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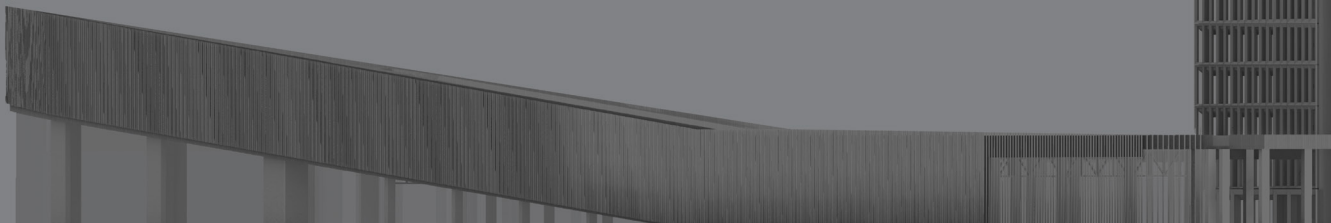
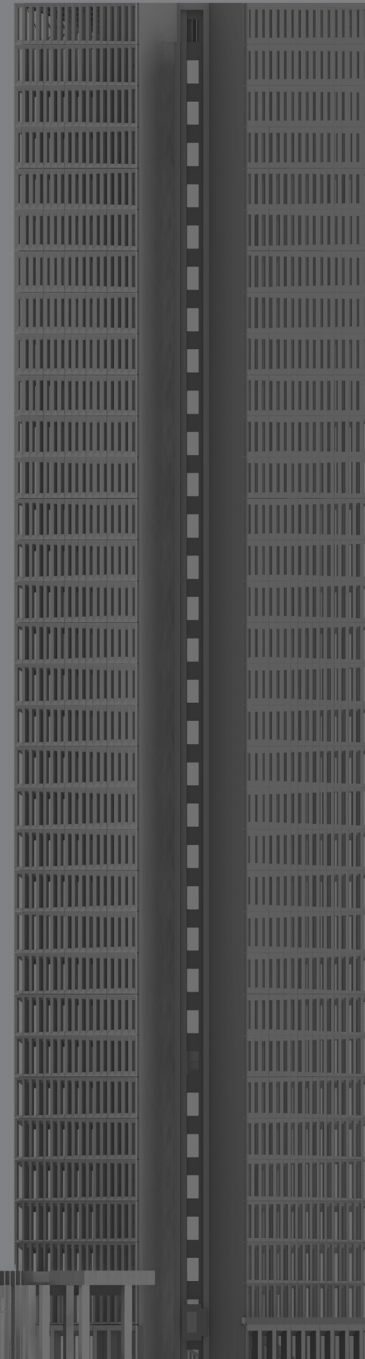
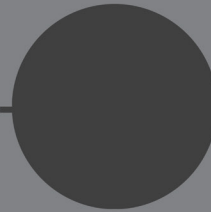
Scuola di Architettura, Urbanistica
e Ingegneria delle Costruzioni

**Sky scraper in Royal sea port of
Stockholm**

Supervisor:
Maria Grazia FOLLI
Co-Supervisor:
Corrado PECORA
Giovanni DOTELLI
Lorenzo PAGLIANO
Marco IMPERADORI

Master of Science Thesis of:
Alale SARABADANI
990635

December 2023
Academic year 2022-23



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TABLE OF CONTENTS

Stockholm Royal Seaport seen from the north in 2021 Lennart Johansson



Table of Contents

Abstract	12
Part 1	
1. The architectural tallness	16
1.1. In contemporary debate	18
1.1.1. The concept of tallness	20
1.1.2. The transformations of the tallness meaning from past to contemporary debate	22
1.1.3. The American dream	27
1.1.4. The architectural tallness in Europe	32
1.2. In the European Nordic countries	38
1.2.1. The meaning between past and present	40
1.2.2. Form and construction techniques	42
1.2.3. The history of high-rise characters in Stockholm	45
Part 2	
2. Stockholm	48
2.1. History	50
2.1.1. History and the structure of the city	52
2.1.2. Architectural History of the city	54
2.2. Cultural features	56
2.2.1. Brief introduction	58
2.2.2. motifs and colors	60
2.3. Urban structure	64
2.3.1. structure of the city, a brief history till 20th century	66
2.3.2. planning activities in 20th century	71
2.4. Stockholm, today and tomorrow	80

Part 3

3. Place and tallness	84
3.1. Royal Seaport	86
3.1.1. The story of Royal Seaport	88
3.1.2. Actual character in Stockholm urban structure	91
3.1.3. The planned transformations for the zone	92
3.2. Tallness in Royal Seaport	96
3.2.1. Highrise existing buildings in Royal Seaport	98
3.2.2. Royal Seaport as the context for a new urban tower	101



View from the south before the oil tanks were taken down and the container handling was relocated Lennart Johansson

Part 4

4. The new urban tower	104
4.1. Masterplan	106
4.1.1. General introduction	108
4.1.2. The timeline	110
4.1.3. The strategies of the new masterplan	113
4.2. Urban skyline	116
4.2.1. The existing skyline	118
4.2.2. The strategies for a new skyline	121
4.2.3. Study of the existing high towers in Stockholm	123
4.3. The functionalities	124
4.3.1. The existing functions in Royal Seaport	126
4.3.2. The criterias of choosing the tower functionalities	128
4.4. Design process	130
4.4.1. The concept of the tower	132
4.4.1.1. The form concept	134
4.4.1.2. The tower orientaion	135
4.4.2. The facade	140
4.4.2.1. General concept of the facade	140
4.4.2.2. Analysis and final external form	142
4.4.2.3. Behavior of double skin	145
4.4.2.4. Facade rendering	147
4.4.2.5. Facade architectural detail	151
4.4.2.6. Design of the joints and panel adjustment	153
4.4.2.7. Detachable pannels	153
4.4.3. The podium	157
4.4.3.1. The podium concept	158
4.4.3.2. The functionalities and plans	158
4.4.3.3. Connection to the tower	161
References	164

ABSTRACT

Abstract in Italian

Royal Skyline è un progetto di una torre multifunzionale nel Royal Seaport di Stoccolma, che esplora innanzitutto le molteplici sfaccettature dell'altezza architettonica, concentrandosi sulla sua evoluzione storica, caratteristiche culturali, struttura urbana e il caso specifico del Royal Seaport di Stoccolma. Esplora inoltre le considerazioni di pianificazione e progettazione per una nuova torre urbana all'interno dell'area del Royal Seaport.

Iniziamo fornendo una panoramica completa dell'altezza architettonica, ripercorrendo il suo percorso dalle origini ai dibattiti contemporanei. Esamina il concetto di altezza, il suo significato in evoluzione e la sua associazione con il sogno americano. Viene esplorata l'altezza architettonica in Europa, in particolare nei paesi nordici europei, sottolineando l'importanza storica, la forma, le tecniche costruttive e la storia degli edifici alti a Stoccolma.

Il passo successivo sposta l'attenzione sulla città di Stoccolma, approfondendo la sua ricca storia e lo sviluppo strutturale. Viene esaminata la storia architettonica della città, insieme a un'introduzione alle sue caratteristiche culturali, tra cui motivi e colori. Viene analizzata la struttura urbana di Stoccolma, fornendo una breve storia fino al XX secolo ed esplorando le attività di pianificazione che hanno plasmato la città. Lo stato attuale di Stoccolma e le sue prospettive future vengono anche brevemente discusse.

Successivamente, viene esplorato il rapporto specifico tra luogo e altezza a Stoccolma attraverso lo studio di caso del Royal Seaport. Viene presentata la storia del Royal Seaport, insieme al suo carattere attuale all'interno della struttura urbana di Stoccolma. Vengono discusse le trasformazioni pianificate per l'area e l'attenzione si sposta sull'altezza nel contesto del Royal Seaport. Vengono esaminati gli edifici alti esistenti nell'area e viene esplorato il potenziale per una nuova torre urbana all'interno del Royal Seaport.

Successivamente vengono affrontate le considerazioni di progettazione per la nuova torre urbana all'interno del Royal Seaport. Viene presentato il masterplan, delineando il concetto generale, la timeline e le strategie. Viene analizzato il panorama urbano, prendendo in considerazione il panorama esistente e proponendo strategie per uno nuovo, compresa una valutazione delle alte torri esistenti a Stoccolma. Vengono esplorate le funzionalità della torre, comprese le funzioni esistenti nel Royal Seaport e i criteri per la selezione delle funzionalità della torre. Viene discusso il processo di progettazione, che comprende il concetto della torre, il design della facciata, il concetto di podio e i rispettivi dettagli architettonici.

Abstract in English

Royal Skyline is a project of a multi functional tower in Royal Seaport of Stockholm, it firstly explores the multifaceted aspects of architectural tallness, focusing on its historical evolution, cultural features, urban structure, and the specific case of the Royal Seaport in Stockholm. It further explores the planning and design considerations for a new urban tower within the Royal Seaport area.

we start with providing a comprehensive overview of architectural tallness, tracing its journey from the past to contemporary debates. It examines the concept of tallness, its evolving meaning, and its association with the American dream. The architectural tallness in Europe, particularly in the European Nordic countries, is explored, emphasising the historical significance, form, construction techniques, and the history of high-rise structures in Stockholm.

The next step shifts the focus to the city of Stockholm, delving into its rich history and structural development. The architectural history of the city is examined, along with an introduction to its cultural features, including motifs and colours. The urban structure of Stockholm is analysed, providing a brief history until the 20th century and exploring the planning activities that have shaped the city. The current state of Stockholm and its future prospects are also briefly discussed.

Then, the specific relationship between place and tallness in Stockholm is explored through the case study of the Royal Seaport. The story of the Royal Seaport is presented, along with its current character within Stockholm's urban structure. Planned transformations for the zone are discussed, and the focus shifts to tallness in the context of the Royal Seaport. Existing high-rise buildings in the area are examined, and the potential for a new urban tower within the Royal Seaport is explored.

Afterward for the design considerations for the new urban tower within the Royal Seaport. The masterplan is introduced, outlining its general concept, timeline, and strategies. The urban skyline is analysed, considering the existing skyline and proposing strategies for a new one, including a study of existing high towers in Stockholm. The functionalities of the tower are explored, including existing functions in the Royal Seaport and the criteria for selecting tower functionalities. The design process is discussed, encompassing the concept of the tower, facade design, podium concept, and their respective architectural details.

PART ONE

The architectural tallness



“The interesting question is why does man want to build to the sky. What is there about the desire for domination, or to reach God, or for private pride, the Pyramids are an example of that, but the tall building is certainly another.”

In J. Duprè, *Skyscrapers*, Introductory Interview with Philip Johnson, 1996

1.1. In contemporary debate

1. The architectural tallness

1.1. In contemporary debate

1.1.1. The concept of tallness

«There is no easy way from the earth to the stars....»

Text on Medahsts' Society Medal, 1933

The concept of tallness goes beyond a mere numerical measurement of height, there is no absolute definition that can universally encompass what constitutes a tall building. A tall building is intricately connected

to the building's characteristics and the context in which it exists.

«There is no absolute definition of what constitutes a tall building. It is a building that exhibits some element of tallness (..)

It is not just about height,

but about the context in which it exists.»

CTBUH Criteria for Defining and Measuring Tall Buildings, 2012

So, the context in which a building exists plays a significant role in determining its tallness. The context from latin 'contextus, contexere which means connexion, weaving, is *«the interrelated conditions in which something exists or occurs»*

as Merriam-Webster dictionary sais. Also as Marco Polo, venetian traveler, told Kublai Khan, Mongol Em-

peror:

«Traveling, you realize that differences are lost:

each city takes to resembling all cities, places exchange their form, order, distances, a shapeless dust cloud invades the continents.»

I.Calvino, Invisible cities, 1972

The CTBUH criteria highlights that the interaction between a building and its surroundings, including the urban fabric, skyline, and visual prominence, is crucial in assessing its impact and significance as a tall structure. A building's contribution to the overall cityscape and its ability to shape and respond to its environment are integral aspects of understanding its tallness.

«A 14-story building may not be considered a tall building in a high-rise city such as Chicago or Hong Kong,

but in a provincial European city or a suburb this may be distinctly taller than the urban norm.»

CTBUH Criteria for Defining and Measuring Tall Buildings, 2012

The CTBUH criteria also highlights the fact that in order to define a tall building, the proportions of it should also be considered.

«There are numerous buildings that are not particularly high, but are slender enough to give the appearance of a tall building. Conversely, there are numerous big/large - footprint buildings that are quite high, but their size/floor area rules them out of being classed as a tall building.»

CTBUH Criteria for Defining and Measuring Tall Buildings, 2012

1.1.2. The transformations of the tallness meaning from past to contemporary debate

The concept of tallness in architecture has undergone remarkable transformations throughout history. From ancient structures symbolizing power and transcendence to modern skyscrapers representing progress and urbanization, the meaning of height in buildings has evolved.

“As people moved eastward,[a] they found a plain in Shinar[b] and settled there. They said to each other, ‘Come, let’s make bricks and bake them thoroughly.’ They used brick instead of stone, and tar for mortar. Then they said, ‘Come, let us build ourselves a city, with a tower that reaches to the heavens,.....”

Bible, Genesis 11:1-9, The tower of Babel

In J. Duprè’s book “Skyscrapers,” an introductory interview with renowned architect Philip Johnson delves into the concept of tallness and its significance in the realm of architecture. Johnson’s insights provide valuable perspectives on the subject, shedding light on the evolution of tall buildings and the meaning they hold in contemporary society.

Johnson sheds light on the enduring fascination with tallness, tracing it back to ancient civilizations. Structures such as the pyramids of Egypt and the towering cathedrals of medieval Europe represented authority, grandeur, and divine connection. Tallness symbolized the triumph of human ambition and the desire to reach new heights. However, it was during the industrial revolution and the advent of steel and concrete construction techniques that the concept of tallness took on a new dimension.

“The interesting question is why does man want to build to the sky. What is there about the desire for domination, or to reach God, or for private pride — the Pyramids are an example of that, but the tall building is certainly another.”

J. Duprè, *Skyscrapers*, Introductory Interview with Philip Johnson, 1996

However, Philip Johnson notes that the concept of tallness has evolved over time, particularly with the advent of the skyscraper era and the advancements in engineering and construction techniques. He explains that the industrial revolution, coupled with the use of steel and concrete, provided architects with the ability to construct buildings of unprecedented height. Skyscrapers emerged as symbols of progress, reflecting the aspirations of modernity and the urbanization of cities.

Moreover, Philip Johnson acknowledges that the perception of tallness has undergone transformations and challenges. He points out that critics and urban theorists began to question the value of height in architecture, especially when it was divorced from other essential considerations. The emphasis on tallness alone, without regard to the human scale, context, or environmental impact, came under scrutiny.

According to Philip Johnson, a critical shift occurred in the contemporary debate surrounding tallness. The focus moved beyond mere height, acknowledging the need for a more comprehensive evaluation of architectural merit. He argues that tall buildings should not be judged solely on their verticality but also on their functionality, aesthetics, and contribution to the urban experience. The integration of sustainable design principles, the creation of vibrant public spaces, and the consideration of the building’s impact on its surroundings all became crucial factors in evaluating tall structures. He emphasizes the importance of contextualizing tallness within the fabric of the city. He advocates for an approach that respects the scale, character, and history of the urban environment. Tall buildings should not overshadow or disrupt the existing context but should be thoughtfully integrated to enhance the overall urban landscape.

While in “*Delirious New York*,” Koolhaas explores how tall buildings in Manhattan have evolved beyond their functional and economic purposes, taking on a symbolic and cultural significance. He argues that architectural tallness in Manhattan represents a departure from traditional urban planning principles, driven by a desire to create a new kind of urban experience. The skyscraper becomes a symbol of progress and innovation, embodying the city’s ambitions and capacity to dream big.

In the past, tall buildings primarily served functional purposes, such as accommodating a growing population or providing office spaces. However, over time, tall buildings have come to represent more than just functional structures. They have become iconic symbols of power, prestige, and economic prowess, often defining a city’s skyline and its identity.

«The rationalist skyscrapers of the fourth generation (50's), which follow the bell tower of the third one, are characterized by abstract shapes, as symbols of technological progress and of the scientific method. They consist in pure parallelepipeds with a square or rectangular base that meet among other aspects, the regularity and simplicity concepts.»

Folli M. G., Tall building, Architecture, cities, society: 5 didactic experimentations, M. Domaneschi, M. Colombo, The integrated design of tall and supertall buildings.

As Huxtable says in her book *“The Tall Building Artistically Reconsidered: The search for a skyscrapers”*, The historical spectrum of skyscraper design can be divided into four significant phases: functional, eclectic, modern, and postmodern. The functional phase was driven by economic factors, with architecture serving engineering and cost-efficiency. These buildings were both utilitarian and aesthetically pleasing, expressing strength and clarity.

The eclectic phase saw a range of architectural styles borrowed from the past, resulting in remarkable skyscraper monuments. From Gothic to Greek and Renaissance influences, ingenuity and skill were applied to adapt historical elements, adding beauty to the twentieth-century city.

The modernist phase embraced revolutionary ideas across various disciplines, including the skyscraper. It called for original responses to technological and cultural changes, resulting in a sleek and elegantly simple structural aesthetic.

The postmodern phase introduced skyscrapers of immense scale and impact. Freed from modernist constraints, these buildings explored the power and drama inherent in tall structures. Historical references were revisited, bringing nostalgia, novelty, and innuendo. Some buildings pushed boundaries, while others were criticized as frivolous dead ends.

Proponents of tallness in architecture argue that skyscrapers and supertall buildings have become iconic symbols of modern civilization. These structures have proven to be highly effective for business and related services, catering to the needs of the 20th and 21st centuries. The symbolism and imagery associated with tall buildings have contributed to their historical consistency in continuously setting records and reaching greater heights. Architects and engineers have embraced this phenomenon, often competing to design the world's tallest building, driven by the desire to capture the public's imagination and meet the intense competitiveness of clients.

«Then why go taller? Because, said engineer Vincent DeSimone, heroic structures capture the public's imagination and clients are intensely competitive. Ego is going to drive the next building higher.»

Huxtable A.L., *The Tall Building Artistically Reconsidered: The search for a skyscrapers*, University of California, 1992

The development of supertall buildings represents a testament to human engineering capabilities and an opportunity for engineering innovation and challenges. However, the debate is not limited to the architectural and engineering feats achieved in constructing tall buildings; it also encompasses the problems associated with these structures. One significant challenge lies in the development of necessary service technologies to ensure the functionality of these buildings. Elevators for extremely tall structures, such as a 200-story building, would need to operate as an extensive vertical transportation system resembling a light rail network—an engineering feat beyond the current state of the art. Additionally, providing water, energy, and other utilities to supertall buildings presents challenges related to excessive hydrostatic pressure, heating, cooling, and the need for dedicated electrical substations. Safety regulations and codes would require significant updates to address the unique challenges posed by supertall structures.

«If there was no lack of assurance about the structural engineers ability to build higher, there was considerably less confidence in the development of the necessary service technologies required to make these buildings function.»

Huxtable A.L., *The Tall Building Artistically Reconsidered: The search for a skyscrapers*, University of California, 1992

Furthermore, issues such as deepening shadows, hostile microclimates at the building's base, traffic congestion, parking, loading problems, and the potential disruption of a city's functions and services arise with the construction of a single supertall structure. As buildings increase in height, engineers must contend with exaggerated multiples of behavior, where factors like traffic volume and wind become more significant and complex.

«The jump from 100 to 200 stories does not just double calculations and difficulties; engineers must deal with what they call “exaggerated multiples of behavior.” Theoretically, for example, the total volume of traffic will vary as a cube of the height, so that doubling the building's height increases the traffic volume eight times.»

Huxtable A.L., *The Tall Building Artistically Reconsidered: The search for a skyscrapers*, University of California, 1992

While the ability to construct supertall buildings may exist, there is no consensus on their desirability. Some architects argue that the engineering technology surpasses human responses and the ability to truly ap-

preciate and cope with the consequences of such structures. The reshaping of the natural and built environment by 20th-century dams, bridges, and buildings has not always yielded predictable or beneficial outcomes.

«As Paul Weidlinger observed, “Heroic problems require heroic engineering solutions; the engineering solutions, in turn, produce heroic social problems.”»

Huxtable A.L., *The Tall Building Artistically Reconsidered: The search for a skyscrapers*, University of California, 1992

The development of supertall buildings raises questions about the lack of understanding regarding the physical connections and limitations of a built environment on such a scale. Proper municipal infrastructure, support services, and comprehensive planning are essential for architectural concentrations of this magnitude. The current trend of ad-hocism and the absence of practical and conceptual planning pose challenges in accommodating the needs of these tall structures. Some architects argue against the notion that a single individual should have sole authority over decisions regarding such immense projects, emphasizing the importance of considering public stakes and involvement.

«“The idea that a single individual should be allowed to make all these decisions privately is absurd,” said William Le Messurier, one of the most experienced skyscraper engineers.

“We wouldn’t let anybody do a dam that might flood a city by himself, or design a nuclear plant by himself, why a 200-story building?”

When buildings go higher, the public stakes go higher.

There is no harmless contextualism in the development world; there is only aggressive and exploitative change.»

Huxtable A.L., *The Tall Building Artistically Reconsidered: The search for a skyscrapers*, University of California, 1992

In summary, the architectural-urban debate surrounding tallness in contemporary design encompasses various visions, problems, and critical design approaches. While there are proponents of tall buildings who see them as powerful symbols of modern civilization, challenges related to service technologies, safety, utilities, and urban integration raise concerns. The critical design approach calls for a balance between creativity and practicality, emphasizing the need for comprehensive planning, municipal infrastructure, and considerations of the impacts on the surrounding environment and society.

1.1.3. The American dream

«We take from you what we need and we hurl back in your face what we do not need.

Stone by stone we shall remove the Alhambra, the Kremlin and the Louvre and build them anew on the banks of the Hudson.»

Benjamin de Casseres, Mirrors of New York

The American Dream, a concept deeply ingrained in the American psyche, is the belief that through hard work, determination, and equal opportunity, anyone can achieve success and prosperity. Rem Koolhaas explores the relationship between architecture, urban planning, and the manifestation of this dream in the context of Manhattan. He delves into the history of skyscrapers and their role in symbolizing and facilitating the pursuit of the American Dream. The towering structures of Manhattan become the physical manifestations of ambition, wealth, and the desire for upward mobility.

«In the era of the staircase all floors above the second were considered unfit for commercial purposes, and all those above the fifth, unhabitable.

Since the 1870s in Manhattan, the elevator has been the great emancipator of all horizontal surfaces above the ground floor...

In the early 1880s the elevator meets the steel frame. able to support the newly discovered territories without itself taking up space.»

Koolhaas R., Delirious New York: a retroactive manifesto for Manhattan, Monacelli Press, New York, 1992
Rem Koolhaas introduces the idea of the Skyscraper Theorem, describes as a cartoon-theorem embodied by the Globe Tower in 1909. This theorem portrays the ideal performance of a skyscraper, embodying the aspirations and ideals associated with the American Dream. The skyscraper, with its verticality and grandeur, becomes a symbol of progress, modernity, and unlimited potential. It reflects the identification principle, as people project their dreams and aspirations onto these towering structures, aligning their identities with the city's ambition. The city's skyscrapers, bustling streets, and iconic landmarks create a visual language that evokes a sense of grandeur, power, and possibility.

«By 1909 the promised rebirth of the world, as announced by the Globe Tower, reaches Manhattan in the form of a cartoon that is actually a theorem that describes the ideal performance of the Skyscraper.»

Koolhaas R., *Delirious New York: a retroactive manifesto for Manhattan*, Monacelli Press, New York, 1992

After that, The skeleton of the 1909 theorem is been introduced. It develops the notion of the Manhattan Skyscraper as a utopian formula for the creation of virgin sites on a single urban location. This concept encapsulates the American Dream's belief in boundless opportunities and the ability to reinvent oneself and society. The skyscraper represents a new beginning, where the limitations of the past are transcended, and a new architectural language emerges.

«The skeleton of the 1909 theorem postulates the Manhattan Skyscraper as a utopian formula for the unlimited creation of virgin sites on a single urban location.»

Koolhaas R., *Delirious New York: a retroactive manifesto for Manhattan*, Monacelli Press, New York, 1992

The American Dream is a powerful concept that goes beyond material pursuits. It resides in the dreams of individuals, aspiring to reach beyond the ordinary level of intelligence and understanding, seeking enlightenment and wisdom. In the grand tapestry of human civilization, ancient cities like Babylon, Niniveh, Athens, and Rome were built with different materials. However, in the modern era, the materials of choice for skyscrapers in Manhattan are steel, glass, tile, and concrete. The city becomes a dazzling display of ambition and progress, with millions of windowed buildings crowding the narrow island, forming glittering pyramids that pierce the sky. This vision represents the essence of the American Dream, where limitless potential, power, and ambition converge to create a new symbol of greatness. The American Dream transcends material possessions and encompasses the yearning for intellectual and spiritual growth, the pursuit of knowledge and wisdom, and the ambition to surpass historical achievements. It is a dream that propels individuals and society to reach new heights, both metaphorically and literally, and to make their mark on the world. The American Dream is a multifaceted concept, representing the collective aspirations of a nation that strives to surpass ordinary limitations and create a brighter future. It is a testament to the indomitable human spirit, fueling ambition, innovation, and the pursuit of greatness.

“There seemed to reside in its dreams, before the dawn, during these years, something not wholly material, something in the underlying thoughts of men, that aspired to reach above the general level of intelligence (..)”

LSullivan , *Autobiography of an Idea*,1924

Royal Skyline- A multi function tower for Royal Seaport

«There were Babylon and Niniveh; they were built of brick. Athens was gold marble columns. Rome was held up on broad arches of rubble. (..) Steel, glass, tile, concrete will be the materials of skyscrapers. Crammed on the narrow island the million windowed buildings will just glittering, pyramid on pyramid, like the white cloudhead above a thunder-storm»

J. Dos Passos, *Manhattan Transfer*, 1925

However, Rem Koolhaas's exploration of the identification principle also draws attention to the potential dark side of this phenomenon. He refers to the lobotomy, a surgical operation involving incision into the prefrontal lobe of the brain, formerly used to treat mental illness, as Oxford English Dictionary sais. Rem Koolhaas uses the lobotomy as a metaphorical reference to the dangers of sacrificing individuality and critical thinking in the pursuit of conformity and mass identification. In a city like Manhattan, where dreams are amplified and the pressure to conform is intense, there is a risk of losing one's unique identity in the quest for the American Dream. By referencing the lobotomy, Koolhaas raises questions about the price of the American Dream and the potential loss of individuality in a society driven by material success. He prompts readers to consider the psychological and social implications of pursuing an idealized version of success and whether it comes at the expense of personal freedom and authentic self-expression.

«Buildings have an interior and an exterior. In western architecture there has been the humanistic assumption that it is desirable to establish a moral relationship between the two (...). beyond a certain critical mass the relationship is stressed beyond the breaking point; this 'break' is the symptom of Automonumentality.»

R. Koolhaas, *Delirious New York*, 1994

According to Rem Koolhaas, the skyscraper emerged as a response to the economic turmoil of the 1930s. He highlights how the construction and proliferation of skyscrapers in Manhattan served as a way to exorcize the haunting effects of the Great Depression, both symbolically and practically. The Great Depression, which began with the stock market crash in 1929, left the nation grappling with staggering unemployment rates, financial instability, and a sense of collective disillusionment. In the face of these challenges, the skyscraper emerged as an architectural and economic beacon, representing hope and the promise of revitalization. The ambitious scale and grandeur of towering structures embodied a sense of resilience and hope, projecting an image of strength and progress onto the city. Rem Koolhaas emphasizes that skyscrapers were

not just architectural marvels but also powerful economic machines. The construction of these monumental buildings created employment opportunities, helping to alleviate the widespread unemployment caused by the Great Depression. The labor-intensive nature of skyscraper construction provided a much-needed source of income for countless workers, infusing the city with economic vitality and generating a renewed sense of purpose. Moreover, Rem Koolhaas highlights how the construction of skyscrapers during this era went beyond mere utilitarian purposes. These towering structures became symbols of aspiration and triumph over adversity. They represented the unwavering determination of a nation to rise above the economic crisis, asserting its resilience and unwavering belief in progress. Through their sheer presence and magnificence, skyscrapers reshaped the urban landscape of Manhattan. They altered the city's skyline and became beacons of optimism, inspiring confidence in a brighter future. The verticality and audacity of these structures transcended the constraints of the Great Depression, signifying a reawakening and a commitment to the ideals of progress and achievement.

