VILNIUS GEDIMINAS TECHNICAL UNIVERSITY

ARCHITECTURE FACULTY

DEPARTMENT OF ARCHITECTURE

Anna Khomchenkova

# CONNECTING ARCHITECTURE: REVITALIZATION OF ODESSA'S CRUISE PORT

# JUNGIANTI ARCHITEKTŪRA: ODESOS KRUIZINIO UOSTO ATGAIVINIMAS

Master's Thesis

Architecture study program, state code 6011PX004

Architectural studies

Vilnius 2024

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Specialization in structural architecture

Architectural studies

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**Annotation**

This Architecture Master's Thesis explores the concept of architectural connectivity through a theoretical, analytical and practical investigation of water integration combined with cruise terminal's role in shaping the port identity. Architectural connectivity is further examined through its typological, spatial, physical, symbolic, and cultural dimensions in the context of Odesa's Cruise port in Ukraine. The terminal's form is developed through an artistic exploration of local contextual aspects in tandem with a dominant symbolic reference - 'the loop'. The research establishes inevitable connection between urbanism and architecture and utilizes its interconnection to produce a harmonized and connected maritime transportation complex.
The Master's Thesis consists of theoretical research, design part, graphic material in a form of 5 posters 800x2000 mm, and 2 scale models.

**Keywords:** Port; waterfront; connecting; Odesa; cruise; terminal; integration; water.

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**Anotacija**

Šiame architektūros magistro darbe nagrinėjama architektūrinio ryšio koncepcija, teoriškai, analitiškai ir praktiškai tiriant vandens integraciją ir kruizinio terminalo vaidmenį formuojant uosto identitetą, o mažesniu mastu - naudotojų suvokimą apie jį. Jungiamoji architektūra toliau nagrinėjama per jos tipologinius, erdvinius, fizinius, simbolinius ir kultūrinius aspektus Odesos kruizinių laivų uosto Ukrainoje kontekste. Terminalo forma plėtojama meniškai tyrinėjant vietos konteksto aspektus kartu su dominuojančia simboline nuoroda - „kilpa“. Tyrime nagrinėjama urbanistikos ir architektūros sąveika, kuria remiantis ir kuriamas vientisas jūrų transporto kompleksas.

Magistro darbą sudaro teorinis tyrimas, projektinė dalis, grafinė medžiaga - 5 plakatai 800x2000 mm formato ir 2 mastelio modeliai.

**Prasminiai žodžiai:** Jungiamoji architektūra, vanduo, jūrinis transportas, vartotojo patirtis, kruizas, uostamiestis, terminalas, jungtis, integracija, Odesa, tiltas, kilpa

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Faculty of Architecture

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**DECLARATION OF AUTHORSHIP**

**IN THE FINAL DEGREE PAPER**

May 28, 2024

I declare that my Final Degree Paper entitled „Connecting architecture. Revitalization of Odessa's Cruise Port“ is entirely my own work. I have clearly signalled the presence of quoted or paraphrased material and referenced all sources.

I have acknowledged appropriately any assistance I have received by the following professionals/advisers:

Prof Audrius Ambrasas, Greta Čerškutė.

The academic supervisor of my Final Degree Paper is Prof Audrius Ambrasas.

No contribution of any other person was obtained, nor did I buy my Final Degree Paper.

_____ Anna Khomchenkova

(Signature) (Given name, family name)

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## INTRODUCTION

**Relevance of the topic.** Connecting architecture is a complex, multifaceted phenomenon that intricately weaves through all parts of our built environment. In fact, it profoundly shapes not only spaces, structures and materials but also influences social dynamics, cultures, and the continuum of time itself. Connectivity is one of the most essential contributors to the creation of effective architectural and urban environments, and it manifests through various typological, spatial, physical, symbolic and cultural aspects of design. The exploration of architectural connectivity gains even heightened significance when applied to marine transportation facilities like cruise ports. Beyond being gateways for maritime transportation, the architectural connectivity of such complexes extends its influence into the world of global tourism and cross-cultural exchange, presenting as an important interface for marketing the city to the passengers. Investigating connectivity within the context of cruise ports sheds light on how such structures shape social interactions, contribute to cultural narratives, and leave a lasting imprint on the urban and architectural environments.

**Problem**. Tourism-related development can undoubtedly bring about regenerative outcomes in city waterfront areas. (Kotval&Mullin,2001) However, now in Ukraine, specifically in Odesa, cruise ports and connected waterfronts are quite overlooked from both architectural and urban development perspectives. As a result, spatial, structural, aesthetic and social connectivity of maritime transportation facilities in the region is inconsistent and underdeveloped.

**Research object.** Given the lack of research regarding complexities and nuances inherent to the architectural connectivity of cruise ports in Ukrainian context, this study will aim to identify and evaluate the intricate aspects of architectural connectivity of cruise facilities in Ukraine, with a primary focus on the Odesa Cruise Port.

**Aim.** The primary aim of this research is to identify and comprehensively analyze the complex layers of connectivity within the cruise port architectural and urban context.

**Tasks:**

- Define the concept of connecting architecture emphasizing understanding of the user perception and experience of it within artistic and architectural contexts. Explore tools and methodologies of establishing architectural connectivity in the built environment.
- Examine the symbolic, functional, aesthetic and sensory dimensions inherent in water-integrated architecture.
- Analyze the spatial, structural, and compositional specifications of cruise ports. Assess the impact of cruise ports on urban connectivity and the surrounding built and natural environments. Discuss sustainable port development strategies.

**Research Methods.** The research employs a multifaceted approach, incorporating qualitative analysis, case study examinations, literature reviews, and artistic explorations.

# THEORETICAL RESEARCH

# 1. Analytical part

## 1.1. Connecting architecture: a conceptual framework

*"In every work of art, the spirit of the age and individual effort combine to produce a result that connects the present with the past."*

Sir Banister Fletcher

### 1.1.1. Defining the concept of "Connecting Architecture"

To be able to define the concept of connecting architecture we need to start with the simplest question – what does it mean to connect? According to the Collins Dictionary, the raw definition of the verb "connect" is "to join, link, or fasten together; unite or bind; to establish communication between". ("Collins English Dictionary"). Based on this we can make a generalized statement that "to connect" means to establish a link or a relationship between two or more things, whether physical, conceptual, or symbolic. It implies bringing together separate entities or elements in a way that allows them to interact, communicate, or work in unison. One of the crucial things that needs to be recognized in this definition is the fact that "to connect" represents an action. It is not a passive entity, but rather an intentional or unintentional activity. This aspect becomes particularly significant when we discuss connectivity in the context of architecture.

The next step in defining connecting architecture is understanding what connection is meant when we talk about it. What exactly is being connected to what? And what kind of connection allows an architectural object or a group of objects to be referred to as connecting architecture?

The first and most apparent connection found in each architectural object or complex of objects is the interconnection of spaces. This fundamental **spatial connectivity** can expand past the limits of a single building, extending into the bigger urban environment. As articulated

by Myungshig Kim in “The Matters of the Continuity in Architecture”: There exists a possibility of integrating an architectural space (building interior) and an urban open space (urban interior) as a single concept of interiority. Architecture is to connect the former with the latter. It can be understood as articulation formed by the rapports and the resonances between different and heterogeneous entities of spaces, and formed in the times from the past to the present to the future. It is a concrete revelation about the form of space as a physical connection which connects inside with outside, and about the shape of time as a nonphysical connection which connects our contemporary dwelling-world with the past and the future. (Kim, 2015)

Connectivity is such a vast and multifaceted phenomenon in architecture, that it goes well beyond connectivity of spaces or materials. It presents itself in forms of visual and sensory connectivity, integration into nature and existing environment, connection to history and culture, and the most intangible – connection through human interaction. It is essential to break down each of these aspects to fully comprehend the complexity and importance of them.

**Visual connectivity** often refers to the tangible aspects of a space; extent to which a place can be viewed from other places. It is one of the most important parts of architectural design, representing the perceptible aspects of space and the degree to which a place is distinguishable from other places. This includes the placement of visual axes, sight lines and transparency in architectural spaces. Visual connectivity not only affects how spaces interact with each other, but also determines how the built environment connects to the natural environment. This visual relationship can significantly influence the user's experience and perception of space.

For example, a well-designed atrium, like in the concept for Berlin's New City Museum by ADEPT, with plenty of natural light and unobstructed views can create a sense of openness and connection to the outdoors, enhancing the overall feel of a building. In this project the impact of visual connectivity is particularly pronounced, due to the challenges the original structure provided, such as lack of light and spaciousness for a proper atrium. The technique described by architects as "house-in-house" created a visual and spatial illusion of connectedness and openness within the building. This approach not only addressed the structural constraints but also fostered a seamless connection between differently scaled spaces.

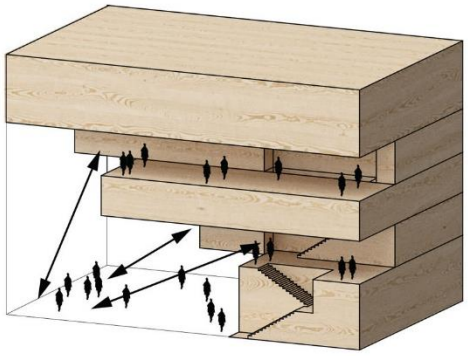


**Figure 1.** Stadtmuseum visual connections diagram, ADEPT, 2022-2025

**Figure 2.** ADEPT's interior proposal for the Stadtmuseum, 2022-2025

Another essential but quite often overlooked aspect of architectural design is its **sensory connectivity**. Traditionally, architectural practice has been dominated by the eye/sight. In recent decades, though, architects and designers have increasingly started to consider the other senses, namely sound, touch (including proprioception, kinesthesis, and the vestibular sense), smell, and on rare occasions, even taste in their work.(Spence, 2020) Figure 3 schematically illustrates the hierarchy of attentional capture by each of the senses as envisioned by Morton Heilig, inventor of Sensorama, the world's first multi-sensory virtual reality device, when he wrote about the multi-sensory future of cinema. (Heilig, 1992)

Heilig classified the order in which, according to him, our attention is captured by the different senses. According to this rating: visibility - 70%; audition - 20%; smell - 5%; touch - 4%; and taste - 1%

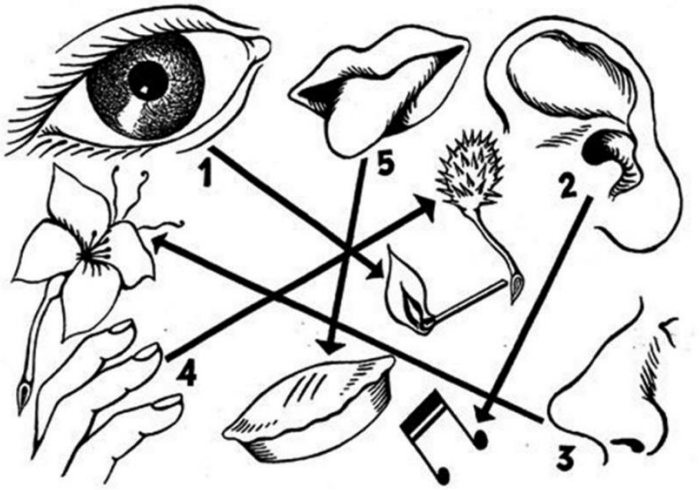



**Figure 3**. The order in which the senses focus attention according to Heilig, 1955/1992

While it is important to examine the individual impact of each sense on architectural design, it is also crucial to recognize that these senses interact with one another, jointly shaping our perception of built and natural environments. Therefore, we must aim to provide all sensory experiences for the users in architectural creations. After all, as Malnar and Vodvarka note in their 2004 book on Sensory design: The point of immersing people within an environment is to activate the full range of the senses. (Malnar, 2004)

Next step of exploring connectivity of architecture undoubtedly is understanding its **relationship with environment.** Architecture, like any other creation on this planet, does not exist without context, natural or artificial. In the book "The language of Architecture" by Andrea Simitch and Val Warke it is described like this: architecture can be considered an instrument that, either through passive or dynamic means, actively engages or takes advantage of environmental elements. (…) Every architectural work exists in the presence of a chorus of contexts that can impart meanings to and, in turn, derive meanings from their associations with the work. (Simitch, 2014) Therefore, to truly grasp the depth and significance of architectural connection, it is essential to purposefully explore and use the profound interaction between architectural design and the environment in which it exists.

The **connection to historical and cultural context** in architectural design has a profound influence on users' perception of built environment as well. It can be used as a tool to strengthen

people's sense of connection with space and their historical heritage. When architecture embraces and integrates historical and cultural elements, it not only opens a window into the heritage of a place but also evokes a deep sense of identity and belonging. Users who interact with such spaces are emotionally connected, as architecture becomes a storyteller, narrating through its spaces and artistic forms history, values and traditions of community. This can be expressed in many various ways – from referencing to cultural context in newly-made architecture to finding sustainable ways to preserve and repurpose existing historically significant to the region structures and urban areas.

**Figure 4.** Community Development Center in the old Rastro Municipal, Laboratorio de Acupuntura Urbana, 2023.

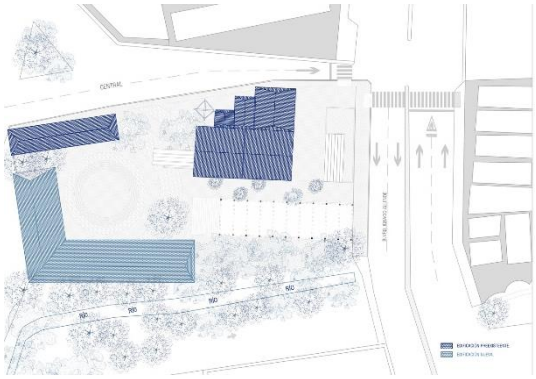


**Figure 5.** Community Development Center in the old Rastro Municipal, General layout, Laboratorio de Acupuntura Urbana, 2023.

A great example of the latter is a recent concept of the Community Development Center in the old Rastro Municipal, Mexico. (see Figures 4, 5, 6) The project in the town of San Cristóbal de las Casas, Chiapas, features a renovation and repurposing of an old municipal slaughterhouse. To respect the historical and cultural elements of the site, the architects succeeded in creating new public areas that connect with open spaces and seamlessly integrate with the community's cultural heritage. This has created an environment that promotes inclusivity and bridges urban and rural populations, with a particular focus on the indigenous community. By adapting existing structures, the project not only promoted visual and spatial connectivity, but also embraced the history, architecture and locality of the site.

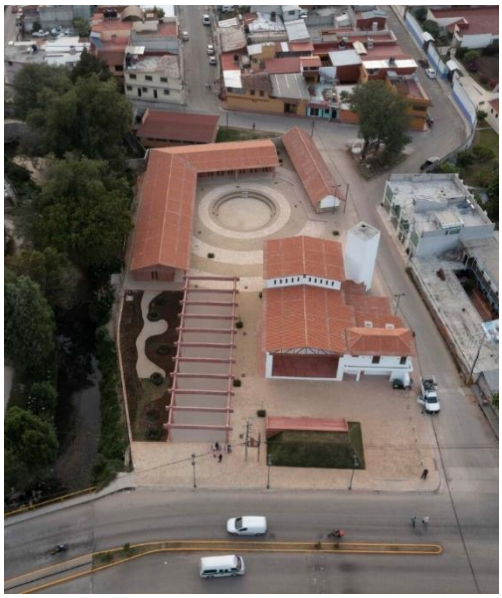


**Figure 6.** Community Development Center in the old Rastro Municipal, Laboratorio de Acupuntura Urbana, 2023.

It brought the community together. The incorporation of local materials and sustainable building techniques showcases the commitment to create spaces that connect both to their historical roots and to the contemporary demands of their users. (Zapico, 2023)

Last, but not least, we should mention the importance of intangible aspects of architectural connectivity – **social and interactions**. Denise Scott Brown once said: Architecture can't force people to connect; it can only plan the crossing points, remove barriers, and make the meeting places useful and attractive. (Cutieru, 2020) And although it cannot predict the outcome, architecture owns the ability to set the stage for chance encounters and social interactions, thus helping communities to unite and influencing the fabric of our social culture. At the same time, architecture, being a powerful and complex setting for human existence, has a potential to break and isolate communities. Therefore, the mechanisms of its influence should be studied thoroughly and used carefully in practice.

The way architecture can foster or disrupt social relationships is through trying to predict and provoke specific types of movements and behaviors within the designed space. Movement through a building or a city is a way of organizing one's experience of it, of orienting the body in relationship to something outside of itself. And while architectural and urban form and space are typically static, it is one's movement through them that constructs a continuously changing environment. (Simitch, 2014) By forcing certain movement patterns through the architectural or urban space, perfect setups for social interactions can be created. The social realm and its issues are vast, and so are the architectural means through which the profession can contribute to the creation of a more cohesive society. By devising the spatial relationships and

programmatic layouts that spark chance encounters, encourage communication, interaction and consolidate communities, architects take a more active stand in providing the setting for social dialogue. (Zapico, 2023)

### 1.1.2. Artistic experience of connection

In the mode of aesthetic sensing perception is present to itself, opaque and sensible. Artistic experience can be determined similarly as the perception mode of sensible interfering frames (for details see Klein 2009). According to this diagnosis, to have an artistic experience means to have a look from outside of a frame and simultaneously enter into it. Frames, which cross in this way our perception, are comparably present and sensible. Artistic experience is an active, constructive and aesthetic process, in which mode and substance are fused inseparably. This differs from other implicit knowledge, which generally can be considered and described separately from its acquisition.(Klein, 2010) This leads us to ponder how art and its' perception can become a dynamic and immersive process, offering a unique lens through which the essence of connection can be vividly expressed.

First and foremost, to grasp the role of connection in art and its' impact on the perceiver, we need to explore, how the process of experiencing it looks and feels like. As Louis Arnaud Reid identifies it in his "Artistic experience": The term "artistic experience" may mean either of two things: (1) the experience of the artist in making a work of art, or (2) the experience of the finished work of art by the critic or by anyone who is able to apprehend the work of art discerningly (Reid, 1926). In the first case, where the experience of art is related to the creation of a work of art, there usually is a distinctive motive and purpose behind every artistic endeavor. The intention gives the impression of predictability; however, artists are often faced with their art taking on an independent life of its own. How people see and experience art is not entirely in the hands of the creator. If the creator brings his own intentions to the work, the

user's interpretation and connection to the art may differ. This duality positions art both as a medium guided by the creator and intention, and as an independent entity that takes on a life of its own when meeting an audience.

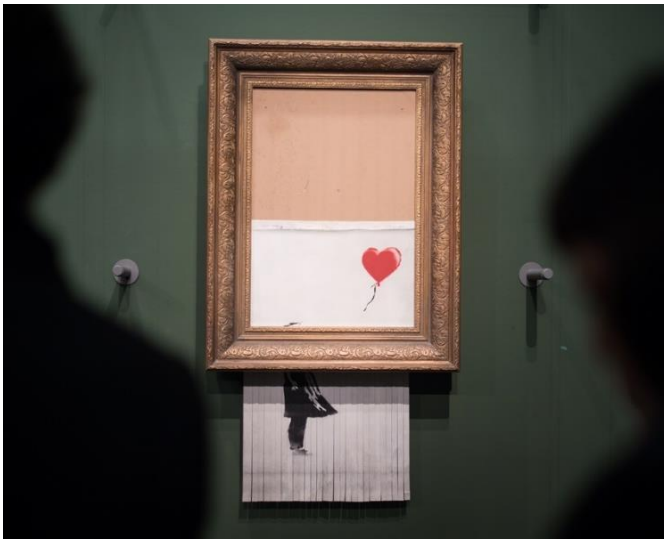


**Figure 7.** Visitors stand in front of the shredded Banksy picture "Love is in the Bin" in the Staatsgalerie.

Looking at the complex dynamics of artistic experience, an excellent example that highlights the unpredictable impact of art on the world is Banksy's Shredded Artwork known as "Love is in the Bin". An unexpected twist happened during a Sotheby's auction in 2018 when Banksy's "Girl with a balloon" sold for over a million pounds. What happened next was an orchestrated self-destruction act as the art was shattered in its frames. The shredding was the latest in a long history of unpredictable moves by the street artist, who rose to fame for his stencilled graffiti pieces, often highly satirical, on buildings in Britain and worldwide. ("From the bin to the auction block, Banksy's infamous shredded painting goes on sale", 2021)

This unexpected move defied the conventional expectation that destroying a work of art would diminish its value. The opposite happened when the chopped piece's name was changed to "Love is in the Bin". Thus, it has become a symbol of contemporary art and a cultural phenomenon. The case transcended traditional boundaries of art creation and reception and sparked global debates about the nature of art, ownership, and the unexpected effects of artistic interventions on social perspectives. Banksy's Shredded Artwork is an example of how art released into the world can escape the control of its creator and take on an unexpected life and impact beyond its original intent.

An artistic experience doesn't conclude with the creation of art and the intention behind it. But rather it extends into a dialogue between the artist and the spectator. This interaction transcends various art forms and extends into broader domains like architecture or urban design. The challenge of art lies in crafting methods and tools that, as formulated by Bartlomiej Piechowski-Jozwiak: can be appreciated despite cultural, religious, and economic differences across time. (Piechowski-Jozwiak, 2017) How does art achieve this?

According to the “Universal Connection through Art: Role of Mirror Neurons in Art Production and Reception” study, the primary aspect that allows any art piece to speak to any audience is the concept of the archetype in visual art, which was indirectly suggested by the psychoanalyst Carl Gustav Jung:

> “An image can be considered archetypal when it can be shown to exist in the records of human history, in identical form and with the same meaning”. (Jung, 1981)

Jung’s idea was that archetypal visual elements, found throughout history, starting from primitive art and to these days, with consistent meanings, are deposits of the repeated experiences of humanity. This recurrence uncovers the existence of a shared human visual language that transcends cultural and historical barriers, allowing for a subconscious and automated interpretation of symbolic art.

A perfect example of this phenomenon is visible in Stanisław Andrzejewski's artwork "Destiny" (1988). He himself describes it like this:

A form of the boat symbolizes human journey through life. It also symbolizes the cradle. It is the boat, which we wander through the world, which protects our home, bed, which gives us rest. In the end this is the boat of Haron, which takes us for the final journey to the other side of the Styx. (Piechowski-Jozwiak, 2017)

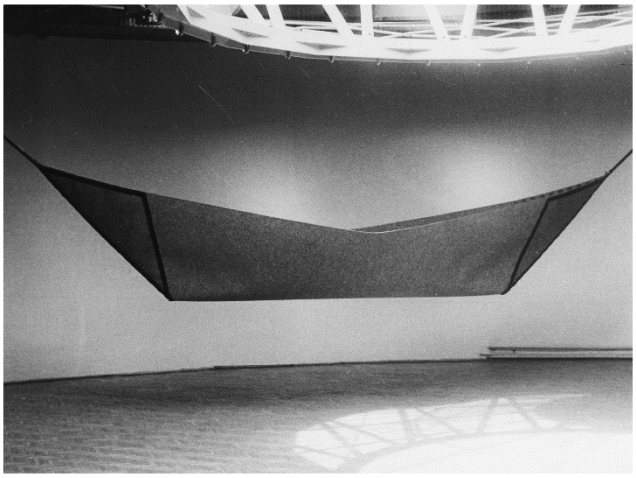


**Figure 8.** Stanisław Andrzejewski "Destiny" 1988, material: filt, leather, 140 × 900 cm.

In this example, Andrzejewski refers to the Greek mythology, emphasizing the universal themes of life's journey and transition. Here we can observe how integration of archetypes and symbols acts as an artistic bridge, allowing perceivers from diverse backgrounds to connect with and comprehend artistic expressions. Thus, this universal language provokes a dialogue between the creator and the spectator, leading both parties to a shared experience that transcends the boundaries of culture, religion, and time.

The next, rather deeper level of artistic connection is one that emerges through interaction. Apart from (1) interaction directly with a piece of art, we are also referring to (2) social interaction that is fostered in the process of artistic experience.

(1) According to Noel Carroll, the art object is something designed to provoke a certain form of response, a certain type of interaction. The canonical interaction with art involves the aesthetic (however that is to be characterized). (Carroll, 1986) But in this part we would like to delve into the world of art which blurs the boundaries between art's performance and the spectator's experience of it. On the following example we will observe how art can engage the viewer into its' performance and provide a new depth to the artistic experience. The illustration of this can be found in an installation featured in the "Connectivity" exhibition at the McColl Center for Visual Art in 2013. Beth Galston's "Luminous Gardens" created an immersive

environment intended to convey a mood or certain ambience as viewers walk through the space. (Balcerek, 2013) In her work Beth went beyond the average viewer-artwork relationship. The installation transformed the act of viewing into an active and participatory engagement. As viewers navigated through the space, Galston's creation played with light and shadow, evoking the sensation of walking through an underwater garden. Thus, the art piece forced spectators to become performers in some way, shaping the evolving narrative of the installation. This example underscores how art can possess the power to redefine the dynamics of artistic engagement and provide a deeper, more immersive experience of the creative process.

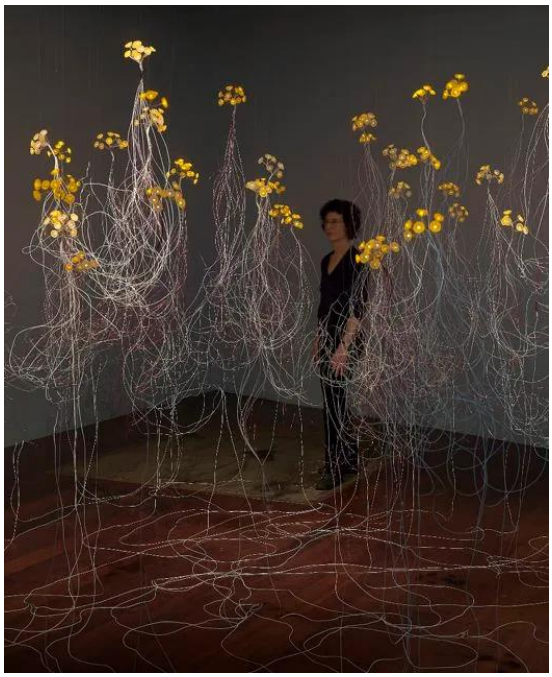


**Figure 9.** Beth Galston, "Luminous Gardens."

Photo courtesy of the McColl Center for Visual Art

(2) Another connecting aspect of art is its impact on social interactions that grow out of the primary interaction with an art object. An excellent example for exploration of this phenomenon is Olafur Eliasson's temporary installation called Ice Watch that took place in 2018. The art object was meant to serve as a physical reminder of the impact of climate change on the environment. The hunks of ice were scattered across two major locations in London: 24 in a circular grove outside Tate Modern and 6 additional blocks outside the Bloomberg headquarters.

**Figure 10.** Ice Watch, 2014. Bankside, outside Tate Modern, London, 2018.

**Figure 11.** Ice Watch, 2014. Bankside, outside Tate Modern, London, 2018.

As a promo for the installation Eliasson himself wrote a following description:

> "The blocks of glacial ice await your arrival. Put your hand on the ice, listen to it, smell it, look at it – and witness the ecological changes our world is undergoing. Feelings of distance and disconnect hold us back, make us grow numb and passive. I hope that Ice Watch arouses feelings of proximity, presence, and relevance, of narratives that you can identify with and that make us all engage. (…)" (Eliasson, 2018)

Ice Watch stands out as a remarkable example of art using its surroundings - urban, natural, and social contexts, as the setting for its performance. In this unique installation, people overcame the traditional role of passive observers to become dynamic participants. The installation invited spectators to actively engage with the melting ice, influencing its transformation as well as the speed of its disappearance. Furthermore, it fostered social interactions among on-site individuals and within the broader public media space. The multidimensional impact of Ice Watch showcases art's ability to push traditional artistic boundaries and stimulate a rich interplay between art, environment, and human interaction.

### 1.1.3. Architectural and urban connectivity

In the first section of this chapter, we laid the groundwork for understanding the essence of what makes connecting architecture. Now, it is time to explore a deeper side of this phenomenon. In this section we will try to unravel the universal methods and strategies that, when properly utilized, have the potential to create a sense of connection in any architectural space: from small individual projects to vast urban spaces.

Drawing parallels between artistic and architectural experience, we can differentiate two primary aspects: the way architecture is perceived, and the impact it makes on the social realm, i.e. human behaviors and interactions. Both are tightly interconnected in architectural and urban environments.

Just like with artistic experience, in the process of perceiving architecture, one of the primary aspects is a symbolic interaction with an object or a space. As formulated by R. Smith, symbolic interaction helps to explain fundamental connections between architecture and human thought, emotions, and conduct. (…) Symbolic interaction theory reveals that this designed physical environment is not merely a backdrop for our behavior. Quite the contrary, because some designed physical buildings, places, and objects act as agents to shape our thoughts and actions; they invite self-reflection. (Smith, 2006) Therefore, architecture is not simply the 'design of buildings' that are mere physical enclosures. (…) it is an expression of thoughts, preferences, beliefs and emotions in built form, symbolically communicating and imparting relevance to its users. (George, 2005)

This symbolic communication is, in fact, a tool which architects and artists use to speak to the user, narrating a story that evokes their senses, self-reflections and feelings of relatedness to a space or an object. And since architecture is spatial communication, it is all about how effectively the designer can induce definite meanings in its users through effective signifiers; be it forms, patterns or any graphical equivalents. A review of history of architecture

establishes that 'instilling meaning' can be effectively achieved by way of architectural symbolism. (George, 2005) It can be manifested through the forms of universally recognizable symbolic elements such as nature, emotions, life, time, death etc. Or it can tailor its symbolic language to address specific audiences through their unique cultural or historical context. This dual capacity, operating both on a universal and culturally specific level, enhances the richness of the architectural narrative and is present in most good architectural creations. It is the simplest yet at the same time the most intricate and powerful language of communication through architecture.

Apart from the symbolic connection architectural theorists identify several other key influential principles of effective and connecting built environment. Amongst them are spatial continuity, sequential movement, scale and proportion, social interaction and participation, etc. (De Botton, 2008)

The principle of spatial continuity highlights the importance of creating a seamless and connected flow within the urban and architectural environments and, most importantly, their interrelation. As articulated by Myungshig Kim, (…) the form of the continuity in architecture appears between architecture space and urban open space. A building form holds both spaces. It means architecture of connection to be consummately affined and to be a unity of the complex whole which is a profound projection of harmony that all around it is located, because it corresponds to the surrounding contexts, and because it produces its meaning, as a form of arts, on individual, public, and society with “the undisturbed composition,” “the geometrical perfection,” and “the communication of the beautiful.” (Kim, 2015) Spatial continuity fosters a sense of coherence and interconnectedness that influences architectural connectivity. A unified and meaningful user experience is achieved through careful alignment of diverse elements, from smallest details to overarching structures.

Kim also emphasizes the symbolic parallel between architecture and the dual forms of spatial continuity and temporal continuity. In order to create meaningful forms that resonate

with our spatial existence in time and within the given physical environment, the principle of continuity must be integral to architectural design methods, as he emphasizes that architecture does not disrupt these continuities. From this perspective, architecture is viewed as a composite entity encompassing both spatial and temporal forms, grasping the meaning of physical and nonphysical dimensions.

Spatial continuities and discontinuities have a direct influence on the next highly important principle of connecting architecture – sequential movement.

