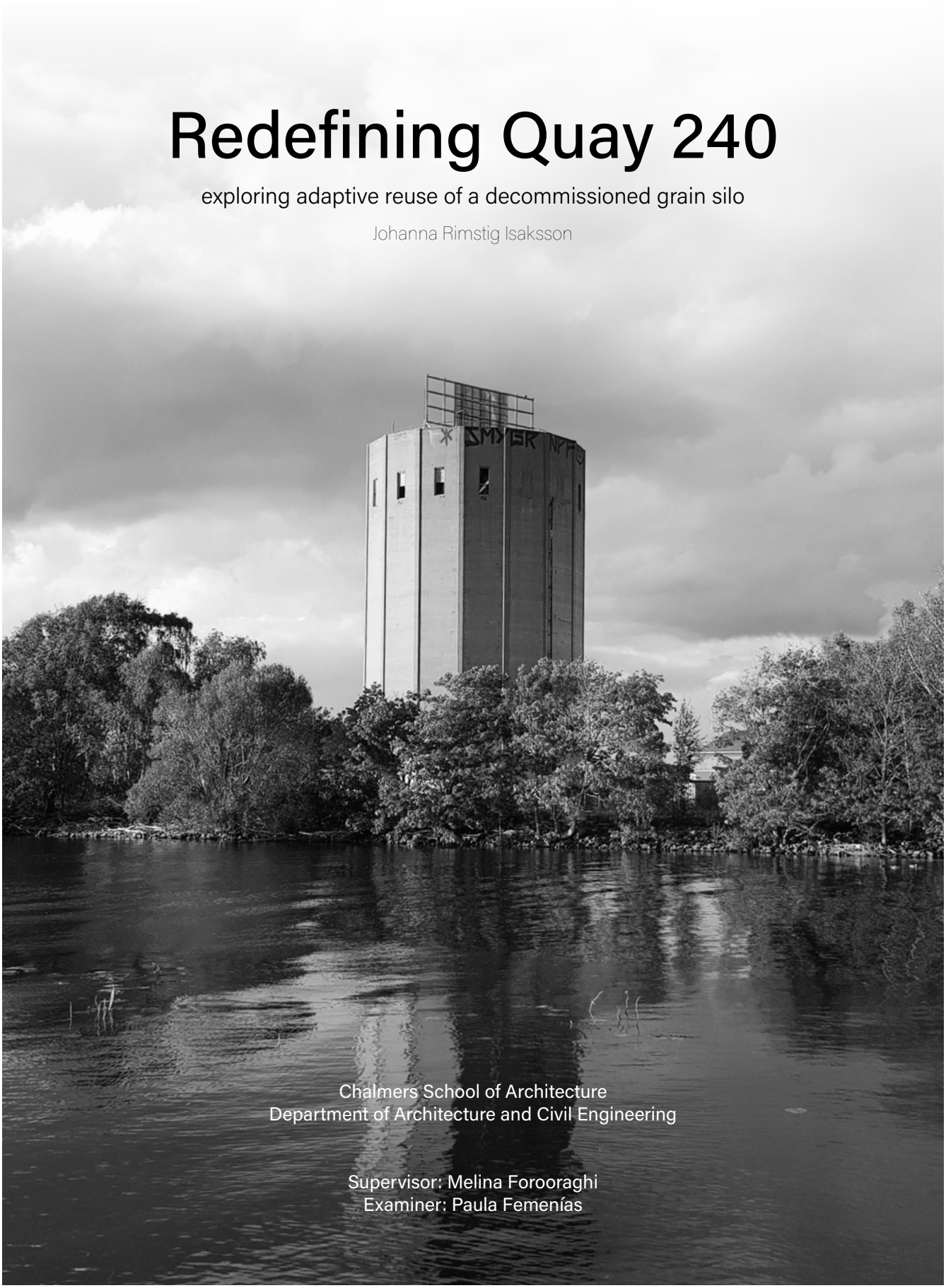
Redefining Quay 240

exploring adaptive reuse of a decommissioned grain silo

Johanna Rimstig Isaksson



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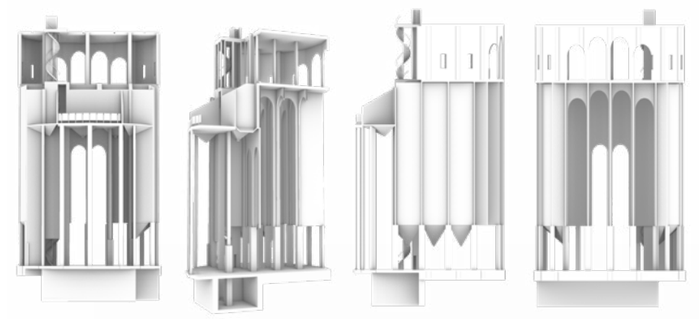
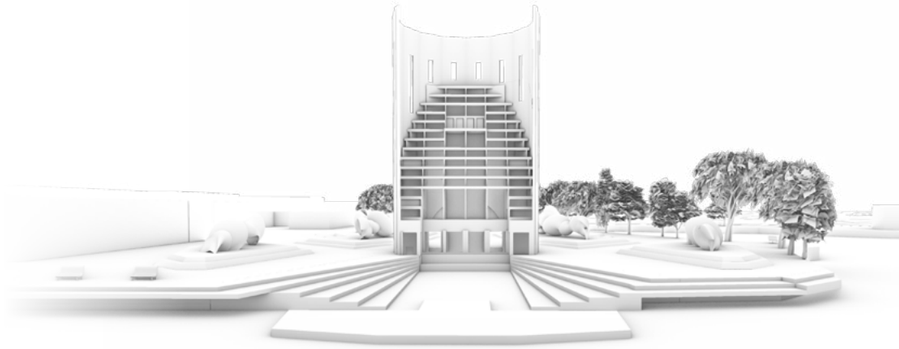
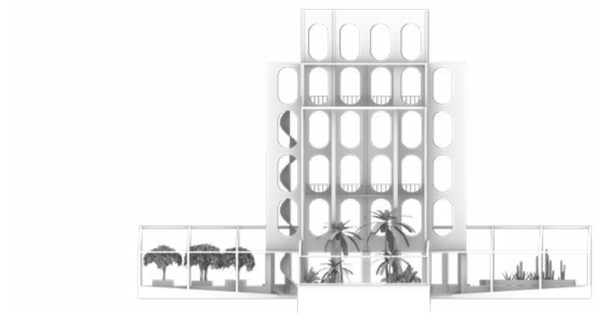






ABSTRACT

Deindustrialization and its consequences on the built environment are currently evident in Gothenburg. There are several obsolete industrial buildings, centrally located, lacking significant ongoing maintenance, of which the grain silo at Quay 240, Marieholm, is a clear example.

A look into the studies of environmental psychologist D. Canter finds that limited accessibility, absence of activity, and unclear building usage cause difficulties to identify the significance of a place. That indicates why disused industrial sites may become subjected to neglect and left to decay. Regarding that as a loss of historical identity and architectural diversity, this thesis addresses the issue by exploring re-defining adaptations of the grain silo at Quay 240.

Asking how Canters' principles of place identity can inform the design strategies to redefine the function and identity of Quay 240, the aim is to raise awareness of the value-creating potential of the physical attributes of the silo and its surroundings.

That gets explored in three design proposals in which the silo gets adapted through physical interventions. Using Canters' model for defining a place based on physical attributes, conceptions, and activities, each new function is informed by existing attributes related to the silo and its surroundings and also corresponds to public ideas presented in conjunction with the planning of Gothenburg's 400th anniversary.

The outcome shows a post-industrial temple, an open-air arena, and a greenhouse that each addresses various building-specific attributes and redefines the site. It demonstrates the simultaneous use of Canters' model as a design tool and for the analytical evaluation of each proposal. Thus, the outcome can be considered a method to approach adaptive reuse of this building typology.

Each design proposal is an exploratory contribution to sustainable development in terms of how one could make continued use of a disused industrial silo and how physical interventions can achieve diverse architectural identities that support different activities.

Key words

Silo, Industrial heritage, Adaptive reuse,
Place identity, David Canter

CONTENT

INTRODUCTION

The deindustrialization of the western world has often had far-reaching detrimental consequences for several industrial communities. Former industrial facilities have been left obsolete and taken out of use, often reflected in building dereliction, decay, and demolition. Acknowledging the profound impact industrialization has had on the development of our society, demolishing its associated buildings can be considered a loss of cultural heritage and local identity (Douet, J. 2013).

Deindustrialization and its consequences on the built environment are currently evident in Gothenburg. There are several obsolete industrial buildings, centrally located, lacking significant ongoing maintenance, of which the grain silo at Quay 240, Marieholm, is a clear example.

In part, this may be both the reason for and result of a general conception of residual spaces, such as abandoned industrial sites, as rather vague. Limited accessibility, absence of activity, and unclear building usage cause difficulties in identifying the significance of a place (Canter, D. 1977.).

With a vague definition or lack of identity, residual spaces get set up to become subjected to neglect, causing a cycle where these buildings may decay to the point where demolition gets argued as the only viable option.

In opposition, examples show that creative interventions and public awareness of such areas can serve as means to counteract this kind of process. In regarded as obsolete in terms of their original function, residual spaces, such as abandoned industrial sites, often get temporarily left aside from the dominating visions of urban planning (Corijn, E. & Groth, J. 2005.).

Such sites have shown to be growing grounds for alternative views of urbanity, assumed by 'informal' actors outside of institutionalized domains of urban planning (Corijn, E. & Groth, J. 2005.). Some cases have raised enough public awareness to influence subsequent decision-making processes, making sites like these potential drivers of change.

Adaptation and reuse of obsolete industrial buildings can be an appropriate intervention when the original function is no longer possible to sustain. Reuse of any building makes the most of built-in energy and therefore serves as a strategy for sustainable development.

Industrial single-purpose buildings characterized by specific attributes, such as Silo buildings, can provide opportunities to explore unique spaces. By drawing upon the spatial qualities of original configurations, physical interventions can potentially achieve unique qualities, present alternative building usages, and contribute to architectural diversity. By acknowledging the many benefits of adaptive reuse, this thesis explores possible new identities of the grain silo at Quay 240, based on Canters' model for place identity.

PURPOSE

The purpose is to explore

- design strategies of adaptive reuse to redefine the function and identity of the silo at Quay 240 based on Canters' principles of place identity.

- what architectural qualities can be achieved in this building typology through physical interventions.

METHODOLOGY

The redefinition of Quay 240 is explored through research by design, presented in three design proposals. The design tool used to guide the proposals of Quay 240 is the model proposed by environmental psychologist David Canter, to define or create a place based on three parameters: physical attributes, conceptions, and activities (Canter, D. 1977).

The focus is set around testing how the physical attributes of the silo and the site can form a basis for guiding the choice and design of a new function. The physical attributes of the site have been mapped through site visits. During one of the site visits, I managed to explore the inside of the silo. Shortly after that, it got completely sealed shut to keep people out. The physical attributes of the silo have instead been mapped out by a thorough digital building study. From receiving handmade blueprints from the landowner in November 2020, I have constructed a digital 3D model in Rhino. From that 3D model, I put together several section animations to identify the physical attributes - the scale, form, and spatial configurations. Based on the identified physical attributes, following Canters' model, I have outlined personal conceptions and suitable activities associated with them.

Further on I have matched the conceptions and activities against ideas put forward by the public in conjunction with the planning of Gothenburg's 400th anniversary, presented in the book 1680 idéer om Göteborgs 400-årsjubileum (Magnusson, Å. 2012). These form the foundation for my redefining design proposals of Quay 240.

It should be said that the three proposals then relate to personal, subjective conceptions associated with the physical attributes of the silo and its surroundings, and to what type of activities they could lend themselves.

The physical interventions get categorized according to the main strategies of adaptation currently in practice presented by Plevoets and Van Cleempoel.

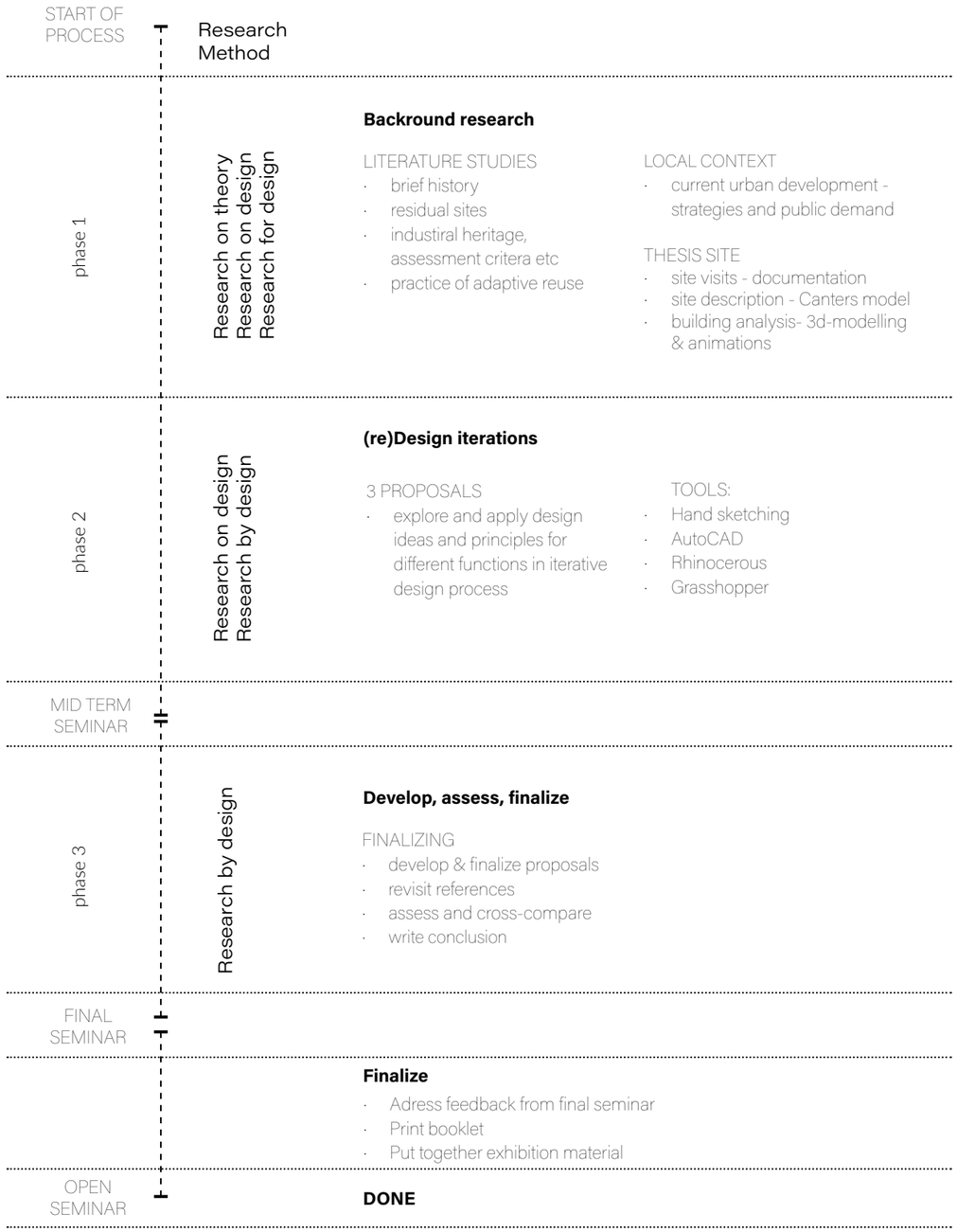
THESIS QUESTIONS

How can Canters' principles of place identity inform the design strategies to redefine the function and identity of Quay 240?

OBJECTIVES

The project seeks to gain wider recognition of the silo and its architectural potential and to show what qualities get lost due to neglect of disused industrial buildings. The design proposals aim to present adaptive reuse as an alternative to demolishing the silo and show how physical interventions can attain diverse architectural identities that address different demands. I aim to showcase Canters' model of place identity as support to explore the adaptive reuse of this building typology. I hope to contribute to ideas to make contemporary use of buildings "stuck" in-between no longer serving their original function, yet not considered significant enough to be classified as heritage worthy of protection.

PROCESS CHART



DELIMITATIONS

This thesis is geographically delimited to include the Silo and its immediate surrounding on the plot at Quay 240/Marieholmsgatan 2. The outcome of this thesis does not aim for a redesign of the future development plan for the whole area of Marieholm.

Parts of the project site have previously been used for industry, meaning there are possibly contaminants in the ground. These contaminations will not be examined or accounted for in this project.

The project does not answer any financial restrictions or stakeholders' requirements and will not account for financial calculations in the design proposals. Nor do the proposals account for construction calculations.

This project will not account for the technical improvements required to meet current building standards. The adaptations instead set out to explore the architectural potential of the site and the silo from a design perspective. The focus is to explore what values can be found in the specific physical attributes of the site.

READING INSTRUCTIONS

The first background chapter gives a brief history of industrialization and concrete silo buildings. This is followed by views on the practice of adaptive reuse; as a strategy for sustainable development, current approaches for adaptation and obstacles challenges are presented.

