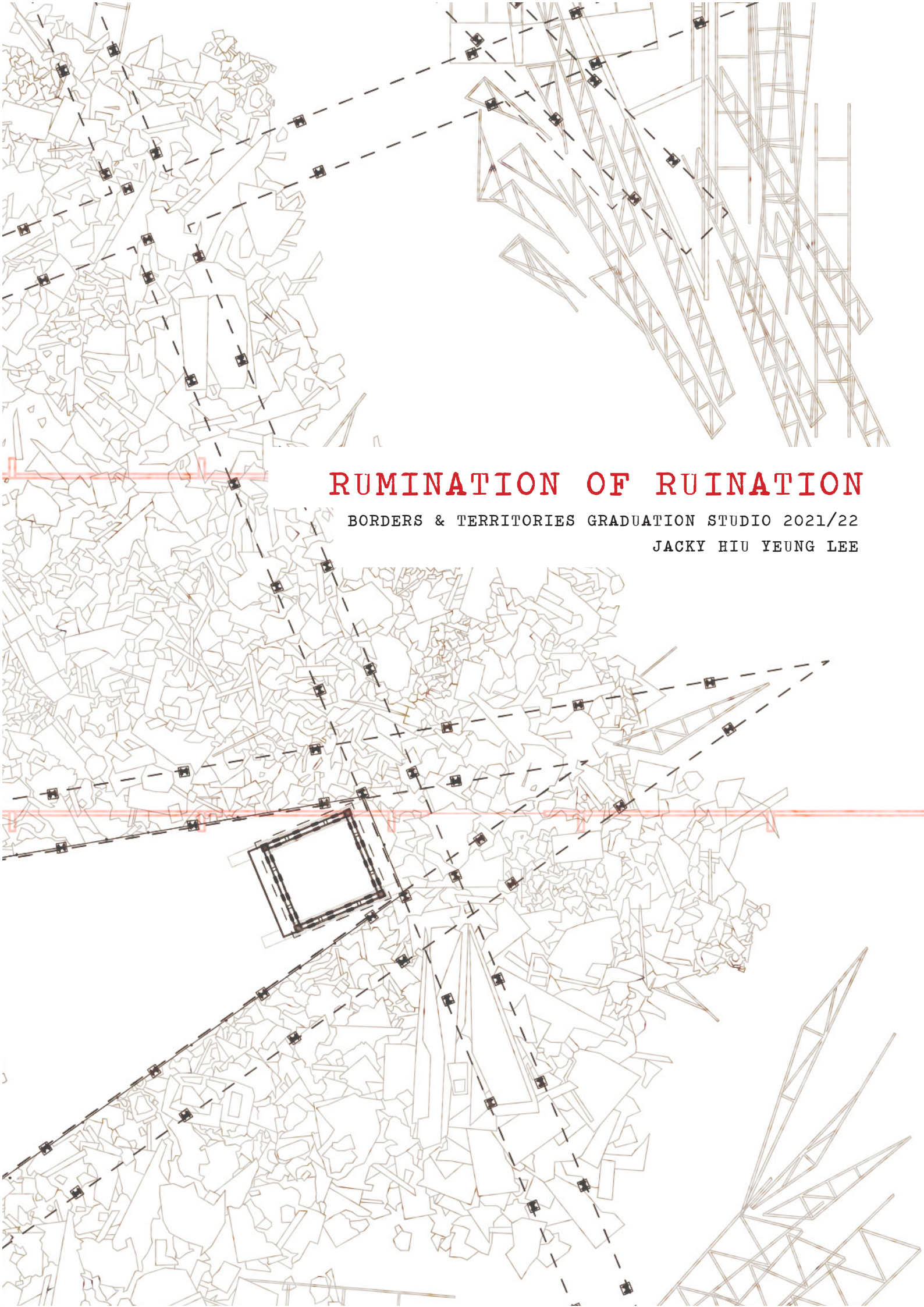

RUMINATION OF RUINATION

BORDERS & TERRITORIES GRADUATION STUDIO 2021/22

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Border & Territories Graduation Studio
2021/2022
Transient Liquidities
Along the New Silk Road

Technical University Delft
Faculty of Architecture

1. INTRODUCTION

The city of Trieste has been filled with ageing urban fabrics and abandoned industrial buildings due to obsolescence. Witnessing the decay of the city excusably provoked the pessimism of the locals as it made them conscious of the fact that their life and pride are degrading. The negative labels associated with decay inevitably seized the general definition and cognition. However, deterioration can only be understood as one of the superficial readings of the phenomenon of decay. As depicted in many arts and literature, decay does have its only poetics, aesthetics and intrinsic values that embellish and complement the urban environment and memories. Meanwhile, the degeneration of architecture with symbolic values, be it an intentional or inadvertent incident, would implicate significant political messages and ideas to the society. In the case of Trieste, the meanings of this natural (and occasionally artificial) process are still to be explored and discussed. Is there a possibility that decay could be considered a constructive phenomenon that can sublime as a form of regeneration for the ageing city? The project would then be an experiment that attempts to embrace the material processes, aesthetics and the spatial and programmatic potentials informed by the phenomenon of decay. It searches for alternative answers to the preestablished architectural typologies, meanings and purposes through rethinking on the current preservation approaches and alternative possibilities in dealing with ruins and abandoned buildings in Trieste. As a result of the quick and efficiency-oriented manufacture in the industrial past, architectural obsolescence brought in new artificial materiality and ways of decomposition to the discourse of decay, which are unprecedented in the pre-industrial time. The expansion of the definition of decay implies the misfit of conventional treatments on modern ruins in the post-industrial era. Delving into the phenomenon of decay may introduce a different set of aesthetic/tectonic languages and spatial qualities to the decaying waterfront of Trieste.

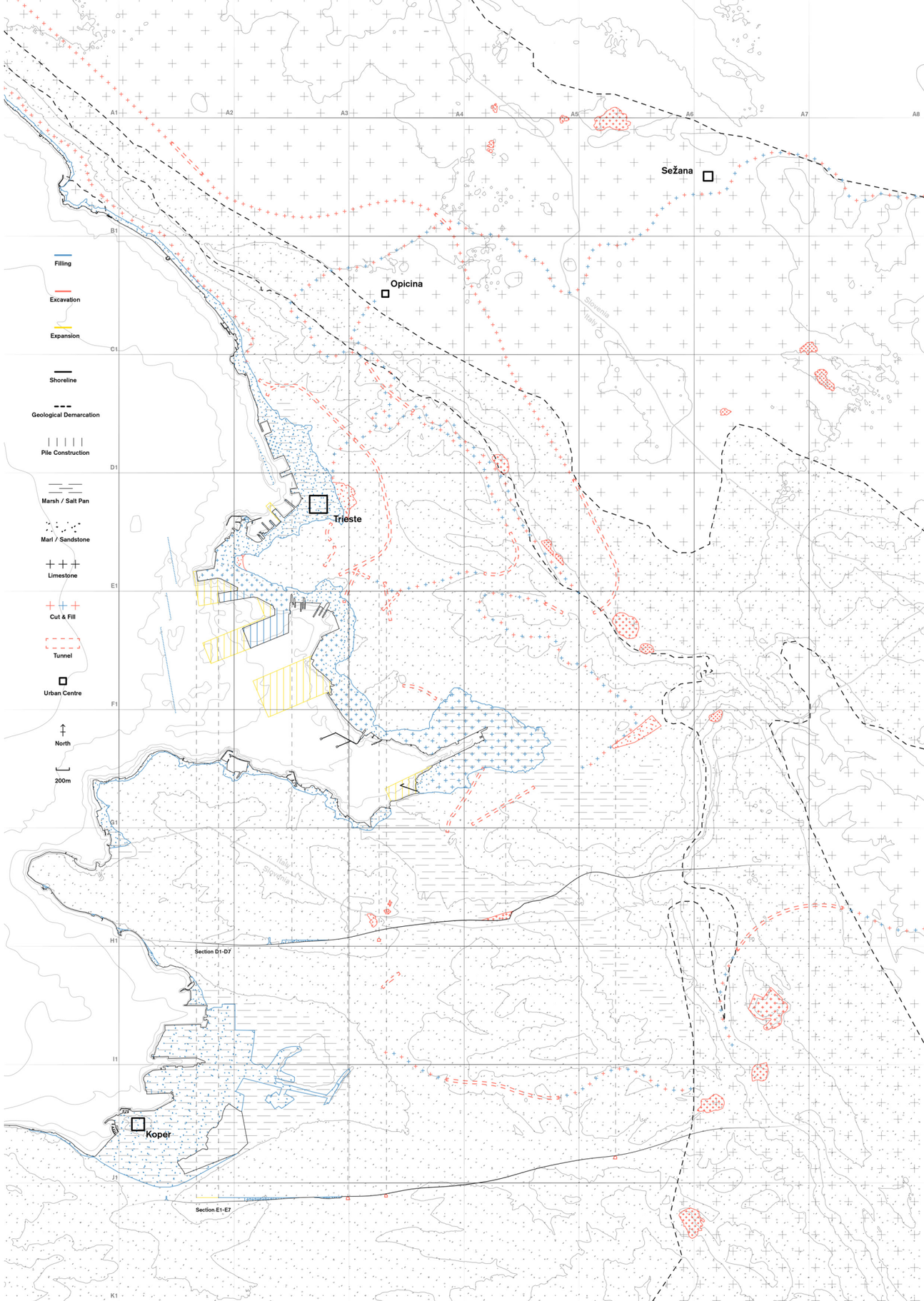
2. THE CITY OF DECAY

A RESEARCH ON THE MEANINGS OF DECAY
IN THE POST-INDUSTRIAL TRIESTE

The Growing Land

Through surveying the soil composition, it can be observed that drastic modifications have been made to the land of Trieste. This includes several times large-scale reclamation, constructions of rails, roads and tunnels, and mining on the karst area. The soil on the hillside is kept being transferred to the sea, extending the ground territory of the city. Starting from the 17th century, marl-and-sandstone-based soil had already been excavated from the foot of the mountains to create the nowadays' old port and city centre. With the technological advancement and expansion of the transportation network, limestone on the karst could then be accessed and transported to the seaside, creating the new port area with advanced materials.

The land of Trieste is always artificially altered to fit in the up-to-date functions. Especially for the waterfront areas, the shoreline has been specifically changed and extended for port and industrial activities. The original organic shoreline can no longer be observed but straightened to facilitate embarkment and loading, resulting in an artificial shoreline that is characteristic of a modern port city. The city is going to be further expanded in response to the New Silk Road Initiative. Yet, the discrepancy between the ambitious plan and the reality as a shrinking city renders a lot of land and building in abandonment and vacancy.



Ecology of North Adriatic Ports

The system of the economic activities in the North Adriatic region is being illustrated in the form of a flow diagram. Since the port of Trieste (and Monfalcone), Venice, Ravenna, Koper and Rijeka are in geographical proximity, each port city is in a rival but at the same time complementary relationship with one another to reach for a balance. On one hand, every port has its own lead on certain service sector thank to its historical or geographical advantages, for instance, tourism in Venice, ironwork in Trieste and timberwork in Rijeka. None of them is a mega-size port but they have made a good division of labour to digest the huge tonnage to the region by dispatching them to each smaller port.

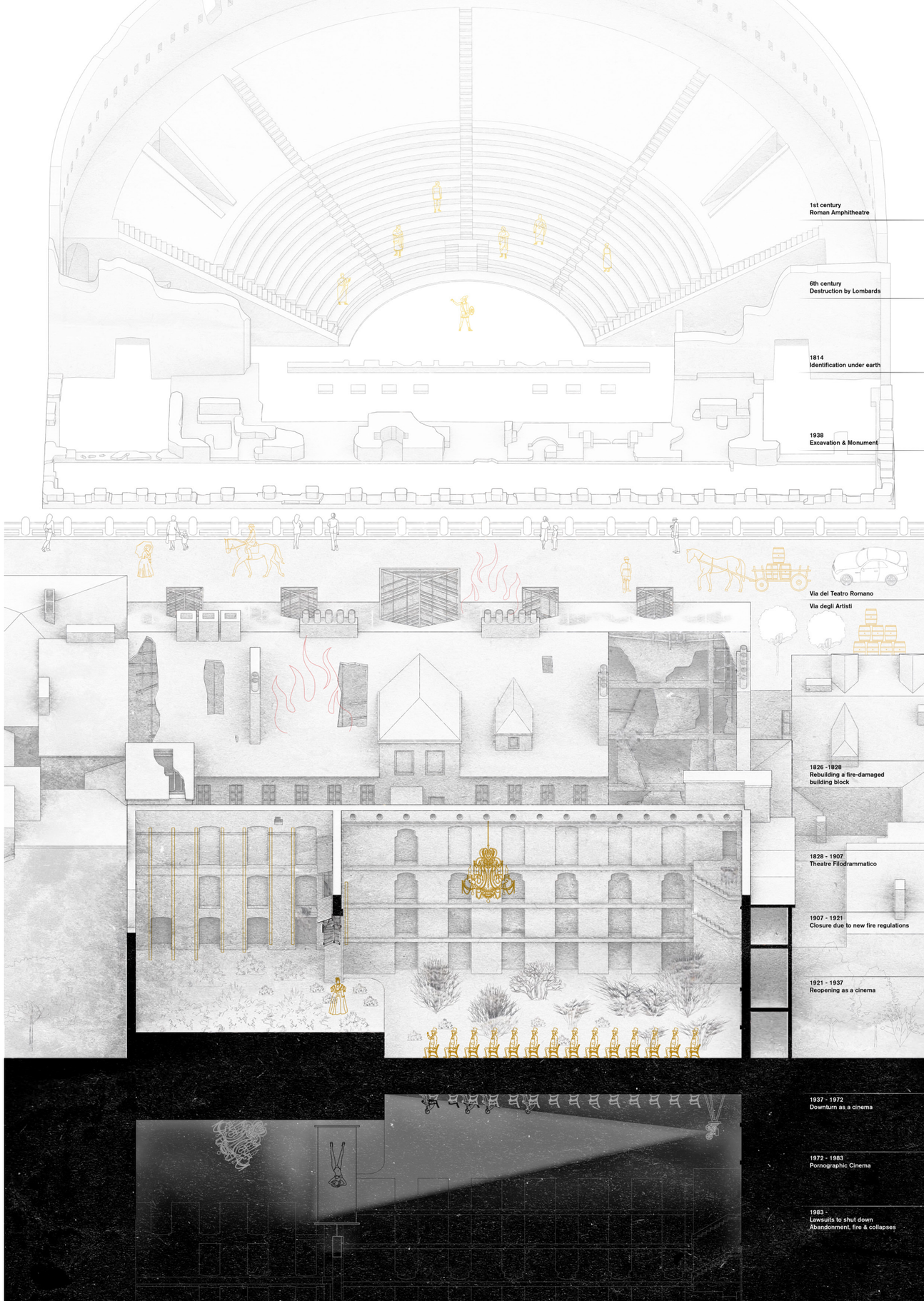
However, on the other hand, with the growing industry of container shipping, every port is trying to scramble for a piece of the action by expanding their hardware for container service. The sea-borne trading market is so fluid and ever-changing that urges the port cities to update their facilities for more competitiveness among their counterparts. Meanwhile, the old ports that fail to catch up with the trend are to retire. In most cases, these lands will be abandoned for decades, waiting for reappropriation and regeneration. The quick obsolescence of industrial buildings in Trieste and the region is the result.

Ancient / Modern Ruins

On the mountainside of San Giusto lay the ruin of two former theatres, the Roman Amphitheatre and the Theatre Filodrammatico. Although in a close distance, their fate as a ruin is treated in a completely different manner. After being excavated from the ground in 1938, the ruin of the Roman Amphitheatre has been listed as a monument, cleaned up, and exhibited to the public. It is treated as a tourist hotspot attracting visitors to showcase Roman history as a form of national pride.

Across a street, the Theatre Filodrammatico had had its golden era under the Austro-Hungarian period in the 19th century. It was the place where economic achievement brought leisure and entertainment to the local culture. Yet, during the economic recession in the 1930s, it had a downturn as a cinema, and later even became a pornography cinema which was forced to shut down in 1983. Afterwards, the Theatre Filodrammatico have faced abandonment, fire and collapses. Its ruin is now hidden in the urban fabric, concealed by overgrown vegetation and unremembered for its “shameful” history.

This marks the difference between ancient and modern ruin. The understanding of ruins is no longer limited to the ancient one because of the industrial obsolescence happening in Trieste. Unlike the ancient one which is well-preserved and demonstrated as a national heritage, the recent one is ignored, poorly maintained, hidden and forgotten. As this kind of ruins begins to flood the city, how to make use of those untimely heritages is the main question for the research and later design.



3. THE CONSTRUCTIVE DECAY

THE THEORY ESSAY ON THE CONSTRUCTIVE POTENTIALS OF DECAY

The Constructive Potentials of Decay

The city of Trieste is a city of decay. In terms of both historical development and physical environment, Trieste had already departed from its most glorious moment of cultural and economic prosperity in the 19th century, and arrived at the period of chronic degeneration after encountering the dramatic vicissitudes of the global geopolitical relations in the 20th century. The decay of the status of the city and the class who built it are materialised by its built environment, where the lack of resources and incentives to maintain the buildings rendered the urban conditions with tangible ageing, abandonments and ruinations[1]. Walking down the town and waterfront, one could draw the inference when the urban environment recurrently alludes to its decrepitude: the grimy façades of Austrian neoclassical buildings with stains and damaged parts; the rubbles of collapsed warehouses overgrown with wild vegetations; and the rusted industrial structures and machinery in the port have densified typical cityscape of Trieste.

[1] Fabio Dorigo, “The ninety ’black holes’ of Trieste awaiting regeneration,” Il Piccolo, February 18, 2020.

Entering the post-industrial era in the 21st century, the port-industry-oriented Trieste began to face the radical transformation of the global economy and trading system. The swift changes in the building requirements eventually led to the rapid obsolescence of buildings, renouncing a large number of outdated structures into the already saturated pool of ruin landscape in Trieste. Similar situations happened around the globe when industrial countries in the developed world had met the crossroads in economic development where their production industries began to dwindle. The changes in production mode had urged those cities to keep updating their hardware frequently, while putting an end to the prospering manufacturing sector, leaving a lot of retired buildings and infrastructures among the urban fabric in vacancy and a slow process of decay.

To release the lands with strategic values for economic growth or social development under capitalistic urbanism, demolition and rebuilding, renovations, preservations and regenerations are considered the major approaches to handle abandoned buildings and ruins in the contemporary time. The option of including and embracing decay in the plan seems to be out of the picture. While the mainstream strategies of restoration and reuse have already stirred up a few controversies that the preservative actions are actually depriving the heritages of their original values, it becomes critical to reflect on the current standpoint on the presentation of old buildings in the new age and rethink our relationship with decay as a way to help us proceed to the future.

Departing from the urban conditions of the dilapidated Trieste, the concept of decay is first investigated through the understanding of obsolescence and the shortcoming of current heritage approaches. The discussion then delves into the material processes of the phenomenon to unveil the intrinsic values of decay. The last part explores the potentials of the topic beyond the fact of the remaining physicality through the philosophical work of Georg Simmel, Capriccio artworks and the conceptual architecture of Lebbeus Woods.

Chapter 1
Responding to Architectural Obsolescence

The current issue of modern ruins is the ramification of the obsession with obsolescence models in the industrial past. Replacement and substitution under technological advancement is not a neoteric idea. It had not been evaluated as a problem in the pre-industrial ages. Not until the accelerated industrialisation and capitalism in the 20th century had it made a common urban phenomenon when its consequences began to emerge universally. The blind pursuit of quantity and efficiency under the scientific mass production had undermined the values of modern architecture as architectural historian Daniel Abramson suggests. He points out the rationalisation of industrialisation narrowed the architectural values down to quantifiable productivity and performance which will inevitably depreciate in an ever-changing market standard. Hence, capitalists commodified architecture as a consumable tool for profit-making[2]. As buildings lose their functionality and devaluate, extensive obsolescence occurs when the cost for replacing with a new-build in the industrial time is less than the long-term expenditure for keeping and maintaining the buildings like in the pre-industrial era. As a result, architecture designed with a short lifespan started to flood the urban space of 1920s America and Europe in the following decades. However, unlike commodities that somehow disappear after consumption, buildings, most of the time, stay in an unneglectable manner after disposal[3]. Since judgements and sentiments were disregarded in the quantification of buildings into numbers of worth and lifespan, the emotions of loss accompanying the impersonal abandonment and the following state of dilapidation retaliated in the post-industrial time. The functional meaning of modern abandoned buildings has vanished. What has been left behind are the heritages lamenting over the victimisation by capitalist obsolescence.

Therefore, the heritage values of modern ruins do not simply lay on top of the historical contents but the effects of the past residue to the present, implying the traditional means of preservation to reconstruct the past falls to reciprocate. The proposition of Viollet-le-Duc to bring the old architecture back to the finished state in the idea of the original architect has been a predominant voice in the preservation field. The celebration of the lofty concept behind the architecture via restoration with historical knowledge and present technologies however is regarded as a breach of the authenticity by undoing the traces of time that happened on the buildings[4]. Scholar Andreas Huyssen has an ironic observation of the confusing perception of age in the contemporary urban fabric, where old buildings are recurrently repaired and rejuvenated to look new to adapt to modern uses whereas new buildings are designed to achieve an antique aesthetic[5]. The disorder of time and lack of authenticity generate a sense of discontinuity with the history and contexts of the place. As a counterargument to restoration, British designer William Morris advocates a more romantic movement to call for the cease of all unnecessary preservation work to restore and allow decay as a form of the manifestation of the trajectory of time: “[E]very change, whatever history it destroyed, left history in the gap, and was alive with the spirit of the deeds done midst its fashioning”[6]. Although refused by the major trend of preservationists in the 19th century, his manifesto established an influential position on the alternative possibilities of ruination. This is especially crucial in the discourse on modern ruins as they are not as old. Archaeologists Þóra Pétursdóttir and Bjørnar Olsen describe the industrial remains as “untimely ruins” as they can be clearly distinguished from their classical ancient counterparts. While the latter is the denouement of the phenomenon of decay, the final phase presented to the contemporary spectators that eventually reached an equilibrium, the former is still in the stage of becoming which could not be detached from the modern contexts to declare their seniority to be listed as “ruins”[7]. A restored industrial ruin could hardly differentiate itself from its newly completed contemporary counterparts when the materiality and construction technology do not mark a significant discrepancy like with the ancient ruins, not to mention the action of reconstruction itself has already impaired the modern ruins to represent the history of obsolescence in the physical and spatial state they ought to be.

[2] Daniel M. Abramson, Obsolescence: An Architectural History (Chicago: University of Chicago Press, 2016), 3-7.

[3] Ibid., 6, 8.

[4] Eugène Emmanuel Viollet-le-Duc, “Restoration,” in Historical and Philosophical Issues in the Conservation of Cultural Heritage, 308, 319-321.

[5] Andreas Huyssen, “Nostalgia for Ruins,” Grey Room 23 (Spring 2006): 10.

[6] William Morris, “Manifesto of the Society for the Protection of Ancient Buildings,” in Historical and Philosophical Issues, 314-318.

[7] Þóra Pétursdóttir, and Bjørnar Olsen, “Modern Ruins: Remembrance, Resistance, and Ruin Value,” in Encyclopaedia of Global Archaeology, 4984-4986.

Chapter 2
Material Processes and Semiotic Connotation

Decay is more than an objective fact or the general condition of an ageing architecture. It is a duration of material transformation entangled with a wide range of political and psychological implications. Since the functional meaning has been hollowed out by obsolescence, the ongoing decay is the sole raison d'être of the empty modern ruins to reflect on the lessons from the authentic industrial history. The degeneration processes of modern materiality have expanded the definition and cognition of decay from the conventional understanding in the ancient ruins. The collapse of monolithic structures, weathering of masonry and the takeover by the nature compose the classical discussion of decay in the pre-modern era. Subjected to erosion under environmental forces, stone-based classical materials, including marbles, limestones, granites, despite the lengthy period, decompose bit by bit when rainwater, acids and other chemicals in the atmosphere react and dissolve the heavy solids. Patinas and the trails of reactions alter the surface texture of the stone, granting it a different aesthetic than its fresh condition and hence the vitality of organic materials. The accumulation of gradual changes inscribes while testifying the effect of time, visualizing the invisible, which illustrates the beauty of decay[8]. The slow process of stone decomposition always arouses the association with the natural cycle when the product of civilization returns to its origin. Building stones are excavated from the ground, embodied in architecture, degraded into dust, blown in the wind and eventually lay on the soil. The dereliction of architecture also provides a circumstance where wildlife will not be restrained and expelled by mankind, a paradise that the liveliness of nature will spontaneously occupy and overgrow. The natural order governing behind the degenerative action is so strong that appears impossible to defy.

[8] Adrian Stokes, "The Pleasures of Limestone," in Ruins: Documents of Contemporary Art, ed. Brian Dillon (MA: MIT Press, 2011), 24-26.

The modern decay, however, challenges this established comprehension by introducing new material conditions. Industrialization does not only bring in steel, glass and concrete to the architectural materiality of stone and wood but also the watershed moment symbolizing the over-elaboration and even disobedience to the natural principles. Firstly, the apparent material transformation of modern ruination happens (too) fast[9]. While the stone façade of a classical building spends a few decades or even centuries to be worn and achieve the level of antique, the iron beam of a factory, without proper maintenance, takes a few years to turn into a rusted bar. Or for a glass window, a second to shatter into pieces. Although rusting and fragmentation simply announce prologue of the perennial journey of decomposition, the perception of modern decay has already been compressed into the short interval of oxidation, breaking and falling. Secondly, industrial materials do not return to nature[10]. At least in the 21st-century scientific understanding of the material properties, modern building materials will not actively degrade into the environment unless they experience a thousand years. The oxidized layer on steel makes it reluctant to dissolve. Glasses reject erosion to turn them back into elementary soil. Ironically, these enduring materials were used for transient designs. Still, nature manages to find a way to take over the derelict configuration by growing on the structure, reaching a stage of harmony between nature and the artificial leftovers via treating the ruins as the intermediary site to invite the overgrown vegetation[11].

[9] Þóra and Bjørnar, "Modern Ruins", 4985.

[10] Huyssen, "Nostalgia", 20.

[11] Georg Simmel, "The Ruin," in Georg Simmel 1858-1918: A Collection of Essays with Translations and Bibliography (Columbus: Ohio State University Press, 1959), 259-260.

The way modern ruins decay is not incremental and poetic but rapid, sharp and radical, resonating with their history and heritage values. They are criticized to have "wrong materials that do not know how to age and decay in a proper manner"[12]. Concrete does not decay gracefully like the surface changes on classical stone but directly cracks, wears off and leaves flaws on the façade. Under the value judgement centred around the aesthetic of classical ruins, the meaning of modern decay may not be justified. Nazi architect Albert Speer in particular views the deterioration of industrial materials as a regressive aesthetic that cannot speak for the glory of the nation to the next generations. The political correlation with decay is evident in his theory of "ruin value" which emphasises the continuation of the monumental aesthetic values throughout the process of decay, concerning ancient Greek and Roman ruins, as a propaganda agency to convey ideologies to the far future[13]. The regressive qualities of modern ruins, however, do have their strong political stance in the post-industrial age despite the lack of ruin values. Their radical material processes and the everlasting presence of their residues semiotically link to and narrate an unresolved historical dilemma of the modern world. Together with the affective connotations of decay, they call for consciousness and vindication toward their estranged existence when nature is unable to completely absorb the aftermaths of obsolescence[14].

[12] Þóra and Bjørnar, "Modern Ruins", 4984.

[13] Albert Speer, Inside the Third Reich (London: Weidenfeld & Nicolson, 1970), 97-98.

[14] Marc Augé, Time in Ruins (Paris: Galilée, 2003), 9.

The unavoidable psychological aspect of decay is as a heavy subject as its material problem. Witnessing the decline of the city excusably provoked pessimism as it made people conscious of the fact that their life and pride are degrading. Abandonment places an end to the attachment to what previously was owned. Melancholy arises for the loss and disillusionment of the utopian prospect signifies the shrinkage of businesses and the death of belief in the past technologies. Industrialization further speeded up the formation of grief. The fear and rejection toward deprivation are intensified by the impermanence of quick obsolescence. These sentiments are all related to the feeling of nostalgia, the moans and sighs for the past that is no longer reachable and irreparable[15]. The nostalgia induced by watching the decay of the familiar surroundings connects the handicapped reality with the realm of reconstructing past experiences and memories. This endows ruins and decay with the semiotic qualities for the spectators to overcome the barrier of time, leading thoughts back to the inaccessible scenarios[16].