Architectural space and the movement through it provoke people to behave in a certain way while being within it. Rajiv C. Shah believes that architecture can influence how people interact with each other. The social ordering can vary from merely encouraging informal interaction to the other extreme of restricting the movements of individuals. (Shan, 2007)

Understanding the power of organizing and structuring spatial movements is essential to be able to comprehend the impact architecture has on individuals their perception of it. As articulated by Andrea Simitch, choreographing the movement through space constructs formal relationships and reveals concepts. The order in which elements are experienced and the way in which they are framed become powerful lenses through which a work is given meaning. (Simitch, 2014)

In architectural and urban space, the main way to experience the artistic movement is primarily through walking. It is a simple practice that most people perform every day, yet it holds so much power in perceiving architectural space and being able to comprehend the idea that is hidden behind it.

> Through the act of walking new connections are made and remade, physically and conceptually over time and through space. Public concerns and private fantasies, past events and future imaginings are brought into the here and now, into a relationship that is both sequential and simultaneous. Walking is a way of at once discovering and

transforming the city, it is an activity that takes place through the heart and mind as much as through the feet. (Rendell, 2006)

Organizing interior and exterior architectural spaces based on walking patterns holds power to represent meaningful metaphors and ideas or even to guide people to social encounters and interactions.

The Military Museum in Dresden serves as an exemplary illustration of how architecture masterfully combines symbolic meaning, spatial continuity, sequential movement, and form to articulate a captivating narrative of time.

**Figure 12.** Studio Libeskind, Dresden's Military History Museum, 2011. Main facade. Photo by Hufton+Crow

Daniel Libeskind's design boldly interrupts the original building's symmetry. The extension, a massive, five-story 200-ton wedge of glass, concrete and steel, cuts through the 135-year-old former arsenal's structural order. ("Dresden's Military History Museum / Studio Libeskind", 2011) The wedge-like volume creates a symbolic movement, showing the newly rebuilt city, but at the same time pointing to the self-similar triangulation in the bombing of Dresden within these three points. The new design of the building interrupts and gives a specific direction to present the city's and country's history not as a one more glorification of what the military is, but why do people participate in such histories, why do they follow totalitarian leaders.

In the plan a clear u-shape of the old, restructured armory is visible. The plan within it is organized in a horizontal chronology of the German military history. And then there is a vector moving through the opacity of the structure, penetrating and going outside its original boundaries.

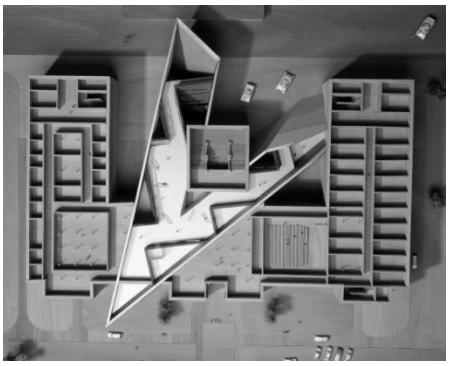


**Figure 13.** Studio Libeskind, Dresden's Military History Museum, 2011. Model of the layout

This dramatic space with oblique vitrines, a totally different orientation disrupts the chronology exactly between 1914 and 1933. This purposeful spatial separation leads to the point towards the city from which a perceiver can understand and towards which they can apply the fact the history has been disrupted.

Daniel Libeskind in his presentation "Architecture is a Language" at TEDxDUBLIN describes the deep meaning behind the idea and the specific way expositions are arranged in the interior of the building:

> 'It is I think an interesting lesson in how wars, how violence is actually perceived by those who perpetrate it and those who experience it. At the end of this journey, you jut out to a dramatic upward moving wedge and you see the rebuilt panorama of Dresden, you see the fragment (…) But just to your side the wedge moves towards the point from which Dresden was bombed and I wanted people to (feel) that complexity that history has that past in a true way, pointing to the devastations to the crimes of history which can never be re-thought, which can never be reversed but at the same time that there is hope that the city has a new light.'

In architecture theory there exists another crucial principle of effective connecting architecture – it is a principle of participation. It implies that individuals and communities are actively involved in the design, planning, and use of architectural spaces. As articulated by Jane Rendell, it is not then simply that space is socially produced, but also that social relations

are spatially produced. (Rendell, 2006) The idea is to move beyond a top-down approach where architects dictate the form and function of spaces and instead involve the end-users, residents, or the broader community in shaping the built environment, which in the future will play a role in shaping them as humans. This approach fosters a sense of ownership and responsibility, and it helps to ensure that spaces are tailored to the needs and values of the people who will use them. It also provides a feedback loop that allows for continuous updating and improvement.

In his book "Architecture and Participation" Peter Bundell Jones expresses an idea that architecture has become too important to be left to architects. A real metamorphosis is necessary to develop new characteristics in the practice of architecture and new behavior patterns in its authors: therefore, all barriers between builders and users must be abolished, so that building and using become two different parts of the same planning process. (Jones, 2013)

Another side of social participation in architecture is the interaction with the built environment the happens after it is constructed. Active engagement with cities and buildings is what makes them alive. And if the spaces are created in a way that footers the social interactions, rather than restricting them, the society that inhabits those places flourishes and evolves. This complex interaction of all parties involved in creation and usage of architecture transforms it into a living entity, responsive to the needs, aspirations, and activities of its users. The relationship between people and the built environment is crucial in shaping the identity, integration and functionality of spaces, while also making them, in a way, active participants in society's life.

The built environment can affect social interaction. A simple example is how hallways tend to discourage social interaction, while circular rooms tend to encourage it (Osmond, 1957). A prominent urban-scale example of how architecture facilitates social interaction is found in the creation of open-space plazas within New York City. Historically, the city has negotiated with developers to create plazas since 1961. Early plazas tended to be vast and underutilized. According to Roger Trancik's definition they would be referred to as "lost

spaces". (Trancik, 1991) However, following the suggestions of an urban study conducted by William Hollingsworth Whyte (1988) the city incorporated (his) proposals when bargaining with developers. The result was the creation of new plazas that are popular places for enjoyable social interaction. (Gifford, 2002) His proposal included incorporation of urban elements that provoked interactions with the space and people with one another, such as sitting places, fountains, food stands, activities to watch, etc. Thus, using simple architectural elements and techniques public spaces of New York started transforming into lively gathering places rather than vast free spaces at the bottom of skyscrapers.

Having explored the fundamental aspects that contribute to architectural connectivity, it is important to acknowledge the other tools at the disposal of architects that can be as essential as the ones we have already discussed. These range from fundamental architectural features like scale, proportion, ergonomics, light, and shadow to vaster and more abstract yet influential concepts like correlation with cultural and historical context. By effectively combining these elements, architecture can create a stage for establishing a profound sense connection to itself and (or) between those experiencing its influence. Although this work will not discuss each tool extensively, it acknowledges their importance and their role in telling the story of architectural connectivity as a whole.

In conclusion, this chapter explores connectivity as a multifaceted phenomenon that extends beyond the realm of architecture while deeply penetrating and transforming it. It is impossible to define if architecture produces a sense of connection or, on the contrary, if the social realm shapes the connection of its built environment. In this discourse, there is no singularly 'more important' factor. Just like art and architecture cannot be viewed without one another, social and architectural connection cannot exist separately without influencing each other. This chapter defines that the main principles of connectivity within the built environment are spatial continuity, sequential movement, scale and proportion, social interaction and

participation. However, there are many other factors that when combined have the potential to create a rich tapestry of connectivity within architectural and urban environments. In essence, architecture is a complex entity intertwined with interconnected physical, spatial, symbolic, and socio-cultural contexts. Therefore, rather than being framed within hierarchical distinctions, these aspects should be viewed as equal complexities, forming the holistic foundation of architectural and artistic experiences.

## 1.2. Water and architecture

### 1.2.1. Water as a symbol

*"Water, in all its forms, is what carries the knowledge of life throughout the universe."*

Masaru Emoto

In the process of becoming aware of man's separation from nature and becoming a socially conscious individual, society's complex relationships with the surrounding world also developed: the struggle against incomprehensible natural elements and the realization that we were part of it. In order to make it more understandable, we explained that nature is full of spirits and gods due to being yet unable to logically or scientifically justify them. Thus, from the beginning of human history, water and other elements of nature acquired a mystical and religious meaning.

Wylson (2013) argues that water not only provides a basis for man's existence and a continuous challenge to secure its use, but it is a source of metaphysical symbolism, aesthetic pleasure and therapeutic value. Water gives expression to nature's moods and provides substance to seasonal change. Landscape is fashioned by water, which as cascades, resurgent sea or reflective calm, bears witness to a beneficial universe.

Water plays a central role in the mythology, religion, and rituals of all cultures. Many cultures worldwide have folklore which shows that water can be both a creator and destroyer of life. Creation stories, for example, have generated a wealth of water-related myths. These myths often share the same contradictory attitudes of fear and fascination with the water, a dichotomy which is an important part of folklore all around the world (Pasternak, 2009). Mermaids, for instance, are depicted as good in the Ancient Greek epic poem The Odyssey, while sea monsters are depicted as evil. Moreover, many creation stories describe a catastrophic flood destroying

**Figure 14.** Noah’s ark in a woodcarving by Jost Ammann, 1567 (Flesche, 10)

life. Noah's Ark is a classic example of this, where Noah built a houseboat large enough to fit a farmyard, an aquarium, an aviary, and a zoo to save life from extinction. As well as in mythology and religion, historical exploration of water as a symbol in architecture reveals a rich tapestry woven with the cultural threads of civilizations around the world.

In the **classical world** water not only possessed a deep symbolic and cultural meaning but also was an essential part of society’s life as well as their whole built environment.

The topography and strong Greek tradition led not only to a close relationship between buildings, natural landscape and water scenery, but also to the integration of water-based leisure and non-utilitarian uses within the building complex. Greek water technology had provided a range of innovative applications. These included pressurized water, aqueducts, fountains to enrich public squares, and more frivolous devices such as water organs and simulated sounds for the Hellenistic gymnasium, the educational centre in Greek life. (Wylson, 2013)

There is no doubt that the Romans also recognized the therapeutic and social benefits of bathing. The massive thermae structures provided a significant social amenity in Roman society by combining technical, architectural, and engineering skill. The aqueducts of imperial Rome provided immense supplies of water necessary for the 121 public fountains, 11 imperial thermae, 926 public baths and the many private establishments. (Wylson, 2013)

Architectural values and planning forms established by the classical world were revived during the Renaissance after the Middle Ages released aspirations. Water regained an architectural significance, as an essential component of civic spaces, as an element of pleasure and as a context for urban maritime activity.

In **Islamic world** water holds a deep symbolic meaning and signifying purity life and spirituality. It plays a central role in religious rituals and, as an outcome of such profound cultural significance, is present in various aspects of Islamic architecture. Ismail Zarghami (2015) argues that water in Islamic traditional architecture reached to its higher spiritual position in a way that by investigating the buildings in this era we can find out the symbolic role of water through philosophy and theology.

Mesopotamian ziggurats included flowing water as a representation of holiness, creating a link between the earthly and divine realms. The water gardens of the Mughal Empire of India are a testament to the symbolic role of water in creating paradisiacal landscapes, reflecting the beauty of heaven on earth. Iranian water-houses which were created in dry or low water areas were always considered as an act of purchasing paradise Blessings (Khosravi, 1998). It can be said that both performance and the holiness aspects were presented together in order to create beauty. (Zarghami, 2015)

Much of Afghanistan's Buddhist past has been erased as Islam spread over. But amongst the remaining structures, stupa of Takht-e-Rostam stands out (Figure 15). The stupa of the Haibak complex in the Khulm Valley of Afghanistan (AD fourth and fifth centuries) consisted of a cupola form surrounded by a ring of water, symbolizing Earth and ocean; the stupa itself was a structure without interior space representing the universe from outside. (Wylson, 2013)

**Figure 15.** Stupa of Takht-e Rostam, Haibak, Afghanistan

Similarly with the Roman culture, Islamic tradition places a high value on bathing, with hammams serving not only as spaces for physical cleansing but also as sites of communal and spiritual significance.

**Oriental culture** has long advocated harmonious existence of humans and nature, that is, respecting nature and the water environment. The Chinese traditional water culture emphasizes harmony between man and nature, which respects and cherishes water, abides by the rules of the hydrological cycle, adapts and applies water resources in a moderate way, and lives in harmony with the water resources environment; it is essentially an ecological culture. (Xiaojuan, 2021) In the Lao-tzu, the natural way is compared with the ways of water: 'there is nothing softer and weaker than water, and yet there is nothing better for attacking hard and strong things'. (Wylson, 2013)

Transitioning to Japanese culture, a similar reverence for the harmony between humans and nature can be seen. The early Japanese religion was a polytheistic form of worship that focused primarily on the beneficent forces of nature, including water. Spirit and matter co-existed as equals in their system of beliefs.

Lastly, it is important to discuss a role of water in **Ukrainian culture** to be able to understand the context of our future thesis project. In ancient Slavic tradition, water held a profound importance as a symbol of purity and life. From folklore we learn that the Slavs, having religious beliefs similar to the cultures discussed earlier in this chapter, viewed natural forces as sacred, personifying them as entities. Multiple mythological creatures and gods were associated with water in ancient Slavic culture. Springs, rivers, and lakes were considered sacred, often revered as sources of divine energy with rituals and ceremonies conducted near water bodies. The arrival of Christianity in Kyivan Rus (modern day Ukraine) marked a transformation in the perception of water, integrating familiar to modern society religious symbolism into cultural practices. Baptismal rites became central, emphasizing spiritual purification through water. Ukrainian architecture, influenced by Christian

traditions, incorporated water features mostly in religious architecture. Water continued to play a crucial role in religious ceremonies, symbolizing spiritual rebirth and cleansing. This evolution reflects the synthesis of pagan and Christian influences in Ukrainian culture, where water remains a conduit for both ancient traditions and Christian spirituality.

### 1.2.2. Water-based architecture typology

Water elements can be conditionally divided into objects of natural origin (sea, river, lake, waterfall, pond, etc.) and man-made (lake, pond, waterfall, pool, fountain, etc.). (Bulakh, 2023) In this part we will mostly discuss the typologies of architecture built around pre-existing natural water bodies.

In architectural theory water-based architecture is often referred to as "Aquatecture". The term Aquatecture originally appeared in Anthony Wylson's book Aquatecture, written in 1986. By his definition, "Aquatecture" is 'architecture associated with the element of water. It implies an awareness of the architectonic qualities that water can provide, as well as an appreciation of the water element in its architectural context'. (Pasternak, 2009)

Given the diverse applications of the term Aquatecture, various academics have provided different interpretations of it. For the purpose of this research, we will be using Rebecca Pasternak's categorization of it into three groups: stationary projects, floating projects, and floating mobile projects.

Table 1. provides distinctive characteristics of each typology.

| | |
|---|---|
| **Stationary Projects** | Include constructions ranging from artificial islands to offshore drilling platforms. Projects can be residential, commercial, industrial, institutional, or a combination of uses. These projects can be made of traditional building materials, in this case they exist either under or over the water, or they can be made of water (ice), in this case they exist on land. Buildings must have a permanently fixed location. Projects built on water must be firmly attached (built on stilts and piles) to the ground below. Projects built on land must be made of ice. |
| **Floating Projects** | Floating projects move vertically (rise with the tide) and not horizontally (across the sea). They are mostly stationary, except in the event of extremely high tide. The construction rises up when water levels rise and then sink when they return to normal. In addition, these projects are always connected to the coast in some way, whether it is through a bridge connected to the land, or whether the project itself is partially built on land. Projects can be residential or institutional. |
| **Floating Mobile Projects** | Floating mobile projects move horizontally across the sea. This typology differs from the other two in that the structure is intended to be mobile. The term can refer to a houseboat, a small settlement or a large floating town. |

**Table 1**. Aquatecture typology chart

It is worth noting that within the realm of architectural design, apart from water-based architecture, there exists a category of structures that incorporate water elements without the building being constructed on top or under it. Such architectural objects integrate water features for aesthetic, functional, symbolic, religious or other purposes. This broader category

encompasses designs where water serves as a dynamic and integral component, contributing to the overall spatial experience and/or functionality. Elements such as water walls, reflective pools, fountains, basins or aquatic gardens can be employed, creating an immersive and harmonious relationship between the built environment and water, embracing its unique features in various states and forms.

Evidence has shown that natural spaces, especially urban green spaces and waterscapes (water and riparian areas), can lower exposure to air pollution, extreme heat, and noise, increase opportunities for physical activity and social engagement, and decrease stress and depression by contacting with nature (Zhang, 2021).

The use of water as the main element of living space implies its active integration into the architectural environment and even its involvement in the creation of new architectural forms. Since liquid water does not have a stable form, it cannot be an independent material of architectural formation.

It is possible, however, to use water as an inner layer of enclosing structures. For instanse, this principle was used in a house with algae powered panels in Hamburg. The system was created primarily for energy efficiency and microclimate regulation purposes, however the aesthetic aspect of the design benefited from this as well. The algae are continuously supplied with liquid nutrients and carbon dioxide via a water circuit running through the facade. (“Arup unveils world's first algae-powered building”, 2013)

### 1.2.3. Aesthetic and sensory aspects of water integration

In a world of extravagant textures, colors, and flavors, who would have thought that a substance that has no color, no smell, and no taste is precisely the most essential for human existence? (Ghisleni, 2023)

In architecture, water is frequently harnessed for its reflective properties, adding another layer to the understanding of the built environment. Beyond reflections, transparency is an attribute that water brings to architectural designs. But this is far from all the properties of water that can be exploited in architectural design. Besides being an aesthetically pleasing "surface" next to or inside a building, water can be active, its state can change (from still to moving, from solid to liquid etc.) and invite people to all kinds of interactions with it and/or with each other.

There is no doubt that water can manifest in a variety of ways in the architectural context, each contributing to the user's experience of a space in a unique way. Water with its features of balance quells the frameworks just as our personalities. Water's thoughtful possessions, alongside the clear impacts of running water, cracks architects as an instrument for producing enthusiasm and space. (Rana, 2013) Still water promotes contemplation and tranquility. *(Figure 16: a)* The introduction of moving water adds dynamism and aural elements, additionally influencing the auditory experience of the environment. *(Figure 16: a, b, c, d, e)* Frozen water creates a novel interaction with the built space. (Figure 16: e) The ethereal presence of water as mist or fog adds an atmospheric quality, softening edges and creating a sense of mystery. As the creators of The Blur Building pavilion *(Figure 16: f, g)* for Swiss Expo 2002 described this effect: "Unlike entering a building, the experience of entering this atmosphere is one in which orientation is lost and time is suspended. We want to exploit the lack of definition characteristic of this atmosphere in order to create an experience of heightened attention to be sustained over a long period." (Scofidio, 2002)

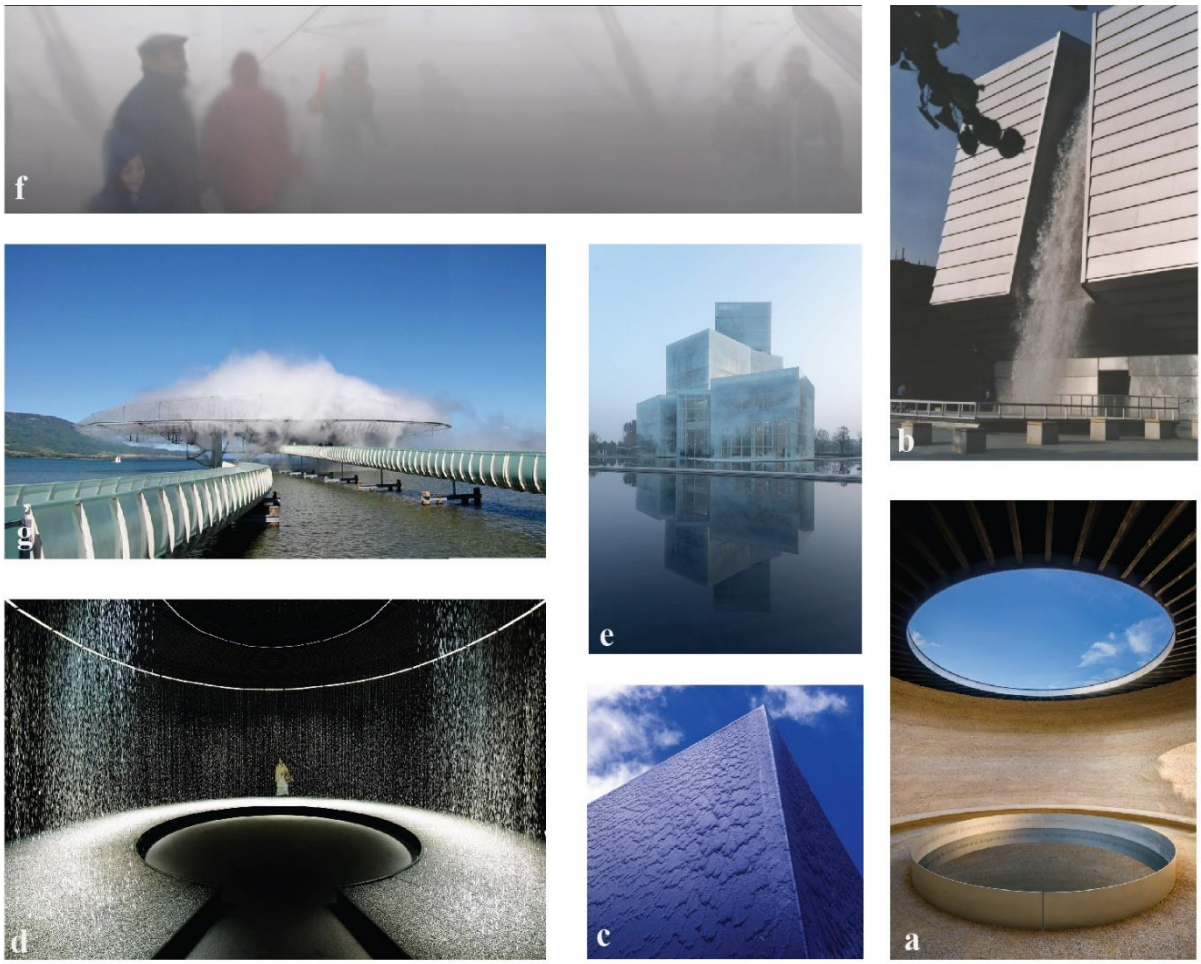



**Figure 16.** (a) Writ in Water. Studio Octopi, 2018; (b) EXPO 2000: Pavilion of Norway; (c) EXPO 2000: Pavilion of Iceland; (d) Light in Water. DGT Architects, 2015. Paris; (e) ICE CUBES. Mathieu Forest Architecte, 2021; (f, g) Blur Building, Exposition Pavilion, Swiss Expo. Diller Scofidio + Renfro, 2002.

**Figure 16.** Water manifestation in architecture

The transformative nature of water, transitioning between vapor, liquid and solid states, introduces an ever-changing artistic dynamic. By strategically integrating these diverse states, architecture can influence users' emotions, create unique artistic experiences, engage their senses, and shape their spatial perceptions. Whether it serves as a calming backdrop, an interactive feature, or an atmospheric veil, water plays an important role in shaping artistic and architectural experiences.

Overall, in the long history of mankind, the relationship between man and water has gone through a process of the attachment of man to water, the struggle between man and water, and

the symbiosis of man and water. (Xiaojuan, 2021) Water is an inseparable aspect of humanity's life starting from the basic physical impact it makes on living organisms to climate, economy, culture, social realm, and of course – built environment. Water is an integral part of cities and often smaller architectural objects as well. The user experience and perception of water-integrated architecture go beyond the visual and functional and are strongly connected to the emotional and social aspects of design. The psychological effect of water introduces a dimension of calm and well-being, which can improve the mental health of the perceiver. At the same time, the social dynamics fostered by community spaces with natural or artificial water elements emphasize the role of architecture as a shaper of living, active communities. Exploring the world of user experience and perception of water-integrated architecture, we unravel the complex layers of human relationships integrated into the fabric of our built environment.

## 1.3. Cruise ports and their architectural features

### 1.3.1. The urban identity of port cities

With the rapid settlement development in the industrial era, the intense urbanization of waterfront areas in the cities began. With the location being a competitive advantage for maritime industries, mostly transportation and production facilities took over the coastal areas. This, in turn, led to the disruption of the urban fabric and created a barrier between the city and the water. Moreover, it led to the rupture of historical and cultural ties with old cities and disturbed the ecological balance in the waterfront areas.

Comprehending this historical context facilitates understanding of the emerging concept of "port identity" and its role in reestablishing connections between port facilities and urban communities.

The term “port identity’ has been established relatively recently, setting itself apart from established notions like national, regional, city, or local identities. According to Robert Lee each port city has a distinctive urban identity that shapes how the port and the city interact (Lee 1998). Hooydonk (2009) discusses port-city identity by emphasizing the loss of identity due to industrial ports’ malpractices toward incorporated comprehensive plan for the management of soft values of seaports such as port heritage, architecture, and cultural initiatives of port authority. Boelens (2009) argues that the maritime identity of each port-city also formed in response to different stages of urban development and of seafaring and transport/trade-related urban strategies and policies. Overall, present day urban development tendencies are moving towards emphasizing the importance of a dynamic maritime identity and water-related heritage values to historic port cities, and have identified the role of a vital port city interconnection in urban renewal and the redevelopment of urban areas because of rapid urban change and socioeconomic makeovers. (Hein, 2020)

In order to assist in designing the conceptual frame of port identity, Bayazit1 and Kirval in their “A Method Proposal To Determine Cruise Port Identity” (2018) proposed a unique method to determine cruise port identity and utilize the results as a basis for development strategies creaion. The methodology focuses on defining and determining the quantitative criteria for port identity, particularly in the context of cruise ports. The methodology contains following urban features that must be analyzed in order to identify the port city identity:

- Historical-cultural places
- Natural places
- City center
- Traditional food and drinks places
- Coasts and beaches
- Endemic places
- Sport facilities
- Touristic information desks
- City markets
- Malls

The practical usefulness of the presented methodology is based on its ability to provide a structured and systematic approach in identifying, understanding and leveraging the quantitative aspects of port identity. Thus, this tool can be utilized to facilitate the creation of effective maritime development strategies. A closer look at case examples and strategies for port redevelopment will follow in the next paragraph.

In the article “Architecture and water: in historical and present-day context” Kozachenko (2013. *Trans.*) emphasizes that at our stage of the development of the city and its social infrastructure, with its great information saturation, the developed service sector, which is no longer secondary, the most important factor is the well-being of the city as its environment.

Carola Hein (2020) suggests that each port city needs to consider more wide-ranging approaches for sustainable development, which includes their maritime identity past and

present. In her book a case study of Rotterdam Seaport is presented. In recent decades, the municipality of Rotterdam has invested tens of millions of euros to reinvent and memorialize Rotterdam's maritime identity and to recover the mutual relationship between the city and the port to make the faded image of the port vivid once more. (Hein, 2020) In order to revive its identity and connection to the city multiple steps were taken including waterfront redevelopment programs, entrepreneurial turn in urban policies, diversifying of the surrounding urban fabric, public transportation system expansion, local community involvement in the decision-making process, cruise ship tourism development, etc. Together, these strategic steps helped to revitalize Rotterdam's port identity, fostering a competitive and resilient port-city relationship while integrating the city's history and culture.

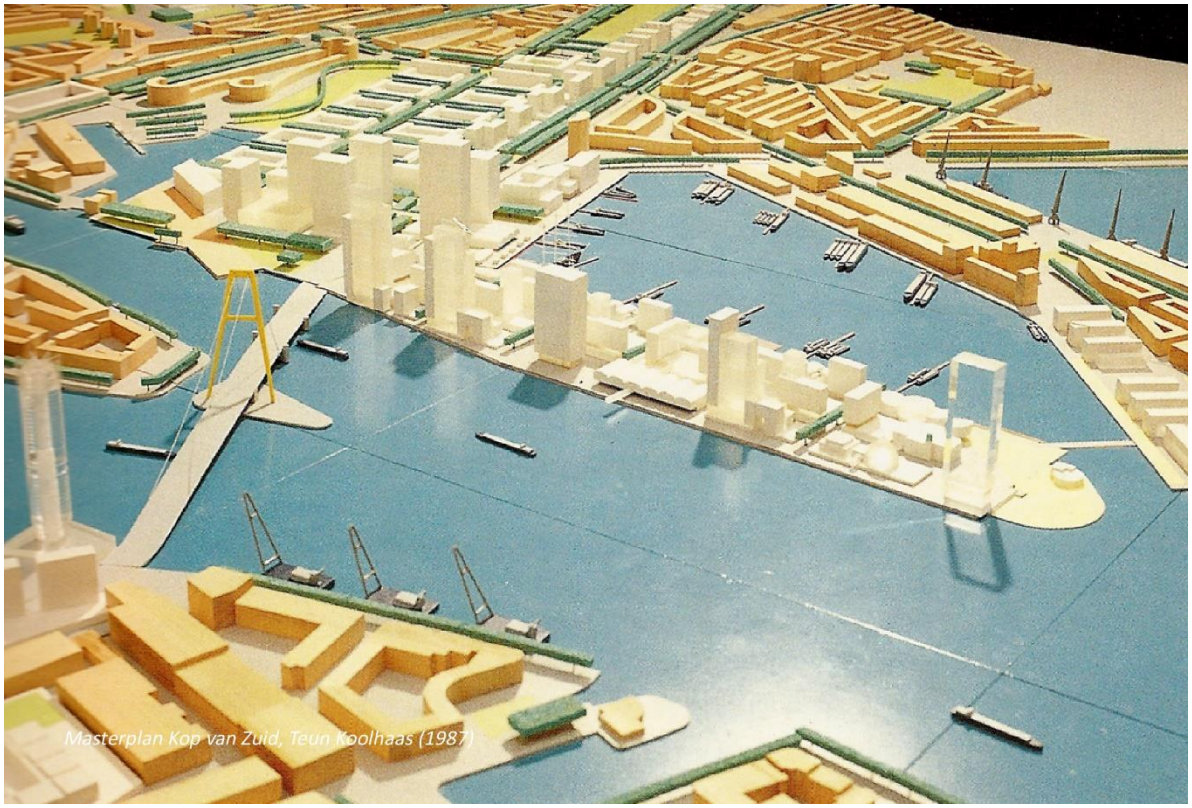



**Figure 17.** Kop van Zuid Rotterdam urban redevelopment project, masterplan model, 1987 – ongoing

### 1.3.2. Operational dynamics of cruise ports

Tourism and the development of tourism related infrastructure allow the flow of income and economic generation to the city. However, malpractices in cruise port design and city integration can seriously disrupt the present urban context, which in turn can negatively affect the social, ecological and economic order of the region. Therefore, it is crucial to study the operational principles of cruise facilities, their impact on the local context, and approach tourism and the associated infrastructure development with a sustainable and well-planned perspective.

Cheng (2020) systematizes the main functional order of cruise terminal facilities with the following steps:

1) **Cruise entry and exit.** The navigation channel, turning basin and berthing area for the cruise entering and leaving the port, and the tugboats that assist the cruise to berth and unberth.
2) **Terminal function.** Terminal facilities for cruise berthing and facilities for oil supply, water supply, power supply, fire protection, and garbage collection of cruises.
3) **Port operations.** Handling equipment for embarkation and disembarkation of tourists and crew, loading and unloading of cargo and garbage, etc.
4) **Terminal building.** Passenger service facilities such as customs, ticket check, waiting areas, entry and exit, inspection, baggage claim, dining, notice, and other facilities.
5) **Port entry and exit.** The function for passengers entering and leaving the port and a parking lot. That is the road, stop, parking and other facilities for passengers to get on and off.
6) **Other functions.** Commercial, catering, hotel, maintenance, warehouse and other facilities.