Moreover, the skyscraper stands as an isolated focus amidst the infinite territory of the urban landscape. It rises above the surrounding buildings, capturing the gaze and becoming a recognizable symbol of the city. Its towering presence creates a stark contrast with the vast expanse of the urban environment, emphasizing its individuality and commanding attention. Within this infinite territory, the skyscraper becomes a visual anchor, drawing people's eyes and guiding their exploration of the city. Its grandeur and height make it a prominent landmark, a point of convergence where human activity and the built environment intersect. It serves as a testament to human ambition and the desire to reach new heights. The skyscraper is not just a functional building; it is a work of art in its own right. It embodies the creativity and ingenuity of architects and designers who push the boundaries of what is possible. It contributes to the aesthetic identity of the city, shaping its skyline and becoming an integral part of its visual landscape. As an isolated focus, the skyscraper becomes a symbol of aspiration and progress. It represents the city's determination to rise above its surroundings, to stand out and make a statement. The sheer scale and magnitude of the skyscraper evoke a sense of awe and admiration, inspiring individuals and reminding them of the endless possibilities within the urban realm.

After, The International Style is been defined. A style that represents a departure from the conventional norms and a celebration of architectural freedom and expression. It reflects the dynamic spirit of the modern era, embracing the complexities and contradictions of contemporary life. By integrating diverse influences and creating structures that go beyond mere functionality, this style captures the essence of the human experience, sparking intrigue and inviting exploration. It stands as a testament to the creativity, innovation, and the willingness to challenge established conventions in pursuit of an architecture that speaks to the complexities and aspirations of the time.

«The International Style is probably the first fundamentally original and widely distributed style since the Gothic, Today the style has passed beyond the experimental stage. In almost every civilized country in the world it is reaching its full stride. (...)

Surely there are things which are functionally correct and yet rather ugly, or at least indifferent, The best works of this style are beautiful not only because they happen to fit the function for which they are built, but because they are designed by men of tact and taste who knew how to make a building fit for its purpose and yet 'right' for the eye.»

H.R. Hitchcock, P.Johnson The international Style, 1932

The American Dream took on a new form in the realm of architecture with the advent of postmodernism.

«I speak of a complex and contradictory architecture based on the richness and ambiguity of modern experience,....

I welcome the problems and exploit the uncertainties. ... I like elements which are hybrid rather than "pure", compromising rather than "clean" ... accommodating rather than excluding. ... I am for messy vitality over obvious unity.»

R. Venturi, Complexity and Contradiction in Architecture, 1966

«There is at once a referential anthropomorphism and a bond with the New York skyscraper architecture (.): the oculi recall the Duomo in Florence, the arcades... are reminiscent of San Andrea in Mantua, and the Carolingian lobby with its gilded cross vault

and Romanesque capitals... fuse into a Pazzi Chapel centering on the hilariously kitschy»

P. Johnson, The Seagram Building, 1958

Within the framework of the American Dream, postmodernism offered a departure from the strict modernist ideals and embraced the diverse, messy, and contradictory nature of American society. It celebrated cultural references, historical influences, and a more inclusive approach to design. Postmodern architecture aimed to create spaces that reflected the richness and complexity of the American experience, providing opportunities for individual expression and a sense of vitality within the built environment. By rejecting the notion of a unified and singular vision, postmodernism allowed for a broader interpretation of the American Dream, one that embraced diversity, creativity, and the evolving nature of society.

1.1.4. The architectural tallness in Europe

«building that looks far and is seen from afar»

D.Bramante, 1480 ca

Throughout history, tall buildings in Europe have captured the imagination and attention of people from near and far. These architectural marvels rise above the cityscape, commanding attention with their grandeur and becoming symbols of power, innovation, and cultural identity. They possess a unique quality that makes them visible from great distances, leaving a lasting impression on anyone who beholds them. William Craft Brumfield in his book “The Skyscraper” explores the rich history and evolution of tall buildings in Europe. From the iconic Eiffel Tower in Paris to the Shard in London, these structures have become emblems of their cities, visible from various vantage points. The Eiffel Tower, for instance, stands tall on the Parisian skyline, its lattice structure reaching high into the heavens, capturing the gaze of all who approach the city. Bramante, an influential Italian architect of the Renaissance period, expressed the idea of a building that looks far and is seen from afar. This philosophy is evident in his designs, such as the Tempietto in Rome, which stands as a visual centerpiece within its surroundings.

«when I arrived in a city, I always go up to the highest bell tower or the highest tower, to see the whole thing together, before seeing the parts; and when I live it, I do the same, to fix my ideas»

Montesquieu, Voyage en Italie, 1728

Montesquieu’s practice of going up to the highest bell tower or tower upon arriving in a city demonstrates his desire to experience the city as a whole, taking in its architectural ensemble from an elevated vantage point. This approach allowed him to grasp the entirety of the urban landscape and appreciate the visual unity and coherence of the cityscape. The European tall building, with its height and prominent position, serves as a visual landmark that can be seen from afar, attracting attention and drawing visitors towards it. It becomes an integral part of the urban fabric, shaping the skyline and providing a sense of identity and character to the city.

«During the long history of Europe, vertical elements defined new skylines: watch towers, bell towers, domes, “buildings that look far away and are seen from a distance” according to Bramante, in the 16th century.»

Folli M. G., Tall building, Architecture, cities, society: 5 didactic experimentations, Araba Fenice. Boves, 2017

Royal Skyline- A multi function tower for Royal Seaport

Moreover, it is very important that the tall building be integrated into the urban fabric, ensuring that it harmonizes with the surrounding environment. While the skyscraper stands out due to its height and commanding presence, it should not overshadow or detract from the overall urban experience. Hilberseimer in his book “Groszstadt Architektur” cautions against turning the skyscraper into a monument, recognizing that it should serve a functional purpose within the city rather than simply being an object of admiration.

By carefully considering the location and context, the European tall building can contribute to the vitality and dynamism of the urban landscape. It becomes an integral part of the city’s identity, encapsulating the energy and spirit of the surrounding area. The strategic placement of the tall building allows it to serve as a visual anchor, shaping the urban experience and enhancing the qualities of the adjacent square or road.

Hilberseimer highlights the importance of balancing the architectural grandeur of the tall building with its integration into the urban fabric. Rather than being an isolated monument, the European skyscraper is envisioned as an active participant in the life of the city, creating connections and dialogue with its surroundings. It becomes a catalyst for urban activity, attracting people and activities, while also complementing and respecting the existing architectural and cultural context.

«the European skyscraper, .. it should be built at strategic points, where it can summarize, accentuating, the dynamics of a square, of a road ...

on the other hand, we must be careful not to turn it into a monument»

L.Hilberseimer, Groszstadt Architektur, 1927

«The singularity of the plan derives from the awareness that, for a glass building the problem is not so much to obtain effects of light and shadow, as to create a play of luminous reflections.

The curves of the plan were designed keeping in mind the interior lighting, the effect of the volumes on the image of the road and the play resulting from the reflections of light.»

L.Hilberseimer, Groszstadt Architektur, 1927

Moreover, the European tall building should be characterized by a harmonious fusion of structure and architecture. Instead of relying on extraneous embellishments or added elements, the building’s structural system itself becomes an integral part of its architectural expression. This approach results in a refined simplicity, where the structural innovation becomes synonymous with the essence of the building’s archi-

ecture. By prioritizing structural invention, the European tall building can achieve a sense of purity and elegance. The absence of unnecessary ornamentation allows the inherent beauty of the structural system to shine through, creating a visually striking and intellectually engaging design. This focus on structural integrity also ensures that the building is efficient, durable, and capable of withstanding the forces and demands of its environment.

«The attained simplicity is the result not of simplification, but of a structural invention, to the point of making it identify with architecture without added elements»

P.L.Nervi, 1956

In addition, the European tall building is been considered as a transformative element within a new vision of the city.

«let' s throw away the monuments, sidewalks, arcades, steps, plunge the squares, raise the level of cities »

Sant'Elia, Manifesto of Futurist Architecture, July 1914

Sant'Elia's manifesto reflects the futuristic spirit of the time, characterized by a desire to break away from the past and embrace a new, dynamic vision of the city. His ideas suggest a complete reimagining of urban spaces, with the tall building playing a central role in this transformation. By discarding conventional urban elements, Sant'Elia envisions a city that is stripped down to its essentials, emphasizing efficiency, functionality, and modernity. The European tall building, as envisioned by Sant'Elia, becomes an emblem of progress and innovation.

Its verticality and commanding presence symbolize the ambition and dynamism of the new city. By raising the level of cities, Sant'Elia seeks to create a new urban environment that is free from the constraints of the past and offers a fresh perspective on the relationship between architecture, society, and technology.

In this new city, the tall building becomes a powerful statement of modernity, reflecting the aspirations of the rapidly changing society. Its innovative design and advanced construction techniques align with the principles of the Futurist movement, which sought to embrace the speed, energy, and technological advancements of the early 20th century.

On the other hand, the forward-thinking mentality of pushing the boundaries of design and construction is been developed.

«skyhooks' around Moscow made of non-rusting high-tensile steels and glass which is transparent to light, but obstructs the heating rays of the sun»

Buckminster Fuller

The idea of “skyhooks” implies a departure from traditional notions of architectural support and integration. Instead of relying on conventional structural elements, these tall buildings would appear to hang or suspend from the sky, creating a sense of weightlessness and defying gravity. This concept aligns with the forward-thinking mentality of pushing the boundaries of design and construction.

The materials mentioned, non-rusting high-tensile steels and glass with selective transmission properties, highlight a focus on durability, efficiency, and environmental considerations. By using non-rusting high-tensile steels, the buildings would resist corrosion and maintain their structural integrity over time. The glass, transparent to light but obstructing the heating rays of the sun, suggests a careful balance between harnessing natural light for illumination while mitigating excessive heat gain.

This innovative approach to material selection and design principles reflects a desire to create sustainable, energy-efficient structures. By using advanced materials and technologies, the European tall buildings in this vision would minimize their environmental impact and contribute to a more environmentally conscious cityscape.

Furthermore, the concept of “skyhooks” and the integration of non-rusting high-tensile steels and selective glass materials convey a sense of harmony between the built environment and nature. These buildings would appear as ethereal elements, blending seamlessly with the surrounding sky and landscape.

The transparency of the glass would allow for uninterrupted views and a connection to the outside world, promoting a sense of openness and interaction with the urban context. In summary, the notion of “skyhooks” and the use of non-rusting high-tensile steels and selective glass materials in European tall buildings suggest a vision of cutting-edge design and sustainability.

This concept embodies a departure from traditional architectural norms, embracing innovative materials and technologies to create structures that harmonize with the environment. While the specific origin of this statement is not specified, the ideas it evokes contribute to the ongoing discourse on the future of architectural design and its role in shaping the cities of tomorrow.

On the other hand, as Walter Gropius says, the European tall building has the potential to provide inhabitable space while effectively controlling population density.

«the population density of an area can be controlled without limiting the height of buildings, simply establishing a quantitative relationship between the area of the building land and that of the dwelling or the volume of the building.

This would open the way for a vertical development of the multi-storey apartment building. It is therefore necessary to systematically develop “tower” buildings ... the type of the future for urban industrial populations.»

W.Gropius

Gropius proposes that by establishing this quantitative relationship, a vertical development of multi-storey apartment buildings becomes feasible. This approach allows for the creation of taller buildings while effectively managing population density. In essence, Gropius envisions a future where “tower” buildings become the ideal type for accommodating urban industrial populations. By utilizing tall buildings as a means of vertical development, Gropius emphasizes the importance of efficient land use in densely populated areas. The vertical expansion allows for increased inhabitable space while minimizing the footprint on the ground.

This approach optimizes the utilization of limited urban land and enables the provision of adequate housing for a growing population. Gropius’ vision aligns with the concept of urban density and its potential benefits. Rather than spreading out horizontally, he advocates for vertical growth as a means to accommodate a larger number of people within limited urban areas.

The tall building, in this context, becomes an architectural solution that addresses the challenges of urbanization and offers a pathway to sustainably meet the housing needs of industrial populations. Furthermore, Gropius’ perspective implies a shift in urban planning and architectural design towards more efficient and compact living arrangements. The focus is on maximizing the available space within tall buildings while maintaining a high standard of living. This necessitates thoughtful considerations of functional layouts, access to amenities, natural light, ventilation, and communal spaces that foster a sense of community and well-being.

«big block lying in the water ...

It has become like a cross-section of the Amsterdam society, so you’ll find families, older people, people with many different hobbies, attitudes and lifestyles, and they’re all united in one building.»

MVRDV

In conclusion, the European tall building has been the subject of various perspectives and visions throughout history. From Bramante's notion of a building that looks far and is seen from afar to Montesquieu's desire to grasp the entirety of the cityscape from an elevated viewpoint, these ideas reflect the impact and significance of tall buildings in shaping the urban landscape.

The European tall building is not merely a monument but a functional and integral part of the city, strategically positioned to accentuate the dynamics of squares and roads, as emphasized by Hilberseimer. The pursuit of simplicity in form and structural invention, as advocated by Nervi, results in buildings that are visually striking and technologically advanced. Sant'Elia's call to raise the level of cities and embrace modernity aligns with the futuristic and transformative nature of tall buildings. The concept of "skyhooks" and the integration of advanced materials highlight a commitment to sustainability and a harmonious relationship with the environment.

Gropius's vision of controlling population density through vertical development showcases the potential of tall buildings to accommodate growing urban populations. Inhabitable space within tall buildings becomes a key consideration, emphasizing the importance of efficient design, functional layouts, and communal amenities. Collectively, these perspectives contribute to a broader understanding of the European tall building as an architectural and urban element that shapes the character, identity, and livability of cities while reflecting the aspirations, values, and technological advancements of each era.

1.2. In the European Nordic countries

1.2. In the European Nordic countries

1.2.1. The meaning between past and present

The architectural tallness in Nordic countries, particularly in the context of Nordic classicism, showcases a fascinating interplay between the past and the present. Nordic classicism in architecture refers to a style that emerged in the late 18th century and reached its zenith in the early 19th century. It draws inspiration from classical architectural principles while incorporating regional elements and adapting to the unique Nordic context.

In Nordic classicism, tallness is a significant aspect that symbolizes power, grandeur, and a connection to the ancient civilizations of Greece and Rome. The use of tall columns, pediments, and symmetrical façades evokes a sense of order, harmony, and monumentality. These elements create a visual language that reflects the ideals of beauty, proportion, and permanence.

The tallness in Nordic classicism can be seen in various architectural structures, such as public buildings, palaces, and churches. One prominent example is the Stockholm Palace (Stockholms slott) in Sweden. Built in the 18th century, it exemplifies the grandeur of Nordic classicism with its imposing façade, tall columns, and intricate ornamentation. The palace's tallness not only represents the power of the monarchy but also reflects the influence of European architectural trends of the time.

However, the meaning of architectural tallness in Nordic countries extends beyond the classical influences. It also reflects the unique geography and cultural identity of the region. The Nordic countries are known for their vast landscapes, rugged terrains, and harsh climates. In such an environment, tall buildings can serve as landmarks, providing a sense of orientation and stability. They stand as symbols of human perseverance and adaptability amidst challenging natural conditions.

Moreover, the tallness in Nordic architecture also embodies a sense of egalitarianism. Nordic societies have a long-standing tradition of social equality, and this value is reflected in their architecture as well. Tall public buildings, such as city halls and parliament houses, stand as symbols of democratic governance and open access. They invite citizens to participate actively in the democratic process and reinforce the idea that power and decision-making should be transparent and accessible to all.

In the present context, Nordic countries continue to embrace and reinterpret the concept of architectural tallness. Contemporary architecture in the Nordic region often combines elements of traditional Nordic design with modernist influences. The emphasis on tallness remains, but it is now expressed in innovative and sustainable ways.

Today, Nordic architects strive to create buildings that harmonize with the surrounding environment, promote energy efficiency, and incorporate elements of nature. Tall structures are designed to maximize natural light, offer panoramic views, and blend seamlessly into the landscape. These buildings often feature clean lines, minimalist aesthetics, and a focus on functionality.

The meaning of architectural tallness in Nordic countries, particularly in the context of Nordic classicism, is a blend of classical influences, regional identity, and modern interpretations. It represents power, grandeur, and a connection to ancient civilizations, while also embodying the values of social equality, democratic governance, and environmental sustainability. The tallness in Nordic architecture serves as a testament to the rich cultural heritage and progressive mindset of the region, showcasing the ongoing dialogue between the past and the present.

1.2.2. Form and construction techniques

«There is no difference between art and technique, nor between architecture and engineering. Both serve the art of construction.»

Santiago Calatrava

Nordic countries have earned global recognition for their distinctive architectural approach, characterized by a harmonious integration of functionality, simplicity, and a strong connection to nature. As the demand for tall buildings continues to rise in these regions, architects face the challenge of translating the principles of Nordic architecture into soaring structures that embody the unique cultural identity of the region. Nordic tall building architecture embraces expressive and organic forms that establish a dialogue with their surroundings. As Santiago Calatrava's references to the propped head and the open hand, Nordic architects seek to create buildings that seamlessly integrate with the natural environment.

Projects such as the "Tree" (The Tree) in Bergen, Norway, designed by Artec AS, exemplify this approach. The building's dynamic form mimics the organic growth of a tree, with its branches extending outward and embracing the surroundings. This expressive design not only provides a unique visual identity but also fosters a deep connection between the inhabitants and nature.

Furthermore, Nordic architects are renowned for their innovative construction techniques that challenge conventional norms. Drawing inspiration from Calatrava's exploration of the spine and its representation as a series of cubes, architects create tall buildings with unconventional structural configurations. The

“Turning Torso” in Malmö, Sweden, designed by Santiago Calatrava himself, stands as an iconic example of Nordic innovation. Its twisting form consists of nine stacked cubes, each rotated slightly to create a spiraling effect. This daring construction technique not only creates a visually captivating structure but also provides strength and stability.

«Another important series of plastic studies goes a step further. They describe the spine, or how our body stands up. The spine is made up of vertebrae that are represented in the sculptures in a very elemental way, as a series of cubes.»

S. Calatrava, conversations with students, the M.I.T. lectures, 2002

Moreover, sustainability lies at the core of Nordic tall building architecture, and architects prioritize environmentally responsible design practices. As Bjarke Ingels in his book “Yes is More” says, Nordic architects integrate sustainable principles throughout their designs. The “CopenHill” project in Copenhagen, Denmark, designed by BIG (Bjarke Ingels Group), is a prime example of this commitment.

The building serves as both a waste-to-energy power plant and a recreational facility, featuring a rooftop ski slope and hiking trails. By transforming a traditional industrial facility into a sustainable and community-oriented landmark, Nordic architects demonstrate their dedication to sustainable design. So, Nordic skyscrapers embody a unique blend of functionality, sustainability, and adaptation to diverse climates. Bjarke Ingels, in his book “Hot to Cold” sheds light on the design principles employed in these structures. Ingels emphasizes the importance of considering the specific climate conditions when designing skyscrapers in the Nordic region. As he says not only functionality but also the integration of architectural forms with their surroundings, resulting in buildings that are responsive to climate conditions while maintaining their unique aesthetic appeal.

«Architecture is much more than designing pretty façades or expressive sculptures. It is creating man-made ecosystems, where we channel not only the flow of people, but also the flow of resources through our cities and buildings.»

Hot to Cold, An Odyssey of Architectural Adaptation, BIG, 2022

«As we travel from one extreme climate to its opposite, we will see that the more harsh the climate gets, the more intense its impact on the architecture.»

Hot to Cold, An Odyssey of Architectural Adaptation, BIG, 2022

Ingels suggests that Nordic skyscrapers must adapt to both extreme cold and mild temperatures. For instance, buildings in colder areas require robust insulation, efficient heating systems, and strategies to harness natural light during the shorter winter days.

On the other hand, in milder climates, the emphasis might be on natural ventilation, shading techniques to prevent overheating, and utilizing renewable energy sources. To achieve these objectives, Ingels encourages architects to think creatively and explore innovative solutions.

This might involve using advanced materials with superior insulating properties, incorporating smart technologies for energy management, or employing dynamic façade systems that adapt to changing weather conditions.

Another important aspect highlighted by Ingels is the integration of nature within the skyscrapers themselves. He advocates for incorporating green spaces, such as rooftop gardens or vertical vegetation, which not only provide visual appeal but also contribute to improving air quality and creating a connection with the natural environment.

Furthermore, Ingels emphasizes the use of sustainable materials and construction techniques. He suggests employing locally sourced materials, which reduce carbon emissions associated with transportation and promote a sense of regional identity. Additionally, employing renewable energy systems, such as solar panels or geothermal heating, helps minimize the environmental impact of the buildings.

In terms of aesthetics, Ingels encourages a design approach that respects the cultural heritage of the Nordic region while embracing contemporary elements. Clean lines, minimalistic forms, and a focus on natural light are often characteristic of Nordic skyscrapers, creating a visually striking and timeless architecture. In conclusion, Nordic tall building architecture beautifully combines functionality, organic forms, sustainability, and a deep connection to nature.

Drawing inspiration from Santiago Calatrava's principles, Nordic architects create structures that seamlessly integrate with their surroundings, such as the dynamic "Treet" in Bergen. They also push the boundaries of construction techniques, exemplified by the innovative "Turning Torso" in Malmö. Sustainability is at the core of their designs, as seen in projects like the "CopenHill" waste-to-energy power plant in Copenhagen. Bjarke Ingels' insights further emphasize the importance of adapting to diverse climates and integrating nature within skyscrapers.

By embracing the cultural heritage of the region while embracing contemporary aesthetics, Nordic archi-

fects have achieved a unique and timeless architectural style. The fusion of art, technique, architecture, and engineering in Nordic tall buildings truly serves the art of construction, leaving a lasting impact on the architectural landscape.

1.2.3. The history of high-rise characters in Stockholm

Stockholm has remained captivated by its high-rise buildings for decades as evident from passionate discussions surrounding them. The dynamic topography shaped by landmarks such as Stadsholmen crest, Brunkeberg Ridge and Södermalm's fault scarps are some reasons that contribute to an aesthetically pleasing landscape for tall structures here. It is important to note that these lofty constructions far pre-date our current time frame hence being a longstanding feature of this vibrant city.

In late twelfth century Stockholm, a towering edifice rose on what is now known as Old Town Island. Over time, this tower became an emblematic symbol of the city and eventually became part of Three Crowns Castle.

Tragically, a fire consumed the castle in 1697 leading to its dismantling and replacement with a baroque palace that prominently featured horizontal orientation rather than height.

A fire that occurred only after many decades heralded significant changes for Stockholm's skyline - flames spread over Riddarholmen in 1835 destroying much of Riddarholmen Church including its hood roof structure.

To reimagine and rebuild something new as an ode to renewal and progress required ingenuity and inspiration - Erik Gustaf Göthe along with Axel Nyström rose to provide these qualities by conceptualizing an entirely openwork cast iron spire composed while incorporating Gothic design principles which consequently opened up vast vistas of possibilities for future architectural explorations within modern era materials.

The construction of the Central Station in 1871 marked the beginning of modern development in Stockholm. Near the station, Klara Church faced the risk of disappearing in the cityscape due to the larger scale of the new buildings. As a result, Helgo Zettervall decided to restore the church in the 1880s and added a very tall tower measuring 116 meters. This made Klara Church the tallest building in Stockholm for over 80 years.

In the late nineteenth century, new technology and bold solutions started to influence high-rise construction in Stockholm. The steam-powered Katarina Lift, completed in 1883, bridged the height differences between Slussen and Mosebacke. Designed by Knut Lindmark, the lift's tower and adjacent footbridge showcased a relatively delicate structure that merged with the surrounding buildings. Another notable

structure was the Telephone Tower at Brunkebergstorg, which featured openwork turrets and tall spires, distinguishing it from the cityscape.

The Hall of Industry, erected in 1897 for the General Exhibition of Industry and Art, marked the peak of high-rise construction in nineteenth-century Stockholm. Designed by Fredrik Lilljekvist and Ferdinand Boberg, the wooden hall boasted a gigantic dome surrounded by minaret-like towers, offering panoramic galleries for public viewing.

Influences from the United States became evident in Stockholm around 1900. The advent of the skeleton construction technique and elevators in Chicago and New York allowed for the emergence of skyscrapers. While Stockholm's early attempts at skyscrapers were relatively modest, with buildings like the Central Palace and Sankt Eriks Palace, the city's first concentrated high-rise development came with the construction of large ten-storey buildings at Stadsgarden around 1910.

The 1915 proposal by architect Sven Wallander for Kungsgatan displayed similarities to Ferdinand Boberg's solution for Slussen. Wallander envisioned two tall towers framing the viaduct, which were eventually constructed in the 1920s. Known as the King's Towers, these buildings became synonymous with the allure of the modern metropolis.

In 1923, the new City Hall became one of Stockholm's most visible landmarks. Designed by Ragnar Östberg, the City Hall featured a tall tower topped with three gilt crowns, alluding to the vanished tower of the Three Crowns castle. While not as tall as Klara Church, the City Hall's height of 106 meters and its iconic silhouette made it a significant addition to Stockholm's high-rise architecture.

In the post-war period, Stockholm experienced a surge in high-rise construction, driven by urbanization and population growth. The most notable example is the Norrmalmstorg complex, completed in the 1960s. Designed by David Helldén, the complex consists of several tall buildings, including the skyscraper Kungstornen, which at 117 meters became the tallest building in Stockholm at the time.

In recent years, the discussion around high-rise buildings in Stockholm has intensified. There has been a growing interest in urban densification and the potential for vertical growth to accommodate the city's expanding population. Several high-rise projects have been proposed, such as Norra Tornen (Northern Towers), which is a modern architectural marvel located in the Hagastaden district of Stockholm. It is designed by OMA, these twin towers have become prominent landmarks in the city since their completion in 2018. Rising to a height of 125 meters and 100 meters, the towers consist of residential units, offices, and commercial spaces. The buildings feature a distinct twisted form, creating an illusion of movement and dynamism.

Royal Skyline- A multi function tower for Royal Seaport

mism.

Another high-rise character in Stockholm is Scandic Victoria Tower which is situated in the Kista Science City district, the Scandic Victoria Tower is a striking skyscraper that stands out amidst Stockholm's skyline. Completed in 2011, this tower serves as a luxurious hotel. Soaring to a height of 120 meters and featuring 34 floors.

Kista Torn is another high-rise character of Stockholm. Kista Torn is a residential tower located in the Kista district, a hub for technology and innovation in Stockholm. Completed in 2019, this 32-story building stands at a height of 115 meters. It is designed by Wingårdhs. The tower's sleek design features a faceted façade, allowing for ample natural light and stunning aesthetics.

Another high-rise character is Sthlm 01 that is designed by Andersson & Sandström, is high 140 meters and consist of 40 floors. It contains primarily house office spaces.

In conclusion, Stockholm's high-rise buildings have captivated the city for decades, reflecting its vibrant spirit and architectural legacy. From historical landmarks to modern marvels, these structures have shaped the city's skyline and become prominent symbols of innovation and progress. As Stockholm continues to embrace vertical growth and urban development, high-rise buildings play a vital role in accommodating the city's expanding population and creating a visually stunning landscape.