[15] Huyssen, “Nostalgia”, 7-8.

[16] Rebecca Solnit, “The Ruins of Memory,” in Ruins: Documents, 151.

Chapter 3
Sublimination

Being a trigger for reminiscences, decay demonstrates a promise to sublime the experience inside ruins by establishing linkages between the physical world with the metaphysical terra incognita of contemplation, imagination and inspiration. The vanished physical materials metamorphose into thoughts, concepts and ideas that subsequently contribute back to or even construct the reality. German sociologist Georg Simmel indicates such a quality of decay in his essay The Ruin. He depicts ruins as the space for contemplation, the spiritual sublimation where the tensions regarding time, artificiality and subjectivity are all settled by the cooperation of nature with the art of humans. Its transcendental nature goes beyond the sorrow of deconstruction but leaves humans in the appreciation of the antagonistic unity and the crystalised history[17]. As ruins, regardless of their ancient or modern category, require prelinguistic perceptions blended with the flux of nostalgia, humans can sense more than one could comprehend, blurring the distinction between conscious experience and thinking[18]. Thus, thoughts could be provoked through the recreation of absent linkages with the disappeared yet well-resolved world, opening to boundless possibilities. A case in which Simmel’s philosophy is applicable would be the St Dunstan-in-the-East in London. It has achieved the balance between the destroyed artefact and the takeover by vegetations, between the history of war and the status quo of peace, between the expired function as a church and the public space for solitude and contemplation.

[17] Georg Simmel, “The Ruin”, 262-266.

[18] McLain Clutter, “Notes on Ruin Porn,” in The Avery Review 18 (October 2016), 4.

The inspirational quality of decay has also been manifested in the imaginative world of Capriccio paintings, where ruinations have been predestined in the fantasy of the future. The drawing Bank of England in Ruins by Sir John Soane’s assistant Joseph Michael Gandy portrays their bank design partially in the representation of dilapidation. The juxtaposition of the existing building and archaeological site of the same design creates a tension not only in time, where the future has a proximity to the past than the present, but also the spatiality when the previous form of a bank is deformed into a continuous open-air labyrinth with collapsed arches and exposed colonnades enclosed by the incomplete walls and façade[19]. The imaginary spatial quality of decayed architecture is even more prominent in the fictional prison Carceri d’Invenzione by Giovanni Battista Piranesi, the source of fascination and inspiration for Soane’s painting. The imaginary jail celebrates the entropy and disorder involved in the organic

[19] Mariabruna Fabrizi. “Infinite Sequence of Interior Space: John Soane’s Bank of England (1788-1833),” Socks Studio.

process of decay with an irrational spatial experiment[20]. Architectonic and material principles are neglected and destroyed by environmental forces. Forms, orders and configurations all lose their designated meanings but are subjected to sporadic and accidental modification by the nature. The illogicality of decay is translated into the spatiality of the prison, where stairs, bridges, ropes, supporting braces fly through the maze-like open space in all directions. They deviate from the tectonic logic and bring back an autonomous arrangement. The architectural setting in a ruin, where the columns already have missing masonry, find its spatial language per se.

[20] Huyssen, “Nostalgia”, 17-18.

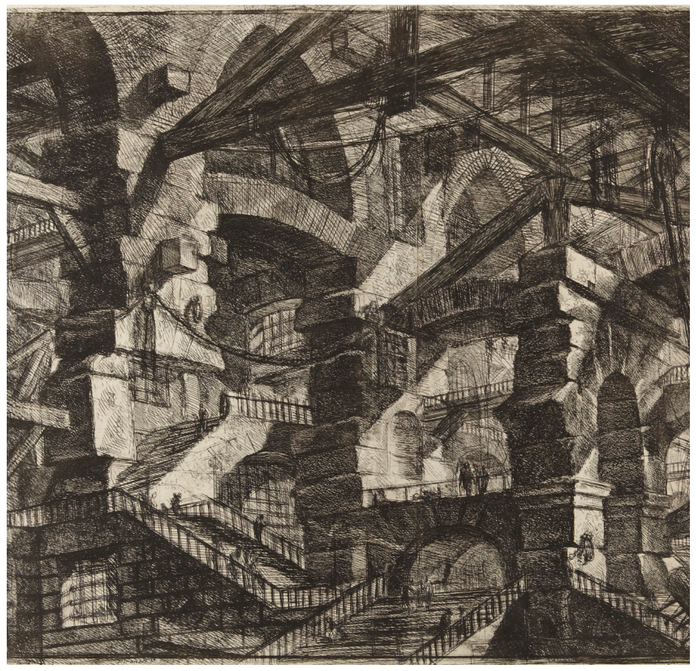


Fig. 1. The Gothic Arch, Carceri d’Invenzione

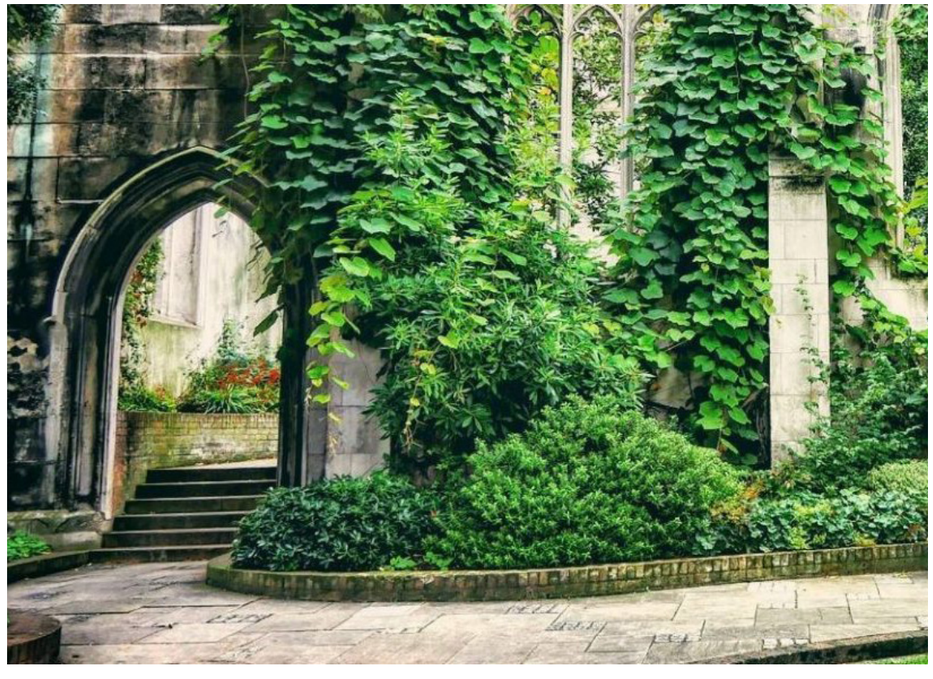


Fig. 2. The garden in the church ruin of St Dunstan-in-the-East

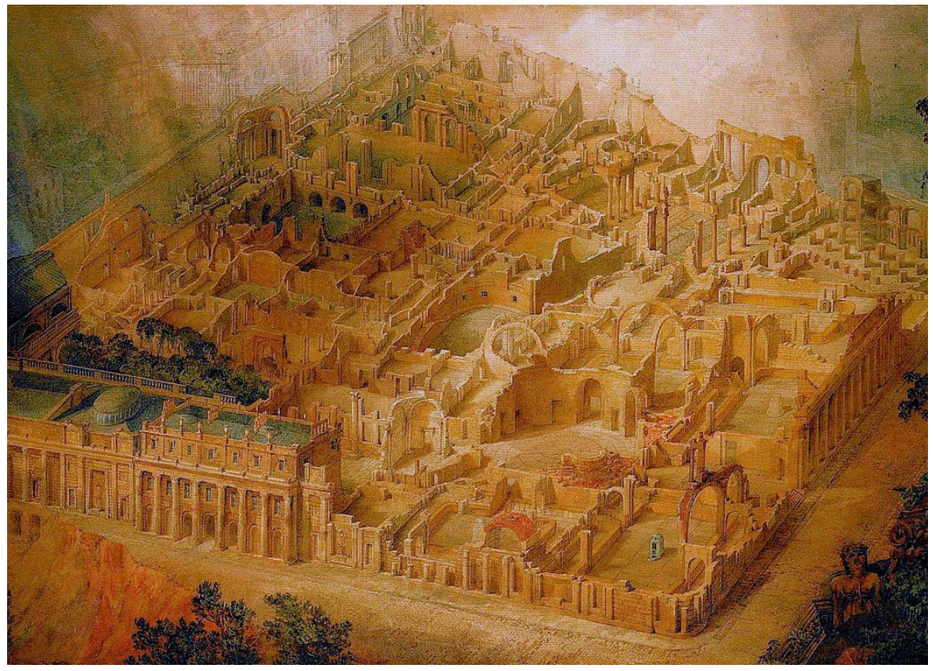


Fig. 3 A bird’s-eye view of Bank of England in ruins

The spatial and material imagination informed by ruins and decay has reached another height by the paper architecture of Lebbeus Woods. Grounded in unsettled circumstances, his work understand decay as an artificially forced incident more than a natural phenomenon. The destruction of the built environment is the material consequence of wars, calamities and other humanitarian crises. The sabotage of building parts and collapse of structure release architecture from the cul-de-sac of the disputing reality. Decay then enables the absolute liberation of materials and structures from their previous role and duty, as well as all practical architectural rationales to recompose a futuristic arrangement radically proclaiming his political manifesto[21]. Tectonic presumptions that have been taken for granted are being challenged. The manipulation of the chaos generated by the disorder of ruination, which proceeds beyond the irrational spatial structure of Piranesi, addresses the complex reality of contested contemporary political settings.

[21] Joshua Johnson, "Lebbeus Woods at The Drawing Center," The Third Rail 3 (August 2014): 20.

The entropy of the decaying cityscape and the fragmentation of building ruinations among Woods' creations could be demonstrated by the Walls of Change for Havana in response to the deteriorating old town. Proposing a democratic arrangement in which the inhabitants build for their own community, Woods imagines the products of the decentralised movement as a dynamic patchwork of different fragments of accessible building components that flows into, out of, on top and in between the ageing urban fabric. Considered a living architecture parasitising on and growing from the base of decaying buildings, it is expected to be refined from time to time when the skills and materials of the locals are improved and developed. From then on, the city would be equipped with both the software and hardware for regenerating the decaying city[22]. The spontaneous composition speaks for the complexity of the context where spaces should change and react to the needs of individual users instead of following existing models. The spatial language of decay generates unconventional spaces that defy any predesignated typologies, modes of function and meanings that told people how to live but attempt to fit the recent lifestyle of individuals the most. Woods stated that in this ever-changing world, if "architecture stays rooted on classical models (as it presently does), it will continue to express an old, even archaic, idea of knowledge"[23]. What is regressive to human development would not be the aesthetic of modern decay criticised by Albert Speer but the attachment to the taken-for-granted conventions. The deconstructivist connotations of the fragmented tectonic urge for the exploration for an appropriate spatial arrangement for the contemporary time.

[22] Lebbus Woods, "Walls of Change," WordPress, last modified May 28, 2010.

[23] Lebbus Woods, Anarchitecture: Architecture is a Political Act (NY: St Martin's Press, 1992): 46.

Fig. 4. Reconstruction of Sarajevo

Fig. 5. Walls of Change, Havana

CONCLUSION

Beyond the miserable fact of loss and dissipation, decay sets the conditions and embodies the potentials to create. It evokes the bygone world of nostalgic recollections. It provokes the spiritual world of contemplation. It constructs the fictional world of architectural fascinations. It deconstructs the stereotypical world of predetermined purposes and mindsets. Throughout the history of human civilisation, countless endeavours have been made to preserve their artefacts from deteriorating, to retain the "normalcy" that is ideally reluctant to any form of change[24]. Classical architectures were built and restored to withstand the inevitable effect of decay in the pursuit of eternality. The hostility toward decay has overlooked the "alternative future" that ruination can bring, a future that has not been strangled by re-actualisation but with the ability to stimulate novel thoughts through ruination itself[25]. With this change of perspective, if the ambition of ancient ruins is to last, the hope of modern ruins would be to vanish. The slight wish to be liberated from their doom in capitalist obsolescence could be realised when both their indelible past and their possibility to create has been embraced. Decay could then be the regressive character that may open up a progressive chapter for the post-industrial future.

[24] Lebbus Woods, The Storm and the Fall (NY: Princeton Architectural Press, 2004): 108.

[25] Huyssen, "Nostalgia", 8-9.

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4. “’Manifesto’ – Lebbeus Woods (1993).” Studio3postindustrial. Last modified April 12, 2011. https://studio3postindustrial.wordpress.com/2011/04/12/manifesto-lebbeus-woods-1993/.
5. Woods, “Walls of Change”.

4. LANGUAGES OF DECAY

PHYSICAL MODEL EXPLORATION ON THE
FORMAL AMD MATERIAL PROCESS OF DECAY

Rusting

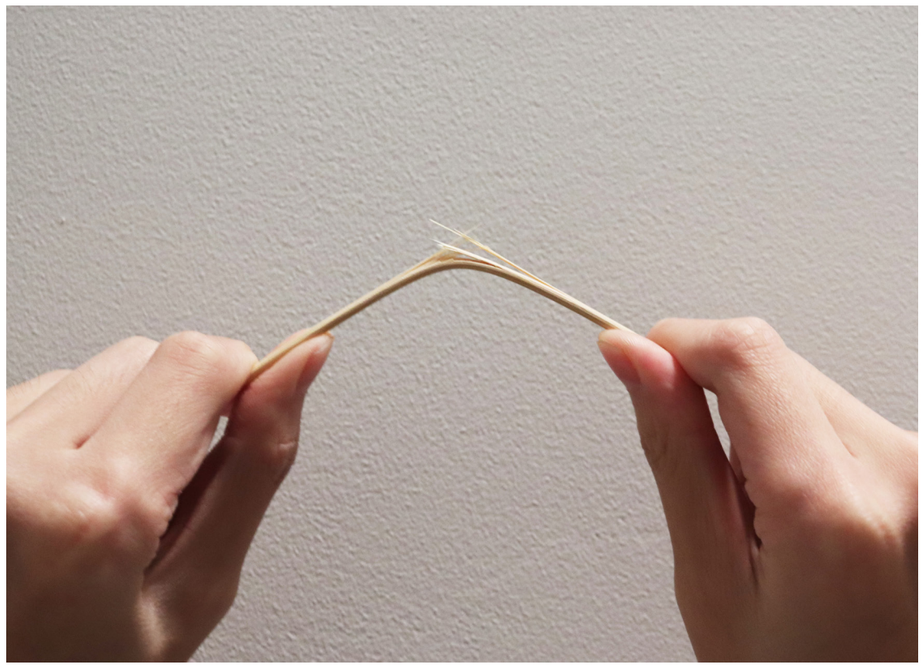
The phenomenon of decay is more than just an object fact or result. It is a material process. To study this process in the site of industrial obsolescence, rusting is examined in a controlled manner so as to understand its effect on the surface texture of the industrial element. By applying acid in different mixtures onto the metal surface. Through the technique of spraying, wiping and covering, the process of rusting could be controlled into several patterns, gradations and intensity.

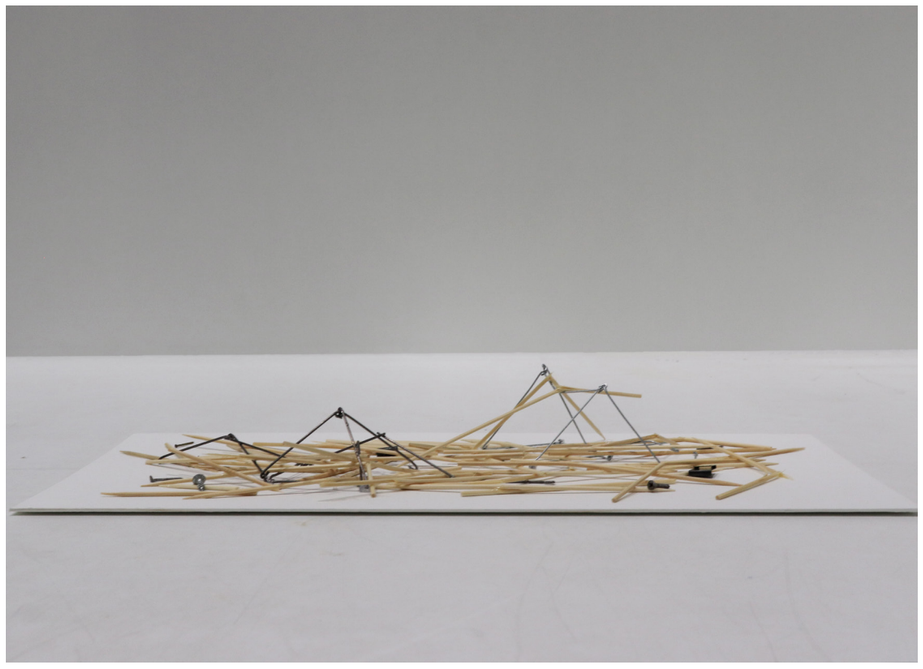
Those techniques are then used to represent the decaying industrial seaside of Trieste. By cutting, folding, bending and welding the iron sheet, the complex topographical characters are represented in a single sheet of metal: the wavy sea, the flat port, the significant level difference, terraced cityscape, the trench and the tunnel for railways. The closer to the sea, the intenser rust is applied to highlight the situation of decay in the area.

Fragmentation

Construction and ruination are two process in opposite – the former put things together by rules set under human understanding, while the latter breaks things and those rules apart under natural principles. The understanding of decay, therefore, start from the understanding of how those natural principles behave. The entropy and disorder of decay are studied by investing in how things break. Glasses are chosen to reflect how the material disintegrates since its form of breaking is directly related to external forces. After smashing the glass, the fragments are collected and sorted to observe the possible forms created in the process. They are then assembled back into their original position but it leaves the pattern of cracks. Some of the internal principles informed by cracking such as radial differentiation and acute fragmentation can be extracted from the process, giving direction to the research.

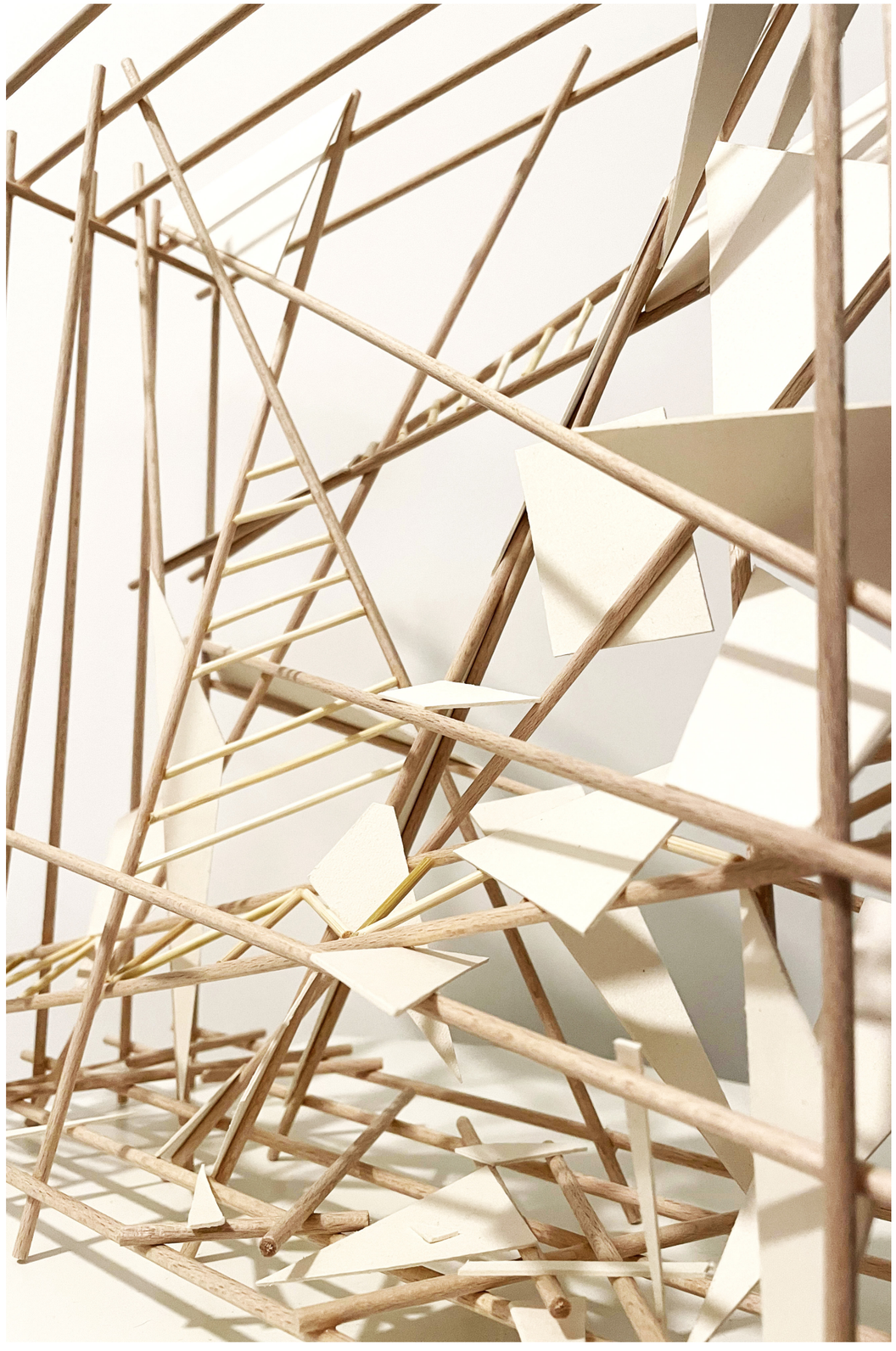
Besides reassembling the fragments back into one piece, how to recompose them is also another possibility. By replacing the fragments in overlapping layers while disobeying the radial logic in breaking, it creates another sense of disorder that could be found in ruins, the tension generated by misplacement. On the other hand, the recomposition can also happen out of the Cartesian to create a 2.5D possibility. The action of deconstructing and reconstructing into something new inspires an alternative way to tackle the research problem.