In his “Design and Practice of Cruise Ports” he argues that the water area layout of the cruise terminal includes the layout form of the terminal, the length of the terminal, the width of the apron, the elevation of the terminal, the turning basin, the approach channel and so on. The relationship between the location of the cruise terminal and the layout of other cargo wharves, bridges and river-crossing buildings shall also be considered. (Cheng, 2020)

Another important aspect of cruise port design is the movement patterns inside and outside of the facility. Edwards emphasizes that: "Terminals should use architectural means to distinguish between major and minor routes." (Edwards. 1998: 83). In his “The port, a point of entry: The design of new Cruise Liner Terminal at the point, for Durban” research Bexiga presents the following diagram that perfectly showcases the main movement patternt that must be considered in the cruise facility design process. (see Figure 18.)

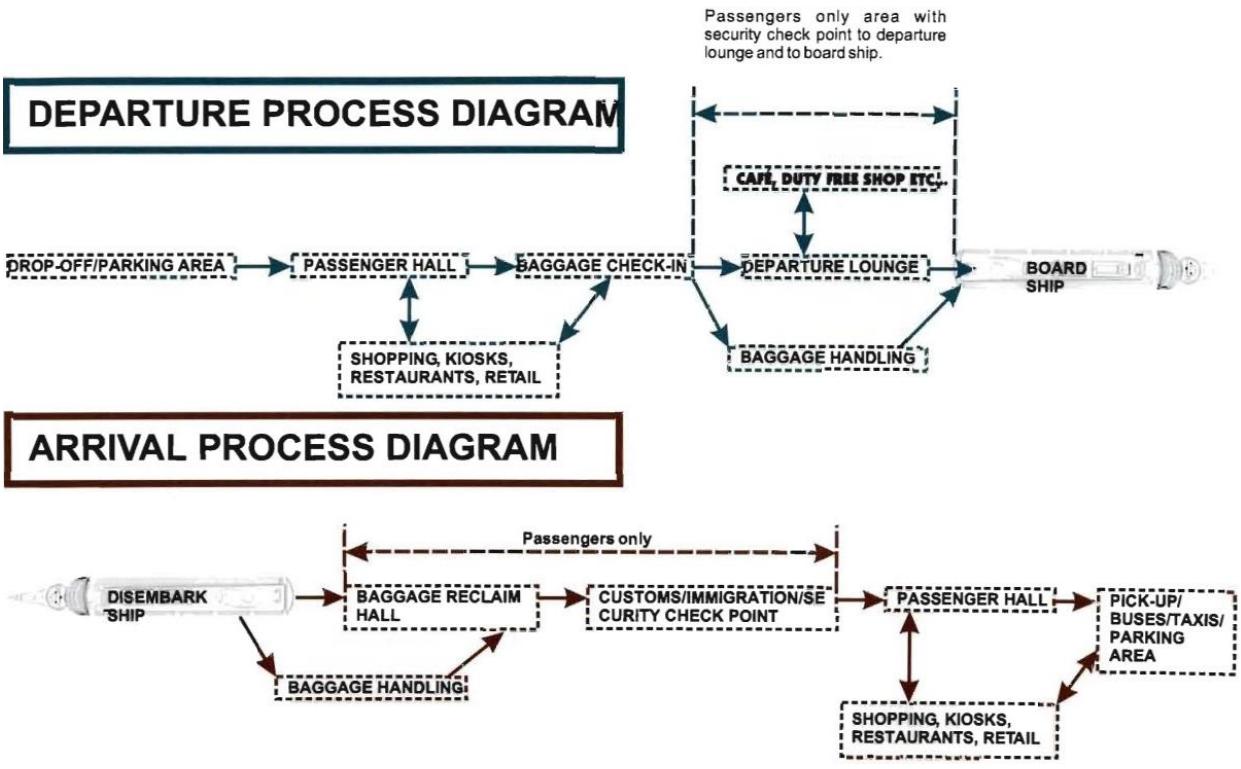



**Figure 18.** Flow diagrams of departure and arrivals process, by Bexiga, R. 2008.

Based on this diagram, it becomes clear that the processes that passengers go through in a cruise liner terminal is the same as in an airport. On departure, passengers need to check-in,

have their baggage handled to be placed onto the ship and move toward a security check point before boarding. On arrival, passengers disembark the cruise ship and pass through 'immigration before proceeding to reclaim their baggage. After which they then move through customs before entering the public domain of the terminal. (Bexiga, 2008)

Beyond the confines of the terminal building, urban connectivity plays an important role in creating a positive and effective interaction between the maritime hub and the surrounding urban context. This can be achieved by the introduction of well-planned transportation networks and infrastructure, i.e. efficient road systems and accessible public transit. This solution shall be implemented in a collaboration with other strategies, such as establishing pedestrian-friendly pathways and bike lanes, integration of smart mobility solutions, Collaborative efforts between port authorities and city planners, etc. Furthermore, to achieve effective urban connectivity, cruise terminals must be well integrated into the urban context in terms of visual connections, typology, culture and spatial organization. Preserving the natural context is equally vital: a terminal should feature green spaces, waterfront promenades, and sustainable landscaping, while minimizing disruptions to the natural environment.

### 1.3.3. Sustainable port development strategies

With the cruise terminal being located near the harbor mouth, it becomes a highly visible point of reference and serves as a point of entry. The terminal therefore serves as a gateway to the city and should reflect the current situation of its context. (...) Since the development of the new cruise liner terminal is a waterfront intervention, one needs to understand the human and environmental complexities that are involved. By recognizing that the design of the cruise liner terminal is a waterfront intervention, one can better respond to the context. (Bexiga, 2008) Moreover, the interventional nature of cruise ports demands a heightened commitment to sustainability strategies, ensuring that their design effectively integrates into the existing urban

and architectural context while minimizing global and local ecological impact. Based on the multiple studied literature sources, we can identify several port development sustainability strategies which will be reviewed in the following chapters.

In the modern-day port development trends, a clear transition from *replacing nature* to development *with nature* can be seen. This **Building with Nature (BwN) approach** is discussed in "Sustainable Approach to Port Development Construction" by Vizcaíno. It is based on learning by doing and design thinking methodologies, use the knowledge of the local physical- and ecological system as a starting point in the planning, design, construction and operations of a (new) port development. Where possible, natural processes are harnessed to strengthen the design and lower costs while, at the same time, enhancing the natural values of the project as a whole. (Vizcaíno, 2014) In this article the author presents a diagram of 5 steps that determine the BwN opportunities. (see Figure 19.)

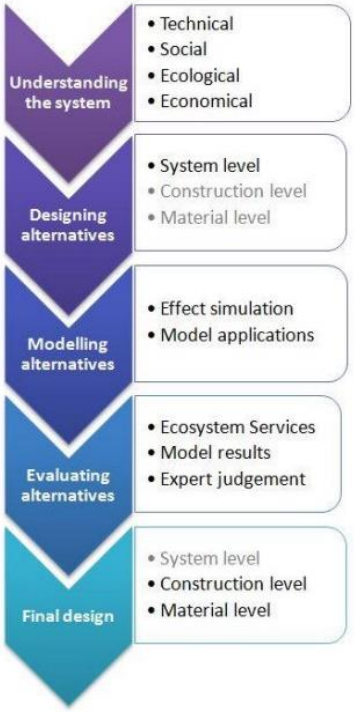



**Figure 19**. Five steps of determining the BwN approach opportunities diagram. Source: Vizcaíno, Rijks, Vellinga., & Lescinski. (2014)

The next important step in developing vital city port areas within the existing urban historical context will be referred to as **waterfront reintegration.** As an outcome of the aggressive industrial urban development, historical city cores became unnaturally separated from the waterfront areas by large-scale infrastructure and industrial zones. Therefore, the need for revitalization and urban reconnection arises in the present-day cruise port redevelopment strategies. In Hein's article on urban waterfront redevelopment this approach is discussed in the context of revitalization of the Genoa harbor case study. In this example, the return to the

city of waterfront areas that were formerly separated from the urban area was funded through exhibitions and events including planning for the capital of culture 2004. (Hein, 2016)

Another step that is tightly interconnected with waterfront reintegration is **urban revitalization**. This means comprehensive and strategic efforts aimed at renewing, restoring, and improving the physical, social, and economic aspects of an urban area. McCarthy specifies it as refurbishment of historic properties in decay, the improvement of access to the waterfront, the improvement of range of facilities in the area. (McCarthy, 2003) Analyzing and identifying the port city identity on this stage is crucial for producing a strategy that will respond to the historical, cultural, symbolic, social, and architectural contexts of the area.

**Public function integration** is another transformative strategy that brings in new opportunities to city port areas and allows the city to reconnect with its previously industrialized waterfront areas. This approach goes beyond the functional aspects of marine transportation facilities. By combining public functions such as recreational objects, cultural services or commercial activities, cruise port areas become dynamic and versatile extensions of the city.

**Establishment of visual connections** is another strategy of incorporating cruise ports into the local architectural and urban context. It involves strategic design and planning choices that enhance the visual integration of the cruise port with its surrounding urban and natural environment. Kozachenko provides examples of techniques that can be utilized in this context: determining the role of the architectural structure as dominant, or using the "ghost building" technique, when the reflection ability of the facing materials of the facades is used to the maximum and thus change the "visual weight" of the building. (Kozachenko, 2013. *Trans*.)

Finally, an essential component of port development strategies involves transitioning towards **carbon neutrality** across the building’s entire lifecycle. This approach includes various methods and tools like consideration of environmental impact, utilization of renewable energy sources, energy efficiency, Lifecycle Assessment (LCA), smart technology utilization,

i.e. Building Management System (BMS) and others, stakeholder engagement, regulatory compliance, etc.

In summary, this chapter investigates reasons and preconditions of disconnect between the urban core and waterfront areas of major port cities. Following this discussion, an overview of strategies and methodological approaches is made including the port identity concept and sustainable development strategies. Additionally, more precise and practical operational features and strategies are highlighted, emphasizing natural context preservation, transportation network development and community involvement.

## 1.4. Conclusions

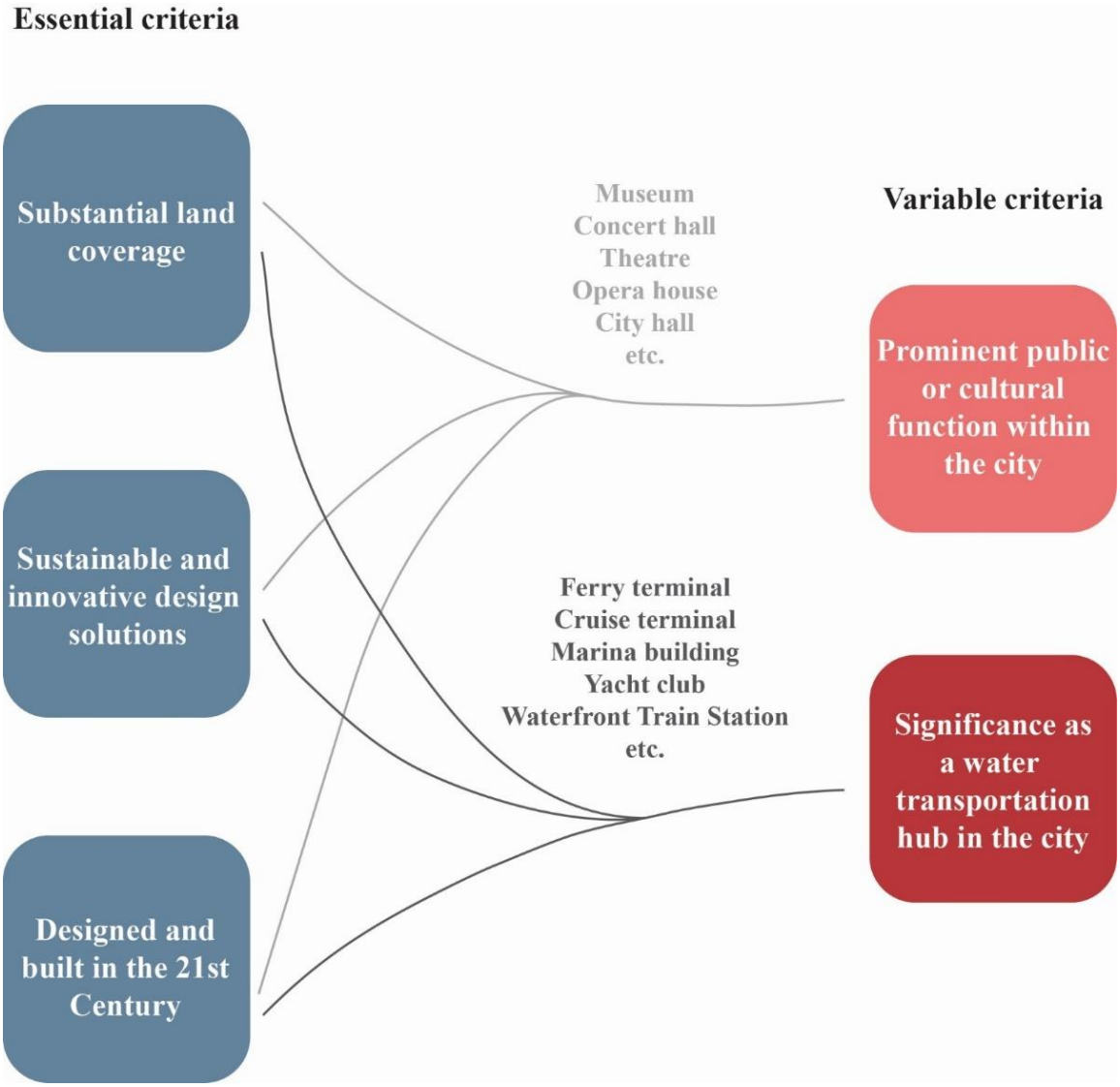
Connectivity is a multifaceted phenomenon that extends beyond the world of architecture, deeply penetrating and transforming artistic, social, and even cultural fabric of human life. It is not possible to define whether architecture creates connectivity or vice versa, if the social realm creates connections in the built environment. All we know is that connecting architecture is a complex entity intertwined with physical, spatial, symbolic, and socio-cultural contexts. The connectivity aspect becomes especially pronounced in the context of maritime transportation facilities that are, in essence, the gateways to the city and should reflect the local cultural, historic and architectural contexts. In this research the focus was set on cruise terminals as connectors between the maritime realm and urban fabric.

Following the main objectives and tasks of this study, we identified and comprehensively analyzed the complex interrelation between architectural connectivity, water-integrated design and cruise port development tendencies. The symbolic, functional, aesthetic, and sensory dimensions inherent in water-integrated architecture, as well as the impact of cruise ports on urban connectivity, were comprehensively explored. Furthermore, the study also delved into sustainable marine port development strategies.

This research sets the stage for a further practical application of the examined theoretical framework and development strategies in the form of a concept proposal for Odesa Cruise Port Revitalization. In a more global context, his study contributes a foundational understanding and invites further exploration of the rapidly changing realms of connecting architecture and its profound impact on our architectural environment.

## 2. Case study analysis

In this part, the main goal will be to analyze how the principles of connectivity and water-integrated architecture are used in contemporary public architecture at how it influenced its perception and user experience. We will examine projects related to water transportation facilities as well as analogues with prominent public functions within urban settings. This approach will help us expand our comprehension of the connectivity phenomenon without attaching it to a specific typology. In the process of choosing the analogue typology for this analysis, we are focusing on the following selection criteria:



To sum up, we can identify the following principles and guidelines for choosing the examples:

1. A design must be one of the following typologies: museum, concert hall, opera house, city hall, theatre etc.; ferry terminal, cruise terminal, marine port facility, yacht club, waterfront transport facility etc.
2. Analogues must be well integrated into surrounding urban fabric
3. Selected analogues should be designed with the integration of natural water bodies
4. Analogues must have a substantial land coverage
5. Architecture and urban solutions of each analogue must be sustainable and innovative for its time
6. The projects must be up to date (built after 2000s or later)

*Each case will be examined by the following criteria:*

Location

Transport and pedestrian connectivity

Street network

Plot structure

Movement

Layout structure

Volume

Relationship with nature

Materiality

# 1

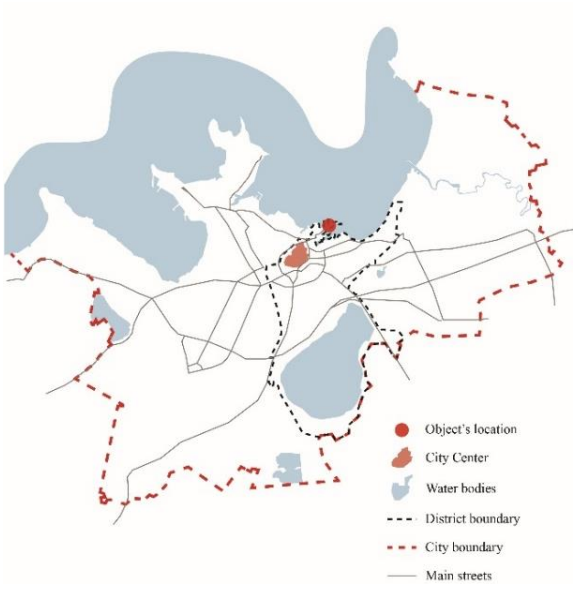
**Tallinn Cruise Terminal**

**LOCATION:** Tallin, Estonia

**ARCHITECTS:** Salto Architects, Stuudio Tallinn

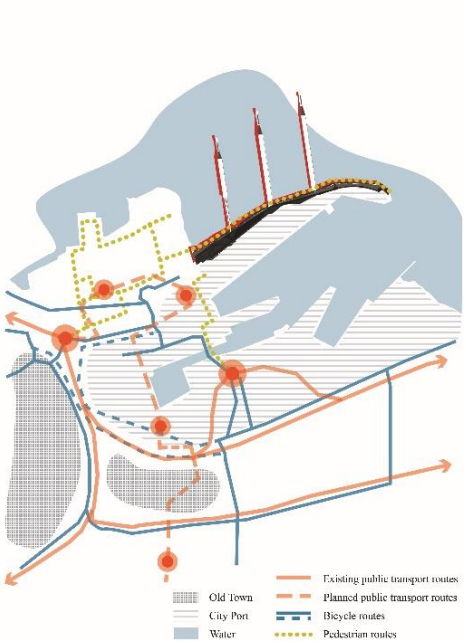
**YEAR:** 2021

## LOCATION



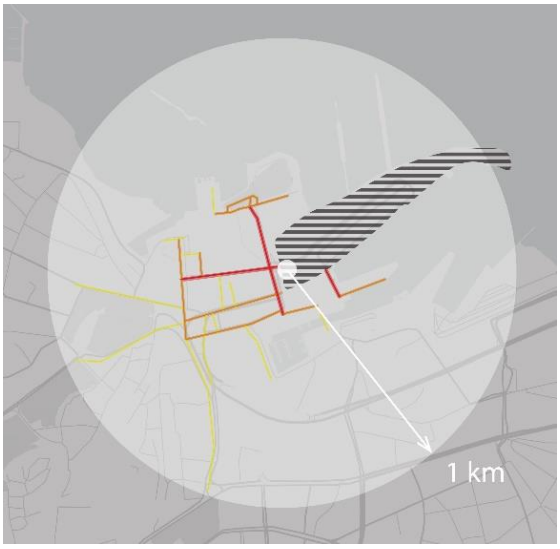

Located only about 1 km away from the City Center and Old Town of Tallinn, the new Cruise Terminal gracefully extends into the Bay of Tallinn, providing and illusion of subtle separation while being easily accessible and well-connected to all city's major attraction and infrastructure points

## TRANSPORT AND PEDESTRIAN CONNECTIVITY



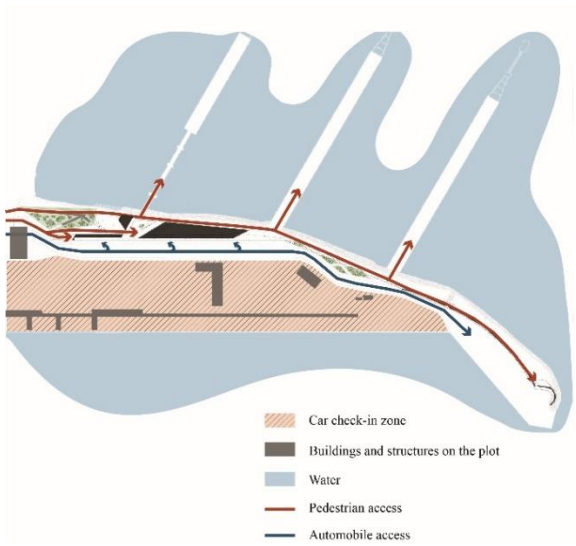

The terminal is located on a pier extended into the water on the North-East of the City Center. It can be reached by a variety of buses or city tram; however, their stops are not directly near the terminal therefore, to access it from those spots, one still needs to use pedestrian, cycling or automobile routes. A new tram line is planned to be finished by 2025 which will make the public transport connection to the port much more efficient. The least developed connectivity routes in the area are the pedestrian ones.

## STREET NETWORK



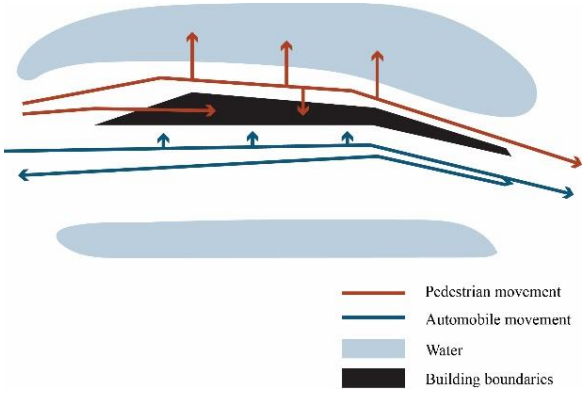

The most effective means of connectivity in this context is through automobiles and public transport. Pedestrian connectivity from the city may not be the project's strongest aspect. This setup can enhance the security of the port; however, it also diminishes the port's potential to be closely integrated with the city and to function as more than just a transportation facility.

## PLOT STRUCTURE



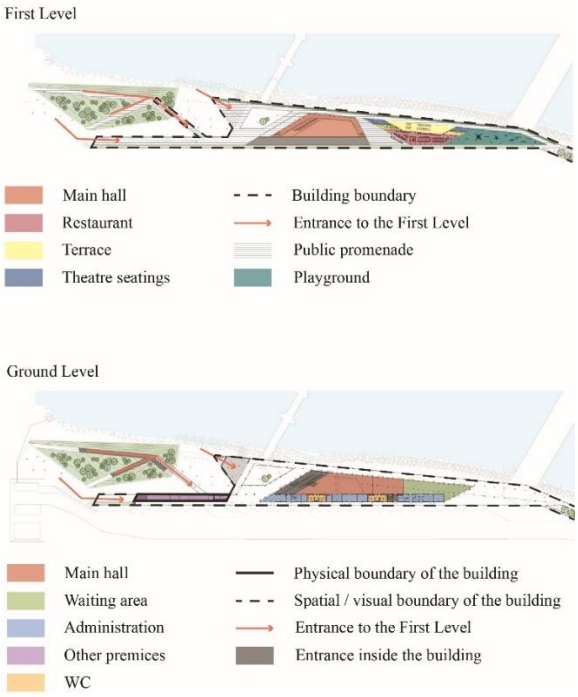

The facilities on the plot are arranged in an organic linear way, that correlates with the pier's original shape. This provides efficient distribution of car and pedestrian traffic within the facility, while providing plenty of space for terminal's essential facilities like car check-ins on the South, proper access to the terminal main building and separated safe pedestrian promenades on the North that organically lead to the piers.

## MOVEMENT



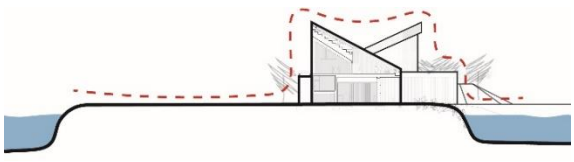

The pedestrian and car movements of the terminal are organized as two separate but similarly linear lines. This ensures a safe, efficient and easily navigable system for all categories of users.

## LAYOUT STRUCTURE




The layout consists of one main volume on the ground level, which is divided on the first level into spaces connected with a public promenade. The building has 2 main entrances: one on the west for visitors and one on the south for passengers. Both lead to the atrium hall and waiting area on the ground level. The hall serves as a multifunctional space, where events of different scales can be held alongside other usual functions of the cruise terminal. From the hall there is an option to reach an upstairs promenade from the inside as well as from multiple public entrances from the outside (stairs, ramps). The first level is divided into zones: atrium, restaurant with a terrace and a theatre seating on its roof, playground, and further along a linear continuation of a promenade.

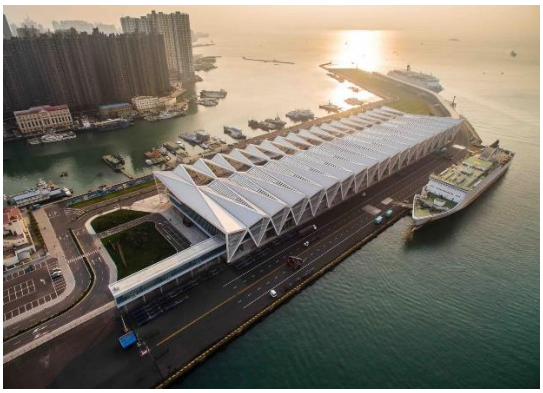
## VOLUME



The main volume of the building stands out as the only one on the pier it is located on. However, due to its' elongated 2-level organization with top levels predominantly used as open gathering and playground spaces, the illusion of the building being a part of a natural terrain is created. The cascades of stepped rooftops serve as ideal viewpoints for the users, while the lower level seamlessly blends into the slope toward the water, thanks to the simple, minimalistic colonnades shading the pedestrian promenades.

| RELATIONSHIP WITH NATURE | |
|---|---|
|  | The facility is surrounded by water from most sides providing stunning sea views. The greenery on the site, however, is not much present. The closest nature of this kind to the terminal is a small beach to the West of the facility. |
| **MATERIALITY** | |
|  | Signature materials of the project are wood, concrete and class with inclusion of metal elements and details. Materiality strategy used for the building leans toward bringing light and warmth to the space, balancing out cold and lack of light that are common for the area due to climatic conditions. Moreover, accentuation on wood resembles Estonian wooden architecture traditions. Such strategic use of materials visually and symbolically connects the complex to the existing urban and cultural context without being too literal in its interpretation. |

**Table 2.** Tallinn Cruise Terminal case study analysis

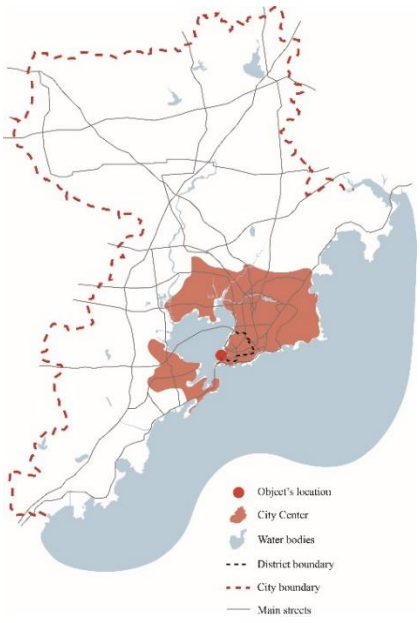


## 2

**Qingdao Cruise Terminal**

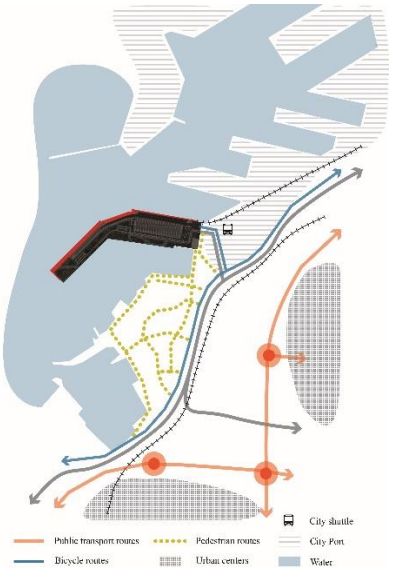
**LOCATION:** Qingdao, China
**ARCHITECTS:** CCDI - JING Studio, CCDI - MOZHAO Studio
**YEAR:** 2015

## LOCATION




Located at Pier 6 in Liaoning Road Residential District of Qingdao, the cruise terminal is a testament to the city and its deep connection to the sea. The facility is situated in a vital central area of the city. Anchored in the water that surrounds it, the terminal takes advantage of its prime location to function as a major traffic hub and a lively public area.

## TRANSPORT AND PEDESTRIAN CONNECTIVITY

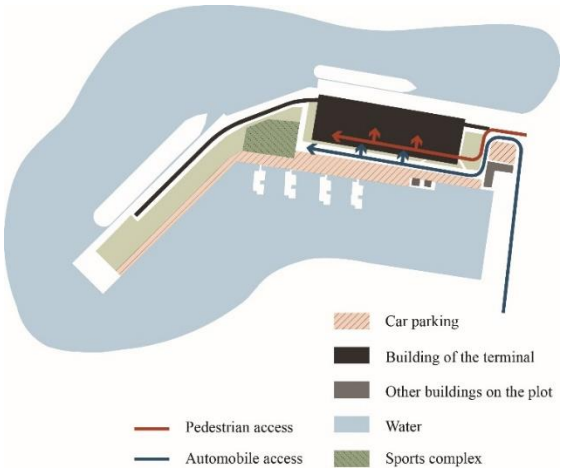



The terminal is connected to the city by major automobile arteries. However, subway and railway routes are also an option in the area. Another way to get to the city center – the City Shuttle provided directly by the port. Pedestrian and cycling network are less developed in the area. They mostly connect the cruise terminal and a nearby residential Jimolu Neighborhood in the southern direction. To the Noth of the terminal a port territory starts which blocks connectivity.

## STREET NETWORK

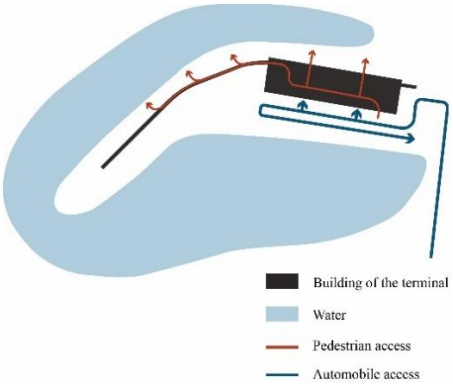

Terminal benefits from a strategic street network, particularly with a high-traffic road passing directly adjacent to the terminal. This road provides facility with a substantial connectivity and establishes a vital transportation link along the city's coastal line. The street network aligns with the terminal's role as a key transportation hub, ensuring efficient and convenient connections to various parts of the city.

## PLOT STRUCTURE



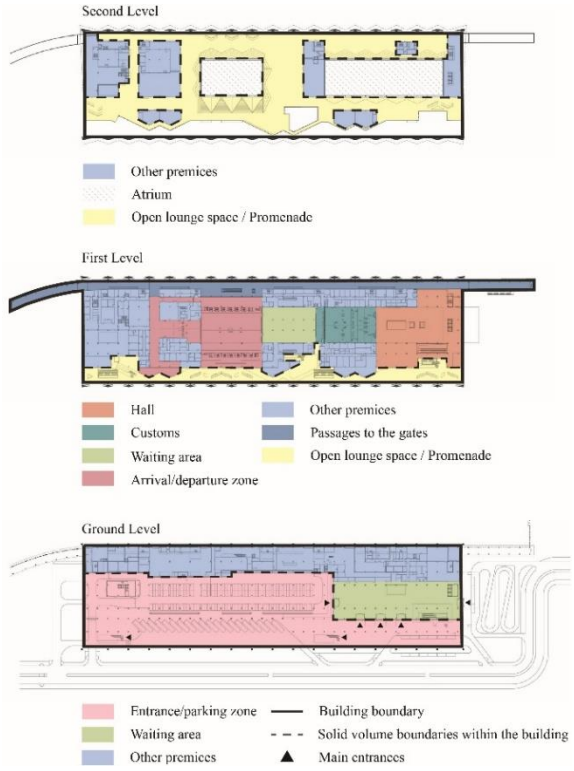

Plot structure is linear and user-friendly. Beyond the primary terminal building and its parking facilities, diverse functions are arranged to infuse the area with public activities, transforming it into a recreational space. This includes sports facilities, yacht rental services and green spaces. Primary access to the building, as well as the yacht piers and other recreational amenities, are on the southern part of the plot, ensuring a focused and well-designed entry point.

