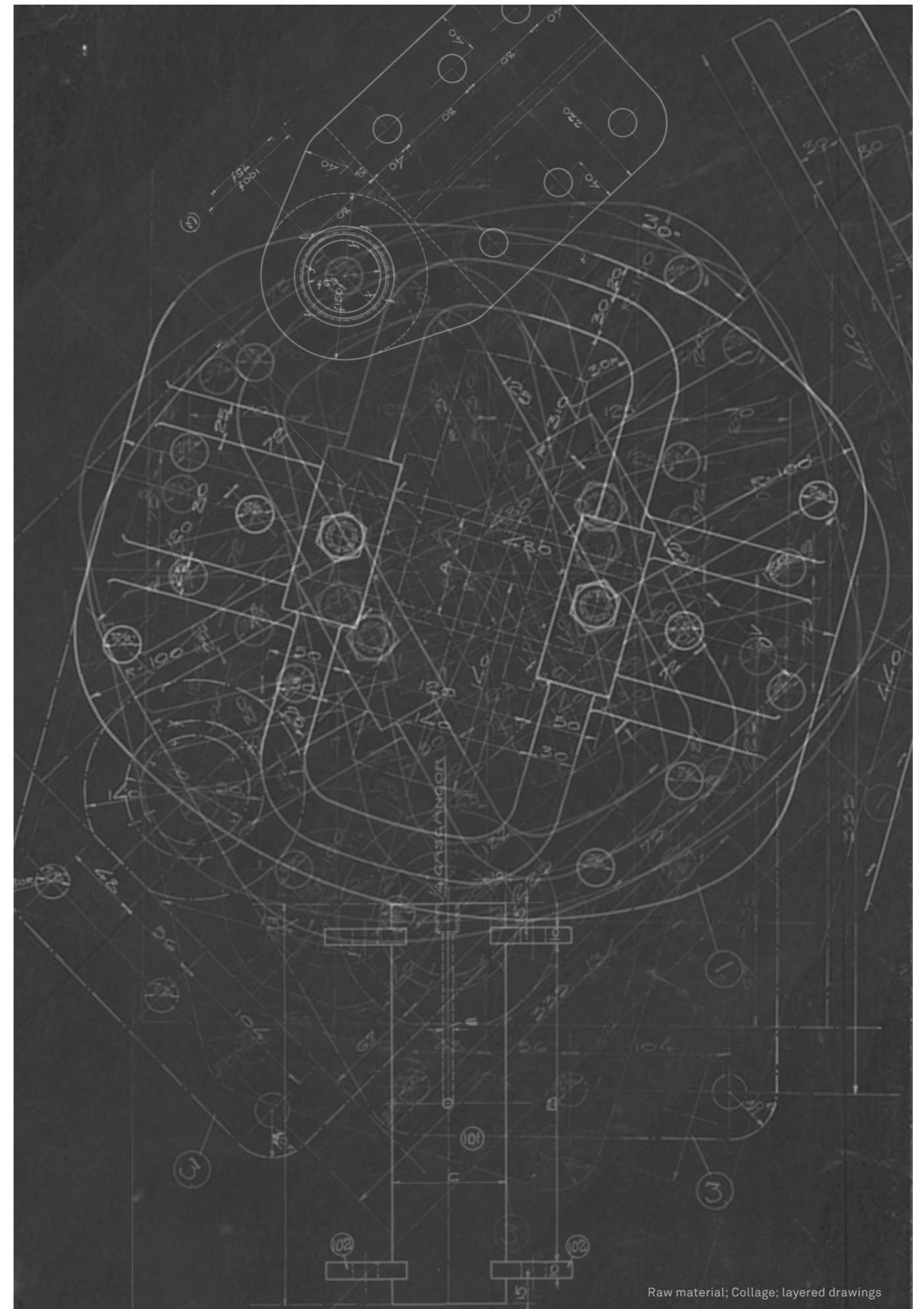
### Mechanical components as form generators

The starting point in this project is a set of drawings found in the initial research of Gothenburg's industrial history. The drawings represent various mechanical components that were commissioned to be made at Götaverken and seem to be part of something operative with connection to the shipyard. At first sight, I was intrigued by their aesthetics although I couldn't completely understand the function of the components. The components seem to be smaller parts that are to be put together to a whole. I could see the similarity to architecture in building up a whole from different parts, neither is a building, a ship or a machine.

In a first exercise (page 21 and 23) with the drawings I made collages; where I cut out the components from the original drawings and layered them on top of each other. This to liberate them and explore how they could possibly interact with each other.

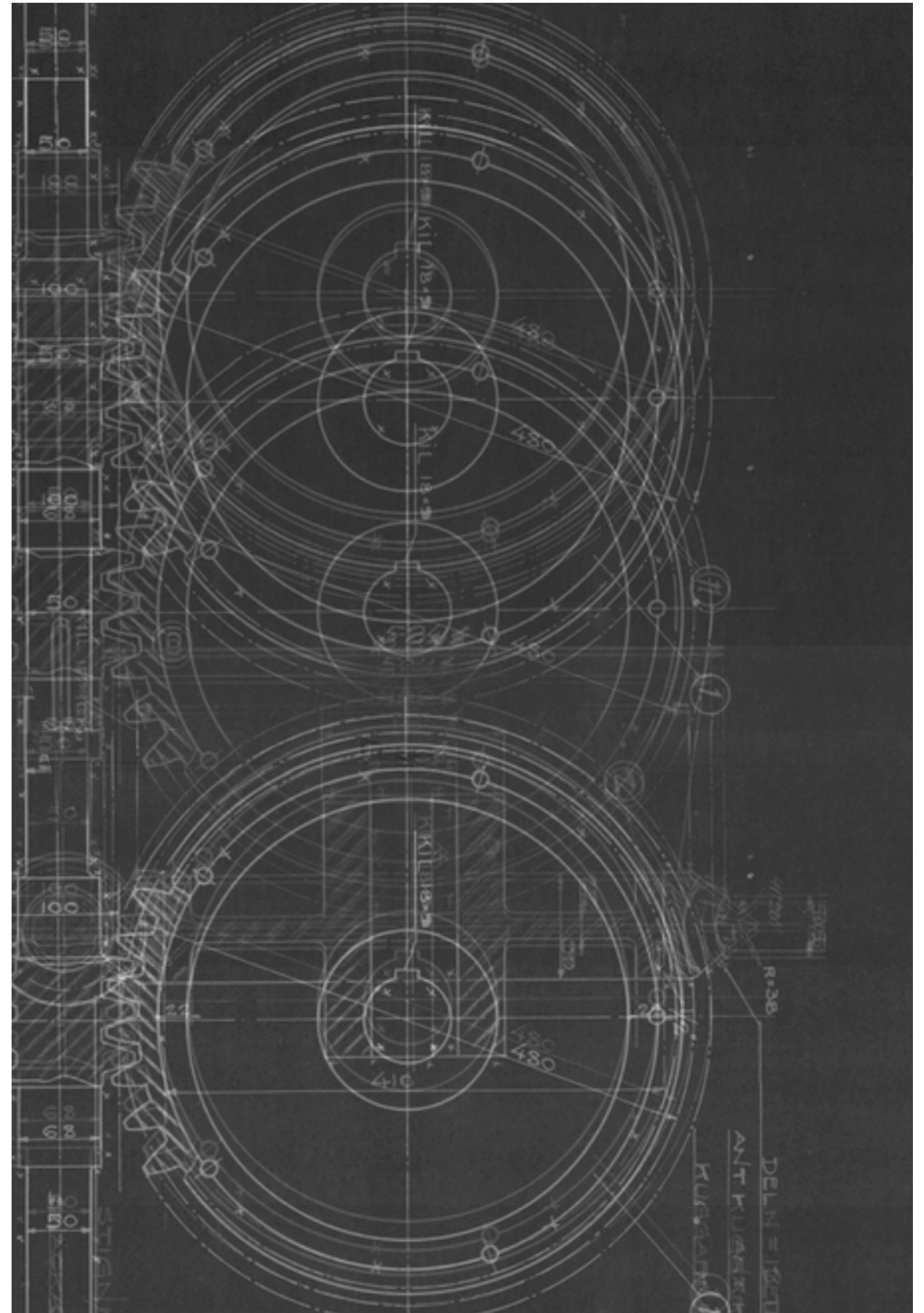
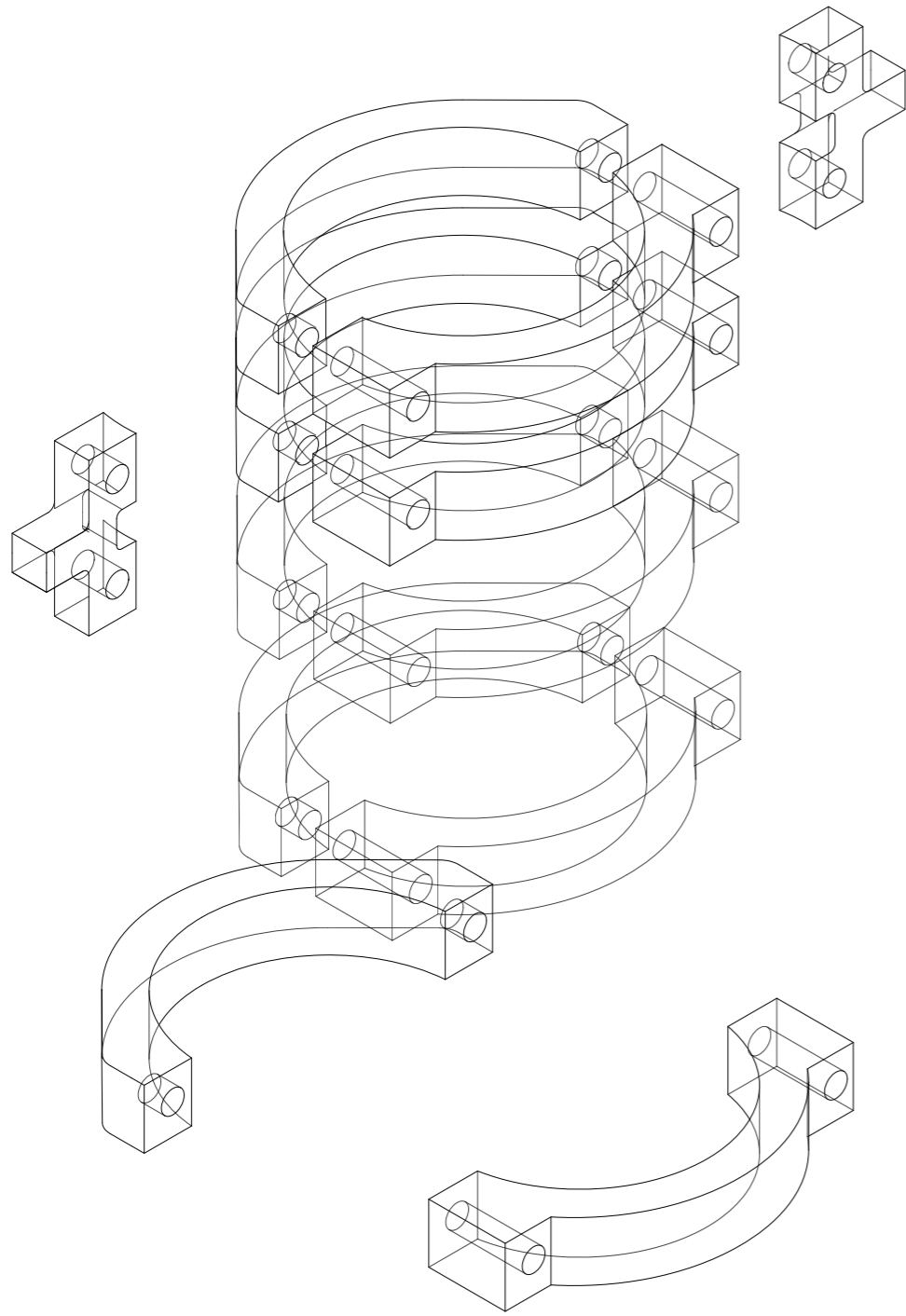
To continue the process I decided to organize (page 26–29) the drawings; this by simplifying the components with simple line drawings. I tried to keep information concerning depth and holes for example. Each view from the originals was documented and received a number.