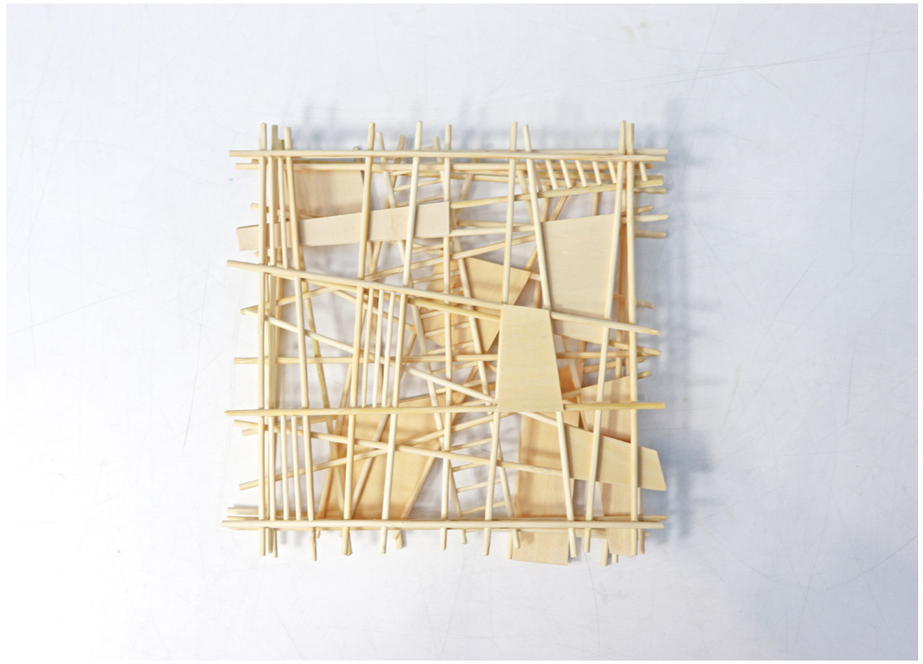


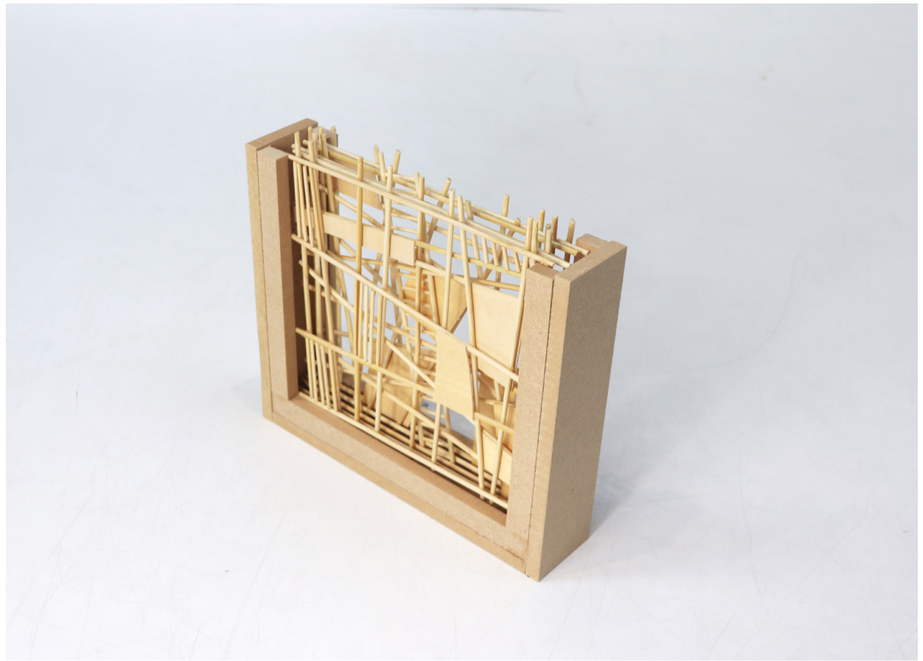


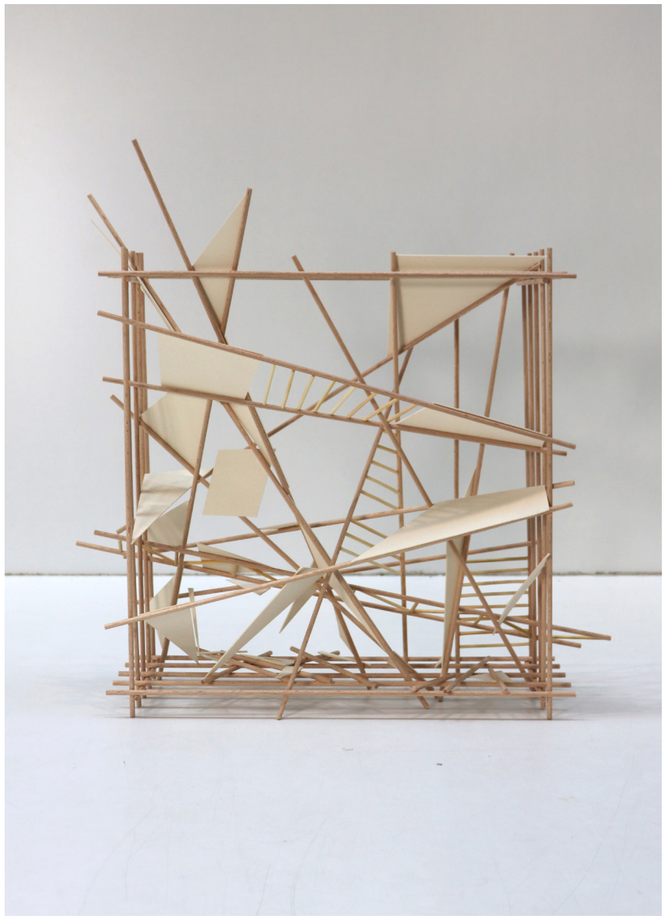
Spatial Situation

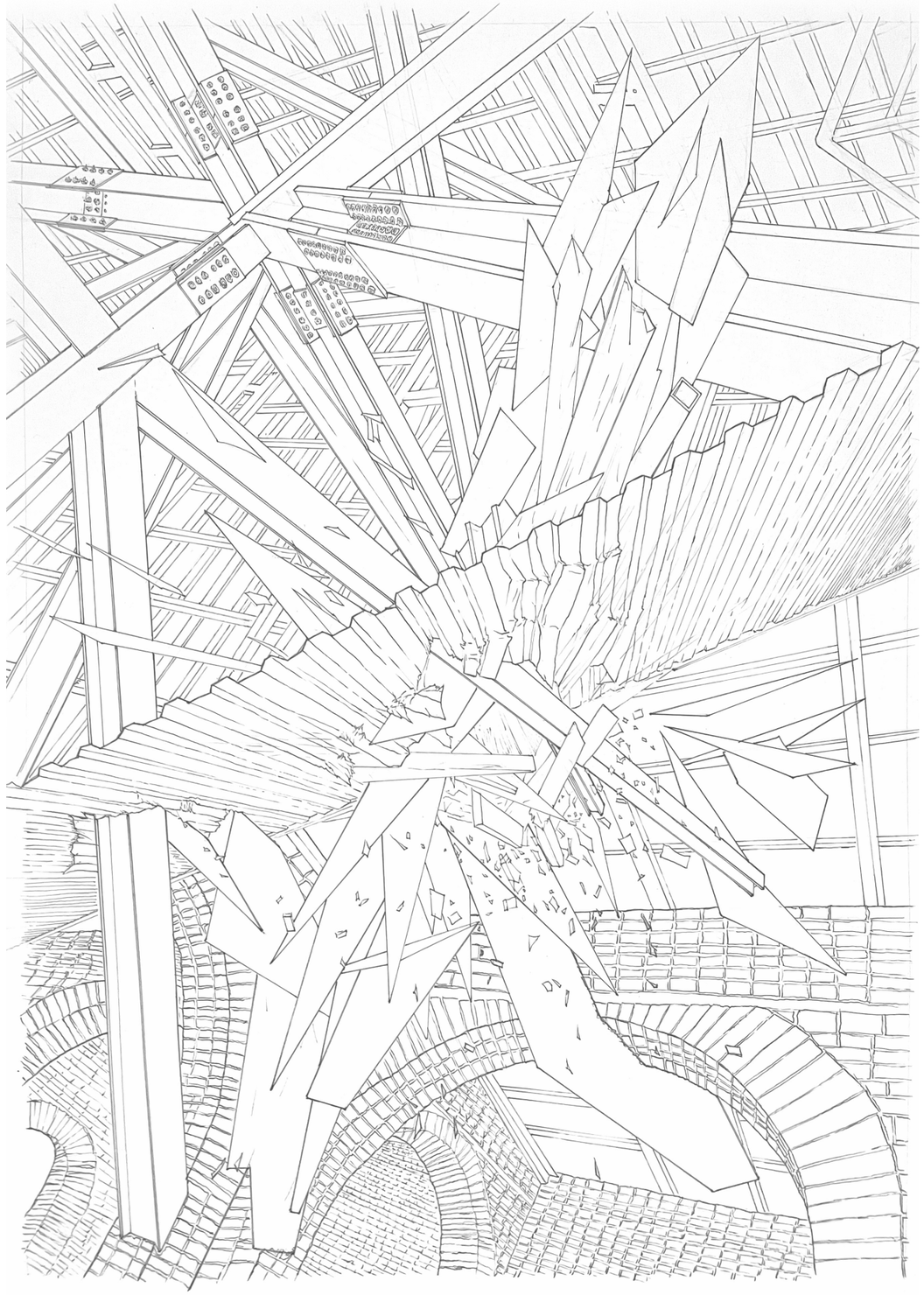
The idea of disorganised axes and fragments developed through the broken glass study are translated into a composition reminiscing a collapsed ruin. The depth and transparency of overlapping materials further suggest the spatial qualities that could be brought out through the formal principles of decay. The model captures and abstracts the movement when the structure of a building such as columns, trusses and beams collapse, clash and lean on one another. In the process, cladding elements such as walls and roofs are damaged and broken into fragments that are sprinkled all over the fallen structure. The normal understanding of structures and material functions are challenged as the combination of fragments and distorted structure suggest a defamiliarised spatial situation, a possibility to be explored.

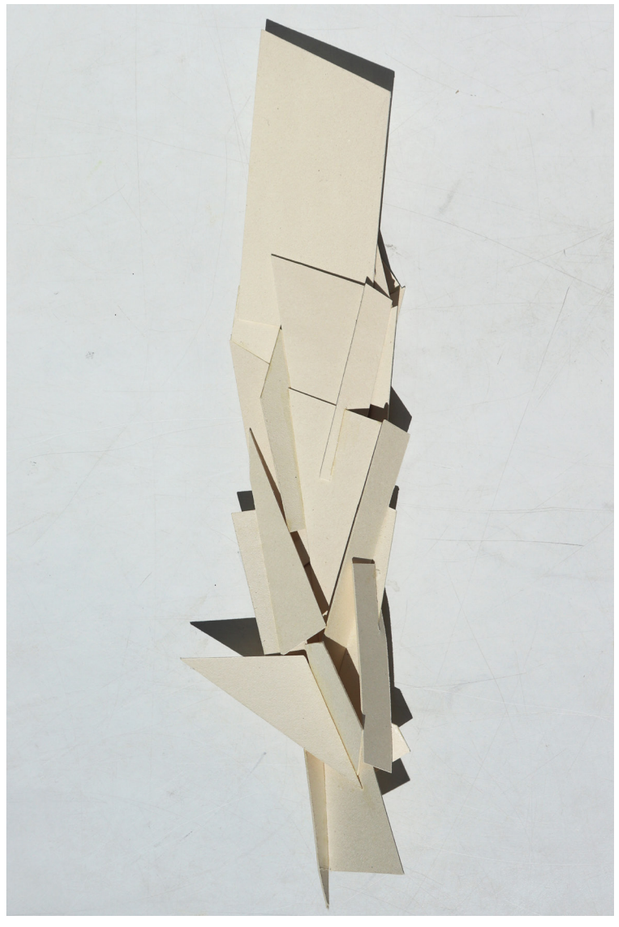


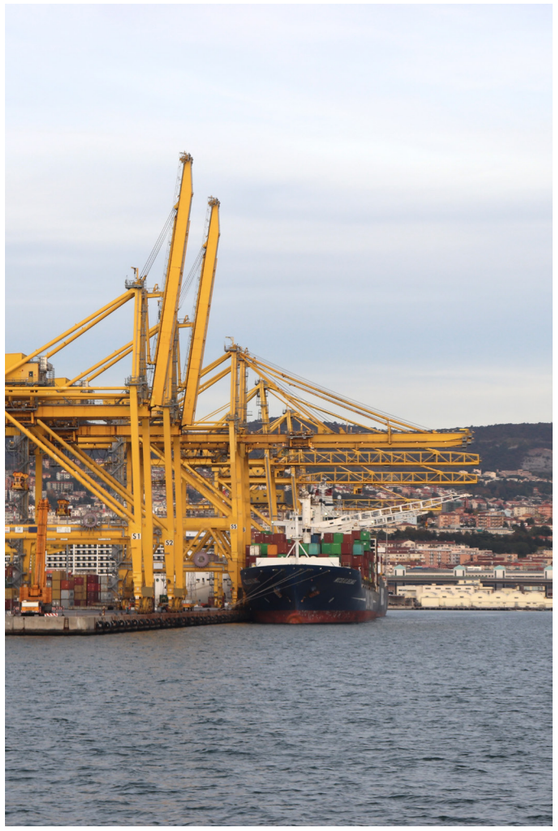






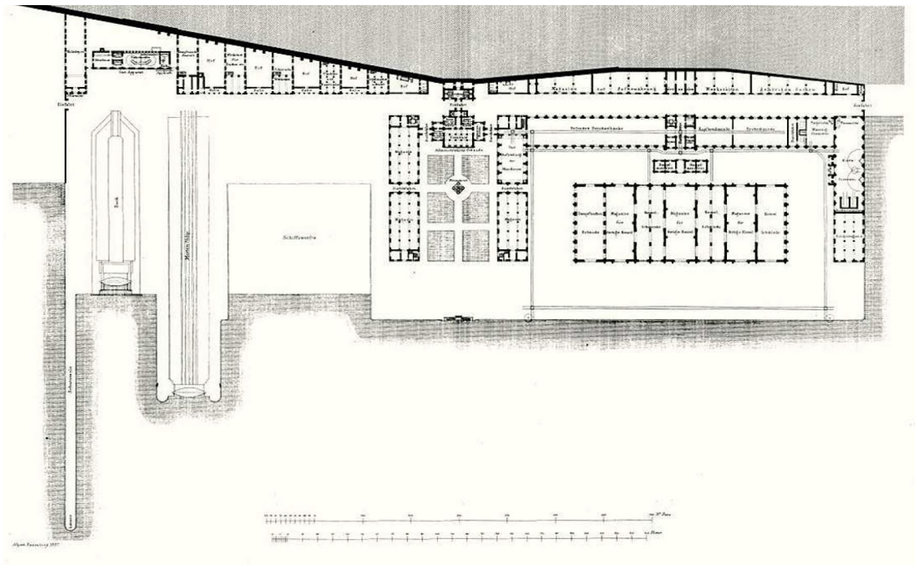






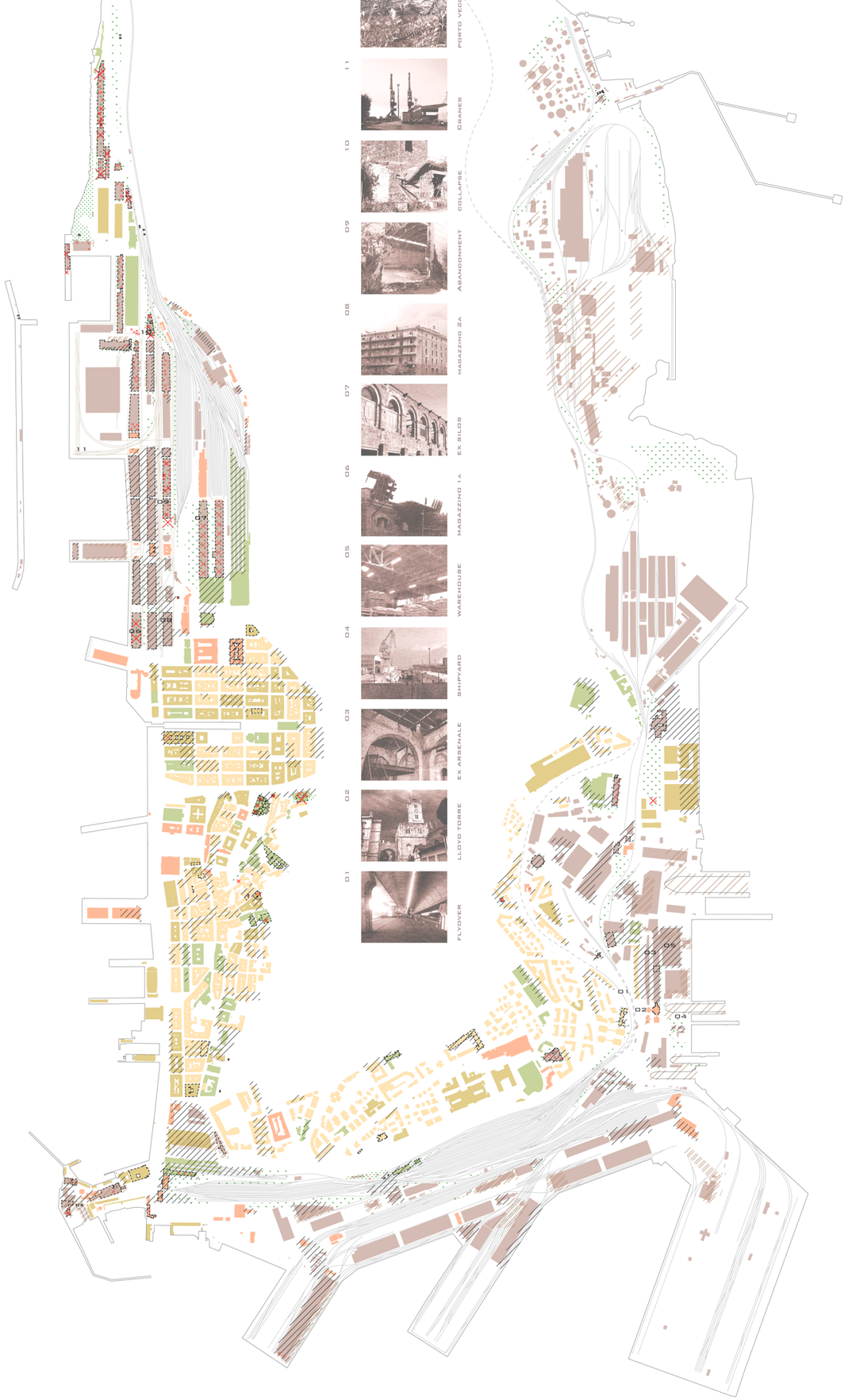
5. EX ARSENALE OF TRIESTE

THE SITE IS AN ALMOST ABANDONED
INDUSTRIAL WATERFORNT



Decaying Waterfront

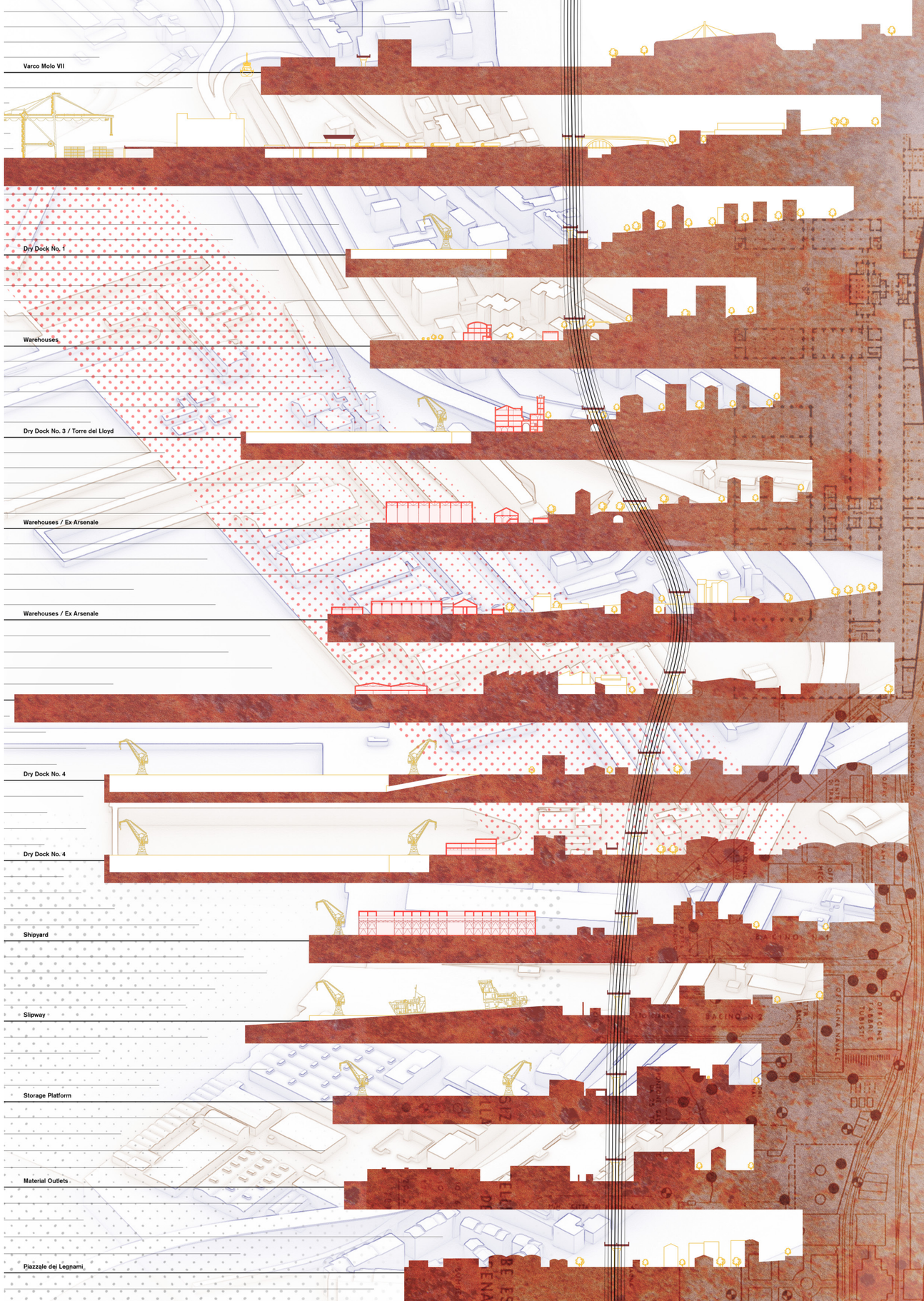
As a port city, most of the waterfront area of Trieste have been occupied and designated for industry purposes. The public and the accessible waterfront is only located in the old city centre. A large part of the living area, therefore, is separated from the sea, reducing the platform for civil and leisure activities to happen that could make the city more livable. At the same time, the industrial buildings along the sea are facing abandonment and decaying to different extents. By viewing these two problems together, it seems that regenerating the ageing industrial waterfront into a public space would be an opportunity to improve the living environment of Trieste. As the local government has already started the master planning of reusing the old port as an educational and innovation park, the focus could be shifted toward the new port area which may face the same density to be abandoned under obsolescence as the old port has been. Though visiting the area, various decaying situations can be spotted such as collapsed warehouses, empty factories, remaining aches and leftover spaces under flyovers. These kinds of spatial characters provide possibilities to convert the decaying and vacant situations into a more purposeful space and use. A site in the shipyard area of the new port is then chosen.



Site of Complexities

The site has both spatial and historical complexity. Historically, it is a former arsenal built by the Austro-Hungarian Empire as storage and a base for the navy. Nowadays, it preserves some of the historic warehouses and drydocks while part of them have been destroyed in the Allied bombing during WWII. The destroyed part was then rebuilt with industrial shipyards and turned into the headquarter of the port authority. This makes the site a conglomerate of different building styles, construction types and materiality. Entering the 21st century, the authority decided to step out from the ship making industry, rendering the compound and drydocks to be slowly abandoned in near future.

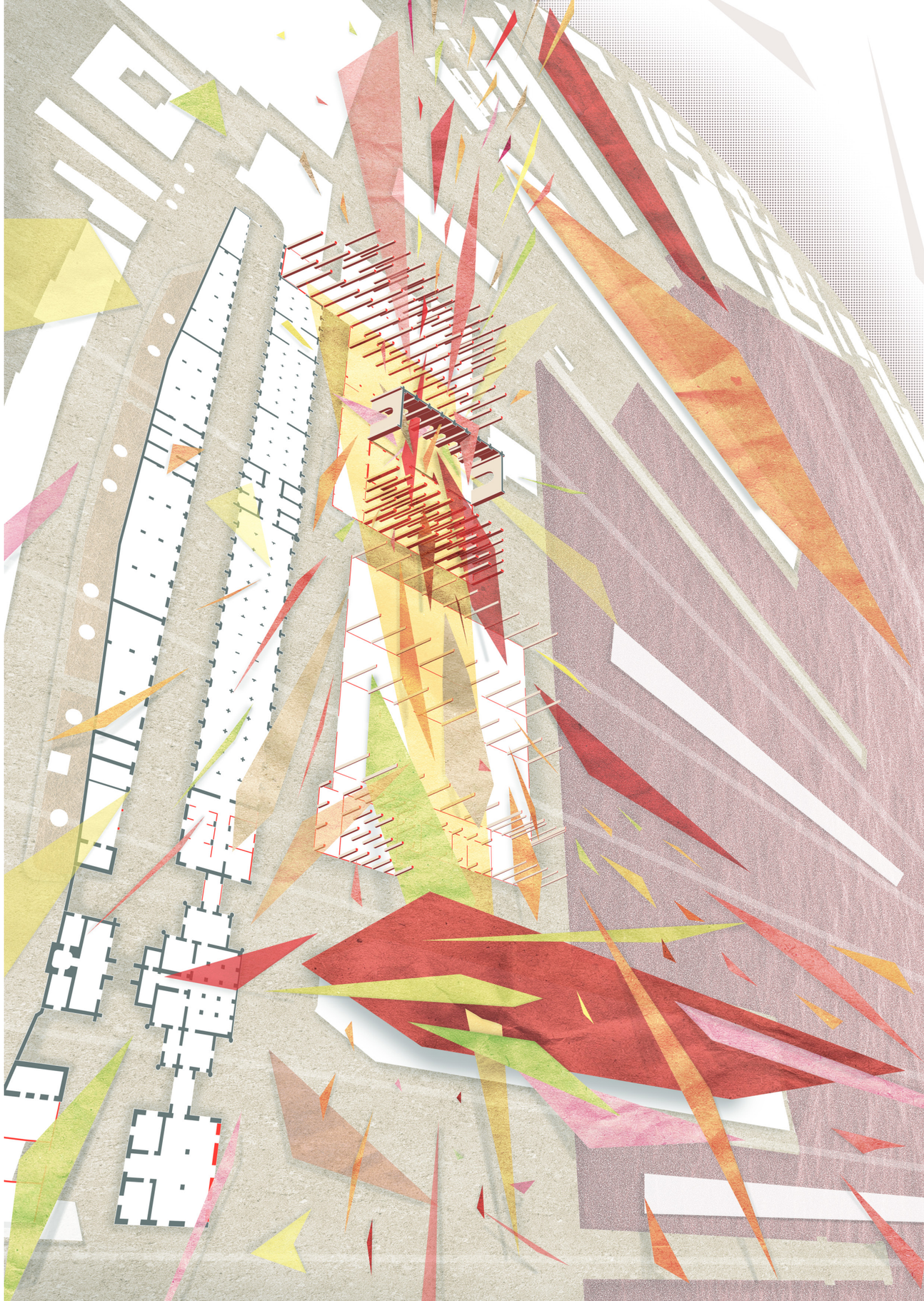
Spatially, the site has been intentionally separated from the residential area through infrastructure and level differences. Since the waterfront has been dedicated to solely industrial functions, normal public accesses have not been considered in the planning of the truck-and-train-oriented area. Highways and trenches for railways cut through the urban tissue, making it inconvenient to enter the seaside. Being a city built on the hills, stepped terraces happen in the urban quite often. It is especially obvious on the waterfront where the port has to get as close to the sea level as possible to allow easy loading and embarkment. Yet, the city itself is set at least 10m above the ground of the port. Coordinating the sectional complexity becomes one of the keys to reconnecting the waterfront with the city.

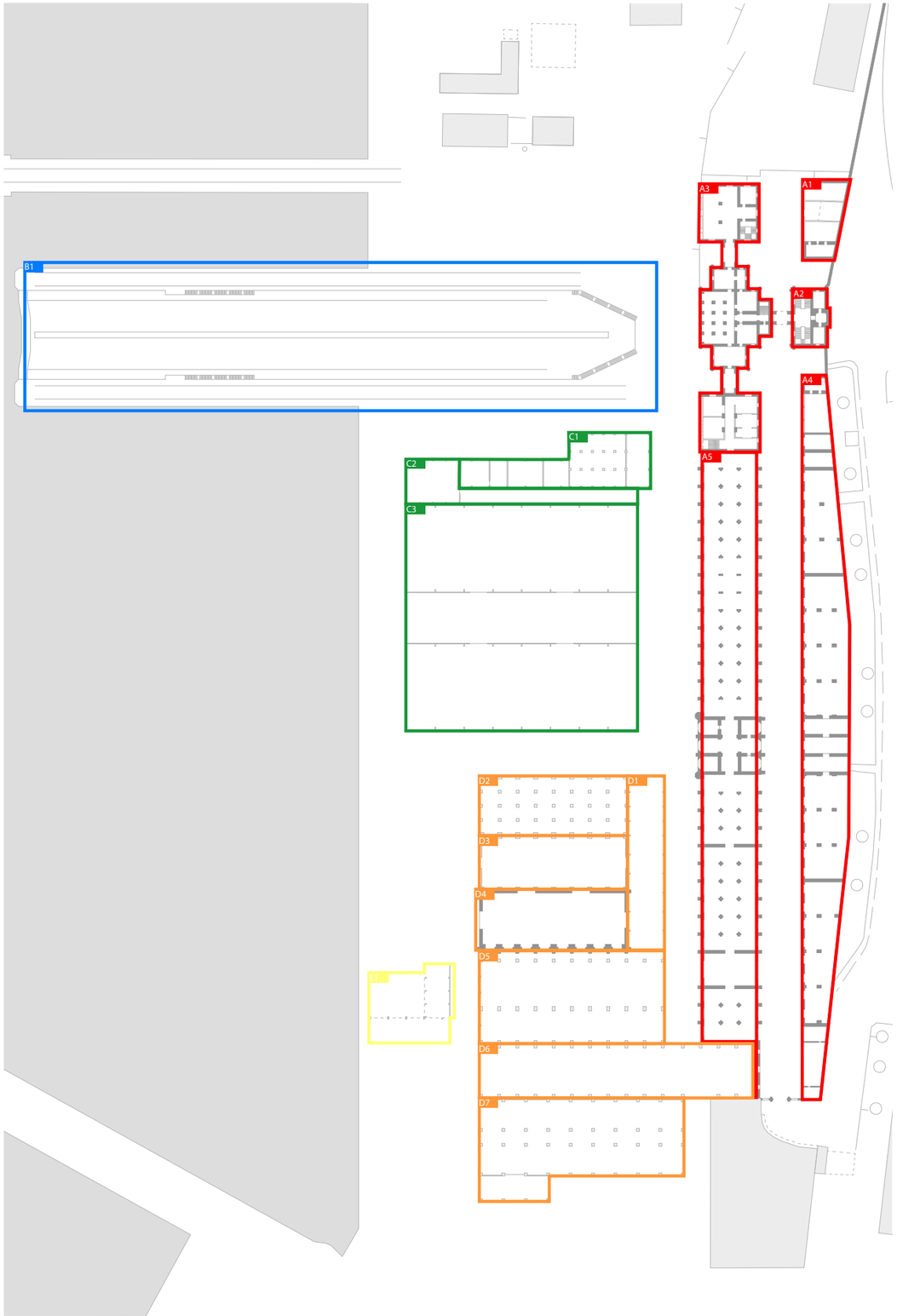


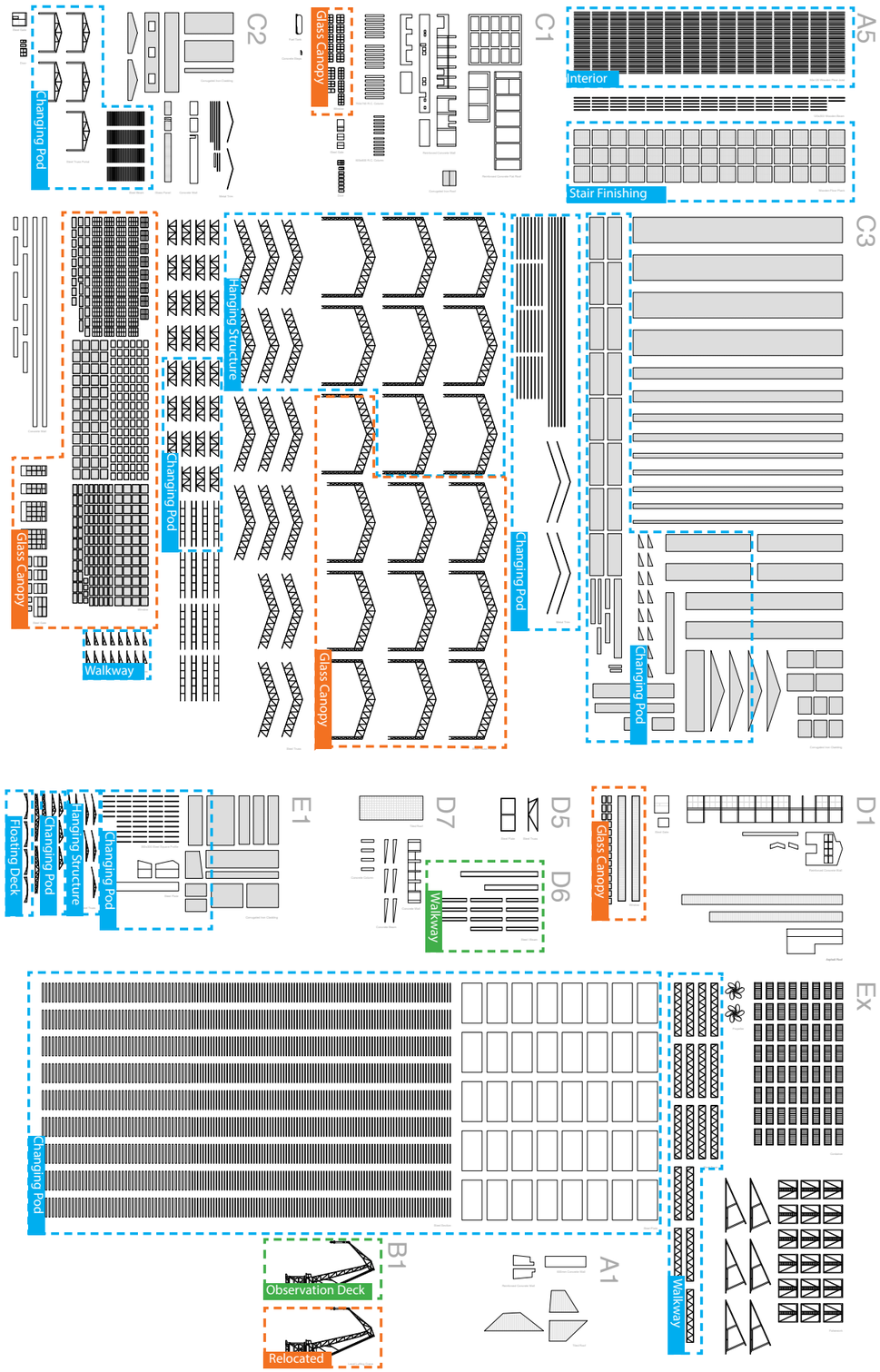
Reassembly

The drawing demonstrates an overview of the research and the design direction. By putting the thematic of decay and the site situation together, it provides an insight into the regeneration of the waterfront of shipyards and warehouses via the accumulation and reconstruction of abandoned and fragmented elements. Considering decay as a process of disassembly and scattering materials, the decaying site of the former arsenal is a place where those fragmented building parts exist and come together. Instead of letting the pieces rest in a chaotic situation, consciously mining and rearranging the fragments may offer an opportunity to generate new forms of space and architecture. The drawings thus attempt to imply the moment when the dissembled elements reassemble in the site. They could be inserted into existing buildings, woven into the remaining column grid, set on the drydock or merged into the historical walls of a warehouse.