PART TWO

Stockholm



“Stockholm is quite unique in their approaches to both growth management and community design.”
James A. Kushner the tale of three cities, 1993

2.1. History

1. Stockholm

2.1. History

2.1.1. History and the structure of the city

“Stockholm had its beginnings in the thirteenth century, when the gradual rise of the land, which now amounts to about 0.5 meter a century, had changed Malaren from a bay of the Baltic into a lake. Situated on the short and rapidly flowing outlet, Norrstrom, Stockholm became one of the principal towns of Sweden, though it did not grow much until the middle of the seventeenth century, when Sweden became a great Baltic power. “

the town starts to grow and becomes more dense and the number of houses grew over the time and the structure of the city started to change.

“The town comprises a central, densely built part, with houses of four to six stories, and extensive suburbs. The central part and its districts are seen in Figure I. Greater Stockholm rests on Archean rock (granite and gneiss), divided by fault escarpments into blocks of different heights, the highest to the south of Saltsjon and Lake Malaren. The topography is inconvenient for a town. The intervening water and the differences“

Taylor & Francis, Ltd, Stockholm: Its Structure and Development,1940.

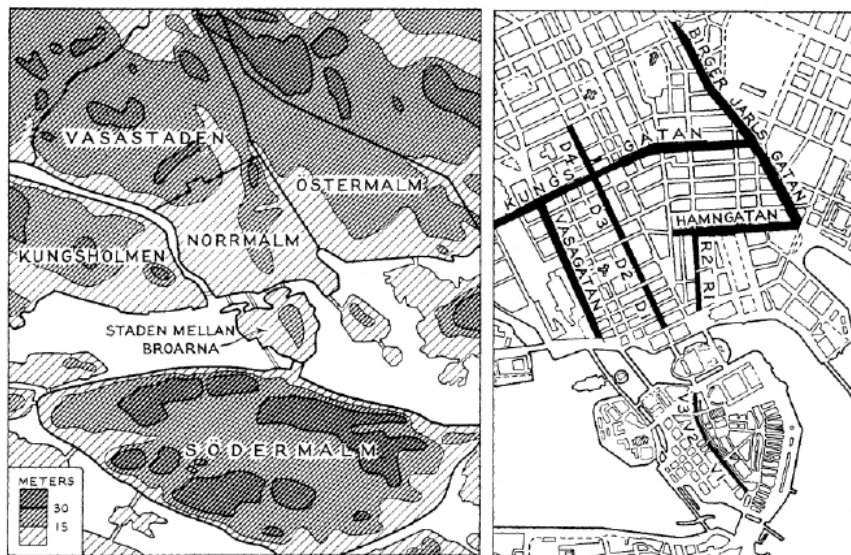


Figure .1. Early Stockholm map

Refrence : Taylor & Francis, Ltd, Stockholm: Its Structure and Development,1940.

FIG. 1—Stockholm: relief and districts. Scale 1: 80,000 (1 cm. = 800 m.).

FIG. 2—Central Stockholm: principal streets. D, Drottninggatan; R, Regeringsgatan; V, Västerlånggatan. Scale 1: 32,000 (1 cm. = 320 m.).

Stockholm's communication between its parts is affected by various factors. Södermalm, with a height range of 25-45 meters, faces difficulties due to a steep cliff, limiting communication with Staden Mellan Broarna, which comprises three islets. The largest islet, Stadsholmen, is part of an esker that continues across Norrmalm. This esker rises 15-25 meters above the surrounding plain and is bordered by Regeringsgatan on the east and Drottninggatan on the west.

Östermalm is relatively flat, while Vasastaden and Kungsholmen have significant rocky outcrops reaching heights of up to 45 meters.

The town serves various purposes, including work, residence, and recreation. Workplaces are categorized as government offices, public institutions, business offices, retail shops, and industrial establishments. Each group may have specific location requirements, leading to further subdivisions based on those requirements.

2.1.2. Architectural History of the city

Stockholm, the capital of Sweden, has a rich history and a distinct architectural heritage that reflects its past. The city's architecture is a blend of various styles, ranging from medieval structures to modern designs. and it is special city.

“Stockholm is quite unique in their approaches to both growth management and community design.”

the city has gone through changes during the years. also the architecture. Stockholm has a history from the medieval architecture to the modernism. that we shortly explain:

Medieval Architecture:

Stockholm's oldest architectural remnants can be traced back to the medieval period. The Gamla stan (Old Town) is home to some of the city's most iconic buildings. One notable example is the Stockholm Cathedral (Storkyrkan), which dates back to the 13th century. Its Gothic architecture and towering spires make it a prominent landmark.

Renaissance and Gustavian Architecture:

During the Renaissance and Gustavian era (16th to 18th centuries), Stockholm saw a transition towards

Royal Skyline- A multi function tower for Royal Seaport

more refined architectural styles. Influenced by Italian and French designs, grand palaces and public buildings were constructed. The Royal Palace (Kungliga Slottet) is a prime example of this period. With its baroque and rococo elements, it remains one of Europe's largest palaces.

Neoclassical Architecture:

The late 18th and early 19th centuries brought a wave of neoclassical architecture to Stockholm. Inspired by ancient Greece and Rome, buildings were characterized by symmetrical facades, columns, and pediments. The Swedish Royal Opera House (Kungliga Operan) and the Royal Swedish Academy of Fine Arts (Konstakademien) are prominent neoclassical structures in the city.

2.2. Cultural features

2.2.1. Brief introduction

The city of Stockholm is well known for its extensive cultural heritage, which includes a wide variety of cultural influences and customs. Its culture displays a distinctive fusion of historical significance, creative achievements, and Scandinavian traditions. The information that follows combines a number of sources to give an overview of Stockholm's cultural landscape:

Stockholm, which has a rich history that dates back to the 13th century, maintains a feeling of tradition in its cultural activities and has a deep link to its past (based on the book :“Stockholm: A Cultural History” by Tony Griffiths)

The cultural landscape of Stockholm is alive and energetic, presenting a diverse range of artistic manifestations. Numerous galleries, theaters, and museums in the city display both modern and classical pieces (based on the book : Stockholm City Museum, ArkDes)

The city's architecture, interior design, and fashion industries continuously push boundaries and encourage originality.

Stockholm has a thriving music scene that has given rise to numerous bands and musicians who are well-known internationally. The city's dedication to recognizing musical brilliance is further demonstrated by the yearly Stockholm Music & Arts festival and the Nobel Prize Concert(based on the book : Stockholm City Museum, ArkDes)

The Stockholm archipelago, which is made up of thousands of islands, is important to the city's cultural character. The preservation of customs like boat construction, fishing, and handicrafts by islanders provides a window into the region's maritime history (based on the source: Anita Goldman's “Stockholm: City of Islands”)

Stockholm's cuisine is a blend of local Swedish dishes with world flavors. There are Michelin-starred restaurants, food markets, and a thriving café scene in the city that satisfy all culinary preferences.

The calendar of Stockholm is not complete without cultural festivals and events. The Nobel Prize ceremony, Stockholm Pride, and Stockholm Culture Night are just a few of the city's joyful events that unite people in

celebration of variety and accomplishments. (based on the book : Stockholm City Museum, ArkDes)

The cultural norms of Stockholm show a regard for sustainability and environmental consciousness. The neighborhood is in favor of eco-friendly initiatives, environmentally friendly building designs, and a commitment to preserving its natural surroundings.

When these sources are integrated, a comprehensive picture of Stockholm's cultural environment may be formed, highlighting the city's historical roots, artistic expression, design prowess, musical heritage, architectural traditions, gourmet offerings, festive celebrations, and commitment to sustainability.

Logom

In Swedish, the word "lagom" means "just the right amount" or "balance." It exhibits the Swedish philosophy of moderation, equality, and achieving consensus. In Stockholm's culture, there is a strong emphasis on fairness, sustainability, and achieving a balance in a number of areas of life, including social equality and work-life balance.

Fika

The Swedish practice of taking a break to chat and unwind usually involves a cup of coffee and pastries. It plays a significant role in Swedish culture, particularly in Stockholm. Fika breaks provide people a chance to interact, have talks, and strengthen community

Nature and Outdoor Lifestyle

Stockholm shares the stunning natural scenery that is characteristic of the Scandinavian nations. With water and greenery all around the city, there are lots of chances for outdoor pursuits including riding, hiking, and boating. Stockholm's culture places a strong focus on living a healthy, active lifestyle and maintaining a connection to nature.

2.2.2. motifs and colors

The city's history, environment, and artistic traditions are all reflected in a variety of ways in Stockholm's culture and arts. Here are some recurring themes and references that may be seen in Stockholm's artistic and cultural expressions:

Viking and Norse Mythology: Stockholm's ties to Norse mythology and Viking history are frequently referenced in popular culture. Various styles of art contain images of legendary animals, Viking ships, and runes.

Royal Skyline- A multi function tower for Royal Seaport

(based on the book : Stockholm City Museum, ArkDes)

Nature and the Archipelago: Stockholm's spectacular natural beauty serves as a source of inspiration for designers and artists. Paintings, sculptures, and textiles regularly feature motifs like waves, sea life, and island scenes (based on the source: Anita Goldman's "Stockholm: City of Islands")

Designs with floral and botanical elements: The botanical gardens and parks in Stockholm have impacted the development of decorative themes with floral and botanical elements. Textiles, ceramics, and ornamental arts all feature these motifs(based on the book : Stockholm City Museum, ArkDes)

Folk Art and Traditions: The cultural scene in Stockholm celebrates classic Swedish folk art themes like Dala horses, rosemaling (decorative painting), and traditional clothing. These themes are frequently used in arts and crafts, celebrations, and other cultural activities (based on the source: Tony Griffiths, "Stockholm: A Cultural History").

Design that is abstract and minimalist: Stockholm is recognized for its taste in modern and minimalist architecture. Modern furniture, architecture, and graphic design frequently use simple, geometric shapes and clean lines(based on the source: "Architecture in Sweden: A Survey of Swedish Architecture throughout the Ages and up to the Present Day" by Fredric Bedoire)

Sami culture and indigenous motifs may be seen throughout Stockholm, which honors Sweden's original Sami population. In art exhibits and cultural events, traditional Sami motifs like reindeer, geometric patterns, and traditional garment components can be exhibited.

Stockholm, the capital of Sweden, has a strong connection to its regal past due to its use of royal symbols and heraldry. Architectural designs, historical objects, and official insignia all contain royal crests, symbols, and design elements (based on the book : Stockholm City Museum, ArkDes)

These themes, which range from Norse and Viking mythology to designs influenced by nature, folk art customs, and modern minimalism, add to the diverse fabric of Stockholm's cultural and aesthetic manifestations. They draw attention to the historical significance, connection to nature, and modern design sensibility of the city.

Stockholm's architectural and building colors display a wide spectrum, reflecting the historical, cultural, and modern influences on the city. In the following, references are combined to provide information about the

colors that are frequently used in Stockholm's architectural landscape:

Warm Earth Tones: Warm earth tones like ochre, terracotta, and sandy beige are frequently used in Stockholm's architecture. The façade and ancient structures that use these hues exude a sense of harmony with the natural world. (based on the source: Tony Griffiths, "Stockholm: A Cultural History").

Buildings around the waterfront can be found in brilliant colors suggestive of the sea due to Stockholm's proximity to the archipelago. The nautical nature of the city and its proximity to the water are reflected in the blue, teal, and aquamarine hues [based on the source: Anita Goldman's "Stockholm: City of Islands")

Subtle Neutrals: Light gray, off-white, and pale cream are common subtle neutrals in Stockholm's contemporary architecture. The emphasis can be placed on straight lines and architectural shapes thanks to these colors' contribution to a contemporary and minimalist aesthetic. (based on the Reference: Fredric Bedoire's book, "Architecture in Sweden: A Survey of Swedish Architecture throughout the Ages and up to the Present Day" by Fredric Bedoire).

Bold Accents: To add visual appeal, Stockholm's architecture occasionally uses bold accents in contrast to the mild colors. Intricate details like doors, window frames, or decorative elements can be found with pops of color like vivid reds, deep blues, or bright yellows, giving the buildings personality (based on the book : Stockholm City Museum, ArkDes).

Royal Colors: Stockholm's royal past is frequently reflected in the use of regal hues like royal blue, deep burgundy, and rich purple. These colors can be seen in some of the city's most recognizable structures, such as the Royal Palace and other old buildings (based on the book : Stockholm City Museum, ArkDes)

Modern Expression: Stockholm has embraced vibrant and unusual color schemes with the rise of modern architecture and design. Bright orange, yellow, green, or even monochromatic color schemes on buildings make strong statements about contemporary architecture.(based on the Reference: Fredric Bedoire's book, "Architecture in Sweden: A Survey of Swedish Architecture throughout the Ages and up to the Present Day" by Fredric Bedoire).

The color scheme of Stockholm's structures and architecture combines historical customs, hues drawn from nature, modern aesthetics, and references to the city's royal past. These hues help to create a dynamic and varied architectural panorama in Stockholm's metropolitan setting, adding to its visual tapestry.

2.3. Urban structure

2.3.Urban structure

2.3.1.structure of the city, a brief history till 20th century

as we talked about the history of the city in general, we continue with a brief history of the city based on the urban design and its development.

“The city of Stockholm stands on a group of islands and fingers of mainland at the edge of the Baltic Sea. It is a city of palaces, ancient dwellings, parks, waterways, many bridges (42 at the latest count)”

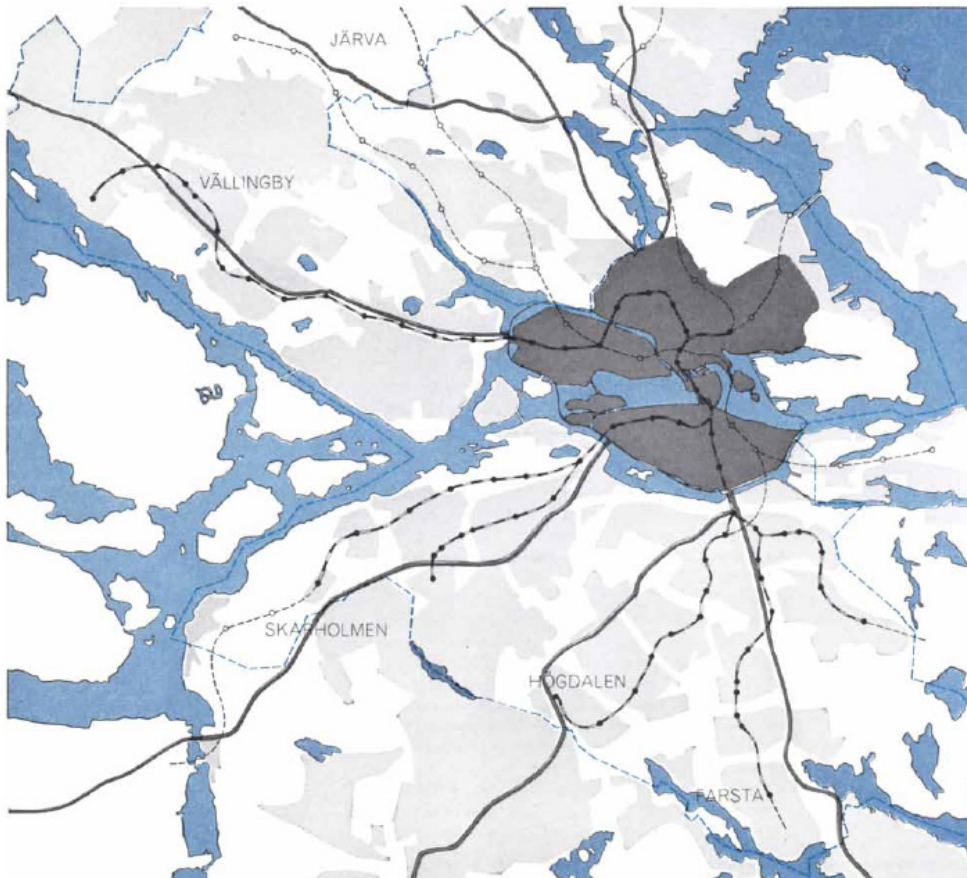


Figure .2 Stockholm Area

STOCKHOLM AREA includes the inner city (dark gray) and, still within the city limits (broken colored line), such planned suburbs as Vällingby and Farsta, together with other suburban centers (light gray). translated from the official website of stockholm city maps : <https://www.stockholmskallan.se>

"Like other old European cities, Stockholm is a mixture of many styles: narrow lanes and broad boulevards, age-grimed houses and modern apartments, mansard roofs and glass skyscrapers. Yet among the world's old cities Stockholm bears a unique distinction. It did not just grow: from the beginning of its modern history it has been to some degree a planned city
Scientific American , Vol. 213, No. 3 (September 1965),

In the Middle Ages, Stockholm, which was first built as a stronghold in the 13th century by Birger Jarl, an early monarch of the Swedish country, gradually expanded as a port. But when King Gustavus Adolphus and later kings chose it as Sweden's capital in the 17th century, it earned a lot of significance. This served as the catalyst for Stockholm's transformation into a planned metropolis.

"During the Middle Ages and in the 16th century, Stockholm was much smaller than today. Stockholmers of that time only lived in today's Old Town and in the closest parts of Norrmalm and Södermalm. Stockholm had so few inhabitants that everyone could fit in the small area"
(translated from the official website of stockholm city maps : <https://www.stockholmskallan.se/>)



Figure 3. Stockholm first map
This hand-drawn map is usually called Stockholm's first map. The map shows Gamla Stan and parts of the ores before the 17th century regulation works. The original is covered in needlepoint, a reminder of earlier copies of the map. translated from the official website of stockholm city maps : <https://www.stockholmskallan.se/>

Royal Skyline- A multi function tower for Royal Seaport

“This early interest in planning came about primarily through the force of accident. A primitive city built mainly of wood, Stockholm throughout its early centuries was repeatedly damaged by great fires;”
Scientific American , Vol. 213, No. 3 (September 1965)

Stockholm’s appearance was molded by the demolitions and new constructions that took place in the 16th century. These modifications were primarily motivated by the Reformation and the requirement for more robust defenses. King Gustav Vasa wanted to bolster the city’s defenses by enlarging the Old Town’s walls and fortifying the castle.

Defense constructions were built using materials salvaged from the destroyed monasteries. Renovations and embellishments started to gain attention around the end of the century. Detailed murals could be found in private homes, city gateways had spires, and fabrics were used to decorate. (based on official website of Stockholm (<https://www.stockholmskallan.se>))



Figure .4. Stockholm in 1728

Map of Stockholm inside the customs with the immediate surroundings. In the upper right corner of the map is “Stockholms Bransignaler”. It is a description of the fire signals that applied to the various districts “Förstaden, Norrmalm and Bladiholmen, Ladugårds Landet, Kongsholmen, Söder Malm”. There were four different ways to warn: “Flaggor, Lanternor, Klämt” (church bells) and “Stycke” (when firing a cannon). Signals “According to the Royal Ordinance of 12 December 1728.” translated from the official website of stockholm city maps : <https://www.stockholmskallan.se>

Devastating flames frequently struck Stockholm in the 17th century, destroying entire neighborhoods in a matter of hours or days. However, the city saw these catastrophes as an opportunity to recover and structured plans for rehabilitation were put into place. A city planner known as the “conductor” was chosen to supervise the development. Since then, the city planning office, which is now approximately 330 years old, has been in charge of planning Stockholm’s expansion and development.

“As early as 1640 the city adopted master plans for the growth of the areas that were then suburbs. Within the past 100 years it has carried out a series of plans that have transformed it from a modest-sized capital to a major metropolis. Metropolitan Stockholm has advanced from a population of barely 100,000 a century ago to more than 1.2 million today. It is now growing at the rate of about 2 percent a year” Scientific American , Vol. 213, No. 3 (September 1965),



Figure .5. Stockholm in 1885

Map sheet 5 from the Atlas of Stockholm drawn up and published by A. R. Lundgren in 1885. The sheet shows, among other things, Gamla stan, Norrmalm and Södermalm around Slussen, Mariaberget. translated from the official website of stockholm city maps : <https://www.stockholmskallan.se>

As urban planning and architectural styles changed over the 18th century, Stockholm underwent considerable alterations in the way its city was laid out.

Urban planning and city structure of Stockholm saw substantial changes in the 19th century, inspired by both domestic and foreign tendencies.

(these nformation are based on official website of Stockholm)

Stockholm's protective city walls were taken down in the early 19th century, allowing the city to grow and expand outside of its original settlement. This allowed for the growth and upgrading of new places.

As new neighborhoods were planned out in a methodical grid system, the gridiron street design became more and more common in the 19th century. A notable example is the district of Ostermalm, which was built with broad boulevards and fine residences.

Stockholm's green spaces and parks were established and expanded during the 19th century. With the introduction of parks and cultural institutions like the Skansen open-air museum, the island of Djurgården was transformed into a recreational area.

2.3.2.planning activities in 20th century

we start with the central part of the city that has seen the most changes and developments during the years.

Many of Stockholm's oldest and most renowned institutions are located on its center islands, which make up a relatively small portion of the city's central region. On the mainland, the primary business center may be found in the inner city's northern region.

“Around the turn of the century it became evident that drastic renewal was necessary for this area. Its business buildings, many of them multistory stone dwellings that had been converted to commercial use, were overdue for replacement by more efficient structures.

The streets were narrow and congested.”

Scientific American , Vol. 213, No. 3 (September 1965),

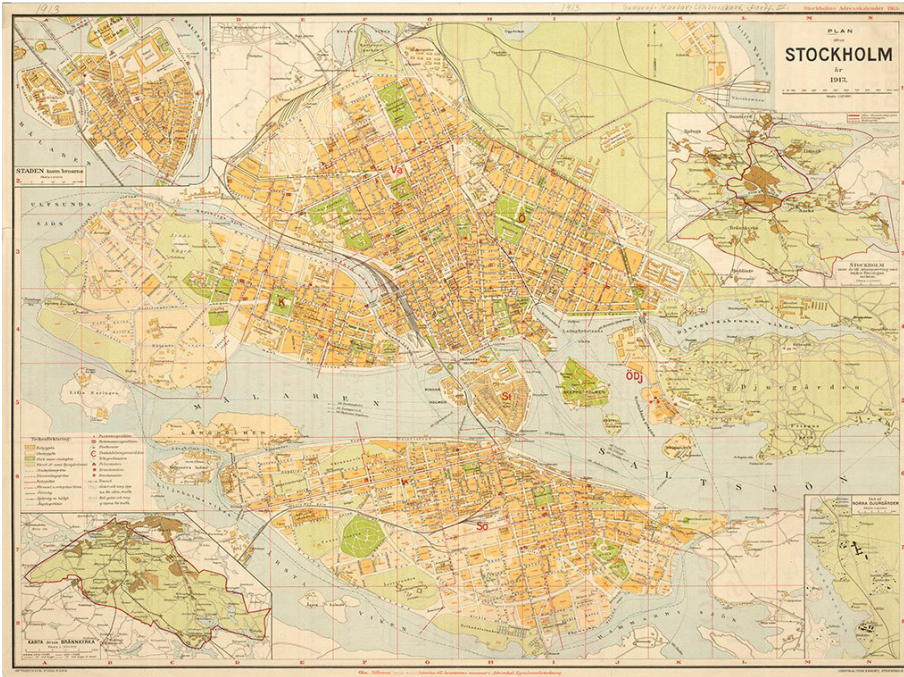


Figure .6. Stockholm in 1913

Plan of Stockholm in 1913. Scale 1:12000.
 Stockholm address calendar 1913.
 translated from the official website of stockholm city maps : <https://www.stockholm-skallan.se>

“A high ridge ran down the middle of the district, producing hilly streets that could be climbed by a horse but that were too steep for the new powered vehicles just coming in. The city therefore started a program of improving traffic by making deep cuts through the ridge to produce level streets. The first of these new east-west avenues-Kungs-gatan (King’s Street)-was opened in 1911”

Scientific American , Vol. 213, No. 3 (September 1965),

there has been a development of city plan through the years that we explain briefly:

“In 1912 the city officials approved detailed plans for further redevelopment of the business area.”

For this reason, the city started to acquire properties, but costs were high and development was sluggish. Whatever the case, it was finally understood that the 1912 design would be outdated before it could be implemented..

“In 1932 an international competition was held for the best solution to the problems of the area.

Altogether about 350 plans were submitted, but the only result was intensified arguments among the aldermen and other officials in the city hall.”

Royal Skyline- A multi function tower for Royal Seaport

“By 1940 the planning commission was under a Liberal alderman; the finance and “real estate” commissions were under Social Democrats. In addition to party rivalries there were conflicting views of the various plans within the parties themselves. The debates went on right through World vVar II.”

“At length, in 1945, the city assembly agreed on a broad plan, and a more detailed plan was presented in 1946.)

For several years, however, no actual work was started. The political and administrative problems were finally solved.

” Scientific American , Vol. 213, No. 3 (September 1965)

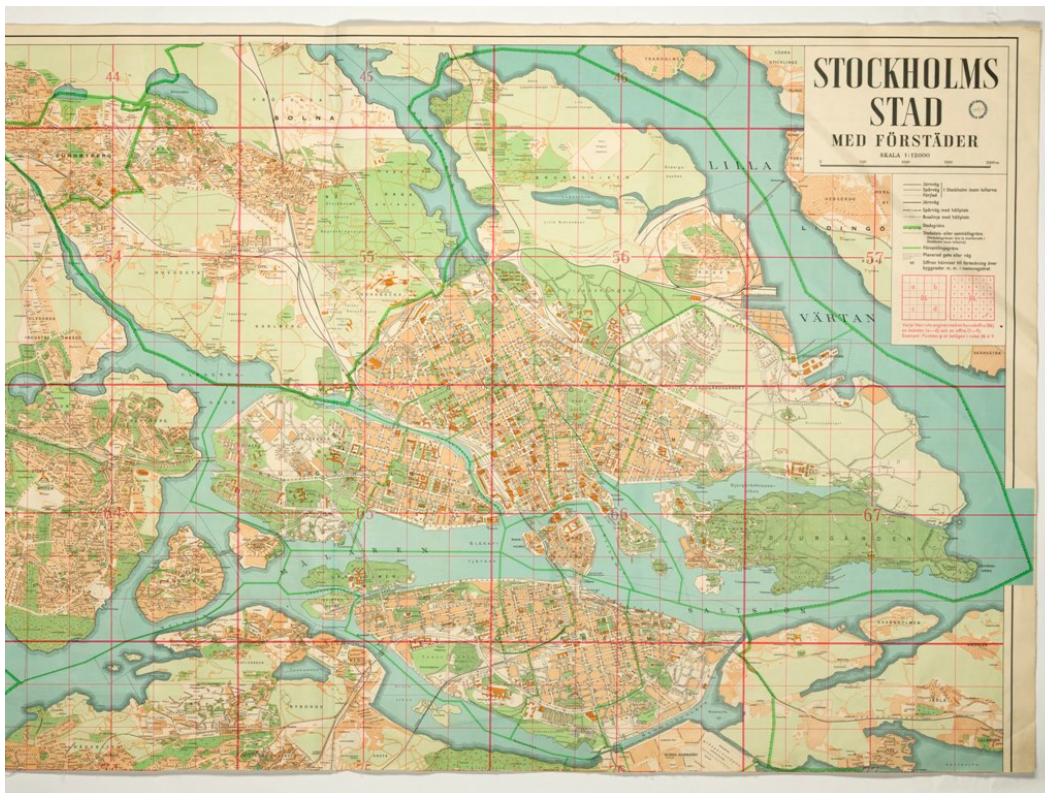


Figure .7. Stockholm in 1994

“The city of Stockholm with suburbs. Scale 1:12,000. The General Staff Lithographic Institute’s publisher. A.-B. Cartographic Institute. Es-selte AB. Stockholm 1944.” translated from the official website of stockholm city maps : <https://www.stockholmskallan.se>

Development of the city Stockholm from 1625 -1826



Development of the city Stockholm from 1855-1934



Royal Skyline- A multi function tower for Royal Seaport

Development of the city Stockholm from 1940 - present

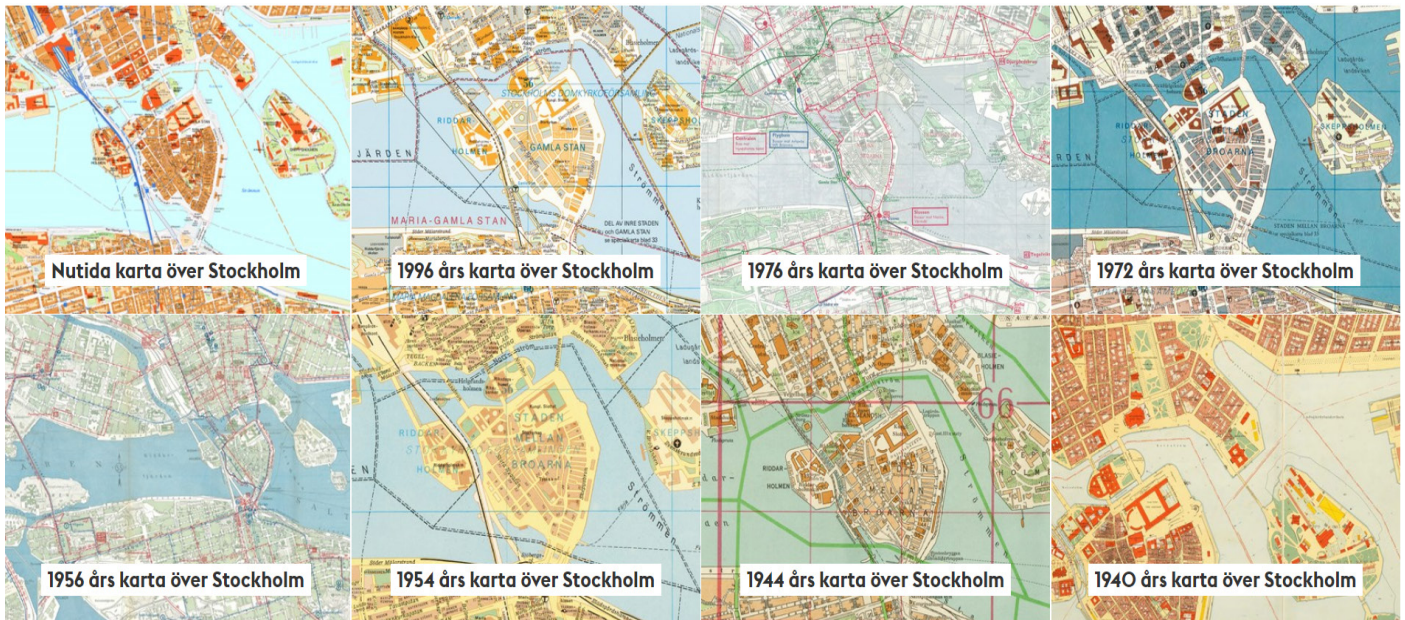


Figure .8. Stockholm city maps

in the the official website of stockholm city maps : <https://www.stockholmskallan.se> there are all the maps available in the history of the stokcholm with open source and good quality acompanied with information of each map which allows us to follow the development of the city .