A central literature source for the background chapter of this thesis is "Industrial Heritage Re-Tooled - The TICCIH Guide to Industrial Heritage Conservation." That is because the source is recognized as a comprehensive and elaborated guide to current theory and practice within the field of industrial heritage. TICCIH (The International Committee for the Conservation of the Industrial Heritage) is the international organization aiming to "study, protect, conserve and explain the remains of industrialization." The book is edited by James Douet, and includes texts from 34 specialists from different fields, building upon the main clauses of the international framework document the "Nizhny-Tagil Charter" by TICCIH.

The third part deals with the local context, looking into current urban development strategies and public demand. That is followed by the issue of abandoned 'residual' sites, with a brief look into environmental psychology and a presentation of Canters' model for place identity. Further follows a presentation of quay 240 with a site description and building analysis.

Part four presents the three design proposals of adaptive reuse along with assessment charts and a cross-comparison. Part five consists of a conclusion and reflection, followed by a reference list.

All figures, illustrations, and photos by the author unless stated otherwise.

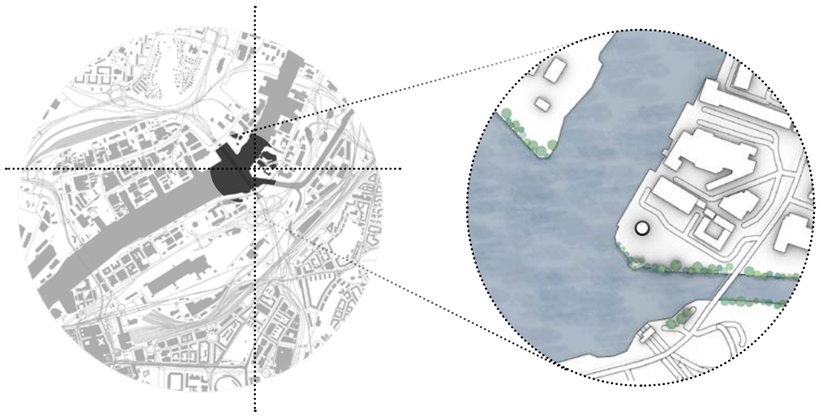
HISTORICAL CONTEXT

Beginning in England in the late 18th century, the introduction and growth of the modern industry have had a profound impact on global economic and social change. Industrialization enabled nations to shift from agrarian dependency into new forms of prosperity. (Douet, 2013, p.6) Working opportunities brought people from rural communities into urban areas, making industrialization a major driving force for urbanization.

In the 19th century, industrialization evolved with technical innovations, new models for the labor organization, and new ways of applying water- and steam power for manufacture. (Douet, 2013, p.7) This contributed to the introduction of new building typologies. Manufacturing centers such as factories, breweries, mills, and industrial ports started to emerge across the western world, including Gothenburg. During the 20th century, various factors led to the accelerating deindustrialization of the west. The effects of this decline have often had far-reaching detrimental consequences on industrial communities and has left several industrial facilities obsolete and oftentimes derelict.

While there are examples of former industrial buildings in Gothenburg being adapted and reused, a great number of buildings have been demolished and replaced when no longer in use. Others are currently left without ongoing maintenance and threatened with demolition, of which the Marieholm Silo is a clear example.

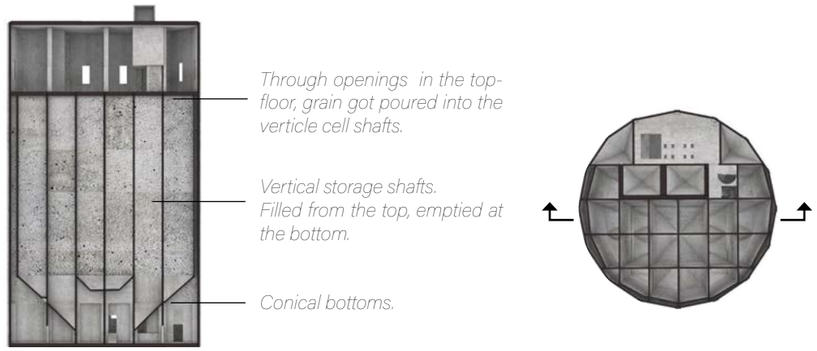
The Swedish National Heritage Board (Riksantikvarieämbetet) states that industrial development has been of great importance for the development of our society and among the most significant phenomena are the facilities where industrial production has taken place (RAÄ, 2018). By preserving these, one can capture and clarify many dimensions of the industrial past. According to RAÄ it is therefore urgent to develop the work around the industrial heritage.



The silo is located near the river as used to serve as an important transport route.

CONCRETE SILO BUILDINGS

Concrete grain silos started to emerge in the late 1900th century, serving the purpose of storage in vertical shafts. The cylindrical shafts of raw concrete became industrial landmarks in many industrialized communities during the first half of the 2000th century. Silos were often located close to transport routes such as roads, rivers, and railways. The mechanical system of a silo building includes machinery that tip or scoop grain from a farm cart or freight car and raise the grain to the top of the storage shafts (Banham. 1986). The cell shafts all have conical bottoms from where the grain is decanted into other forms of transportation or directly into a mill.



Section of the Quay 240 Grain Silo.

Silos were once common landmarks within the Gothenburg cityscape, but have rarely gotten preserved when they are no longer in use. The municipality often has several perspectives on the problem of unused silos. One perspective is the commercial interest (Wahss et al. 2006), the land where silos were located is often considered highly attractive; central, and close to the river. Among demolished Silos in Gothenburg are the Pripps Brewery malt silos at Odinsgatan (built in the 1930s, demolished in the 1980s); the Carnegie Porter Brewery silos at Klippan (demolished in 2006); the silos at Juvelkvarnen in Eriksberg (demolished 2012); and the gasometer at Gullbergsvass (demolished in 2018). Therefore, the grain silo at quay 240 is one of the last existing examples of the building typology in Gothenburg. It got constructed around 1960, owned and operated by Västsveriges Lantmäns Centralförening until it got taken out of use in the 1980s. Today, Svenska Hus AB owns the property. The silo is currently facing an uncertain future.

Quay 240 and the silo 2020-09-12.

THE VALUES OF INDUSTRIAL HERITAGE

Since the introduction of modern industry and its associated buildings, the term cultural heritage has evolved to include various types of industrial heritage. Industrial heritage is defined by author N. Cosson, as "the recognition and valuing of the material evidence of industrialization" (Douet, J. 2013. p.7) Within the process of protecting industrial heritage, assessment of its significance forms a crucial part. This significance can get defined in terms of what values (and constraints) are related to a building or built environment. These, in turn, can form the framework for the development of conservation policies (Douet. 2013. p.131).

Many different factors and circumstances can influence the result of heritage value assessment. There is no one universal method for assessment - individual countries may have their assessment criteria and thresholds for the level of significance may vary. There are wide variations of properties associated with a great diversity of values considered industrial heritage. In this context, organizations of specialists and experts such as The International Committee for the Conservation of the Industrial Heritage (TICCIH) and the International Council for Monuments and Sites (ICOMOS) have been developing principles for the preservation of different types and aspects of industrial heritage.

In 2002, TICCIH published the international document known as the Nizhny-Tagil Charter, presenting a general framework for the value assessment of industrial heritage. Further, the joint document by TICCIH and ICOMOS was signed in 2011; "Joint Principles for the Conservation of Industrial Heritage Sites, Structures, Areas, and Landscapes" known as the Dublin Principles. The following value assessment framework has gotten developed by TICCIH and can serve as guidelines when assessing the significance of industrial sites or buildings:

Historical value - the building is related to a historical event with an impact on subsequent industrial and social development; it serves to understand the culture and history of a place.

Social value - the building or site is connected to peoples' lives and memories, providing a sense of history and identity.

Technological or scientific value - the site or building showcases innovation in the history of manufacturing.

Architectural value - the building is noteworthy through qualities deriving from the building's architecture, design, or planning.

Identity value - the building can be seen as a recognized landmark or signature of a place.

Representative value - the building is valued as a rare or representative exemplar within a given industrial sector. (Douet, J. 2013. p. 8-9, 92.).

These values may change over time. For example, a building typology that was once common can achieve increased significance as a rarity if many buildings of the same typology get demolished.

In Sweden, issues regarding conservation are regulated in the Planning and Building Act from 1987, with primary regard to precaution, maintenance, and a ban on distortion (Göteborgs Stad, 2021). In the municipality of Gothenburg, where the silo is located, buildings or built environments considered particularly culturally and historically valuable are protected through a conservation program in three parts (bevarandeprogram volym 1-3). This program constitutes an important knowledge base in urban planning as well as for the work on the city's comprehensive plan. The purpose of the conservation program is stated to

"Preserve and bring the cultural heritage to life
Contribute to continuity in the development of the external environment
Promote local cultural identity
Contribute to raising awareness of aesthetic values and historical contexts"
(Göteborgs Stad, 2021)

This legal protection entails that changes or additions to buildings within the conservation program shall be made carefully so that existing characteristics and qualities are respected and utilized. This form of protection on one hand grants the preservation of cultural and historical values, but may also complicate any adaptations or installations required to meet a contemporary use.

Reflecting on the heritage values as worthy of protection and relating them to the silo at Quay 240, I would argue that it is worthy of some type of protection due to being extra noteworthy in terms of architectural values, and also for being a typological rarity. As of yet, the Silo is not included within any preservation program.

ADAPTIVE REUSE | *As a sustainability strategy*

Transgressing mere preservation, adaptive reuse of industrial buildings can serve as an appropriate intervention when the original function is no longer possible to sustain. The concept of adapting buildings to fit new demands is not a novel phenomenon in itself. Historically adaptive reuse has gotten dictated by economy and common sense (Douet. 2013. p. 86). Today, based on various aspects, the reuse of industrial heritage may be argued as a strategy for sustainable development.

In a post-industrial context, an obsolete industrial building may mainly be of value to its owners for what it could become rather than what it once was. (Douet. 2013. p. 110, p.136). Thus, adaptive reuse can serve as a tool that ensures the buildings' preservation and protection of their associated values, while meeting contemporary needs.

Implementation of a new function can potentially catalyze economic regeneration of decayed or declining areas (TICCIH, 2003). A successful conversion project that gains publicity and popularity can increase public interest in industrial heritage and attract more investors for other abandoned buildings in its surroundings. (Douet. 2013. p. 114).

Furthermore, recycling buildings is considerably less resource-demanding than demolition, waste management, and building new. Considering the ongoing climate crisis there is an urgent call for less resource-demanding solutions to reduce CO_2 emissions. The building sector has immense negative environmental impacts, not least from material extraction, production, and transportations. To make continued use of a building means taking advantage of the non-recoverable energy already invested within it - achieving immediate reductions in CO_2 emissions.

In addition, single-purpose industrial buildings are often characterized by specific architectural attributes and spatial configurations that can provide opportunities to explore unique spaces and expressions. Reusing them allows contributing to spatial and architectural diversity.

Considering the above, one could argue that the reuse of industrial buildings ought to be evaluated as a cultural, economic, or environmentally sustainable alternative when dealing with urban renewal.

ADAPTIVE REUSE | *Adaptation approaches*

In the 1950s and 1960s, initiatives of adaptive reuse of industrial buildings began in the UK. (Cairns. 2013. p. 13-32) That led to the spread of awareness of the significance and potential in structures from industrialization. The 1970s was when the notion of 'adaptive reuse' came to establish itself as a creative discipline (Cairns. 2013. p. 13-32.), merging the fields of architecture, interior design, conservation, and planning.

Adapting an industrial building to serve a new purpose almost always requires interventions and structural changes. (Cairns. 2013. pp. 13-32).Industrial buildings with a universal structure and generic layout, such as warehouses, can make good candidates for adaptive reuse as they are amenable to host multiple types of functions. Other, single-purpose utilitarian buildings with technology directly built into the construction, such as Silo buildings, have spatial layouts directly related to their purpose. Subsequently, typologies of this category can be more complex to reprogram (Douet. 2013. p 115). On the other hand, they can make candidates for innovative design.

There are various approaches and methods to be used when adapting industrial buildings. Based on the work of several practitioners active in the field, authors Plevoets, B., & Van Cleempoel outlines what is considered the four main strategies currently in practice:

Typological approach - adaptation based on the understanding of the relationship between a typology, its form, and the range of activities it is capable of housing. A strategy where the physical attributes guide the program of a new function; a function follows-form-strategy.

Technical approach - approaches building adaptation as primarily a technical task; concerning what improvements are required to best accommodate a new function. Focuses on the range of technical issues to be considered, such as fire resistance, thermal performance, acoustic properties, etc.

Programmatic approach - starts by selecting a specific program or function, and subsequently adapting the host building to accommodate it.

Strategic approach - uses the specific site and building qualities as the basis for the design. It is an approach that acknowledges a more poetic side of adaptive reuse. Based on an understanding and interpretation of the qualities of the particular contextual setting, capturing the 'genius loci,' the sense of place. (Cairns. 2013. pp. 13-32).

The physical interventions used in the design proposals will get assessed and divided accordning to these approaches.

ADAPTIVE REUSE | *Obstacles and challenges*

Adaptive reuse of obsolete industrial buildings inevitably poses several challenges spanning a broad spectrum. This text is limited to name only a few.

It first and foremost takes appropriate expertise to bring about a transformation that emphasizes rather than erases the core values of a place. (Douet, J. 2013. p. 8, 13). Local contextual insight is required, and local demands need to be accounted for, political, social, economic, and environmental. The same goes for the skills and desires of stakeholders, developers, or heritage professionals.

Further, legislation and regulations defining one purpose may not apply to a new function. (Douet. 2013. p. 8, 132). Building laws and regulations, up-to-date technical requirements, and installations of course need to be properly met. Moreover, the possible poor structural condition of a building and connecting infrastructure can limit the adaptability of the buildings themselves.

Reactivating obsolete industrial buildings in a context of economic instability may eventually imply financial risks that are too great to make a realization possible. (Douet, J. 2013. p. 8-9). Coordinated assessment work on conservation-, reuse- and management plans can be a time-consuming and costly procedure in itself, as it engages several different stakeholders and professionals, each with different agendas.

Lastly, industrial sites can be heavily contaminated. Buildings and soil must get decontaminated in a way that ensures a safe environment, but even as that gets granted, there is still a risk of unpleasant odors, stains, or intact structures.

"The task is to meet the needs of the new function, while being guided by the preconditions of the site."

- Kia Bengtsson Ekström

LOCAL CONTEXT | *Current urban development*

While Gothenburg is still highly dependent on the harbor, the historical connection to the river is changing. Former industries that relied on the river as a transportation route has in recent decades been supplemented or replaced by mixed urban developments that value proximity to water as a quality. This transformation is evident in the future development plans as well.

2021 marks the 400th anniversary of Gothenburg. In 2009, the City of Gothenburg decided to use the anniversary as a milestone and catalyst for the city's development (Göteborg Stad, 2018.). That has formed the urban development project Rivercity Gothenburg, which sets out to further transform areas along the river into mixed developments. The project aims to make central Gothenburg double in size through approximately 2050, focusing on seven project areas along the river: Backaplan, the Central Station area, Frihamnen, Gullbergsvass, Lindholmen, Ringön, and Södra Älvstranden. (Göteborg Stad, 2018.).

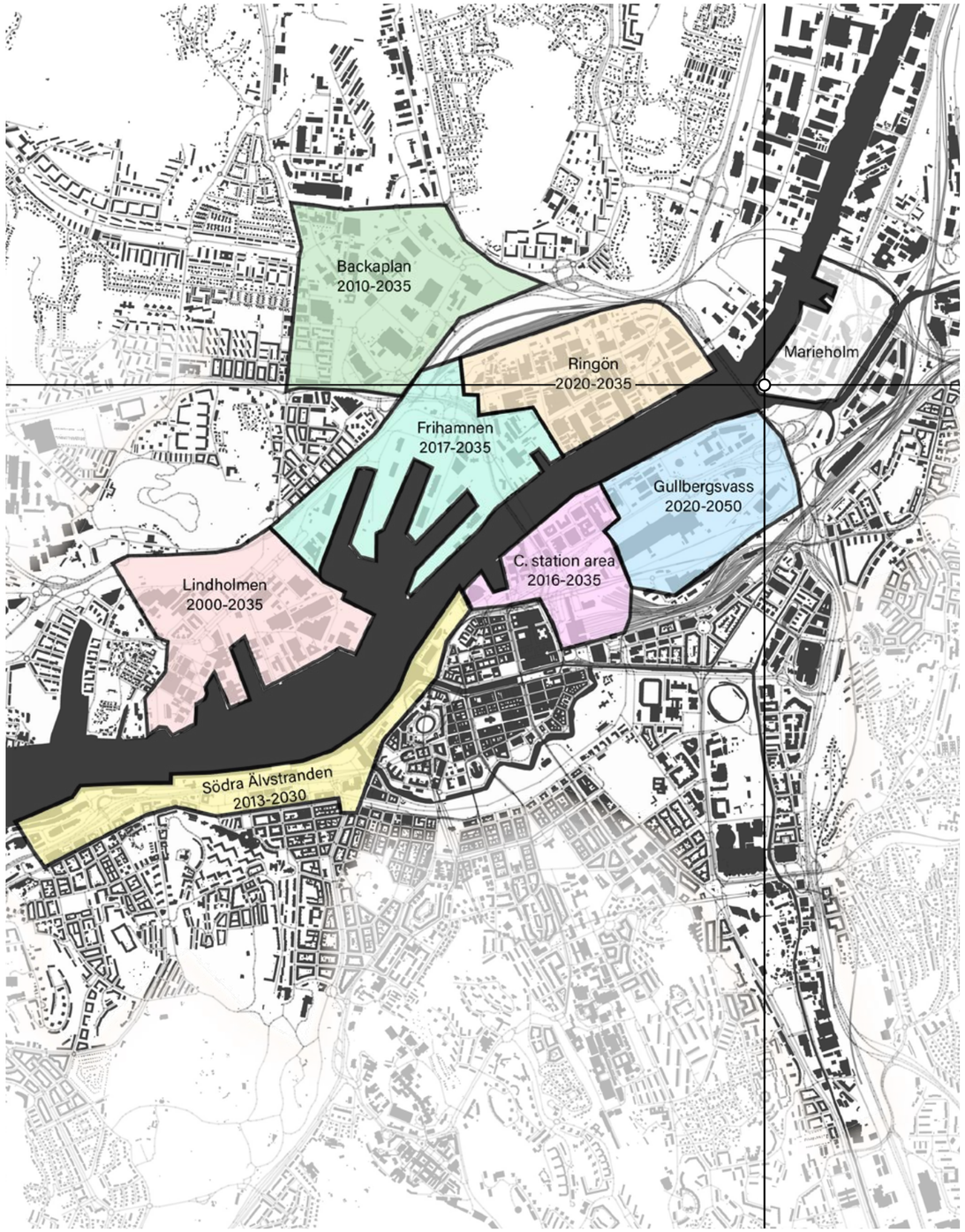
Marieholm, today a distinct industrial area, is located on the eastern riverside. While it is not a dedicated area within Rivercity Gothenburg, it borders Gullbergsvass and the Central Station Area, which are currently under development. Gullbergsvass is developing into a mixed urban environment with footpaths along the river (Ramböll, 2015), while the Central Station Area is to become a regional hub with a dense urban environment that includes the new station for the train tunnel Västlänken (Göteborgs Stad, 2021.).