The thematic of reusing decayed building parts also gave rise to the programmatic concept of dealing with scraps. Aiming to create a techno-cultural park, it functions as a museum showcasing outdated technological objects and parts, simultaneously storage for artists or visitors to use the obsolescent objects to create their artworks or even build their own spaces. The nature of decay is embraced in the site as a part of the regeneration into a public space.

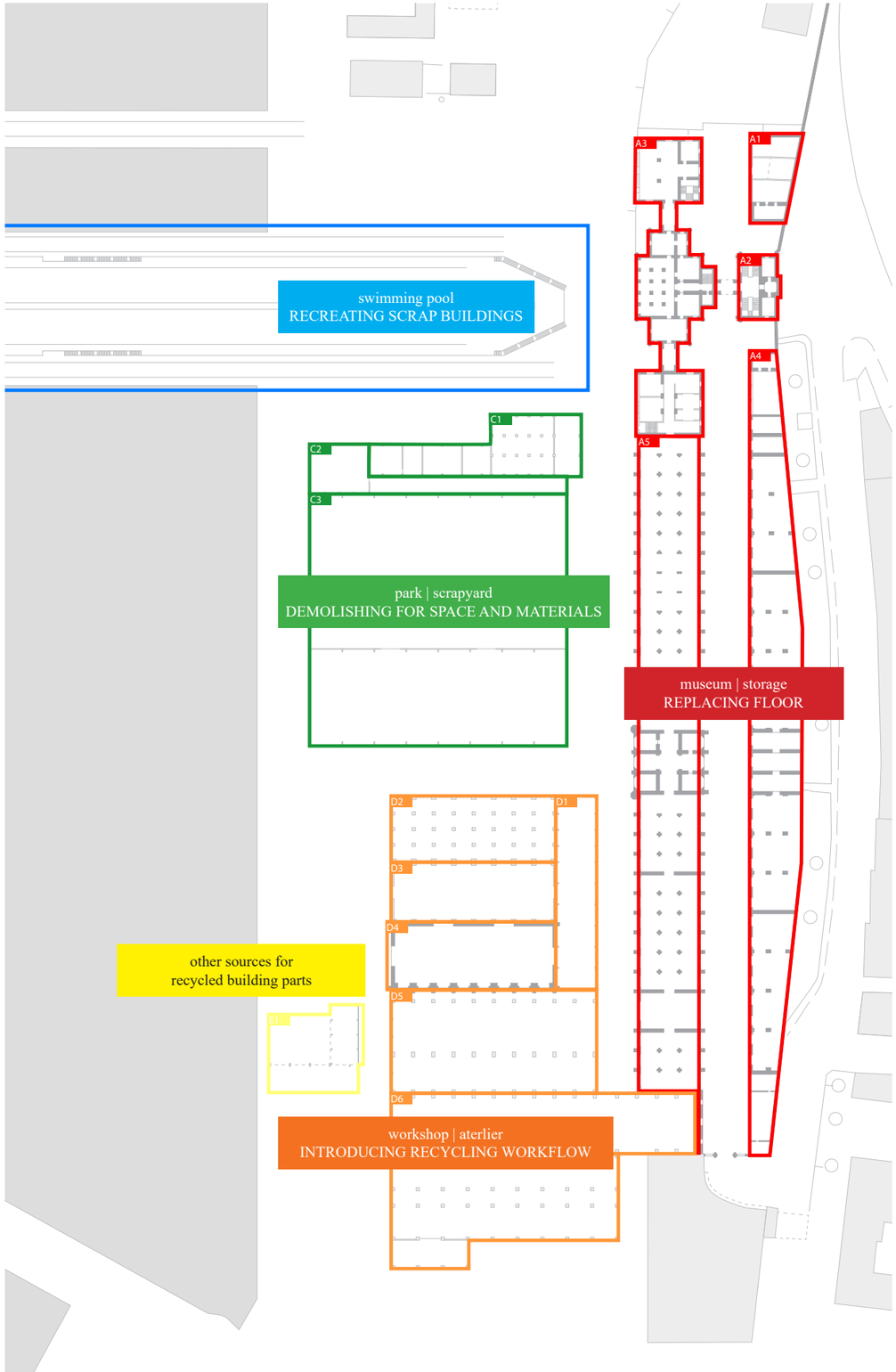


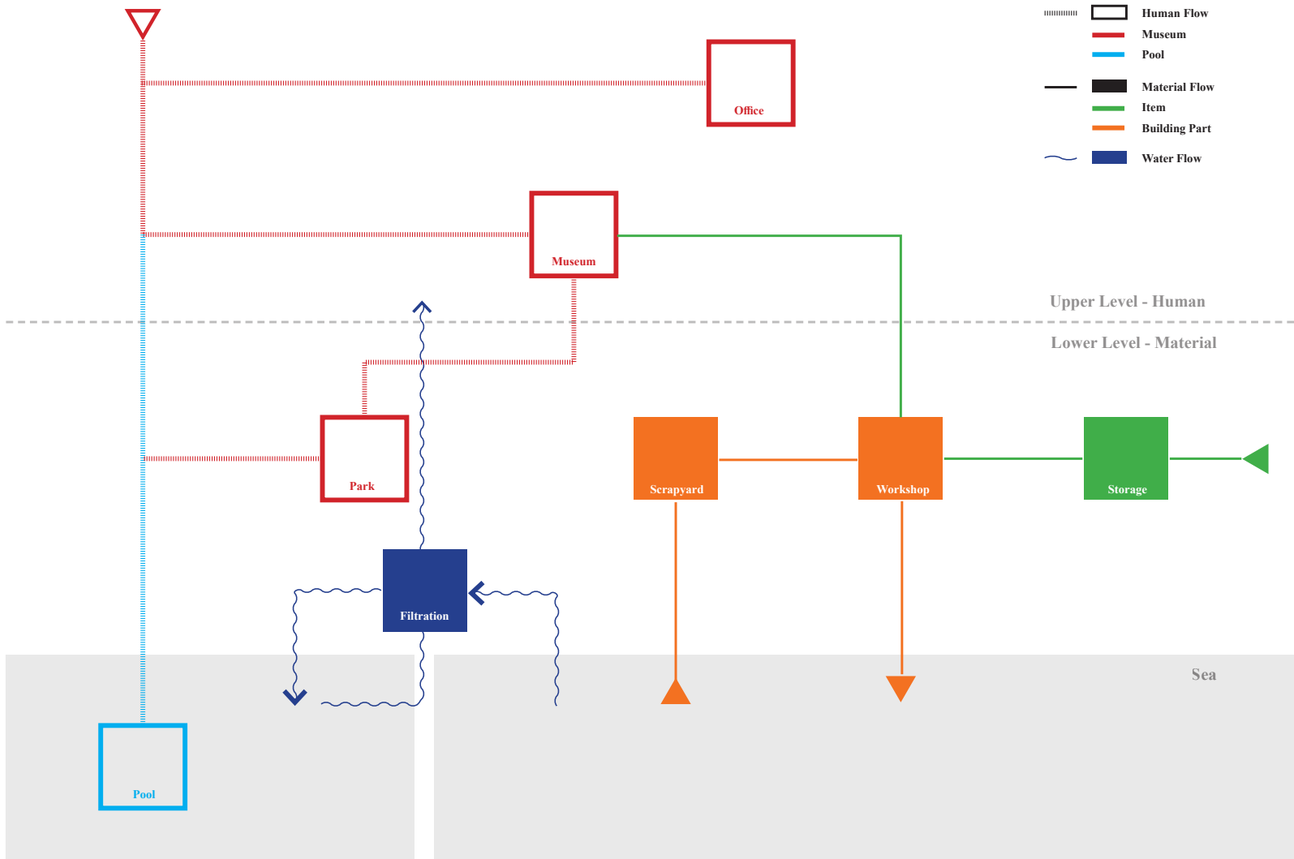

B1
C1
C2
C3
A3
A1
A2
A4
A5
D2
D1
D3
D4
D5
D6
D7
S1

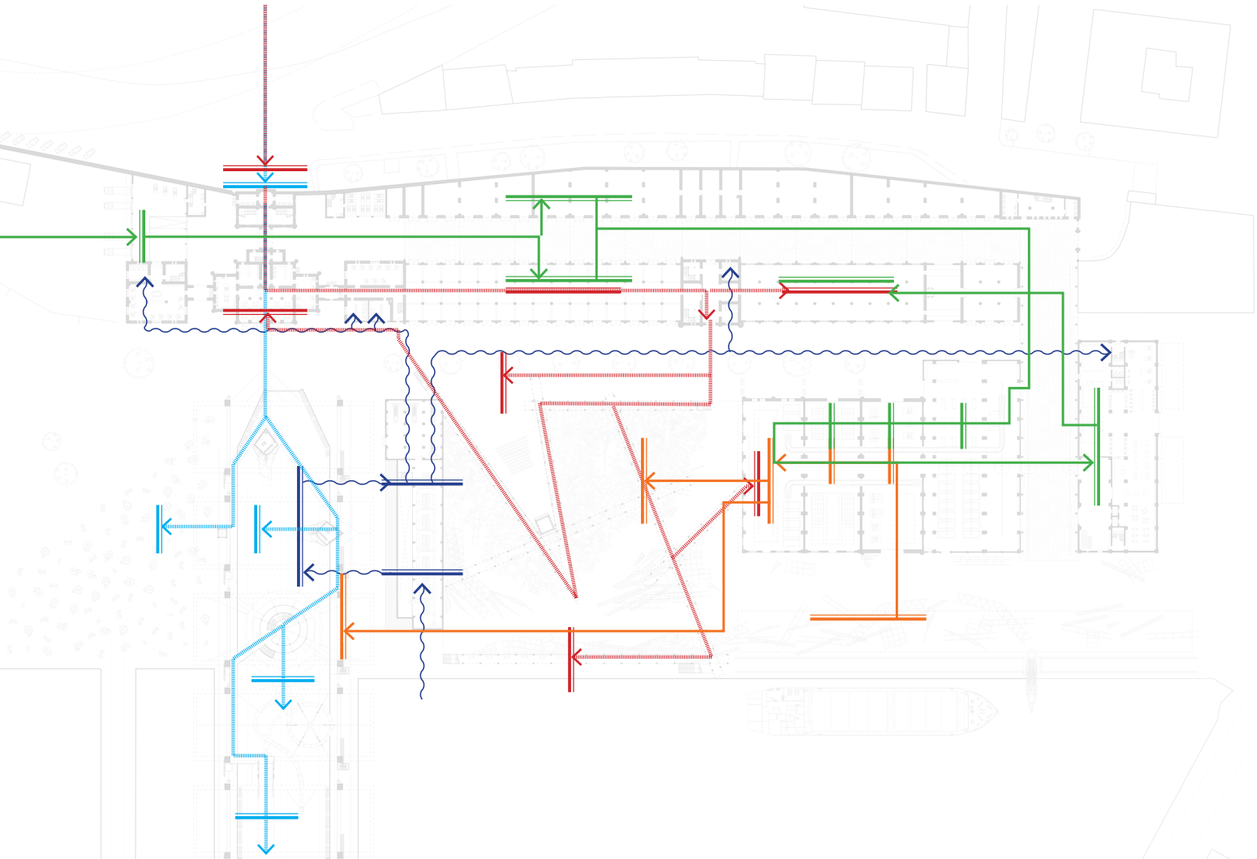

C2
Changing Pod
Glass Canopy
C1
A5
Interior
Stair Finishing
C3
Hanging Structure
Changing Pod
Glass Canopy
Walkway
Changing Pod
Changing Pod
E1
Floating Deck
Changing Pod
Hanging Structure
Changing Pod
D7
D5
D6
Walkway
Glass Canopy
D1
Ex
Changing Pod
B1
Observation Deck
Relocated
A1
Walkway

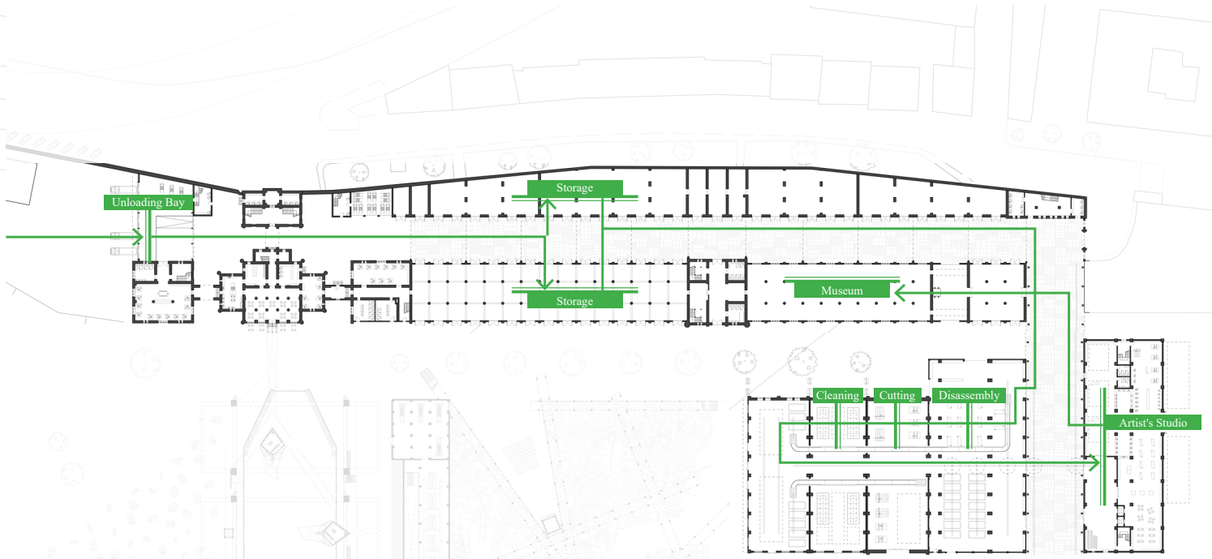
6. REUSE AND RECYCLING

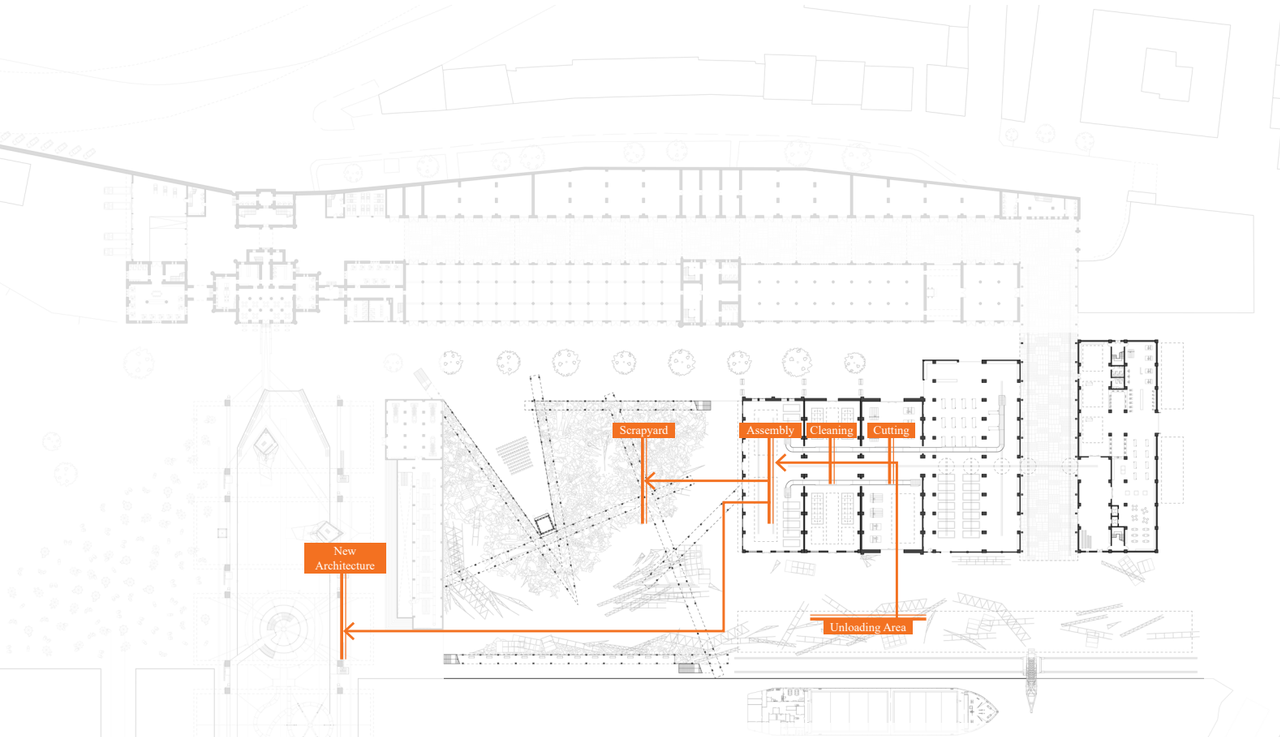
PUBLIC PROGRAMME AMID THE SITE FOR REUSE AND RECYCLING

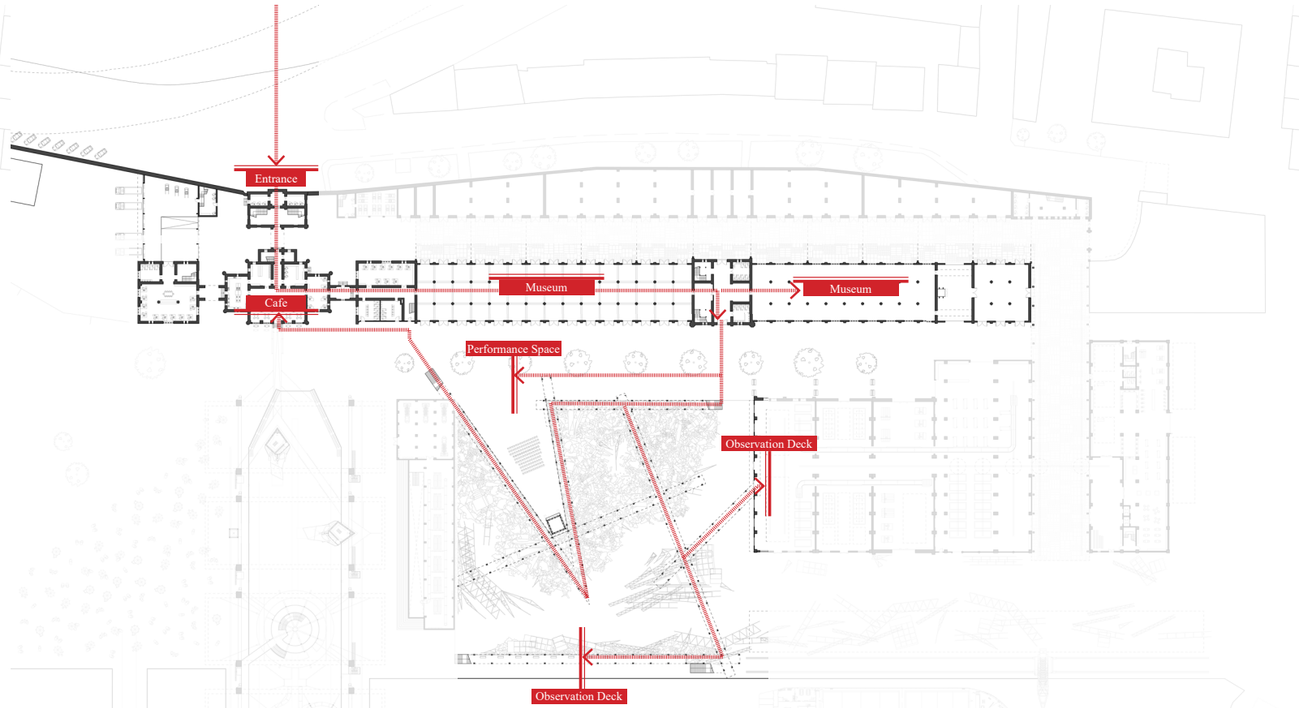

swimming pool
RECREATING SCRAP BUILDINGS
A1
A2
A3
A4
A5
C1
C2
C3
park | scrapyard
DEMOLISHING FOR SPACE AND MATERIALS
museum | storage
REPLACING FLOOR
D1
D2
D3
D4
D5
D6
other sources for
recycled building parts
B1
workshop | aterlier
INTRODUCING RECYCLING WORKFLOW

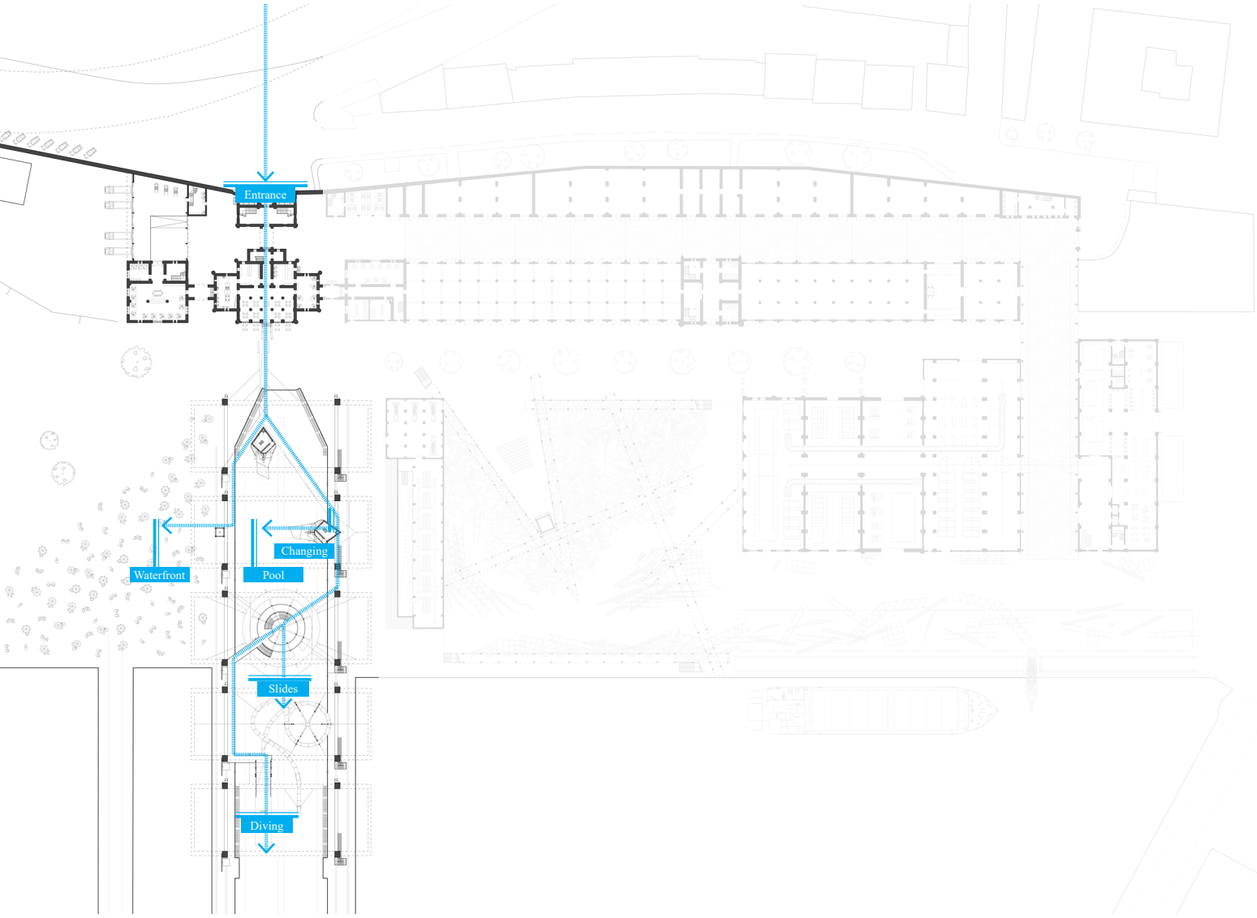

Human Flow
Museum
Pool
Material Flow
Item
Building Part
Water Flow
Office
Museum
Upper Level - Human
Lower Level - Material
Park
Scrapyard
Workshop
Storage
Filtration
Pool
Sea