Stockholm's urban planning was influenced by functionalism and modernist architecture in the middle of the 20th century. Projects like the Skärholmen district, which is marked by high-rise housing blocks and effective, pedestrian-friendly settings, were aided by architects like Gunnar Asplund and Sigurd Lewerentz. (information based on the book : Architecture in Sweden: A Survey of Swedish Architecture throughout the Ages and up to the Present Day" by Fredric Bedoire)

Throughout the 20th century, Stockholm made progress on sustainable transportation and pedestrian-friendly settings. A more sustainable and accessible city was made possible through the implementation of pedestrian zones, the growth of bike infrastructure, and investments in public transportation systems. (based on the book :Stockholm City Museum]

Stockholm experienced the regeneration of former industrial neighborhoods in the late 20th century. Old industries were converted into homes, businesses, and cultural venues, transforming Södermalm and other waterfront districts and reviving them. (based on the book: "Stockholm: A Cultural History" by Tony Griffiths)

as we can see The urban environment of the city has been profoundly influenced by a number of influences, including the Stockholm General Plan of 1935, functionalism and modernism, the Million Programme, preservation efforts, sustainable transportation programs, and post-industrial regeneration.

2.3.3.planning activities in contemporary era

"Urban development in Stockholm in the last quarter of the twentieth century can be described with the help of the concepts of densification, postindustrialism, and postmodernism"

Thomas Hall , Stockholm : the making of a metropolis

Stockholm underwent active municipal investment from the 1950s until the mid-1970s, which included the creation of three metro lines and new suburbs. These suburbs were planned with green spaces dividing them, protecting substantial amounts of rural land.

With the exception of Hammarby Sjöstad, no significant suburban expansion projects have been undertaken in the previous 25 years. The emphasis now is on densification, which has significantly altered the city. In order to increase density, old structures have been renovated and new construction has been added, especially in the small blocks from the 1930s and 1940s.

Royal Skyline- A multi function tower for Royal Seaport

This densification wave's effects and effects have yet to be completely examined, making it a crucial study project for comprehending Stockholm's urban growth.

(based on the book: Thomas Hall , Stockholm : the making of a metropolis)

Postindustrial Urban Construction

"Densification can be viewed as part of the postindustrial development of society. "

Thomas Hall , Stockholm : the making of a metropolis

The restructuring of harbor operations and shipping has been a significant aspect of recent development in Stockholm and elsewhere. A sort of model has been used for Docklands in London.

Due to the inability to handle larger ships for loading and unloading, London's dockland regions along the Thames were mostly abandoned in the 1970s. When Margaret Thatcher's administration founded the London Docklands Development Corporation, this trend was, however, reversible. Without utilizing public funds, the corporation attempted to revitalize the neighborhood by encouraging private growth. The Docklands region of London is now a flourishing city with light industry, residences, and Canary Wharf, one of the biggest office complexes in the world.

Similar changes have taken place in significant ports all around Europe, including Stockholm in Sweden. The erection of blocks in Norra Hammarbyhamnen signaled the start of the rehabilitation of Stockholm's docklands. When Stockholm submitted a candidacy, the ideas for a maritime city gathered traction.

(based on the book: Thomas Hall , Stockholm : the making of a metropolis)

Due to these programs, dockland regions all around the world have been repurposed, with dock activities being replaced by contemporary structures that include offices, residences, and light industrial sectors.

Postmodern Architecture

"Postmodernism can sometimes show an unbridled playfulness, but it can also be formalistic and take itself very seriously, as in the case of Ricardo Bofill's arch' in Medborgarplatsen in Stockholm.

It can also restrict itself to occasional accents. A spare classicism with its roots in the 1920s is common in Stockholm."

Thomas Hall , Stockholm : the making of a metropolis

Urban planning saw modifications as a result of postmodern ideas, frequently influenced by architectural master Leon Krier. Postmodernism took on many different forms, such as paraphrasing the conventional city of blocks and extending existing communities, as those near Södra Station.

The St Erik region and Minneberg are examples of this strategy, which involved creating symmetrical patterns around an axis. A distinctive layout that incorporates circular and concentric streets and is reminiscent of Renaissance architectural theories was created in Starrbäcksängen.

Traditional huge courtyards and blocks were incorporated in places like Hammarby Sjöstad, extending up towards the water like the structures on Nor Mälarstrand. Planning in the 1980s and 1990s was inspired by

the transitional era between late 1920s classicism and early functionalism.

2.4. Stockholm, today and tomorrow

2.4. Stockholm, Today and tomorrow

“Will Stockholm look much the same or radically different in 25 years? or a location in the middle?”

Thomas Hall , Stockholm : the making of a metropolis

As a rule, cities change at a rather slow pace, with periods when changes occur in swifter leaps and bounds. Stockholm is a lucid example of this. Yet the development never goes in a single direction forever. The pendulum always swings back - a thesis is followed by its antithesis.

As we've seen, the 1960s were a time of hope, significant investment, and significant change. Around 100,000 Stockholmers left their city in the 1970s, many of whom were carried away by the green wave, making the decade more dejected and stagnant. It seems clear that we are currently experiencing a time of fast change, which is likely the climax of a process that began in the 1980s.

It has been claimed that a number of recent, more or less feasible, large-scale projects are required if Stockholm is to fulfill its envisioned role as an international metropolis.

“Currently five architects offices, among them Norman Foster and Jean Nouvel are invited to propose new designs for the Slussen area.

Items on today's agenda, as we approach the second decade of the twenty-first century, include further densification of housing, new shopping centres, premises for teaching and research, large hotels, and over-builds.”

Thomas Hall , Stockholm : the making of a metropolis

Economic conditions will have a significant impact on whether existing trends continue or change, as well as whether opposing developments materialize. The results of the many questions that the next ten years will bring are intimately related to economic changes. If the extended economic boom suddenly comes to an end, it could indicate a change in trend similar to the worries about climate change.

“One thing that benardcransac of the hirst decade of the twenty-firsst century is that all the barriers seem to have been broken down, as everything now sems possible.”

Thomas Hall , Stockholm : the making of a metropolis

Royal Skyline- A multi function tower for Royal Seaport

The only thing we can say for sure is that only time will tell. However, Stockholm will undoubtedly commemorate its 800th birthday in 2052. The current urban construction policy will be assessed and closely examined at that point, if not sooner.

“How will people then judge today’s compact structures, and the fact that all the conceivable building land has long since been used, so that the city is now literally fully built, with no room for any innovative additions?”

Thomas Hall , Stockholm : the making of a metropolis

Will the densification initiatives be viewed as visionary successes or as a desecration of the natural world and public spaces? Will historians in the future compare our time to the 1960s, when the city center underwent major change and the million program was implemented? To think that we have finally reached final resolutions would be historical. Progress will be made toward objectives that we can only hypothesize about.

PART THREE

Place and tallness



"Architecture is not merely about creating buildings; it is about capturing the essence of a place and translating it into a magnificent symphony of form and tallness that touches the sky."

3.1. Place and wellness

Part 3

3. Place and tallness

3.1. Royal Seaport

3.1.1. The story of Royal Seaport

The Royal Seaport's story begins in the 13th century, when Stockholm emerged as a coastal port and the capital of Sweden. Situated at the intersection of the Baltic Sea and the Mälaren valley, Stockholm's geographical position positioned it as a vital center for trade, connecting the Baltic Sea region with the rest of Europe. The Royal Seaport, once a part of the larger Värtahamnen port, quickly assumed a pivotal role in Stockholm's maritime history, serving as an economic gateway for the movement of goods, people, and ideas.

The bustling waterfront of the Royal Seaport became a vibrant hub of activity, attracting merchants, sailors, and traders from diverse nations. Ships from distant lands arrived at the port, laden with exotic goods and spices that enriched Stockholm's cultural identity. This exchange of goods and ideas fostered a cosmopolitan atmosphere, shaping the city's character and propelling its economic growth. The Royal Seaport became a melting pot of cultures, where the rich tapestry of international influences left an indelible mark on the architectural fabric of the city.

As Stockholm's maritime trade flourished in the 18th and 19th centuries, the Royal Seaport experienced a rapid wave of industrialization. Shipbuilding, manufacturing, and various industries thrived within the district, attracting workers from across Sweden and Europe. The waterfront transformed into a scene of bustling shipyards, warehouses, and factories, fueling Stockholm's economic expansion and solidifying its status as an industrial powerhouse. The Royal Seaport became synonymous with innovation and progress, as technological advancements in shipbuilding and manufacturing contributed to the city's rise as a prominent center of industry.



Figure .1. Panorama of Stockholm 1868.

(<https://portusonline.org/the-royal-seaport-project-in-stockholm/>)

Beyond its commercial significance, the Royal Seaport played a pivotal role in Sweden's naval history. The district housed essential naval facilities, including shipyards and naval arsenals. Ships were meticulously built and repaired within these yards, bolstering Sweden's naval power and maritime defense capabilities. The Royal Seaport became a symbol of national strength and resilience, showcasing the nation's commitment to maintaining a formidable presence at sea.

While the decline of traditional port activities in recent decades shifted the Royal Seaport's identity, the Municipality of Stockholm has been proactive in preserving its historical significance. With a focus on revitalization and expansion, the city has embarked on ambitious projects to regenerate the district while embracing sustainable urban design principles. Notable among these endeavors are the Hammarby Sea City and Nordvästra Kungholmen waterfront extensions.

Hammarby Sea City, developed between 1994 and 2017, exemplifies sustainable urban design. Built around a previously underutilized port connected to the Baltic Sea, this transformative project showcases an ambitious environmental program. Through the construction of thousands of apartments and workspaces, as well as the establishment of a state-of-the-art wastewater purification center, Hammarby Sea City has emerged as a global model for sustainable urban development.



Figure .2. Stockholm city extensions 2007.

(<https://portusonline.org/the-royal-seaport-project-in-stockholm/>)

Royal Skyline- A multi function tower for Royal Seaport

Similarly, the Nordvästra Kungholmen waterfront project, developed between 2007 and 2017, rejuvenates a former industrial site on the island of Kungsholmen. By strategically leveraging the site's waterfront location and incorporating innovative architectural design, this project enriches the urban fabric of Stockholm. With thousands of new apartments and workspaces, it rejuvenates the area, contributing to the city's economic growth and cultural vitality.

The Royal Seaport stands as a testament to Stockholm's maritime heritage and its commitment to sustainable urban development. From its origins as a bustling maritime hub to its transformation as a thriving center of industry, the district encapsulates the city's growth and evolution. By revitalizing the Royal Seaport through ambitious projects that embrace sustainable design principles, Stockholm reaffirms its dedication to preserving its architectural legacy while creating vibrant, forward-thinking communities. Through this ongoing revitalization, the Royal Seaport continues to shape the narrative of Stockholm's architectural identity and offers valuable lessons for cities worldwide seeking to honor their history while embracing the future.

3.1.2. Actual character in Stockholm urban structure

In the present-day urban structure of Stockholm, the Royal Seaport holds a distinctive character that reflects its historical significance and embraces modern urban design principles. The district's strategic location along the eastern waterfront positions it as a vital link between the city center and the surrounding neighborhoods.

The Royal Seaport seamlessly blends historical elements with contemporary architecture, creating a unique urban fabric. Architecturally, the district showcases a mix of well-preserved historic buildings that have been repurposed and adapted for modern use. These structures stand alongside innovative, cutting-edge designs, creating a visually striking juxtaposition that pays homage to the district's rich history while embracing the spirit of progress.

The waterfront promenade and parks in the Royal Seaport area provide residents and visitors with breathtaking views of the Baltic Sea and the surrounding natural beauty. The district's commitment to sustainability and green spaces ensures that the area remains a haven of tranquility amidst the urban bustle. Furthermore, the Royal Seaport has become a cultural and creative hub, attracting artists, entrepreneurs, and innovators. The district hosts art galleries, design studios, and cultural institutions, fostering a vibrant and dynamic atmosphere. It serves as a platform for creativity, where residents and visitors can explore

diverse artistic expressions and engage in a wide range of cultural activities.

The Royal Seaport's location and character make it an integral part of Stockholm's urban structure. Its development and transformation reflect the city's commitment to preserving its historical roots while embracing sustainable, forward-thinking urban planning.

3.1.3. The planned transformations for the zone

The transformation of Stockholm Royal Seaport has been a comprehensive and ambitious endeavor that began in 2000 and is set to continue until at least 2030. The project aims to create a sustainable and vibrant urban district that integrates residential, commercial, and recreational spaces while prioritizing environmental stewardship and community well-being.

In 2000, the City of Stockholm initiated the planning process for Stockholm Royal Seaport. However, it was in 2004 that the project gained momentum with the first site allocation for the Norra 1 and Västra development phases. This marked the beginning of a series of transformative steps that would shape the district's future.

Recognizing the significance of sustainability, the City of Stockholm's environmental program in 2004 emphasized the need for the two urban development projects in Stockholm Royal Seaport to have a sustainability profile. As part of this effort, engaging walks were organized in Hjorthagen, allowing residents and stakeholders to come together and contribute their ideas for the area.

By 2008, the Stockholm City Council made a pivotal decision to develop Stockholm Royal Seaport with a strong sustainability profile. This commitment was reflected in the allocation of Phase Norra 2, which became the first stage of the project to incorporate sustainability requirements from the very beginning. Building a sustainable future requires effective organization and collaboration. Consequently, a sustainability organization was established, aimed at driving sustainable practices and overseeing the implementation of environmentally friendly solutions. Furthermore, future workshops were conducted, bringing together professionals from the academic community and the construction industry to foster knowledge exchange and innovative approaches to sustainable urban development.

In 2009, Stockholm achieved a remarkable milestone by becoming the first city to receive the European Green Capital Award. This recognition further reinforced the city's commitment to sustainable develop-

ment and provided a platform for showcasing the progress made in Stockholm Royal Seaport.

To solidify sustainability objectives, the Stockholm City Council adopted the first sustainability program for Stockholm Royal Seaport in the same year. This program outlined the key principles, goals, and strategies to be implemented throughout the project's development phases.

A significant milestone in the project's progress was the establishment of the "World-Class Agreement" in 2009. Under this voluntary agreement, developers in the Västra and Norra 1 phases committed to meeting high sustainability standards, ensuring that their projects aligned with the sustainability goals of Stockholm Royal Seaport.

In conjunction with the voluntary commitments, a competence program was initiated to foster knowledge and skills in sustainable construction practices. An innovation arena was also inaugurated, providing a platform for collaboration and the development of cutting-edge solutions within the construction industry. The project continued to gain momentum in subsequent years. Construction commenced on the Norra 1 development phase, while efforts were made to transition away from gas production at Gasverket. These initiatives were accompanied by ongoing dialogue with Hjorthagen residents through thematic meetings, ensuring that their perspectives and needs were taken into account.

Recognizing the importance of green spaces, a Green Space Index was introduced to guide the development of public open spaces within the district. This initiative aimed to create a harmonious balance between built environments and nature, enhancing the overall livability and well-being of the community. Projects in sustainable cities also began, focusing on implementing innovative solutions for energy efficiency, waste management, and transportation. One notable example was the C/O City innovation project, which involved strategic planning of water and greenery in the urban environment, thereby enhancing sustainability and improving the quality of life for residents.

The year 2011 marked another significant milestone with the first occupancy in the Norra 1 phase, signifying the realization of the district's vision and the tangible benefits for residents. Concurrently, construction commenced on the Västra development phase, expanding the project's reach and impact.

Engaging the community remained a central tenet of Stockholm Royal Seaport. Continuous dialogue with residents, stakeholders, and the academic community allowed for active participation in shaping the development of the district. Local schools were involved in sustainability projects, and regular neighborhood dialogues took place to address concerns and gather feedback from the community.

In terms of transportation, Stockholm Royal Seaport aimed to provide sustainable alternatives to traditional car usage. The introduction of public transport by sea, known as line 80 or Sjövägen, offered an eco-friendly commuting option for residents and workers in the area. Additionally, electric buses were deployed, further reducing carbon emissions and promoting sustainable mobility.

Waste management also received significant attention within the project. Stockholm Royal Seaport introduced mobile vacuum waste collection, an innovative system that utilized underground pipelines to transport waste directly to central collection stations. This system helped minimize the environmental impact of waste management and contributed to a cleaner and more sustainable living environment.

The district's commitment to renewable energy was evident with the construction of the biomass combined heat and power (CPH) plant. This facility harnessed renewable energy sources, such as biomass, to generate heat and electricity, reducing reliance on fossil fuels and significantly reducing greenhouse gas emissions.

In recognition of its sustainable urban development efforts, Stockholm Royal Seaport received the C40 Sustainable Urban Development Project Award in 2014 at the UN Climate Change Conference in Paris. This prestigious accolade further solidified Stockholm's position as a global leader in sustainable urban development.

Subsequent years saw continued progress in Stockholm Royal Seaport. Major infrastructure projects were completed, such as the relocation of the container port to Norvik, freeing up valuable waterfront space for further development within the district. Updated versions of the Sustainable Urban Development Program were adopted, ensuring that the project continued to evolve and align with the latest sustainability standards and practices.

Looking ahead, Stockholm Royal Seaport envisions further growth and development. By 2030, the project aims to create at least 12,000 new homes and 35,000 new workspaces within the district, accommodating a growing population and fostering economic vitality. The focus on sustainability, green spaces, circular economy, energy efficiency, and community well-being remains at the core of the planned transformations.

In conclusion, Stockholm Royal Seaport has embarked on an extensive and transformative journey to create a sustainable urban district that sets new standards for sustainable development. Through comprehensive planning, community engagement, innovative solutions, and a strong commitment to environmental stewardship, Stockholm Royal Seaport continues to inspire and shape the future of sustainable cities.

3.2. Tallness in Royal Seaport

3.1. Tallness in Royal Seaport

3.2.1. Highrise existing buildings in Royal Seaport

In the Royal Seaport area of Stockholm, there are several existing tall buildings that contribute to the architectural landscape of the district. One of these buildings is the Scandic Hotel Ariadne, located at Värthamnen. This hotel has been a prominent feature since its construction in 1989. With its modern design and 17 floors, it stands tall at a height of 62 meters. The Scandic Hotel Ariadne offers 283 well-appointed rooms, providing comfortable accommodation for visitors to Stockholm. Its strategic location near the waterfront allows guests to enjoy breathtaking views of the surrounding area.

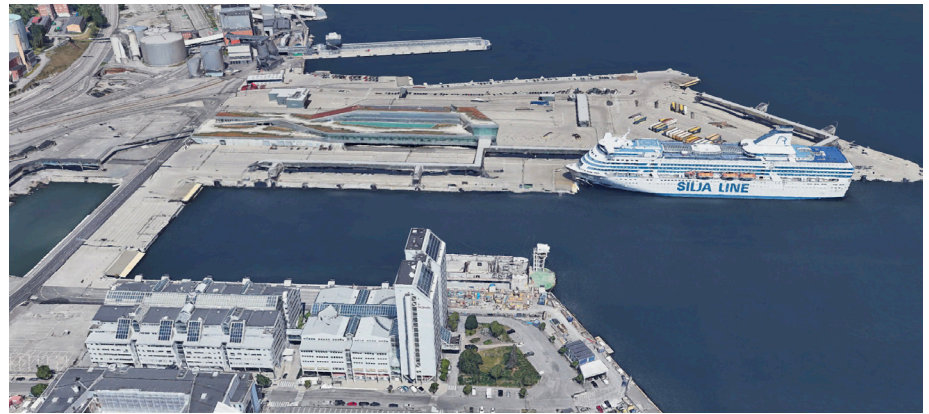


Figure .3. Scandic Hotel Ariadne

(<https://earth.google.com/web/@59.34910478,18.11293744,20.6265861a,129.21365624d,35y,179.09490251h,62.48967729t>)

Another notable structure in the Royal Seaport district is the Stockholm Exergi AB Power Station. This power station plays a vital role in supplying energy to the city. Its silos, reaching a height of approximately 120 meters, make it a prominent landmark in the area. The power station represents an essential part of the district's infrastructure, ensuring a reliable and consistent power supply for the growing urban community.



Figure .4. AB Power Station

(<https://earth.google.com/web/@59.34910478,18.11293744,20.6265861a,129.21365624d,35y,179.09490251h,62.48967729t>)

The Kaknäs Tower (Swedish: Kaknästornet) is also present in the Royal Seaport district. It is a telecommunications tower located at Ladugårdsgärdet in Stockholm, Sweden. Designed by architect Bengt Lindroos, the tower was finished in 1967. Its height is 155 meters (509 feet) or 170 meters (560 feet) with the top antenna included. For a few years, Kaknästornet was the tallest building in the Nordic countries. It is owned by the national Swedish broadcasting company Teracom. The tower's name comes from the ancient name of the area, Kaknäs. These existing tall buildings, such as the Scandic Hotel Ariadne, the Stockholm Exergi AB Power Station, and the Kaknäs Tower, showcase the diverse nature of the Royal Seaport district as the area continues to develop and evolve.



Figure .5. The Kaknäs Tower

(<https://earth.google.com/web/@59.34910478,18.11293744,20.6265861a,129.21365624d,35y,179.09490251h,62.48967729t>)

Royal Skyline- A multi function tower for Royal Seaport

3.2.2. Royal Seaport as the context for a new urban tower

The Royal Seaport district of Stockholm stands on the cusp of a remarkable transformation, guided by the visionary ADEPT and Mandaworks project. With a focus on sustainable development and progressive urban planning, the future of Royal Seaport holds tremendous promise for creating a vibrant, livable, and environmentally conscious community. Within this context, the introduction of a new urban tower emerges as a fitting and exciting prospect, perfectly aligned with the district's aspirations and potential.

The ADEPT and Mandaworks project aims to redefine the urban landscape of Royal Seaport, incorporating innovative design, sustainable technologies, and community-centric spaces. The district's future is envisioned as a harmonious fusion of residential, commercial, and recreational elements, fostering a diverse and inclusive environment for residents and visitors alike. The project's vision encompasses the creation of a vibrant community that embodies the principles of sustainable living, connectivity, and quality of life.

One of the key factors that make Royal Seaport suitable for a new urban tower is its innovative approach to soil use and management. The district places a strong emphasis on sustainable soil practices, recognizing the importance of healthy soil ecosystems for the overall well-being of the environment. Through responsible soil management techniques such as soil remediation, green infrastructure, and stormwater management, Royal Seaport ensures that the soil remains fertile, resilient, and conducive to sustainable urban development.

The suitability of Royal Seaport for a new urban tower also stems from its commitment to sustainable development. The district's focus on environmental stewardship provides an ideal platform for the tower's integration. The new tower can serve as a flagship example of sustainable architecture, incorporating energy-efficient technologies, green spaces, and environmentally friendly design principles. By embracing sustainable practices, the tower becomes a catalyst for the district's broader sustainability goals, promoting a greener and more eco-conscious community.

Secondly, the progressive urban planning approach within Royal Seaport sets the stage for the introduction of a new urban tower. The district's mixed-use environment and emphasis on creating a balanced and diverse urban fabric make it an ideal location for a prominent architectural landmark. The tower can add a vertical dimension to the district's evolving skyline, providing a focal point that enhances the visual appeal and character of Royal Seaport.

Furthermore, the strategic location of Royal Seaport further justifies the insertion of a new urban tower. Its proximity to Stockholm's city center and excellent connectivity make it an attractive destination for

residents, businesses, and visitors. The tower's presence would not only offer breathtaking views of the surrounding area but also contribute to the district's economic and cultural vitality, acting as a beacon for growth and opportunity.

In summary, the future of Royal Seaport within the ADEPT and Mandaworks project is a vibrant, sustainable, and inclusive community. The district's focus on sustainable development, progressive urban planning, strategic location, and architectural ambition, along with its innovative soil use practices, make it an ideal setting for a new urban tower. The tower's introduction would further enhance the district's transformation, serving as a symbol of progress, architectural excellence, and a catalyst for community engagement. The Royal Seaport district and the ADEPT and Mandaworks project create the perfect canvas for the realization of a visionary and iconic urban tower that will shape the future skyline and character of Stockholm.

PART FOUR

The new urban tower



"Architecture is the poetry of geometric forms, and a tower is the soaring verse that captures the imagination, standing as a symbol of human ambition and the triumph of human creativity."
Santiago Calatrava

4.1. Masterplan

Part 4

4 new urban tower

4.1. Master plan

4.1.1. General introduction

As we talked before about the Royal sea port, A significant urban development project called The Royal Sea Port, also known as Norra Djurgårdsstaden, is situated in Stockholm, Sweden. It is located on the city's northeastern shore and intends to turn the former industrial port area into a thriving and sustainable neighborhood. One of the largest urban development projects in Europe is the project.