The development of these areas, along with the new connections across the river, Hisingsbron, and Marieholmstunneln, will likely have an impact on Marieholm in many aspects. Not least in terms of generating conditions for Marieholm to become a more integrated and accessible part of the city.

Proposed future developments in Gullbergsvass and C. Station Area.
Prestudy by Ramböll, Lljewall and EGA.

Gullbergsvass
Central Station Area
Project site / Silo

Landscape model: **EGA Erik Giudice Architects**



In color: development areas within *Rivercity Gothenburg.*
Project site / Silo

0 1000m

1:30000

LOCAL CONTEXT | *Defined urban development strategies*

I order to anchor the design proposals within the local context, one aim has been to outline any defined public demands as well as defined goals and visions of current urban development. This by looking more closely at the strategies of "Rivercity Gothenburg".

Participatory planning processes can serve as a means to meet public demand, promote social sustainability and ensure democratic values. Intending to meet public demand, the City of Gothenburg invited citizens in 2011 to participate in the planning process for the 400th anniversary of 2021. Citizen dialogues got conducted with people from different areas of the city. A total of about 2,800 people contributed with their view on how to develop Gothenburg to become a better city (Göteborgs Stad, 02.21). Suggestions and ideas got compiled in a proposed work plan for the Citys development.

The work plan ultimately progressed into the document Rivercity Gothenburg Vision (alvstaden.goteborg.se, 2012.), adopted by the City Council in 2012. The vision document forms the direction for Gothenburgs' development in terms of strategies and cross-border collaborations. It is characterized by three main strategies:

- Reinforce the city centre
- Embrace the water
- Connect the city

The municipal company Älvstranden Utveckling has, together with the city and in collaboration with trade and industry, the task of realizing Vision Älvstaden (alvstranden.com). They state their core business is that of sustainable urban development. Within a framework for sustainable development they express, among other things, that:

"We will create a city for everyone (....) with a great variety of places, housing, and expressions. (...) We need to recreate the city's connections to the water by, for example, creating more meeting places along the riversides."

And further elaborates:

"In addition to economic values and viability, the company must work to create and preserve social and ecological values" (alvstranden.com).

The process of citizen participation shows that the city has the ambition, to some extent, to take public demand into account when forming its strategies. On a critical note, it may be reasonable to question the scope of participation and reflect on its representation. Further, governing through strategies in the public sector has been criticized, as there is too much room for interpretation in the implementation phase (Brorström, S. 2016.). There are stakeholders outside of the city's organization whose interests and agendas have to be accounted for. Hence, it is uncertain how and to what extent public demand will influence the final physical outcome.

LOCAL CONTEXT | *Meeting public demand*

The publics' ideas from the participatory process for the upcoming anniversary are compiled together in the idea book "1680 idéer om Göteborgs 400-årsjubileum" (Magnusson, Å. 2012). The udeas have gotten categorized under 13 themes, with the corresponding percentage of ideas within each category. The book is not presented as research material but rather as a documentation basis used to formulate strategies. In this thesis, the idea book is considered an accessible indication of public demand. By aiming to meet public demand, my method has been to map out which ideas could be applicable to the specific conditions on my project site.

Public transport and flows	*16%*
Meetings and experiences	*15%*
The Water City	*12%*
Green City	*10%*
Dare to innovate and change	*10%*
Culture as a carrier	*6%*
The young at the center	*6%*
Landmarks and icons	*4%*
Creative city of knowledge	*5%*
Anniversary celebration	*5%*
Influence and safety	*4%*
The opportunity of diversity	*4%*
Living in the city	*3%*

To summarize, the proposed development plans for the neighboring area of Gullbergsvass presents a dense urban structure that involves the demolition of the existing. That, and the notion that Marieholm is facing a somewhat uncertain future, makes up for an opportunity to explore alternative development strategies based on reuse rather than demolition. With the idea book at hand, the chance emerges to explore functions focusing on public demands rather than stakeholders' interests. Lastly, the defined goals within Vision Älvstaden provide guidelines to strive to preserve and create ecological and social values and explore various expressions.

LOCAL CONTEXT | *Urban residual spaces*

A personal observation when talking about my thesis site is that almost no one I have spoken to is familiar with the Marieholm silo or its location, regardless of whether they have lived in Gothenburg all their lives. Finding this intriguing, I was encouraged to investigate the possible underlying reasons why that is, and if there are ways, as an architect, to counteract this.

In ***"The psychology of place"*** (1977), David Canter presents the psychological processes that enable us to understand, use and create places. Canter studies what causes certain behaviors in certain places and states that our understanding of a place affects our behavior in it. (Canter, D. 1977.) Eg; we would likely behave differently in a church than we would in a youth center, based on our understanding of the different functions and activities that take place there.

Our understanding of a place, Canter explains, comes from our experience of it. Through interactions with our physical surroundings, we develop and attach patterns of associations and expectations, what Canter calls a "cognitive system" (Canter, D. 1977. p. 158.). From our personal experience, we assign a place with a variety of meanings - we form a personal conception of the place. Thus, the differences between two people in their conception of the same place are related to differences in their experiences in it.

That may conclude: frequent interaction with a place helps to develop a conception of it, whereas the lack of interaction makes up for a situation where the place does not register in our cognitive system. That becomes relevant when dealing with residual spaces, such as abandoned industrial sites, because it indicates why sites like these often become "blind spots" on people's mental maps. If a place (such as the Marieholm silo) is not associated with any significant functions or activities, we may have no obvious reason to interact with it. Subsequently, we will have difficulties forming any conception of it.

With a lack of activity and no reason for interaction, residual spaces accordingly get set up to become subjected to neglect, potentially causing a cycle where buildings there may decay to the point where demolition gets argued as the only viable option. That seems to be the case of Quay 240 and the Marieholm Silo.

In opposition, examples show that creative interventions and raising public awareness of such areas can serve as means to counteract this kind of process.

Authors Groth, J. and Corijn, E. have studied three cases (in Helsinki, Berlin, and Brussels) where reappropriations of obsolete industrial areas have raised enough public awareness as to influence subsequent decision-making processes, presenting such areas as potential drivers for change.

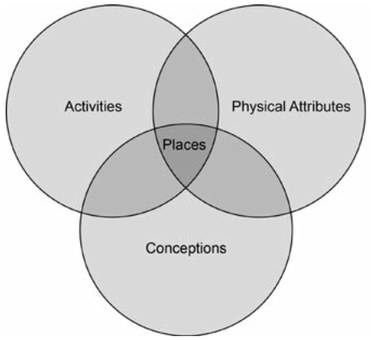
Having become obsolete and temporarily left aside from the dominating visions of urban planning, the indeterminate character of these areas seems to have allowed for practices of innovation and playful intervention to arise (Corijn, E. & Groth, J. 2005.). Organically developed networks of 'informal' actors have assumed alternative reappropriations, redefining these indeterminate spaces into places defined by various socio-cultural activities and expressions.

In my view, this study shows that the indeterminacy of the residual spaces (and accessibility to them) can make way for the co-existence of multiple activities and encounters. In turn, this helped to form conceptions of them as places of social value. Creating hybrid solutions that cater to different needs makes a place more inclusive.

Seeing Quay 240 as a residual site, currently overlooked and characterized by indeterminacy, the design proposals in this thesis attempt to raise awareness of its value-creating potential. And by acknowledging the potential benefits of leaving certain things undefined and open-ended, the design proposals will not plan the site to the very last detail, but rather suggest programs with principles to further develop.

PROJECT SITE | *Place identity*

When developing a design proposal, Canter argues that the architect must describe the nature or identity of the place one is attempting to create, as it provides a valuable link to design decision-making. Canter proposes a Venn diagram that can serve as a tool for 1) identifying existing places or 2) indicating the nature of places to be created. This diagram relies on the definition of place as "the result of relationships between actions, conceptions and physical attributes" (Canter, D. 1977. p. 158.). As shown in the diagram, a place gets identified by the overlap of those parameters; **Activities, Conceptions, and Physical attributes.**



Canters' venn diagram
"A visual metaphor for the nature of places"

Site plan. Quay 240 and silo marked.

Through this model, Canter illustrates that one cannot fully identify the nature of a place until we know the relation of the three parameters. When identifying or creating places one can start with any of the major components. What activities are associated with the place? What are the physical attributes of the setting? What are peoples' conceptions or descriptions of the activities in that setting?
"The general task [of architects] is to manipulate the physical attributes in such a way as to create the appropriate context for specifiable activities and conceptions" (Canter, D. 1977. p. 163)

To raise awareness (and counteract the neglect) of Quay 240, the aim has been to intervene and propose activities and physical forms that help articulate the place as one with distincti definition. That has been carried out by identifying and drawing upon the inherent physical attributes of the site. Since the Quay 240 is currently not characterized by or associated with any particular activities, (the silo is out of use and the plot is fenced off), the physical attributes have served as the static parameters to start from in the design process. I have started by identifying and describing the physical attributes of:

1) the site (surrounding environment)
2) the building (silo)

Based on the identified physical attributes, following Canters' model, I have outlined personal conceptions and suitable activities associated with them. These are presented within a table of identification, for the site and silo respectively. From that, I have matched the conceptions and activities to the public's ideas in the idea book. These form the foundation for my redefining design proposals of Quay 240.

Map data © 2019 Google. 3D view of Marieholm, Gothenburg.
The Silo is situated on the southern tip of Marieholm, between Säveån and Göta Älv.

PROJECT SITE | *Relation to surroundings*

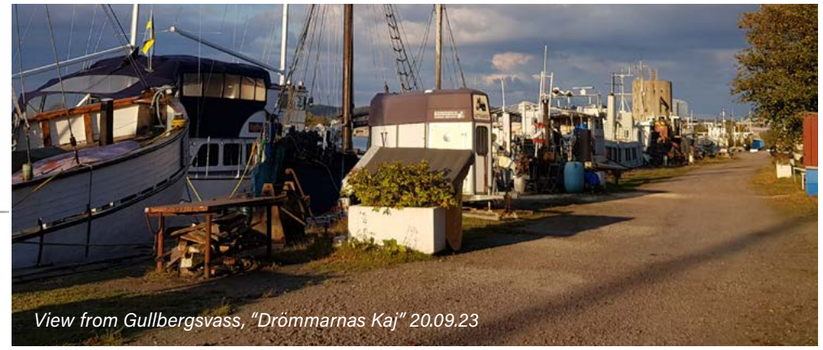
Quay 240 and its silo is located on the eastern river side at the southern tip of Marieholm, where Säveån flows into Göta Älv. It is about 1,2 km from the Central Station. It is accessible by Marieholmsgatan, marked in orange. Walkways from the central station goes along the eastern riverside at Gullbergsvass, locally known as "Drömmarnas kaj". The raw casted concrete and the height of 33,5 meters makes the silo a landmark to spot from various locations along the river.

The Silo
Gothenburg Central Station
Biking path
Bridge
Main car road
Tunnel
Marieholmsgatan


View from Marieholmsbron 20.09.23


View across Säveån 20.09.23


View from Gullbergsvass, above Tingstadsunneln 21.02.12


View from Gullbergsvass, "Drömmarnas Kaj" 20.09.23

PROJECT SITE | *Physical attributes*

The project site is highly characterized by the immediate connection to the river. The plot has its quay in Göta Älv, numbered 240. The flat ground and southwest-facing conditions give the site high daylight exposure, reflected in the water. The riverbank towards säveån are lined with deciduous trees, while the quayside towards Göta Älv offers an excellent view of the city.

View from the cape 2021.02.12

View to the south from the silo rooftop 2020.11.06

The open, flat space characterizes the site 2021.02.12

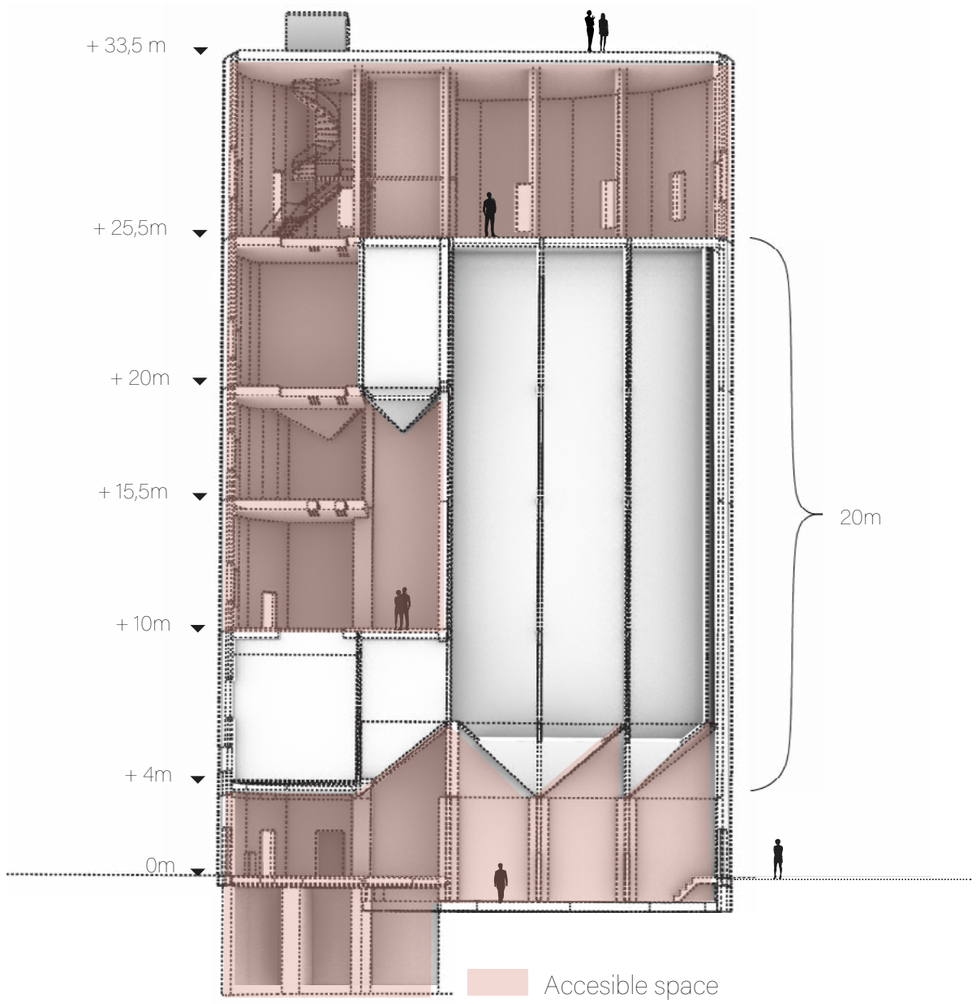
Lush riverbanks where Säveån flows into Göta Älv. 2020.09.23

PROJECT SITE | *Identification table*

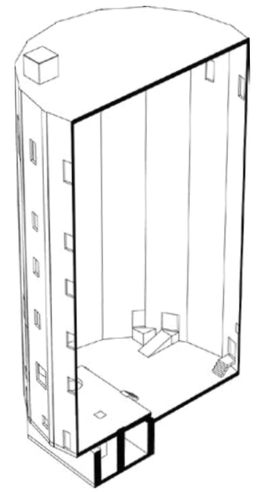
	PHYSICAL ATTRIBUTES	*PERSONAL CONCEPTIONS*	*ACTIVITIES / FUNCTIONS*
WATER	▪ Atmospheric ▪ Calming ▪ Beautiful ▪ Open space ▪ Fresh air ▪ Sun reflections ▪ Natural element ▪ Sound ▪ Stillness		▪ Swimming ▪ Boat rides ▪ Fishing ▪ Walking ▪ Pausing ▪ Coffee ▪ Picnic ▪ Enjoying the view
VIEWS	▪ Orientation ▪ Visible connection ▪ Sense of belonging ▪ Sunshine		▪ Enjoying the view ▪ Coffee/lunch/dinner ▪ Photographing ▪ Pausing ▪ Sunbathing ▪ Sunsets
ca. 8000 m² OPEN SPACE	▪ Passability ▪ Can host large gatherings ▪ Flexible space ▪ Daylight exposure ▪ Easy orientation		▪ Events ▪ Festivals ▪ Concerts ▪ Fairs ▪ Exhibitions ▪ Park area ▪ Sports
GREEN	▪ Calming ▪ Beautiful ▪ Natural ▪ Supports biodiversity ▪ Contrasting to industrial area ▪ Colorful ▪ Framing the place		▪ Park ▪ Sunshade ▪ Walking ▪ Pausing ▪ Picnic spot ▪ Climbing ▪ Playing ▪ Swinging

THE SILO | *Physical attributes*

The physical attributes of the silo are directly connected to its original function. The tower-like shape is constructed solely in raw casted concrete. It has five accessible "floors", connected by a spiral stairway and elevator. The spatial layout is dominated by sixteen vertical storage shafts, meaning most of the interior space is inaccessible. The shafts are arranged together in dimensions of ca 3 x 3,5 meters, to withstand the weight of grain, and the height ranges from 20 to 24 meters. The closed shafts were filled from the open floor space on top and emptied through conical bottoms at the ground level. Additional buildings with machinery supporting the operation were once attached to the silo, but have been demolished.