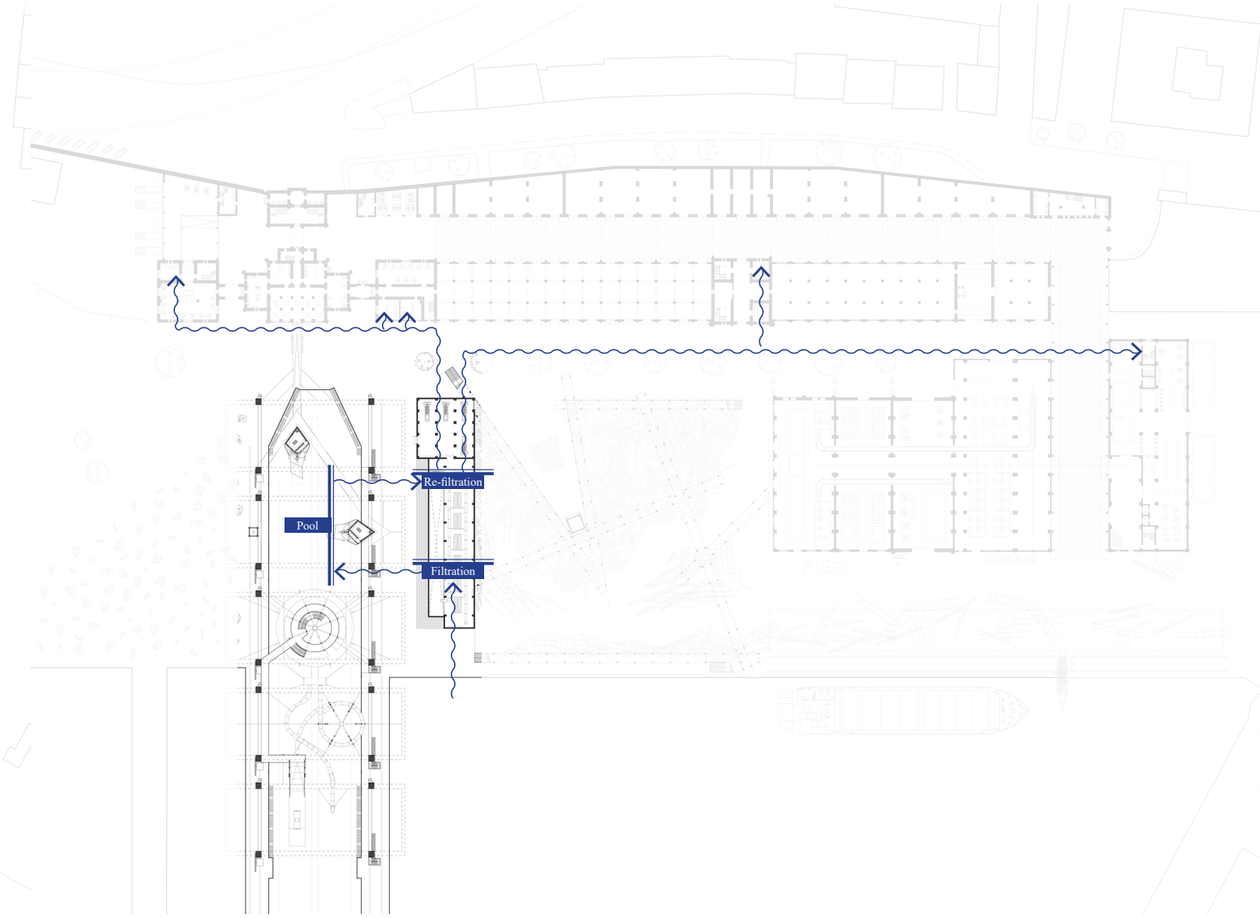


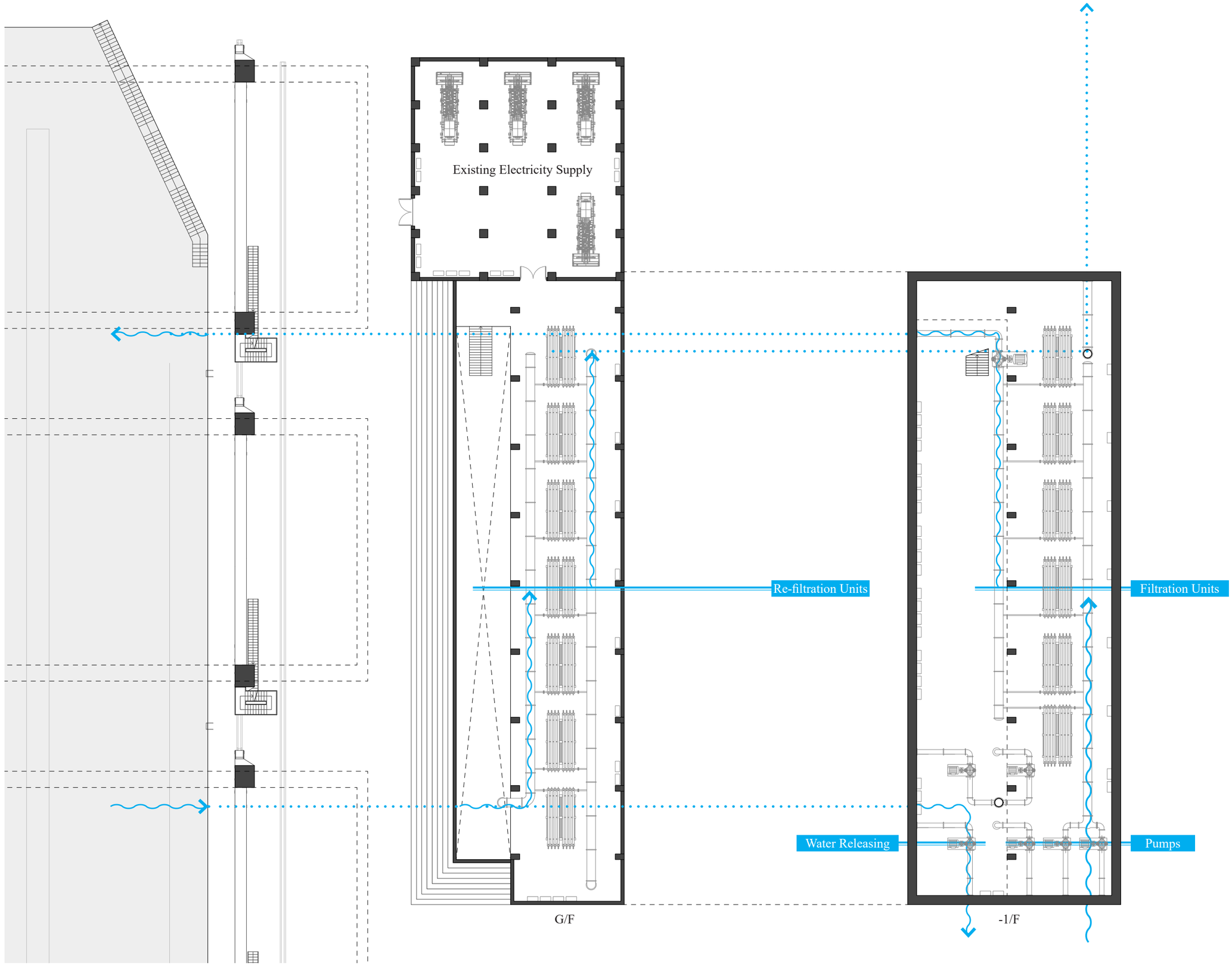

Unloading Bay
Storage
Storage
Museum
Cleaning
Cutting
Disassembly
Artist's Studio

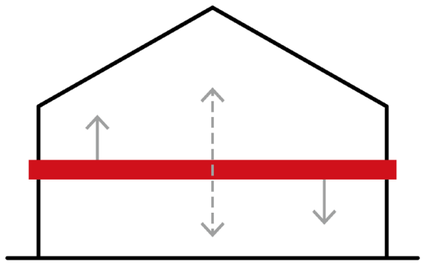

Scrapyard
Assembly
Cleaning
Cutting
New Architecture
Unloading Area


Entrance
Cafe
Museum
Museum
Performance Space
Observation Deck
Observation Deck

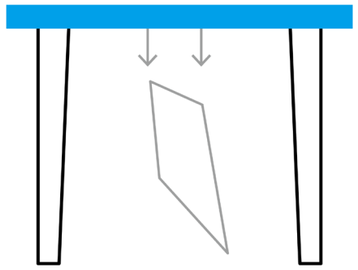

Entrance
Waterfront
Pool
Changing
Slides
Diving


Pool
Re-filtration
Filtration

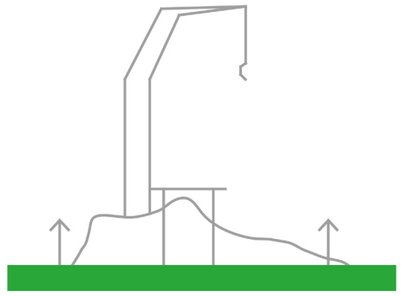

Existing Electricity Supply
Re-filtration Units
Filtration Units
Water Releasing
Pumps
G/F
-1/F



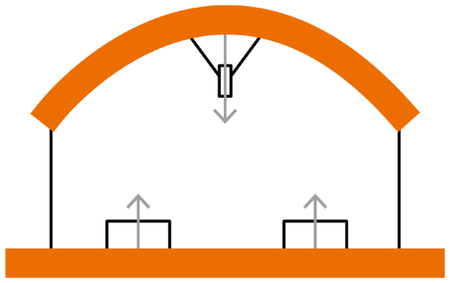
FLOOR



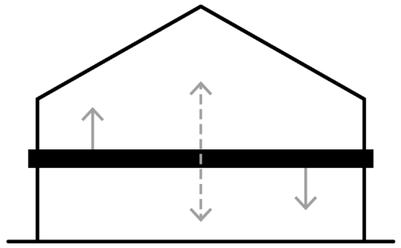
HANGING



GROUND

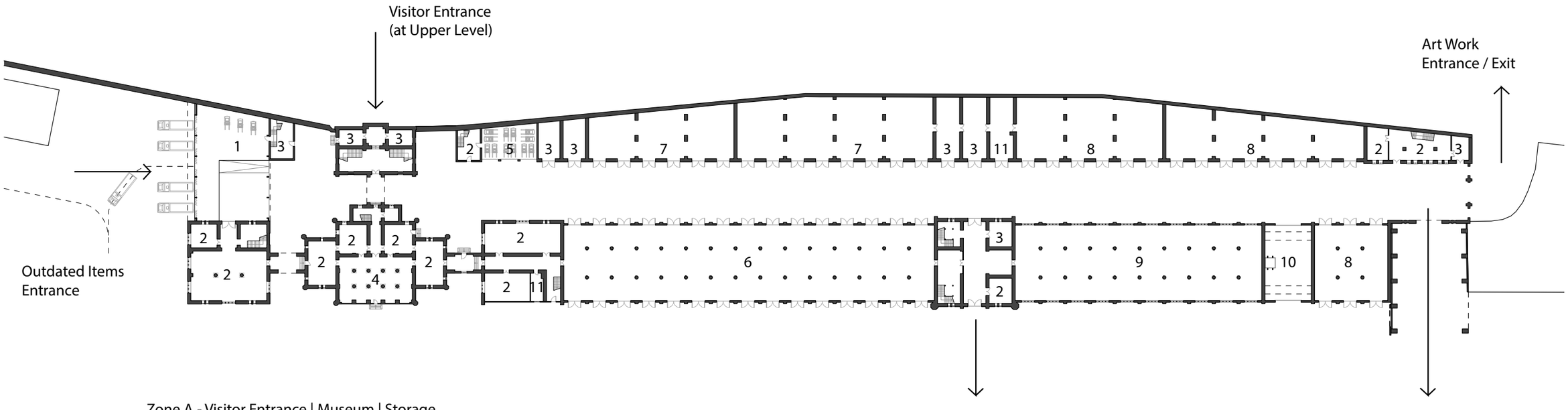


FLOOR & CEILING



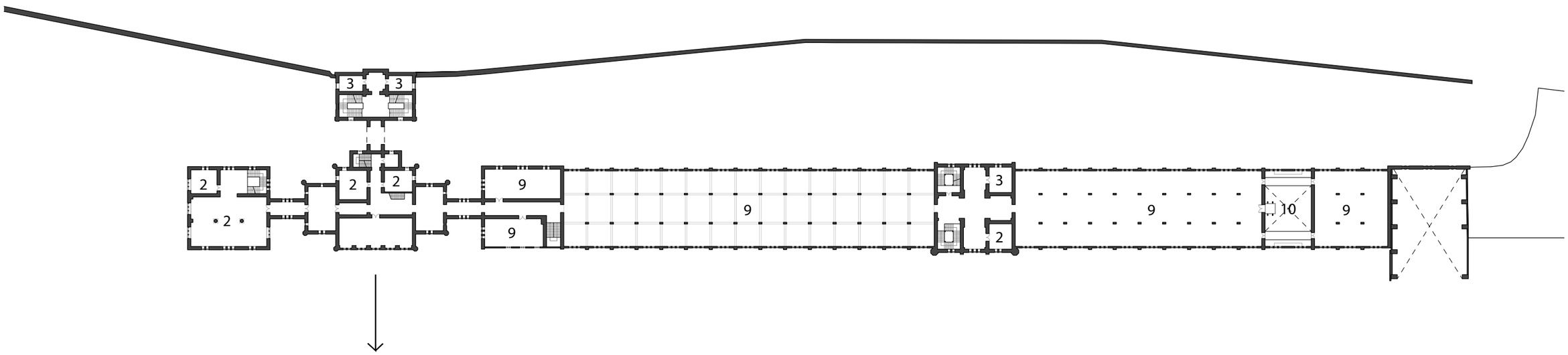
7. MUSEUM | STORAGE

VISUALISING THE INDUSTRIAL
CONSEQUENCE BY SCRAP ART

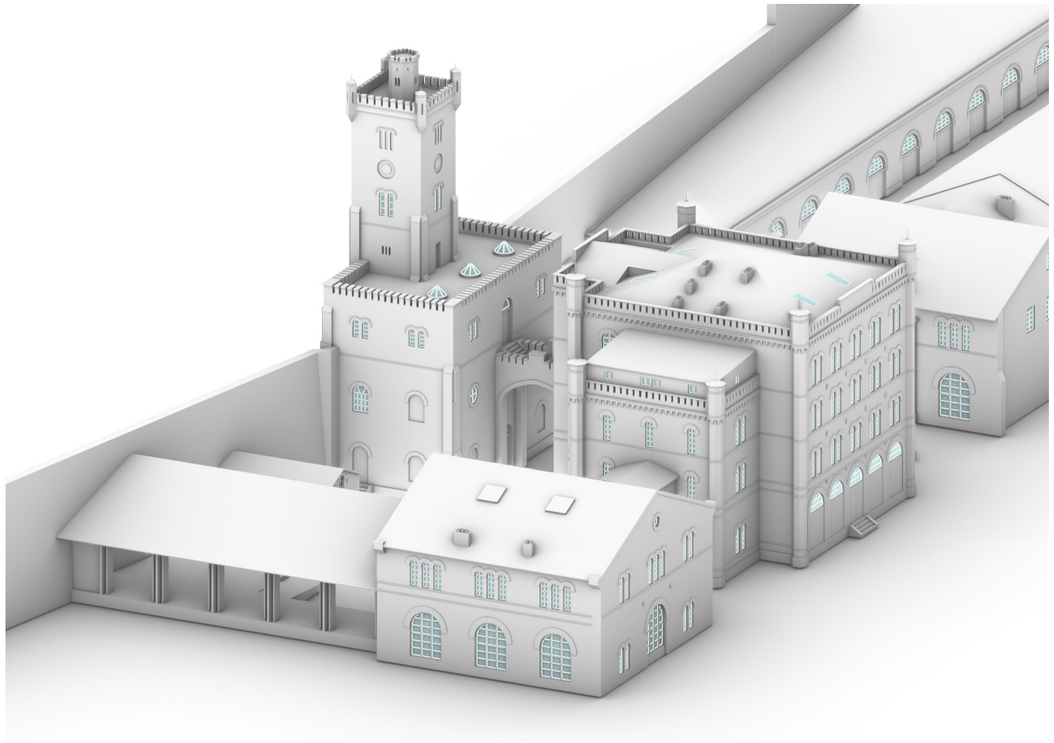


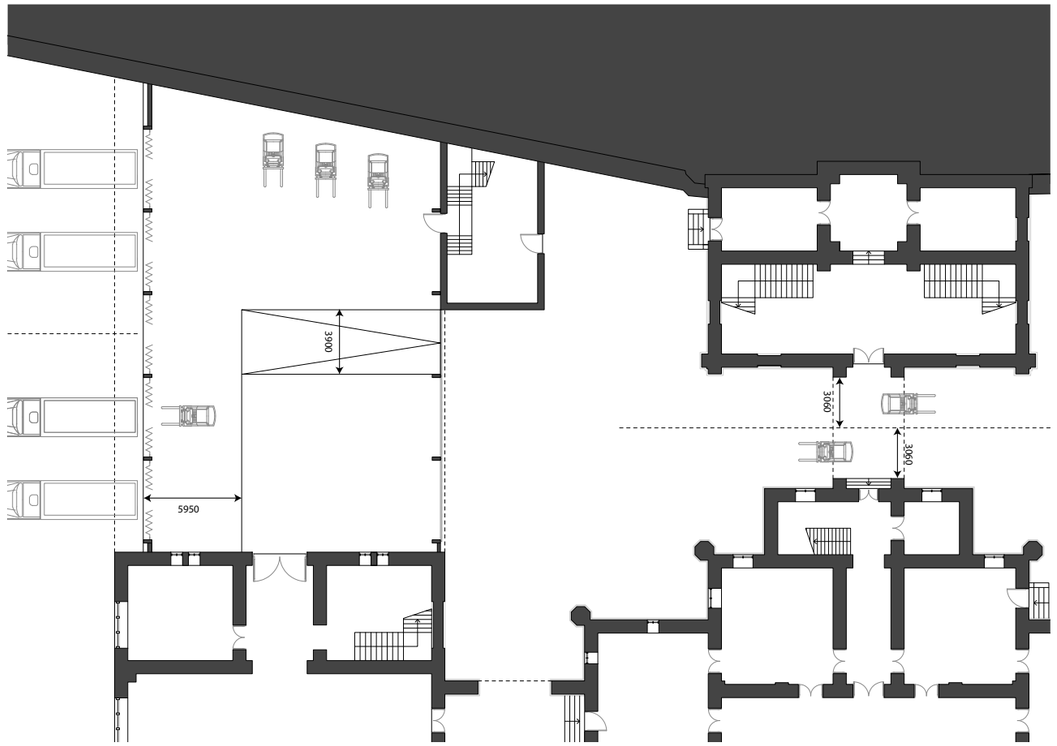
Zone A - Visitor Entrance | Museum | Storage

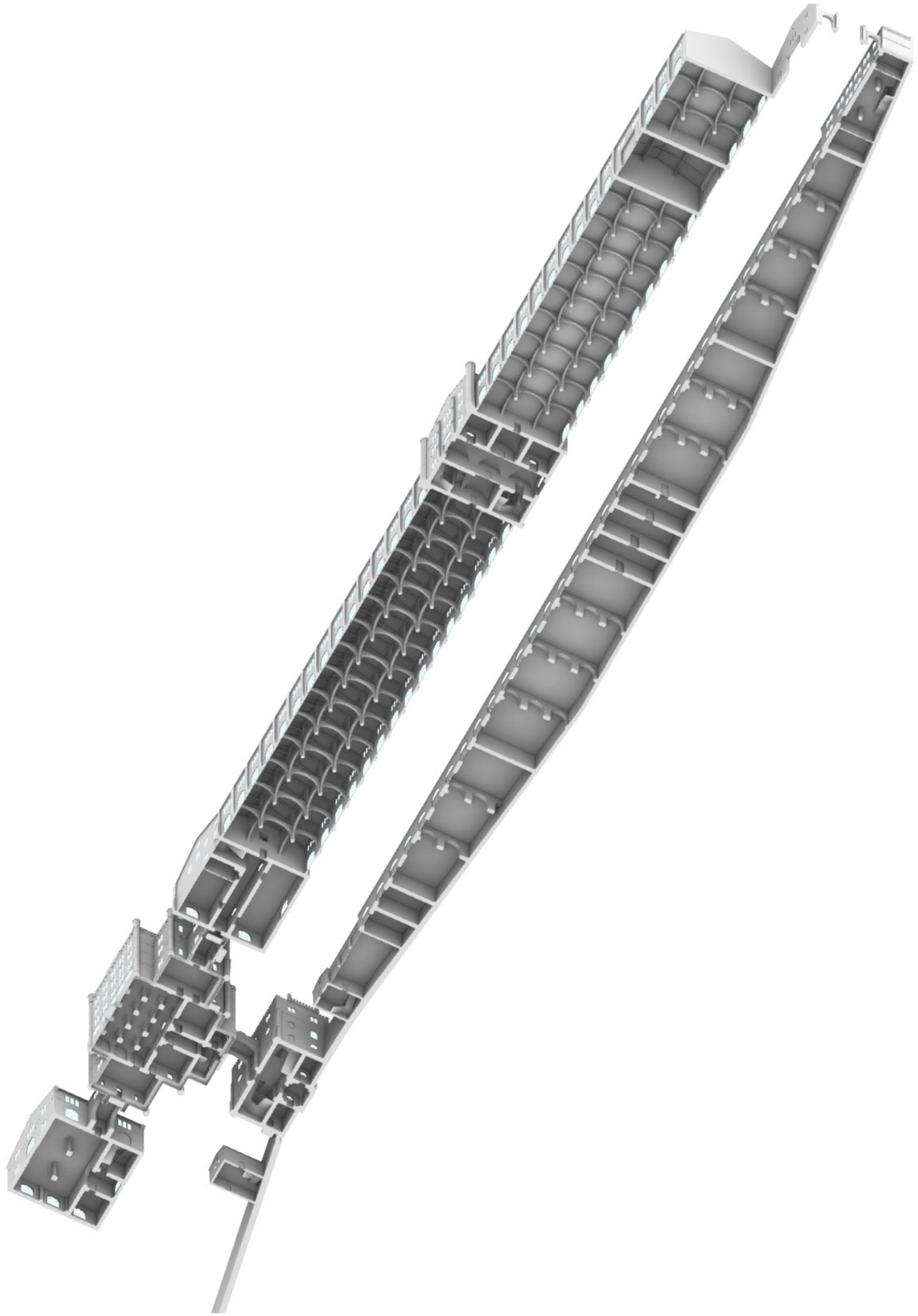
1 Unloading Bay
2 Office
3 Operational Storage
4 Event Space
5 Forklift Parking
6 Scrap Storage (Exposed)
7 Scrap Storage (Private)
8 Art Depot
9 Exhibition Space
10 Vertical Transport Lobby
11 Service