The information I could extract from the original drawings; label, function and material of the components were collected in an index (page 25). In this phase the components were also scaled to be arranged together, but brought questions about how to manage the scale in the process ahead. The largest measurement of a component noticed in the original drawings is 650 millimeters. The information to extract in the drawings varies like the number of views; for example 01–02 is the same component with side- and frontview and 06–08 is the same component.

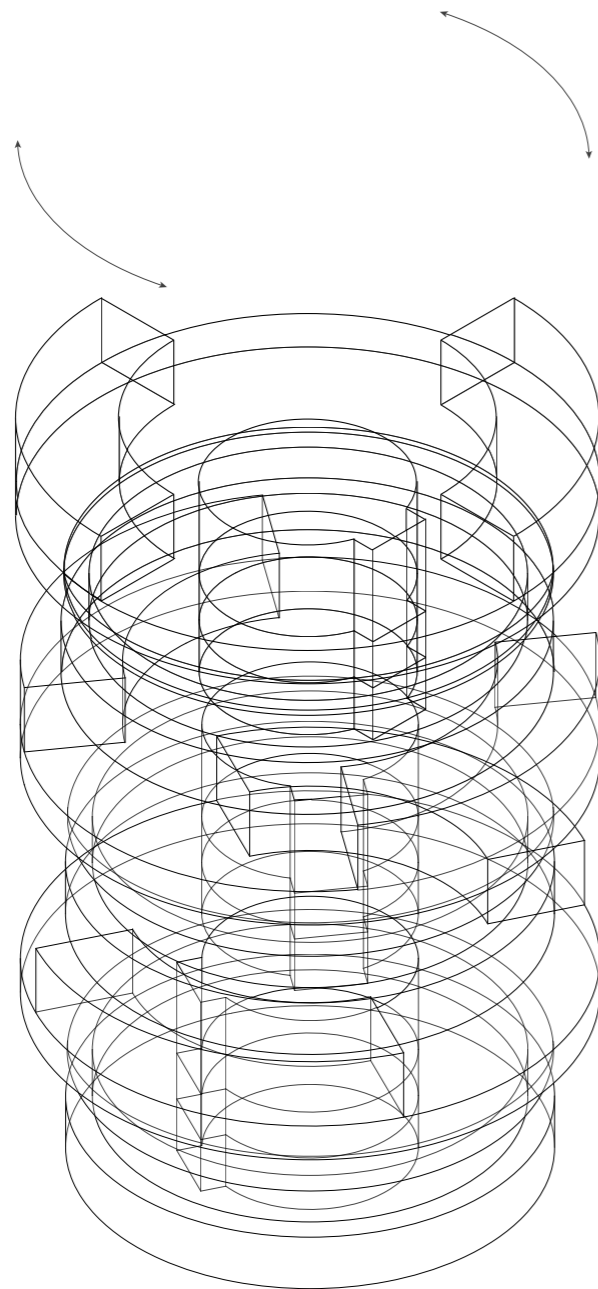


Raw material; Collage; layered drawings

Collage of the original drawings.

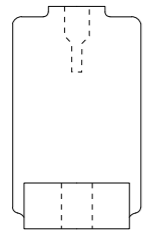


Left: Understand the component function. Right: Collage of the original drawings.

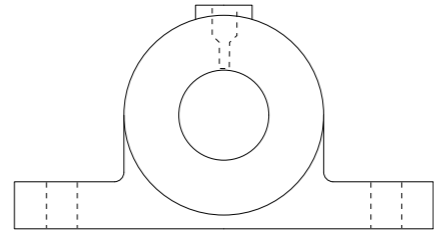


Index		
	label	material (function)
01-02	lager (kranmaskineri)	gjutjärn
03-04	schackel	smide(schackel), smide(bult)
05-07	centrumtapp	stålgjutg(centrumtapp), metall(bussning), smide(mutter)
08-09	lagerbock	gjutjärn(lagerbock, överfall), metall(foder)
10-12	motvikt	gjutjärn(motvikt), smide(skallskruv)
13-14	tapp	smide(tapp), smide(låsbricka)
15-16	klokoppling	gjutjärn
17-18	lager (löphjulsaxel)	gjutjärn(lager, överfall), smide(skruv)
19-20	lager	gjutstål(lager), smide(skruv)
21-24	vändkoppling	smide(bygel, hävarm)
25-27	manöverring	gjutjärn(manöverringshalva), smide(tapp, skruv)
28-29	450 mm linskiva	stålgjutg(linskiva), metall(bussning)
30-31	lager	gjutjärn(lagerfot, överfall), metall(bussning), smide(skruv)
32-35	linlås	smittstål(hylsa, kil, tapp)
36-37	snäckväxel	brons(snäckhjul), gjutjärn(nav), stål(snäckskruv)
38-39	lager (bromsanordning)	gjutjärn
40-41	lager (bromsanordning)	gjutjärn
42-43	stativ	gjutjärn
44-46	stativ	gjutjärn
47-48	löphjul	stålgjutg

Components 01-24



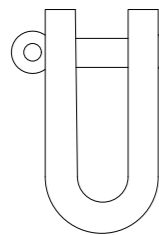
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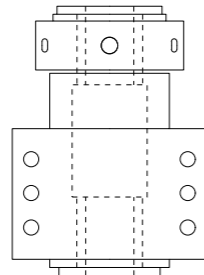
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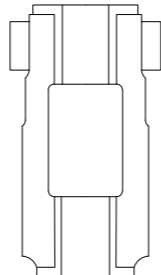
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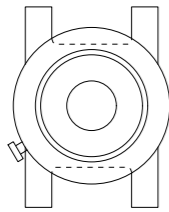
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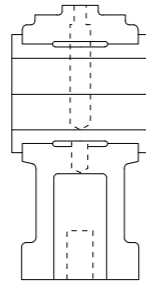
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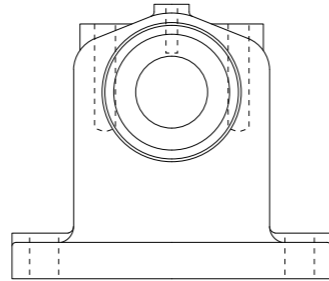
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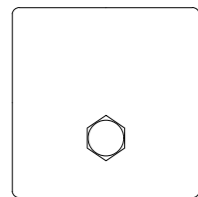
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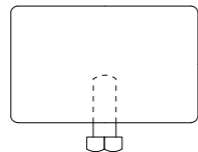
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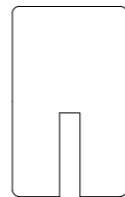
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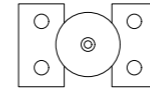
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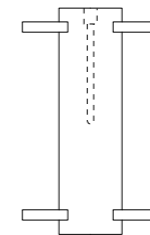
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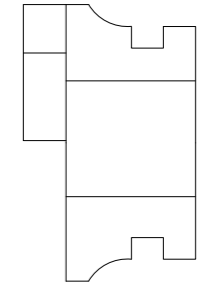
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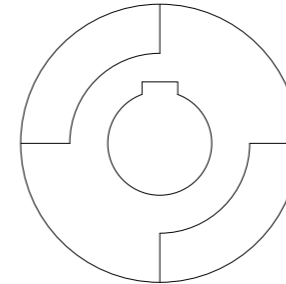
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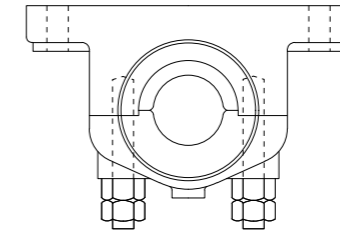
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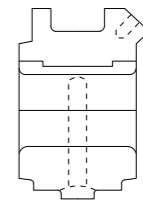
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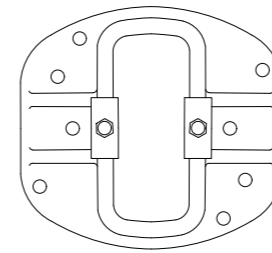
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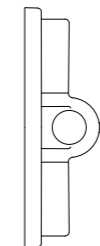
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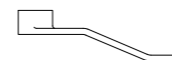
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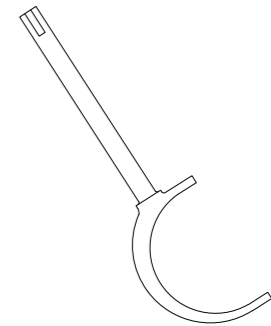
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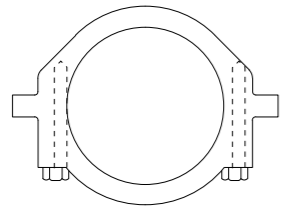