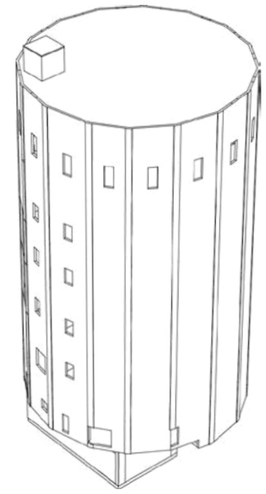


THE SILO | *Structural diagram*



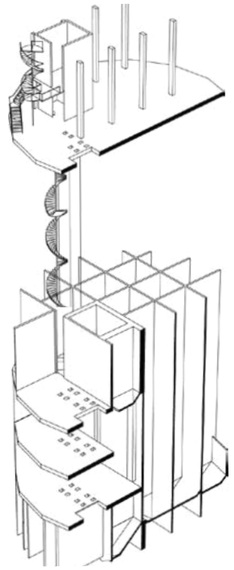
Rooftop, facade.

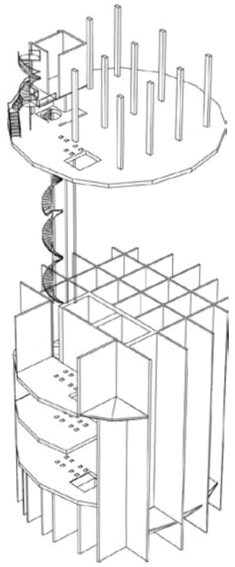
The entire silo is made of raw casted concrete.



Floor 6.

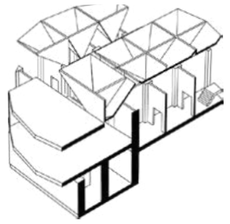
Ceiling height 8 m. Open space with pillars. Spiral stairs leads up to the rooftop.





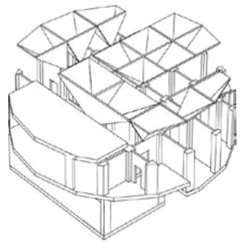
Floor 2-5.

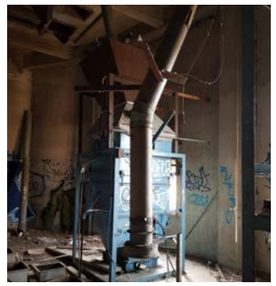
The 16 inaccessible vertical shafts measure 20 - 24 m.



Floor -1-1.

The cell shafts' conical bottoms





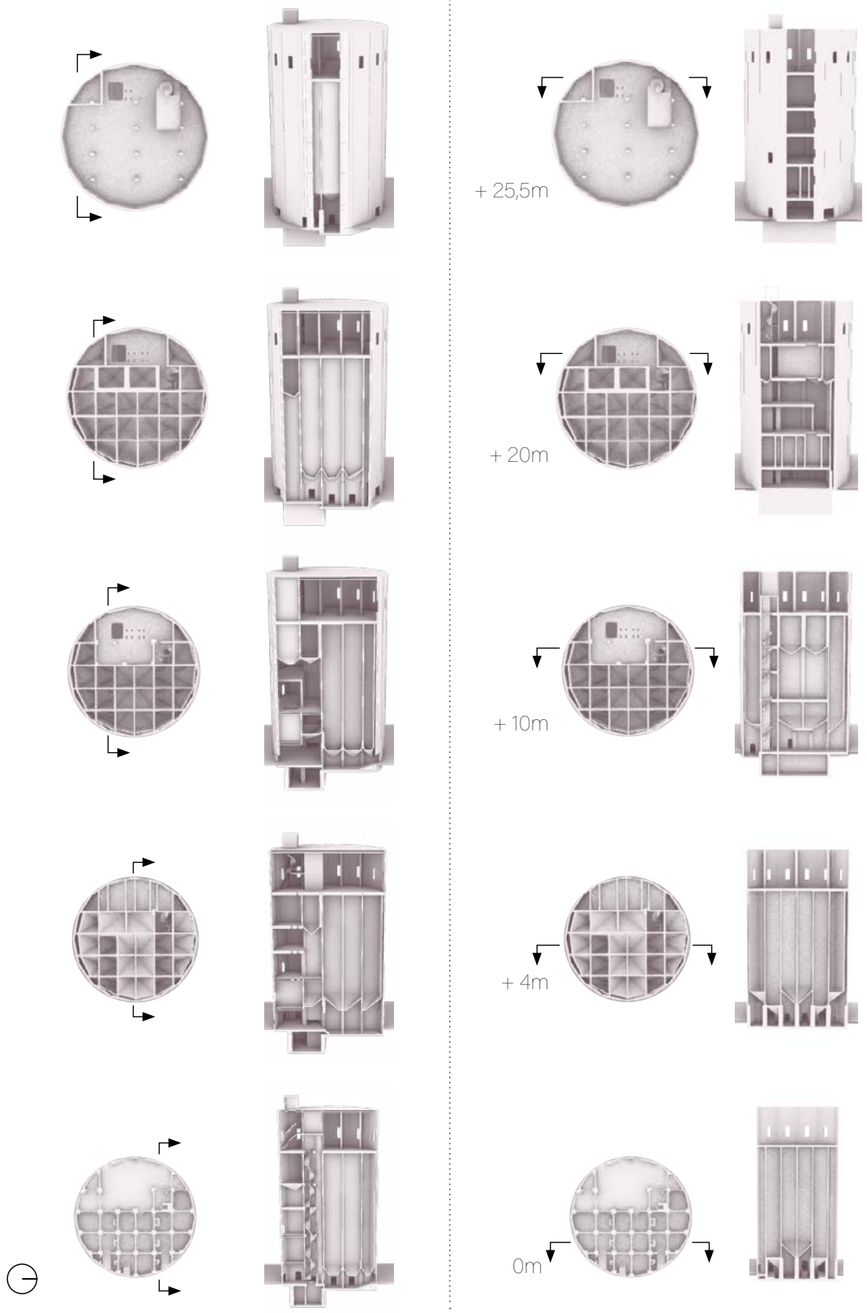
Interior photos from the second and third floor.

Interior at the open top floor, where spiral stairs lead up to the roof.

THE SILO | *Sections*

Section south - north

Section west - east



THE SILO | *Identification table*

	PHYSICAL ATTRIBUTES	PERSONAL CONCEPTIONS	ACTIVITIES / FUNCTIONS
OPEN TOP FLOOR	▪ Flexible space ▪ Views		▪ Restaurant /Café ▪ Social event space ▪ Exhibition space ▪ Dance floor ▪ Lecture hall
FACADE	▪ Sculptural ▪ Landmark ▪ Church-like ▪ Verticality ▪ Materiality, heavy ▪ Industrial ▪ Monumental		▪ Anything that can capture the sense of verticality ▪ Mural art wall ▪ Climbing wall
VERTICAL SHAFTS	▪ Verticality ▪ Cave-like ▪ Acoustics ▪ Sense of scale		▪ Reservoirs ▪ Vertical movement? ▪ Stairs ▪ Grandstand ▪ Viewing platforms ▪ Climbing walls ▪ Atrium?
CONICAL BOTTOMS	▪ Unique form/ expression		▪ Container? ▪ Reservoir ▪ Climbing?
GRID LAYOUT	▪ Systematic order ▪ Division of space ▪ Modular ▪ Repetitive		▪ Gives sense of direction ▪ Helps direct movement ▪ Divides space
ROUND SHAPE	▪ Central plan church ▪ Amfi-theatre ▪ Nave ▪ Strong geometry		▪ Stage/arena ▪ Atrium ▪ Framing element

PROGRAM # 1

The Industrial Temple

Based on public ideas from the ideabook
"1680 idéer om Göteborgs 400-årsjubileum"
(Magnusson, Å. 2012).

From category "Culture as a carrier":

"Gothenburg should focus on something other than consumption. It is important to be reminded that you are part of something more than mundanity that risks keeping you on the surface of duty and consumption. People need help with contemplation. Well-being is having access to one's own psyche."

From category "Dare to innovate and change":

"I hope we can realize what a cultural treasure and beauty experience the old factory premises constitute. Every building (...) that has been productive should also be reviewed if, instead of demolition, it is possible to integrate it into another contemporary function. They create exciting architectural-historical environments and experiences. Authenticity and genuine structure".

From category "Watercity":

"Rebuild the quays into boardwalks with restaurants, cafes, small shops, green oases (...). Create a more tranquil environment."

"Make the water more accessible. Create continuous walking paths along the river that are lined with greenery and beautiful works of art."

*"Integrate the river with the city and its inhabitants!
Increase the sense of belonging in the city! Give us a building that unites people. (...)
I want you to build something directly adjacent to the river that through its architecture can serve as (...) a spectacular landmark."*

"A vibrant mixed city, (...) with more experiences. A clear sea / west coast profile with plenty of gathering places by the water."

From category "Landmarks and icons":

"(...)take advantage of the gasometer as a landmark. you could go up to the top with an elevator and step out on the roof and enjoy the view"

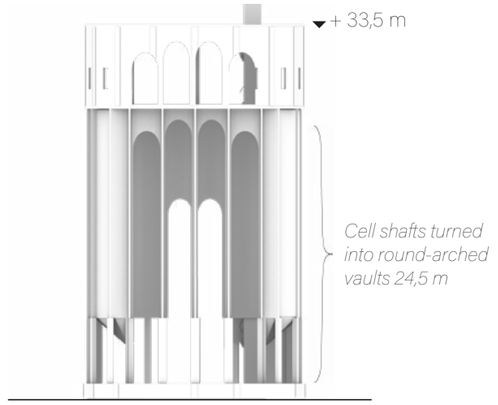
PROGRAM # 1
Building function & attributes

The first proposal is based on the conception that some of the attributes of the silo are reminding of those of a church. The transformation explores a temple-like venue, merging industrial character with church-like architecture. The connection to the water is meant to articulate a sense of stillness and atmospheric calm. A key concept is the integration of rainwater into the open shafts, explained in detail on the next spread.

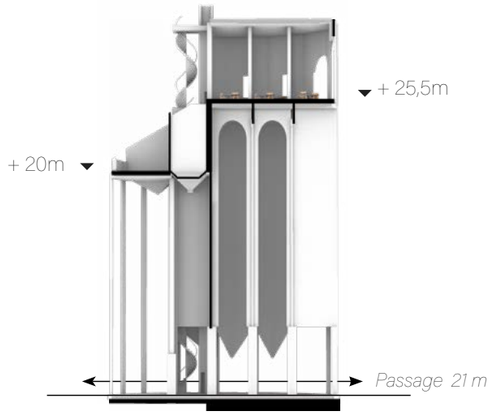
The spatial layout invites visitors to experience the building through an open passage, reminiscent of that of a centered church isle. The facade is removed, and 12 out of the 16 vertical shafts are opened up into round-arched vaults, enhancing the sense of verticality. The concept makes this proposal suitable for celebratory ceremonies such as weddings or graduation ceremonies - but just as well for a moment of contemplation and pause from everyday life. A spiral staircase and elevator lead up to the 6th floor. Here, the open floor space is preserved and recognized as a flexible space that can host various functions, such as a wedding reception, a New Years' banquet, or a daily café. On the way up by stairs or elevator, one can stop at the fifth floor and enjoy the view from the west-facing balcony. At the very top, a roof terrace offers visitors a 360° view of Gothenburg.

View towards the entrance.

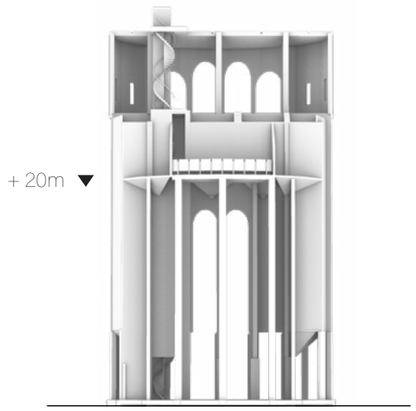
PROGRAM # 1
Building function & attributes | diagrams



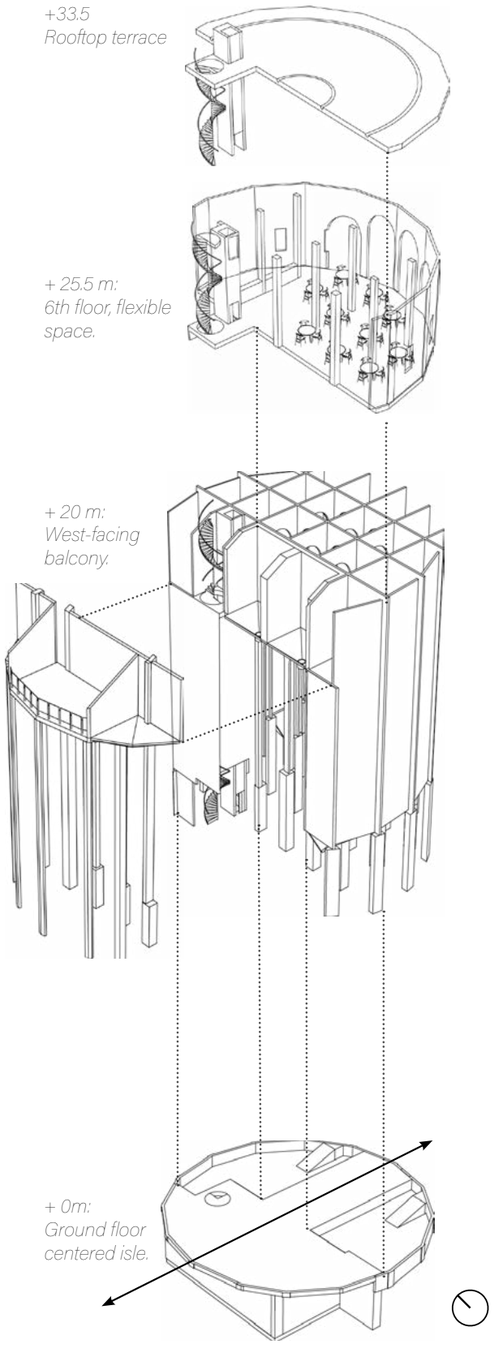
East facade



South section

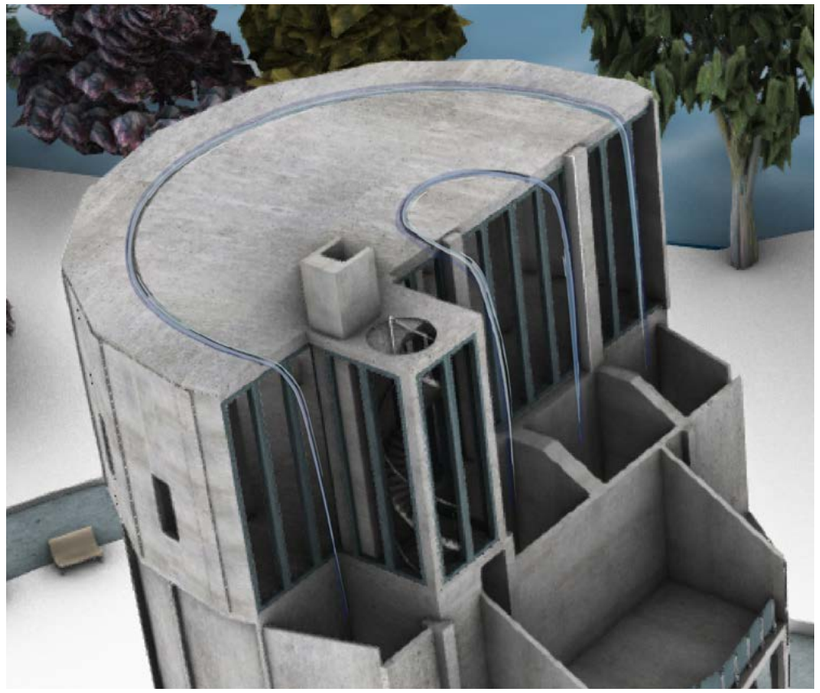


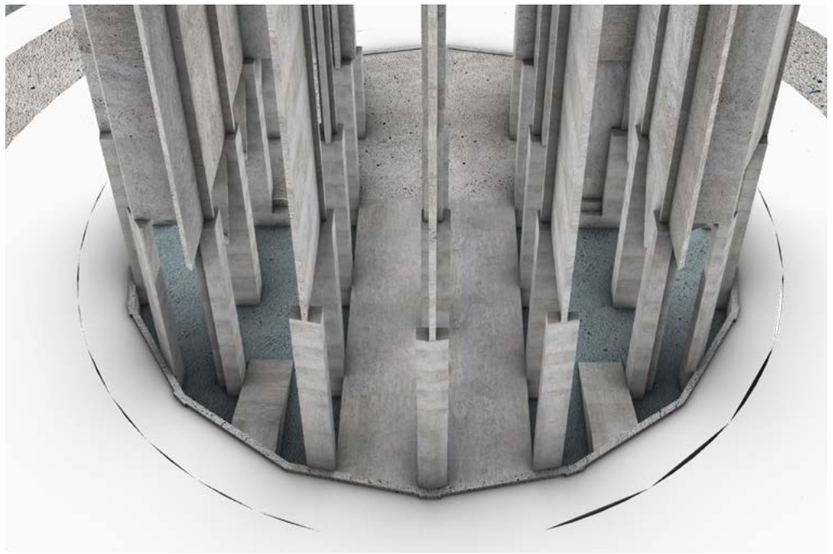
West facade



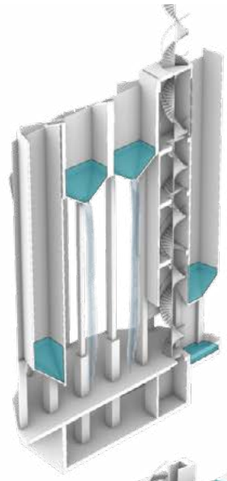
PROGRAM # 1
Building function & attributes | Water integration