“ Planning of the Stockholm Royal Seaport development project started in 2001. In 2009, Stockholm City Council decided that the project would be a model for sustainable urban development”

(Official website of the Royal sea port : <https://www.norradjurgardsstaden2030.se/about/the-development-project>)

In the following we briefly talk about the evolution of the site during the years base on the information from the previous source:

In coordination with other municipal departments and businesses, the City Development Administration in Stockholm is in charge of the land management and development of the Royal Sea Port. Land sales and fees associated with land rights are used to pay the project.

Cross-departmental working groups including professionals from several administrations and businesses have been established since 2011. These organizations pinpoint problems with sustainability, establish objectives, and convert them into guidelines for property owners and the city's own operations.

Throughout every stage of development, from design through operations, the requirements are tracked and confirmed. A web-based monitoring database, which is vetted and approved, is where developers report their results. External auditing aids in continuing improvement and helps the working groups evaluate results and progress.

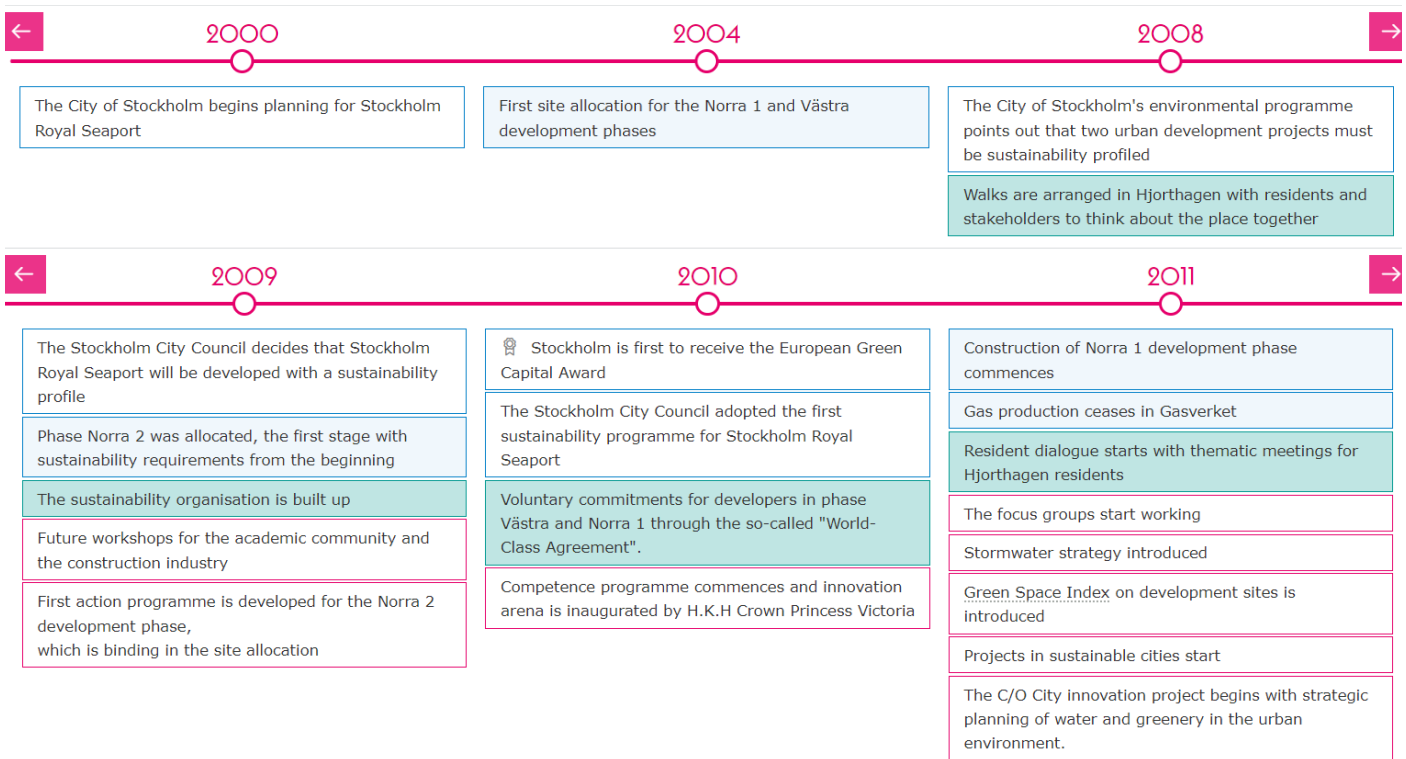
Participants in the working group are expected to discuss their experiences with their respective administrations, businesses, and other projects within the Stockholm City. Building capacities is crucial to achieving the ambitious objectives of the Royal Sea Port project, and attempts to develop and innovate are incorporated into the working process.

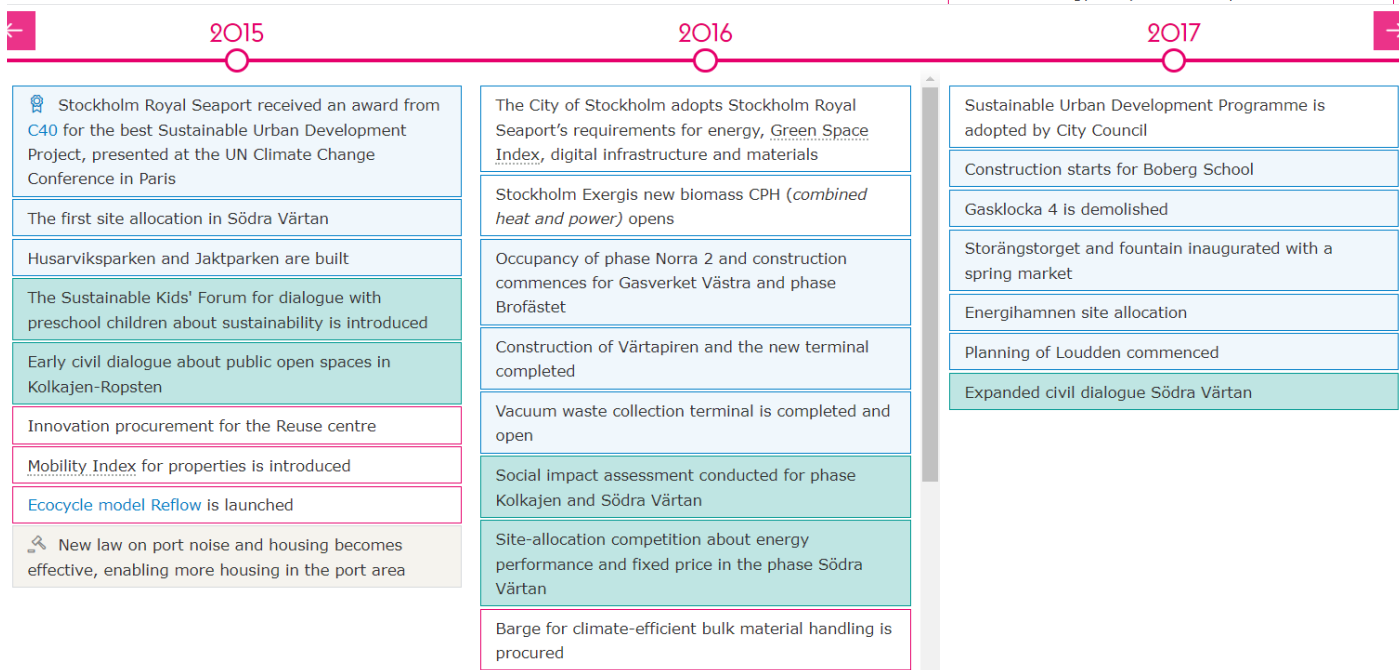
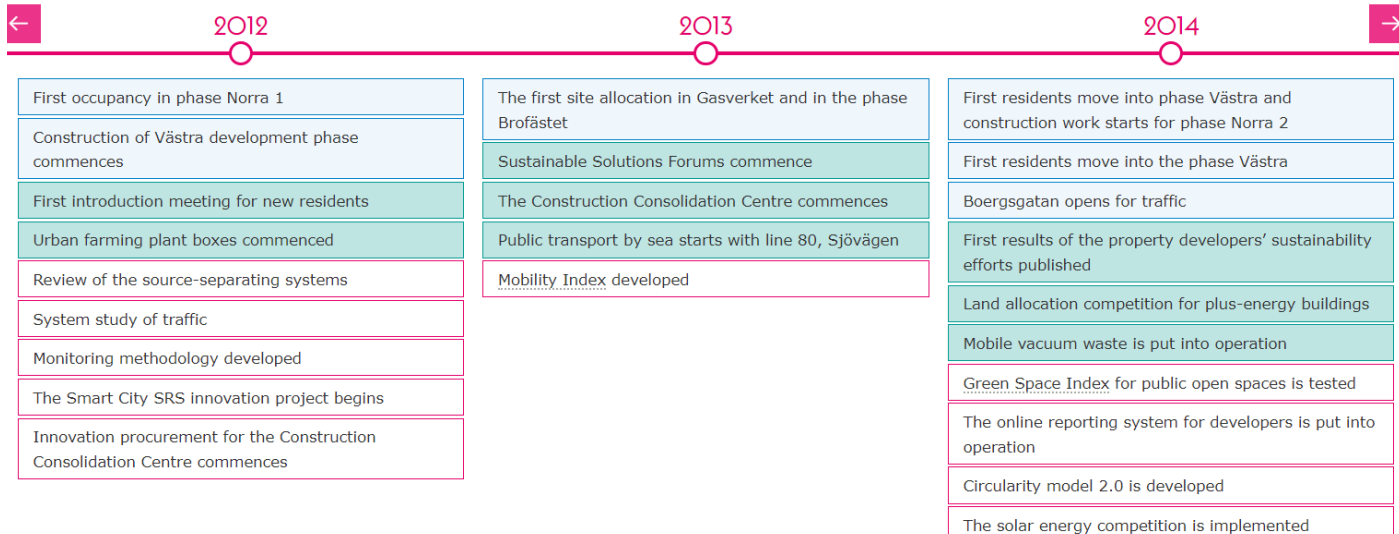
Five objectives serve as the foundation for sustainability work: making cities attractive, assuring accessibility and closeness, promoting resource efficiency and lowering climatic effect, utilizing the power of nature, and fostering participation and learning. These objectives include social, economic, and environmental concerns and are linked to both sustainability objectives and urban planning tenets.

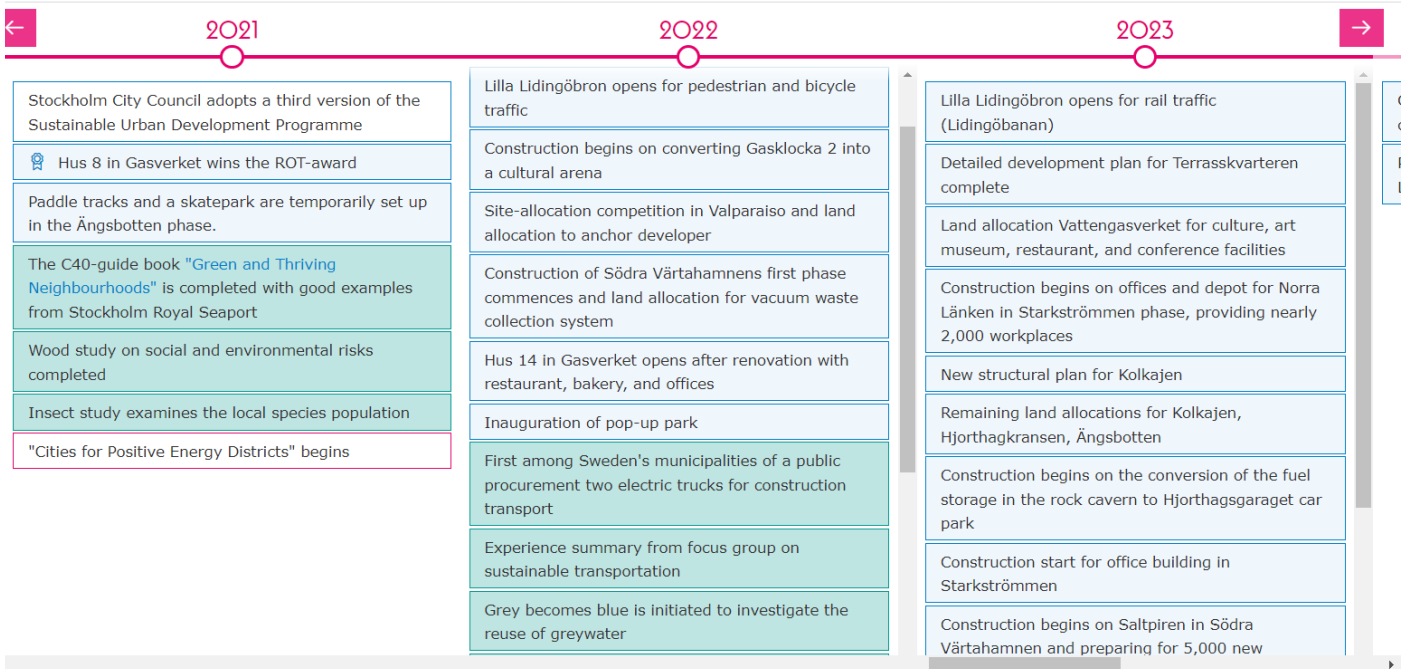
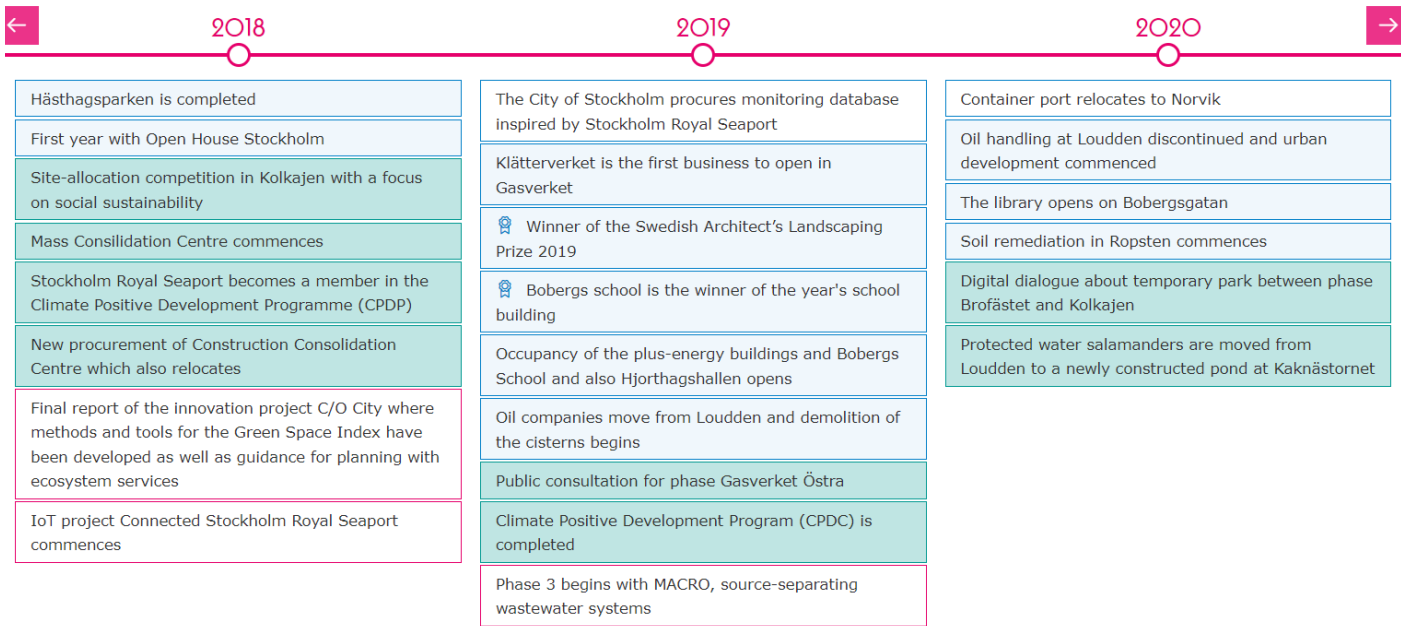
A number of active research and development projects are being carried out to meet the ambitious sustainability targets.

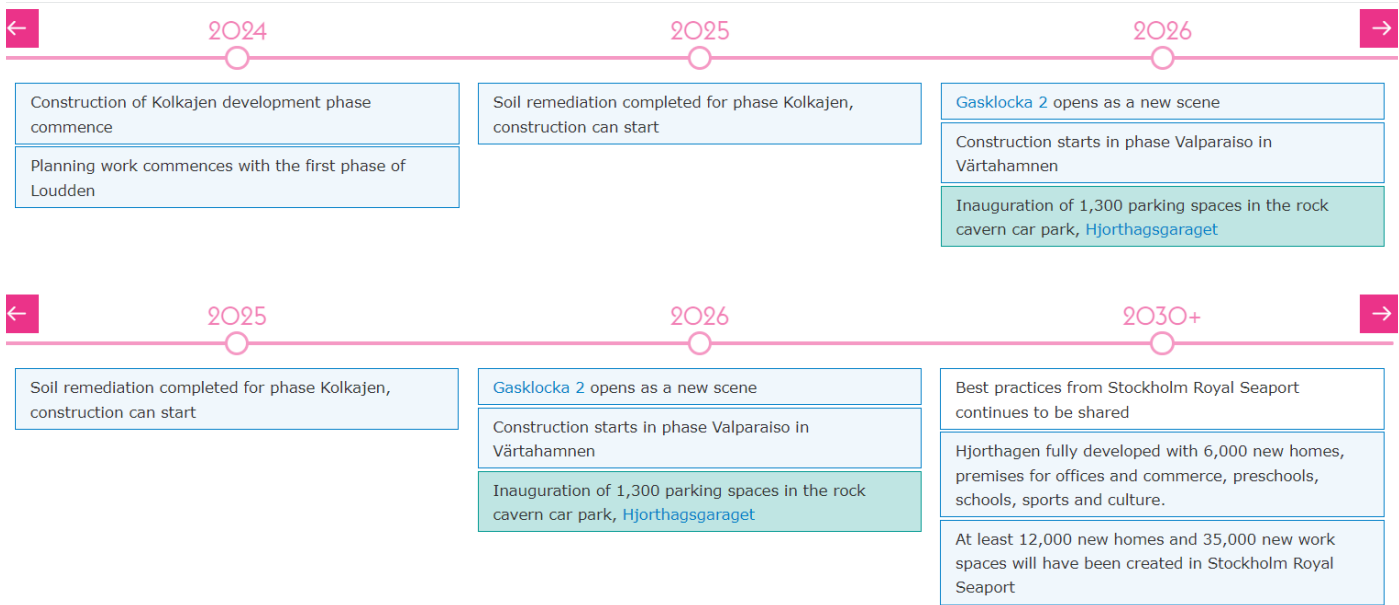
4.1.2. The timeline

Figure .1. The time-line of royal seaport project
 (Official website of the Royal sea port : <https://www.norradjurgardsstaden2030.se/maps>)









4.1.3. The strategies of the new masterplan

vision and goals:

“Sustainable urban development is based on a holistic approach and long-term perspective in both planning and implementation. The vision for the Royal Seaport has been formulated from the City of Stockholm’s overarching policy documents, such as the city budget, environmental program, Stockholm City Plan, and others”.

(Official website of the Royal sea port : <https://www.norradjurgardsstaden2030.se/the-vision>)

They have considered 5 target areas; Vibrant City, Accessibility and Proximity, Resource Efficiency and Reduced Climate Impact, Let nature do the work, Consultation and Learning



Figure .2. The main goal of royal seaport project

(Official website of the Royal sea port : <https://www.norradjurgardsstaden2030.se>)

Stockholm Royal Seaport's contribution to Agenda 2030

The Stockholm Royal Seaport urban development project helps the City of Stockholm achieve the Sustainable Development Goals of the Agenda 2030 in the ways listed below. The objectives are first explained from Stockholm's perspective, and examples of how Stockholm Royal Seaport helps are then provided. Goal 11: "Sustainable cities and communities" serves as the foundation for most urban development. However, the project aggressively pursues all objectives.

"Sustainable urban development includes housing, commercial spaces, public places, energy supply, transport, and water and waste management, which in turn require new technologies and co-operation between several sectors. Stockholm is one of the fastest growing regions in Europe and has challenges including growing segregation, housing shortages, and overcrowding."

(Official website of the Royal sea port : <https://www.norradjurgardsstaden2030.se/results/global-goals>)



Figure .3. The main visions of royal seaport project
(Official website of the Royal sea port : <https://www.norradjurgardsstaden2030.se>)

Royal Skyline- A multi function tower for Royal Seaport

Here you can see the overview of city Stockholm and the analysis that we have done about the city concept:

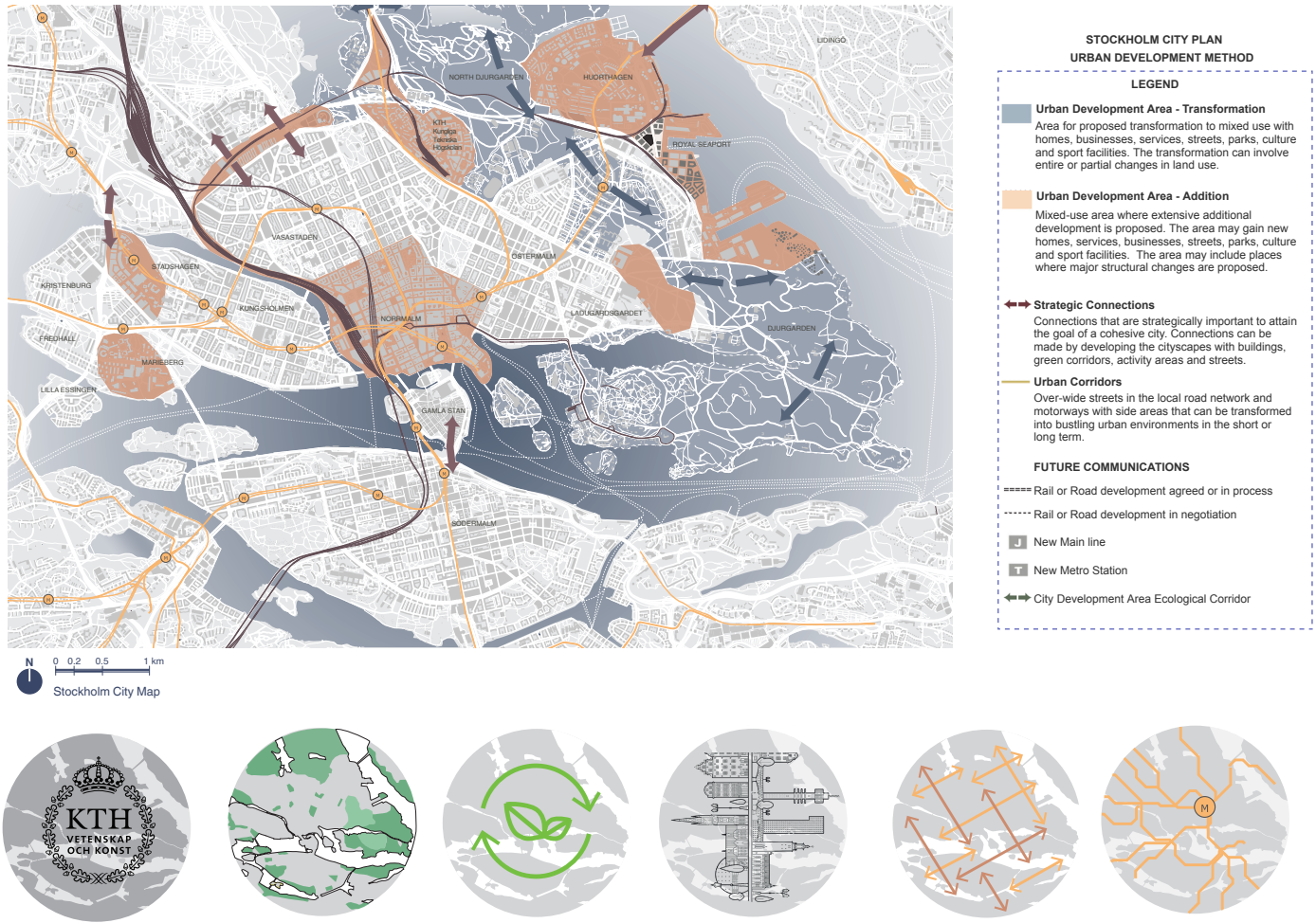


Figure .4. Urban analysis of city Stockholm

4.2. Urban skyline

Figure .5. Stockholm urban section - current situation



Royal Skyline- A multi function tower for Royal Seaport

4.2. Urban skyline

4.2.1. The existing skyline

Sweden's capital, Stockholm, features a stunning skyline that blends old and new elements of architecture. The ancient neighborhood of Gamla Stan, which is situated on the main island of Stadsholmen, frequently commands the city of Stockholm's skyline. Gamla Stan has distinctive monuments including the Royal Palace and Stockholm Cathedral (Storkyrkan), as well as brightly colored buildings and winding cobblestone streets. Gamla Stan has a striking silhouette created by its spires and roofs.

The Riddarholmen Church (Riddarholmskyrkan) is located on the small island of Riddarholmen, which is located west of Gamla Stan. The steeple of the church is clearly seen in the Stockholm skyline.

City Hall (Stadshuset): Stockholm City Hall is a famous structure with characteristic brickwork and a towering tower. It is situated on the island of Kungsholmen. Three crowns that represent Sweden's flag are perched atop the tower. The annual Nobel Prize banquet is famously held at City Hall.

Skyscrapers: Stockholm's skyline is changing as a result of the city's increasing supply of contemporary skyscrapers. The most noteworthy of these is the Kista Science Tower, a tall office structure in the Kista Science City neighborhood, also referred to as the "Silicon Valley of Sweden." The Kaknästornet TV tower and the Ericsson Globe, the largest spherical structure in the world and venue for a variety of events like sporting competitions and concerts, are two more famous contemporary constructions.