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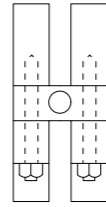


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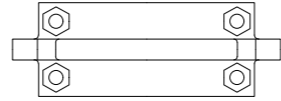
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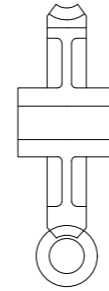
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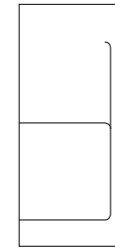
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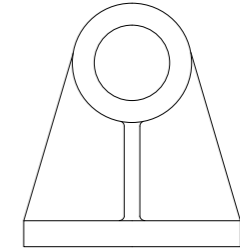
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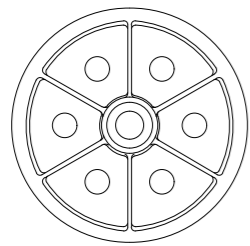
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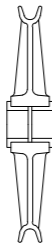
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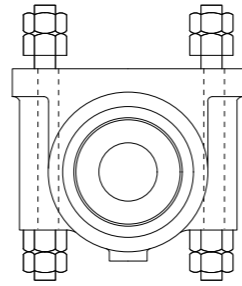
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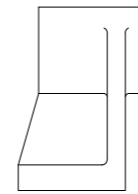
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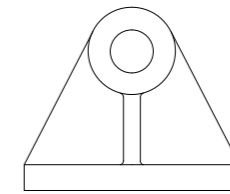
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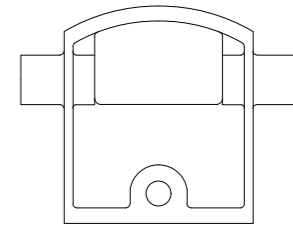
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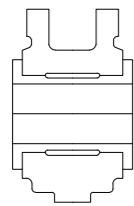
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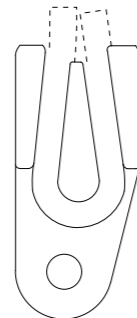
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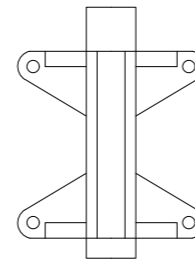
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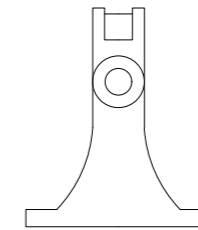
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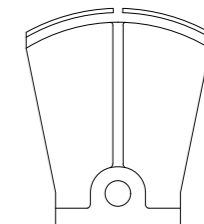
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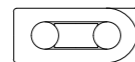
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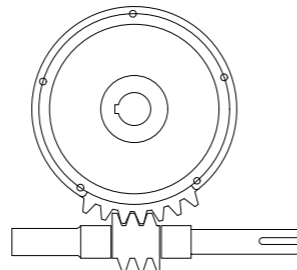
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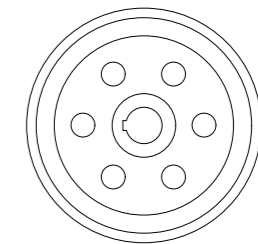
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## Phase 2: Operate

Transform components into three-dimensional objects

Ships, engines, turbines, cranes and other machines were parts that were produced at the shipyards and foundries in the harbor.

In this phase methods are explored to transform the two-dimensional drawings into three-dimensional objects, with the parallel to the way the components were casted in steel and iron at the foundries.

With a selection of the drawings I identified common properties, parts and forms that I found interesting to continue to work with (page 32–35). The forms were further tested as spatial elements. The identification awoke questions as: did it matter if I didn't understand their function? And could I simply look at them as forms with potentials?

Digital modelling was used to transform the geometry into volumes (page 36–41). Similar to how MOS worked with spatial elements I connected forms with potential architectural elements. With this exercise the form is deliberated from its origin and I could see the architectural potentials. Some parts could be suitable as a room or a roof and others as openings. For example, the round holes, identified as screw holes in many of the original components, could potentially function as openings in a wall. Some forms could have different positions; for example, could the same original form function both as a wall or a roof. Most of the forms are fairly true to its original, but often scaled and with reduced information.

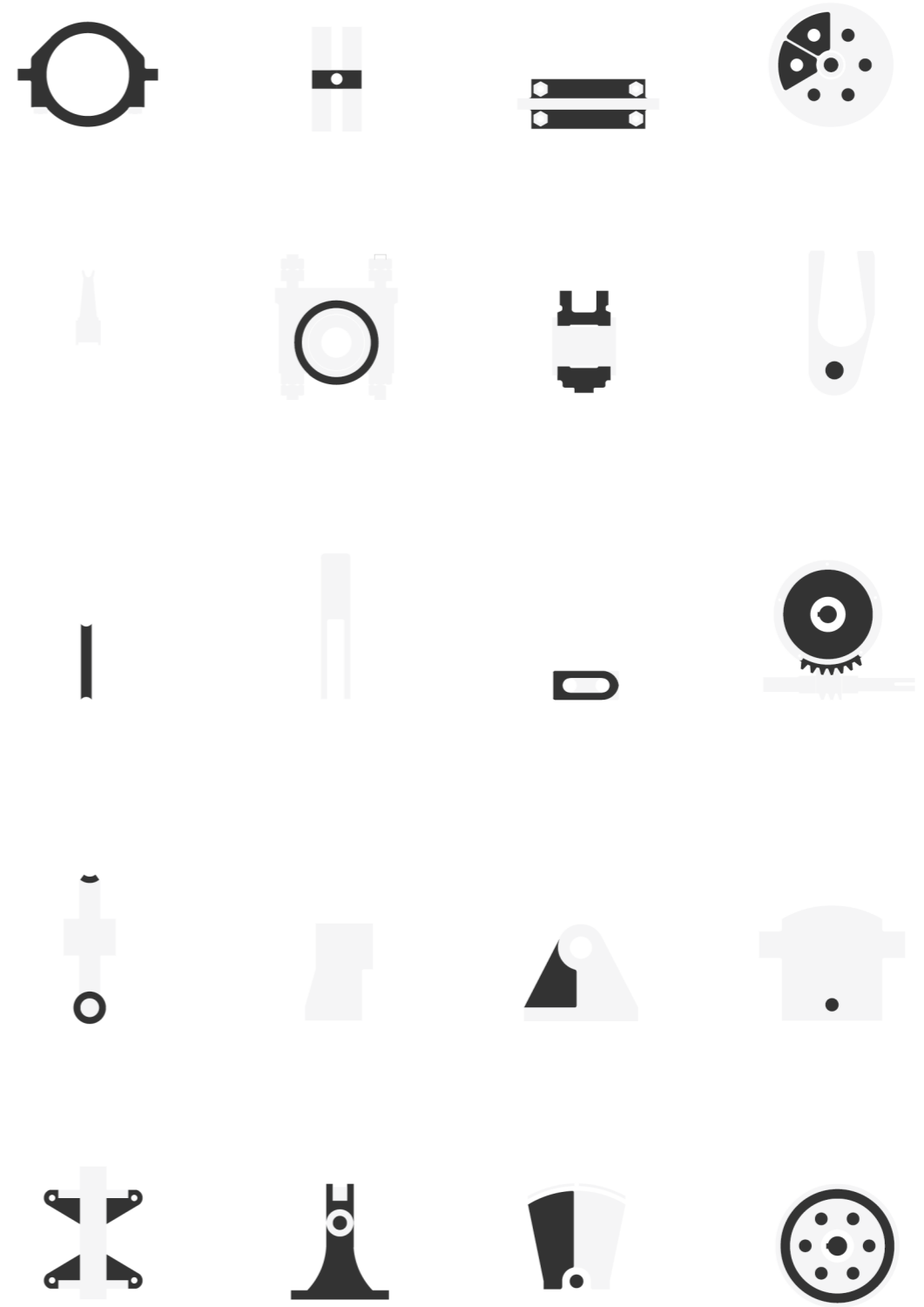
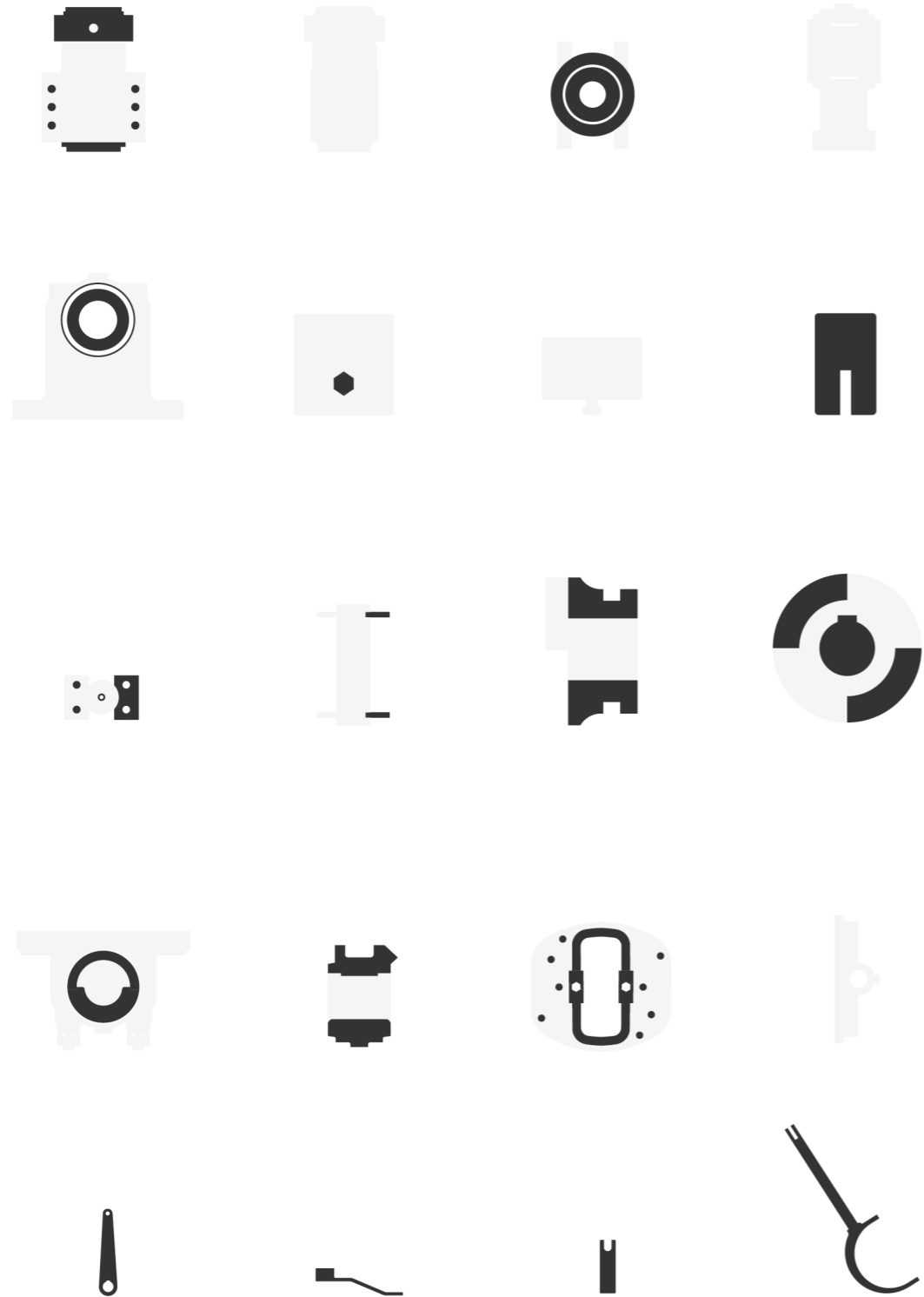
As a second part of phase two the forms and spatial elements were further explored in compositions with the different functions of the elements in mind. These explorations are presented in four compositions (page 42–61).