## MOVEMENT



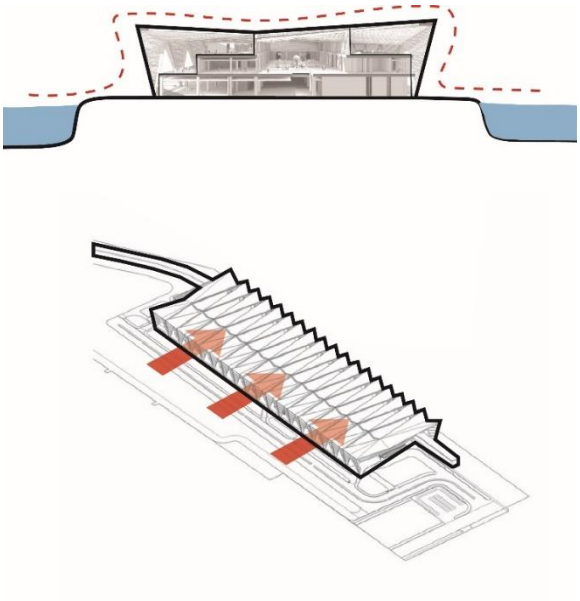

Movement patterns are linear, transitioning gradually from car to pedestrian accesses. Main entry point to the territory is in the east. Then movement is concentrated predominantly in the south of the plot. This strategy ensures a coherent and efficient circulation pattern, guiding traffic seamlessly from the main entrance towards the focal points in the southern part of the plot.

## LAYOUT STRUCTURE




The ground floor, designated as the arrival and departure hall, incorporates check-in and luggage services. Ascending to the second-floor foyer reveals a space with skylights casting a rhythmic play of light and shadow across the inclined roof surface. The fusion of diverse functions guarantees the terminal's operational efficiency and positions it as a daily recreational space for the public. The third floor introduces outdoor sightseeing platforms, providing captivating spaces for sea viewing. This addition not only enhances the scenic experience but also fosters interactive connections between the northern and southern sides of the terminal.

## VOLUME



The structure exhibits a linear and cascading arrangement of stepped rooftops, drawing inspiration from the pitched roofs found in the city's historical architecture. However, overall impression of the volume is one of simplicity, presenting as a cohesive rectangular structure. This unified appearance is achieved through the enclosure of the building with a continuous shell, which gradually transforms into the roof. The design prioritizes a clean and straightforward aesthetic, contributing to the building's architectural clarity while maintaining a sense of elegance and functionality.

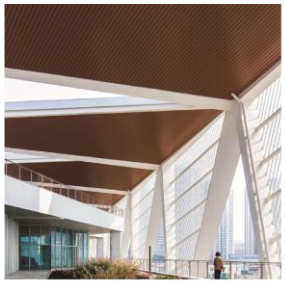
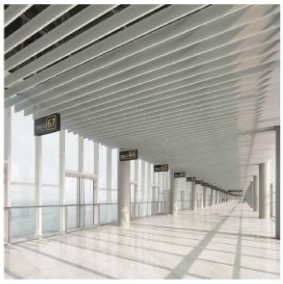
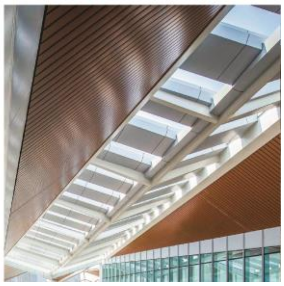
| RELATIONSHIP WITH NATURE | |
|---|---|
|  | The natural aspect of the context is mostly presented by water that nearly completely surrounds the pier, on which the terminal is situated. Greenery is presented in several small parts of the plot, but its coverage is not substantial enough to become one of the dominant parts of this maritime complex. |
| **MATERIALITY** | |
|     | Materiality of the building presents itself in a balanced combination of write and brown, with an accent on the former. The exposed steel structure adds a mechanical beauty to the building. This thoughtful choice introduces structural elements as the dominant element of the facade, which express the maritime and industrial character of the terminal. The white of the exterior façade surfaces is softly mixed with the brown on the inside of panels, covering the promenade. This adds a feeling of comfort and warmth to the space, reflecting its more "relaxed" function. |

**Table 3.** Qingdao Cruise Terminal case study analysis

# 3

**Yokohama International Passenger Terminal**

**LOCATION:** Yokohama, Japan
**ARCHITECTS:** Foreign Office Architects (FOA)
**YEAR:** 2002

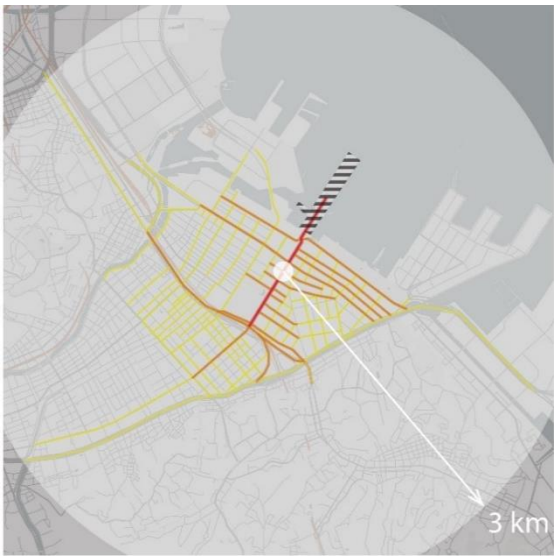
## LOCATION


The terminal is located on the Yokohama waterfront, specifically near Yamashita Park and Red Brick Warehouse in the Yamashita Pier area. By being in a central location, the terminal acts both as a gateway to Yokohama and seamless access to the city's cultural and recreational amenities.

## TRANSPORT AND PEDESTRIAN CONNECTIVITY

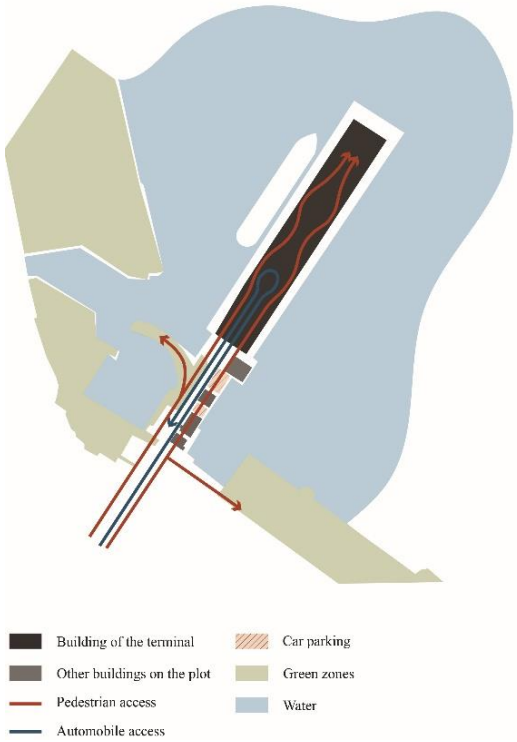

The Terminal is deeply integrated into the urban fabric and is effectively connected to rest of the city, as well as to neighboring cities like Kanagawa and Tokio by metro, railway, buses etc. Due to the simple linear structure of the plot and separation of the industrial port facilities further to the east, the terminal becomes an integral part of the city grid with excellent pedestrian accessibility, being a part of the neighborhood rather than isolating from it. A singular underdeveloped type of connectivity is cycling network, which is inconsistent in the area.

## STREET NETWORK



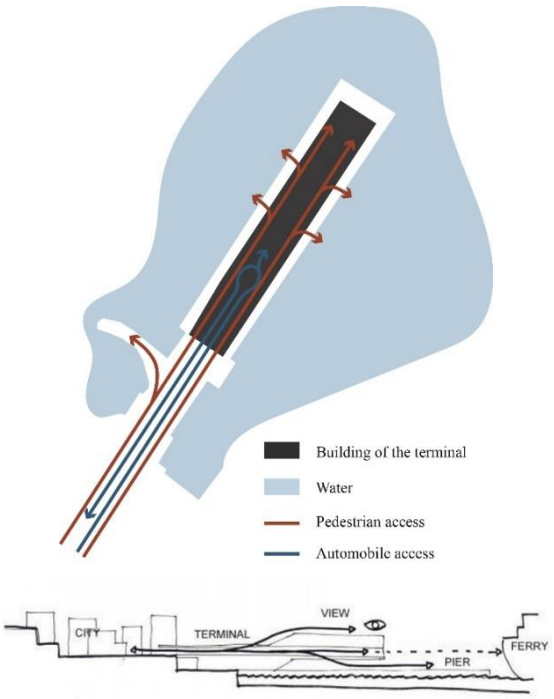

The surrounding street network is a straightforward urban grid that ensures optimal connectivity to the local neighborhood. This design facilitates easy access within the immediate vicinity and extends smoothly to connect with the major automobile arteries that encompass and extend beyond the terminal area. The terminal's strategic placement within the urban grid enhances its accessibility, ensuring a well-integrated and efficient connection to both local and regional transportation routes.

## PLOT STRUCTURE



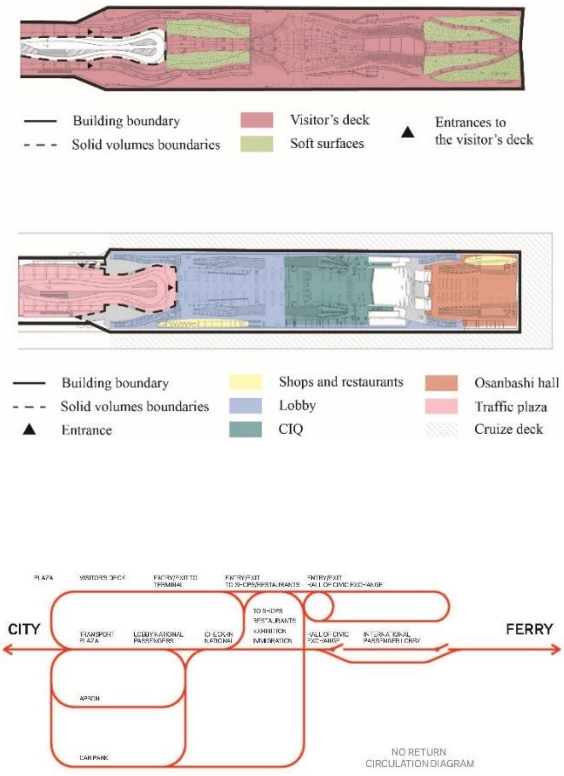

The plot structure is linear and easy to navigate. The pier with the terminal extends from the street providing a direct continuation of the street space into the functional zone of the terminal without creating harsh boundaries. The biggest conceptual strength of the project is perhaps its sensitive relationship with the urban waterfront. With the observation deck doubling as a fully accessible public plaza, the terminal seamlessly emerges from the neighboring Yamashita and Akaranega Parks to make one uninterrupted, universally accessible urban parkscape. Its height is calculated to achieve continuity with the shore and to ensure that inland views of the waterfront remain unobstructed.

## MOVEMENT




The movement pattern is linear with automobile access located in the center and pedestrian accesses following alongside and leading not only to the main entrance but also to public areas on the left and on the top deck of the building. The building is organized in three vertical levels. Atop a first-floor parking garage, a spacious middle floor contains the terminal's administrative and operational areas. Connecting the three levels are a series of sloping ramps, which the architects decided were more effective than stairs at maintaining a continuous and multi-dimensional flow of circulation.

## LAYOUT STRUCTURE




While the contours of the building occasionally betray an element of randomness, they are in fact generated by a single circulation scheme that dictates spatial organization. There are no stairs inside the terminal building creating a barrier-free environment. The circulation operates as a continuous looped diagram, directly rejecting any notion of linearity and directionality. Visitors are taken through paths that meander vertically and horizontally before arriving at any destination, and their sight lines through space are comparably indirect. All of the chaotic complexity of the materials and formal gestures, the simplicity of this diagram offers a sense of clarity and reveals the process from which the building emerged.

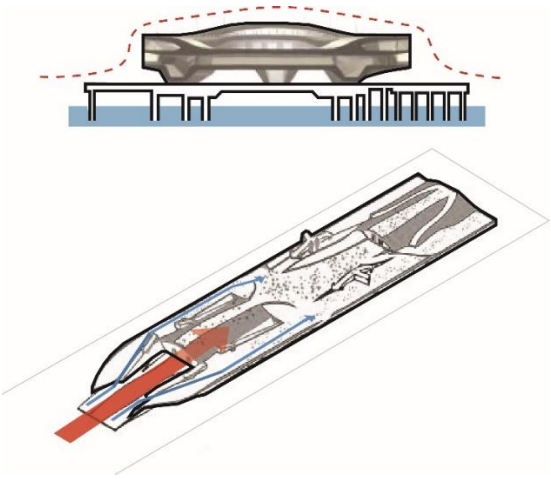
| VOLUME | |
|---|---|
|  | The terminal features a 430-meter-long structure with a complex series of surfaces. Primarily represented in section, the terminal's volumetric solution creates a navigable and inhabitable topography. The observation deck, elevated atop the structure, shows floor surfaces that rise and fall in a wave-like motion. This dynamic elevation change defines the terminal's spatial experience, presenting a novel architectural language that challenges traditional design principles. |
| **RELATIONSHIP WITH NATURE** | |
|  | The terminal facility is surrounded by green urban spaces. Moreover, the structure itself contains green zones and public gathering spaces at the top deck, thus transforming itself not merely into a marine facility but also into an engaging open space within the city core. |
| **MATERIALITY** | |
|  | Throughout the project, a deliberate dynamism pervades the tectonic and material languages of the building. The abundance of non-orthogonal walls, floors, and ceilings creates a controlled sense of vertigo that is accentuated by similarly off-kilter fixtures and details. The shifting grains of the wooden planks on the observation deck that indicate the locations of creases, and the minimalist grey metal paneling that is worn by the structures under it. |

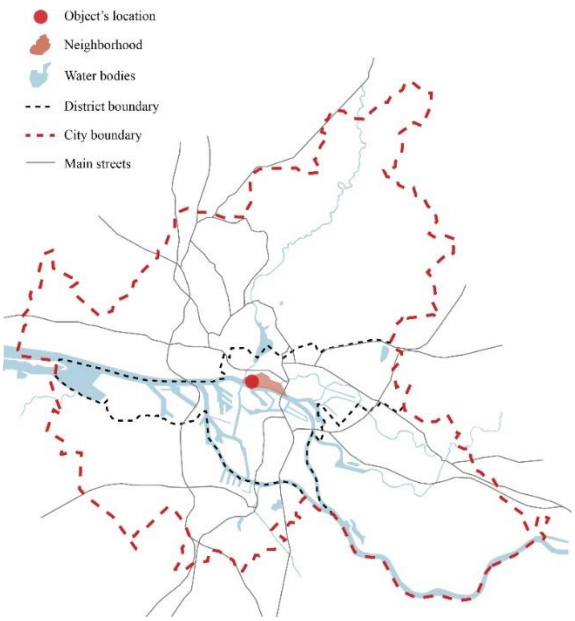
**Table 4.** Yokohama International Passenger Terminal case study analysis

# 4

# Elbphilharmonie Hamburg

**LOCATION:** Hamburg, Germany
**ARCHITECTS:** Herzog & de Meuron
**YEAR:** 2016

## LOCATION




Elbphilharmonie stands at the western tip of HafenCity on the banks of the Elbe River. It follows the guidelines of HafenCity's master plan in creating 'urban magnets' - strategically located on the outer-perimeter of the entire development, instead of toward the center, to shape the discretely independent quarters with certain civic/cultural functions.

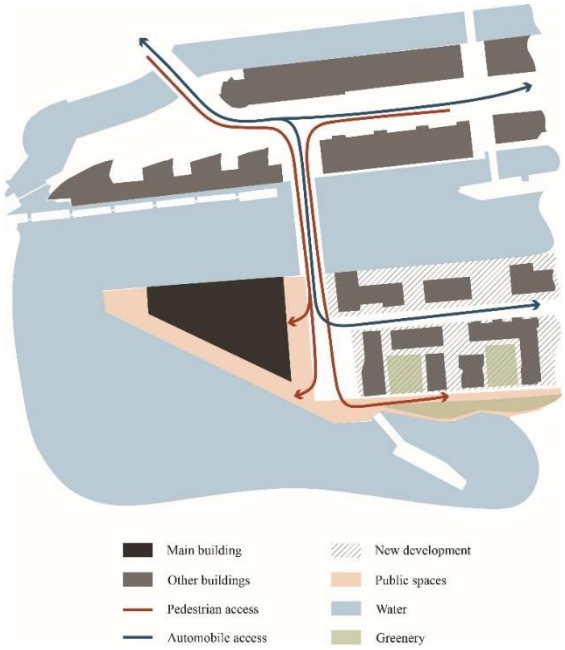
## TRANSPORT AND PEDESTRIAN CONNECTIVITY


The plot of Elbphilharmonie is located in the immediate proximity to 2 subway lines, 3 tram lines, a ferry route and is surrounded by almost a dozen bus stops. Moreover, the cycling network is highly developed in the area and is well connected to other parts of the city. A great level of connectivity is achieved by the complete walkability of the area surrounding the building as well as the city as a whole.

## STREET NETWORK

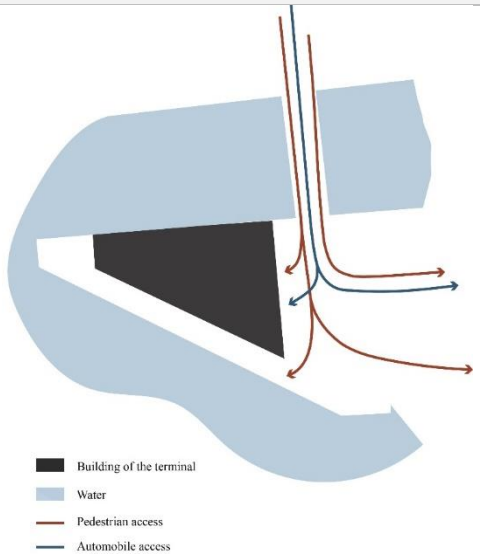

Elbphilharmonie is strategically integrated into the city's street network. The area benefits from proximity to key city arteries while at the same time avoiding them being barriers within the urban fabric. Well-planned pedestrian routes provide a good level of direct access.

## PLOT STRUCTURE




The plot structure is carefully planned to maximize its connection to both the urban environment and the waterfront. The complex can be approached from HafenCity. The site can be accessed by pedestrian, cycling and automobile routes mainly from the eastern and northern sides, or by a ferry from the south. Public spaces within the complex enhance the building's connection with its surroundings. A gathering space and extension of the public realm is provided by the plaza in front of the main entrance.

## MOVEMENT

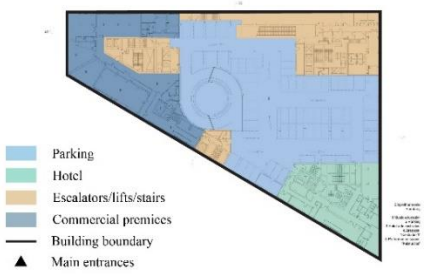



The movement patterns on the plot are characterized by a thoughtful and dynamic layout combining linear and circular patterns. Visitors typically approach the complex from both the city and the waterfront side. The primary access points on the eastern side lead to public spaces. The elevated design allows for fluid movement between the historic base and the modern structure.

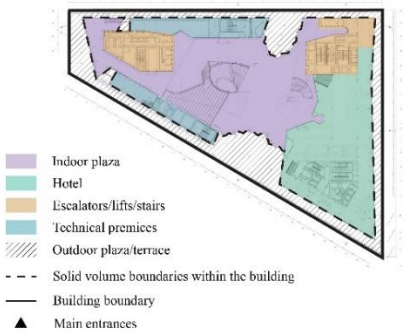
## LAYOUT STRUCTURE

Level 0

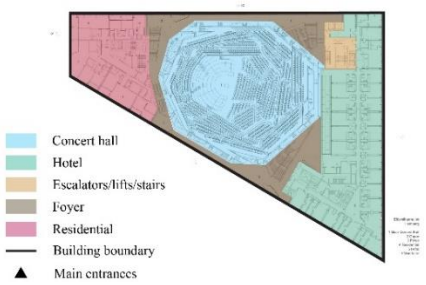

Level 1 - 7 (typical layout)




Level 8 - 10 (typical layout)




Level 10 - 20 (typical layout)




The new building has been extruded from the shape of the Kaispeicher; it is identical in ground plan with the brick block of the older building. The philharmonic is a full-fledged residential and cultural complex. The concert hall, seating 2100, and the chamber music hall for 550 listeners are embedded in between luxury flats and a five-star hotel with built-in services such as restaurants, a health and fitness center, and conference facilities.

The main entrance to the complex lies to the east. A long escalator leads up to the Plaza; it describes a slight curve so that it cannot be seen in full from one end to the other. It is a spatial experience in itself; it cuts straight through the entire Kaispeicher, passing a large panorama window with a balcony that affords a view of the harbour before continuing on up to the Plaza. The latter, sitting on top of the Kaispeicher and under the new building, is like a hinge between old and new. It is a new public space that offers a unique panorama.

The concert hall is a strictly contemporary design that places the orchestra and conductor in the midst of the space. Here, however, it's the users – aside from acoustic and visibility concerns – that define a space in which tiers, walls and ceilings form a unitary whole. The vertical shape of the hall determines the structure of the whole building and is correspondingly reflected in its exterior volume.

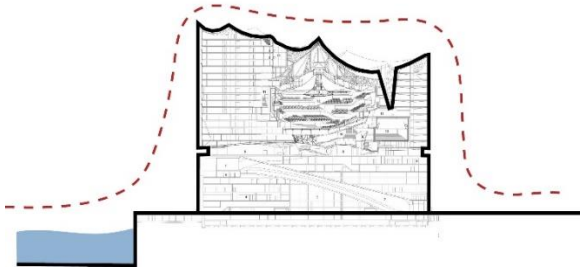
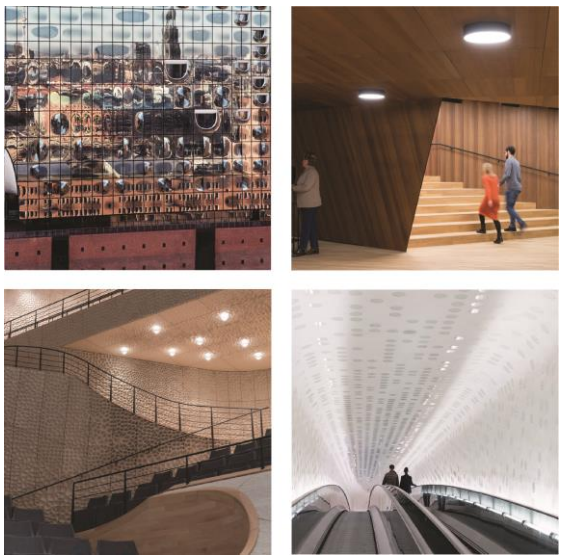
| VOLUME | |
|---|---|
|  | The new building has been extruded from the shape of the Kaispecher; however, top and bottom of the new structure are entirely different from the plain shape of the construction below. The undulating sweep of the roof rises to a total height of 108 meters at the tip of the peninsula, sloping down some 20 meters to the eastern end. In this way, the Elbphilharmonie becomes a landmark visible from afar, lending a vertical accent to the horizontal image of Hamburg. |
| **RELATIONSHIP WITH NATURE** | |
|  | The building's waterfront connection is its most prominent natural feature. As it is located on a peninsula-like piece of land, it creates the illusion that it is surrounded by the river, highlighting its central location. Additionally, a green public space to the east adds diversity to the landscape by introducing urban greenery. |
| **MATERIALITY** | |
|  | The design combines an abundance of materials and textures, providing a unique aesthetic and sensory experience. This includes glass, several types, wood, brick, uniquely carved acoustic panels, polymers etc. The glass facade, consisting in part of curved panels, some of them cut open, transforms the structure into a gigantic iridescent crystal whose appearance changes with the reflections of the sky, the water and the city. |

**Table 5**. Elbphilharmonie Hamburg case study analysis

# 5

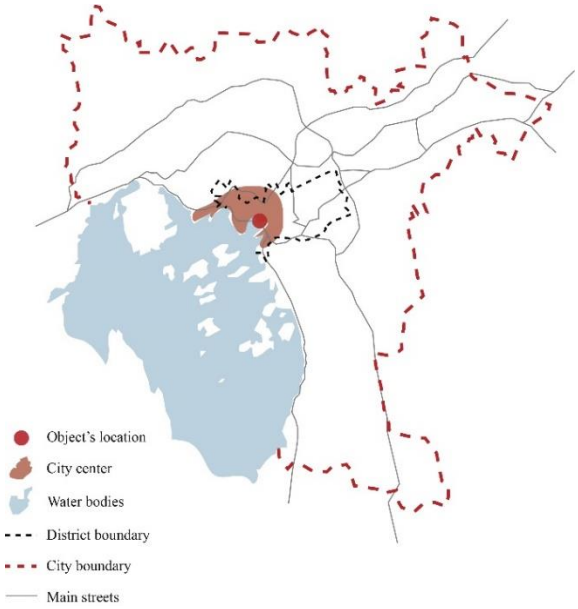
# Oslo Opera House

**LOCATION:** Oslo, Norway

**ARCHITECTS:** Snøhetta

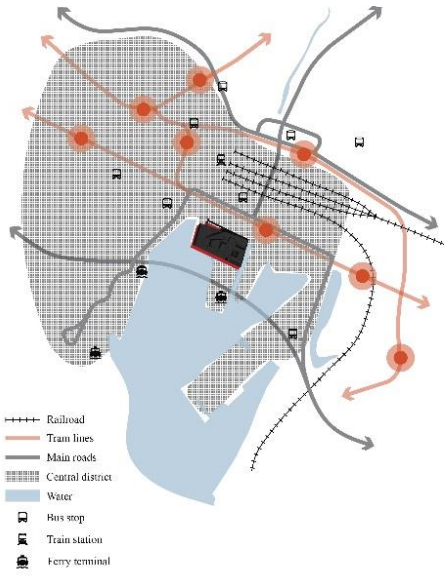
**YEAR:** 2007

## LOCATION

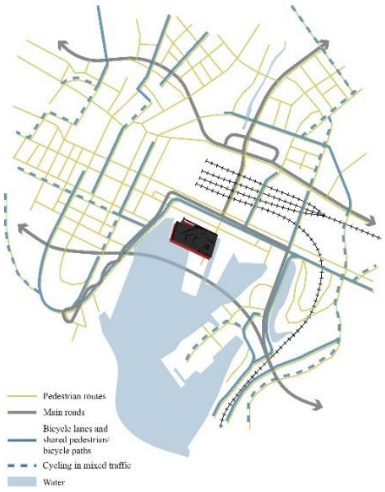



The building is located in the Bjørvika neighbourhood of central Oslo, at the head of the Oslofjord. The opera house is positioned along the waterfront, where it seamlessly integrates with the city's urban and natural landscapes. A central location allows the structure to be accessible to major transportation nodes, cultural attractions, and primary tourist destinations.

## TRANSPORT AND PEDESTRIAN CONNECTIVITY




The site provides excellent transportation connectivity. Tram lines and the proximity to Oslo's Main Train Station in the north enhances railroad connectivity. Additional accessibility is provided by bus routes, while a ferry connection adds more transportation options. As a cultural focal point with accessibility at its core, the opera house is easily reachable from various parts of the city due to this comprehensive network of public transportation.

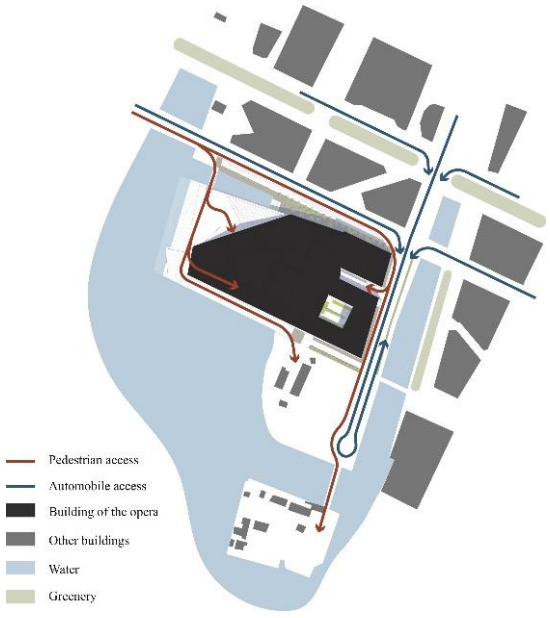



An effective cycling network provides smooth and safe cycling access to the site, featuring separated bicycle paths and cycling routes integrated into mixed traffic. Moreover, a well-structured, fully accessible pedestrian network surrounds the opera house and connects it to the surrounding urban context.

## STREET NETWORK

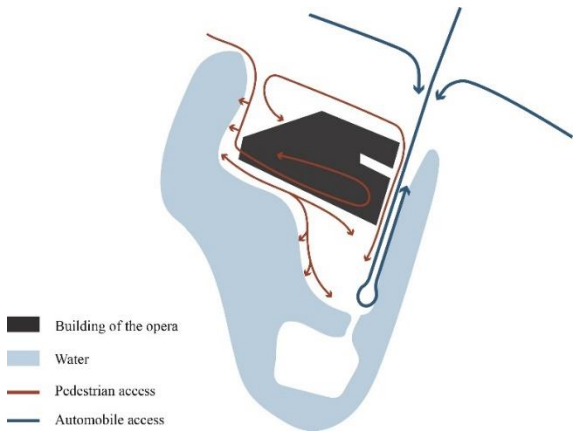

Oslo Opera House benefits from a strategic street network, particularly with three major city arteries located in close proximity to the site, which ensure quality major connectivity between the central and other city districts. On a smaller scale – a well-structured, grid-like street network of the central neighborhood to the west of the site aligns with the building's role as a key cultural and architectural point of the city.

## PLOT STRUCTURE



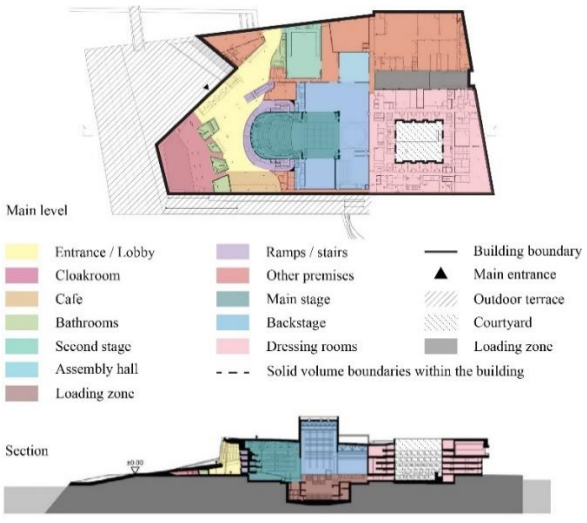

The public part of the building faces west and north, while the building's profile is clear from a great distance from the fjord to the south. Seen from the central station and Chr. Fredriks sq. The building connects city and fjord, urbanity and landscape. The roof of the building angles to ground level in the west, creating a large plaza that invites pedestrians to walk up and enjoy the panoramic views of Oslo.