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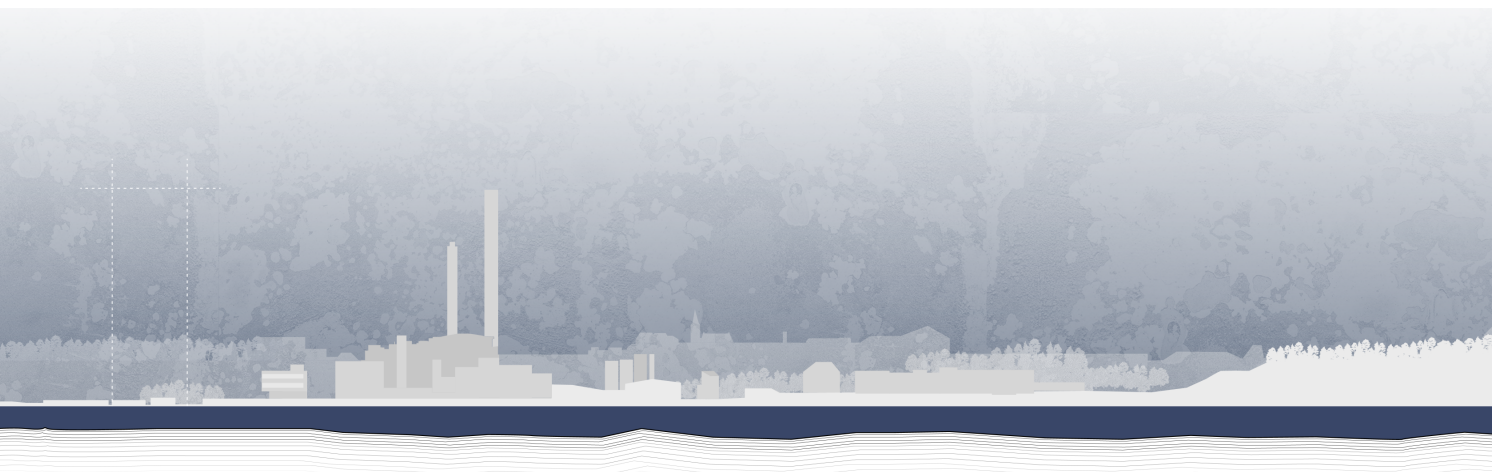
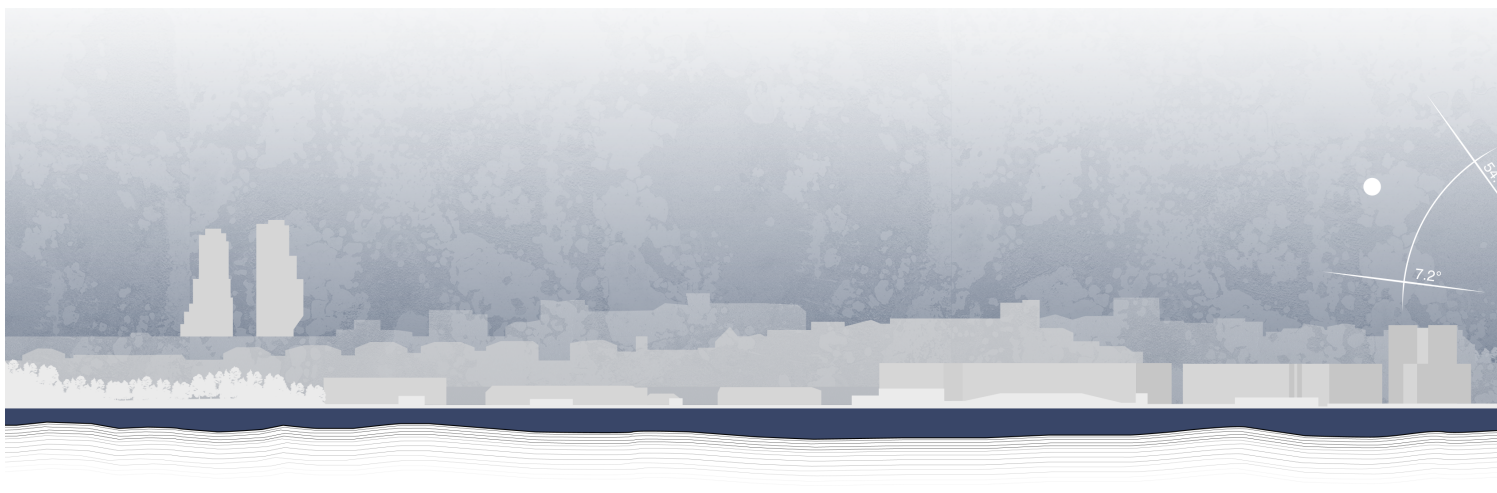


Figure .6. Stockholm urban section with thw tower



Royal Skyline- A multi function tower for Royal Seaport

4.2.2. The strategies for a new skyline

The Stockholm skyline would undoubtedly change if a new skyscraper with a height of 162 meters that is going to be built in the Royal Sea Port close to the harbor and ferry terminal.

The proposed tower would enhance the city's skyline with a contemporary element, particularly in the area near the ferry port and waterfront. With a height of 162 meters, it would stand out as a landmark and possibly act as a focal point for the neighborhood.

A good strategy may be to draw inspiration from the neighboring industrial aspects because it would establish a visual link and thematic coherence.

The new tower would change the cityscape's primarily horizontal character by adding a vertical element to the skyline. This would provide a focal point that leads the eye upward while also adding variety and visual intrigue.

The tower's substantial height would make it a distinctive feature on the skyline, especially close to the harbor and ferry terminal. It might act as a recognizable landmark for both residents and guests.

The composition and balance of the skyline are changed with the addition of a new tower. The contrast between the new tower and the older buildings might spark a conversation between the traditional and the modern, highlighting how the city is constantly changing.

The tower would act as a visual landmark, leaving visitors with a strong and lasting impression because it would be the first significant structure that could be seen from the harbor. Their attention would be drawn to it by its height and distinctive design, which would alter their initial impression of the skyline.

The tower might serve as a metaphorical entryway to the city, marking the change from Stockholm's port to its urban setting. Its prominence would serve as a starting point for their exploration and serve as a general guide for their time in the city.



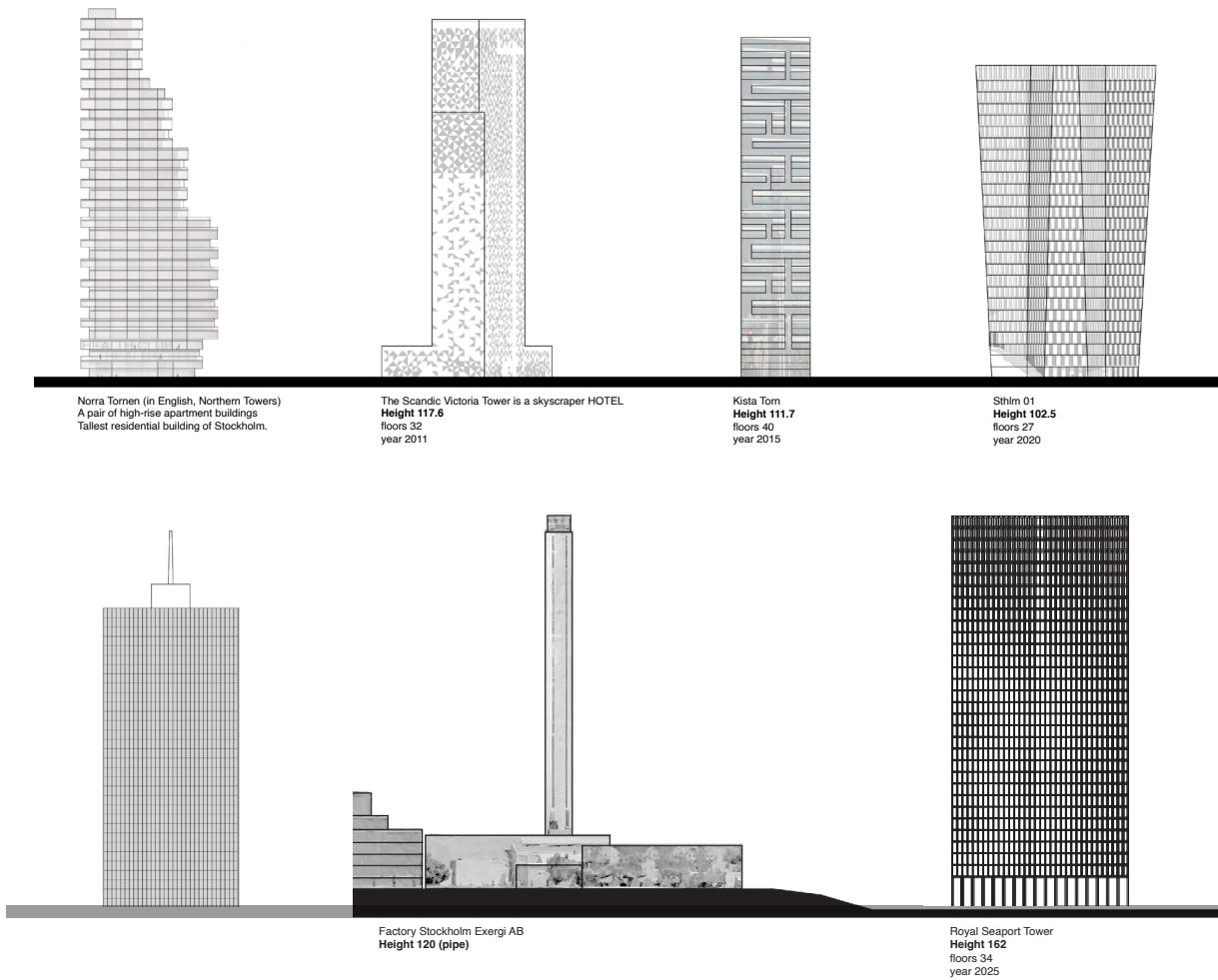


Figure .7. Tall buidings in Stockholm

Royal Skyline- A multi function tower for Royal Seaport

4.2.3. Study of the existing high towers in Stockholm

Here is a comparison between the height and locations of several other noteworthy towers in Stockholm and the new tower we propose to construct (162 meters):

Kista Science Tower: The height of the Kista Science Tower is roughly 127 meters. It is situated in the vicinity of Kista Science City.

Norra Tornen: Norra Tornen is a twin tower complex made up of two residential high-rise structures. The taller tower rises to a height of approximately 125 meters.

Scandic Victoria Tower: The Scandic Victoria Tower is an office and hotel structure that is 117 meters tall. It is in Stockholm's Kista neighborhood.

Kista Torn: Kista Torn is a residential high-rise structure that is about 117 meters tall. It is in Stockholm's Kista neighborhood.

Sthlm01: Sthlm01 is a 114-meter-tall office building located in Hammarby Sjöstad.

Factory Stockholm Exergi AB: Rather than being a standard tower, this structure is a pipe, making it unusual. It stands 120 meters tall and is connected to Factory Stockholm Exergi AB.

4.3. The functionalities

4.3. The functionalities

4.3.1. The existing functions in Royal Seaport

The Royal Sea Port's spaces serve a variety of activities and objectives according to its varied usefulness. Residential Communities: The Royal Sea Port has a variety of housing alternatives in its residential communities. People can dwell in these locations, resulting in the development of a lively and diversified community within the port. The residential areas are created to provide cozy, contemporary living spaces that frequently include eco-friendly and sustainable elements.

Commercial and office facilities are available to enterprises and organizations at the Royal Sea Port in a range of sizes. These areas can house businesses such as offices, retail stores, cafes, and restaurants. In order to create a vibrant business climate, the port's reconstruction has sought to draw forward-thinking businesses and entrepreneurs.

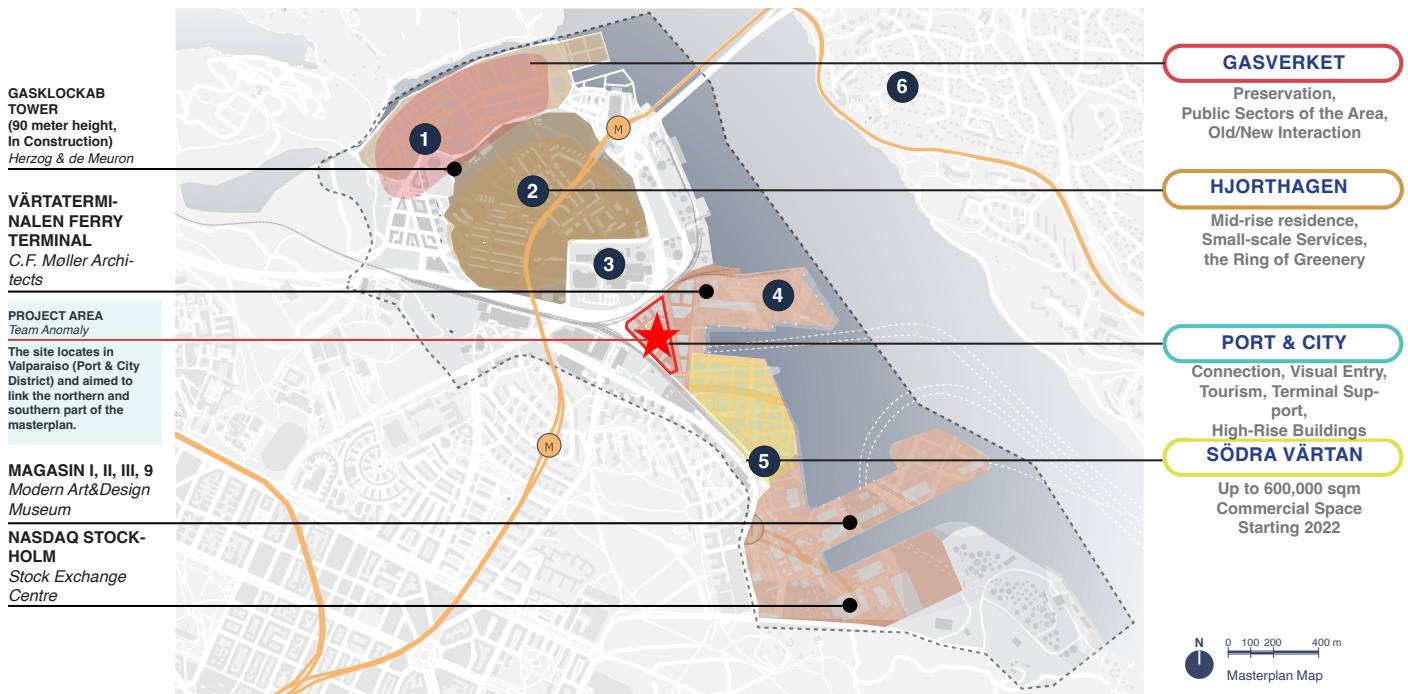


Figure .8. The Royal sea port , parts and functions

The Royal Sea Port places a high priority on providing recreational and cultural amenities to improve the quality of life for both inhabitants and visitors. Parks, green areas, waterfront promenades, and public squares all fall under this category. These places provide chances for social meetings, leisure pursuits, and relaxation. To encourage artistic and cultural experiences, the port may also incorporate cultural venues like museums, art galleries, and performance spaces.

Activities along the waterfront: The Royal Sea Port offers access to a number of water-based activities due to its waterfront location. Marinas for boats and yachts, walking and cycling paths along the water, and public areas with a view of the water may all fall under this category. People can interact with and learn about the port's design, which frequently highlights the relationship between land and sea.

Innovative Urban Planning and Sustainable Development: The Royal Sea Port is renowned for its dedication to sustainable development. The port's areas are built with environmentally friendly infrastructure, energy-efficient technologies, and sustainable practices in mind. This include programs like green roofs, alternative energy sources, and stormwater control techniques.

4.3.2. The criterias of choosing the tower functionalities

Strategic factors guide the choice of the pedestal and tower components' duties for the tower in the Royal Sea Port.

The podium portion of the skyscraper, which houses a grocery store, stores, an auditorium, and a restaurant, tries to blend in with the nearby urban areas. It improves the area's vibrancy and livability by offering commercial and public amenities. While stores and restaurants can draw customers and promote a feeling of community, the supermarket is a convenience for locals and tourists alike.

Co-working spaces, offices for sustainability-focused institutes, and short-stay units cater to professionals and organizations committed to sustainable practices, in line with the tower's vision as a symbol of sustainability and the broader sustainability goals of the Royal Sea Port. This concentration of sustainability-focused tasks encourages information exchange, teamwork, and creative thinking in the industry.

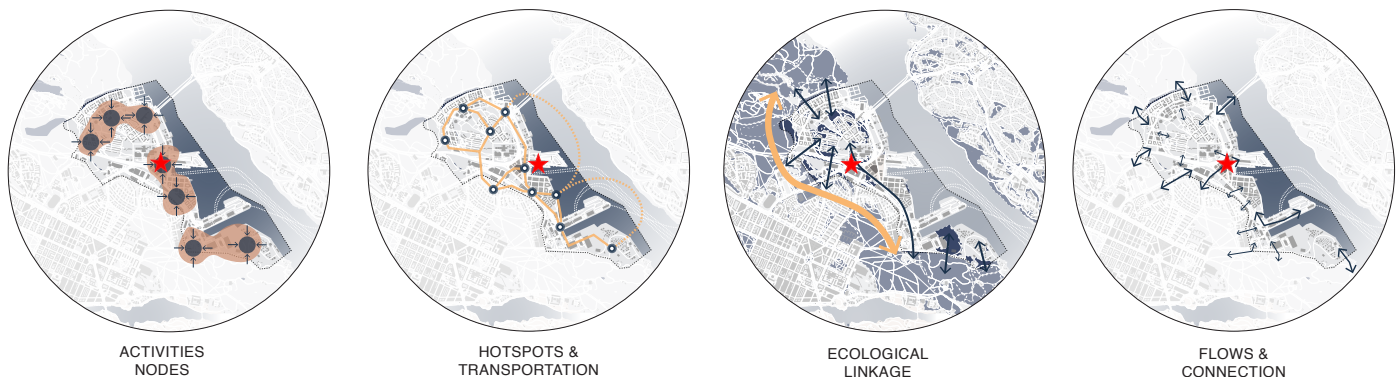
The adaptable areas of the tower enable a variety of uses, accommodating a range of activities and changing needs throughout time. This adaptability can make it easier to host participatory workshops, exhibitions, and other community events. It guarantees that the tower will continue to be flexible and pertinent to changing society and economic trends.

A friendly and easily accessible setting is facilitated by the presence of a restaurant, entrances, and a library. While the library provides a calm setting for peaceful study, research, and cultural enrichment, the café can serve as a meeting spot for eating and socializing. These features improve the overall user experience and draw in a variety of user groups.

Opportunities for collaboration and cross-pollination emerge as a result of the co-location of multiple operations within the tower. Co-working spaces, institutes, and offices that emphasize sustainability are close by, which promotes collaboration, knowledge-sharing, and prospective alliances. This could promote an environment that encourages innovation and establish a focal point for activities relating to sustainability.

The tower's selection of these uses demonstrates a thoughtful approach to urban planning. The tower intends to improve the Royal Sea Port's appeal, meet the demands of its community, and contribute to its long-term success as a sustainable and lively neighborhood by fusing features of convenience, sustainability, flexibility, accessibility, and teamwork.

Figure .9. Royal seaport analysis



4.4. Design process

4.4. Design process

4.4.1. The concept of the tower

The Royal Sea Port's proposed tower will connect the port's existing green spaces to the areas around them in an effort to create a unified and sustainable urban environment. This tactical strategy seeks to establish a symbiotic relationship that raises the region's general ecological and aesthetic worth.

It is now widely acknowledged that incorporating green areas into urban developments is essential for promoting a safe and livable environment. These green spaces provide several advantages, such as better air quality, increased biodiversity, and possibilities for leisure and relaxation. The tower can be used to connect and improve these green spaces within the Royal Sea Port by utilizing its design and function.

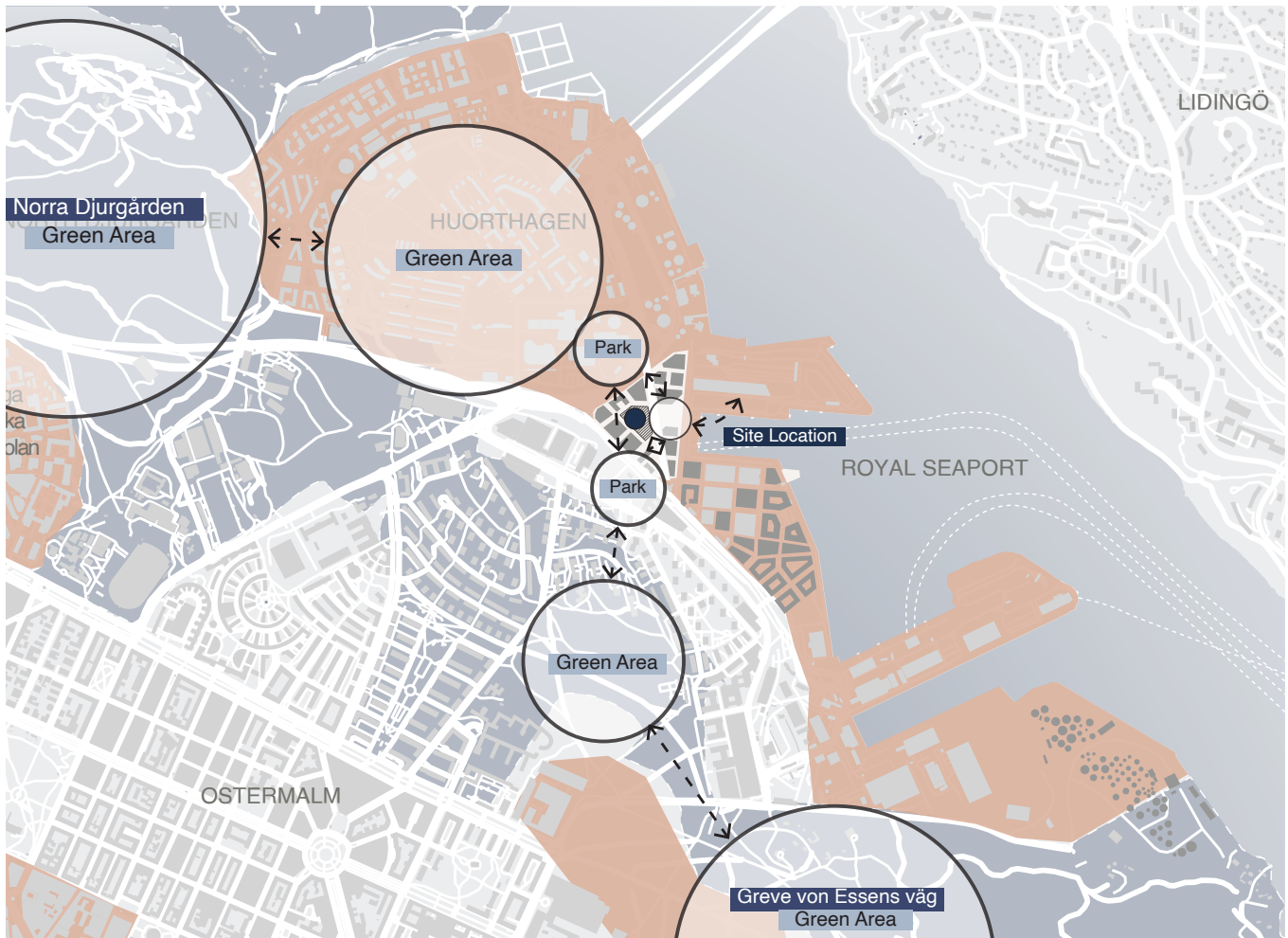


Figure .10. The tower as a link between the greens

Additionally, this connection can be facilitated by using the tower's functionality. For instance, the tower's podium portion may contain sections that are open to and engage with the outside. This might feature outdoor cafes, seating places outside, or exposition halls that extend into the surrounding green spaces. These architectural features promote community building and strengthen the connection between the natural and built environments by encouraging people to interact with the green spaces.

The Royal Sea Port's proposed tower improves the integration of nature into the urban fabric by serving as a link between the green spaces and the surrounding areas. It supports sustainable living within the community, provides a sense of place, and stimulates social contact. This all-encompassing strategy fits with modern urban design ideals and enhances the Royal Sea Port's long-term viability and livability.

4.4.1.1. The form concept

By prominently incorporating the rhombus shape into its architectural design, the planned structure in the Royal Sea Port embraces Scandinavian and Swedish cultural elements. The rhombus is frequently used in traditional Scandinavian patterns and motifs, which makes it a meaningful and resonant option for the building's footprint.

In Scandinavian design traditions, the rhombus has important cultural importance. It is frequently used in a variety of artistic mediums, such as pottery, woodwork, and textiles. The geometric shape's elegance and simplicity enable the creation of visually arresting and aesthetically pleasing compositions. Additionally, the rhombus has historically been linked to ideas like equilibrium, unity, and balance, which is in line with the fundamental ideas of Scandinavian design philosophy.

There are various ways that the rhombus form might be incorporated into the building's design. The building's main layout can be visualized as a collection of connected rhombuses, which give the space a sense of rhythm and flow. This method enables the construction of distinctive interior rooms and exterior facades that echo the rhombus' geometric design. The use of this theme repeatedly and in different ways in architectural components like windows, doors, and facades strengthens the design idea and develops a unified visual language.

The rhombus motif is utilized outside of the building's physical boundaries. It can be applied into a number of interior design components, such as furniture designs, wall treatments, and flooring patterns, to create a sense of coherence and continuity across the room. This fusion strengthens the rhombus motif's cultural meaning and improves the overall aesthetic experience.



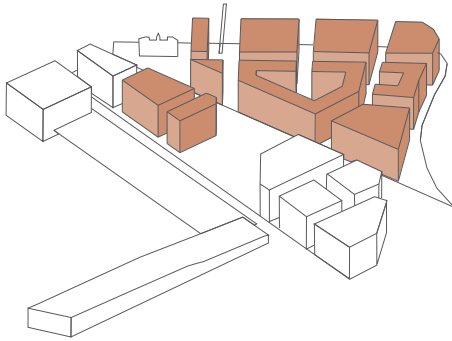
4.4.1.2. The tower orientaiion

In order to achieve optimal integration with the city fabric and alignment with existing axes and urban patterns, the orientation of the rhombus tower within the Royal Sea Port has been thoroughly assessed. This meticulous examination makes sure that the skyscraper blends in with its surroundings and contributes to a harmonious urban development.

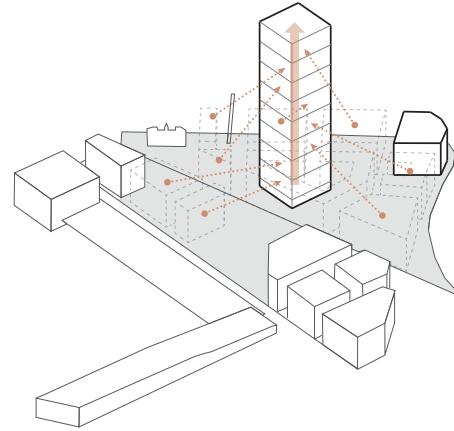
The relationship between the site and the existing city fabric is a crucial factor in deciding the tower's orientation. The location of the tower should provide a smooth transition and integration with the nearby urban surroundings. The tower's orientation can be carefully adjusted to improve physical and visual connectivity by carefully examining the surrounding streets, open areas, and neighboring landmarks. This study makes it possible to create a design that adheres to the established urban flow and enhances the city's overall cohesion.

Figure .12. Design process How to Arrive the Shape&Volume (architectural)

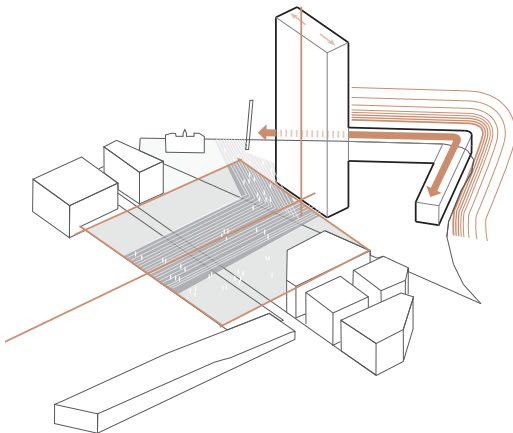
Future Fabric
(Understand the site)



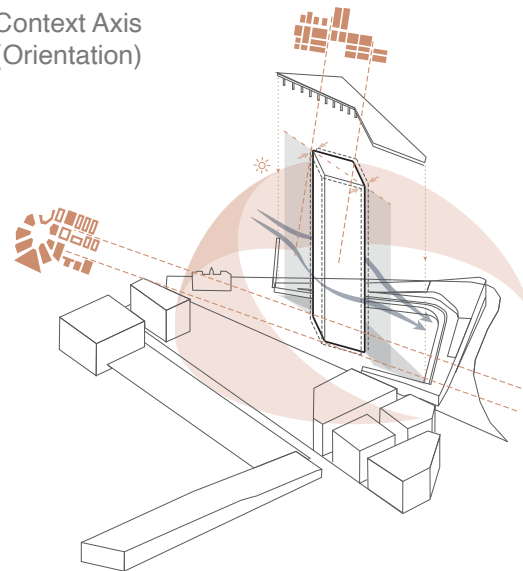
Clear the Ground Floor
(Concentration)



Urban Connection
(Stretch the volume)



Context Axis
(Orientation)

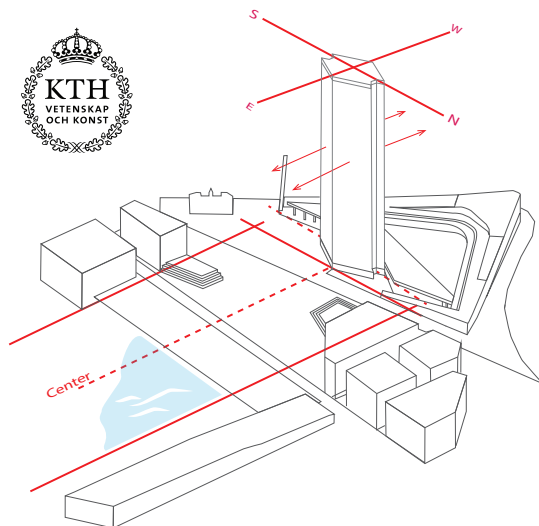


An examination of the existing axes within the city plays a vital role in determining the orientation of the rhombus tower. Axes are significant organizing elements in urban planning, shaping the visual and functional relationships between different areas. By aligning the tower with these axes, the design can reinforce and extend the existing urban structure, creating a sense of continuity and legibility within the cityscape. This careful alignment ensures that the tower becomes an integral part of the urban fabric rather than an isolated entity.