A conceptual key in this proposal is the integration of water. The architecture collects and integrates rainwater as shown in the diagram. The idea relies on enforcing the atmosphere by echoes of dripping water. The lowered ground-level floor has been turned into a pool, approximately 60 cm deep. This serves as a mirror for the vaults and as a daylight reflector. The acoustic properties of the concrete vaults should fit particularly well for sonic experinces.

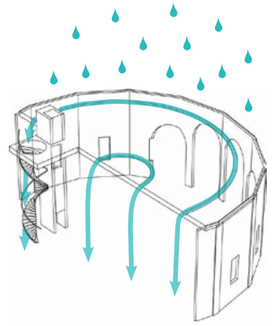


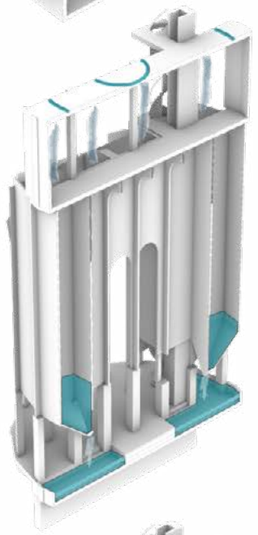


PROGRAM # 1
Water integration diagrams

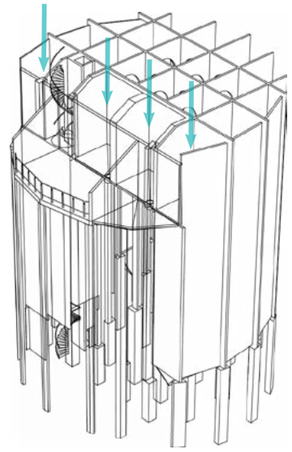


Grooves in the roof collects rainwater and leads it over the edge into open shafts.

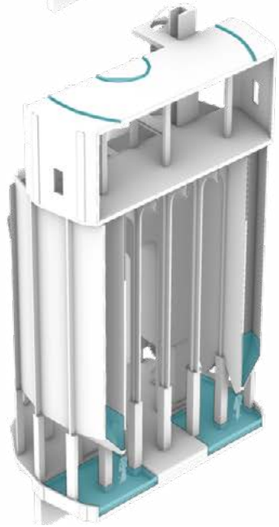




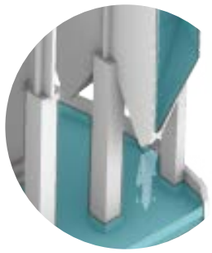
Cell shafts let out water at different heights.

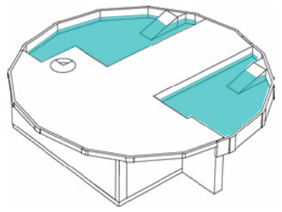


The pouring water creates a soundscape, instilling an atmospheric ambience.



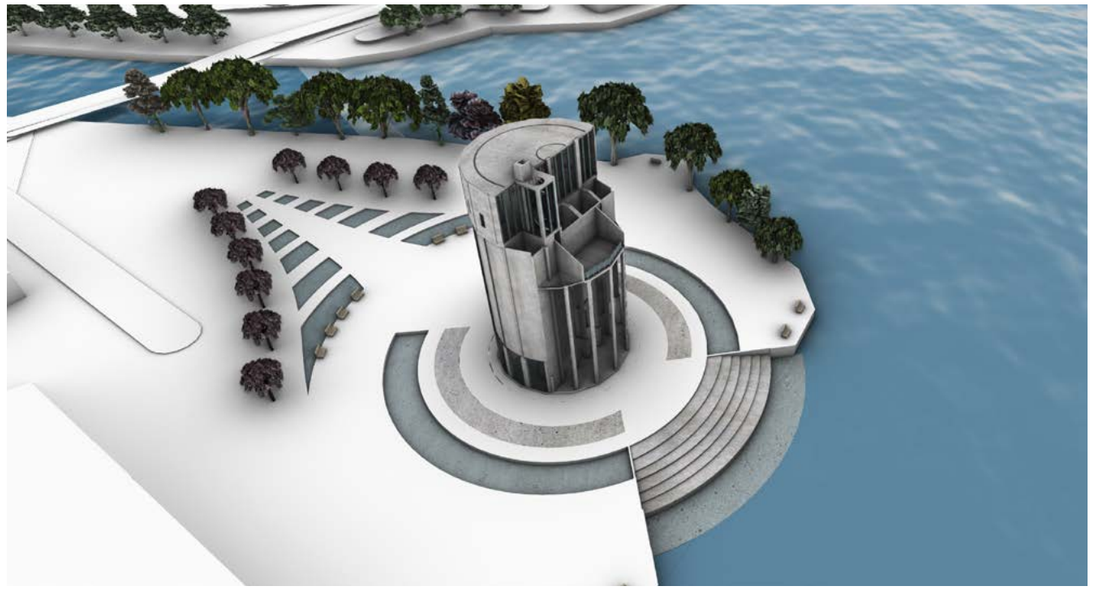
The floor is originally lowered and collects water into a floor pool around the raised isle.





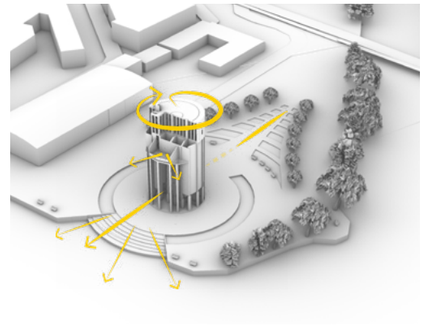
PROGRAM # 1
Site attributes

Aerial view of the plot towards the extrance.



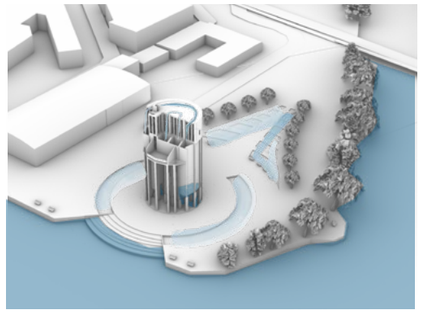
The west-facing part of the cape is marked by a rounded terrace meeting the river.

VIEWS



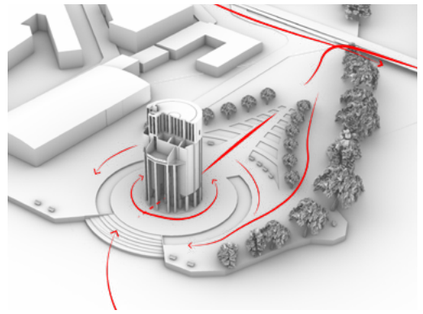
Generous views are offered from the roof terrace, top floor, and balcony. A straight sightline goes through the building. The site is kept open to keep the outlook from the cape.

WATER



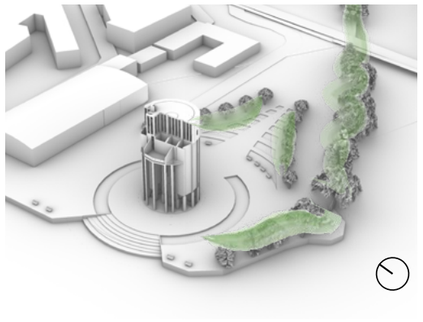
The axial opening directs visitors towards the river. The connection to the river gets articulated with a rounded terrace. Ponds orchestrate the movement, and integrated rainwater contributes to the atmospheric experience.

OPEN SPACE



The layout orchestrates an axial movement across the site and through the building. Rounded ponds frames the temple and allows visitors to walk around the building.

GREEN



Exisitng green structure is preserved. Rows of trees are added to enhance the axial movement. Further aquatic plantings could be integrated to the ponds.

PROGRAM # 1

Situations

The west-facing part of the cape is marked by rounded terraced stairs meeting the river.

View to the south.est from the water.

Vew to the north from the water.

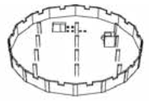
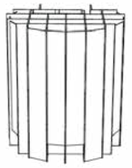
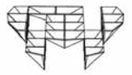
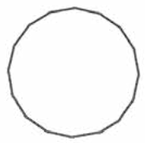
The west-facing part of the cape is marked by rounded terraced stairs meeting the river.

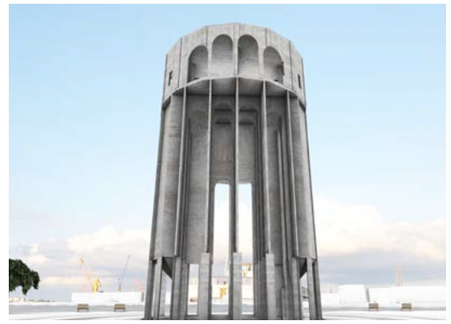
PROGRAM # 1| Evaluation chart

The chart seeks to explain how Canters' model has served as a support in each proposal. Attributes, conceptions, and activities that are addressed in the proposal get indicated in columns from left to right.

Design strategies responding to each parameter are categorized according to current practice approaches of adaptive reuse presented by Pleovoets and van Clampeol.

"Outcome" attempts to summarize the impact of each design strategy in terms of architectural expression and created values.

		PHYSICAL ATTRIBUTES	PERSONAL CONCEPTIONS	ACTIVITIES / FUNCTIONS	HOW? DESIGN STRATEGY	TYPOLOGICAL APPROACH	PROGRAMMATIC APPROACH	STRATEGIC APPROACH	TECHNICAL APPROACH	OUTCOME (Architectural expression & experience, impact)
BUILDING	OPEN TOP FLOOR		▪ Flexible space ▪ Views	Social events eg. partys, café, restaurant, exhibition, etc.	▪ Preserved open topfloor (140 sqm)	✓	✓			Flexible meeting place - celebratory reception space, café etc.
	FACADE		×	×	×					×
	VERTICAL SHAFTS		▪ Verticality ▪ Acoustics ▪ Sense of scale	▪ Reservoirs ▪ Enhancing sense of scale	▪ Shfts cut into round-arched 24m vaults		✓			Church-like expression Displays verticality & scale
					▪ Rainwater collectors	✓				Atmospheric concept
	CONICAL BOTTOMS		▪ Unique form/ expression	▪ Container ▪ Reservoir	▪ Dropping rainwater			✓		Ambient soundscape Articulates atmosphere
	GRID LAYOUT		▪ Systematic order ▪ Division of space	▪ Sense of direction ▪ Directs movement ▪ Entrance	▪ Centered axial passage		✓			Invites visitors to move through, articulates ceremonial experience
					▪ Floor pool		✓			Mirroring vaults Light reflector Ambient soundscape
	ROUND SHAPE		▪ Reminiscent of Central plan church ▪ Strong geometry	▪ Framing element	▪ Rounded stairs			✓		Articulates the round shape
					▪ Framing, rounded ground basins			✓		Frames the building, contributes to atmospheric experience
SURROUNDINGS	WATER		▪ Atmospheric ▪ Calming ▪ Sound ▪ Stillness	▪ Pausing	▪ Passage to the river		✓			Re-establishes connection with the river
					▪ Water integration			✓		Contributes to atmospheric experience
	VIEWS		▪ Visible connection ▪ Sense of belonging	▪ Enjoying the view ▪ Pausing	▪ West-facing balcony +20 m			✓		Sunset lookout spot
					▪ Rooftop terrace	✓		✓		360 view of Gothenburg
	ca 8000 m^2 OPEN SPACE		▪ Passability ▪ Can host large gatherings ▪ Easy orientation	▪ Events ▪ Park area	▪ Public accessibility		✓			Riverside accessibility Public attraction, meeting place
					▪ Rows of trees leading towards the silo			✓		Invites & directs visitors to move across the open space
	GREEN		▪ Calming ▪ Beautiful ▪ Contrasting element	▪ Park ▪ Walking ▪ Pausing	▪ Exisitng green structure preserved			✓		Preserves ecosystems Contrasts the industrial
					▪ Rows of trees are added.			✓		Axial movement enhanced



PROGRAM # 2

The Open Air Arena

Based on public ideas from the ideabook
"1680 idéer om Göteborgs 400-årsjubileum"
(Magnusson, Å. 2012).

Category "Watercity":

*"Take advantage of our beautiful coast.
Build a pier by the water with (...) cultural life, music."*

"Create boardwalks along the river with the opportunity to jog, bike or swim"

*"Create a more vivid environment by the water.
Give the river back to the people"*

Category "Culture as a carrier":

"Make art publically visible around the city"

"Provide opportunities for concerts on the water"

"More space for art and live music in public space."

"Make a culture house/ venue on the water"

"Invest in culture! more music scenes for young people"

"Create a place for art (...) that can be continuously renewed (...)"

Category "Dare to innovate and change":

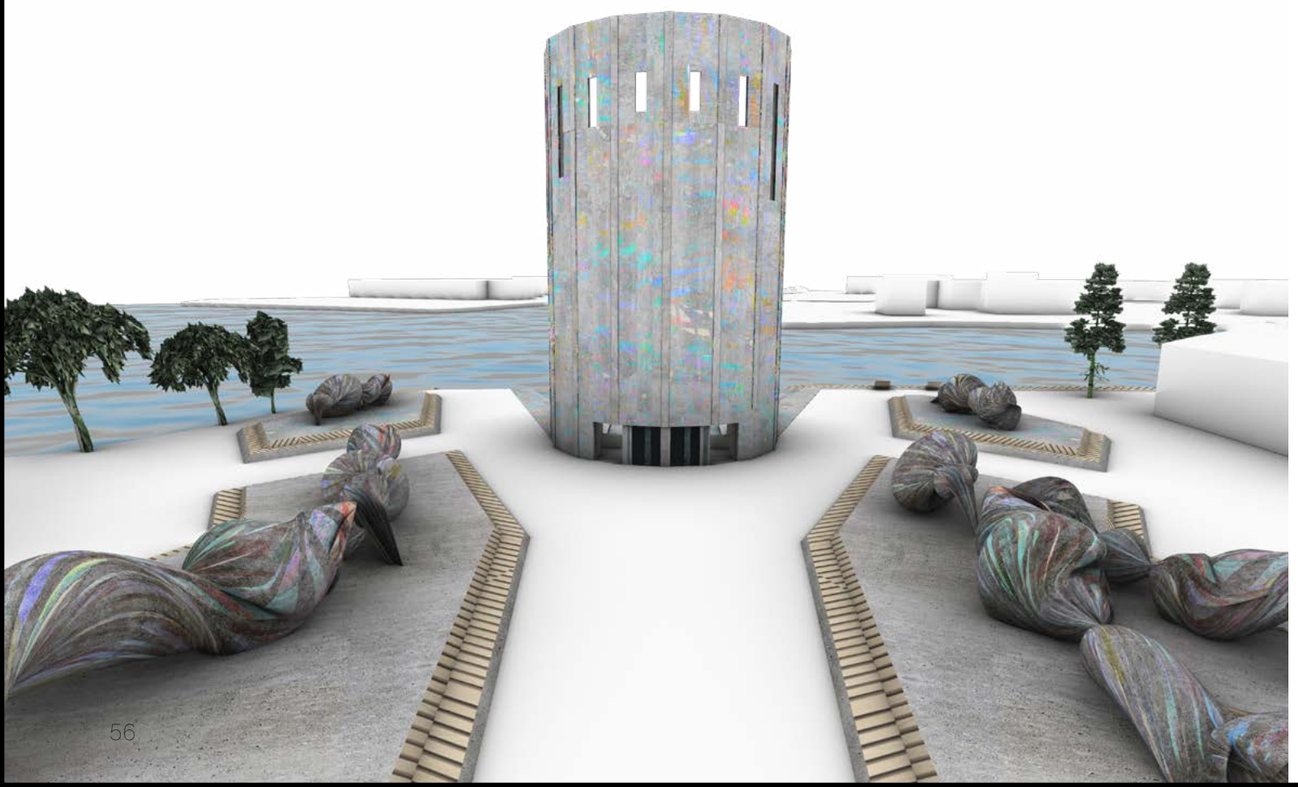
"Sun deck and beach restaurant directly on the boardwalk"

PROGRAM # 2
Building function & attributes

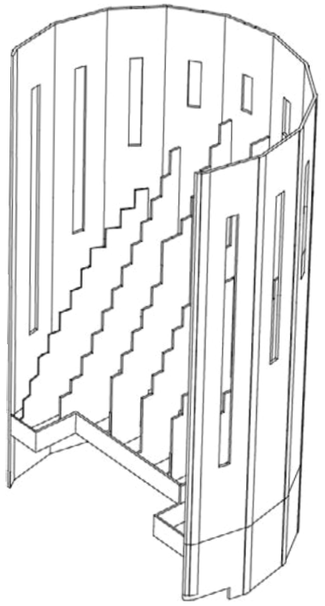
The design of the second proposal derives from the height and configuration of the cell shafts, exploring the potential of turning the silo into an open-air arena and grandstand and the surrounding site into a public place for cultural events.