Eriksbergs Mekaniska Verkstads AB. Source: Sjöfartsmuseet Akvariet, Sjöhistoriska museet

## Properties and potentials

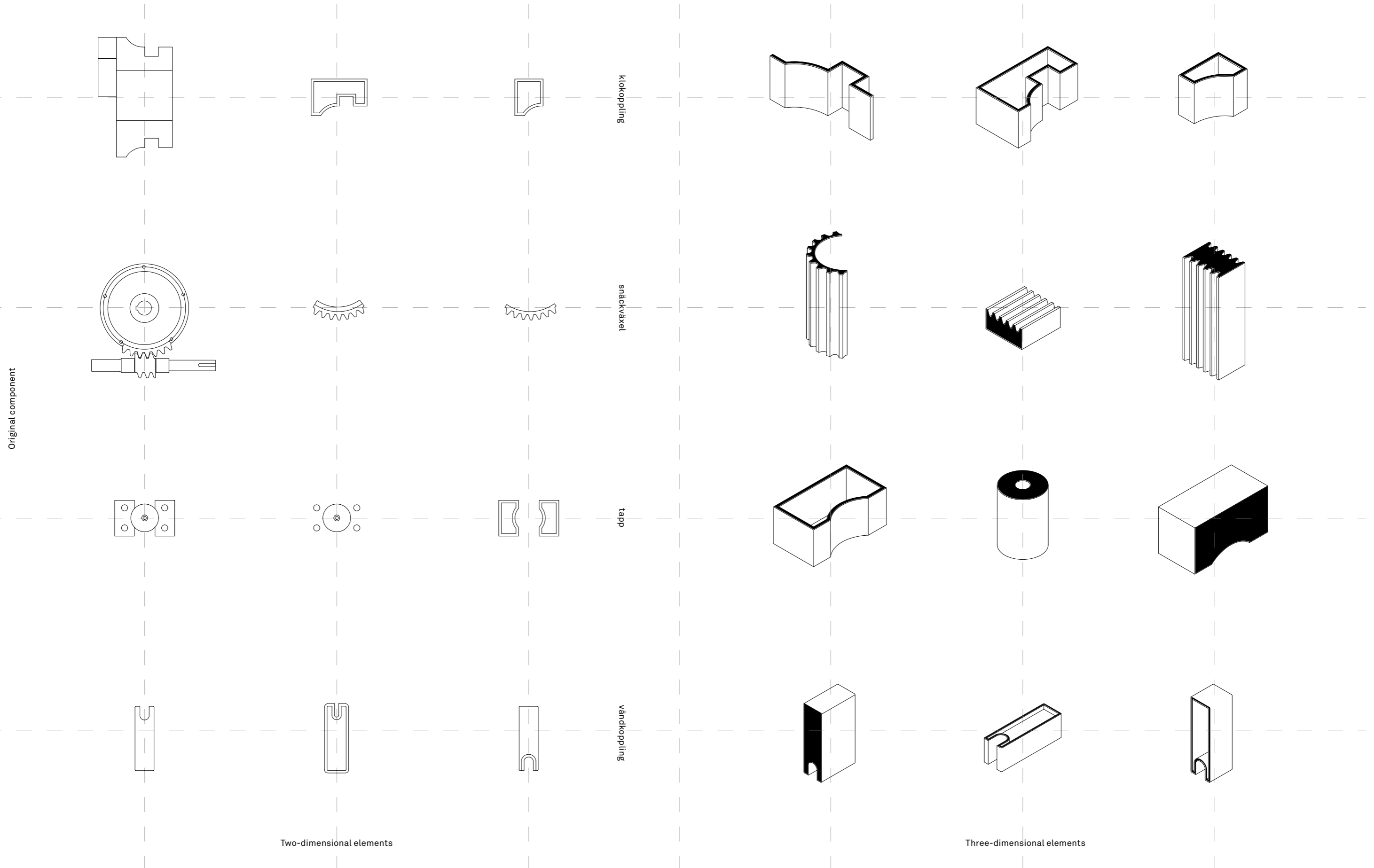
Identification of common properties and characteristics





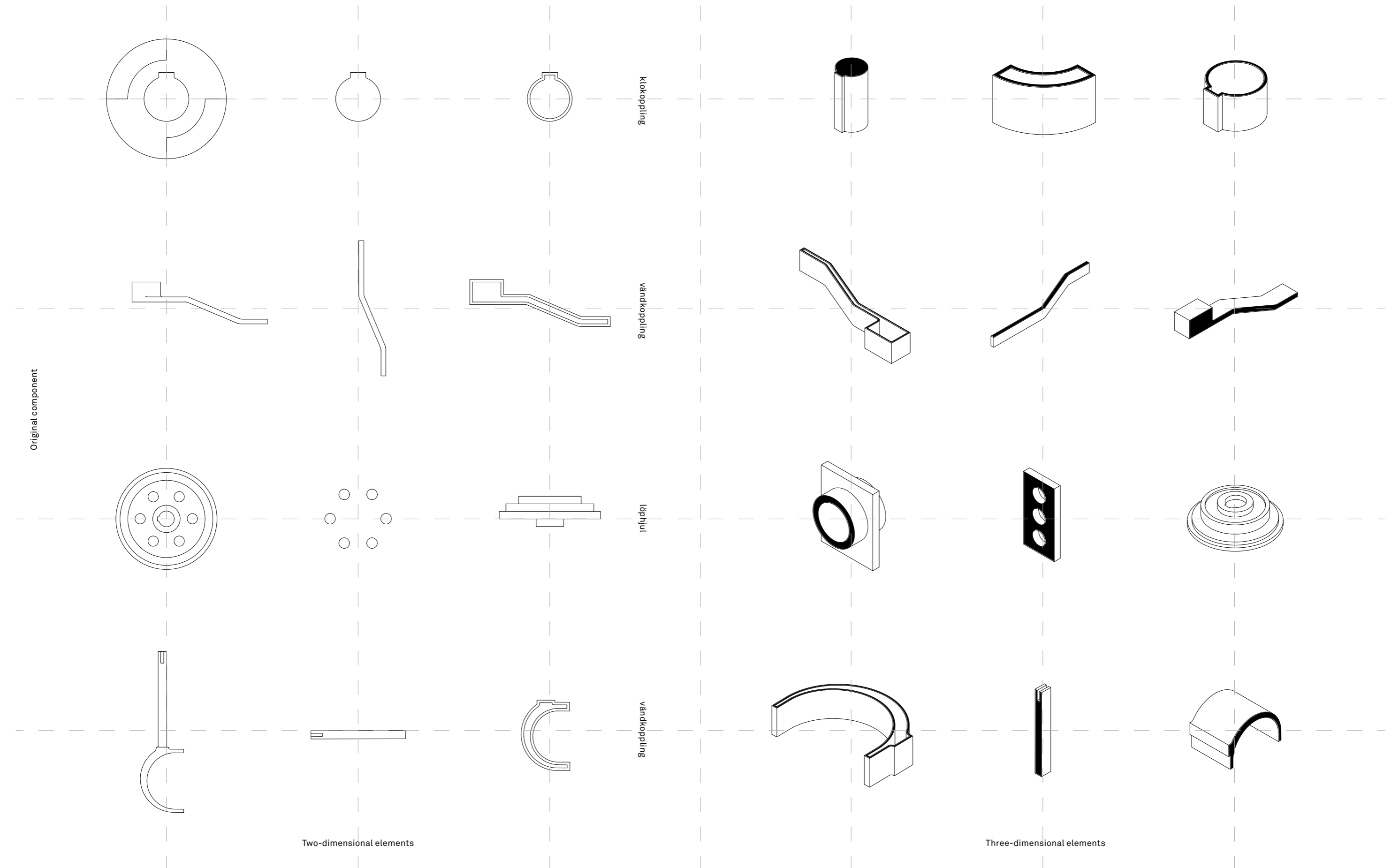
# Transformation

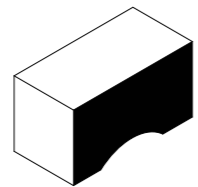
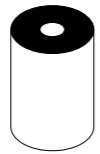
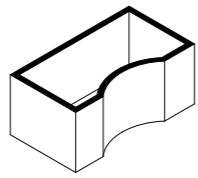
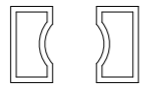
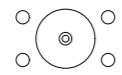
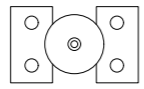
Three-dimensional modelling of spatial elements



# Transformation

Three-dimensional modelling of spatial elements





**Components in compositions**

The index of common properties and elements with spatial potentials are in the following pages further explored in four compositions. I decided to use the two-dimensional drawing more as it tests the forms in another way than the three-dimensional modelling and where maybe more favorable for the process. The compositions of the forms are a combination of elevations and are made parallel with three-dimensional modelling that are presented on the opposite page.