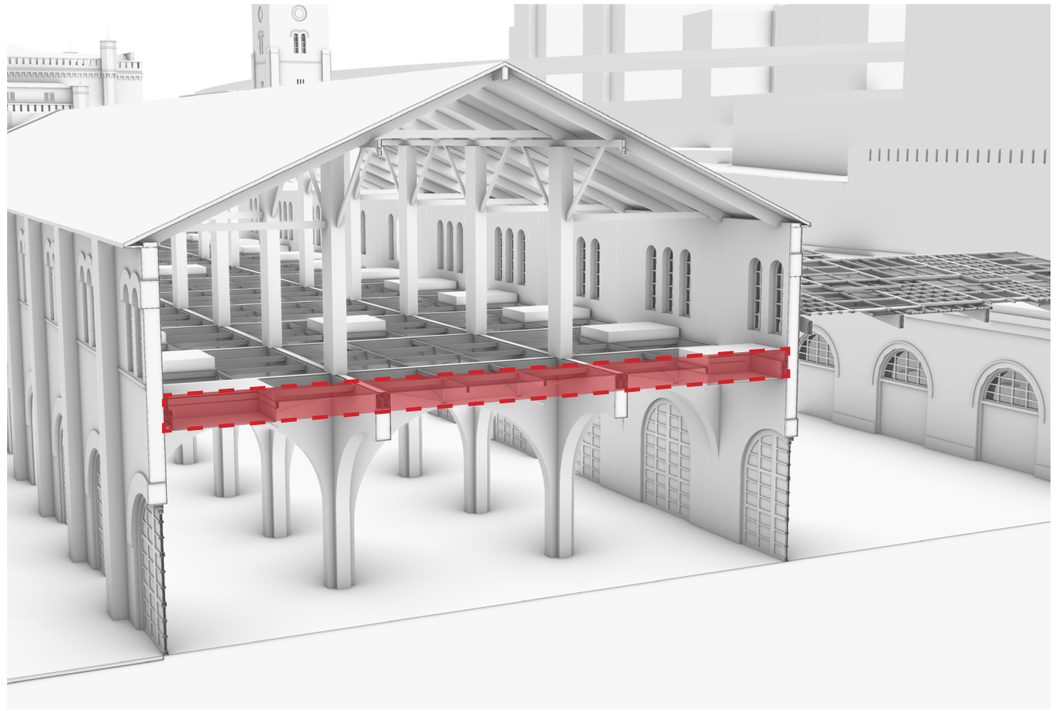


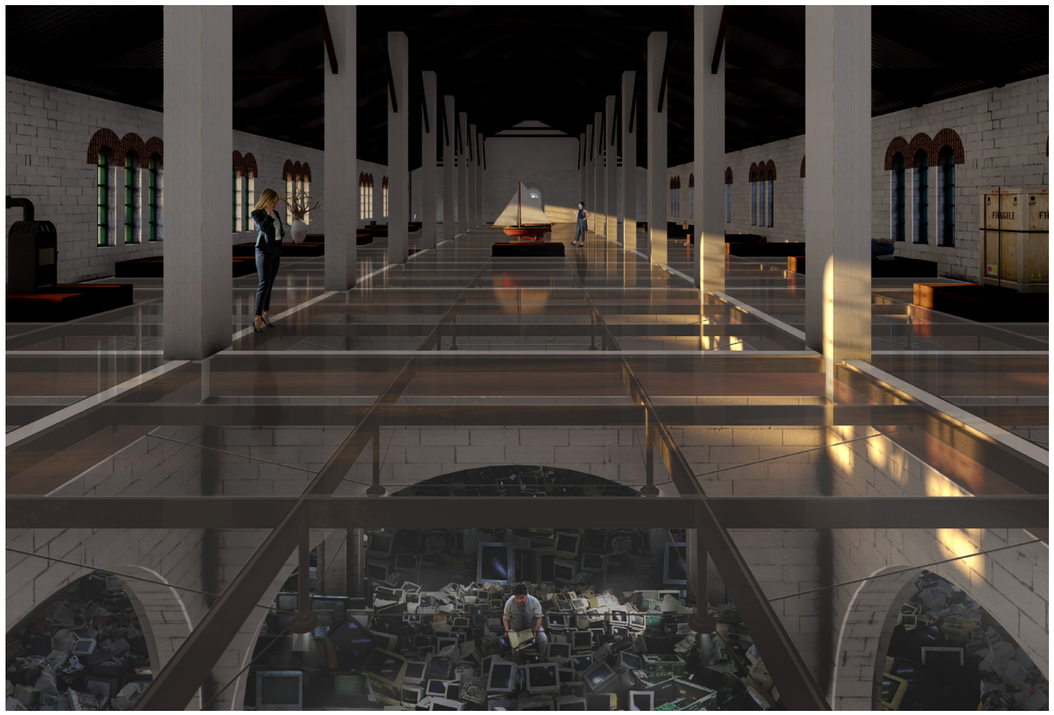
Zone B
Exhibition | Auditorium

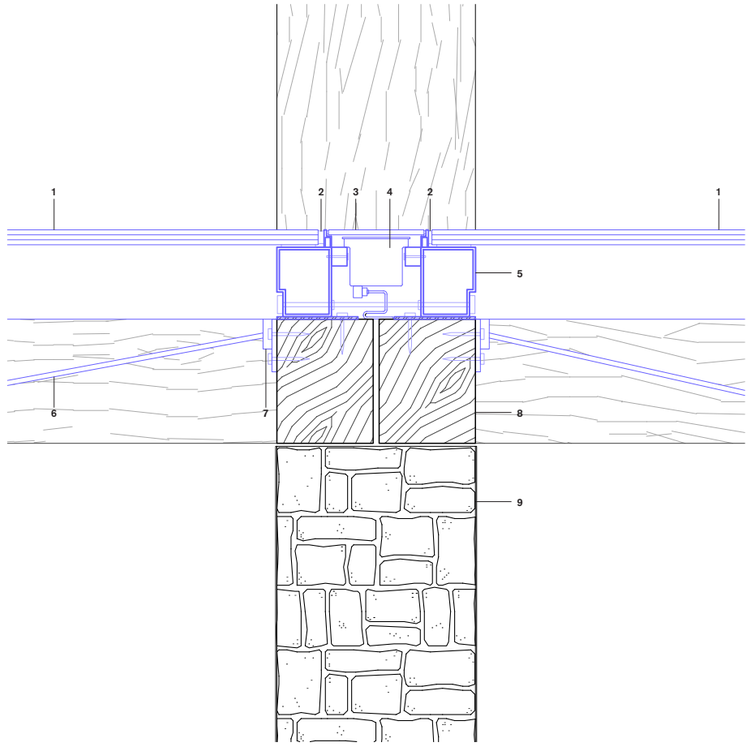



3900
3900
3900
5950





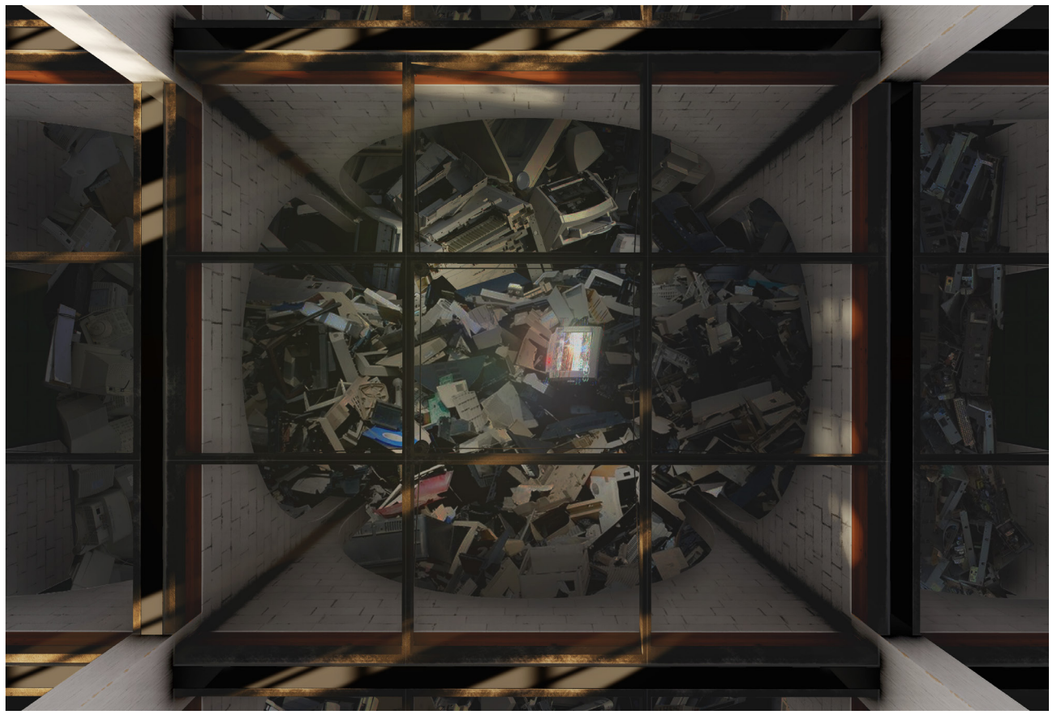


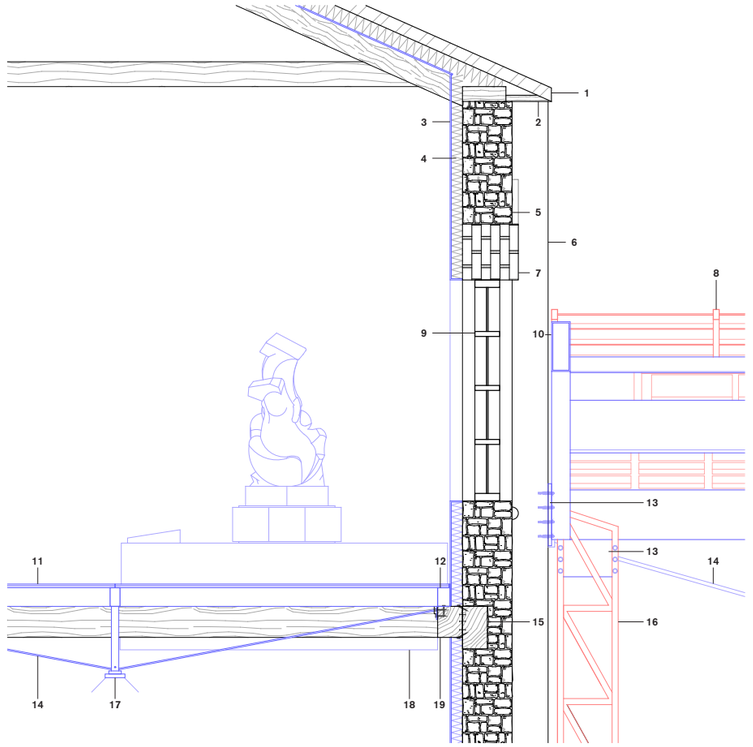


Existing
New
Reused

Detail Section | Floor Condition
1:5

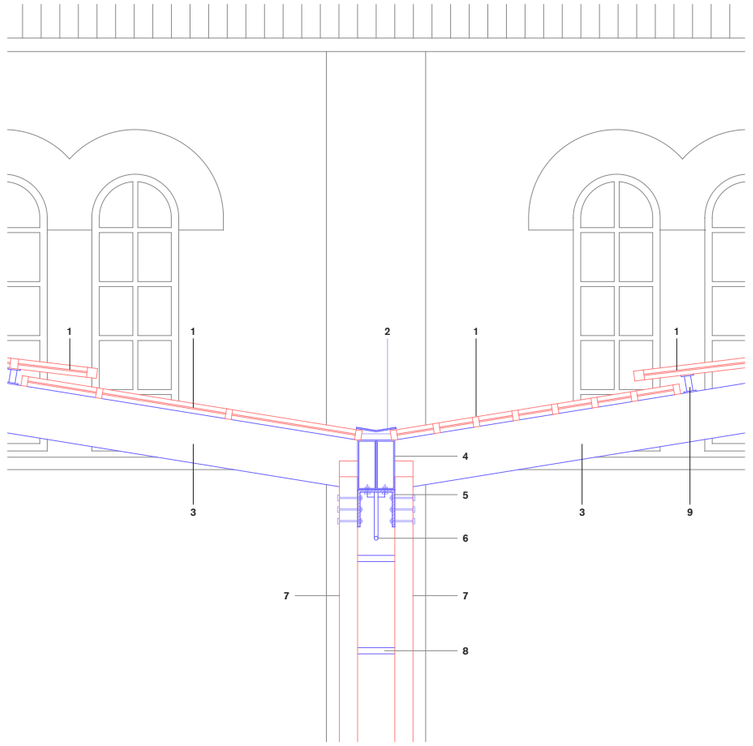
1 30mm 3-ply Structural Glass Floor
2 Silicone Sealant
3 Frosted Glass
4 LED Recessed Light Fixture
5 Aluminium Mullion
6 Tensile Cable Truss Chord
7 Cable Anchor
8 Existing Wooden Floor Beam
9 Existing Brick Arch Structure





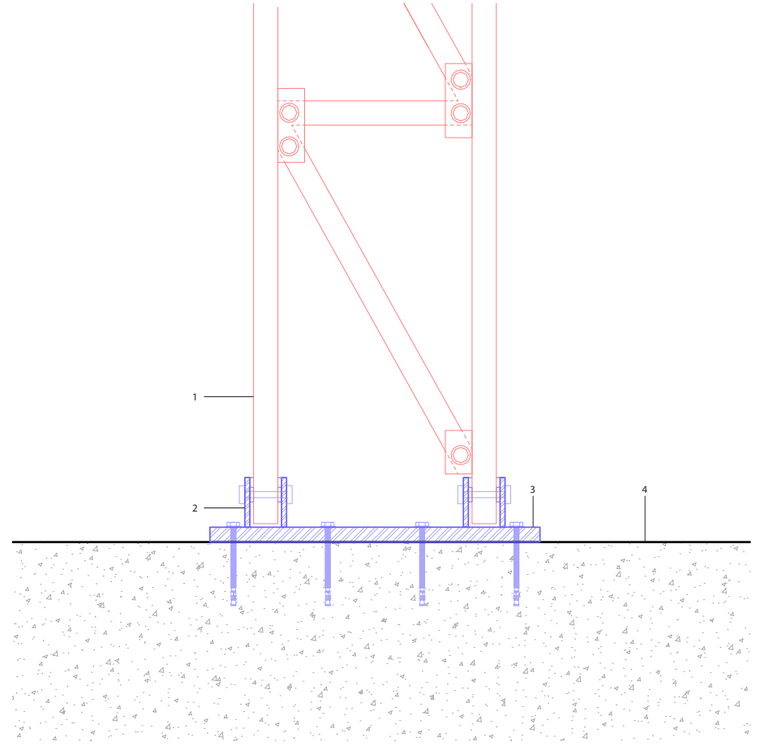
Detail Section | Wall Condition
1:20

1	Existing Metal Roof Panel
2	Existing Wooden Soffit
3	Plastered Interior Cladding
4	Rigid Insulation
5	Existing Brick Wall
6	Existing Brick Buttress
7	Existing Brick Arch Lintel
8	Reused Window Canopy
9	Double-glazed Window
10	Canopy Steel Beam
11	30mm 3-ply Structural Glass Floor
12	Aluminium Mullion
13	Steel Connection Plate
14	Cable Truss
15	Existing Timber Wall Plate
16	Reinforcing Truss Column Reused from Shipyard
17	Cable Truss Post with LED Spotlight
18	Infill Stage Box
19	Existing Wooden Floor Beam



Detail Section | Canopy Condition
1:20

1 Reused Window
2 Metal Trim
3 150x400mm Steel Beam
4 150x400mm Steel Girder (2x)
5 Steel Connection Bracket
6 Steel Cable
7 Reinforcing Truss Column Reused from Shipyard
8 Steel Bracing Piece
9 Supporting Pedestal



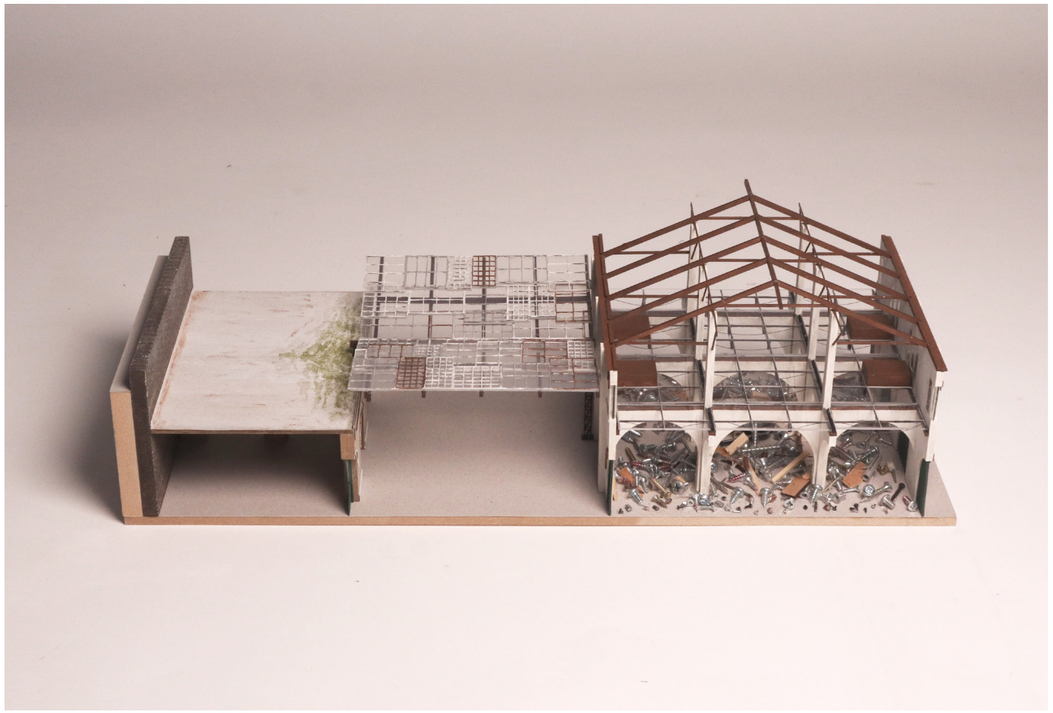
Existing
New
Reused

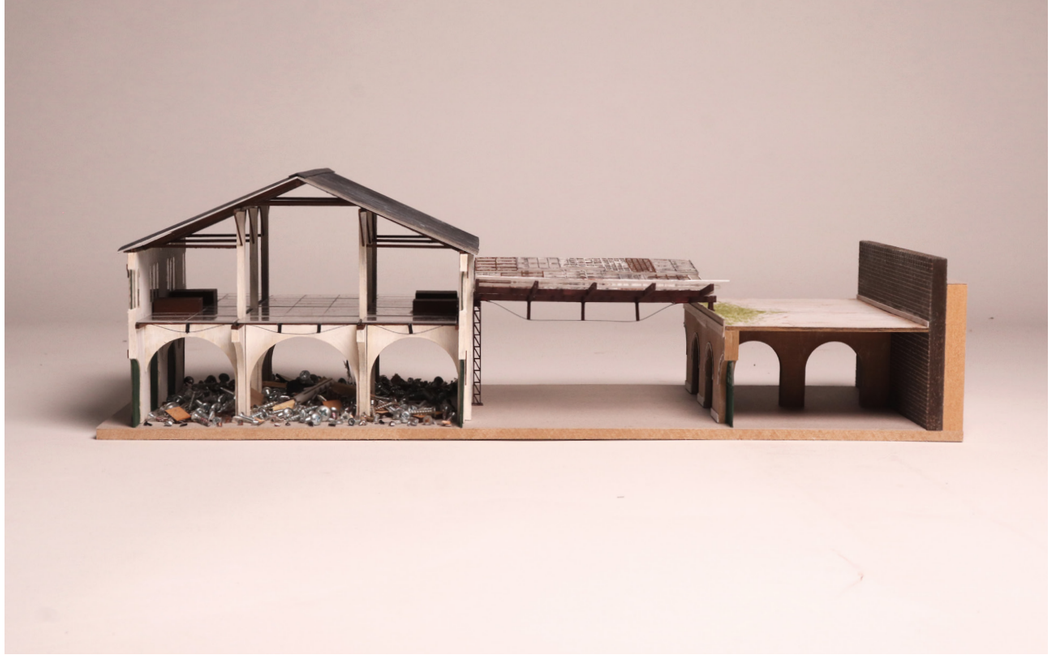
Detail Section | Foundation Condition
1:5

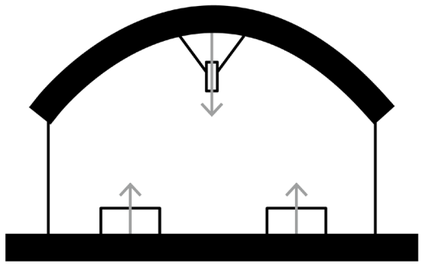
1 Reinforcing Truss Column Reused from Shipyard
2 Steel Receiving Bracket
3 30mm Steel Ground Connection Pate
4 Ground Concrete Plinth


YOTOTA
YOTOTA


YOTOTA
YOTOTA

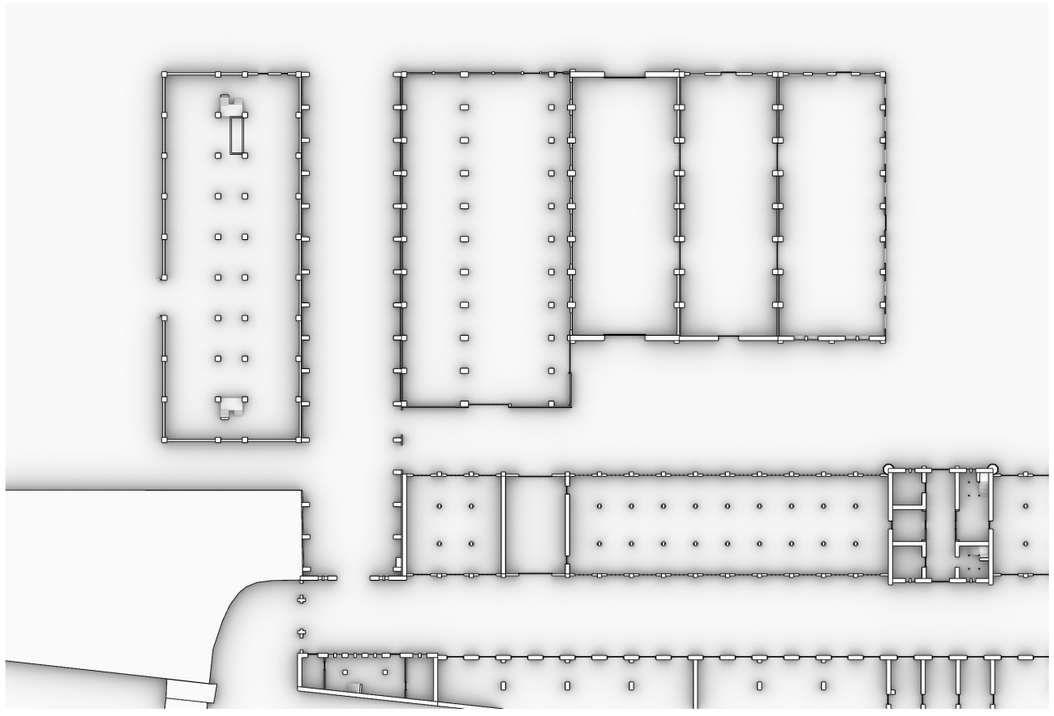


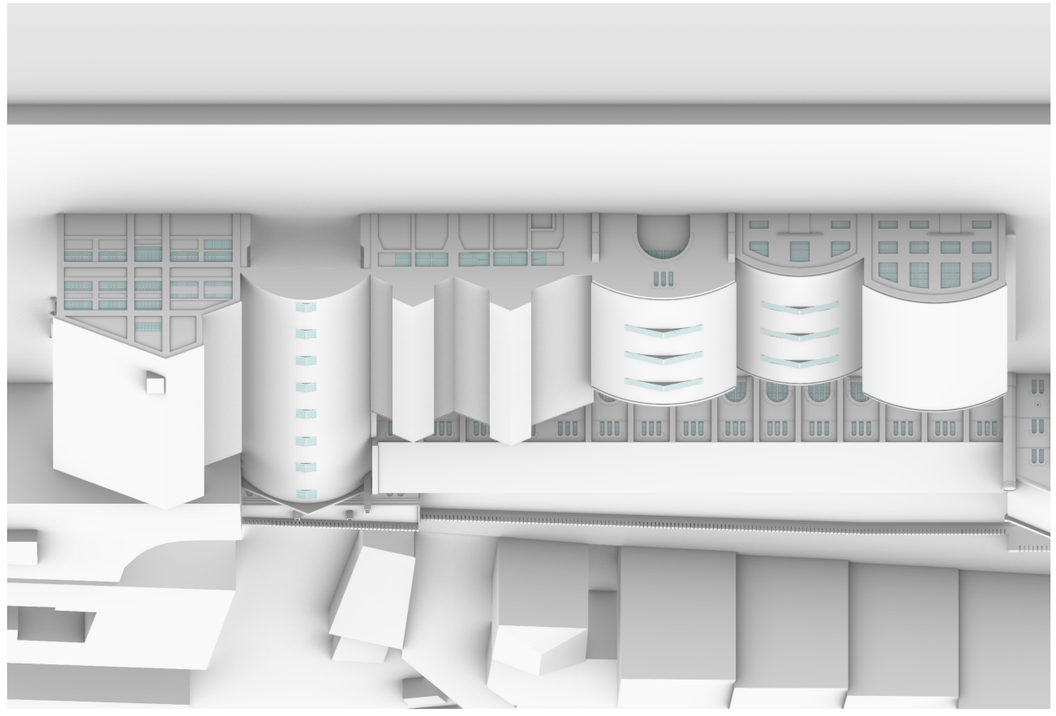


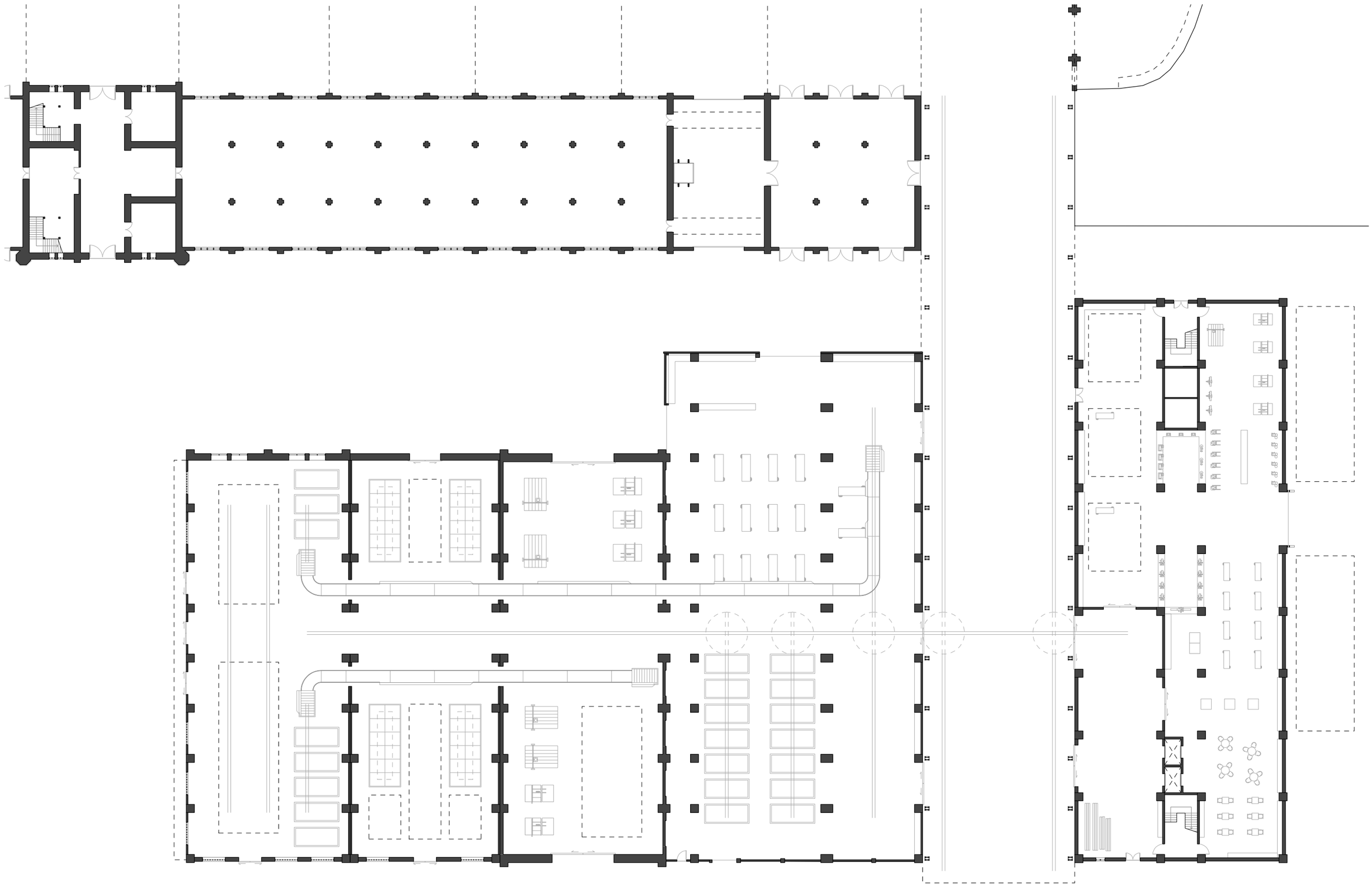


8. WORKSHOP | ATERLIER

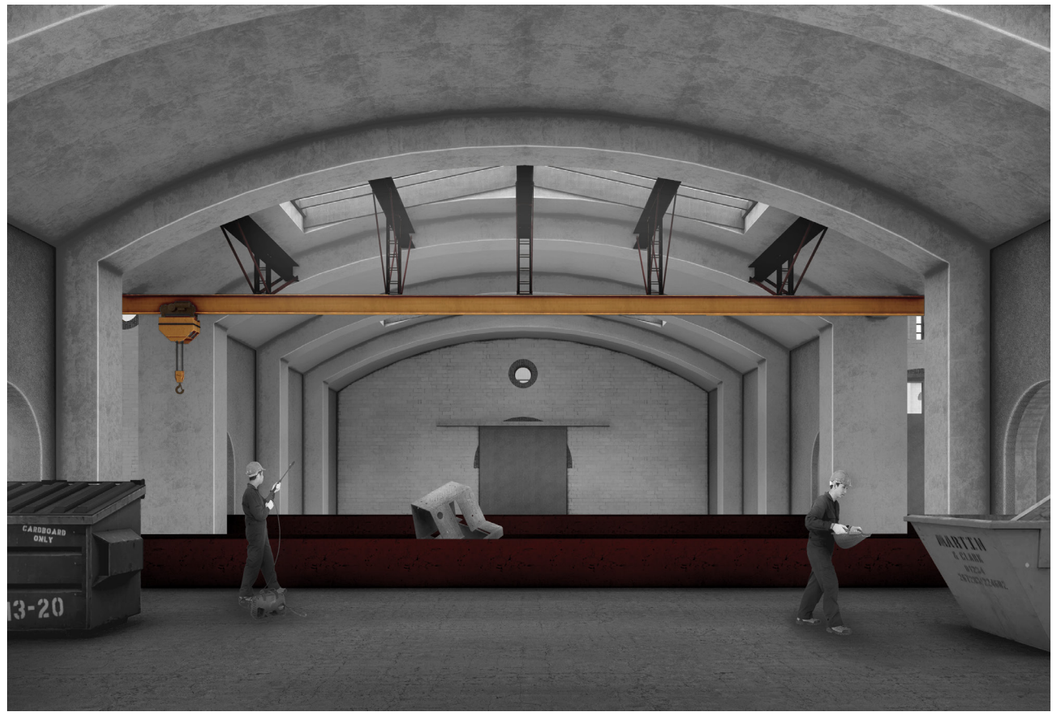
TRANSFORMING SCRAP INTO ART & ARCHITECTURE