## MOVEMENT




Automobile and pedestrian access to the building is separated with a primary focus on the pedestrian movement that continuously flows from the external public spaces through the bridge to the building in the western part. Open space in front of the building provides access to the waterfront through the stairs, to the additional more organically arranged waterfront space in the south and to the rooftop of the building that serves as an additional public space.

## LAYOUT STRUCTURE




The structure contains 1,100 rooms in a total area of 49,000 m2. The main auditorium seats 1,364 and two other performance spaces can seat 200 and 400. The main stage is 16 m wide and 40 m deep. The building is split in two by a corridor running north-south, the ‘opera street'. To the west of this line located all the public areas and stage areas. The eastern part of the building houses the production areas which are simpler in form. There is also a basement level - U1 - below this part of the building. The sub stage area is a further 3 levels deep. In the east stands the loading and unloading dock and around a garden courtyard, the areas of administration and production, with about a thousand units of different size and function for almost six hundred employees.

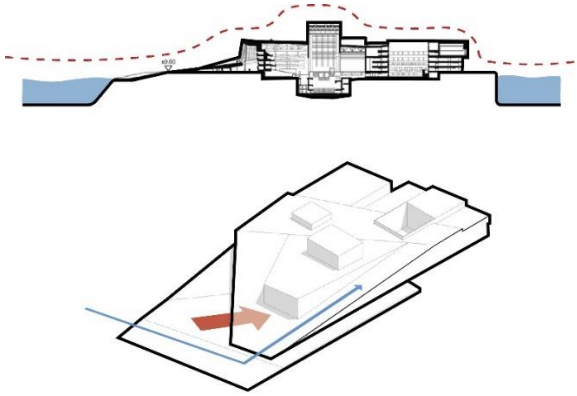
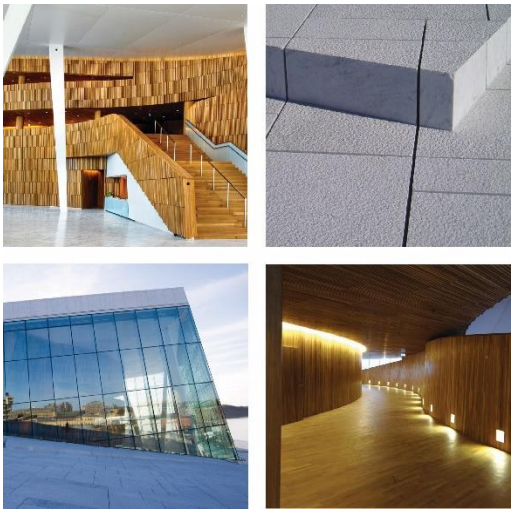
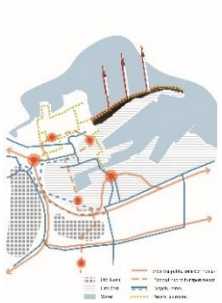
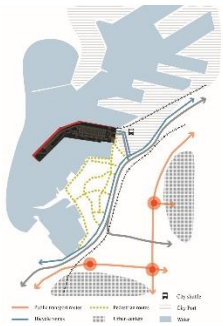
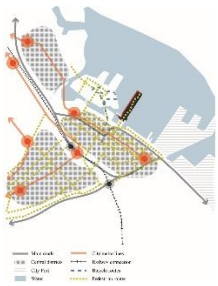
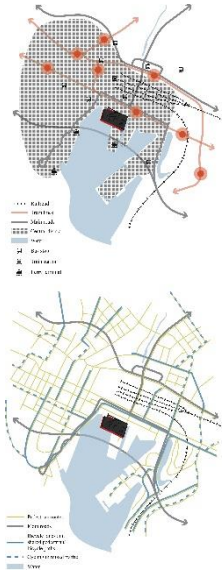
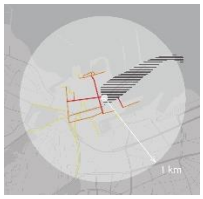
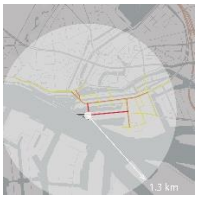
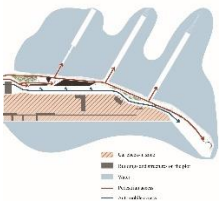
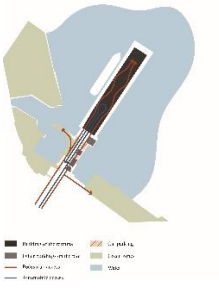
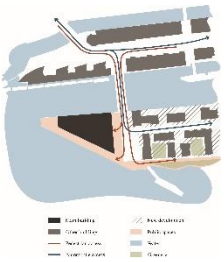
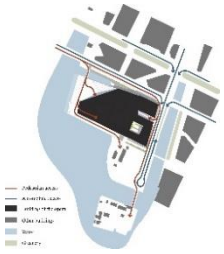
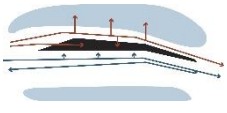
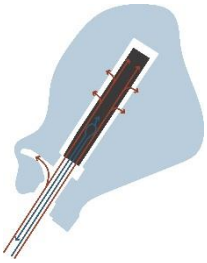
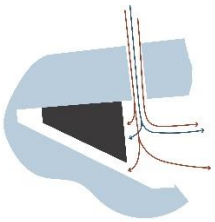
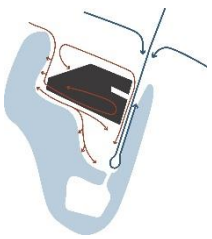
| VOLUME | |
|---|---|
|  | The volume features a massive white stone ramp defines building's dynamic personality. It provides direct access to the sea-facing side. The ramp extends to the building's terrace, allowing visitors to engage with the space without entering the opera. By prioritizing accessibility and creating a passable horizontal volume, the building achieves monumentality not in height, but in a dynamic and interactive horizontal plane, fostering a unique interaction between the public, the structure, and the surrounding environment. |
| **RELATIONSHIP WITH NATURE** | |
|  | Oslo Opera House is built on piles in the Oslo fjord that surrounds it from the south and west. From the eastern side a small canal rungs along the driveway to the parking space. In winter months, ice is often formed along the ramp and snowdrifts alter the form of the building. |
| **MATERIALITY** | |
|  | Four main materials are chosen to represent the metaphorical idea: white stone (italian marble, La Facciata) for the 'carpet', oak timber for the 'wave wall', aluminium panels (punched with convex spherical segments and concave conical forms) for 'factory', and low iron glass, that allows exposure of the underside of the 'carpet'. |

**Table 6.** Oslo Opera House case study analysis

| | | | | | |
|---|---|---|---|---|---|
| **Project** |  |  |  |  |  |
| **Location** |  |  |  |  |  |
| **Transport and pedestrian connectivity** |  |  |  |  |  |
| **Street** |  |  |  |  |  |
| **Plot structure** |  |  |  |  |  |
| **Movement** |  |  |  |  |  |

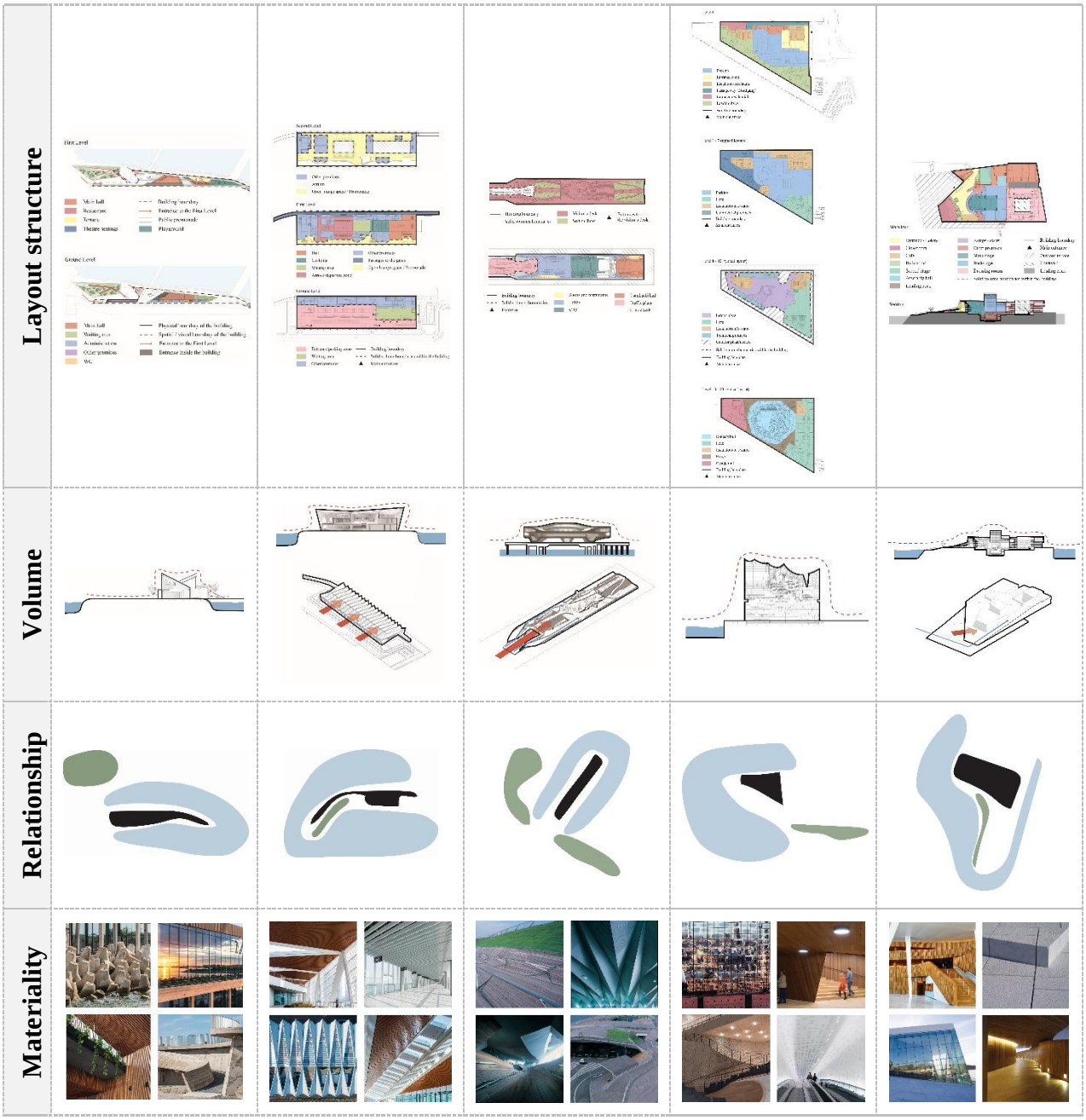



**Table 7**. Case study analysis summary

## 2.1 Conclusions

*Location.* The analyzed projects are predominantly located in dense urbanized areas, close to central parts of the city. Such strategic positioning is caused by functional significance of the projects, in case of this study – dominant maritime transportation nodes and cultural attraction buildings. One feature present in all analyzed projects making their architecture

effective is their complex integration into the existing urban and natural contexts that complements the given environment and urban fabric rather than disrupting it.

*Transport and pedestrian connectivity.* As a result, of this analysis, it became evident that projects that prioritize pedestrian and sustainable transportation connectivity achieve better integration with the urban fabric and significantly enhance public involvement into creation and usage of the object. Analysis also highlighted the importance of effective connections with the city through a diverse range of public transportation options, prioritizing them over conventional automobile connectivity.

*Street network*. A well-designed street network embodies principles that prioritize preserving existing interconnected street grid that disperse traffic and encourages pedestrian movement. In cases where site is isolated from the city grid, enhancement can be achieved by introducing a new grid that places a main emphasis on walkability and integration into the broader urban context of the area.

*Plot structure*. It is evident that in case of cruise terminals the plot structure tends to be more linear and straightforward due to the operational requirements of such facilities, even when the transportation function is mixed with the public one. Culturally significant buildings like Elbphilharmonie and Oslo Opera House, however, present a more compact plot organization due to them being more deeply integrated in the historical urban grid of the city.

*Movement.* Automobile and pedestrian movements of maritime transport facilities tend to present a more linear and separated patterns. In contrast, the performing arts venues examined in this study often intertwine these movement patterns, offering a more diverse and integrated range of movements, specifically focusing on pedestrian accessibility. Therefore, considering the future design object is a marine terminal on an elongated plot, it is advisable to focus on a more straightforward and linear movement pattern like in the first 3 case studies.

*Layout structure*. Similar to the movement patterns, layout structure of cruise terminal buildings benefits from linear and easily-navigable organisation due to functional and

operational requirements of such facilities. Performing arts buildings, however, are designed around the main compositional element of the structure - the stage or a performing hall. This leads the layout to be arranged in circular patterns that support the functionality of the building. What unifies these two distinct public facilities is their inclination to blend various spaces and functions within the structures, achieved through the incorporation of expansive open areas, second-light halls, terraces, etc.

*Volume.* Analysed case studies reveal a consistent tendency for volumetric solutions that either harmonize or contrast from surrounding urban context. By carefully establishing proportional relationships and prioritizing human-scale architecture, it is possible to ensure seamless integration of the project into its surroundings and resonate with existing context, regardless of whether a complementary or contrasting approach is used. Additionally, it is essential that volumetric solutions, like those analysed here, not only reflect the functions held within but also convey symbolic meanings of their designs.

*Relationship with nature.* In terms of the plot's interaction with water bodies, cruise terminal display a primary focus on being fully surrounded by water apart from the side connecting them to the city. Cultural venues, on the contrary, tend to find a milder balance between the built environment and the natural, serving as crucial urban objects bringing water and city together. However, a building does not need to be fully surrounded by water to establish a meaningful connection with its aquatic surroundings. It can be achieved through different strategies such as material choices, volumetric mimicry, spatial integration, manipulation of light and shadow, incorporation of water as an element of the structure, etc.

*Materiality.* A key part of the success of the analysed projects comes from strategic material incorporation, whose specifics may vary, but the principles remain the same - functional and aesthetic relevance, consideration of cultural, urban, and natural contexts, sustainability, experimentation and combining different materials, colour and texture balance, etc.

## 3. Site analysis

### 3.1. Territory choice argumentation

Architectural connectivity plays a crucial role in shaping identity of a cruise port and, by extension, the port city as a whole. As a literal gateway to the city, a port that is spatially, visually, or conceptually disconnected from the surrounding urban fabric suffers a tangible loss of identity. However, such scenarios present a unique opportunity for architects to gain insight into the design process and explore innovative solutions to reintegrate the port with the city. This will be the case with the selected territory for our design proposal.

Chosen territory contains several main connectivity and water integration problems, solving which fulfills the goal of our architectural exploration.

Firstly, following the industrial revolution, the port, once seamlessly integrated with the city core, has undergone a gradual separation, creating a distinct divide between the sea and the rest of the urban landscape. In this process, the waterfront area that once belonged to people, was cut off from the city and now struggling to regain its vitality.

Moreover, in the early 2000s, with an aim to revitalize the area and attract more tourism, a hotel complex was built on the territory of the cruise port, which further worsened the situation. A contrast vertically dominant building closed off the panoramic view to the sea, which worked the opposite way and pushed the area to a further degradation.

Lastly, in September 2023, as a result of a missile strike by russia, a whole complex including the hotel and the cruise terminal facility suffered critical damage and is no longer in use.

This brings us to the goal of the future design proposal: *revitalize* Odesa Cruise Port complex and *reconnect* this crucial part of waterfront to the city and its residents.

## 3.2. Location


**Figure 20.** Odesa region in Ukraine

Odesa is the third most populated city and municipality in Ukraine and a major seaport and transport hub located in the south-west of the country, on the northwestern shore of the Black Sea. The city is also the administrative center of the Odesa region and Odesa county, as well as a multiethnic cultural center.

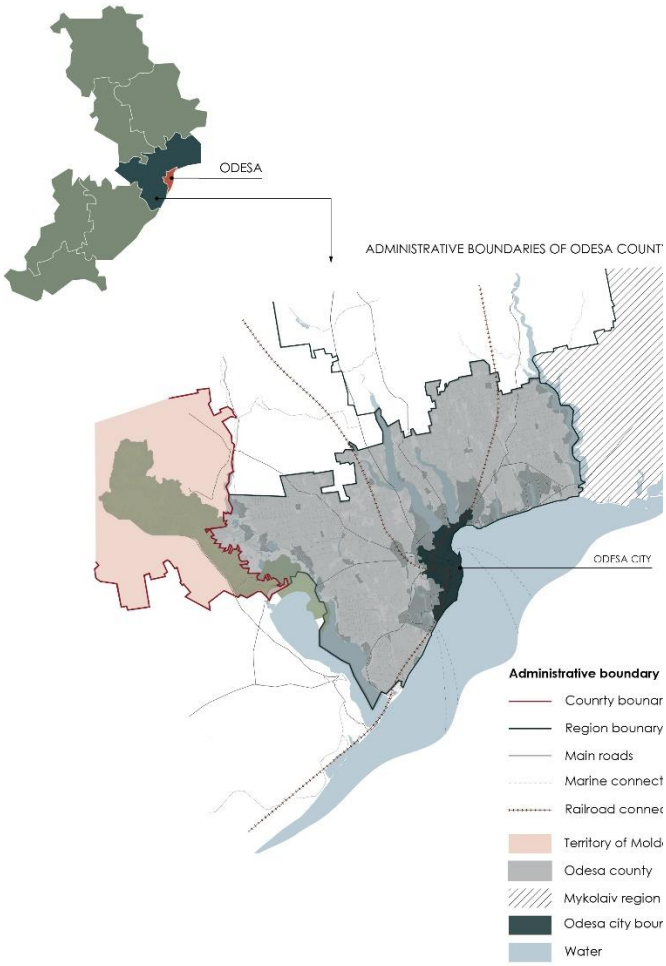



**Figure 21.** Administrative boundaries

The chosen territory is a part of the Port of Odesa complex, which network strides along the eastern waterfront of the city. The port is located at the western shores of the Odesa Bay. It consists of several harbors, divided one from another by a number of jetties, while the port itself being shielded off from the open sea by few long breakwaters. Just around the southern jetty (Karantyny) a cruise passenger terminal complex with a multi-story hotel is located (see Figure. 22). The site lies in between the historical city center of Odesa and a famous Vorontsov Lighthouse. Such central positioning gives the terminal an advantage and a potential for further development that can revitalize this harshly industrialized area and reconnect it with the city.

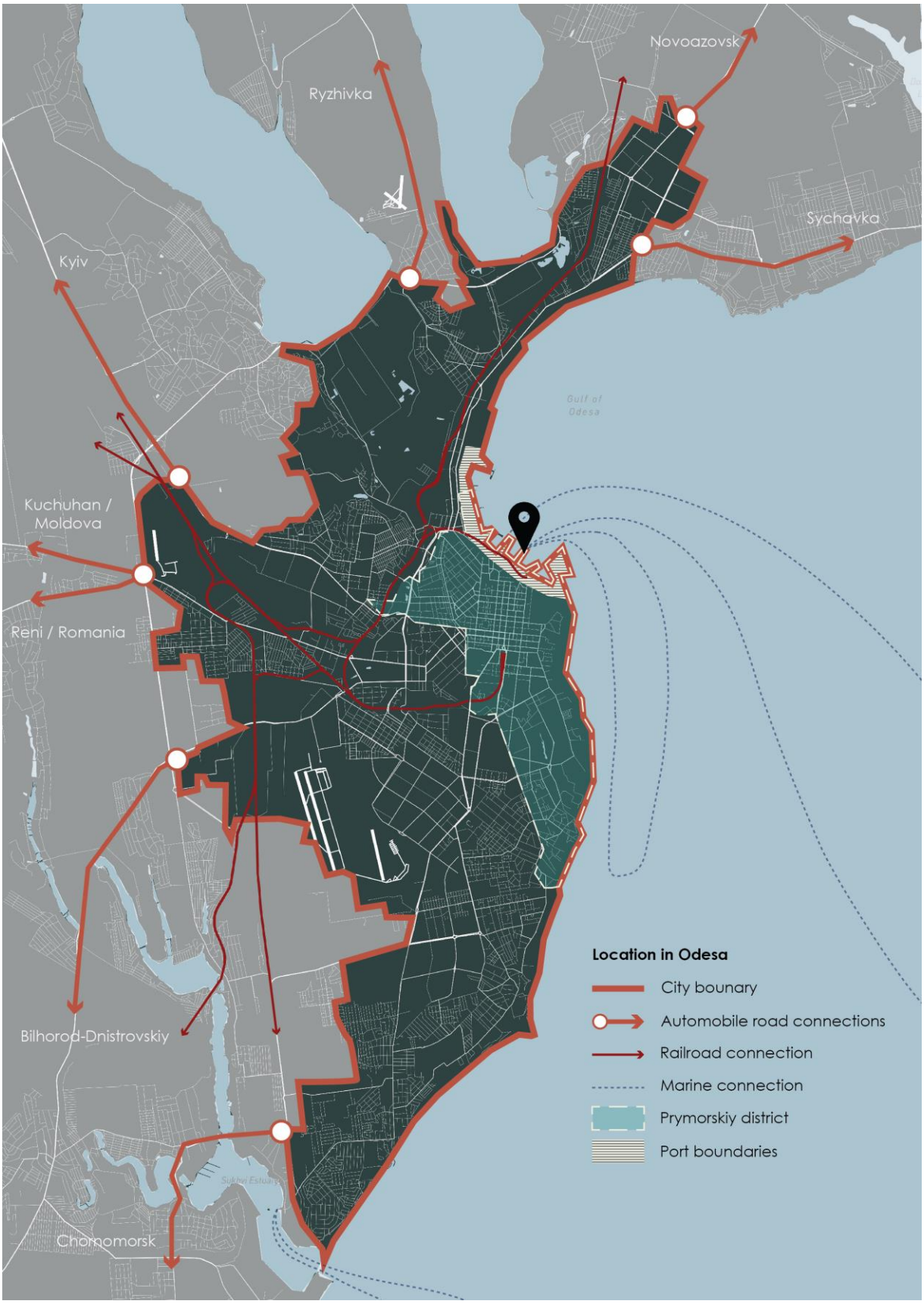



**Figure 22.** Territory location in the city

### 3.3. Historical waterfront development

The history of the Odesa seaport dates back to the times of ancient Greek colonization of the 8th - 4th centuries BC, when the Hellenes became interested in the possibility of new trade routes, sales markets and obtaining the necessary resources and materials, including grain, iron ore and wood. Thus, the coast of the Black Sea was lined with polis-colonies of the Greeks, and ports played a key role in this connection.

During the Middle Ages, this place was inhabited by barbarians, later the settlement of Kachibey (Hadjibey) was formed, which had a port, a fortress, a lighthouse, customs, and mainly traded in grain. Subsequently, already in the 15th century, the Black Sea and Bessarabia were taken over by the Ottoman Empire. The Turks took possession of the Hadzhibey fortress, which was also called Yeni-Dunya. After two unsuccessful attempts, the Russian Empire captured the Black Sea region, defeating the Turks, as a result of which they took possession of the fortress and opened access to the Black Sea.

Odesa, as known today, appeared in 1795 on the site of the Turkish fortress of Hajibey. For the development of the Southern region, the leading experts of Europe and the Russian Empire were involved, who actively developed the infrastructure and the port facilities. This led to the revitalization of the economic condition of the region, an increase in the population, and further development of trade. Thus, the port in Hadjibey became a significant player in the Mediterranean region. In 1900, 9,773 ships visited the Port of Odessa.

Throughout history the waterfront line have been gradually extending further and further into the sea with an especially pronounced change around the time of industrial revolution. During the same period, the process of waterfront separation from the city became, focusing primarily along the south-western part of the bay where the most of port facilities are concentrated.


**Figure 23.** Historical waterfront development

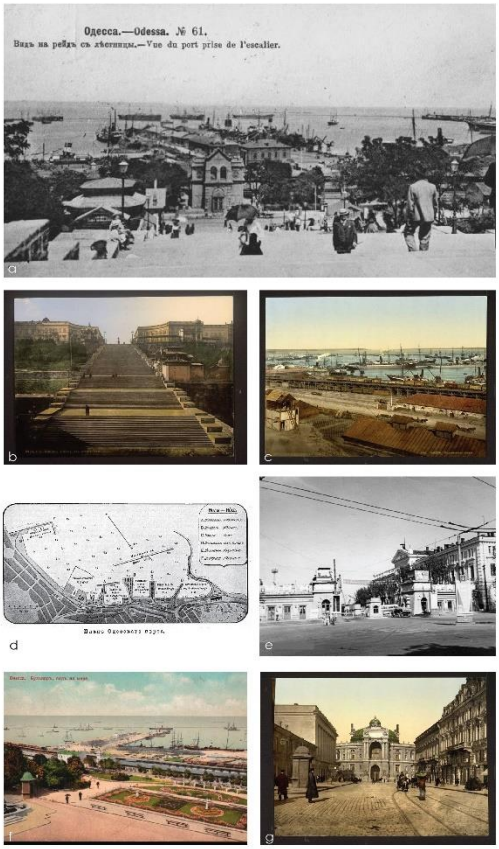



**Figure 24**. Historical photographs

### 3.4. Natural conditions

The city is situated on terraced hills overlooking a small harbor. The average elevation at which the city is located is around 50 m. The maximum is 65 m and minimum (on the coast) amounts to 4.2 m above the sea level. The coastal cliffs adjacent to the city are home to frequent landslides, resulting in a typical change of landscape along the Black Sea. Due to the fluctuating slopes of land, city planners are responsible for monitoring the stability of such areas, and for preserving potentially threatened building and other structures of the city above sea level near water. In addition to natural greenery in the area, the urban grid enhanced by incorporation of multiple continuous interconnected green streets and plazas. (see Figures. 25, 26, 27)


**Figure 25.** Greenery diagram


**Figure 26.** Topography

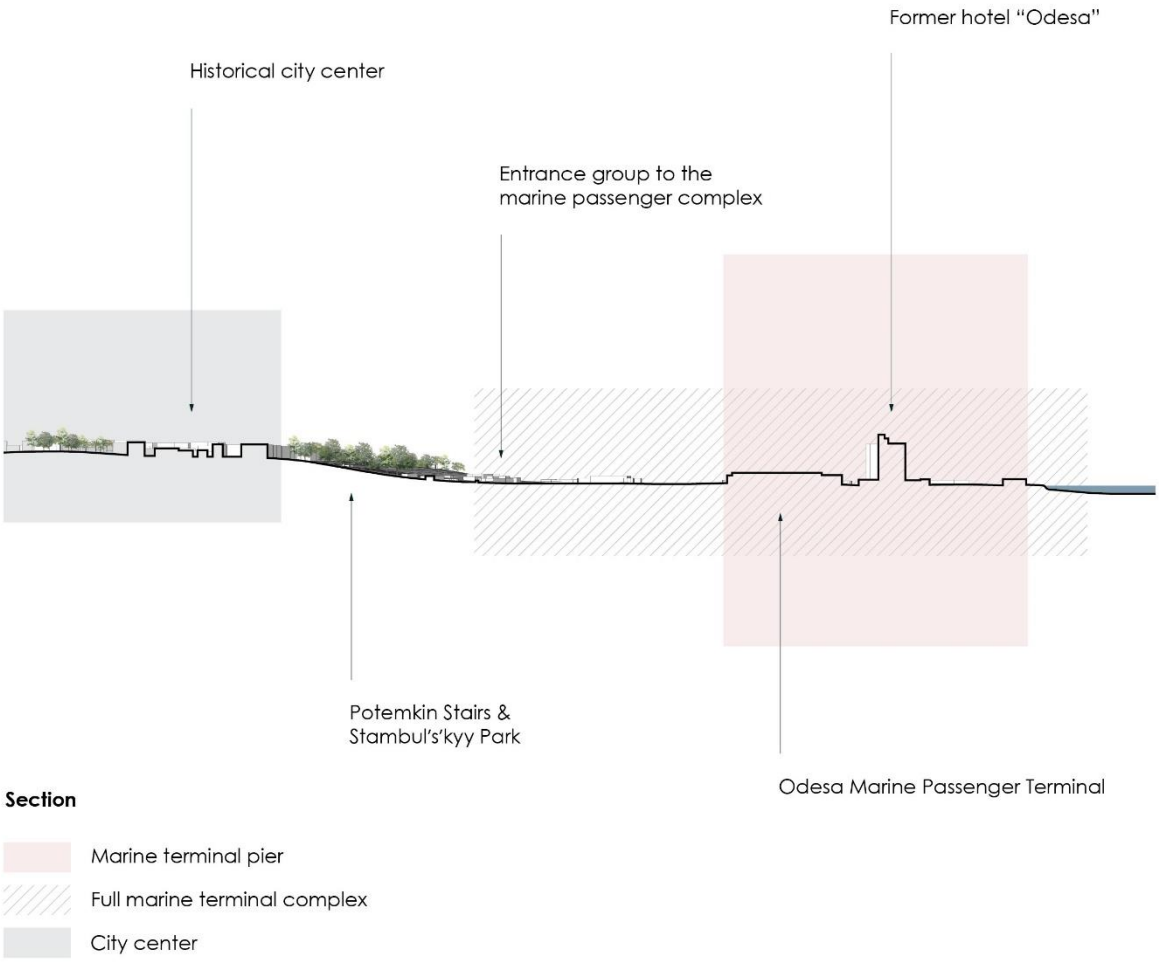



**Figure 27.** Urban section

### 3.5. Transportation connectivity


**Figure 28.** Transport network

Transportation network in the area is mainly presented by bus, tram, and trolleybus lines. The most dense presence of transportation options however, is located in the city core, leaving the cruise terminal complex to be accessible mostly by a small number of bus lines. Even though the chosen territory is situated in the immediate proximity to the highly walkable city center, pedestrian connectivity is interrupted by a traffic interchange. Cycling network is also under developed in the area.

### 3.6. Built-up context

The two dominant morphotypes in the area are perimetrical and unstructured. With the former being represented by the structured parallel grid blocks of the historical center deeper in the city core, and the latter being an industrial port area alongside the waterfront.

Analysis of the physical condition and architectural value of surrounding built-up context showed that the site lies in close proximity to the UNESCO heritage site. Within its boundaries the physical quality of the buildings tends to be much better then towards its outskirts. However, in the past 2 years there have been several missile strikes in the area that destroyed

or damaged a couple of buildings. Buildings in the industrial zone tend to have a lower level of preservation and architectural value.


**Figure 29**. Built-up context diagrams

### 3.7. Spatial network

The system of public urban spaces flows from the historical center, involves vital city dominants, several green plazas and a park, and descends with Potemkin Stairs to the port entrance. Here it is disrupted by the entrance itself and the traffic interchange atop it, after which the continuation of the space flow is presumably “revived”. However, with the change of elevation and a building “filtering” flow of movement in the middle, the natural continuation does not work and spatially separates the passenger complex from the city. Therefore, the singular vessel than connects this part of the city to the waterfront does not fulfill its function.