If the previous proposal makes the building itself into the main destination, this one instead directs attention to its surroundings, particularly the river. By removing the west-facing part of the facade, the stand opens up towards the water, turning the quayside into the focal point. A rectangular ground pool and a river-based stage foundation integrate the river into the design. Terraced ground-level seatings spread out like a fan on each side of the pool. By connecting to a boardwalk, the seating serves as a public recreation spot that invites visitors to have a seat by the water. The arena could host music concerts, theatres, open-air cinemas, art- or dance performances, etc.

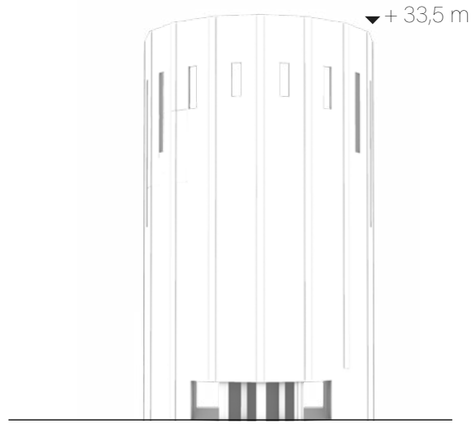
The plot can be recognized as a potential flexible area that could host events, such as festivals, exhibitions, markets, fairs, markets, etc. It could be a dynamic, ever-changing space for cultural activities and expressions. In a further development, additional buildings could support the concept.



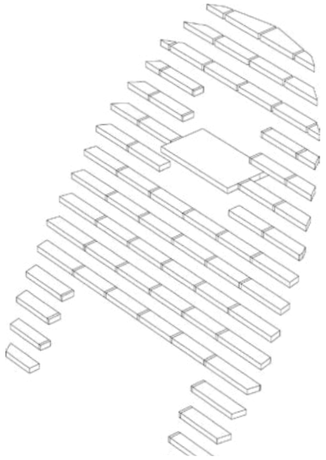
PROGRAM # 2
Building function & attributes | diagrams



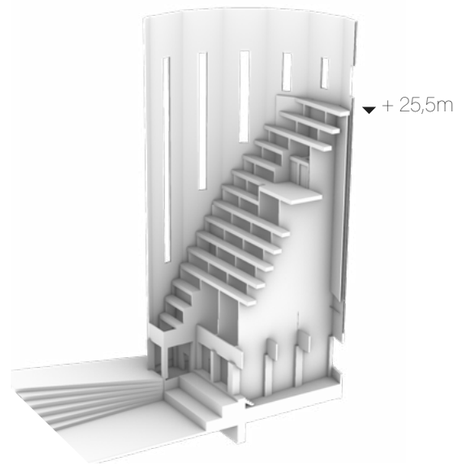
The east facade with the entrance is quite closed, contrasting the opening to the west.



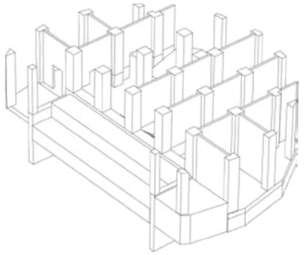
East facade



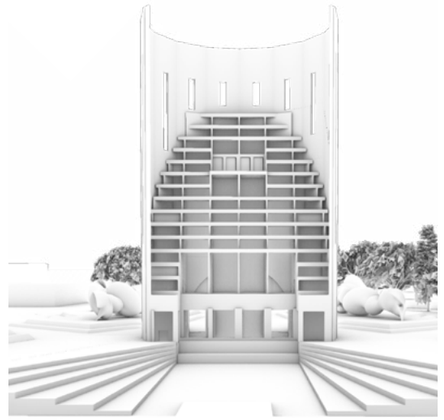
The grandstand follows the layout of the cell shafts and holds up to 430 persons.



South section



The ground floor pillar structure is intact. Ground seating faces the ground basin.



West facade

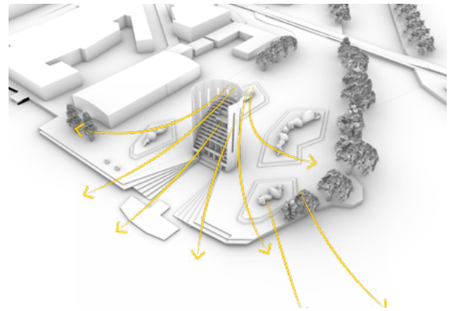
PROGRAM # 2

Site attributes

The quayside forms the focal point in this proposal. A shallow ground basin connects the arena with the river, and a stage foundation is placed in the water.

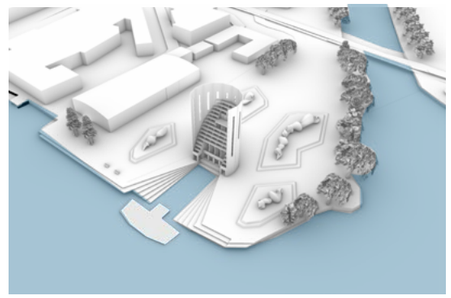
Aerial perspective shows how the movement gets directed towards and around the building.

VIEWS



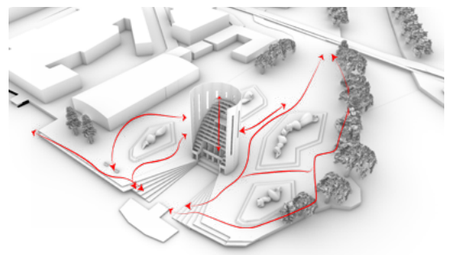
The concept relies on the view towards the river. The plot is kept open to keep the outlook from the cape.

WATER



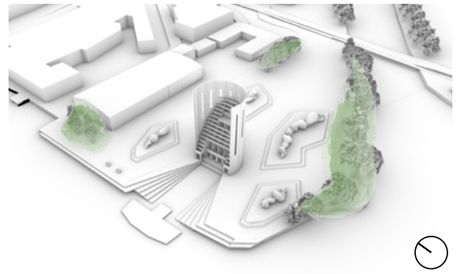
Walkways and seatings along the water directs visitors to the river. A ground pool and foundation placed in the river makes the river a key part of the concept.

OPEN SPACE



Landscaped surfaces directs movement towards the entrance and further around the building. The open space could host a variety of functions and activities.

GREEN

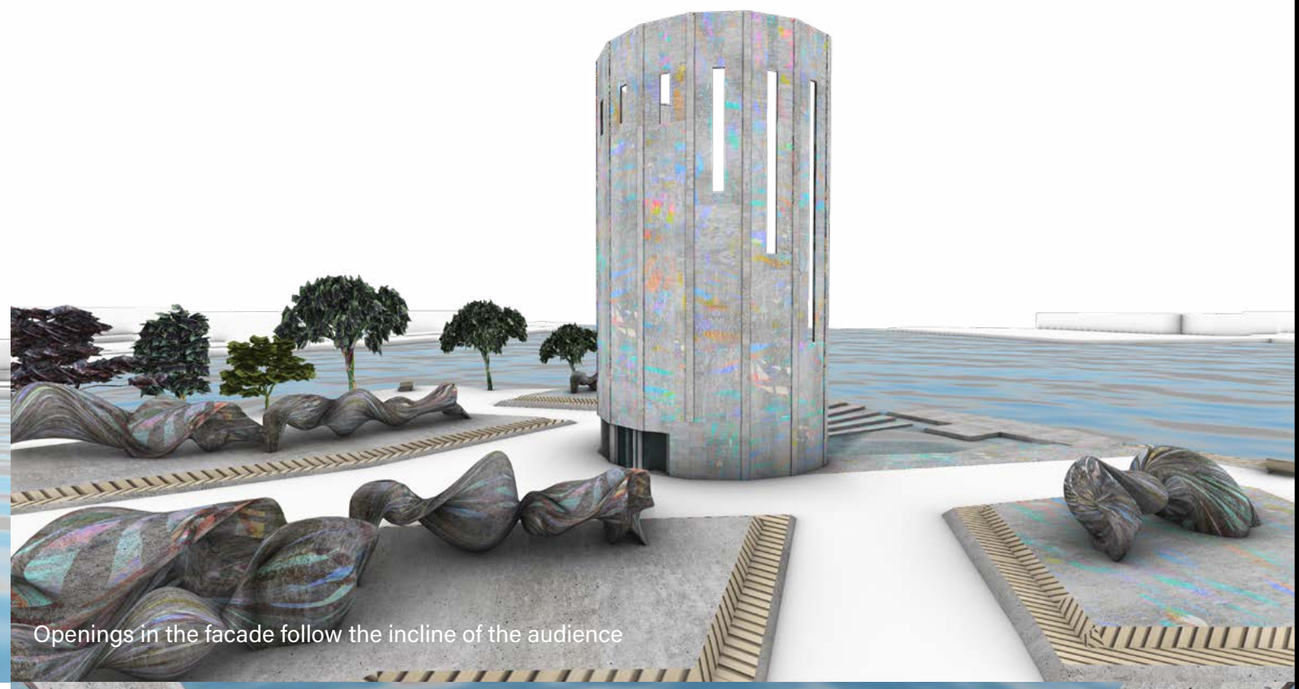


Exisitng green structure is preserved. Landscaped surfaces could include temporary or permanent plantings.

PROGRAM # 2

Situations

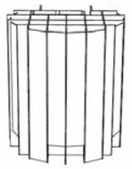
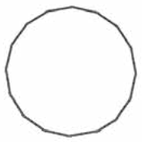
View from the river. The stage foundation could support larger temporary constructions.



Openings in the facade follow the incline of the audience

View from the river. The ground-level seatings spread out like a fan from the contours of the building.

Interior perspective from the top bleecher.

	PHYSICAL ATTRIBUTES	PERSONAL CONCEPTIONS	ACTIVITIES / FUNCTIONS	HOW? Design strategy
BUILDING / CONTEXT EXTERIOR				
FACADE		▪ Sculptural ▪ Landmark ▪ Verticality ▪ Monumental	▪ Anything that can capture the sense of verticality &	▪ 60% preserved ▪ Preserving full height ▪ Vertical openings follows grandstand incline
VERTICAL SHAFTS		▪ Verticality ▪ Acoustics	▪ Grandstand ▪ Viewing platforms	▪ Turning the shafts into a grandstand that follows vertical structure and dimensions
BUILDING / CONTEXT EXTERIOR				
GRID LAYOUT		▪ Systematic order ▪ Division of space ▪ Repetitive	▪ Gives sense of direction ▪ Helps direct movement ▪ Divides space	▪ Grandstand direction follows grid layout ▪ Ground water basin follows grid and cellar
ROUND SHAPE		▪ Reminiscent of Amfi-theatre	▪ Stage/arena ▪ Atrium	▪ Opened towards the quayside
SITE				
WATER		▪ Atmospheric ▪ Fresh air ▪ Open space ▪ Sound	▪ Walking ▪ Pausing ▪ Enjoying the view	▪ Terraced seatings, basin and stage by the water
VIEWS		▪ Orientation ▪ Visible connection ▪ Sunshine	▪ Enjoying the view ▪ Pausing ▪ Sunbathing ▪ Sunsets	▪ Grandstand 5-25 m high ▪ Open facade ▪ Ground seatings
ca.8000 m² OPEN SPACE		▪ Passability ▪ Can host large gatherings ▪ Flexible space	▪ Events ▪ Festivals ▪ Concerts ▪ Exhibitions	▪ Public accessibility ▪ Terraced seatings and pathways
GREEN		▪ Beautiful ▪ Contrasting element ▪ Framing the place	▪ Sunshade ▪ Pausing ▪ Picnic spot	▪ Existing green structure preserved

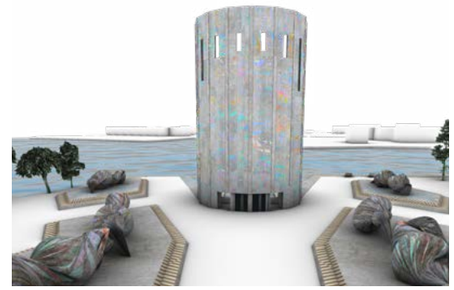
TYPOLOGICAL APPROACH	PROGRAMMATIC APPROACH	STRATEGIC APPROACH	TECHNICAL APPROACH	OUTCOME (Architectural expression & experience, impact)
	✓			▪ Acoustic properties, honoring original identity
✓				▪ Offering views, landmark potential
		✓		▪ Sense of veritcality
✓				▪ Vertical spatial concept that resonates sound inside the hollow concrete structure
✓				▪ Making the quayside the focal point
✓				▪ Connects silo with the river
		✓		▪ Open-air arena, directs attention to the river
		✓		▪ Experience revolves around water
	✓	✓		▪ Far-reaching west views from the whole building
		✓		▪ Offers view from cape
		✓		▪ Re-establishes river accessibility
		✓		▪ Flexible outdoor space
		✓		▪ Framing element ▪ Biodiversity preserved

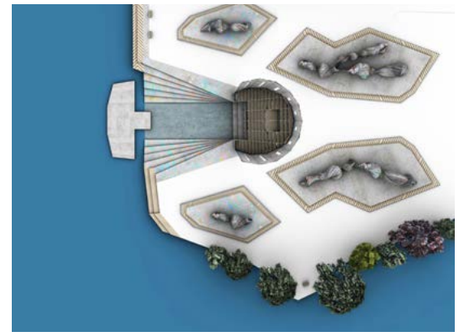
PROGRAM # 2 | *Evaluation chart*

The chart seeks to explain how Canters' model has served as a support in each proposal. Attributes, conceptions, and activities that are addressed in the proposal get indicated in columns from left to right.

Design strategies responding to each parameter are categorized according to current practice approaches of adaptive reuse presented by Pleovoets and van Clampeol.

"Outcome" attempts to summarize the impact of each design strategy in terms of architectural expression and created values.





PROGRAM # 3

The Greenhouse

Based on public ideas from the ideabook
"1680 idéer om Göteborgs 400-årsjubileum"
(Magnusson, Å. 2012).