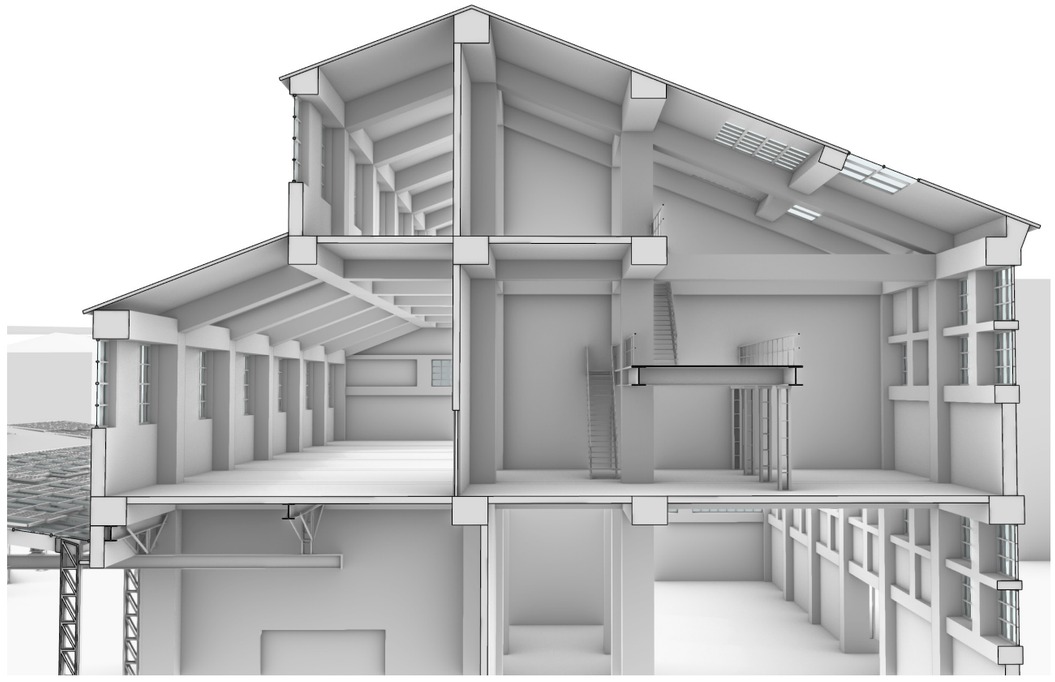


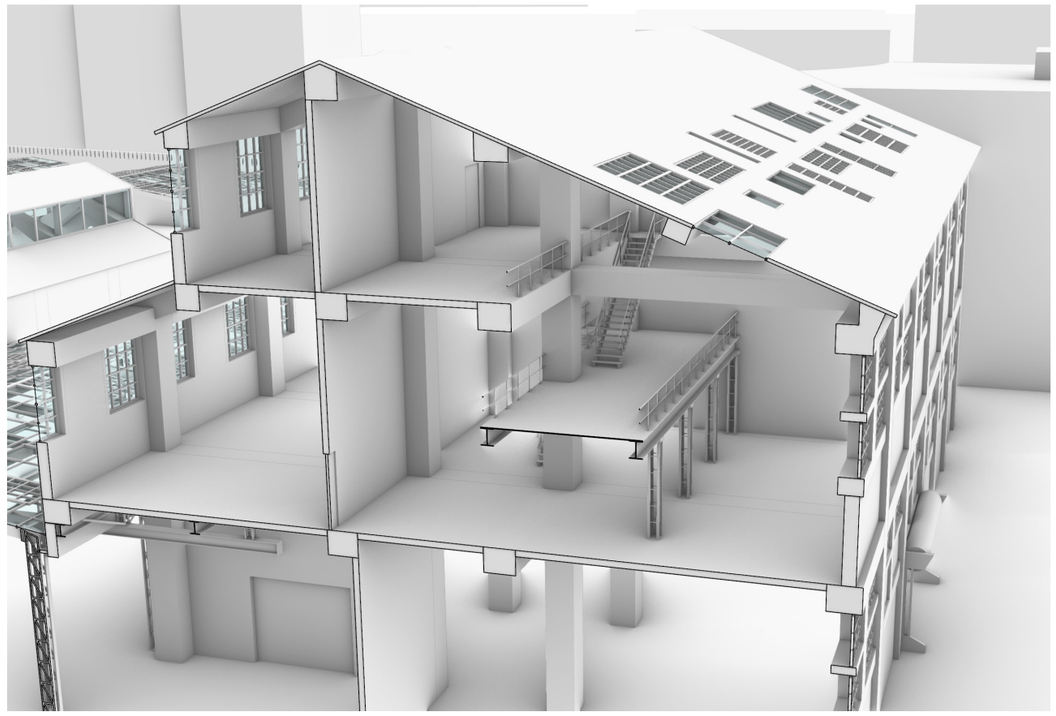


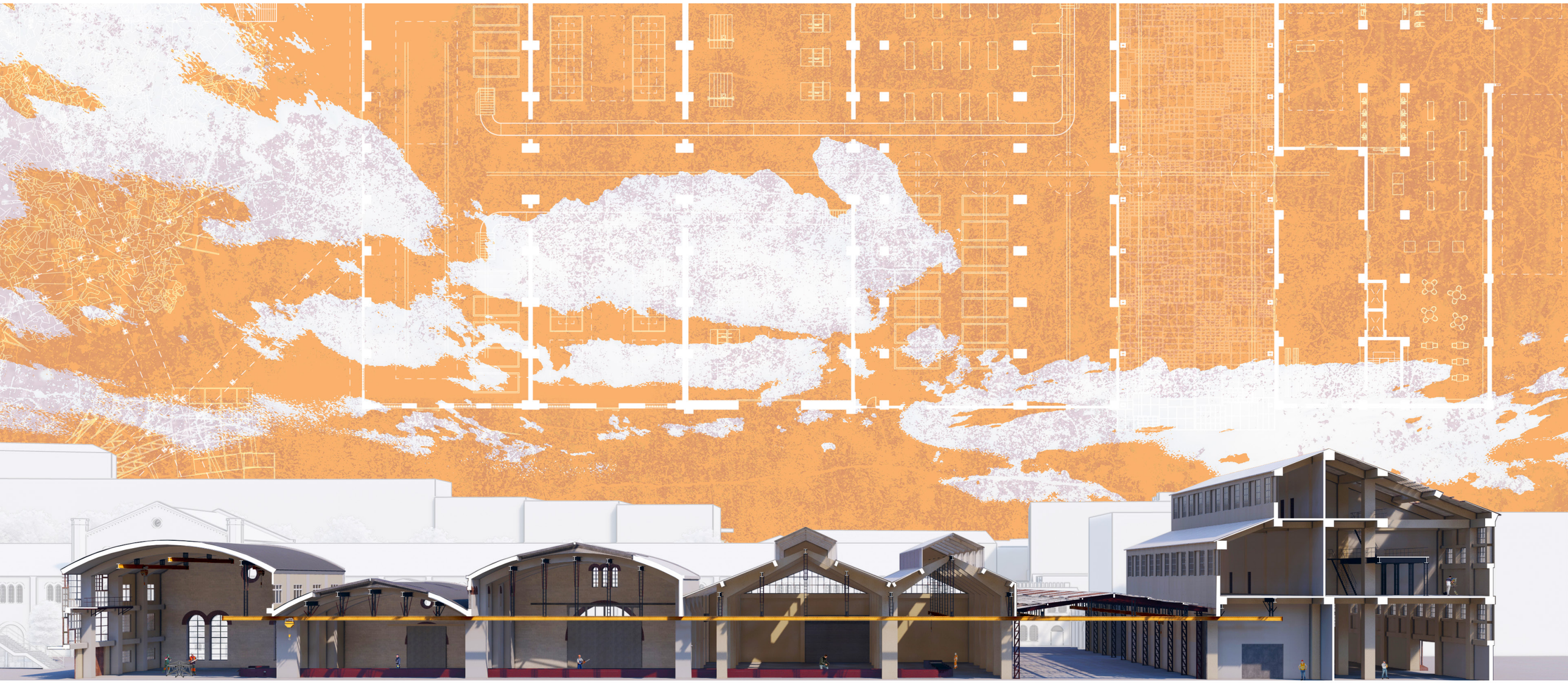


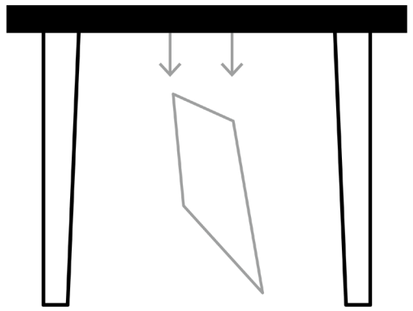

CARDBOARD
ONLY
3-20
MARTIN


CARDBOARD
ONLY
3-20
MARTIN



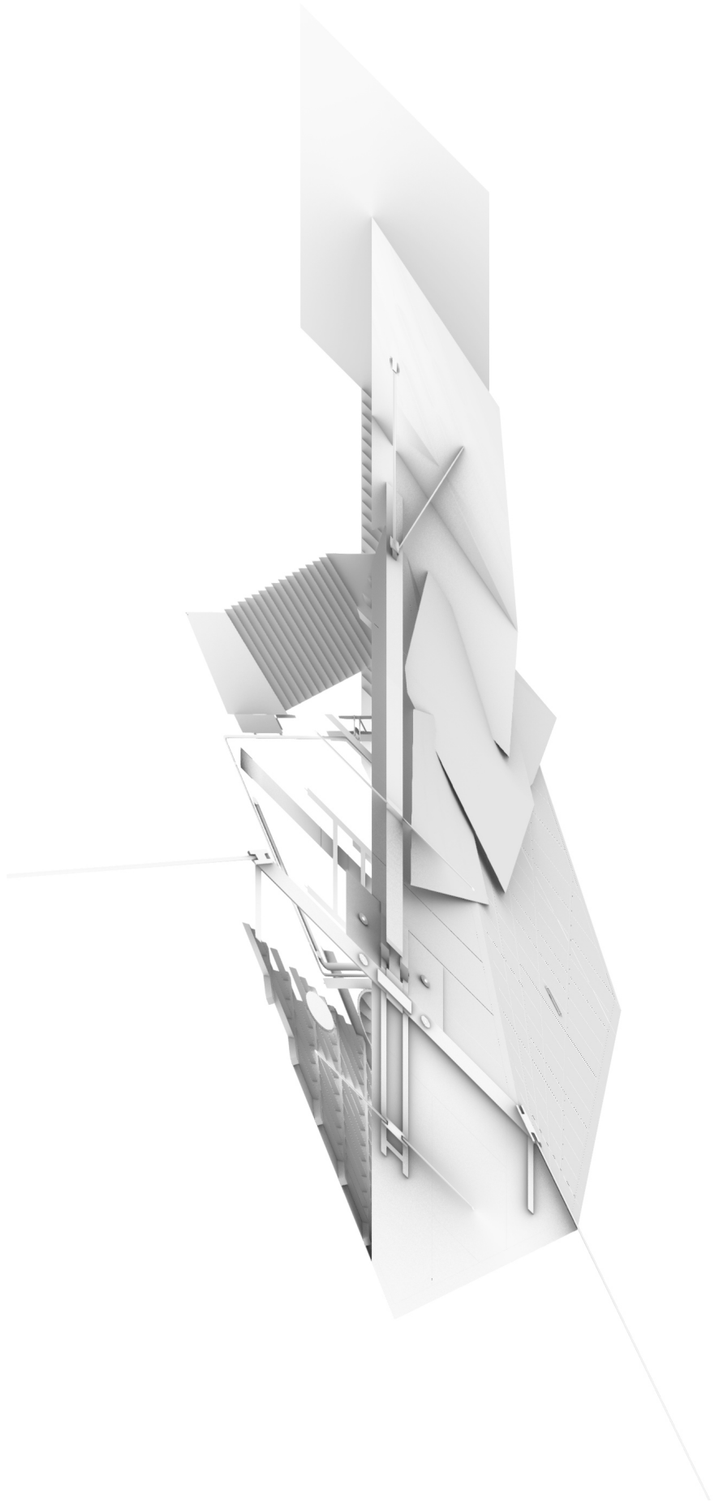


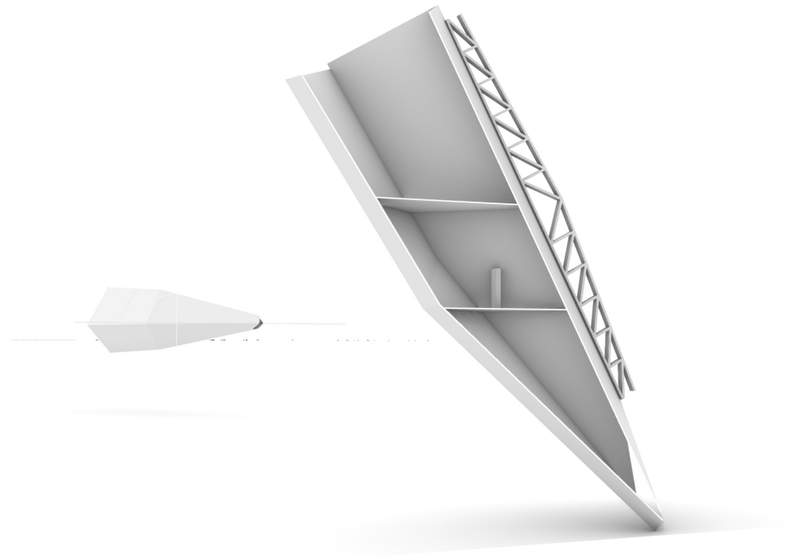


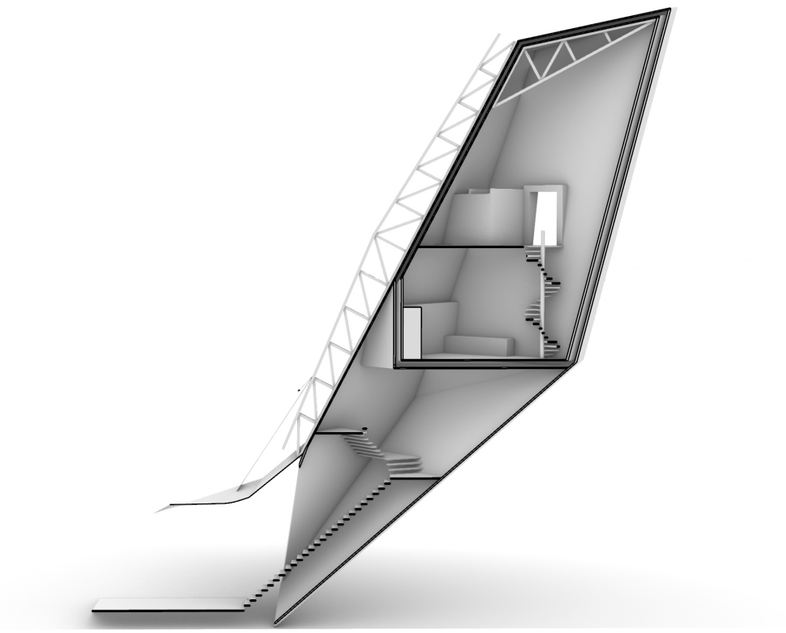


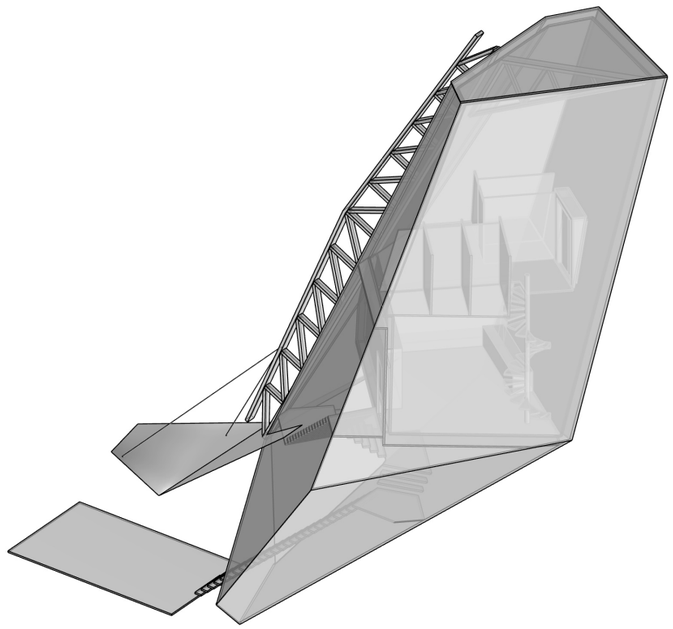
9. SWIMMING POOL

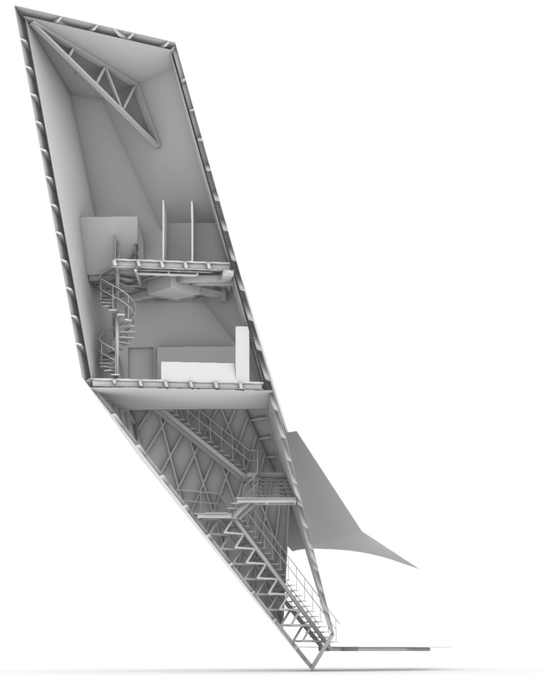
REUSING INFRASTRUCTURE TO ACTIVATE THE WATERFRONT

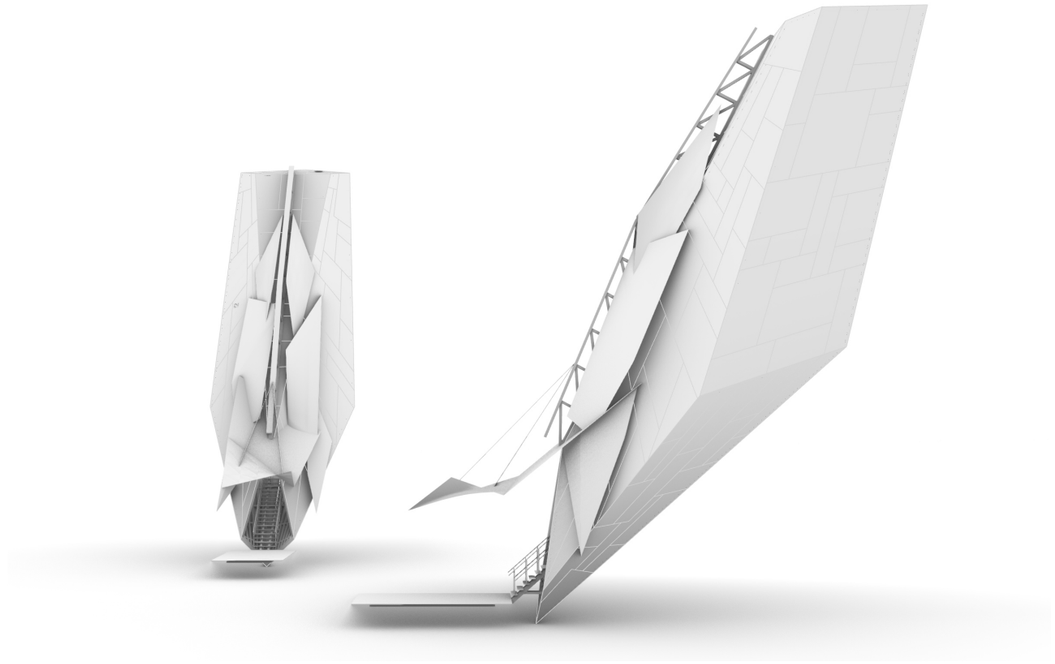


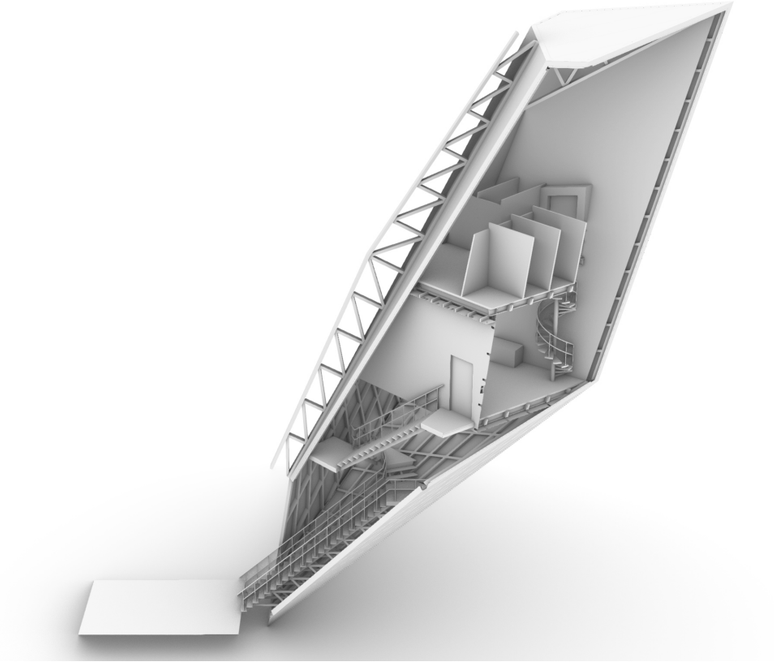


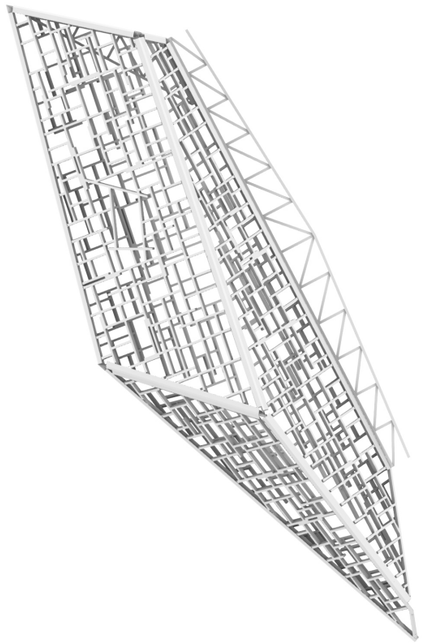


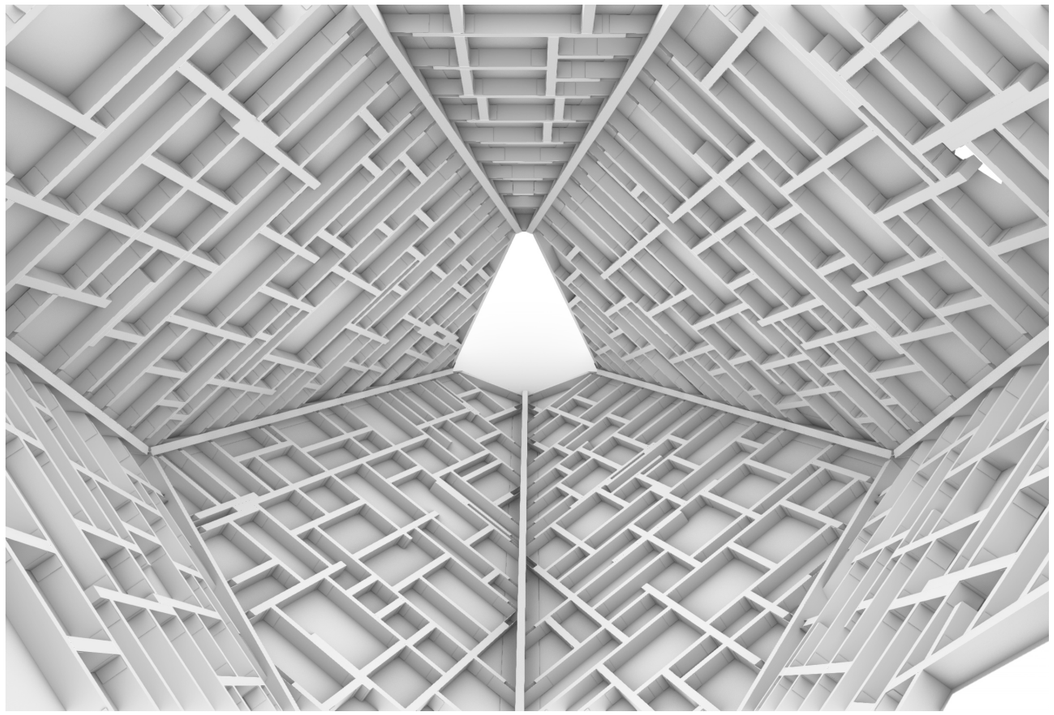


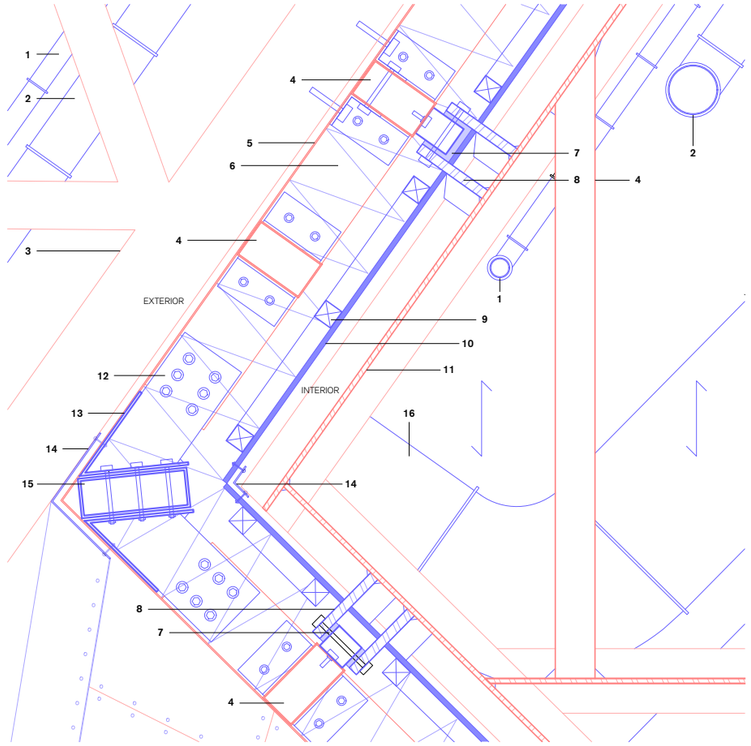






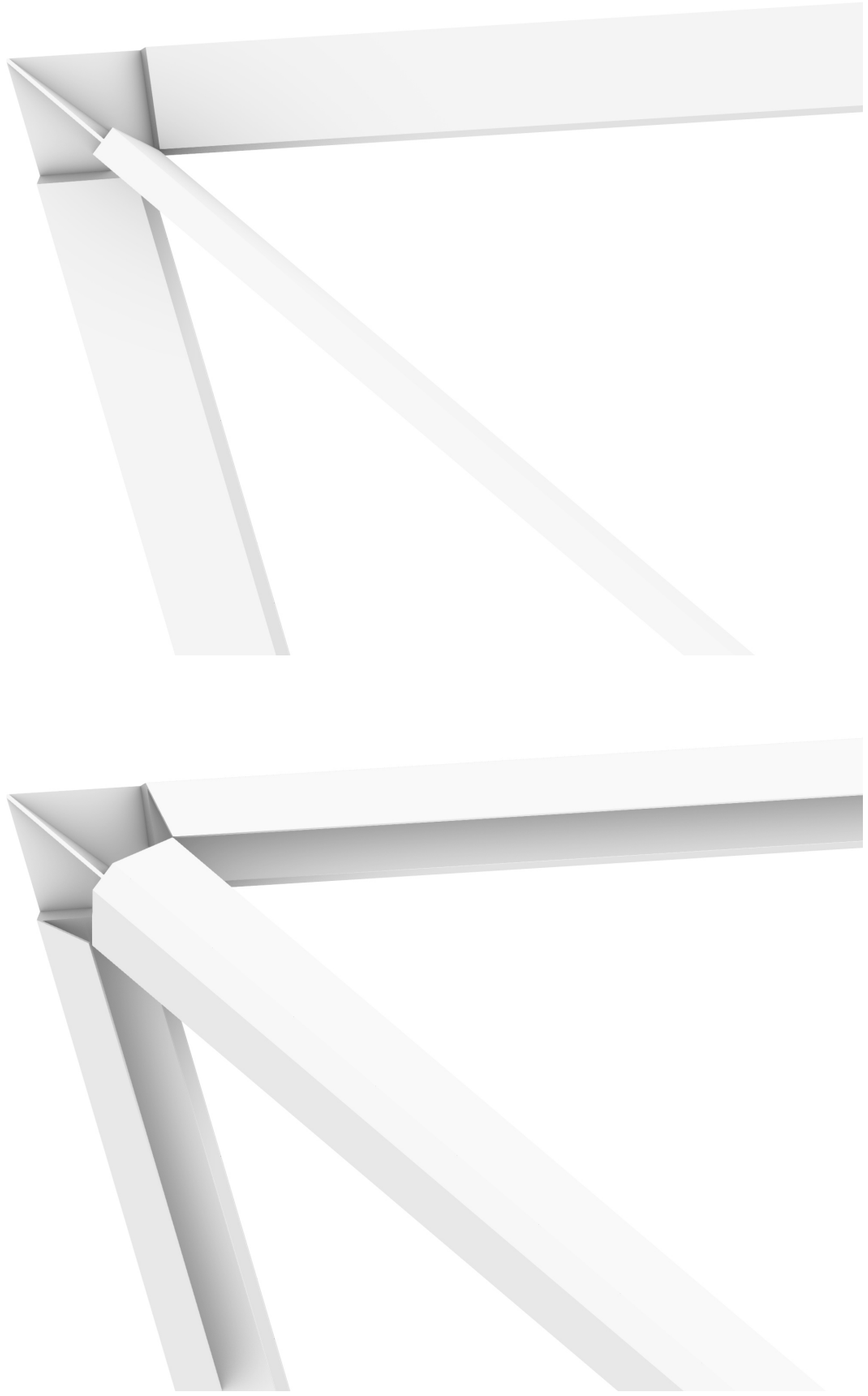


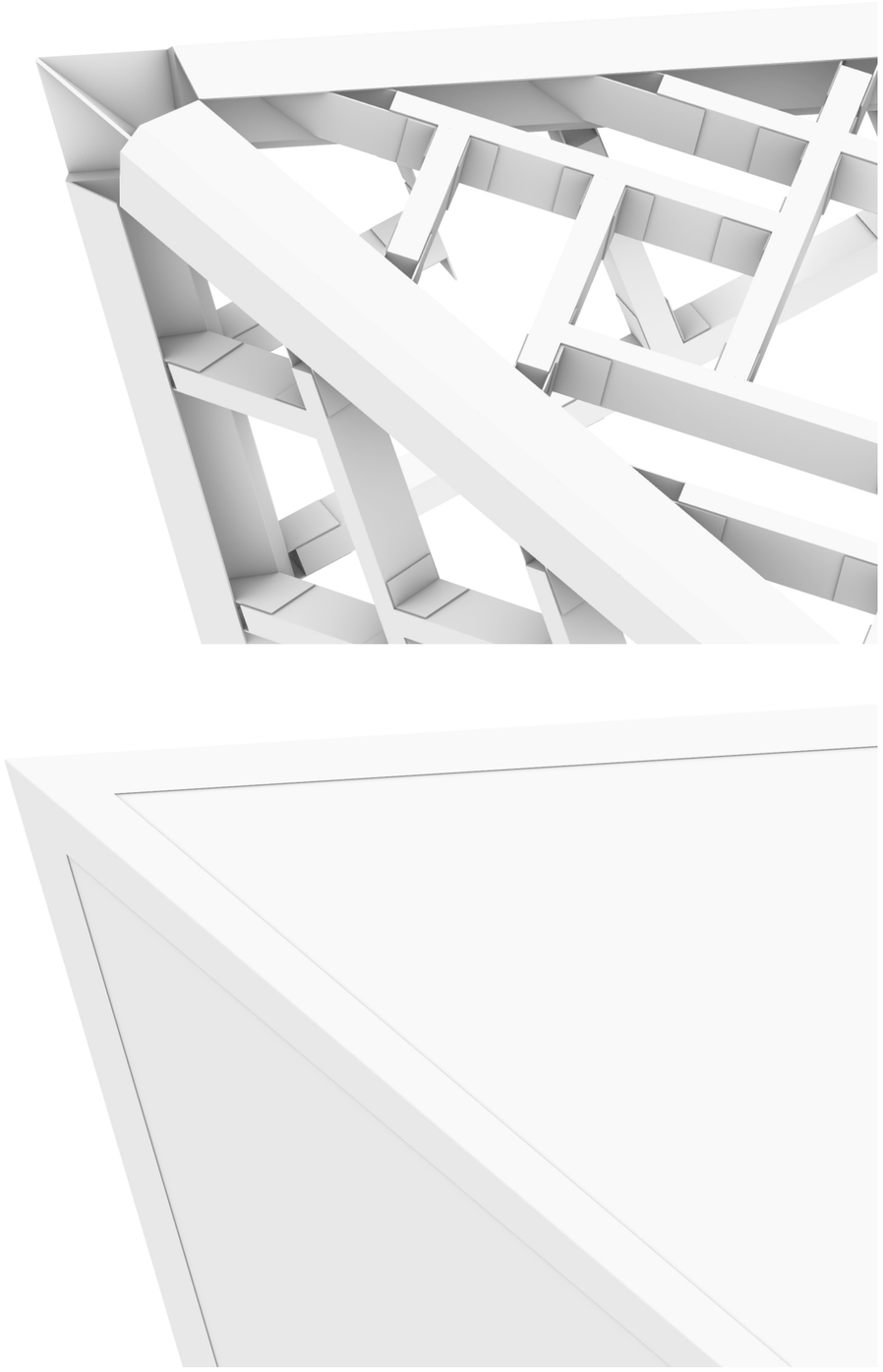


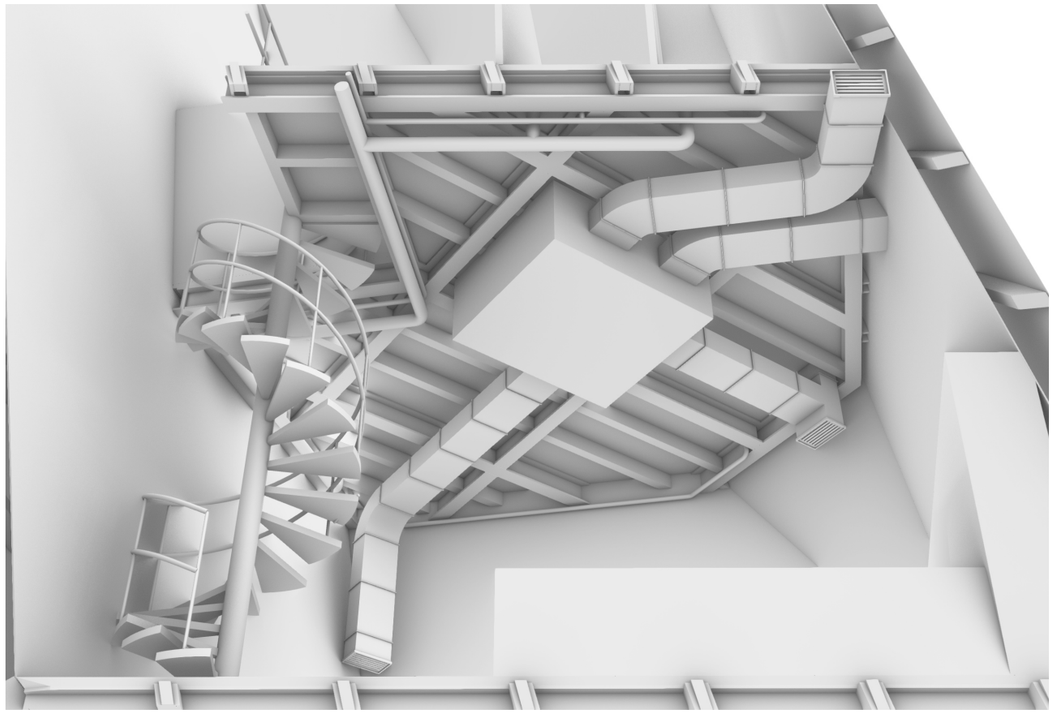


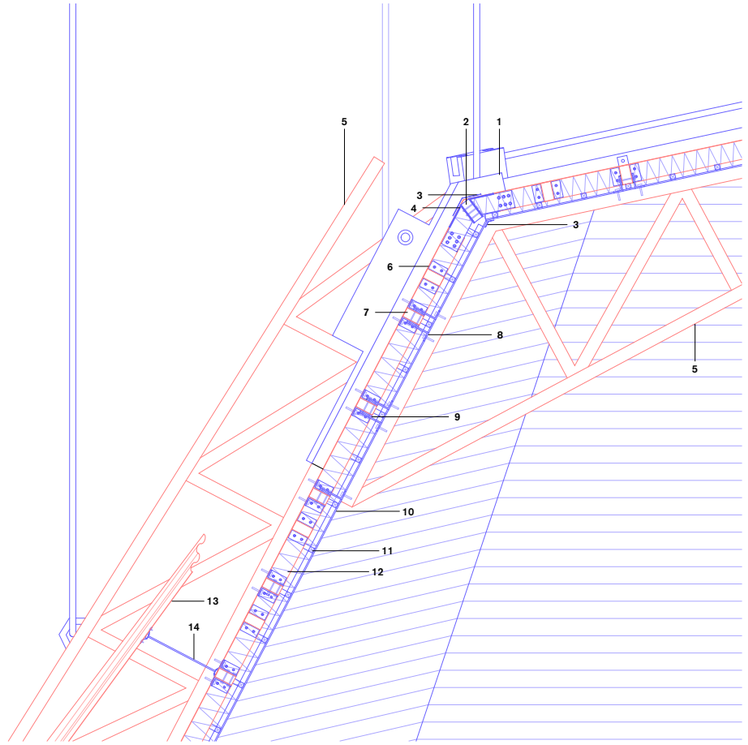
Detail Plan | Corner Condition
1:5

1	⌀40mm Fresh Water Pipe
2	⌀100mm Greywater Pipe
3	Reused Truss as External Walkway Structure
4	80x150mm Reused Steel Profile
5	2.5mm Steel Plate from Shipyards
6	Rigid Insulation
7	10mm Structural Teflon Pad
8	Steel Receiver (Welded to Floor Frame)
9	40x40mm Wood Batten