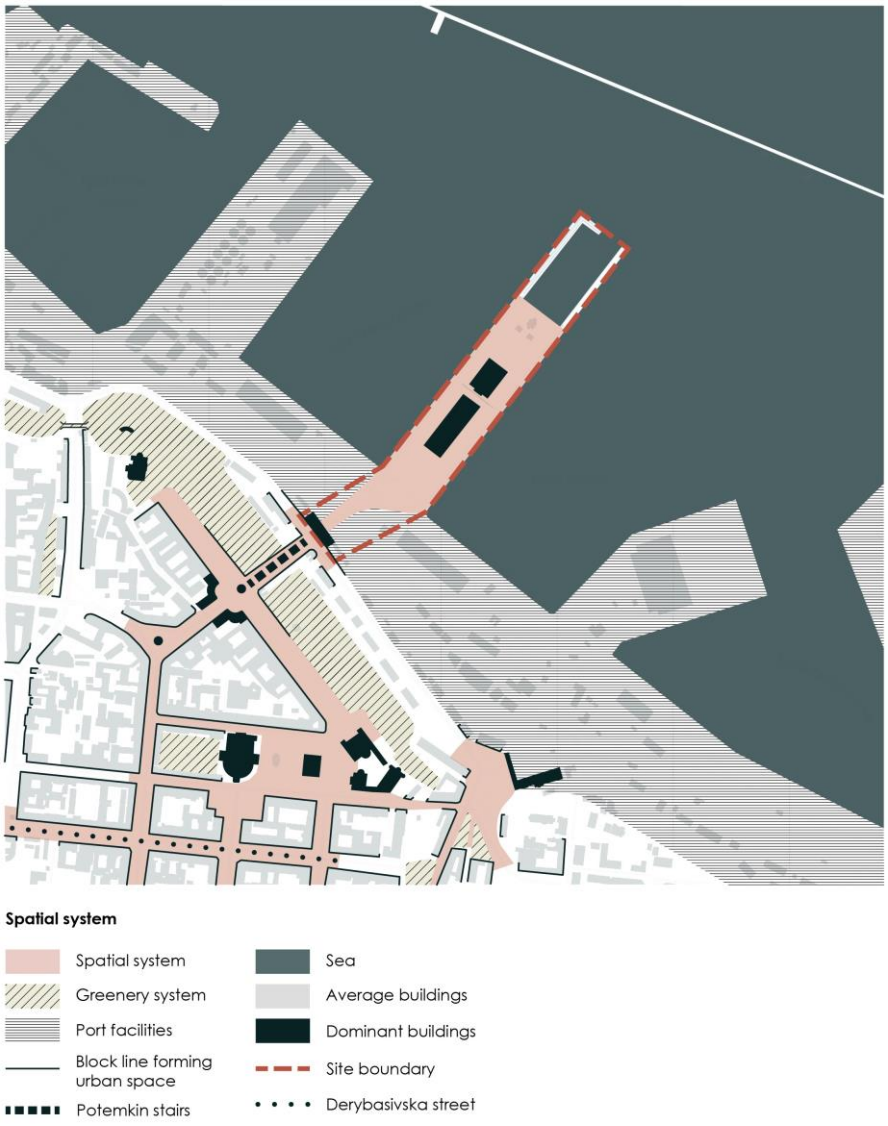



**Figure 30.** Spatial network diagram

### 3.8. Urban identity

The analysis of the urban composition revealed that the studied area is densely filled with volumetric dominants and low amount of vertical dominants in the city core, the destroyed hotel being one of them. However, such close positioning to the waterfront creates an issue of the building obscuring the city from the sea, therefore lowering the quality of panoramic view from the top of the hill.

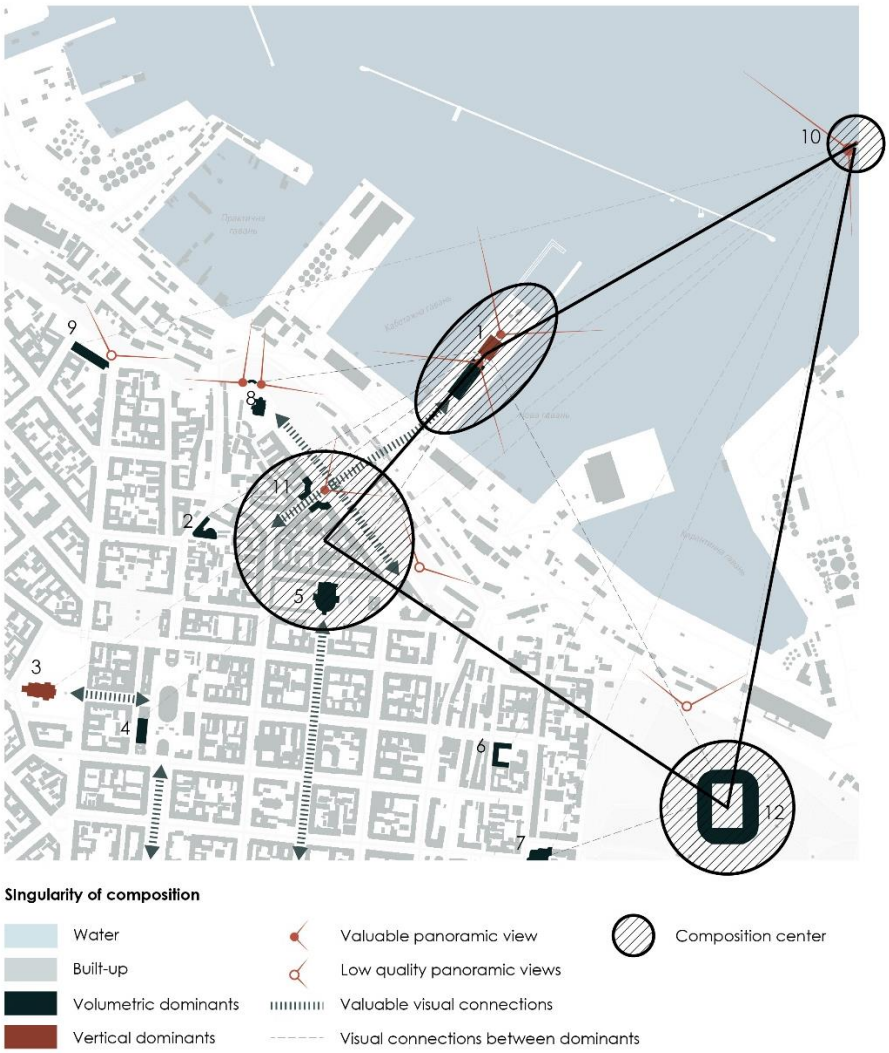
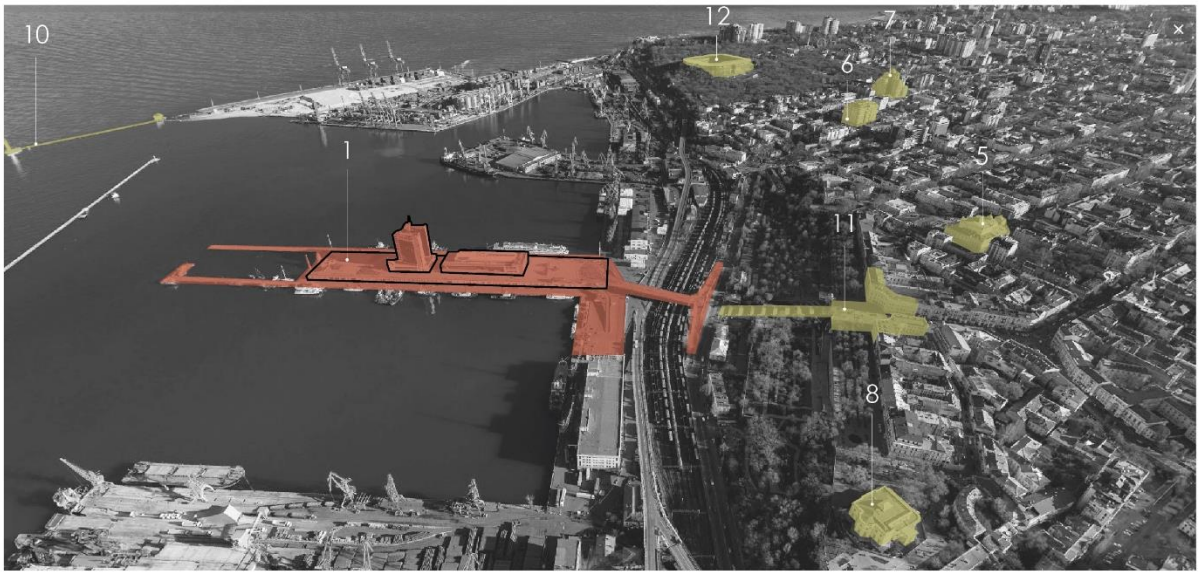



**Figure 31.** Singularity of the composition

A compositional connection was identified between several dominants, tree of which being positioned on an almost straight axis (Prymorskyi Blvd, Passenger Terminal complex

and Vorontsov Lighthouse). This further proves the need for a less vertical dominant on the site of the terminal to allow uninterrupted visual connection between the lighthouse and the historical city center.


Panoramic view № 10




Top view

**Figure 32.** Panoramic view №10; Top view.

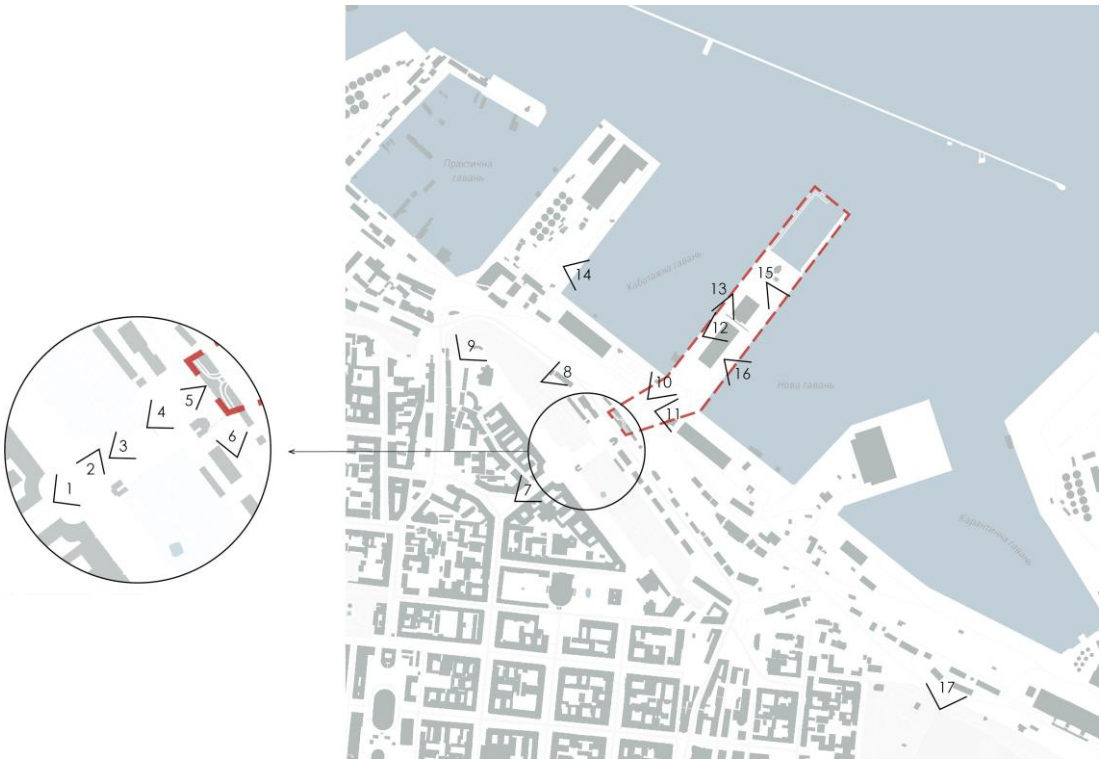



**Figure 33.** Photofixation

**Figure 34.** Photofixation № 1

**Figure 35.** Photofixation № 2

**Figure 36.** Photofixation № 3

**Figure 37**. Photofixation № 4

**Figure 38**. Photofixation № 5

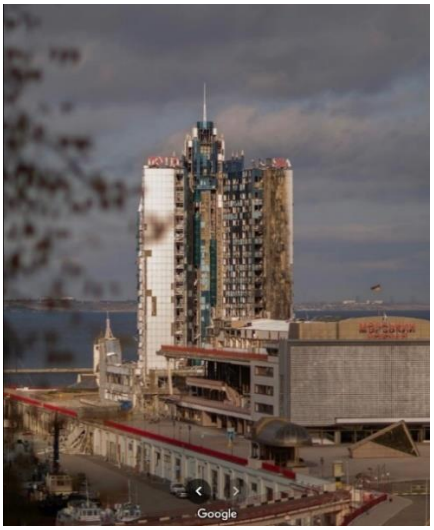



**Figure 39**. Photofixation № 8


**Figure 40.** Photofixation № 6

**Figure 41.** Photofixation № 7

**Figure 42.** Photofixation № 9


**Figure 43.** Photofixation № 10

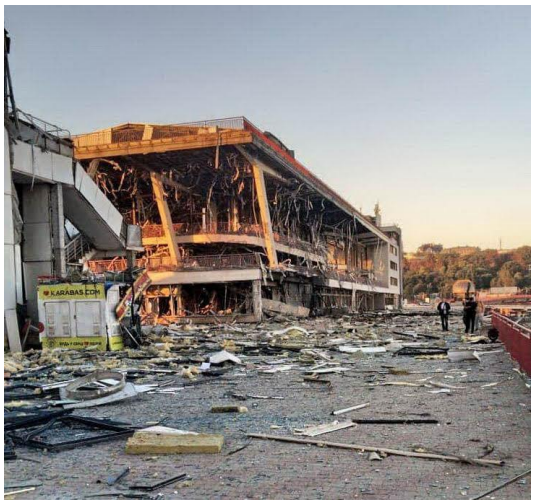


**Figure 44.** Photofixation № 13

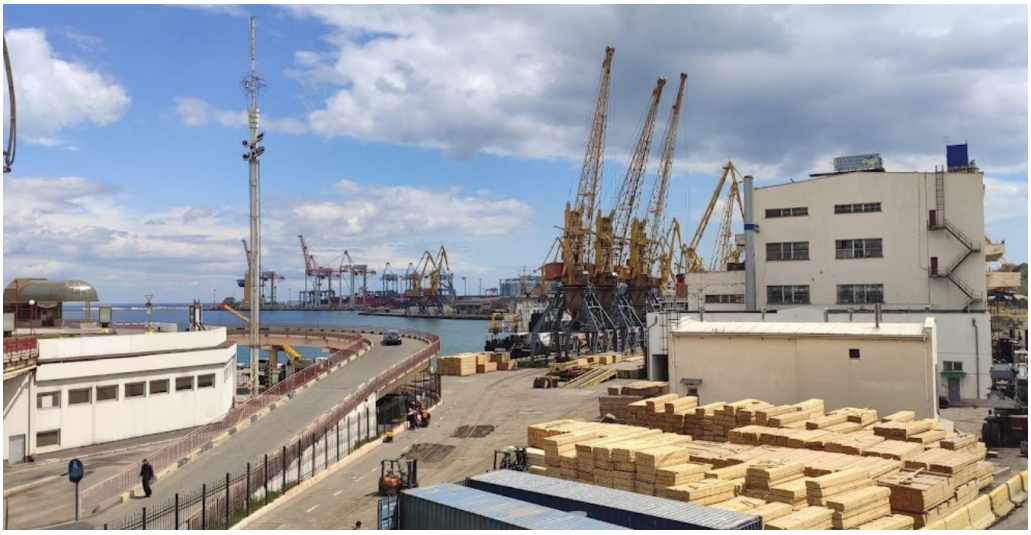


**Figure 45**. Photofixation № 11

**Figure 46.** Photofixation № 12

**Figure 47**. Photofixation № 14

**Figure 48.** Photofixation № 15

**Figure 49.** Photofixation № 16


**Figure 50.** Photofixation № 17

### 3.9. Conclusions

Based on the conducted assessment of the territory's characteristics, a several goals can be highlighted for the revitalization strategy of the chosen waterfront territory:

- Reconnect the terminal with the city (provide uninterrupted spatial channel from Cruise Terminal to the historical center - Potemkin Stairs in particular)
- Bring in more public recreational functions to the area
- Make waterfront more accessible
- Create a milder vertical contrast of the complex, thus visually and compositionally reconnecting city with the water

**DESIGN PART**

## 4. Idea development

### 4.1. Primary idea search

The early ideas of the project were born out of graphic experimentation with the existing plot structure and form. Varying from the forms and spatial solutions which would the least interfere with the existing context to the more radical changes to the plot. The main that combines all of them is to maintain and amplify the strong visual connection between Potemkin stairs urban area and the terminal complex. As a result, of this intention three main conceptual directions were visible at the beginning of the idea search process: the line, the gateway and the loop. On the further stages the gateway concept disperces some of its features into the other two and disappeared completely. However the line based idea got an additional variation with the proposal of the linear accass to the coplex ending in a diagonally directioned apron area which would allow for a simplified cruise ship turnaround path.

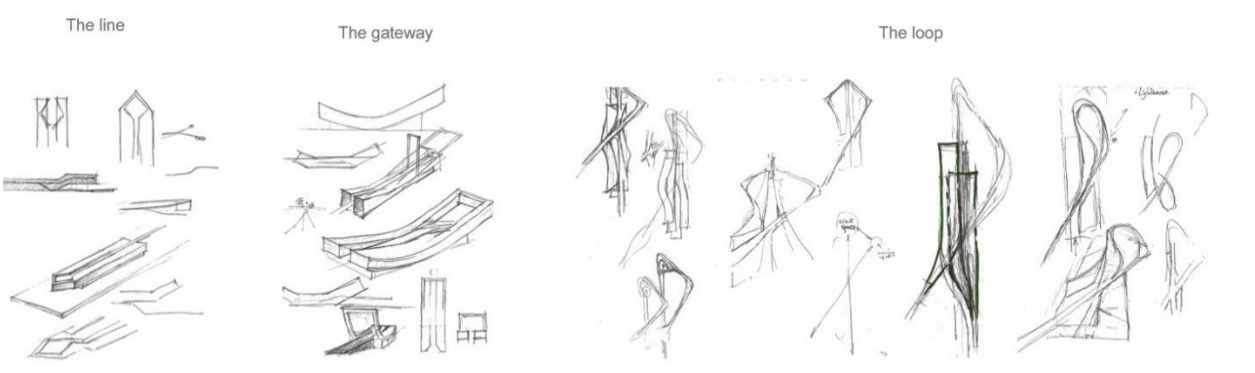



**Figure 51**. Concept sketch proposals

## 4.2. Option one

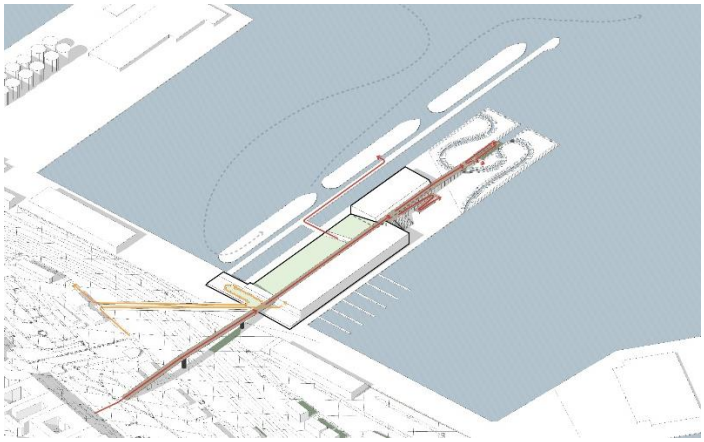


**Figure 52.** Option one axonometry.

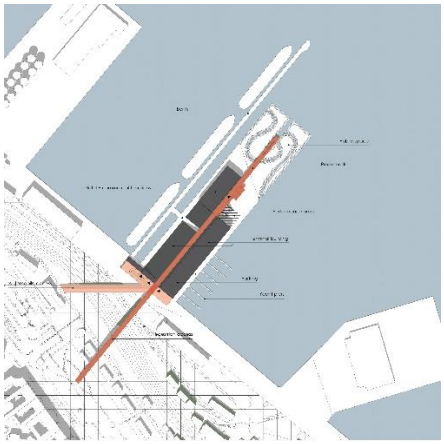


**Figure 53.** Option one diagram

The line concept focuses around creating a direct access to the complex using rising terrain of the Stambulskyy Park as a starting point and leading the visitor through the territory with its operational facilities in a straightforward way bringing them to a versatile public waterfront area. Additionally, this proposal removes the existing entrance group at the bottom of the Potemkin stairs thus fulfilling one of the chosen design principles – to open one of the main visual axis of the area. An improved pedestrian connectivity is established and the waterfront is transformed into an engaging community space. The simple rectangular volumes create a clear frame and a lead-up to the dominant space of the territory.

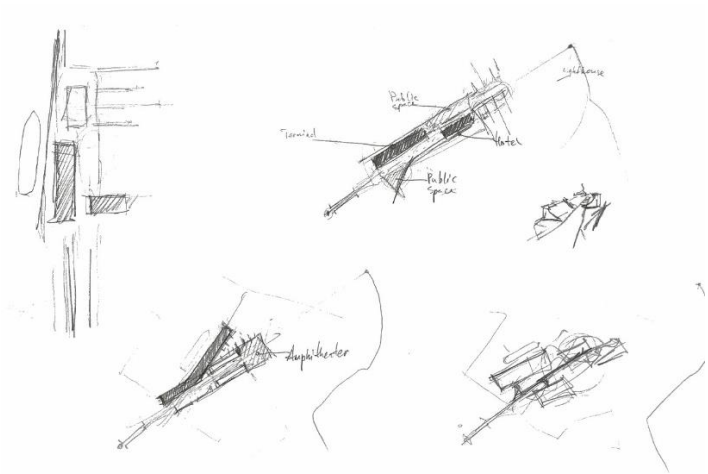



**Figure 54.** Option one sketches

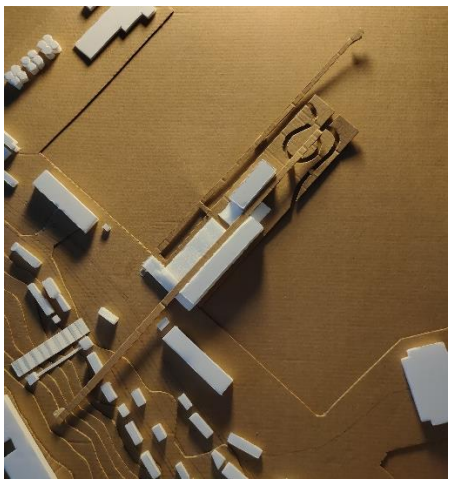


**Figure 55.** Option one sketch model

## 4.3. Option two

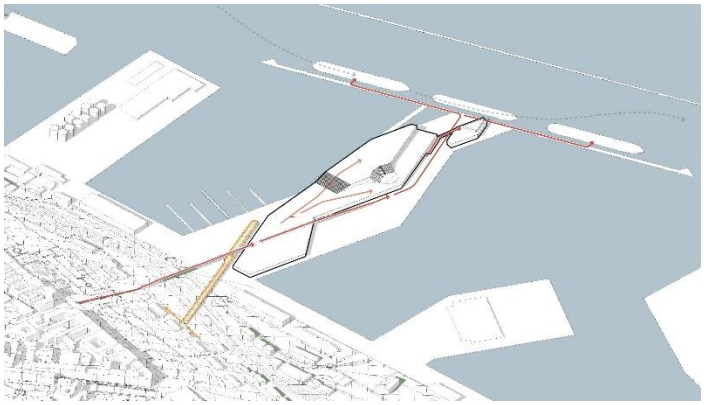


**Figure 56.** Option two axonometry

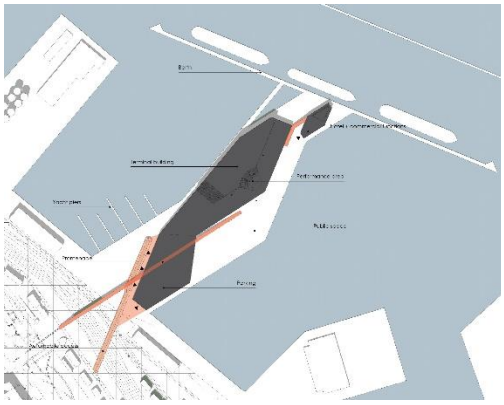


**Figure 57**. Option two diagram

The line based idea got an additional variation with the proposal of a linear access to the coplex straight from the Potemkin stairs and ending in a diagonally directioned apron area which would allow for a simplified cruise ship turnaround path. The site composition idea took its origin from breaking down a port crane shape. In this scenario the pedestrian circulation and the ground transportation area do not intersect and create a safe non-barier envitonment for a pedestrian movement leading into several hierarcically separated community spaces and promenades.

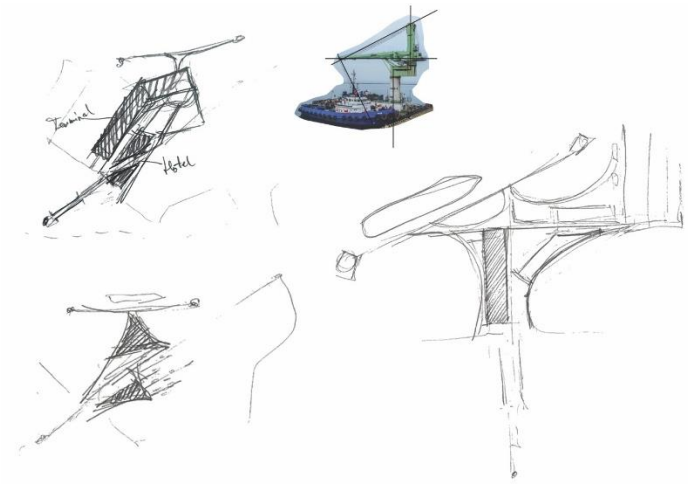


**Figure 58.** Option two sketches

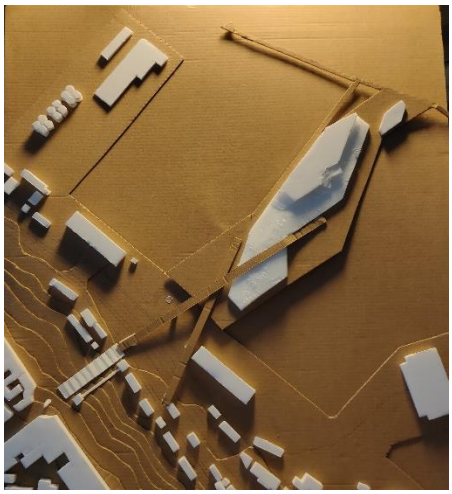


**Figure 59.** Option two sketch model

## 4.4. Option three

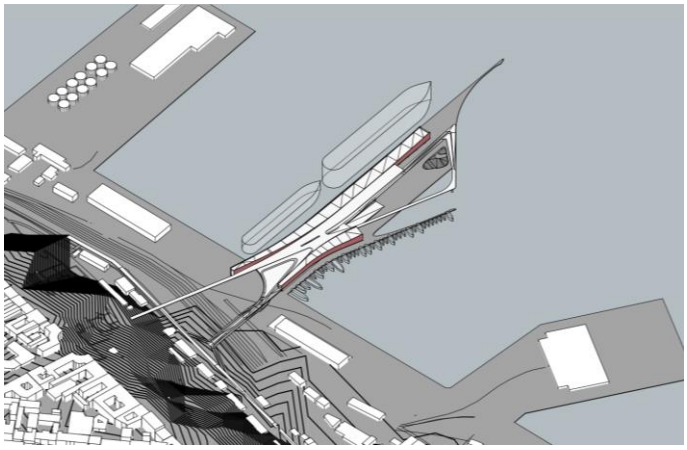


**Figure 60.** Option three axonometry

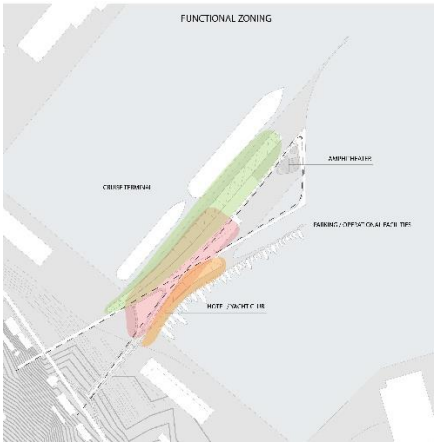



**Figure 61.** Option three diagram

The final proposal develops a loop symbolic loop element in a form of a continuous ramp that defines the shape of main volumes. It serves as a main compositional element and pedestrian access to the territory as well as creates a promenade that provides a strong visual connection to the Vorontsovsky lighthouse and encloses the civic space inside. The volumes of the cruise and yacht club are framing the promenade from both sides creating a clear differentiation between the ground transportation area at the beginning of the plot and a public space at the end of it. In this proposal the cruise ships are circulating alongside the left apron and private yeach – on the right one, thus dispersing marine traffic into manageble zones.

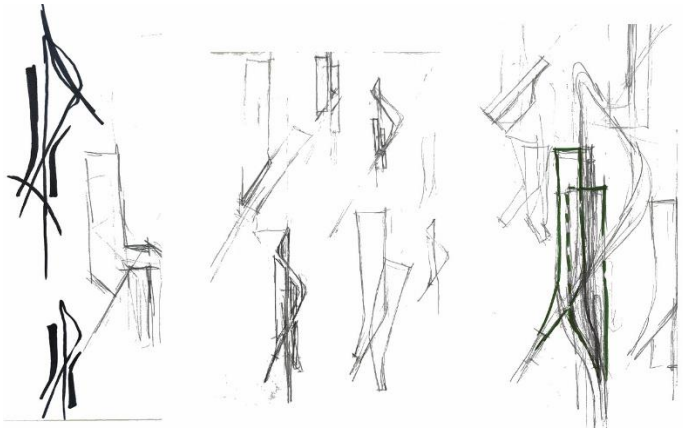


**Figure 62.** Option three sketches

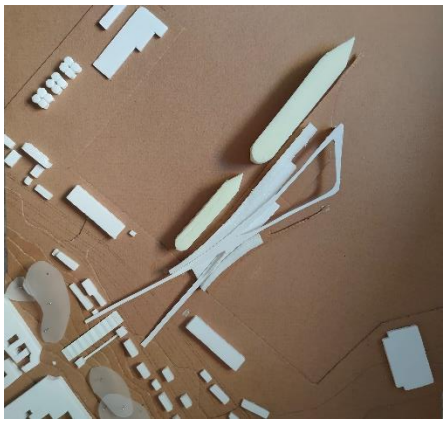


**Figure 63.** Option three sketch model

## 4.5. Final idea

Option three was chosen for a further development and detalisation as it creates a more harmonious volumetric solution, transitioning an existing vertical dominant into a milder horizontal one that fits more effectively into the present context. The primary compositional element – the ramp – is shaped in a way that allows it to connect a dense urban area with the port's civic space while providing a strong visual connection to the Vorontsovsky lighthouse from a viewing platform. In terms of functional separation it is proposed to divide embarkation, disembarkation and operational processes each on its own level to provide a seamless traffic circulation within the building.