From category "Water City":

"(…) Waterfront locations must be utilized much better (…) transform industrial environments in waterfront locations into lush oases and places to visit"

"A vibrant mixed city, with more greenery, less roads and more experiences (…) with plenty of gathering places by the water. More parks and greenery must be integrated into urban planning (…)"

From category "Green City":

"I think the gasometer is a beautiful and magnificent building that would be worth preserving with a wider area of use as a greenhouse where cultivation all year round could be made possible (…)"

"A greener inner city. Make room for nature, create more green spaces, trees, meadows, flowers"

"Make the inner city lush with gardens and flowers"

*"A new city park. Make the areas along the river greener.
Do not densify the city, preserve nature"*

From category "Meetings & experiences:"

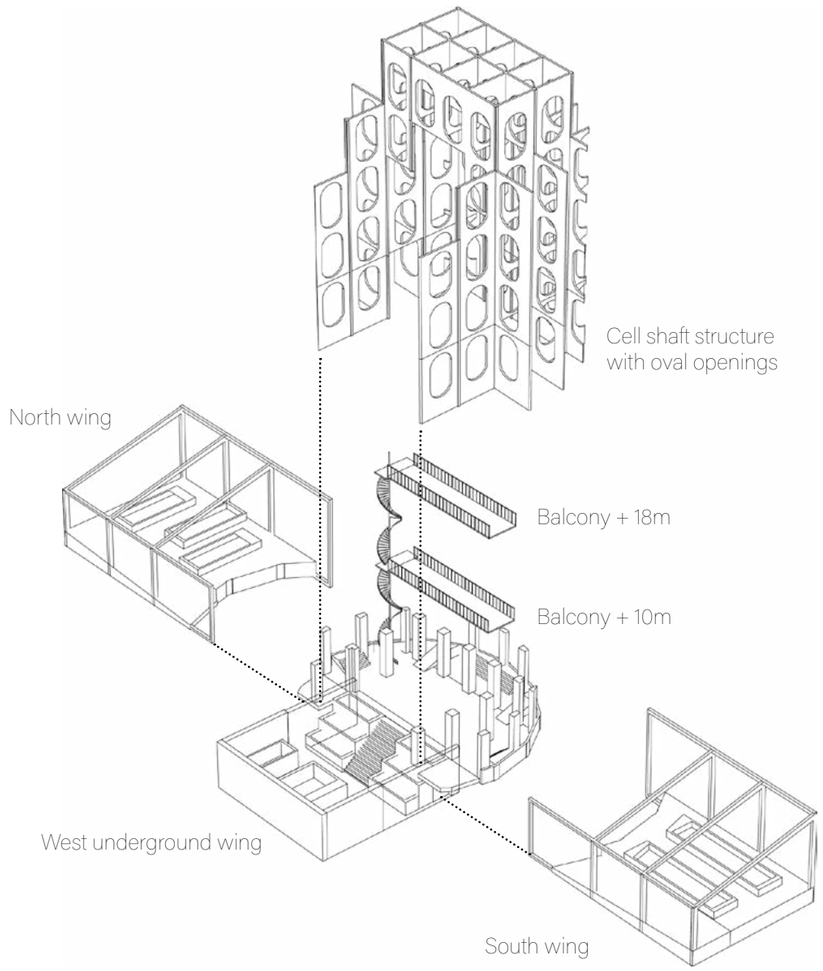
"(…) a place for collaboration and meetings between country and city, nature and culture, present and past, work and leisure, health and recreation(…)"

"Focus on public places. Let them flourish on different sides of the river. Let them have different content and expressions. It's not summer and sun all the time. Create open public free spaces; greenhouses, windbreaks. Temporary events make us discover new places; flea markets, concerts, temporary flower beads."

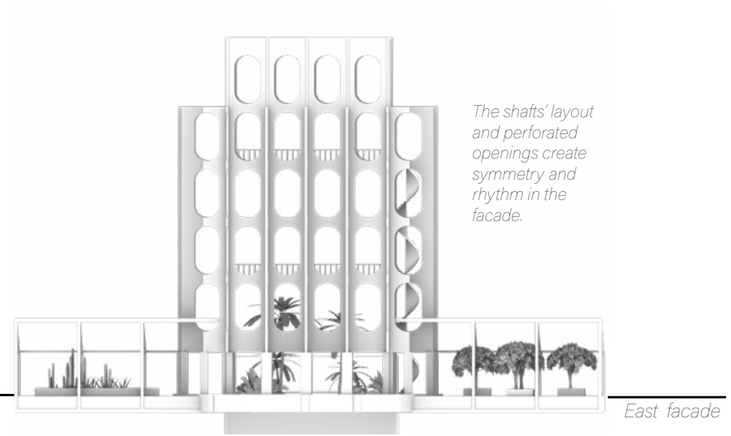
PROGRAM # 3
Building function & attributes

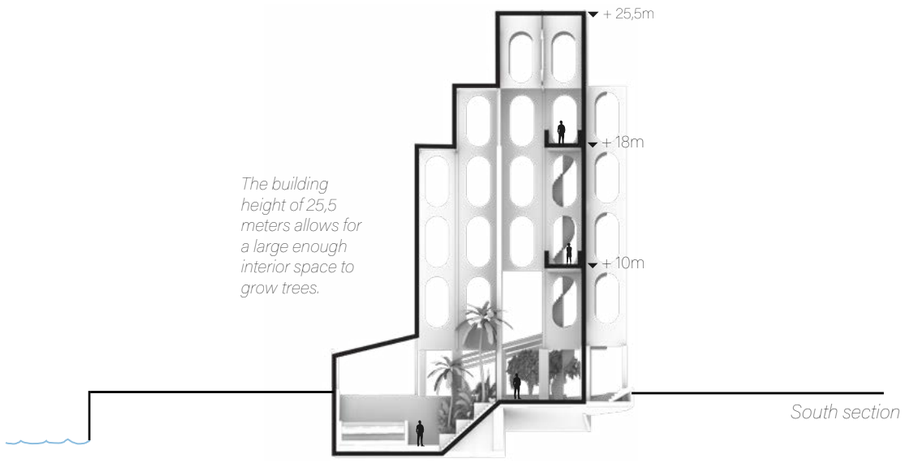
Drawing upon the grid structure and height of the vertical shafts, and the high daylight exposure on the site, the third proposal explores a contemporary use of the silo as a tropical greenhouse. The surrounding site responds to public ideas of a new, green meeting place close to the river, turning the old industrial area into a public park. Besides various benefits of ecological restoration, the park could serve educational purposes, projects of urban farming, green rehabilitation, and public recreation.

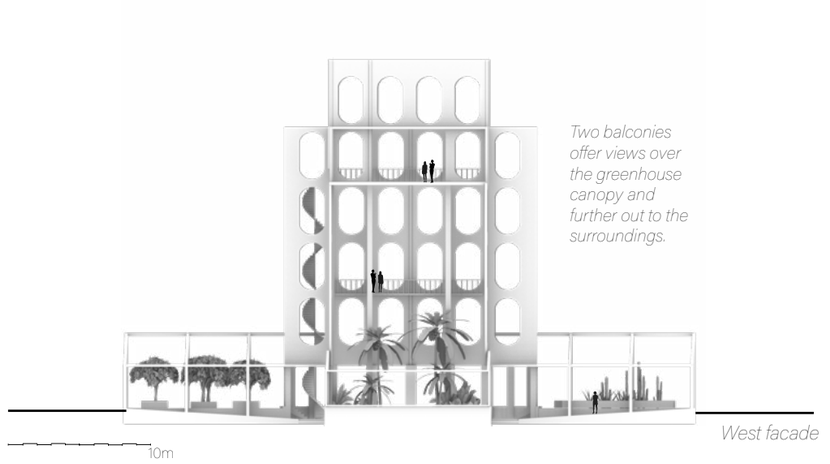
It is perhaps the most radical one in terms of structural interventions. The skeletal remains of the cell shafts make up the architectural centerpiece, accompanied by three additional wings to the north, west, and south. The most prominent feature in this redesign is probably the oval openings in the cell shaft structure, allowing daylight to permeate the building. The openings imply a need for additional layers of transparent materials to the building envelope - glass or the like.



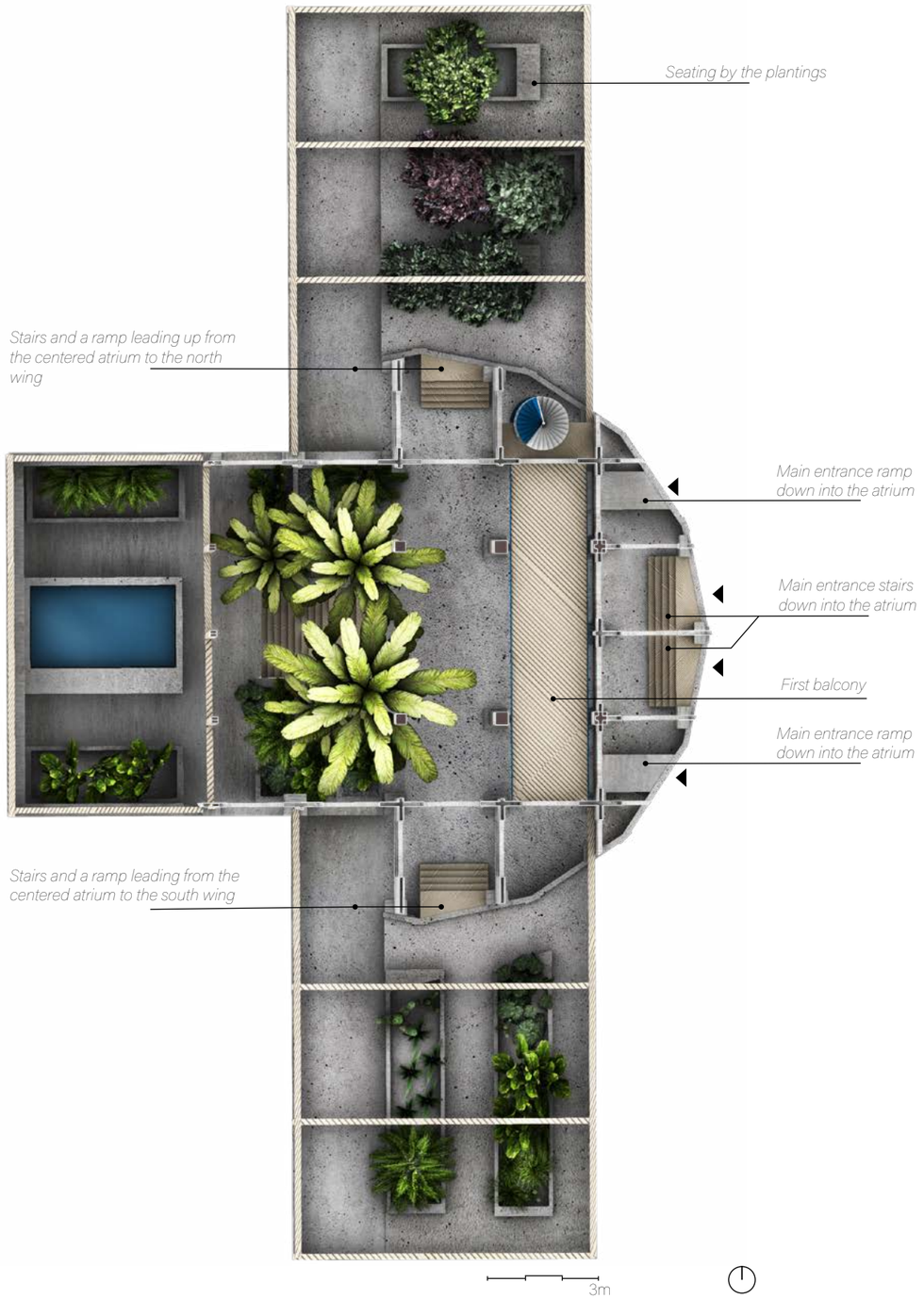
PROGRAM # 3
Function & attributes diagrams



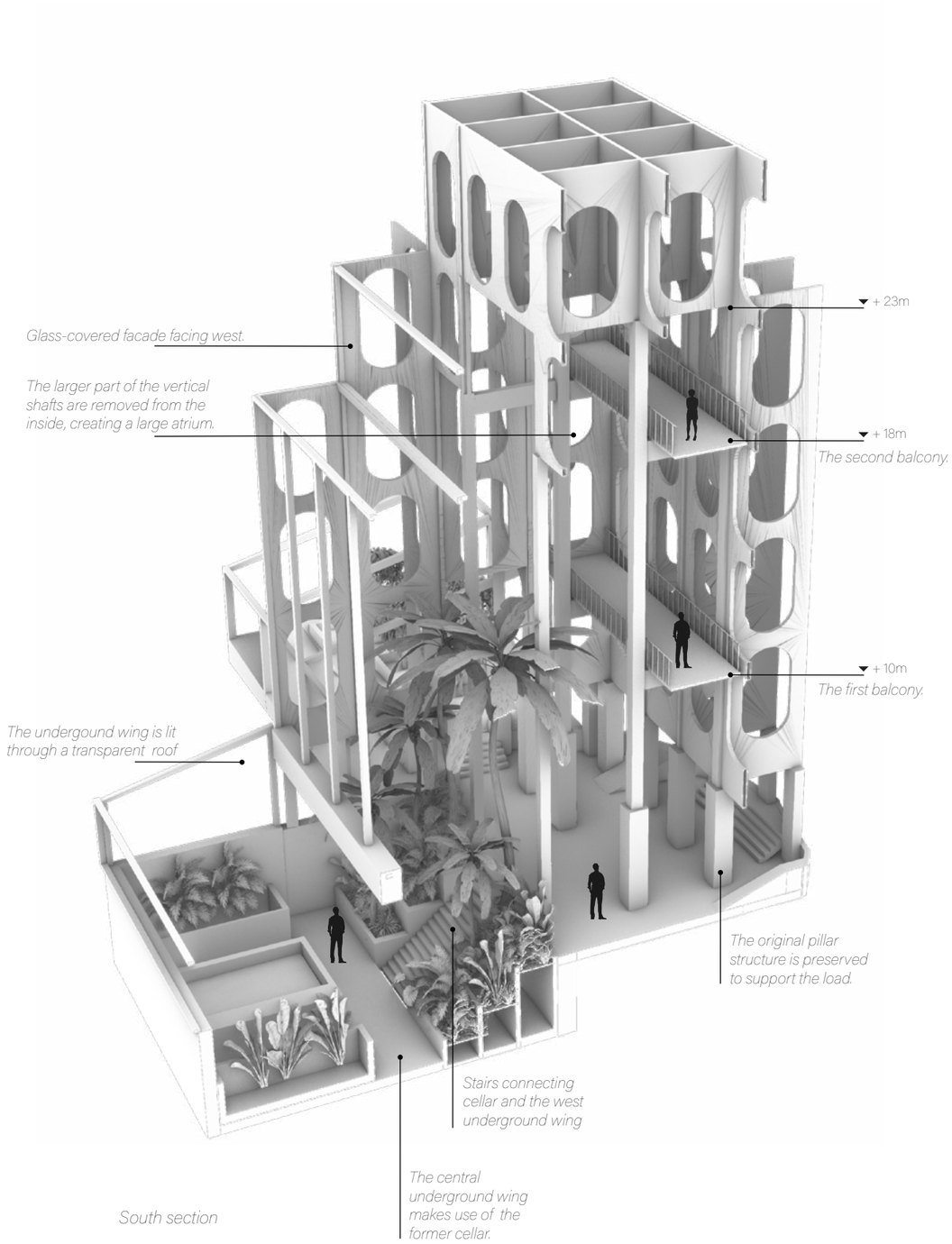




PROGRAM # 3
Plan



PROGRAM # 3
Function & attributes diagram



PROGRAM # 2
Site attributes

Aerial perspective towards the southwest. The greenhouse and its wings spread out towards the water.

Aerial perspective of the quayside. The glass facade open towards the west lets in daylight. Several walkways allow for movement across the park.

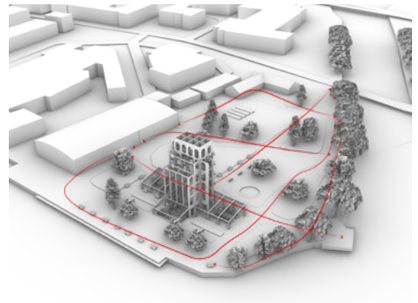
VIEWS

The building offer views from two balconies on 10 and 18 meters, and through the perforated facade. The cape is kept open to keep the outlook towards the river.

WATER

Accessibility to the river gets established due to the park being open to the public. Walkways, seating benches, and a wooden jetty on the quayside connect to the water.

OPEN SPACE



Pathways around the plot offer generous movement and experiences across the site. The quayside gets articulated with a wooden jetty and seating benches.

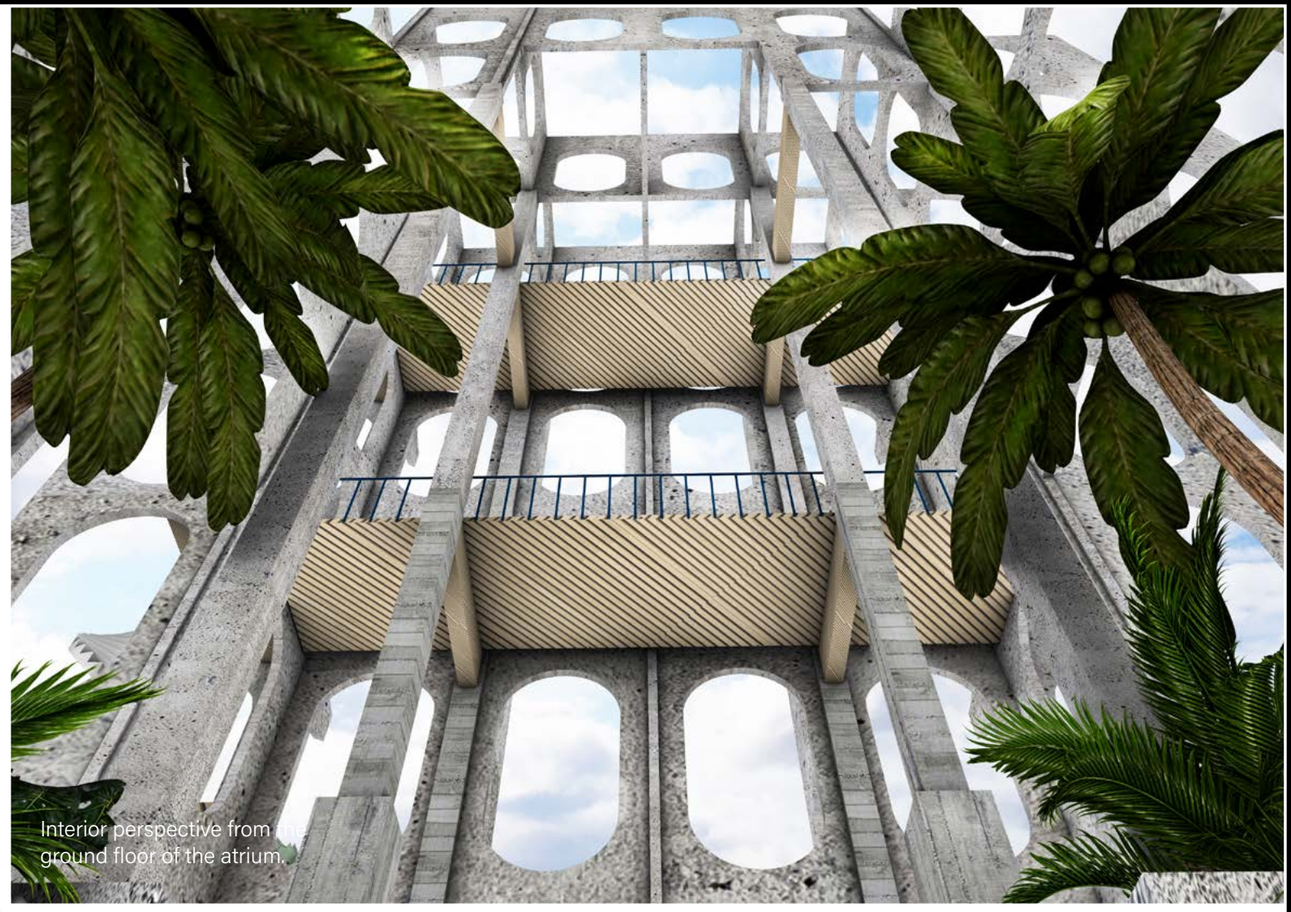
GREEN

The green element is the conceptual key in this proposal. The existing trees are preserved and rich green structures are added.