Additionally, the orientation of the tower should take into account elements like solar exposure, dominant wind patterns, and vistas. Energy efficiency and occupant comfort can be improved by making the most of natural light and ventilation in the interior sections of the tower. It is possible to improve the orientation to efficiently utilize natural resources and reduce any potential downsides by researching the sun path and wind directions.

Figure .13. analysis process for finding the best orientation

Urban Connections Panoramic View



Sun Analysis

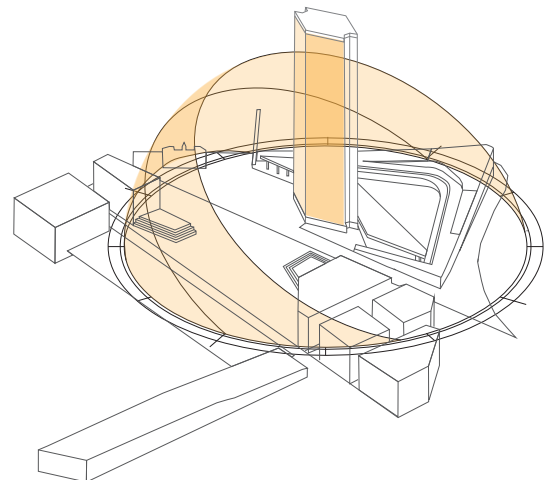




Figure .14. Urban analysis, main directions

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Moreover, the orientation of the tower should take into account elements like solar exposure, dominant wind patterns, and vistas. Energy efficiency and occupant comfort can be improved by making the most of natural light and ventilation in the interior sections of the tower. It is possible to improve the orientation to efficiently utilize natural resources and reduce any potential downsides by researching the sun path and wind directions.

Additionally, the views to and from the tower should be carefully considered. The tower can provide appealing vistas of the surrounding metropolis, waterfront, or notable landmarks by carefully choosing its orientation. For both the occupants and the viewers, it's essential to strike a balance between these viewpoints and the demands of privacy and practical effectiveness.

4.4.2. The facade

4.4.2.1. General concept of the facade

The Royal Sea Port's rhombus tower features a cutting-edge and environmentally friendly parametric facade design that adapts to the variable levels of light and radiation in various directions. Each of the tower's four facades, which are oriented in different directions, is specifically designed to maximize energy efficiency and satisfy the unique functional needs of various building sections. This method produces a more sustainable design solution by improving occupant comfort while simultaneously consuming less energy.

The customisation of the facade apertures was driven by the interior spaces of the tower's practicality. The dimensions and placement of the openings were carefully modified in accordance with the understanding that various sections have varying requirements for light and energy. For instance, less exposure to direct sunlight might be advantageous in areas designed for rest and sleep, like bedrooms or relaxation areas. On the other hand, locations with high occupancy and a lot of activity, like sizable conference rooms or co-working spaces, would benefit from a lot of natural light to boost productivity.

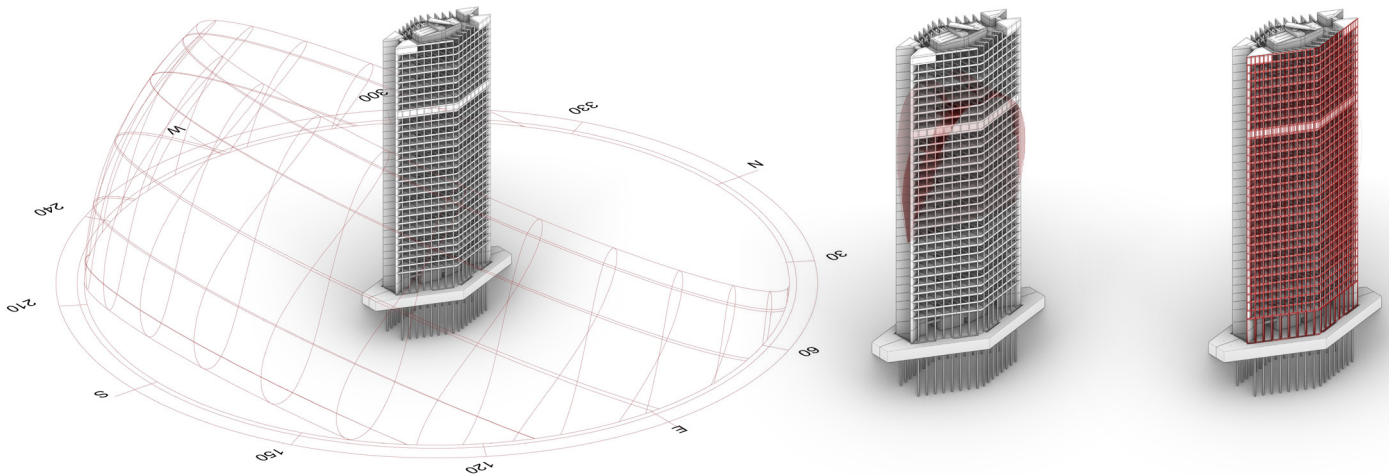


Figure .15. facade design process

Due to the analysis that we could get from Ladybug and Honeybee we understood that we have different radiations for all the facades of the tower. Each facade has a different orientation according to the sun therefore has different amount of sun and light.

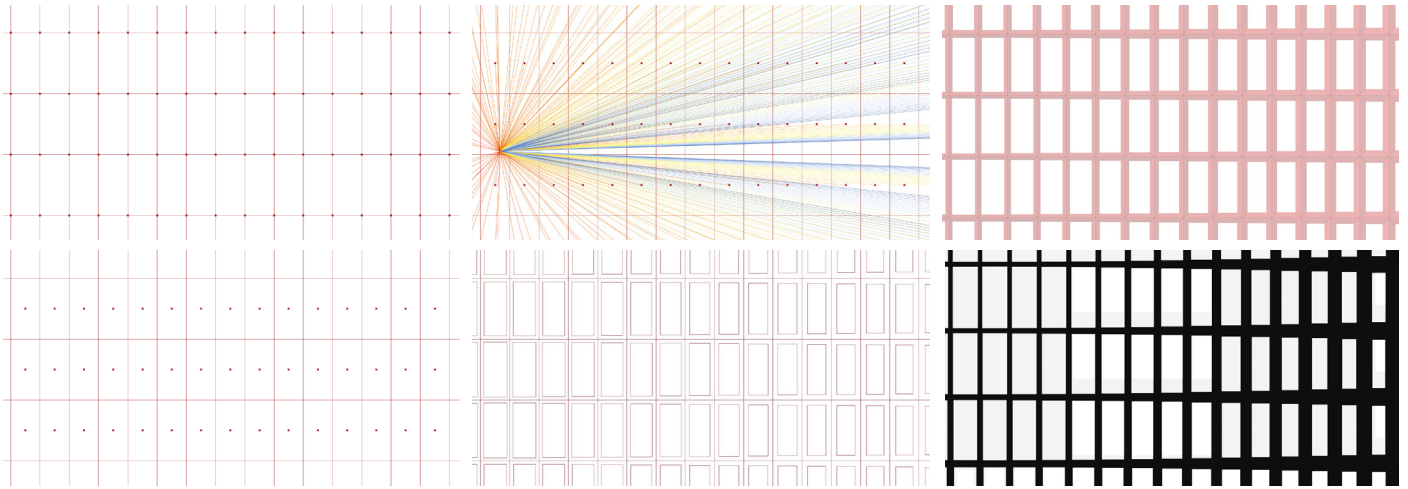


Figure .16. parametric facade

4.4.2.2. Analysis and final external form

A thorough analysis was done when developing the parametric facade to determine how much light and radiation each facade received throughout the day and year. In this analysis, aspects including sun ray angles, shading patterns, and adjacent obstructions were taken into account. Understanding the changes in light and radiation allowed the design team to adjust the facade's performance to meet the demands of various tower spaces.

The tower can efficiently control the entry of natural light, eliminating the need for artificial lighting during daytime hours, by optimizing the sizes and distribution of the facade apertures based on the functional needs of each room. This strategy lowers energy use, encourages energy efficiency, and helps buildings operate more sustainably. The parametric design additionally enables dynamic control over the facade, enabling alterations to be performed in accordance with seasonal variations, the time of day, or particular user preferences.

The parametric facade design also provides a variety of aesthetic options and visual intrigue. The four facades' dynamic interaction of different opening sizes, shapes, and orientations results in an eye-catching and distinctive architectural expression. This design strategy develops a visual identity that symbolizes the tower's commitment to sustainability and energy-conscious design principles in addition to showcasing its innovative spirit.

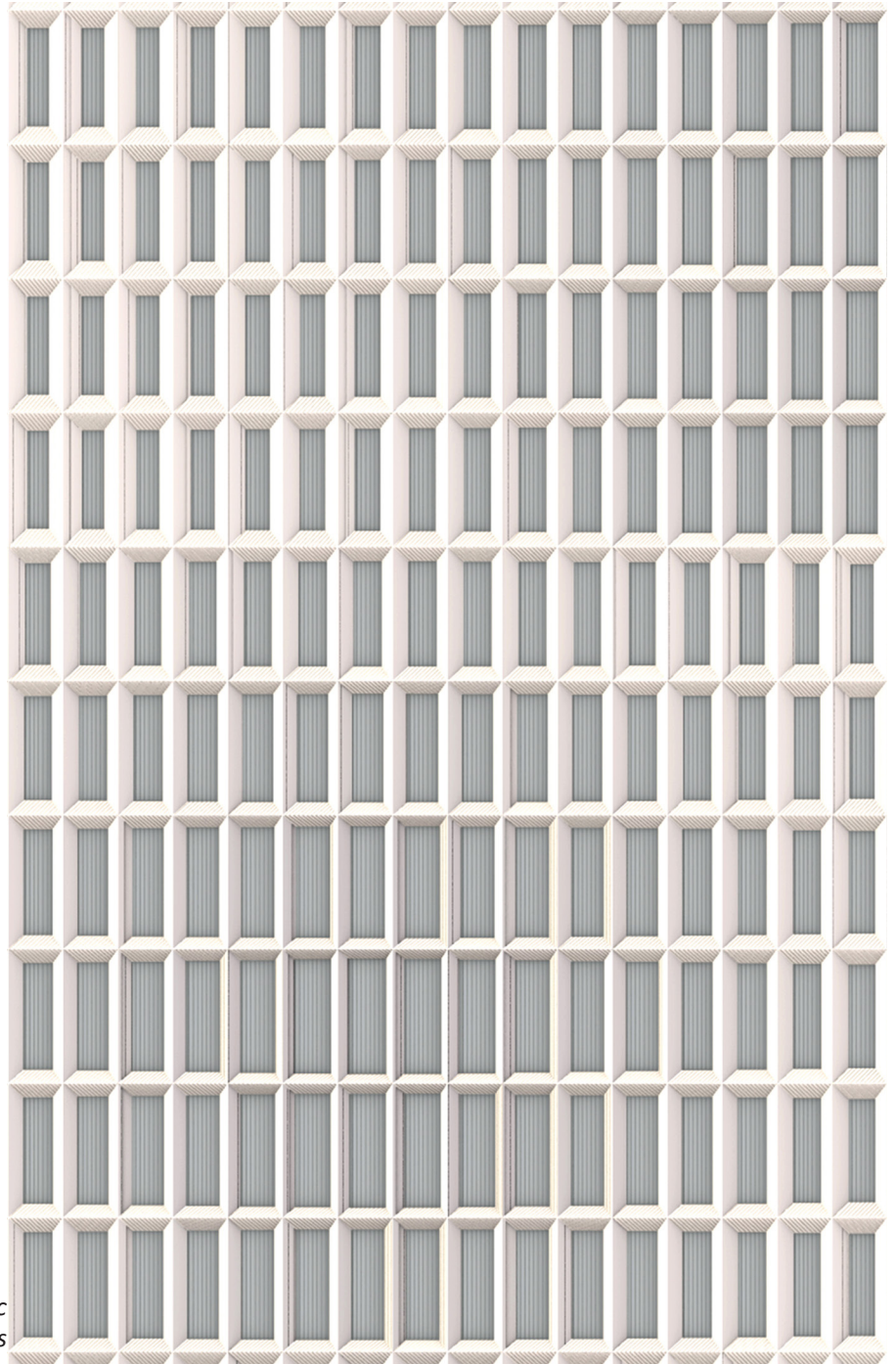


Figure .17. Facade idea with parametric openings

The rhombus tower in the Royal Sea Port features a parametric facade that exhibits an original and environmentally friendly approach to architectural design. The design maximizes occupant comfort, cuts energy use, and improves the overall sustainability of the building by tailoring the facade to the unique light and energy needs of various places within the tower. This design concept provides an aesthetically pleasing and dynamic architectural expression while showcasing a forward-thinking approach to energy-efficient architecture.

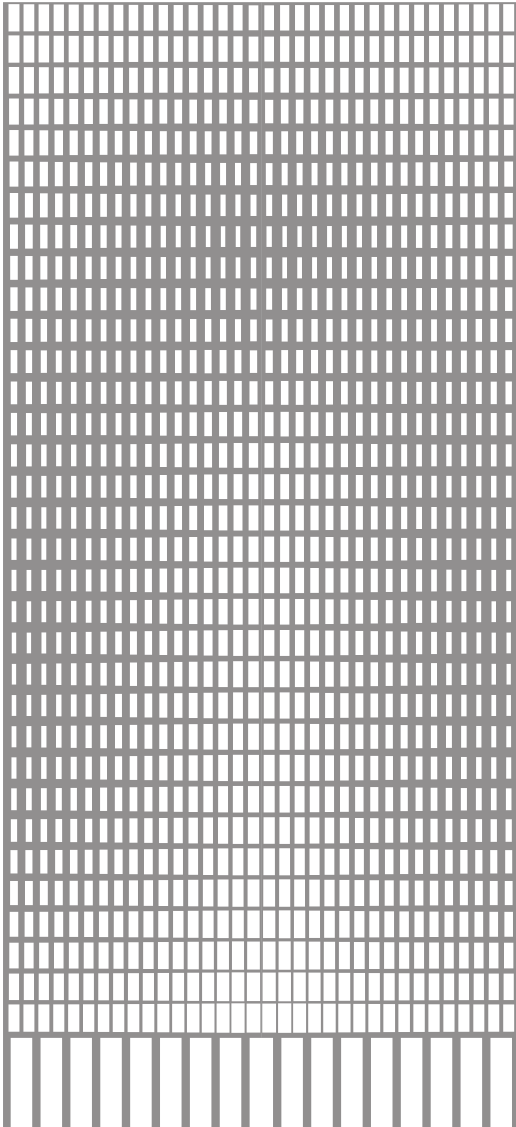


Figure .18. Eastern facade

4.4.2.3. Behaviour of double skin

In order to maximize energy control and improve spatial quality, the Stockholm tower uses double-height and triple-height areas in addition to a double facade on the standard levels. These design features help to increase energy efficiency and produce a built environment that is more sustainable.

Within the tower, the use of double-height and triple-height areas creates volumetric variations that not only improve the building's aesthetic appeal but also have practical benefits. Such areas serve as focal points within the building and are frequently used as atriums, public gathering places, or architectural highlights. A sense of grandeur and spatial expansiveness are made possible by the enhanced verticality, promoting human connection and producing an attractive environment.

Additionally, a double facade system has been implemented into the tower's normal levels to improve energy efficiency. This system consists of an inner layer that encloses the main building spaces and an exterior layer made of glass or other suitable materials that serves as a protective barrier against outside elements. The transition zone between these two layers is extremely important for controlling the environment's many elements, such as airflow, lighting, and temperature.

Energy efficiency is one of the double facade system's noteworthy advantages. This architectural element allows the tower to have better insulation qualities, effectively reducing thermal transmittance and decreasing unwelcome heat gain or loss. The insulating buffer that exists between the two facade layers reduces the need for mechanical heating and cooling systems. The adoption of additional solutions, such as solar panels, natural ventilation systems, or shading devices, is also permitted in the intermediate zone, further boosting energy efficiency and sustainability.

Beyond its benefits for energy, the double facade system enhances the tower's aesthetic quality. An outer layer gives the outside a visually dynamic appearance and gives the whole design more depth and texture.

The Stockholm tower's use of double-height and triple-height areas, as well as a double facade system on the regular levels, exemplifies a thorough and comprehensive commitment to both energy efficiency and spatial quality. With this design approach, it is possible to produce buildings that balance environmental concerns, human needs, and aesthetics.

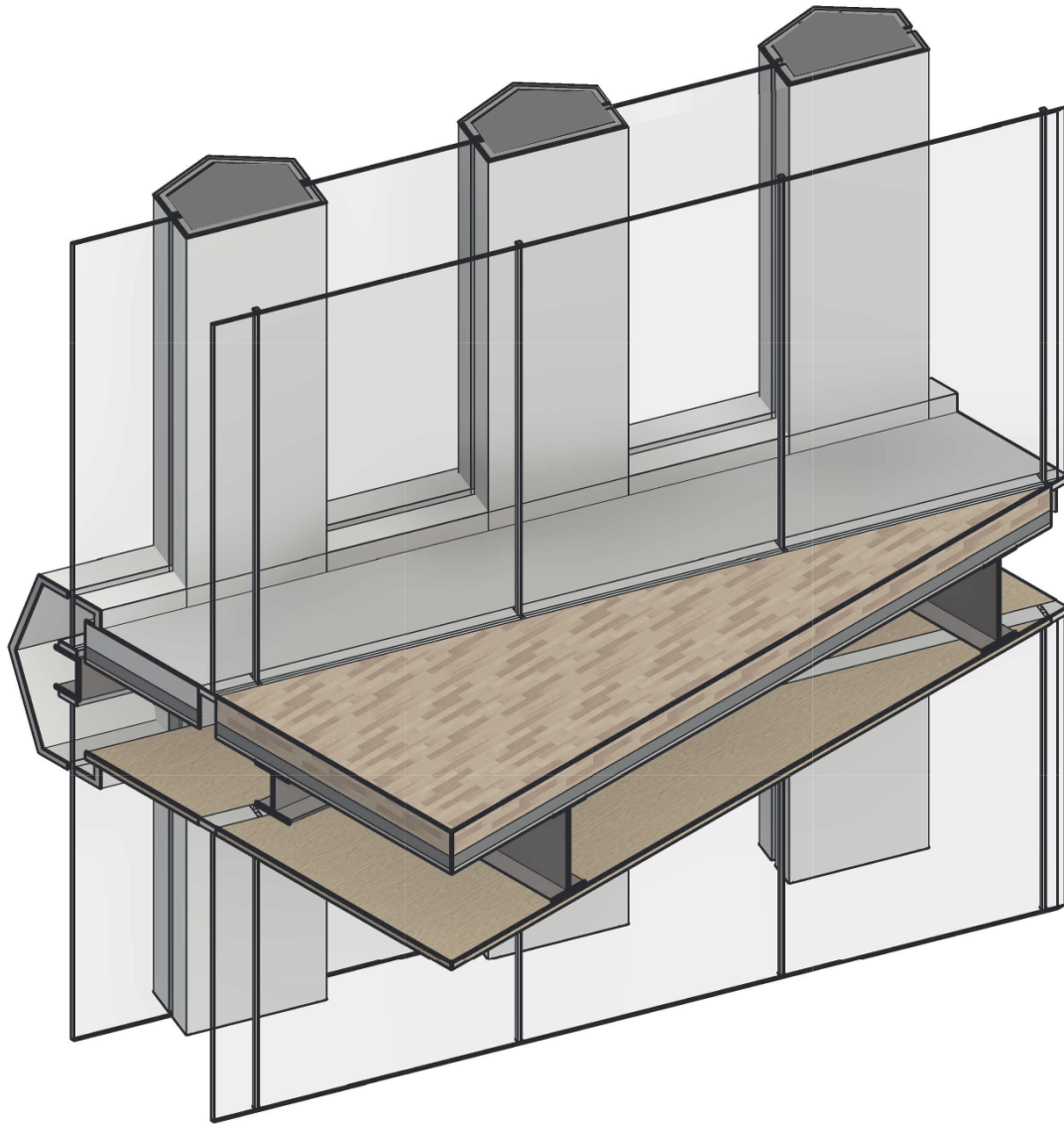


Figure .19. Second facade in interior

4.4.2.4. Facade rendering

As we mentioned before, the gradual decrease in opening size is one distinctive aspect of the facade design. This intentional variety gives the facade an interactive appearance, enhancing the building's outside with energy and interaction. The tower's changing openings, which are skillfully planned to change gradually, add to its aesthetic appeal and produce an arresting appearance.

The well planned facade features an orderly progression in the sizes of the openings across its vertical width. The composition is aesthetically appealing and lively because the openings gradually fluctuate in size rather than following a consistent pattern. As one goes along or around the building, the effect changes as a result of the deliberate manipulation of the facade's components, creating a dynamic play of light and shadow.

The openings' progressive alterations serve several functions. First of all, they provide the facade a sense of rhythm and movement, breaking up the static uniformity and giving the architectural composition a dynamic element. This dynamic component stimulates intrigue and curiosity, attracting people's attention to the structure and generating an engaging visual experience.

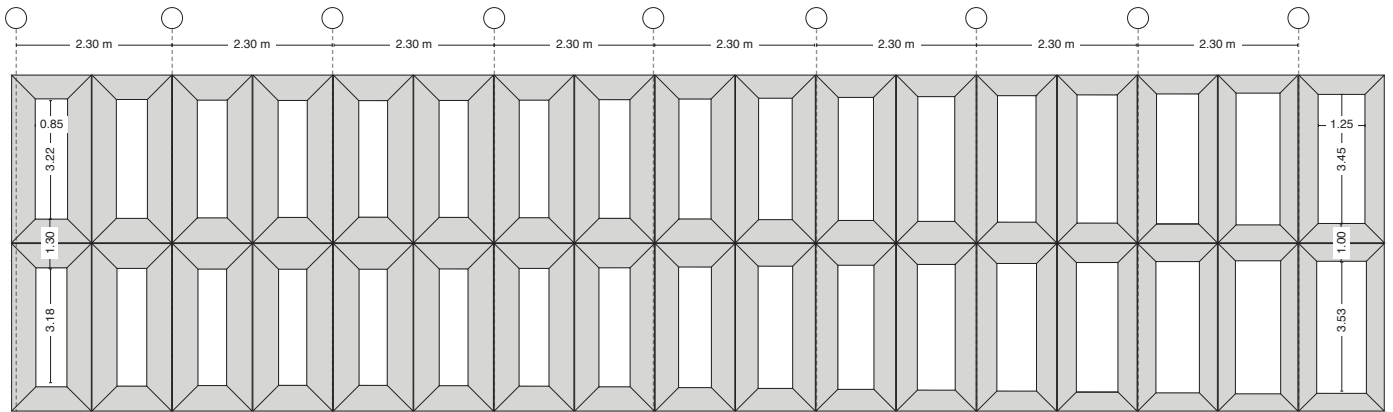
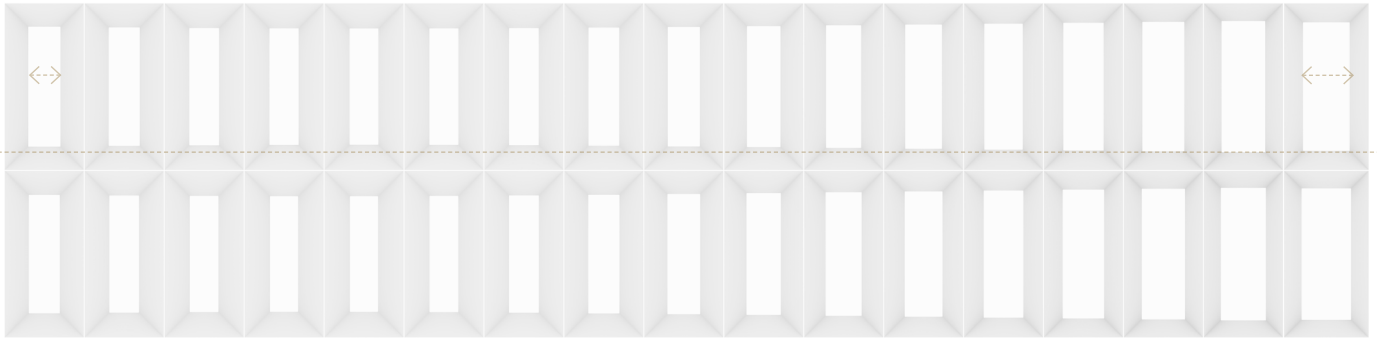
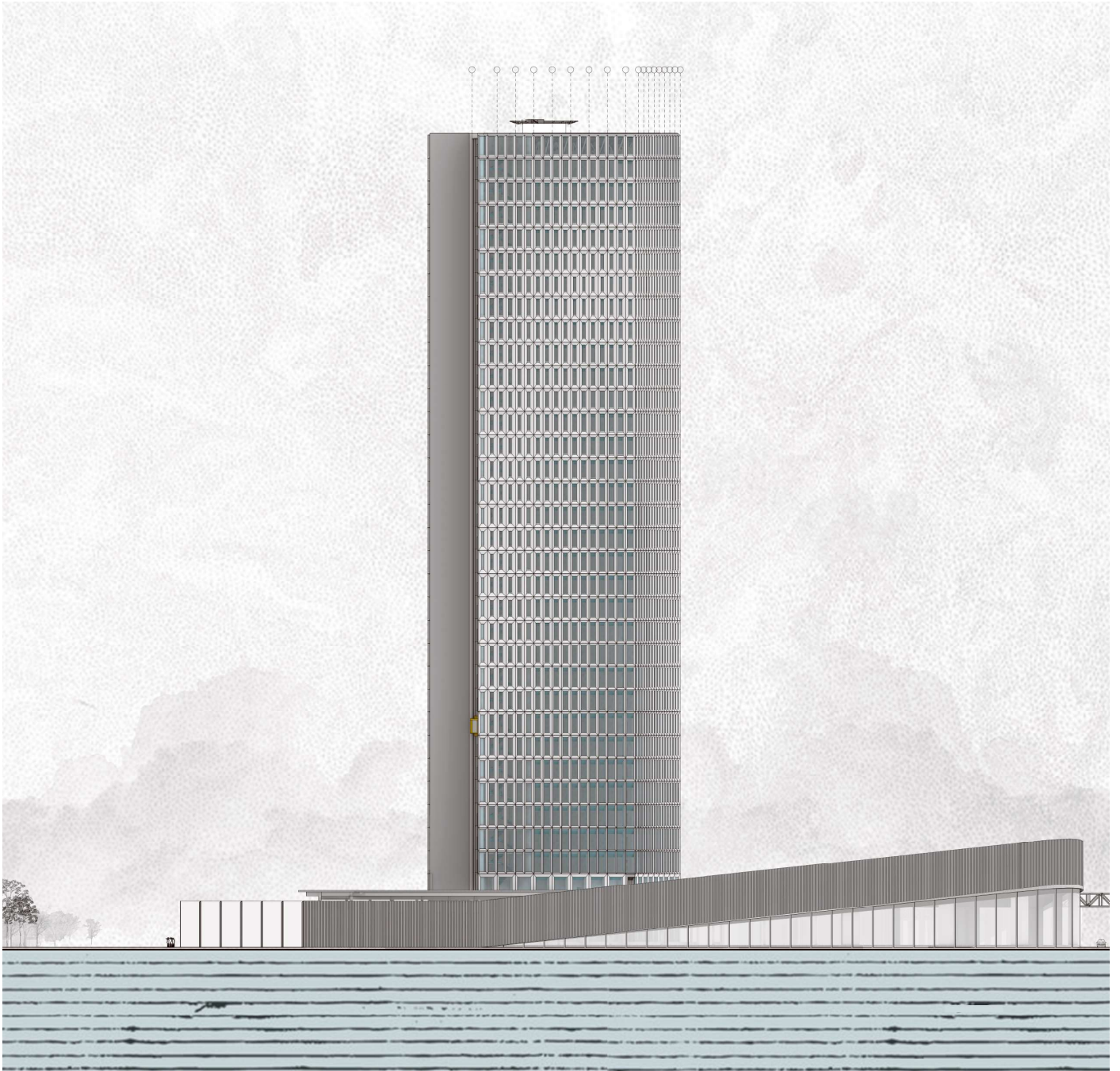