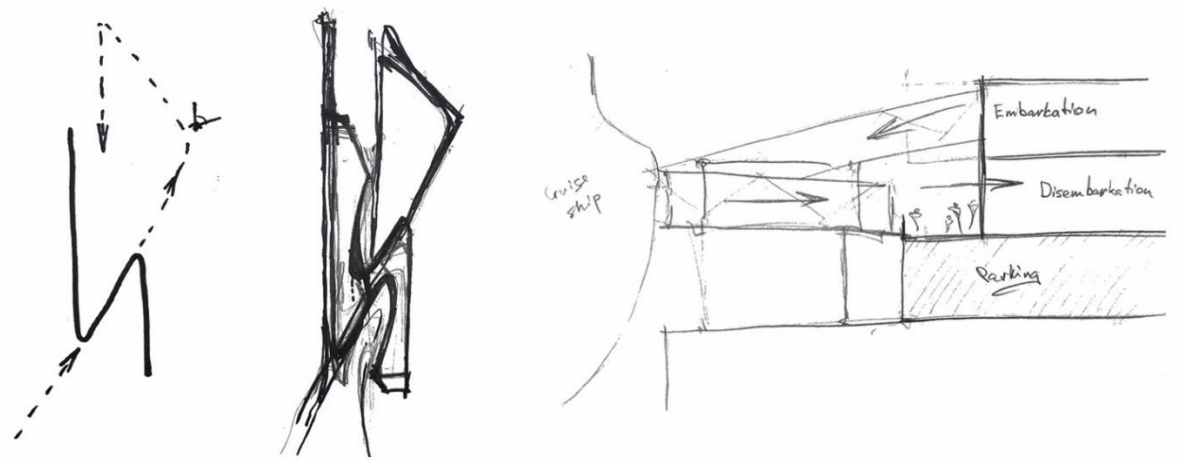



**Figure 64.** Final idea sketches

## 5. Explanatory note

### 5.1. Idea

Following the loop symbolic idea, the volumetric proposal has reached its final version, featuring a set of “loops” accompanied by “waves,” and harmonized with a simple rhythmic facade composition. This design choice came from an analysis of both natural patterns and the local architectural context, which guided the prototyping and outlining of the project's composition.

The loop, as a central element, acts as a dominant defining force for the space-and-void formation of the architecture. It serves as both a structural and conceptual anchor, framing the spatial dynamics and ensuring a continuous visual and pedestrian connection within the complex and the waterfront.

The main volume modifications were inspired by the lines produced by currents on sand under water. These natural, wave like patterns provided a dynamic and organic foundation for shaping the building's form. The more dynamic variation of them is used for the pedestrian bridge composition and further transitions into a milder pattern for the building volume, specifically the roof elements. .By integrating these patterns, I aimed to create a sense of dynamism, movement and fluidity within the architecture, allowing the structure to resonate with its natural surroundings and evoke a connection to the landscape.

Additionally, the rhythmic structure and proportions of the surrounding neoclassical architecture played a crucial role in the façade solution. The existing architectural language of the area, characterized by its balanced and repetitive forms, offered a historical context that I sought to respect and reinterpret. By echoing these proportions, the façade harmonizes with its environment and references the architectural heritage of the local urban fabric.

Ultimately, these architectural choices aim to blend innovation with tradition, creating a building that is both contemporary and contextually aware. The interplay of loops and waves,

inspired by natural and historical elements, results in a design that is rhythmically balanced and visually engaging, enhancing the overall aesthetic and functional qualities of the project.

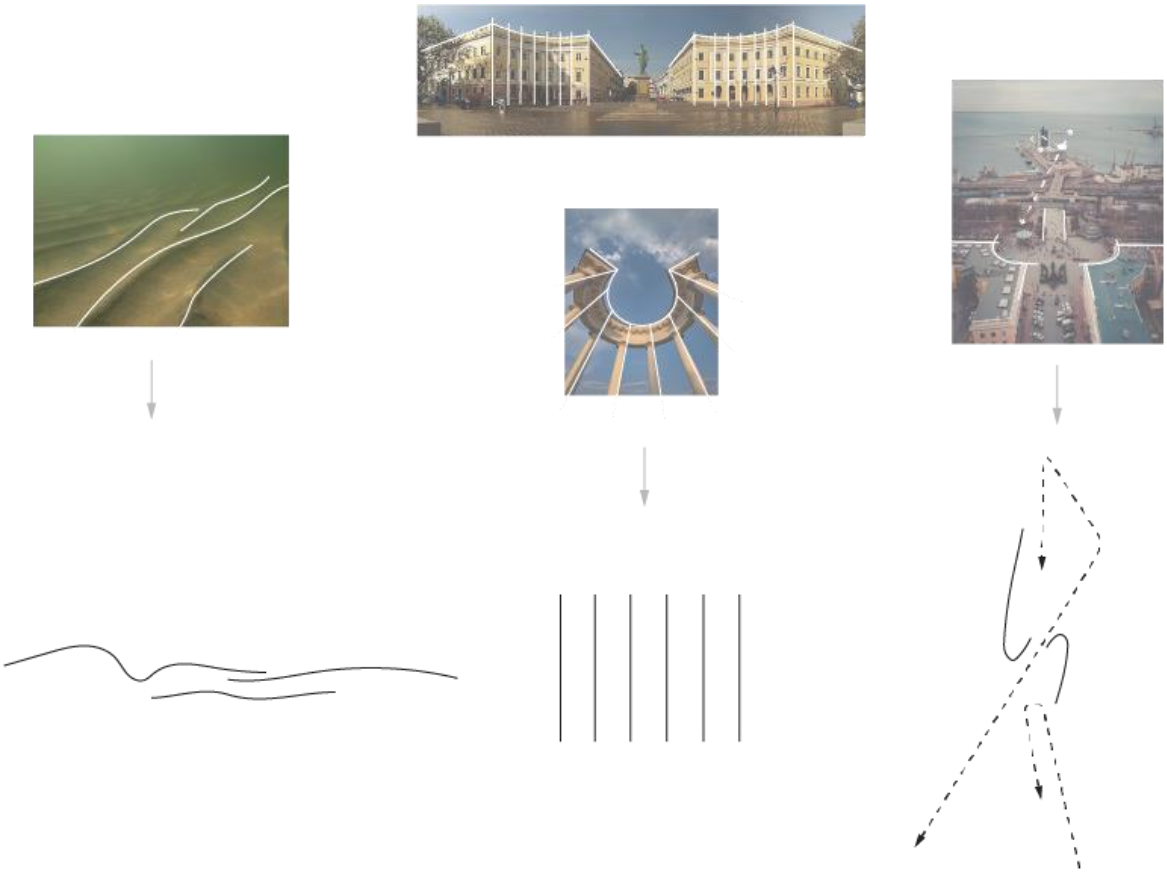


**Figure 65.** Principles of architectural concept formation

## 5.2. Project parameters and characteristics

Total area: 26 252 $m^2$

Cruise terminal: 16 916 $m^2$

Ferry terminal: 5 524 $m^2$

Other: 3 760 m2

Managed territory area: ~ 75 000 m2

Highest point (building): 15 320 m

Highest point (bridge): 34 880 m

Passenger capacity: 2000 to 5000 passengers

Port classification: Hybrid cruise port (used for both home-porting and transit activities)

### 5.3. Circulation principles

The movement circulation is separated into three main flows.

First one – the general transportation access through the bridge connecting Prymorska street and the port's ground transportation area (GTA). This channel provides a full public access to the port's territory, including all private vehicles, public transportation and taxis. The road also includes a short-term parking areas, ramp to Level 0 for the long-term parking access, pedestrian promenade and green areas.

The second access point is situated at Level 0 and comes from a less open road that is also part of Odesa's port technical routes. This access serves a dual purpose: it provides the quickest and most convenient route for supplies and cruise terminal operations procedures, and it facilitates the process for transit cruise liners arriving with passengers. These passengers can board tourist shuttles at nearby parking lots, enjoy their visitation day, and then quickly reembark their vessels to proceed with their trip. This arrangement ensures that the transit tourist flow avoids interfering with the home-port users, maintaining a smooth and efficient operation for all terminal activities.

Lastly, the primary pedestrian access is arranged through the second bridge, which transitions into the loop promenade via a series of ramps. At the midpoint, visitors have the option to descend to Level 1. From there, they can either leave the territory through the transportation bridge or proceed to the public space via another ramp of the amphitheater's stairs. Alternatively, they can continue moving along the loop ramp, pass the viewing platform, and access the public space from the opposite side.

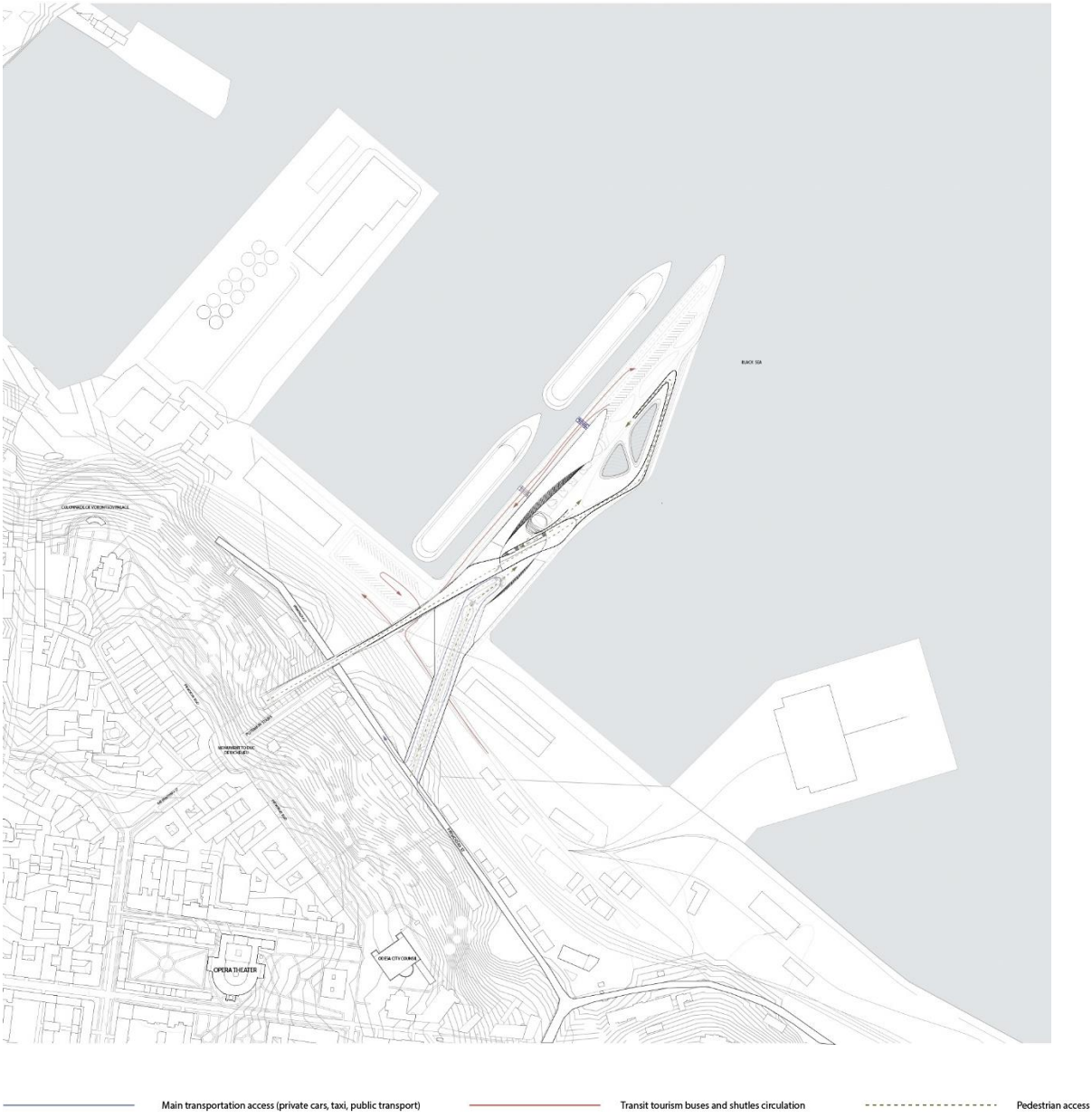



**Figure 66.** Situational scheme + movement circulation diagram

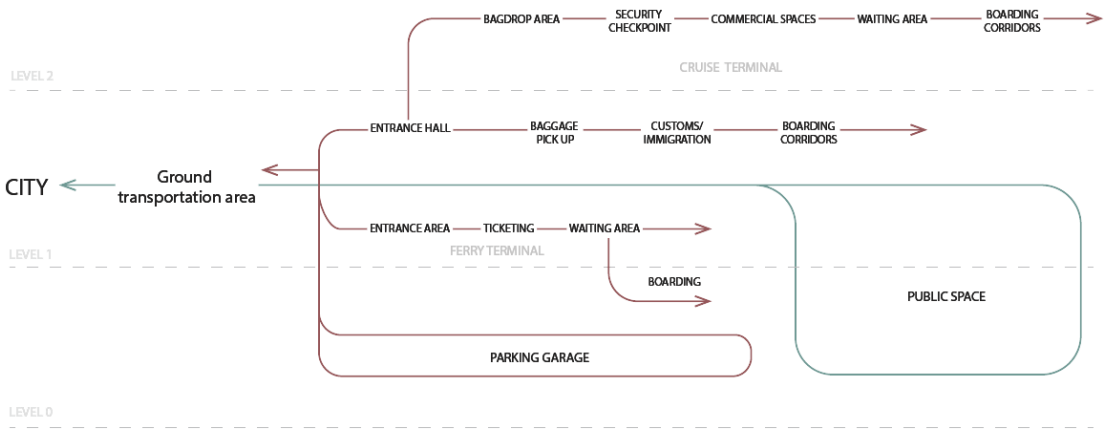



**Figure 67.** Circulation diagram by levels

## 5.4. Planning solutions

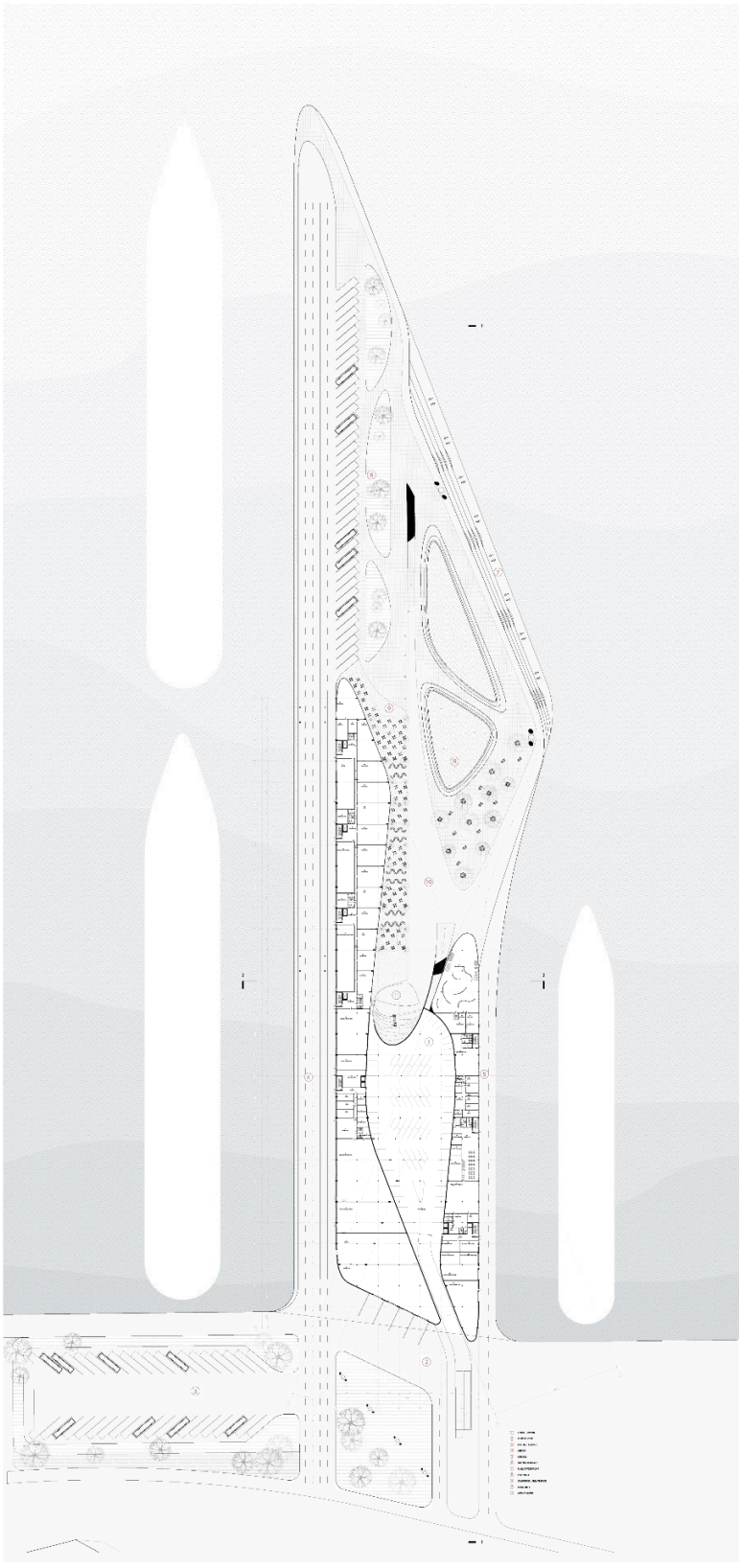


**Figure 68.** Level 0 plan

Level 0 Explication

| № | Name | Area |
|---|---|---|
| 1 | Parking garage | 3760 m² |
| 2 | Loading docks | 720 m² |
| 3 | Storage | 540 m² |
| 4 | Waste managment area | 456 m² |
| 5 | Baggage handling area | 653 m² |
| 6 | Break room | 83 m² |
| 7 | Office | 35 m² |
| 8 | Office | 32 m² |
| 9 | Office | 31 m² |
| 10 | Storage room | 23 m² |
| 11 | Changing room 2 | 27 m² |
| 12 | Corridor | 31 m² |
| 13 | Changing room 1 | 24 m² |
| 14 | WC | 16 m² |
| 15 | Janitor's room | 17 m² |
| 16 | Corridor | 34 m² |
| 17 | Electrical room | 102 m² |
| 18 | HVAC control room | 103 m² |
| 19 | Baggage handling area | 325 m² |
| 20 | Elevator hall | 51 m² |
| 21 | WC | 21 m² |
| 22 | Retail store | 105 m² |
| 23 | Retail store | 83 m² |
| 24 | Corridor | 38 m² |
| 25 | Machinery / equipment storage | 273 m² |
| 26 | Cafe | 93 m² |
| 27 | Elevator hall | 51 m² |
| 28 | Retail store | 103 m² |
| 29 | Room | 23 m² |
| 30 | Equipment room | 38 m² |
| 31 | Cafe | 115 m² |
| 32 | Retail store | 125 m² |
| 33 | Restaurant | 135 m² |
| 34 | Corridor | 38 m² |
| 35 | Maintenance workshop | 210 m² |
| 36 | Elevator hall | 53 m² |
| 37 | Retail store | 143 m² |
| 38 | WC | 23 m² |
| 39 | Equipment room | 38 m² |
| 40 | Cafe | 155 m² |
| 41 | Restaurant | 157 m² |
| 42 | Corridor | 37 m² |
| 43 | Storage | 207 m² |
| 44 | Retail store | 137 m² |
| 45 | Elevator hall | 56 m² |
| 46 | Restaurant | 162 m² |
| 47 | WC | 14 m² |
| 48 | Backroom | 53 m² |
| 49 | Room | 30 m² |
| 50 | Restaurant | 179 m² |
| 51 | Loading / storage zone | 305 m² |
| 52 | Waste managment area | 131 m² |
| 53 | Maintenance workshop | 55 m² |
| 54 | Machinery / equipment storage | 53 m² |
| 55 | Electrical room | 49 m² |
| 56 | HVAC control room | 50 m² |
| 57 | Corridor | 53 m² |
| 58 | WC | 11 m² |
| 59 | Office | 19 m² |
| 60 | Changing room | 9 m² |
| 61 | Changing room | 9 m² |
| 62 | Break room | 45 m² |
| 63 | Office | 22 m² |
| 64 | Baggage handling area | 241 m² |
| 65 | Waiting hall | 207 m² |
| 66 | Commercial space | 26 m² |
| 67 | Commercial space | 27 m² |
| 68 | Commercial space | 74 m² |
| 69 | WC | 24 m² |
| 70 | Meeting room | 13 m² |
| 71 | Office | 26 m² |
| 72 | Office | 20 m² |
| 73 | Office | 21 m² |
| 74 | Corridor | 10 m² |
| 75 | Break room | 40 m² |
| 76 | Storage room | 15 m² |
| 77 | Office | 31 m² |
| 78 | Office | 20 m² |
| 79 | Corridor | 14 m² |
| 80 | WC | 9 m² |
| 81 | Disembarkation hall | 175 m² |
| 82 | WC | 21 m² |
| 83 | Storage room | 85 m² |
| 84 | Loading room | 60 m² |
| 85 | WC | 6 m² |
| 86 | Stuff room | 11 m² |
| 87 | Stuff room | 20 m² |
| 88 | Exhibition space | 618 m² |
| Total : 88 | | 12585 m² |

Level 1 Explication

| № | Name | Area |
|---|---|---|
| 89 | Entrance hall | 1109 m² |
| 90 | Cafe | 179 m² |
| 91 | Information desk | 24 m² |
| 92 | Check-in / Baggage drop-off | 51 m² |
| 93 | Backroom | 79 m² |
| 94 | Ticketing | 61 m² |
| 95 | WC | 50 m² |
| 96 | Janitor's room | 6 m² |
| 97 | Disembarkation waiting zone | 215 m² |
| 98 | Car rental service | 37 m² |
| 99 | Baggage pick-up | 572 m² |
| 100 | WC | 19 m² |
| 101 | Customs / Immigration | 772 m² |
| 102 | Security room | 10 m² |
| 103 | Security room | 10 m² |
| 104 | Stuff room | 10 m² |
| 105 | Elevator hall | 24 m² |
| 106 | WC | 18 m² |
| 107 | Corridor | 50 m² |
| 108 | Office | 45 m² |
| 109 | Office | 43 m² |
| 110 | Office | 44 m² |
| 112 | Office | 60 m² |
| 114 | Room | 18 m² |
| 115 | Room | 18 m² |
| 116 | Self check-in | 33 m² |
| 117 | Break room | 94 m² |
| 119 | Office | 35 m² |
| 120 | Office | 34 m² |
| 121 | Office | 37 m² |
| 122 | Office | 39 m² |
| 123 | Office | 37 m² |
| 124 | Office | 38 m² |
| 125 | Office | 35 m² |
| 126 | Office | 32 m² |
| 129 | Corridor | 92 m² |
| 130 | WC | 11 m² |
| 131 | Cafe | 192 m² |
| 132 | Entrance hall | 476 m² |
| 133 | Information desk | 32 m² |
| 134 | Self service | 29 m² |
| 135 | Ticketing | 36 m² |
| 137 | WC | 33 m² |
| 138 | Security office | 26 m² |
| 139 | Security office | 25 m² |
| 140 | Stuff room | 52 m² |
| 142 | WC | 26 m² |
| 143 | Disembarkation exit hall | 220 m² |
| 145 | WC | 21 m² |
| 146 | Exhibition space | 781 m² |
| 111 | Office | 52 m² |
| 113 | Disembarkation hall | 1055 m² |
| 128 | Conference room | 84 m² |
| 118 | Kitchen | 17 m² |
| 127 | Office | 26 m² |
| 136 | Commercial space | 50 m² |
| 141 | Waiting hall | 258 m² |
| 144 | Disembarkation hall | 177 m² |
| Total: 58 | | 7707 m² |

Level 2 Explication

| № | Name | Area |
|---|---|---|
| 147 | Embarkation entrance hall | 251 m² |
| 148 | Security checkpoint | 311 m² |
| 149 | WC | 19 m² |
| 150 | Corridor | 34 m² |
| 151 | Office | 22 m² |
| 152 | Office | 24 m² |
| 153 | Office | 19 m² |
| 154 | Office | 21 m² |
| 155 | Office | 21 m² |
| 156 | Elevaor hall | 23 m² |
| 157 | Customs / Immigration | 195 m² |
| 158 | WC | 18 m² |
| 159 | Stuff room | 19 m² |
| 161 | Security room | 18 m² |
| 162 | Waiting area | 2021 m² |
| 163 | WC | 17 m² |
| 164 | WC | 18 m² |
| 165 | VIP lounge | Not Placed |
| 166 | WC | 17 m² |
| 160 | VIP lounge | 608 m² |
| Total: 20 | | 3676 m² |

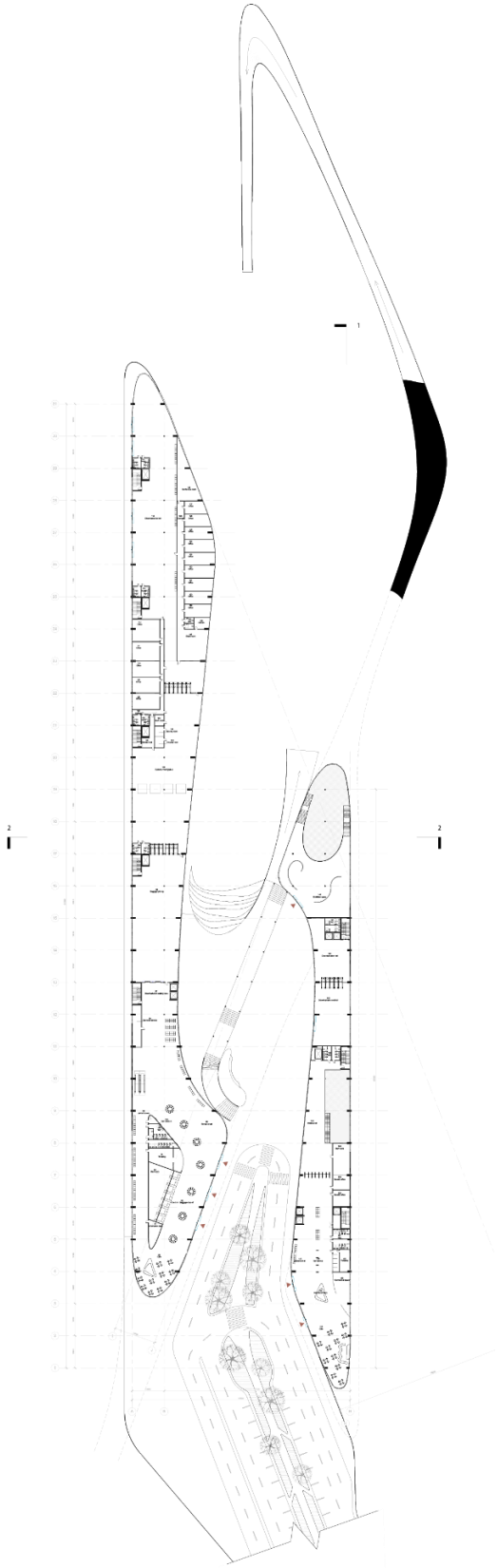


**Figure 69.** Level 1 plan

**Figure 70.** Level 2 plan

The planning solution features a clear functional separation between the domestic and international ports. The international terminal, capable of accommodating various configurations such as 3 small, 2 medium-sized, 1 large plus 1 small, or 1 extra-large cruise ship simultaneously, has access to the longest apron area.

The domestic part (ferry terminal), is provided with its own apron, allowing for completely separated operations.

At Level 0, the middle part of the building beneath the ground transportation area (GTA) is dedicated to long-term parking.