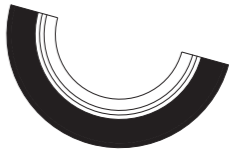
- 1. Snäckväxel – tower
- 2. Klokoppling – community center
- 3. Löphjul – pier
- 4. Hävarm – bridge



1



2

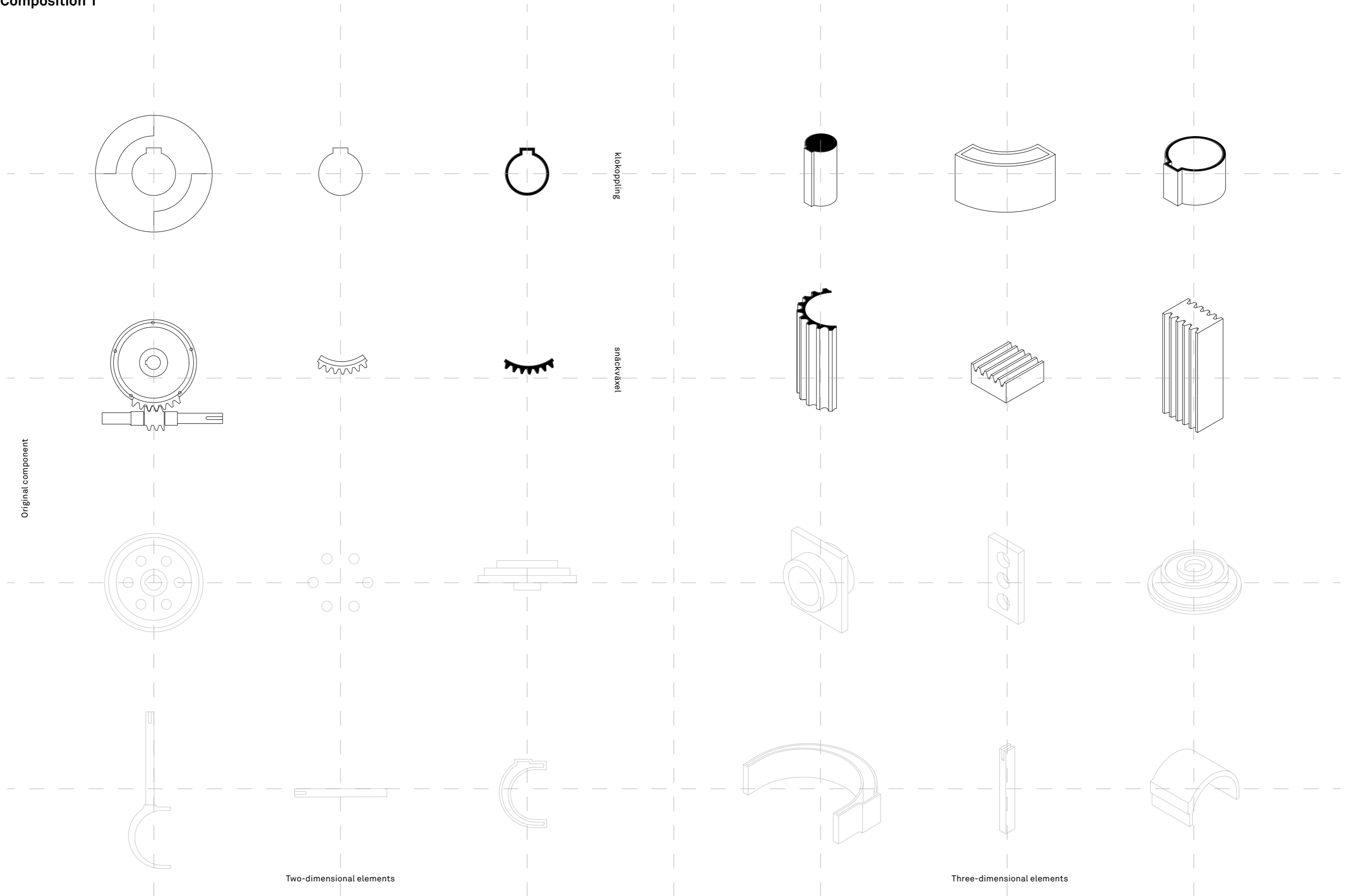


3

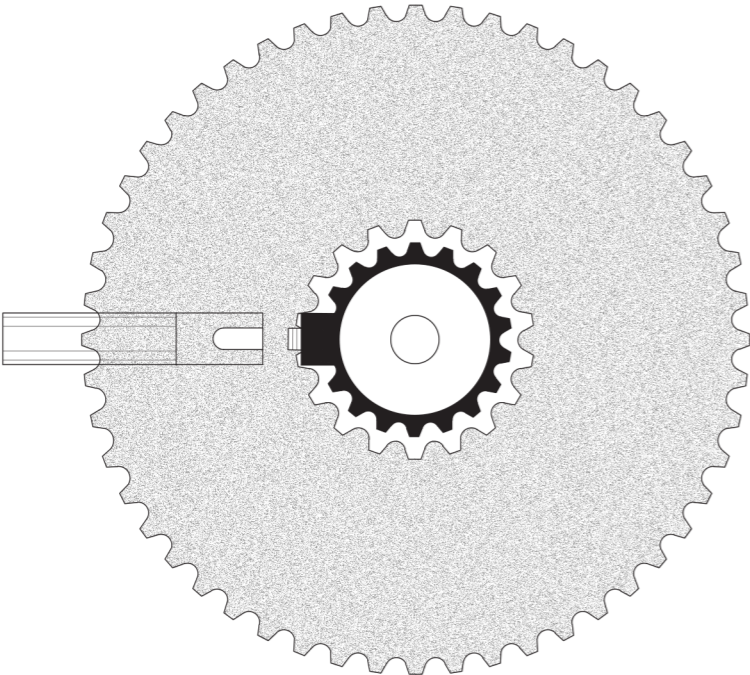


4

Composition 1