Figure .20. one scope of facade. how the dimension changes

Figure .21 North facade



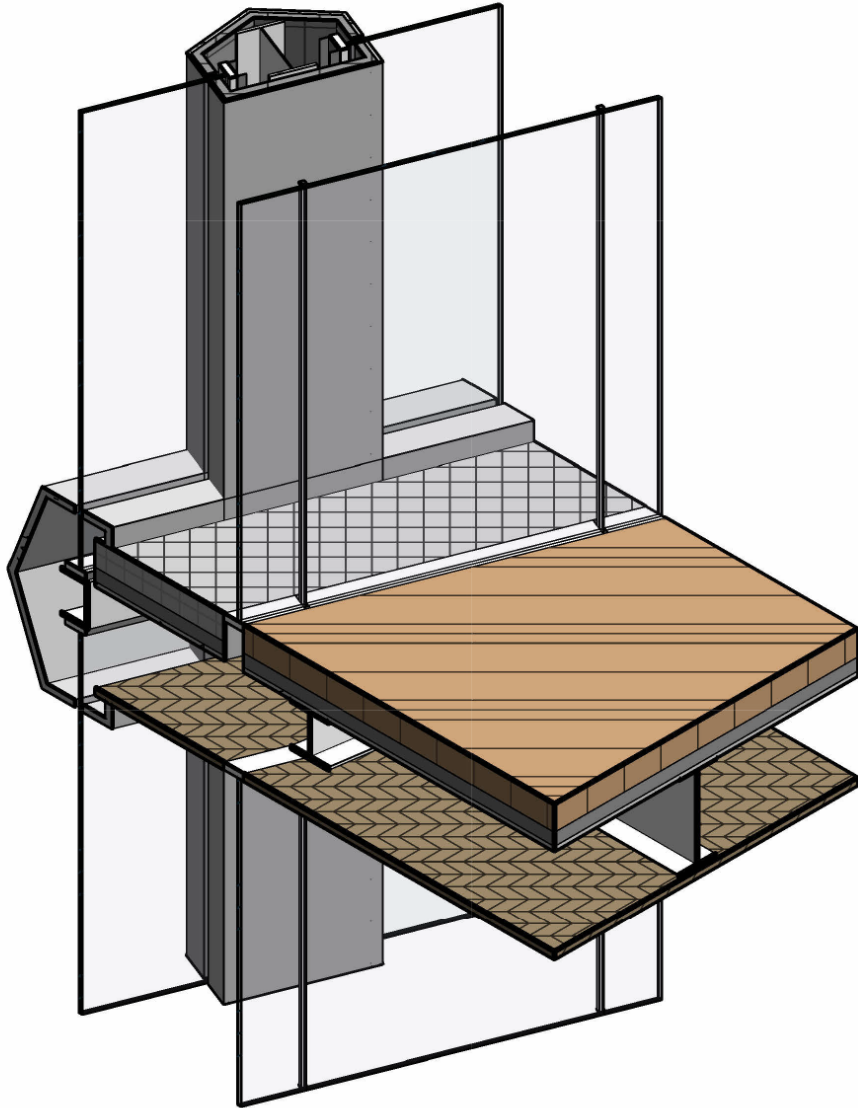


Figure .22. panel detail

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4.4.2.5. Facade Architecture details

A round column system was initially used in the tower's preliminary facade design, and facade panels were mounted to a separate structure that was connected to the columns. However, to achieve a unified and simple appearance, a specific architectural detail was added in the next phase of the detailed design. This innovative method required creating a package that combined the panel, insulation, and column structures into a single cohesive part, obviating the need for distinct structural elements to be visible in the area.

The precise design achieved a clean and streamlined aesthetic, free of any obvious structural features, by enclosing the column, insulation, and panel structures into a cohesive package. This design choice put the overall architectural composition above the individual elements that make up the facade in order to create a more immersive spatial experience.

The lack of observable window frames is a key benefit of this method. No traditional window frames were required because the numerous components were combined into a single unit. This architectural decision helps to create a clean, uncluttered facade that promotes views and a feeling of openness. The absence of window frames further emphasizes the idea of simple design and improves the building's overall aesthetic appeal.

the detailed design of the tower's facade adopts a meticulous architectural approach that prioritizes clean aesthetics and minimal visual impact. By integrating the column, insulation, and panel structures into a unified package and concealing the window frames and frame of the second facade, the design achieves a cohesive and unobstructed architectural expression. This approach not only enhances the visual quality of the building but also contributes to a sense of openness and spatial clarity within the interior spaces.

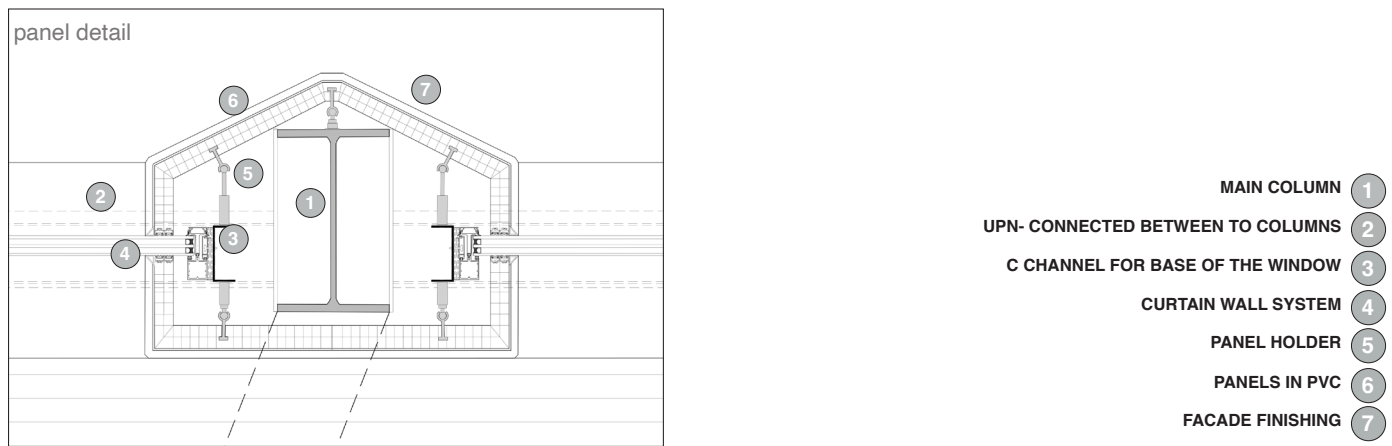
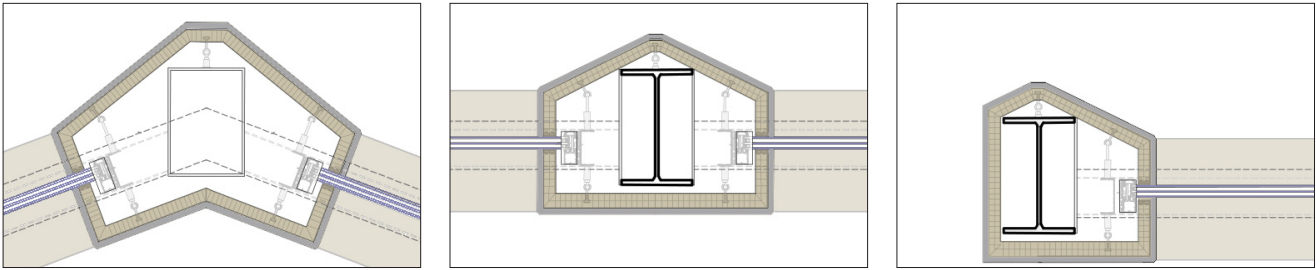
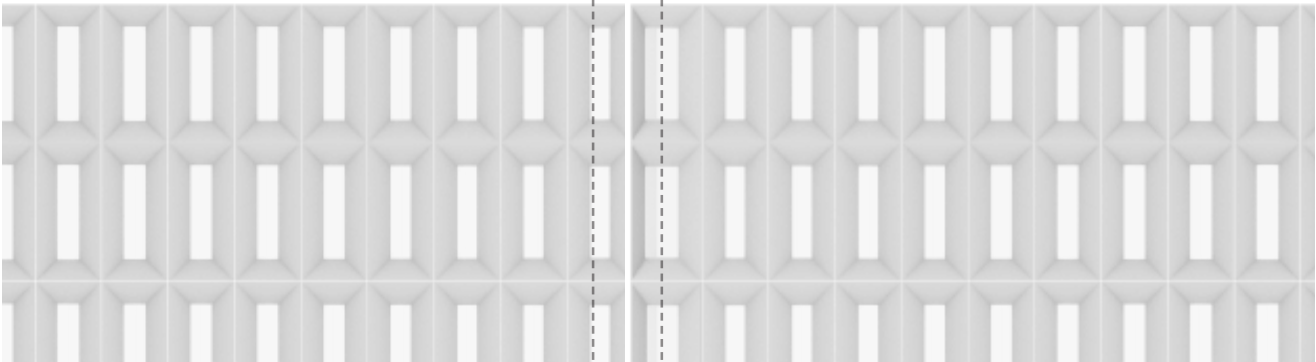


Figure .23. The joints detachable panels in order to be able having a better maintenance. inside of the panel as a wrap for the pachege of architecture, structure and insulations.



location of the joint



location of the joint



4.4.2.6. Design of the joints and panel adjustment

The rhombus-shaped skyscraper incorporates unusual architectural features at the end boundaries of the façade and where its two faces are connected. These components have been painstakingly created to complement the distinctive shape of the structure and guarantee a smooth and aesthetically pleasing transition between various portions of the facade.

Special order connections have been put in place to make it easier to join the two facades. These connections are designed precisely to fit the rhombus form and offer a safe and attractive interface. The structural stability of the building is taken into account in the design of these connections, which also adhere to a uniform design language.

Special joint features have also been built for the facade's end borders to achieve a unified and elegant appearance. These joint components act as architectural accents, drawing attention to the facade's termination points and emphasising the rhombus shape's geometric features. These expertly made joints improve the architectural character of the tower and add to its overall visual coherence.

The design provides a sense of consistency and aesthetic harmony across the entire facade by keeping the panel concept constant while modifying their sizes to meet the openings. The tower's overall aesthetic quality and architectural character are strengthened by the great attention to detail in the panel layout.

Special order connections and joint components are incorporated into the rhombus-shaped tower to guarantee a seamless and aesthetically pleasing transition between various portions of the facade. In order to maintain a consistent panel concept while accepting the necessary size variations, the layout design of the panels takes into account the precise measurements of the openings. These architectural accents strengthen the distinctive character of the building's design and add to its overall visual cohesion.

4.4.2.7. Detachable panels

The tower's panels have been intelligently constructed to be detachable and divided into manageable sections to facilitate effective maintenance and the option of window replacement. This design strategy makes it simple to remove and replace windows, which increases the facade's adaptability and functionality throughout time.

The internal and exterior portions of each panel are separated, significantly improving accessibility for maintenance. This split enables the performance of focused repair or replacement tasks without com-

promising the overall structural integrity of the neighboring panels. The panel design simplifies handling of individual components and streamlines the maintenance procedure by dividing the inner and outside sections.

Each panel's interior is further partitioned into more compact pieces. This split not only improves handling simplicity but also offers more flexibility in addressing particular maintenance requirements. The simpler and quicker maintenance activities are made possible by the smaller parts, which also allow for the selective removal or replacement of window units.

The design also includes a mechanism that makes it possible to efficiently separate and reattach each component of the panels. This mechanism makes it simple to remove the individual panels' pieces, allowing access to the windows for replacement or repair. When the pieces are reattached, the mechanism provides a solid connection, maintaining the facade's structural stability and weatherproofing.

The tower makes it easier to maintain it by using this maintenance-friendly design and replacing windows as needed. This strategy lessens the inconvenience and expense of maintenance tasks, enabling effective and focused interventions without sacrificing the overall functionality or beauty of the facade.

4.4.3. The podium

The requirement for a podium was carefully considered at the first phases of the tower's design. This choice was made after a thorough examination of a number of variables, including the urban surroundings, the necessary functions, and the towers' historical significance. In the end, it was decided that a podium would be necessary to satisfy the tower's requirements and achieve a seamless connection with the surrounding urban fabric.

The urban analysis was one important factor considered. The design team carefully examined the tower's immediate surroundings, taking into account elements including the cityscape, other structures, and the broader urban structure. The goal of this investigation was to pinpoint the area's current urban patterns, architectural sizes, and visual continuity. The design team did this in an effort to make sure the tower would enhance and benefit the nearby urban environment.

Functional needs were also very important in the decision-making process. The podium's addition gave us a chance to discuss the tower's different utilitarian facets. The platform, for instance, might provide as a foundation for adding amenities like retail sections, public spaces, or other commercial services. In addition to meeting the requirements of the tower's residents, these amenities boosted the energy and vibrancy of the urban environment.

The historical context and the development of tower construction were also taken into account. Understanding the significance of podiums in terms of architectural continuity, human scale, and urban aesthetics came from the examination of previous tower projects. Using this historical context as a guide, it was realized that the presence of a podium would aid in creating a visual and physical connection between the tower and its immediate surroundings, promoting a cohesive and integrated urban environment.

The presence of a podium was determined to be necessary to fulfill the requirements of the tower and guarantee a harmonious relationship with the urban fabric after taking all of these issues into consideration. The podium would provide practical amenities while keeping to the rules of urban design, facilitating a seamless transition between the skyscraper and its immediate surroundings. The podium was included in the design in order to produce a well-rounded architectural composition that not only met the needs of the skyscraper but also enhanced the urban environment.

4.4.3.1. The podium concept

As a key component that reacts to the surroundings, the podium concept in the tower's design is intricately linked to the urban study and context. Since the lines defining the podium base's bounds are immediately generated from the results of the urban analysis, a seamless integration with the existing urban fabric is guaranteed. The design generates a sense of visual consistency and architectural coherence by lining up the podium with the surrounding urban landscape.

Additionally, the podium was specifically created to build strong links with its immediate surroundings. Given the importance of its waterfront location, the site's western portion is very carefully connected to the harbor area. The interaction between the tower and its maritime environment is strengthened by this connection, which also improves the harbor's accessibility and usability.

likewise the design takes into account the significance of pedestrian mobility and circulation patterns within the urban fabric. The western portion of the site is connected to the ferry terminal via a route that has been meticulously included into the design. This route provides a straightforward and practical way for people to get to the ferry port or to explore the harbor region, aiding in the circulation of people. The podium's utility and accessibility are improved by the addition of pedestrian connections and pathways, making it a more dynamic and interesting component of the urban environment.

The podium is intended to be a place that prioritizes the needs of the city and its residents and fosters a sense of community. The podium's features and amenities have been chosen with care to benefit the city by offering areas for community events, social gatherings, and business transactions. The platform transforms into a lively and energetic environment that satisfies the varied requirements and desires of the urban population by providing retail spaces, public areas, and other facilities. In this way, the podium enhances urban life and fosters a sense of place and community by functioning as an extension of the city.

4.4.3.2. The functionalities and plans

The podium's design adheres to the Royal Seaport's master plan and takes into account both the area's demand for commercial space and its functional requirements. Specific portions of the podium have been earmarked for commercial use, responding to the demands of the local community and complementing the liveliness of the urban setting, drawing inspiration from the surrounding structure and the analysis carried out.

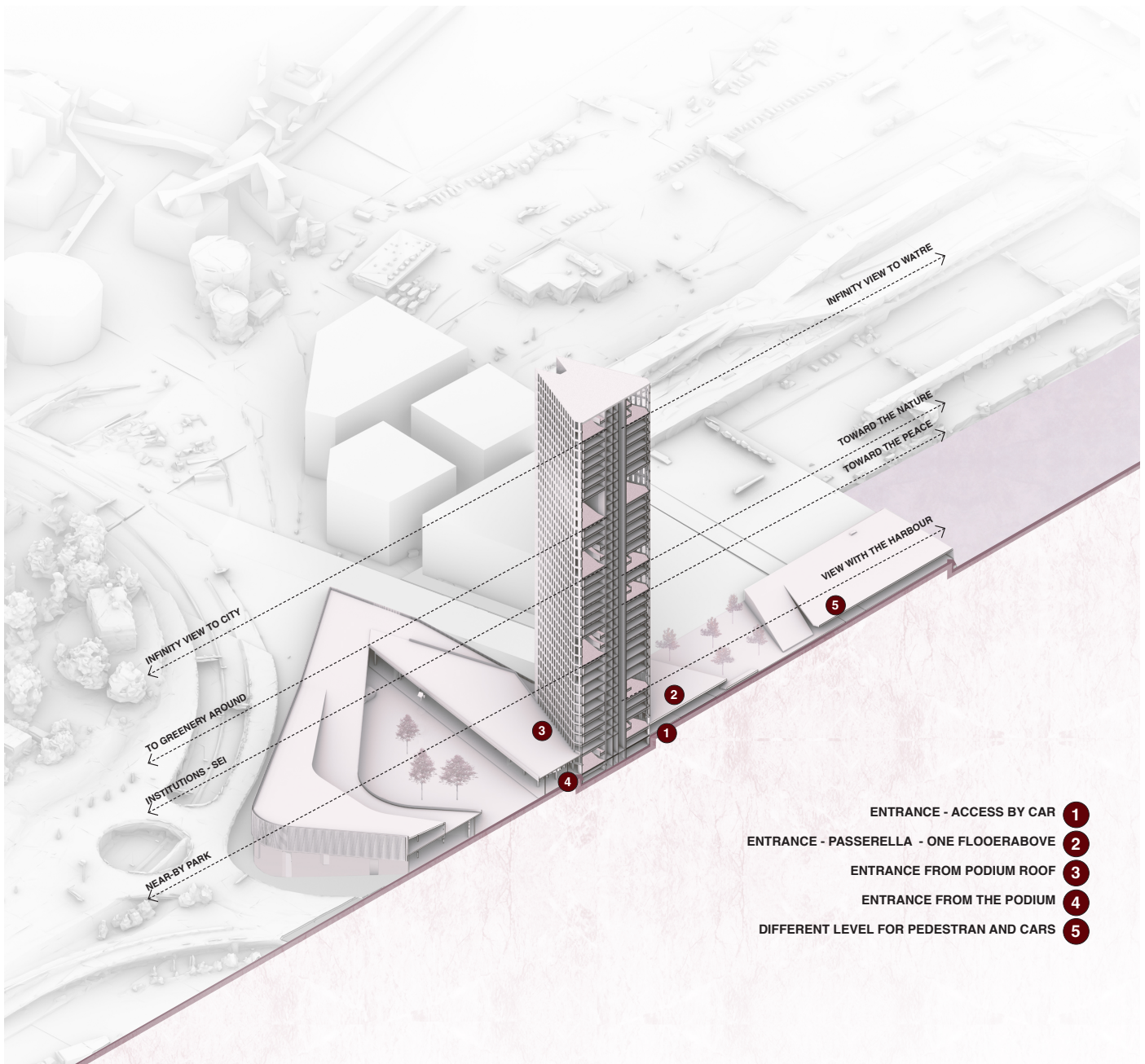
Supermarkets and other establishments have been placed strategically on the podium's northern and western edges. The nearby residents and visitors can easily reach these areas' necessary amenities, meeting their everyday demands. The design generates a vibrant street frontage and adds to the general energy and functionality of the urban environment by including commercial operations within the podium.

The platform also has an auditorium, which is an important feature in addition to the commercial spaces. The junction of the northern and western sides of the podium has been chosen as the best place for this purpose because it is difficult to integrate such a facility within the tower itself. The auditorium provides a location for plays, talks, and meetings as a dedicated place for diverse cultural and community events. Its location within the podium provides accessibility and promotes community involvement, adding to the neighborhood's ethnic diversity and sense of social cohesiveness.

A portion of the podium's courtyard has been set aside for sporting events and leisure pursuits. With a place for locals and guests to enjoy outdoor activities, this location offers a chance for leisurely physical activity. The design encourages an active lifestyle, improving the community's general well-being, by including a sports space.

A canopy connecting the major wings of the structure has been created to improve the podium's visual and functional cohesion. This canopy serves as an architectural feature that integrates the various components of the podium in addition to providing a covered pathway. The canopy serves as a unifying element, highlighting the connections between diverse services and giving pedestrians a consistent spatial experience.

Figure .24. Tower and Podium - overall section



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4.4.3.3. Connection to the tower

One important component that completes the overall design of the tower and podium complex is the podium's canopy part. It offers a smooth transition from the tower to the nearby metropolitan setting. The versatility the canopy gives in terms of the use and location of the glass walls, allowing for adaptive and dynamic spaces within, is one of its distinguishing features.

This section of the canopy has a strong emphasis on its cultural component, which embraces the idea of adaptable galleries. With the use of this design strategy, it is possible to create flexible exhibition spaces that may host a range of artistic expressions, including visual arts, installations, and multimedia presentations. The adaptable galleries serve as a venue for cultural activities, promoting innovation and community involvement.

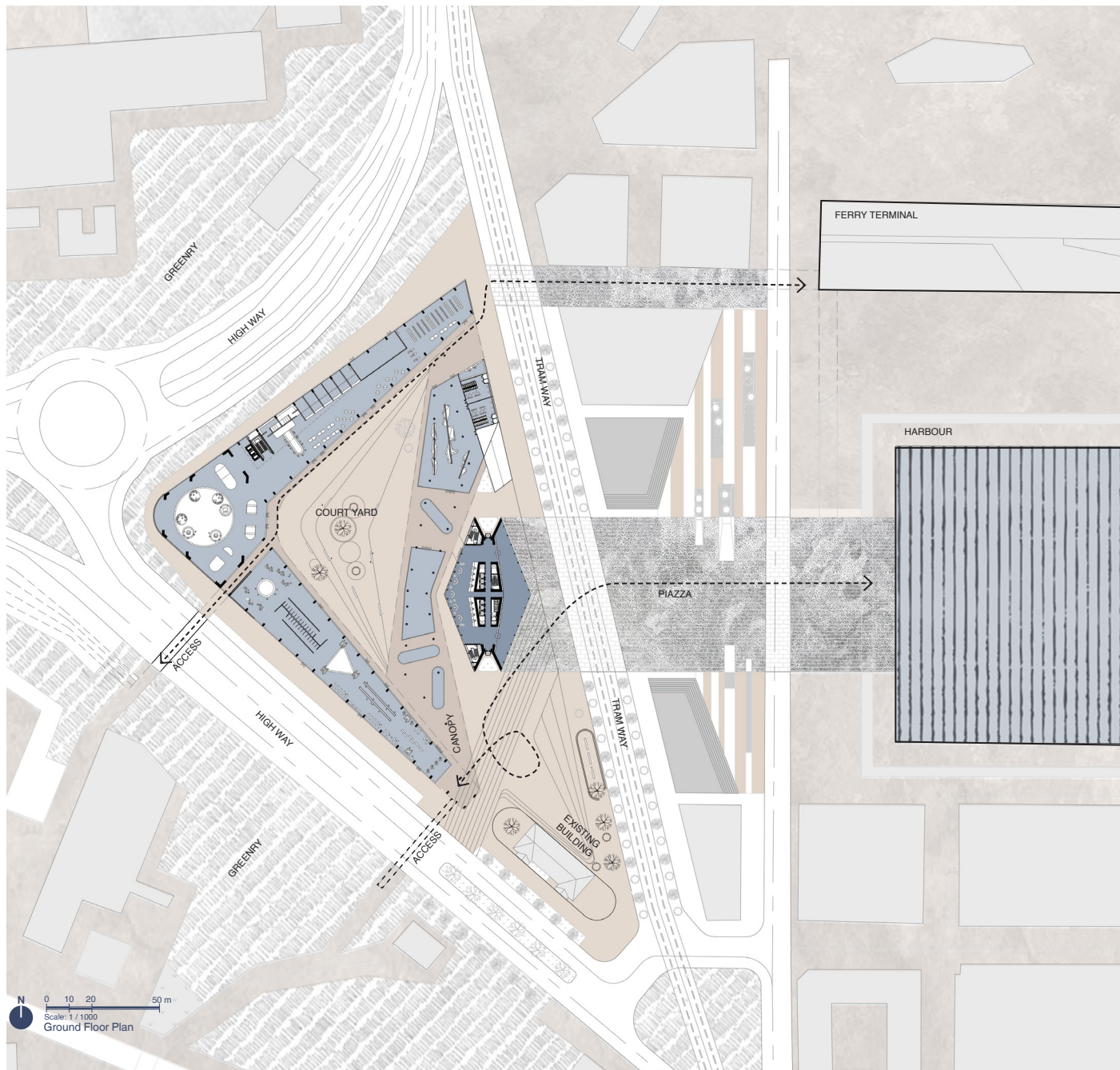
The canopy's layout promotes an airy, open environment that blurs the line between indoor and outdoor areas. As a result, there are more options for connection and communication between the surrounding urban fabric and the cultural exhibitions housed beneath the canopy. The glass walls' transparency makes it possible for onlookers to catch views of the artistic installations, arousing wonder and curiosity.

Additionally, because the canopy is adaptable, sections can be changed to accommodate various events and exhibitions. The design and configuration of the galleries are easily adaptable to different exhibition sizes, topics, and formats. Because of their adaptability, the cultural spaces under the canopy are able to adapt to the changing demands of both the public and the artistic community.

A key feature of the design is the bridge that spans from the park on the west to the roof of the podium, establishing a direct connection between the natural landscape and the podium complex. This bridge serves multiple purposes, including circulation, accessibility, and the creation of an inviting and engaging public space.

The bridge offers walkers arriving from the park not only an easy way to cross, but also a special vantage point from which they can take in the panoramic views of the surroundings. Its advantageous placement promotes a harmonic link between the tower, the podium, and the park by enhancing the integration of the natural environment with the built form.

Figure .26. Tower and Podium - Ground floor plan



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Visitors can move freely around the entire platform as the bridge wraps around its edge, allowing them to take advantage of its many features and facilities. This circulation path serves as a pedestrian promenade, providing space for strolls that are both calm and exciting. It promotes social contact and raises the area's general vitality by enticing individuals to interact with the nearby urban setting.

The bridge's circulation has many advantages, one of which is its connection to the tower's third floor. A public function is present in the tower at this level, which is consistent with the podium's commitment to serving the city and its residents. The bridge serves as a direct route that effortlessly connects the podium's public space with the tower, giving users another entrance to the tower's public spaces.

The public function of the tower is made more accessible and usable by this connection to the tower at the third floor. It enables a smooth transition and fosters connection between the two parts by facilitating the circulation of people between the podium and the tower. Through this integration, the tower's utility is improved, and the podium's connection to the tower is strengthened, resulting in a harmonious and interconnected architectural composition.

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*Verticality is, first of all,
connection between ground and
sky,
It is hope of spiritual ascent,
It is human effort, beyond the
realm of the rationality.*
Maria Grazia Folli