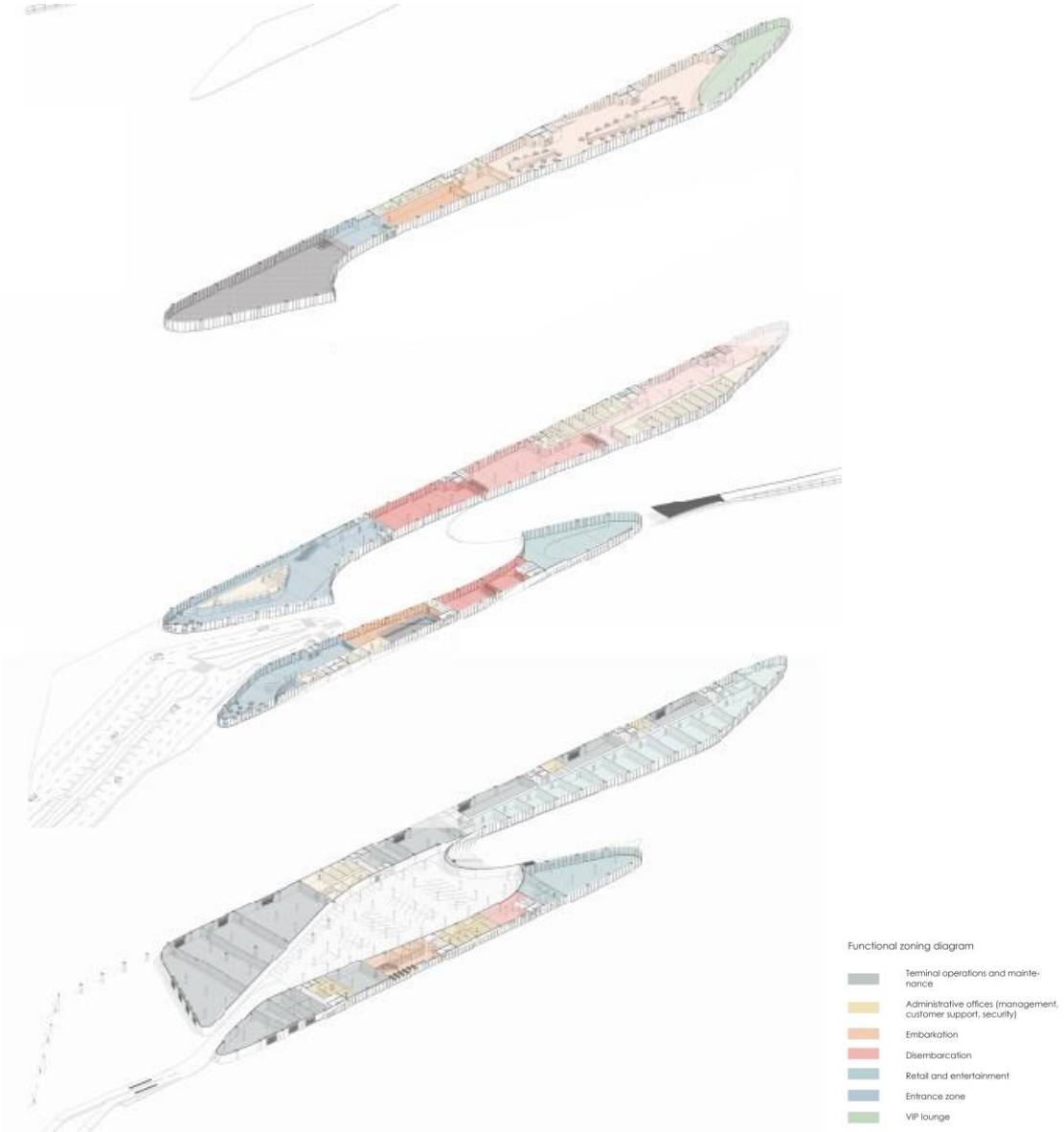



**Figure 71.** Functional zoning diagram

## 5.5.Facade solutions

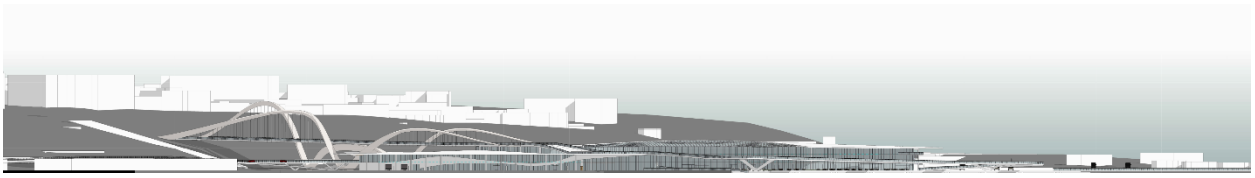


**Figure 72.** East facade

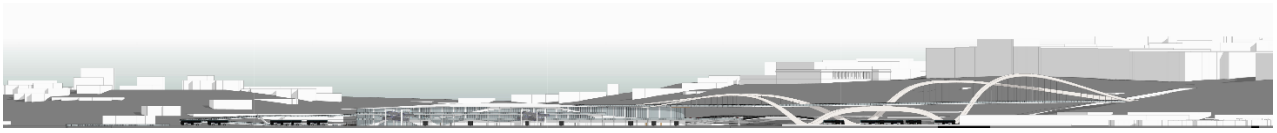


**Figure 73.** North facade

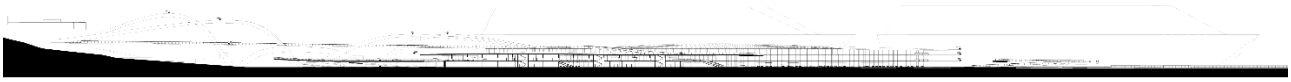


**Figure 74.** Section 1-1

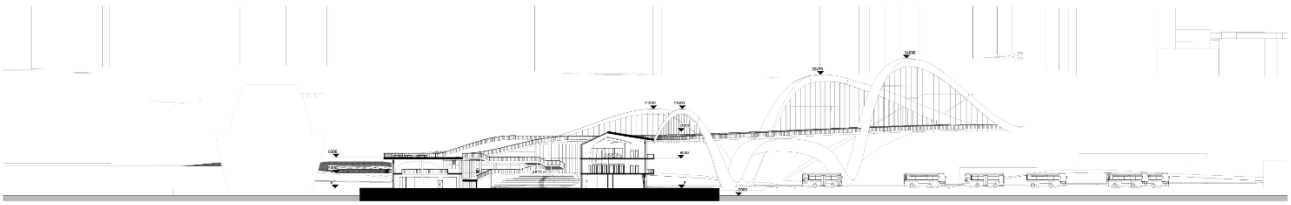


**Figure 75.** Section 2-2

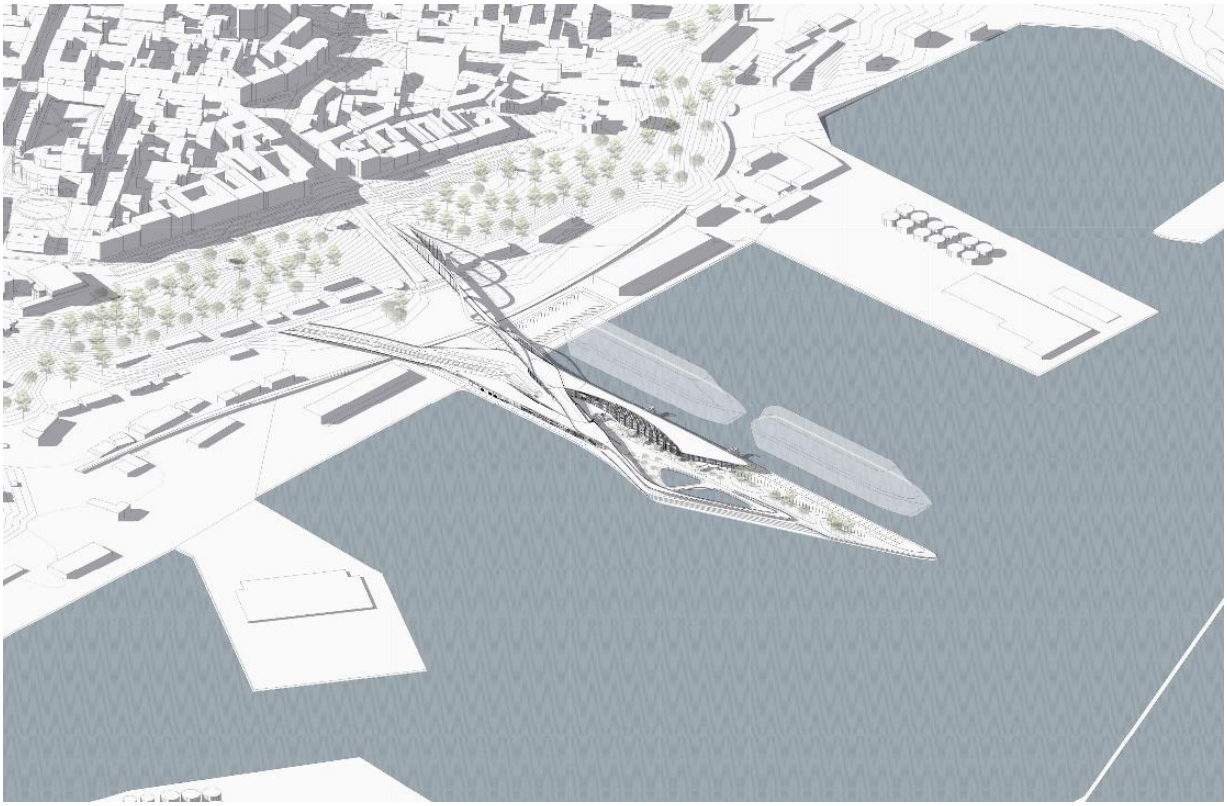


**Figure 76.** Axonometric view

## 5.6. Structural solutions

The project's constructional solutions feature a main bearing structure composed of a steel portal frame, which is covered with precast concrete for enhanced support. This combination easily adapts to the roof's curvature and creates a non-barrier space at Level 2. At Levels 0 and 1, additional precast columns are placed to provide further structural stability and support.

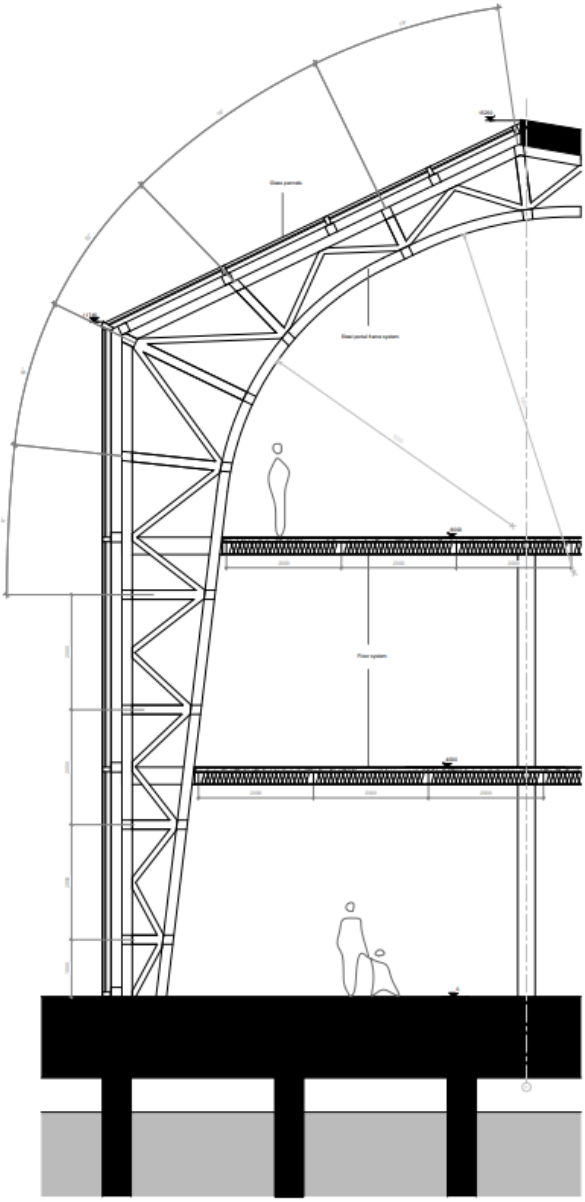


**Figure 77.** Architectural detai

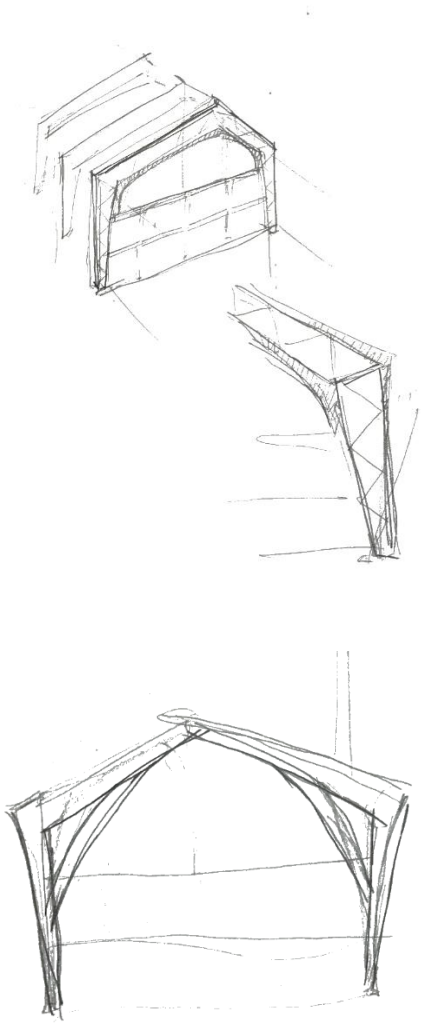


**Figure 78.** Structural proposal development

## 5.7.Materiality


**Figure 79.** Exterior materials

The general material palette of the project consists of natural-looking pastel materials, rich with texture, creating a soft and harmonious aesthetic while providing an engaging sensory experience. This is complemented by a few distinctive color accents that, while subtle, add character and depth to the overall design.

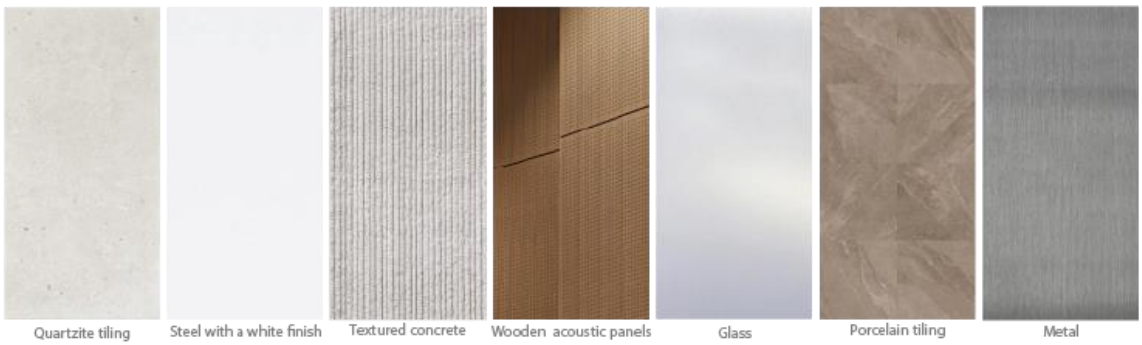



**Figure 80.** Interior materials

## 5.8. Visualizations

**Figure 81.** Visualization 1 (panoramic view)

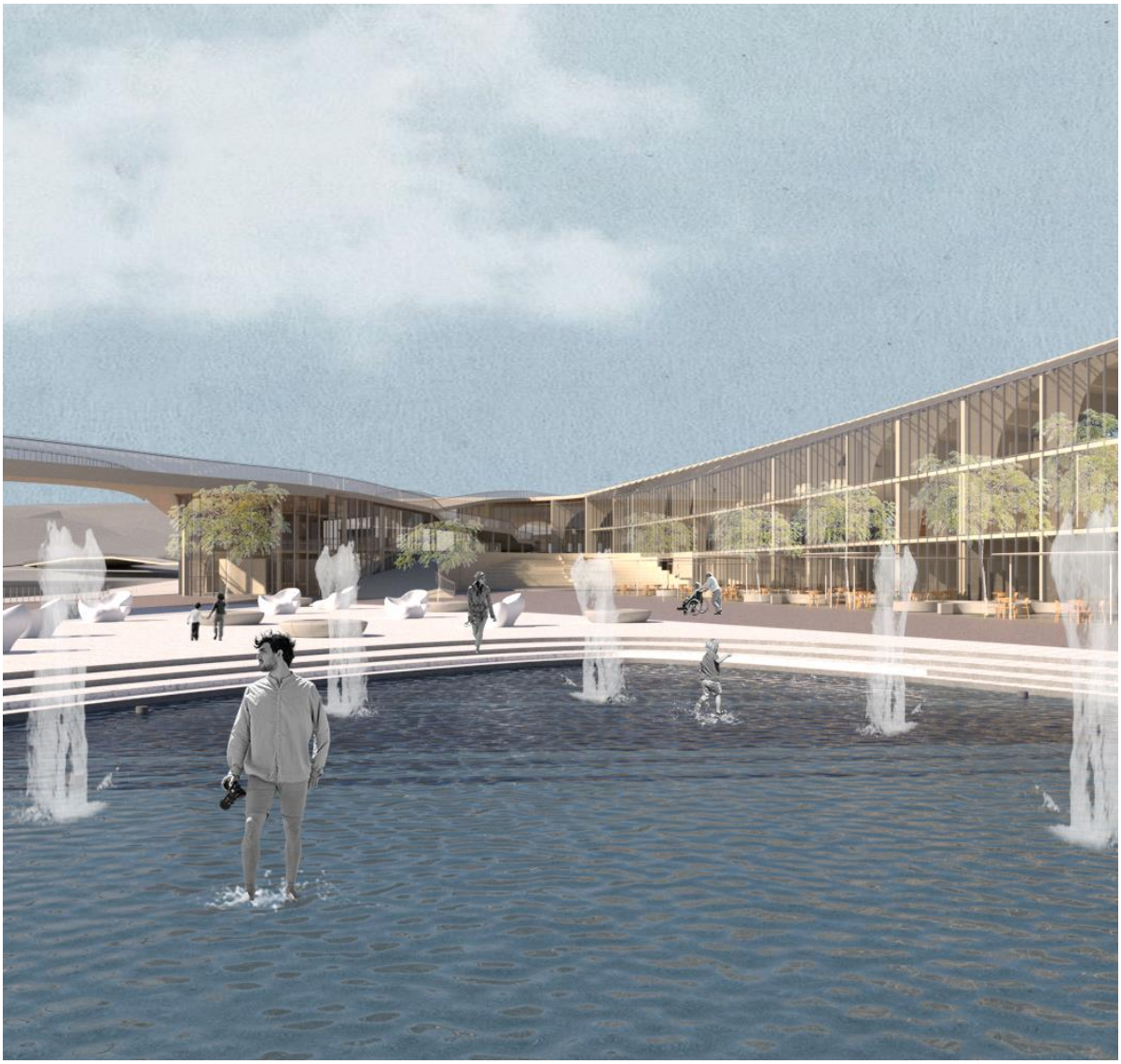


**Figure 82.** Visualization 2 (view from public space)

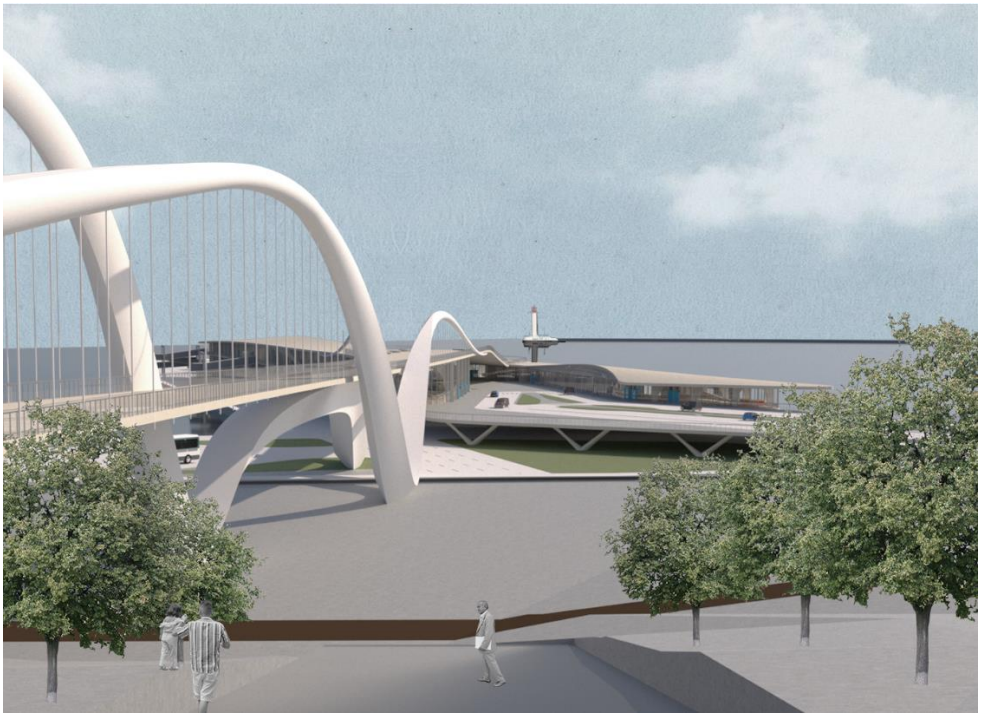


**Figure 83.** Visualization 3 (view from Potemkin stairs)

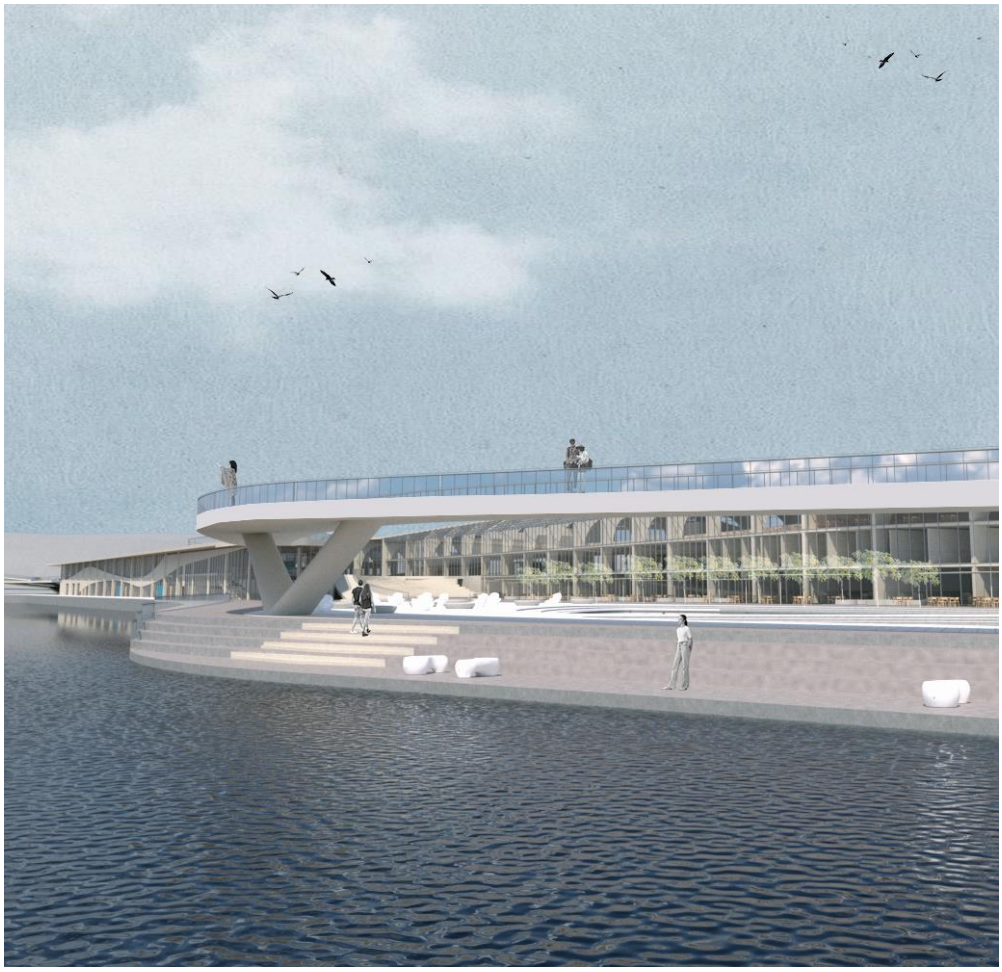


**Figure 84.** Visualization 4 (waterfront area)

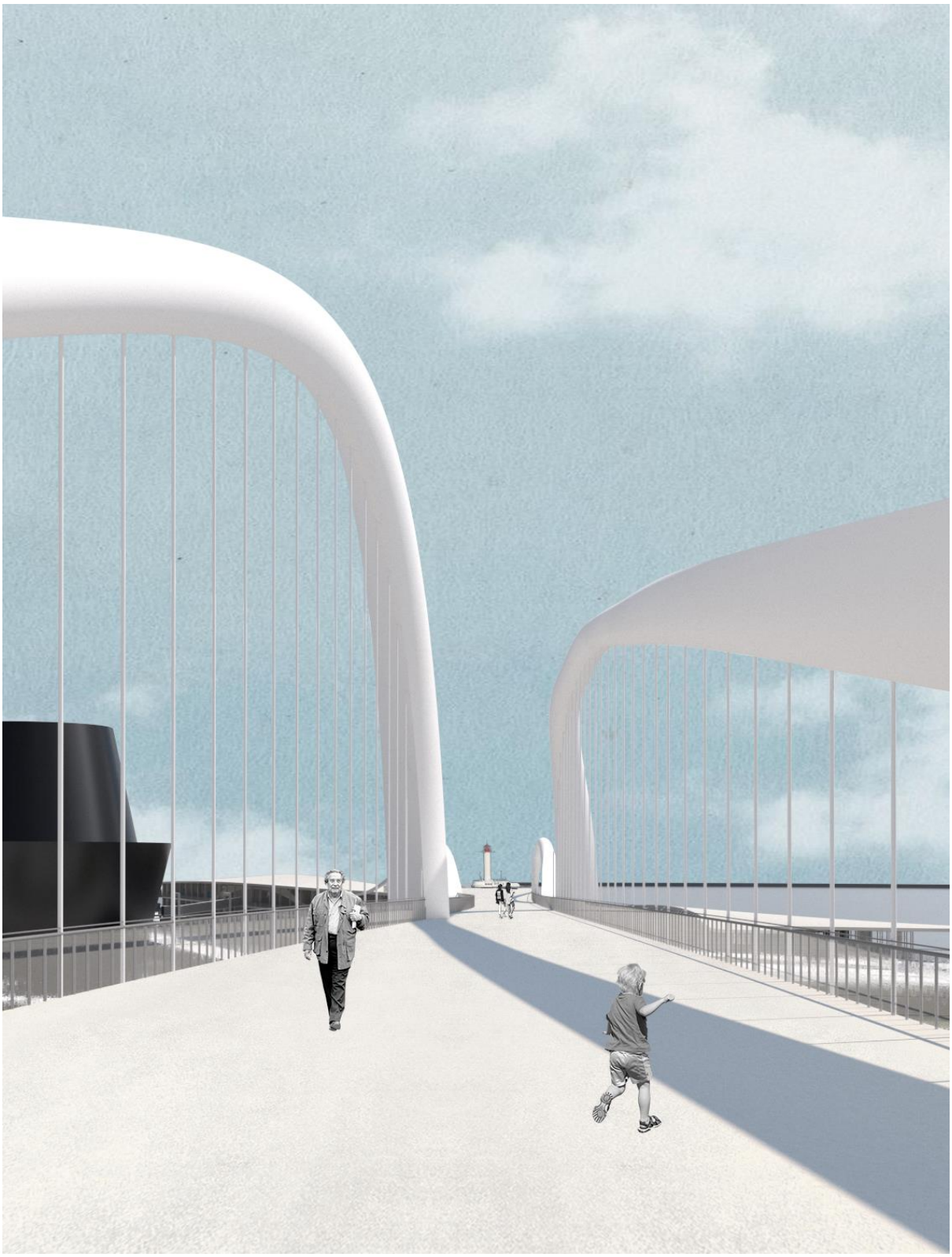


**Figure 85.** Visualization 5 (bridge view)

**Figure 86.** Visualization 6 (cruise port waiting/embarkation hall)

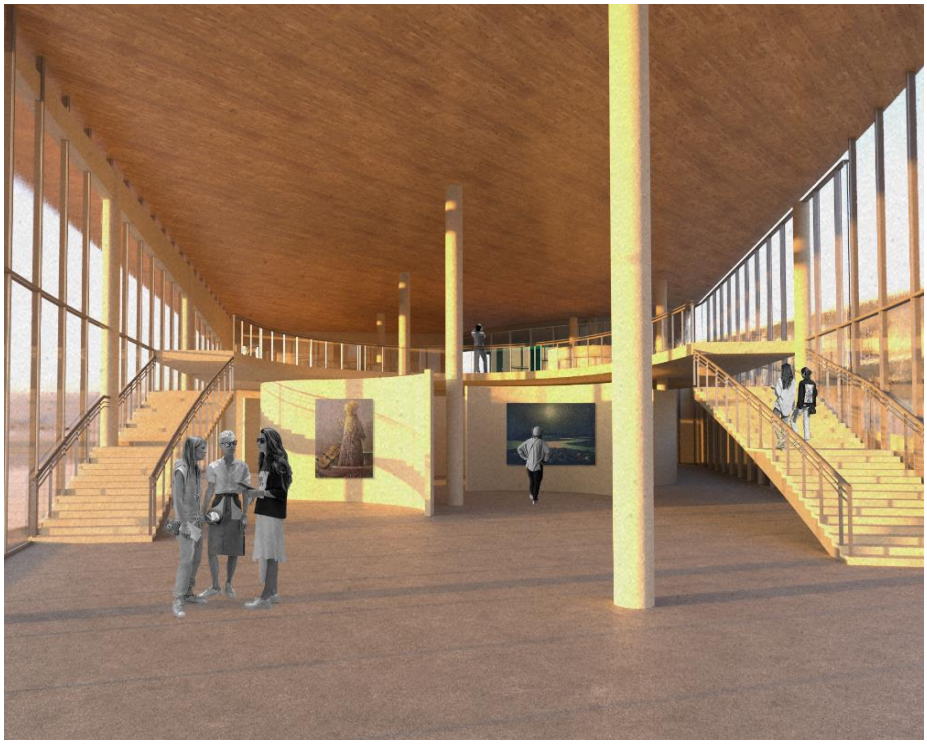


**Figure 87.** Visualization 7 (exhibition space)

**Figure 88.** Visualization 8 (cruise port entrance hall)

## 6. Conclusions

On the basis of performed theoretical, analytical, and practical research, it can be concluded that connecting architecture is not merely a physical construct but a dynamic medium that facilitates social interaction, cultural exchange, and bridges time continuities. This multifaceted nature of the phenomenon creates a necessity for examination from diverse and sometimes unexpected perspectives. Achieving a profound sense of architectural connectivity requires the harmonious integration of spatial integrity, and visual, sensory, cultural, and symbolic elements. And it is essential for them to work in close tandem to get at least close to producing the desired all-absorbing feeling of architectural connectivity.

In an attempt to do so in the context of Odesa's cruise port, I explored the aspects of spatial, visual, and symbolical connectivity as forming factors of a deeply intricate architectural complex that plays a crucial role in a life and identity of a city as a whole. Thus, throughout my explorations, it has become evident that, even though the project's primary focus lies in architectural solutions, the unique context of the port inevitably necessitates an urban perspective, recognizing the port as a literal gateway to the city that absolutely cannot be viewed without its context. Consequently, the result of my practical explorations is a project, that combined in itself spatial, visual, cultural, and symbolic aspects of architectural connectivity while integrating those features with the surrounding urban fabric, illustrating how the city itself can shape an architectural form.

Thus, my research addresses themes of architectural integrity, sustainability, and connectivity through practical application and, at the same time, highlights a crucial dilemma in architectural research in general: where does urbanism end and architecture begins? And in my opinion, it is evident that these disciplines are deeply intertwined, and understanding their interdependence is vital for creating holistic and effective architectural design.

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## APPENDICES

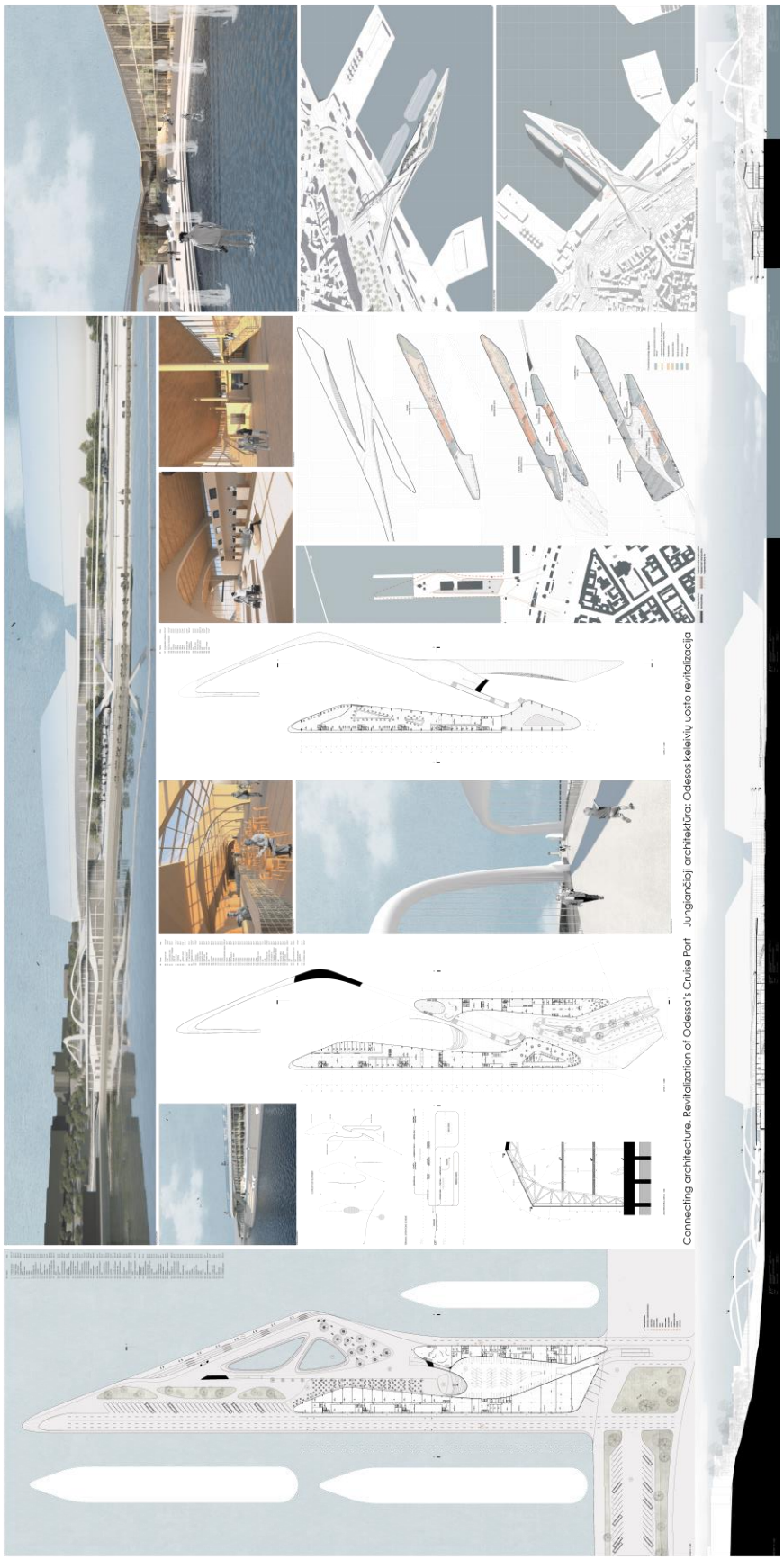


**Figure 90.** Posters composition