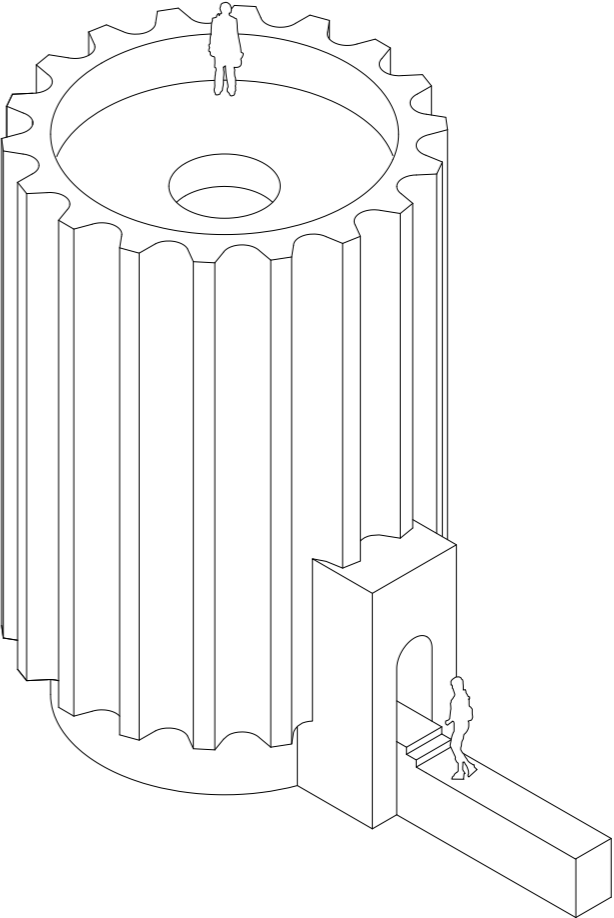


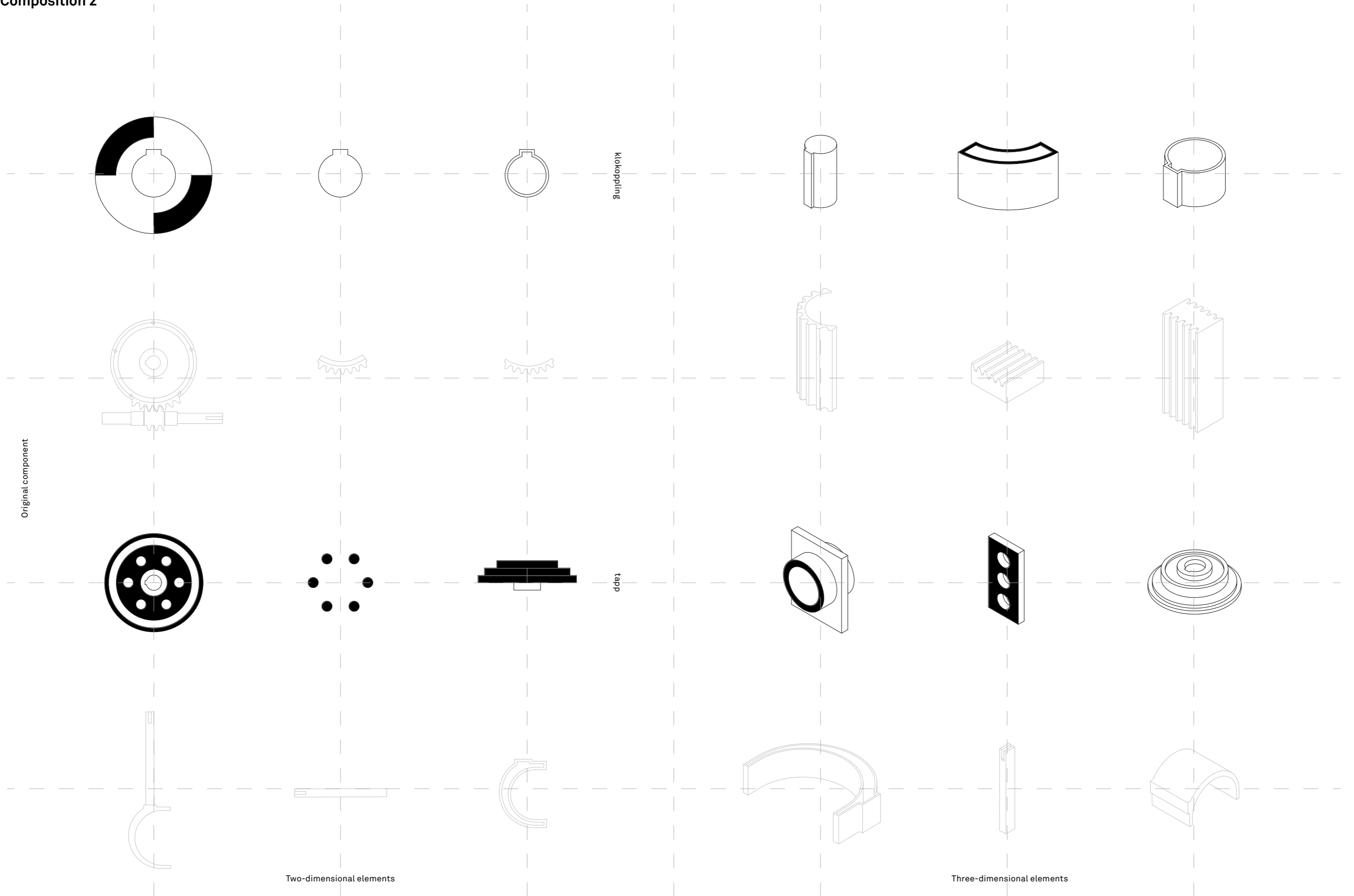
Composition 1

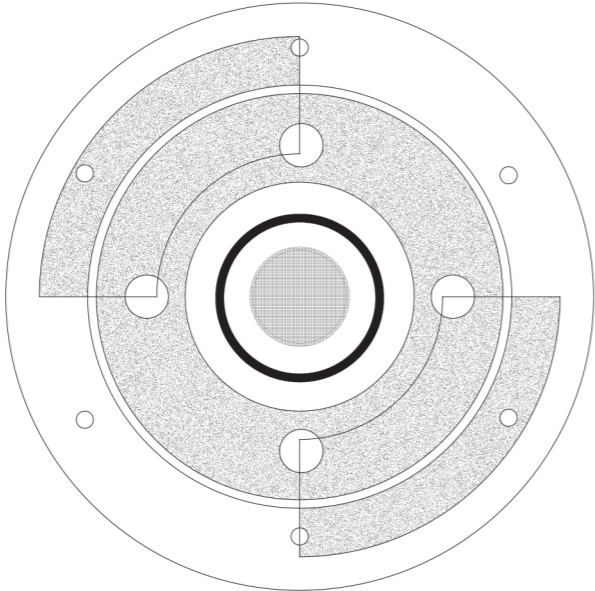


5 m

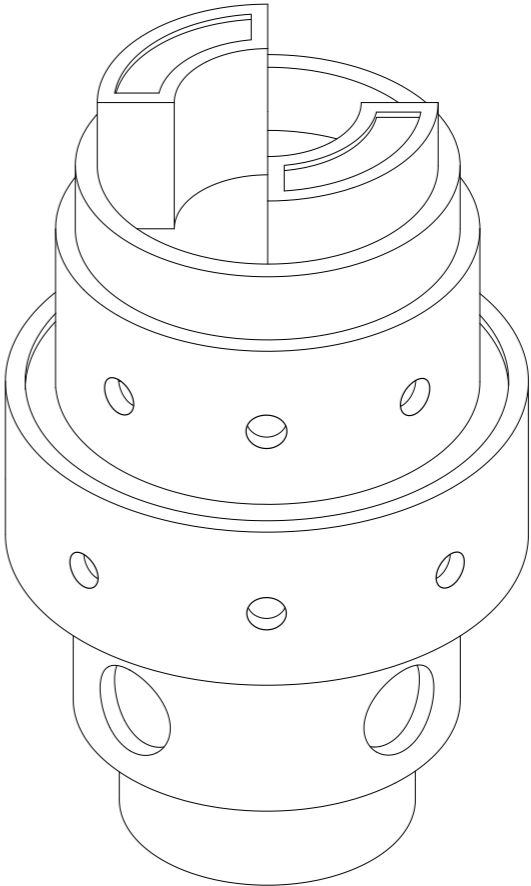
Snäckväxel  
The tower



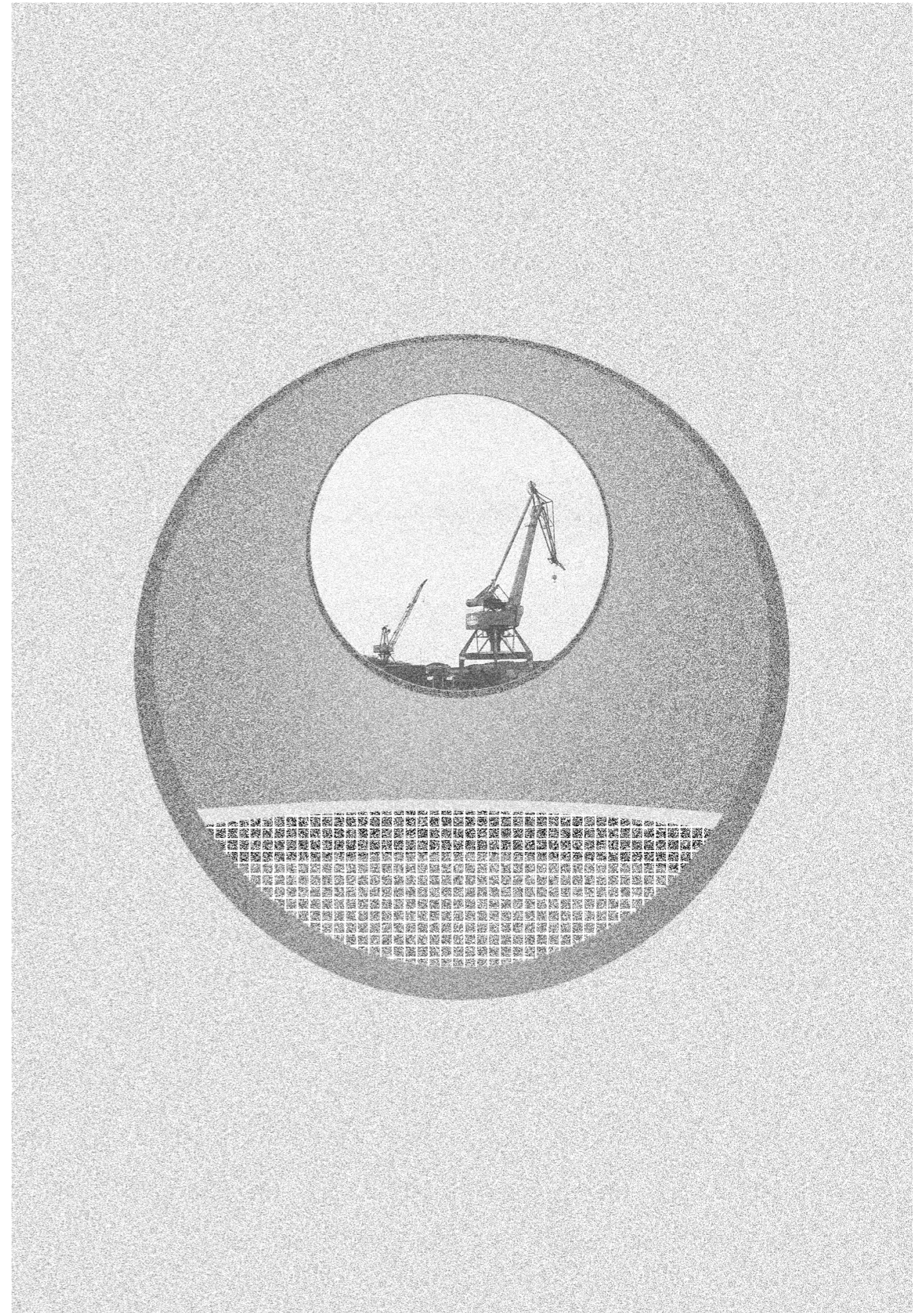
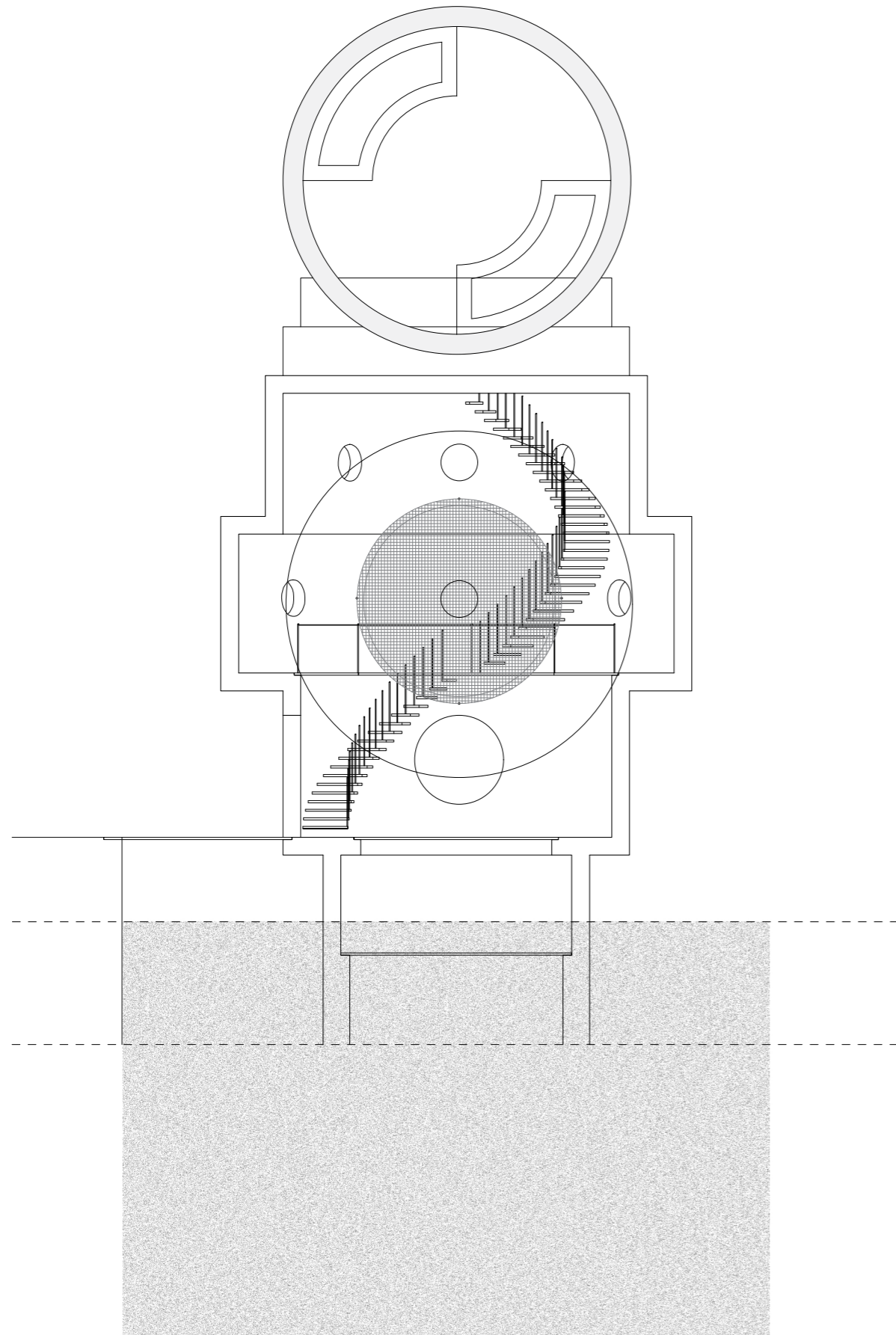