View towards the south wing and entrance.

PROGRAM # 3

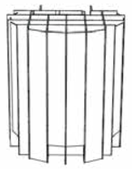
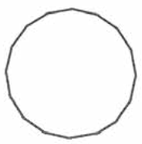
Situations



Interior perspective from the ground floor of the atrium.

Central perspective towards the greenhouse' entrance.

Interior perspective inside the lowered, center wing of the atrium.

	PHYSICAL ATTRIBUTES	PERSONAL CONCEPTIONS	ACTIVITIES / FUNCTIONS	HOW? Design strategy
BUILDING				
OPEN TO ELEMENTS				
ENCLOSED				
VERTICAL SHAFTS		▪ Verticality ▪ Sense of scale	▪ Vertical movement ▪ Viewing platforms ▪ Atrium	▪ Atrium with balconies ▪ Cut-out openings with glass lets light in for plants
CONICAL BOTTOM				
GRID LAYOUT		▪ Systematic order ▪ Division of space ▪ Modular	▪ Gives sense of direction ▪ Helps direct movement	▪ Extending the building w. north, west and south wing ▪ Visitor flows and movement follows grid
ROUND SHAPE		▪ Nave	▪ Atrium	▪ Ground floor serves as an open atrium within the greenhouse
SITE				
WATER		▪ Fresh air ▪ Sun reflections ▪ Natural element	▪ Walking ▪ Pausing ▪ Coffee break ▪ Picnic	▪ Pathways by the water ▪ Seatings & lookouts by the water
VIEWS		▪ Sense of belonging ▪ Sunshine	▪ Enjoying the view ▪ Coffee/lunch/dinner ▪ Pausing	▪ Balconies inside the greenhouse ▪ Sundecks by the quayside
ca.8000 m² OPEN SPACE		▪ Passability ▪ Can host large gatherings ▪ Daylight exposure	▪ Events ▪ Park area	▪ Plot serves as public park with ability to host various events
GREEN		▪ Calming ▪ Natural ▪ Supports biodiversity ▪ Contrasting to industrial area	▪ Park ▪ Sunshade ▪ Walking ▪ Pausing ▪ Picnic spot	▪ Plot turned public park ▪ Silo turned greenhouse

TYPOLOGICAL APPROACH	PROGRAMMATIC APPROACH	STRATEGIC APPROACH	TECHNICAL APPROACH	OUTCOME (Architectural expression & experience, values)
✓	✓			▪ Vertical spatial experience, sense of scale
	✓			▪ Distinct architectural expression,
	✓			▪ Wings could host different climates
	✓			▪ Axial movement and elongated sightlines
	✓	✓		▪ Honoring the scale and verticality of the original silo
		✓		▪ Re-establishing connection to the river
		✓		▪ Offers views by the riverside
	✓	✓		▪ Offers views over the green canopy and out
	✓			▪ Views from the cape
	✓			▪ Allows for various activities and encounters, promoting social values and well-being
		✓		▪ Recreation, meeting place, ecologic restoration
✓		✓		▪ All-year public attraction, educational & recreational

PROGRAM # 2 | *Evaluation chart*

The chart seeks to explain how Canters' model has served as a support in each proposal. Attributes, conceptions, and activities that are addressed in the proposal get indicated in columns from left to right.

Design strategies responding to each parameter are categorized according to current practice approaches of adaptive reuse presented by Pleovoets and van Clampeol.

"Outcome" attempts to summarize the impact of each design strategy in terms of architectural expression and created values.

REFLECTION

First off, it should be clearly stated that all proposals should be assessed as exploratory, non-finalized sketches. All three programs need extensive further development in terms of functionality, accessibility, construction, and so on.

PROGRAM # 1 The industrial temple

A public, open-air venue like this would require governance and maintenance to operate and safeguarding to prevent vandalism. This implies a need for daily staff to run its operations and a closing-by-night schedule would likely be necessary. The open-air structure is inevitably exposed to ever-changing weather conditions and phenomena. This factor dictates the experience to a high degree and thereby affects usability. Further, exposure to weather has a physical impact on the structure and its surface materials. Simply put, the 'full' architectural experience would probably require quite specific circumstances - perhaps a calm summer evening when the air clears after a heavy rainfall would be the best time to visit.

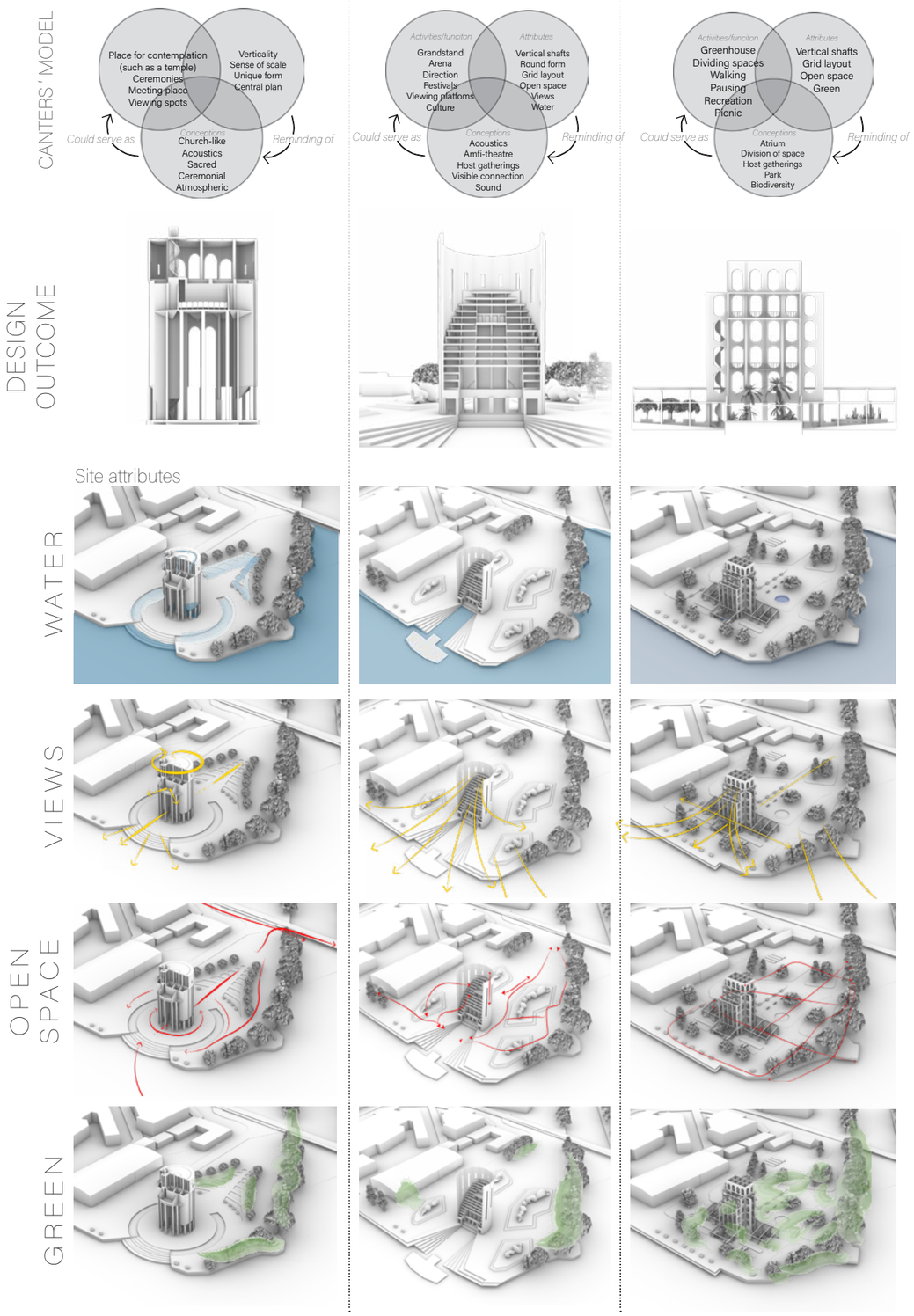
PROGAM # 2 The open-air arena

Similar to the previous proposal, this open-air venue would require governance and maintenance to operate and safeguarding to prevent vandalism. This type of structure of course has to provide the capacity to handle concentrated flows of people, meaning stairways, exits, and entrances have to be integrated, correctly dimensioned, and marked out. The steep incline of the stand needs to be developed further. An open-air structure inevitably gets exposed to ever-changing weather conditions and phenomena. The weather factor dictates the experience to a high degree and thereby affects usability. To make an audiovisual performance feasible at and ensure experience quality at this site, there is a need for further assessment of acoustic properties, spatial dimensions, and technical installations required. Perhaps a small-scale acoustic concert could fit in this initial state, whereas a larger set-up would have to have a stage temporarily constructed above the ground pool.

PROGRAM # 3 The Greenhouse

To determine whether the physical interventions in this proposal are possible, detailed studies and calculations of the load-bearing system are inevitably required. However, the cell shafts are all constructed in concrete in dimensions to withstand the weight and almost liquid properties of grain, which gives a reason to believe they could stand as a vertical load-bearing structure even if the façade gets removed. To fabricate a year-round tropical climate inside a building of this scale would inevitably require installing systems for heating and humidity. Transparent facade material for in the oval openings could perhaps be something lightweight to keep the added load to a minimum. Additional buildings within the park could be farming greenhouses, a café, or educational venues.

CROSS COMPARISON



CONCLUSIONS

Canters' model can function as a tool to guide design decisions in an adaptive reuse project by starting to identify one of the parameters that are accessible on the chosen site. In this case, that parameter has been the existing physical attributes of the site and the building. From the identified attributes, one can methodically follow the model to outline perceptions of the attributes, and then ask what type of activities or functions are applicable. The design strategies are then informed by how one conceives the attributes. Conceptions may be highly individual and are always culturally conditioned. Hence, the outcome from using Canters' model could vary tremendously depending on a designers' personal experiences, cultural background, age, sex, etc. It should be made clear that mapping which physical attributes are significant to a place could get done using various methods, also influencing the process and result. Moreover, countless phenomena could be considered physical attributes.

The term "place" can also be vague to use, as it may be difficult to determine where a place starts and where it ends. Therefore, an important part of mapping the physical attributes in this work has been the geographical delimitation of the area. Multiple site visits, delimiting the area, and outlining the most apparent physical attributes turned out to be a helpful way to start the process. Site visits, moving around the place, and documenting in different ways give a greater understanding of the attributes and the surrounding context.

The three proposals are largely influenced by design strategies that Van Cleempoel and Plevoets call strategic and typologic approaches to reuse. The typological approach is guided by an understanding of the relationship between a typology, its form, and the range of activities it is capable of housing. The strategic approach is based on an understanding and interpretation of the qualities of the particular contextual setting, capturing the the 'sense of place'. Perhaps that implies that Canters' model encourages an attitude to place creation and identity that draws upon or emphasizes the existing qualities, rather than focusing on technical requirements or structural improvements. Through the evaluation char, the outcome however shows how the redefinition of a place is influenced by which aspects/parameters are addressed and how. It demonstrates the use of Canters' model both as a design tool and for the analytical evaluation of each proposal. Thus, Canters' model is presented as a support to approach adaptive reuse of this building typology.

From what I have been able to find out, there does not seem to be any overall political strategy for preserving or utilizing this type of building, nor any initiatives for reuse from the landowner, Svenska Hus. It has been difficult to obtain material on the historical use of Quay 240 and the silo. The operative buildings and mechanical systems that were once attached to it have gotten demolished. (Perhaps the documentation had been different if the buildings had been considered more valuable.) That has caused difficulties in understanding the functional and historical value of the building. That led to me focusing on the silo's architectural and representative value, (there are not many other silo buildings left in Gothenburg). Cultural heritage in Sweden gets protected by secured maintenance and a ban on distortions. That is to guarantee that the building's original design gets preserved. However, that entails a rather stiff resistance to physical interventions and alterations. Had the silo been included in a conservation program, not only would it have been improbable but also impermissible to bring about any structural changes. That makes it relevant to discuss what role the presence has to play on our built heritage. Is it always favorable to preserve our built heritage in its original state, or could we benefit more from exploring adaptations that enable contemporary usage? What would happen to the architectural landscape if we explored interventions of single-purpose production buildings to a higher degree than demolishing and replacing them? What difference would it make if we as architects helped to shift the view of obsolete industrial buildings from taking up valuable land into carriers of great architectural potential?

The silo is constructed entirely of concrete, which has a high negative environmental impact linked to resource extraction and CO2 emissions related to its manufacturing. However, concrete has very high durability, and the original function required the construction to carry a heavy load. The construction of the silo seems to be intact. It would therefore be wasteful to demolish it in the sense that invested energy is lost, and that the building may be expected to last a long time ahead. At the very least, a detailed feasibility study should get conducted to assess its suitability for reuse and adaptation to a new function.

The three proposals aim to showcase the architectural versatility of the silo as the incentive for structural interventions. They each contribute with a new architectural expression and functional value to Quay 240 and change the definition of the place. However, a common recurring argument is that the cost to convert or restore old industrial buildings is too high compared to building new. That argument may have something to do with how we tax labor highly today, perhaps disproportionately to resource extraction and mechanical power. If that got balanced differently, we might have created different conditions to repurpose buildings with complex constructions and perhaps to create more artisanal architecture.

Still, reflecting on the current economic model, it would probably be more relevant and feasible to look at solutions that involved less radical interventions and preserved the original design to a greater extent. One could imagine that interventions would then mainly be concentrated on the interior of the silo, leaving the façade still intact. Further work on the silo could perhaps explore this, along with a more extensive look into the construction and load-bearing system.

The political will to re-establish access to the riverbanks of Göta Älv should not equal a total demolition of historic industrial buildings close to it. Rather than fabricating new identity and architectural diversity, I would argue for reuse of the cities' industrial buildings, especially the rare examples. That way we can preserve our common heritage and experience it in a new way. A public place at this unique location, where two watercourses meet, in a part of the city that, in the decades to come, will become increasingly central as the city core expands, would generate qualities that are hard to find in Gothenburg today, perhaps only at Röda Sten.

Through this work, I have been fortunate to come in contact with a couple of people who are interested in reactivating Quay 240 and the silo. In a conversation with David Anderberg, active in Gothenburg's underground culture scene, he presented a continued use of the silo as a creative, cultural maker space. I was further informed that there may be a local political interest to look at proposals for a reactivation of Quay 240 - someone "just needs to put together a solid pitch". Perhaps an insight into the silo's inherent architectural qualities could be a relevant contribution to that kind of pitch. I believe it is likely that a gradual introduction of activities at Quay 240 could increase public awareness and interest, potentially leading to the protection of the silo.

STUDENT BACKGROUND

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Education Background

2019 - 2021	**Architecture and Urban Design MSc**	120 hp, Chalmers
2014 - 2018	**Architecture BSc**	180 hp, Chalmers
2011 - 2011	**Art History**	30 hp, Gbg Uni
2010 - 2011	**Graphic Design**	60 hp, Malmö Uni

MSc Architecture and urban design studios

Spring 2021	**ACEX35 Master Thesis** **Building Design for Sustainability**
Fall 2020	**Matter, Space, Structure 3**
Spring 2020	**Spatial Morphology Studio**
Fall 2019	**Material & Detail Studio**

Related work experience

2017 - 2018	**Interior architect & concept designer** **Pincho Nation**

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Images

Page 22. Landscape model: **EGA Erik Giudice Architects**
Page 31 . Aerial view of Marieholm. Map data © 2019 Google. Available at: <https://www.google.se/maps/@57.7215976,11.9891125,17z>

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