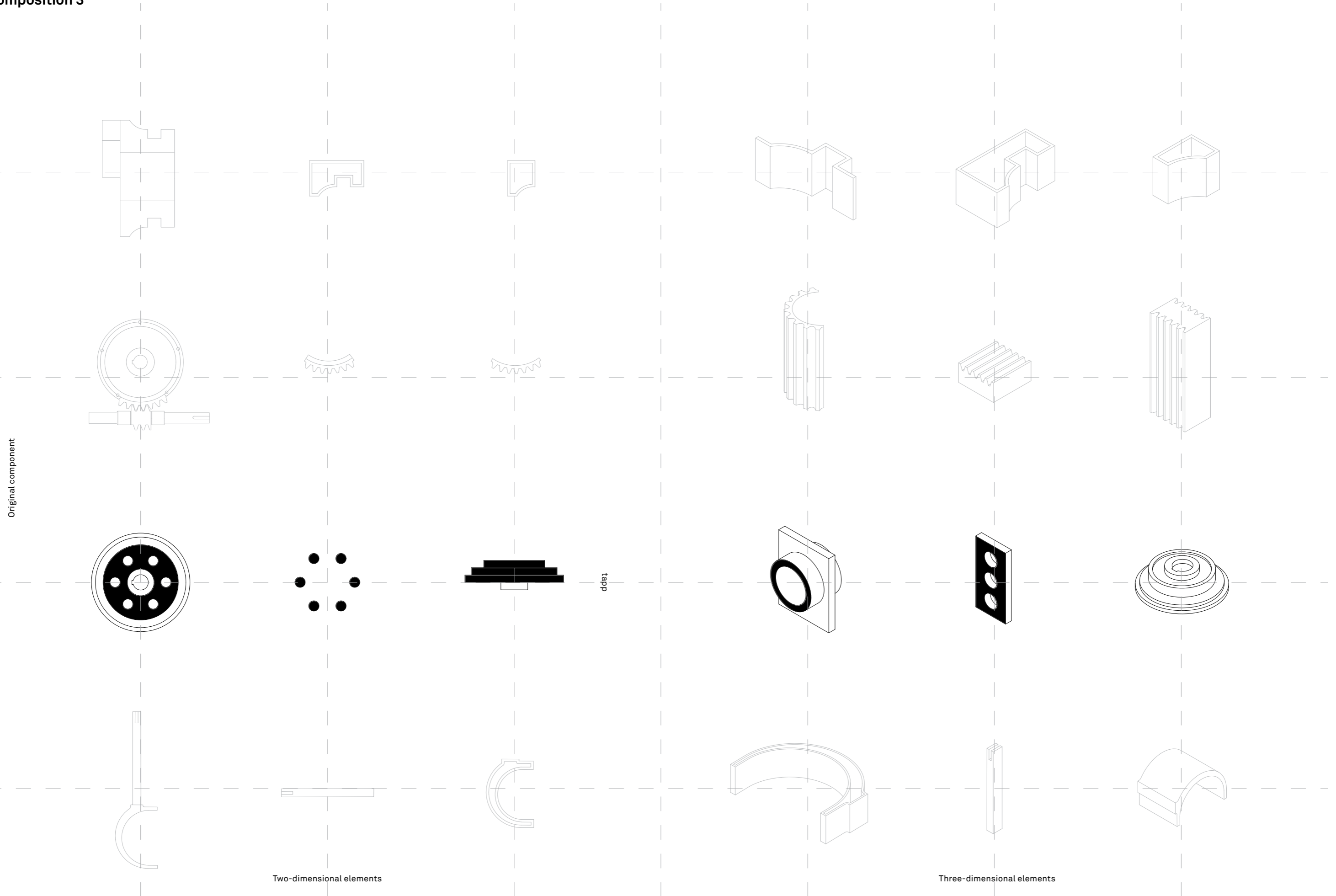
5 m

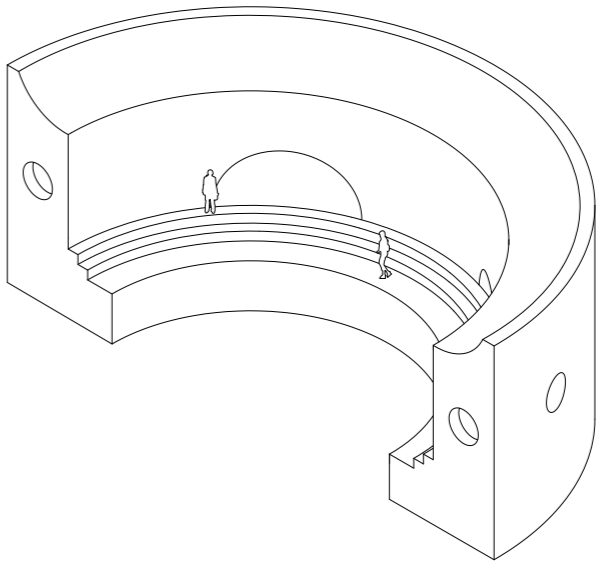
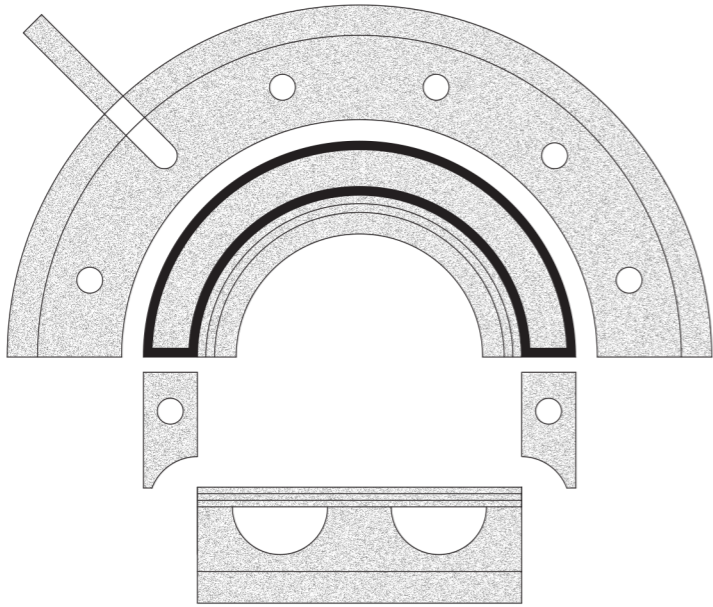


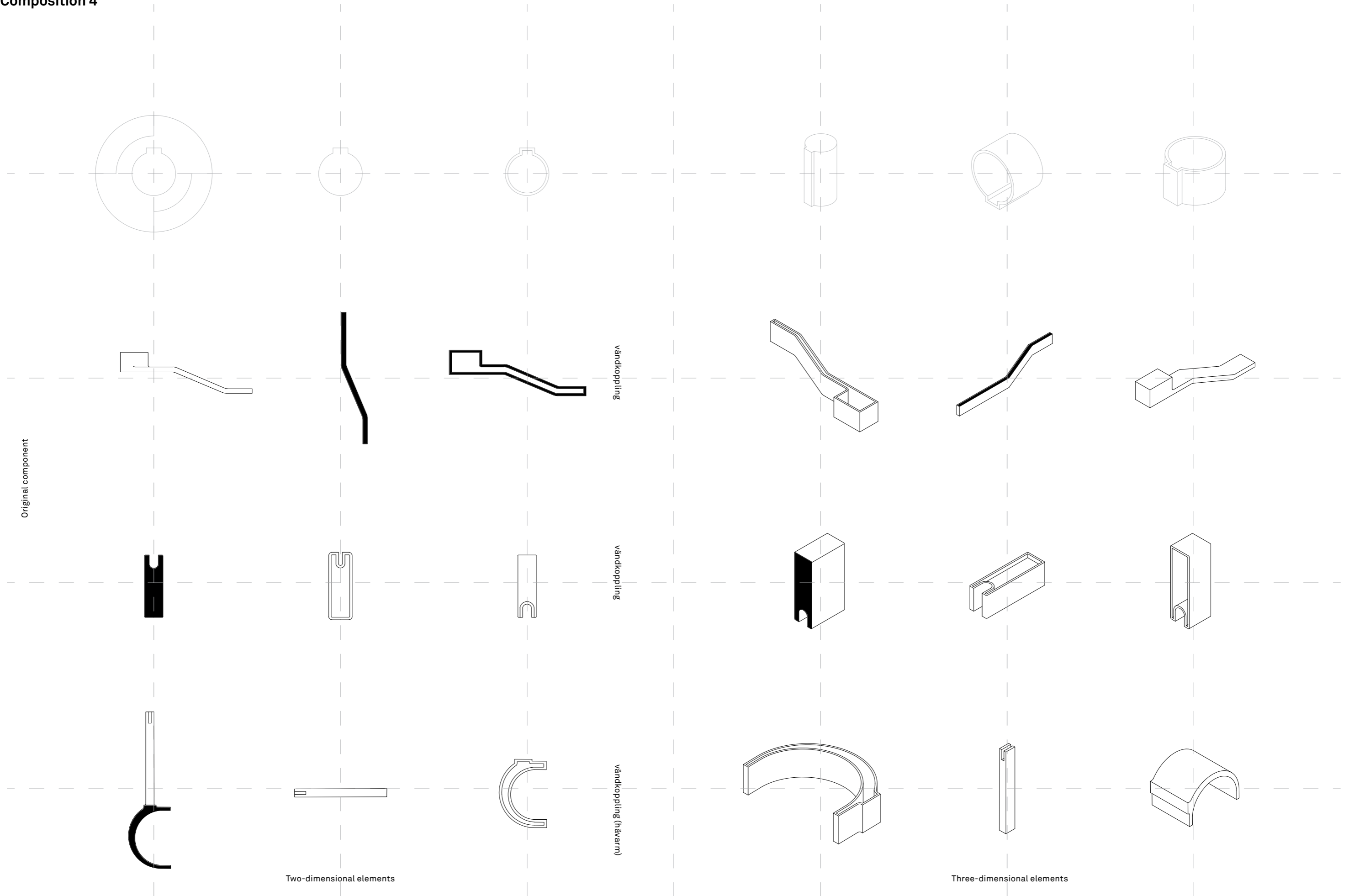
Composition 2  
Kloppling

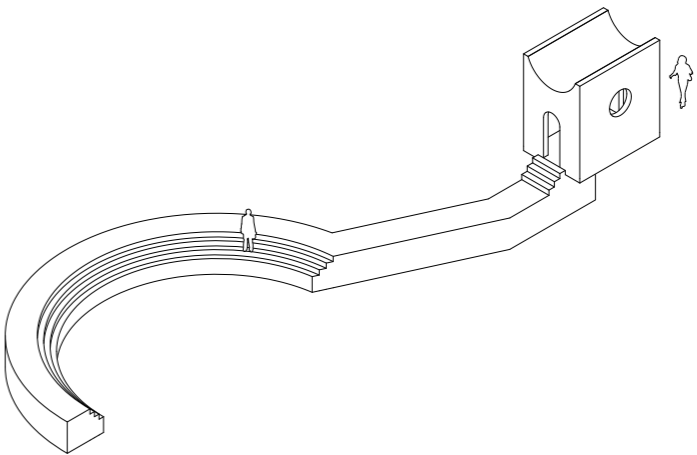
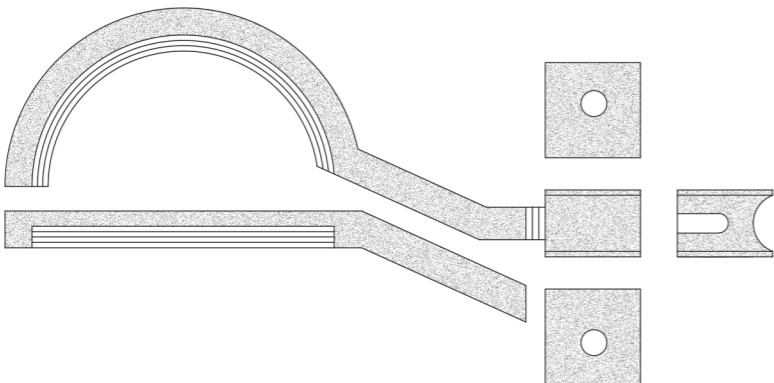


Composition 3







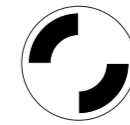


### Phase 3: Mount

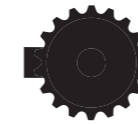
In the 1900's Götaverken were located at what today is called Lundbystrand, but the company were founded already in 1841. Back then the company were called Keillers Verkstad by the founder and businessman Alexander Keiller and were located across Göta Älv at Stora Badhusgatan close to Skeppsbron. Today the traces from the industries at these locations are not so visible. Despite the central location and attractiveness of these areas these places feel lost between two times; the era of the industries and future plans. The four proposals are placed in these areas on both sides of Göta Älv where the shipyards use to be. The new additions creates a new context and a different experience of the locations by connecting the history with present and to relate to in the future. Like the mechanical components where casted in steel and iron in the foundry, the the four building proposals are casted in concrete at site.

The proposals are all placed with a connection to the canal in the same way the ships interact with the water when transporting goods. The new additions are meant to loosen the boundary and let the visitor to come closer to the water and be involved with the history.

1. Snäckväxel – tower
2. Klokoppling – community center
3. Löphjul – pier
4. Hävarm – bridge



2



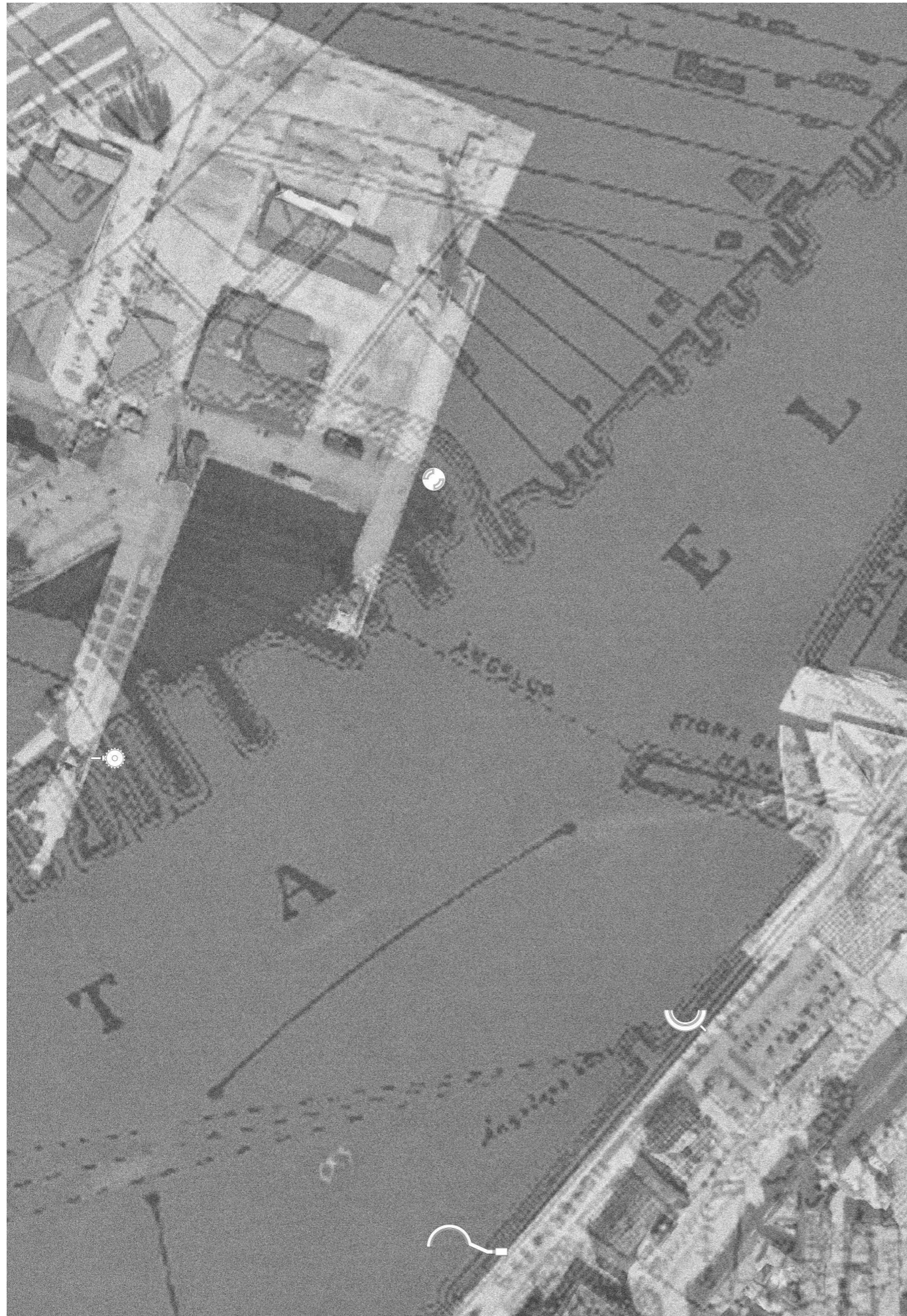
1



3



4



Map showing today's situation, layered with map from the beginning of the 1900s and the proposals.



Gothenburg harbor in the beginning of 1900s.

## Reflections

The starting point of this project was to explore possible methods to connect the past with the future and place and context. The question was; how can we develop methods to materialize the connection between the past and future?

I decided to situate the project in Gothenburg, a city where many of the central areas are going through extensive transformations. Many of the central areas located around the harbor that in the past were reserved for several important industries, are today under development. I where curious how the architectural additions we do today can reminiscence of a important cultural-historical period of time in Gothenburg. As time goes that part of the history risk to be forgotten.

The project started with research of the industrial history of Gothenburg and early I found the old drawings from Götaverken and decided to continue the process with these. The majority of the process and the challenge has been about finding methods to deal with the drawings and how to transform these mechanical components into architecture. The outcome of the project became a set of methods and a series of proposals that emerged from these explorations of form. Whether this way of working could be successful or useful in other projects, maybe. But what I've learned from the project is a nuanced way of thinking when approaching future projects concerning context, place and time.

## References

Grillner, K. (1994) Från postmodernism till kritisk regionalism - en längtan efter meningsbärande arkitektur  
<http://arkitekturforskning.net/na/article/view/722>

Frampton, K (1983) Towards a Critical Regionalism: Six Points for an Architecture of Resistance

Szacka, L-C and Patteeuw, V. (2019) Critical Regionalism for our time, Architectural Review  
<https://www.architectural-review.com/essays/critical-regionalism-for-our-time>

Göteborgs Stad, Om Göteborgs historia  
<https://goteborg.se/wps/portal/start/kommun-o-politik/kommunfakta/historia/om-historia?uri=gbglnk%3Aagbg.page.f0547a49-c364-49e1-a0aa-bcfe234ec1e4>

Göteborgs Stadsmuseum  
<https://goteborgsstadsmuseum.se/>

Digitalt Bildmuseum  
<https://digitaltmuseum.se/>

House 14, MOS Architects  
<https://www.mos.nyc/project/house-parts-collected>

House 13, MOS Architects  
<https://www.mos.nyc/project/room-chimney-cistern-and-roof>

<https://pinupmagazine.org/articles/the-drawings-of-chilean-architects-pezo-von-ellrichshausen>

<https://ten.studio/>

## Student background

Master program Architecture and Urban Design, Chalmers, 2019 – 2021

Studios: Master's thesis in Architecture, Matter Space Structure

Matter, space, structure 2

Matter, space, structure 1

Courses: Masters thesis preparation course 2

Masters thesis preparation course 1

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History, theory and method 4

Sustainable development and the design professions

Bachelor in Architecture, Chalmers, 2015 – 2018

Internship: Wingårds, Gothenburg, 2018 – 2019