10	Wooden Interior Cladding
11	Steel I-Beam
12	Steel Receiving Bracket
13	Steel Corner Angle
14	Metal Trim
15	80x220mm Steel Profile Edge Beam
16	Ventilation Air Duct



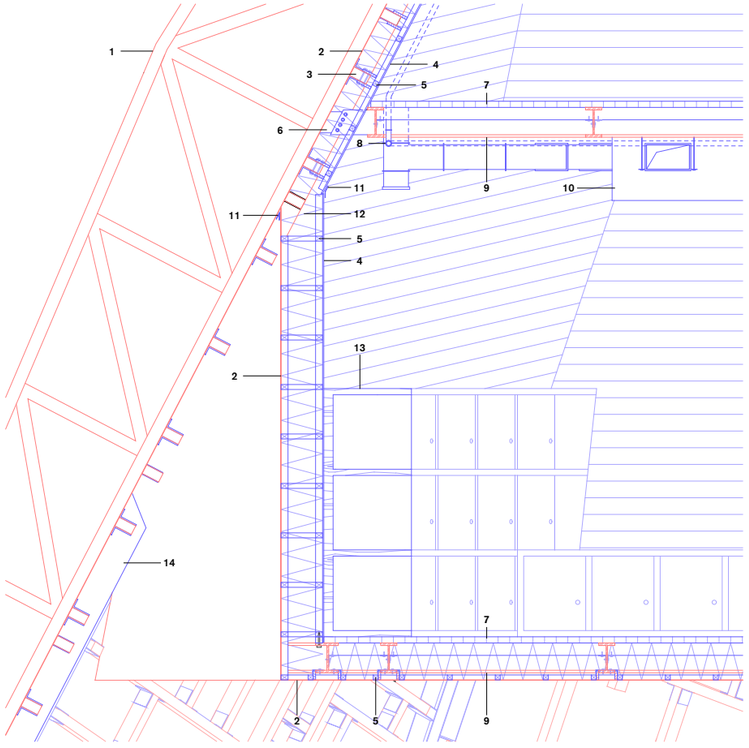






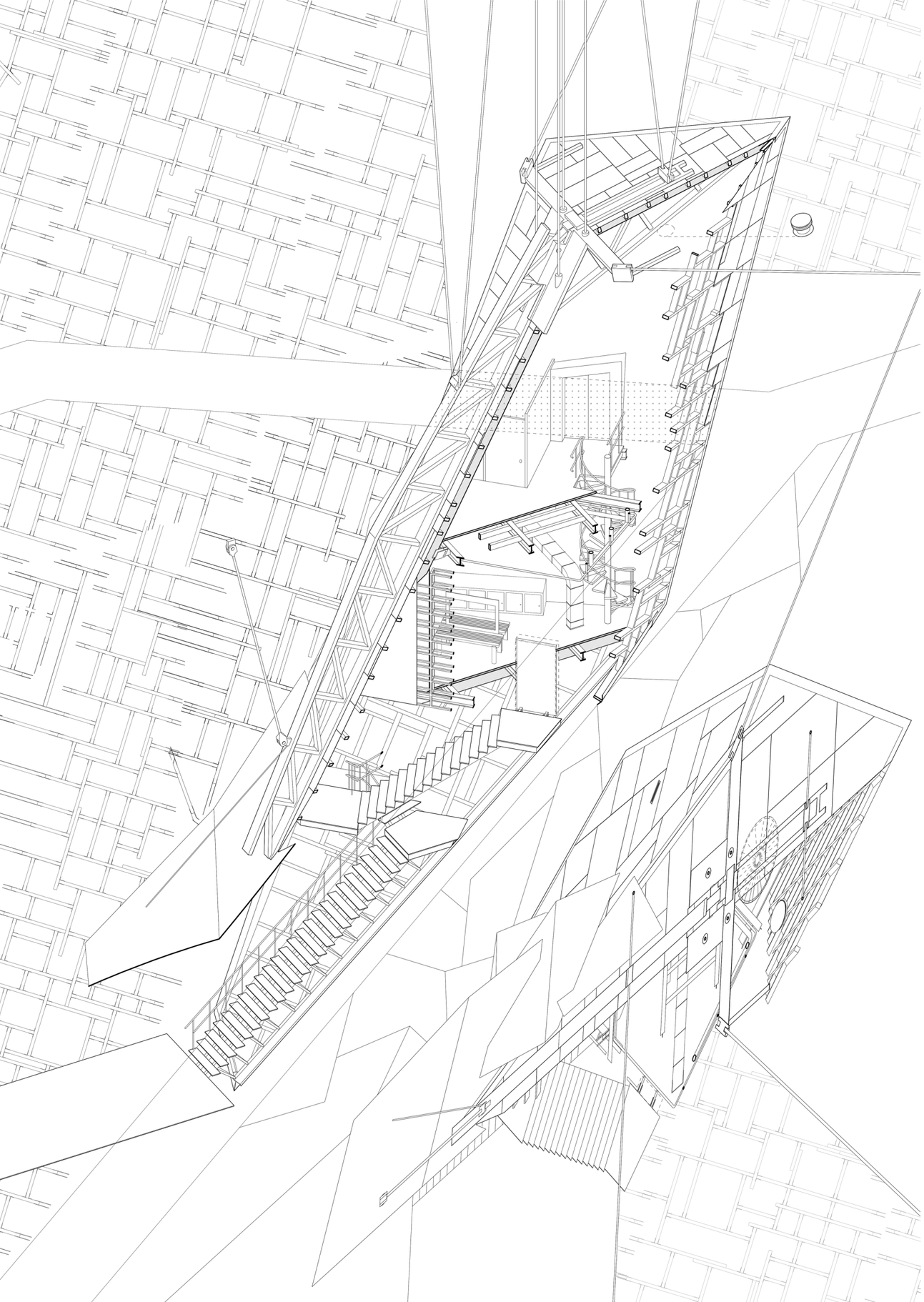
Detail Section | Roof Condition
1:20

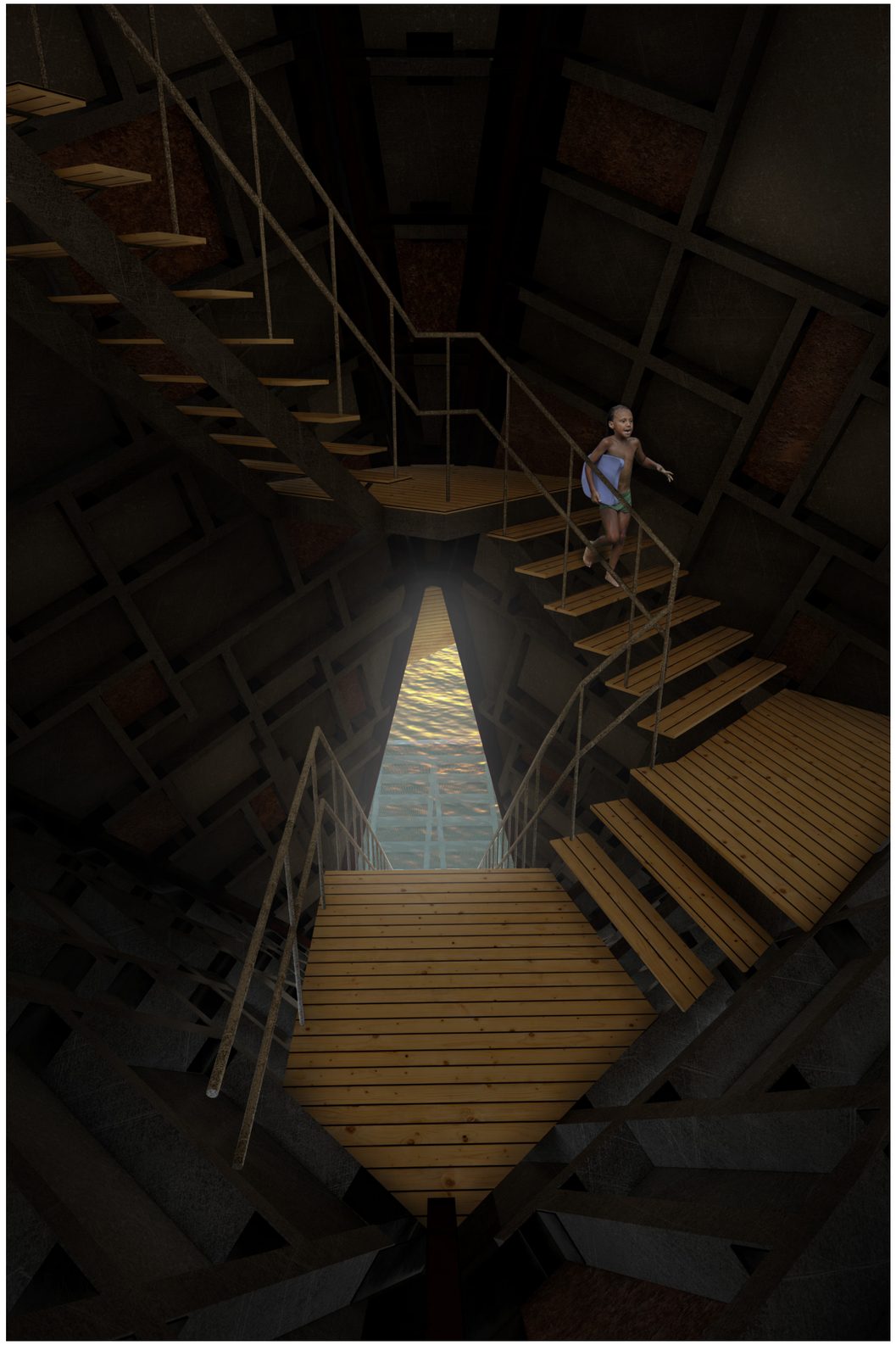
1	Crane Hanger Unit
2	80x190mm Steel Profile Edge Beam
3	Metal Trim
4	Steel Corner Angle
5	Reused Truss from Warehouses
6	2.5mm Steel Plate from Shipyards
7	80x150mm Reused Steel Profile
8	Steel Angle
9	10mm Structural Teflon Pad
10	Wooden Interior Cladding
11	40x40mm Wood Batten
12	Rigid Insulation
13	Reused Corrugated Metal Sheet
14	Steel Bar

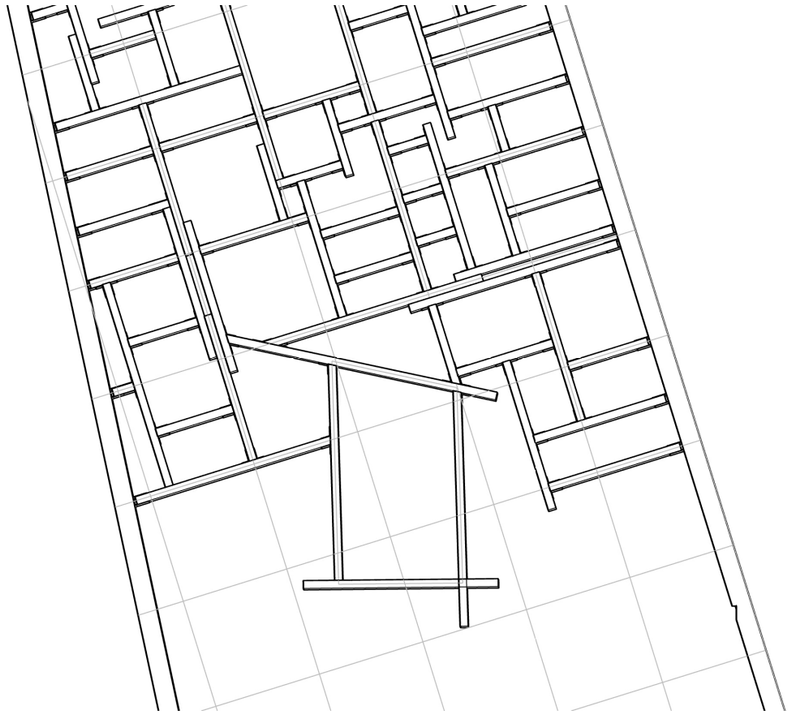


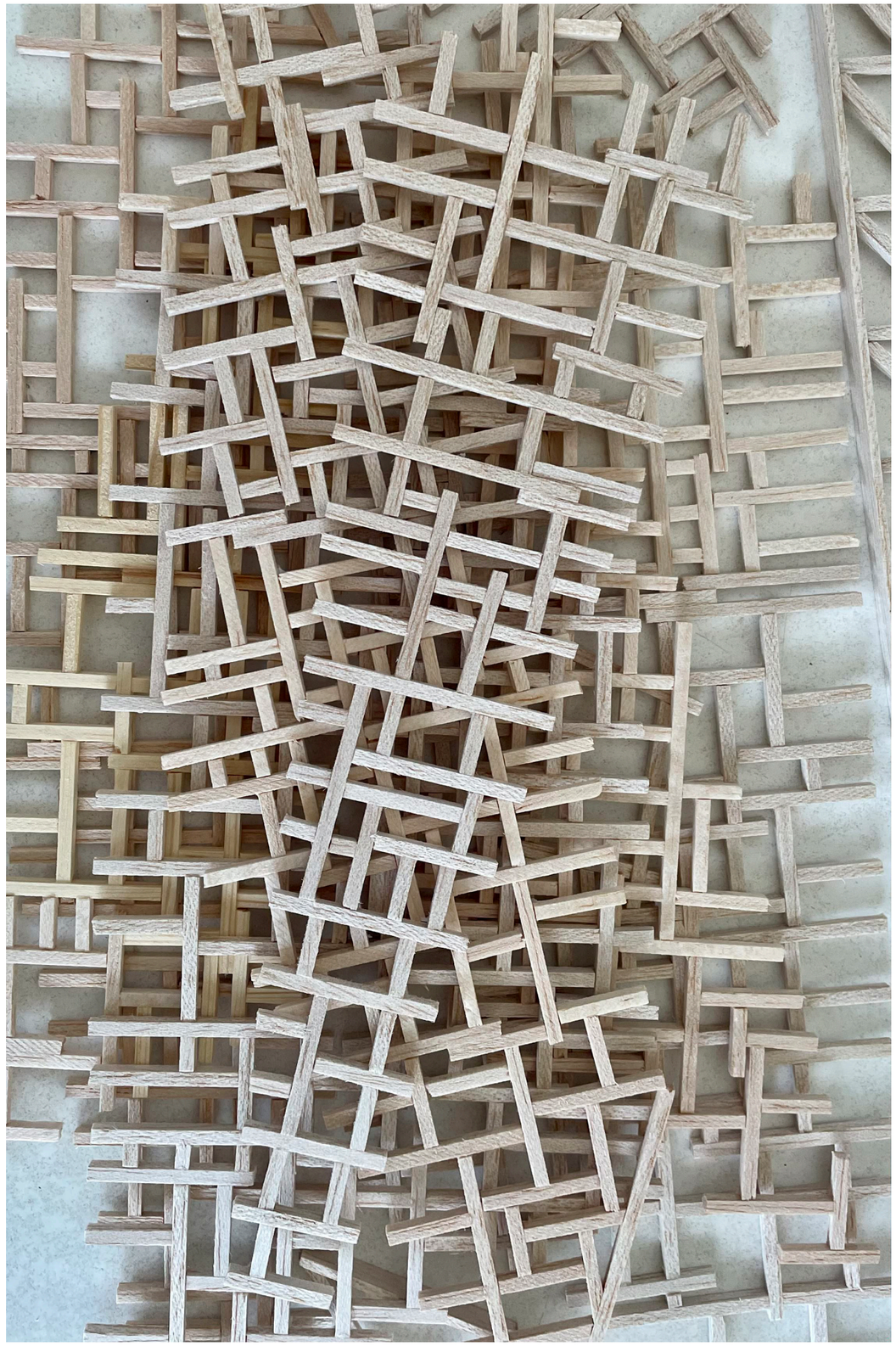
Detail Section | Floor Condition
1:20

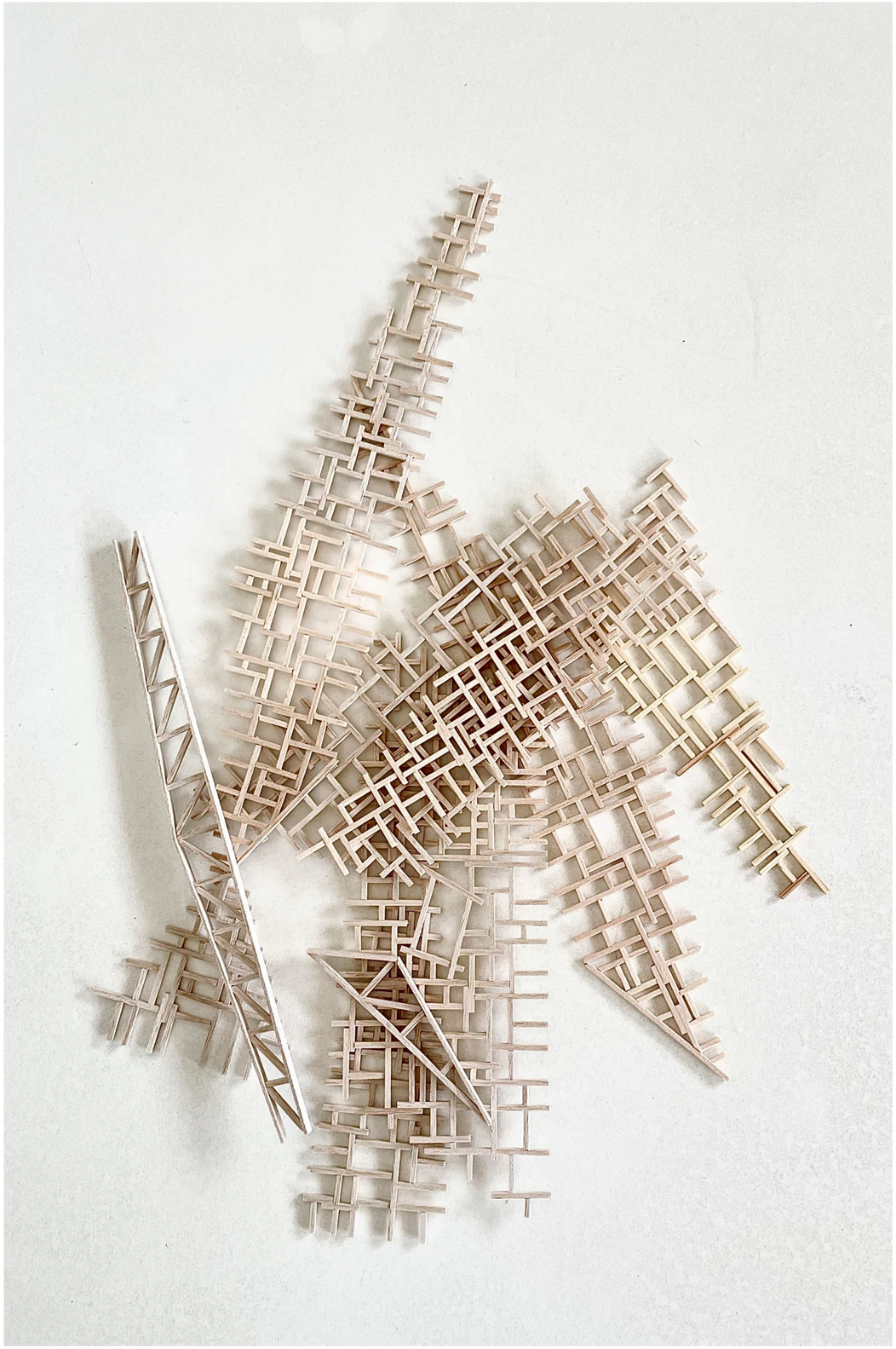
1	Reused Truss from Warehouses
2	2.5mm Steel Plate from Shipyards
3	80x150mm Reused Steel Profile
4	Wooden Interior Cladding
5	40x40mm Wood Batten
6	Structural Frame-Floor Connector (see Detail Plan)
7	Wooden Flooring
8	⌀40mm Fresh Water Pipe
9	Steel I-Beam
10	Air Handling Unit
11	Metal Trim
12	Rigid Insulation
13	Locker Cabinet
14	Steel Corner Angle

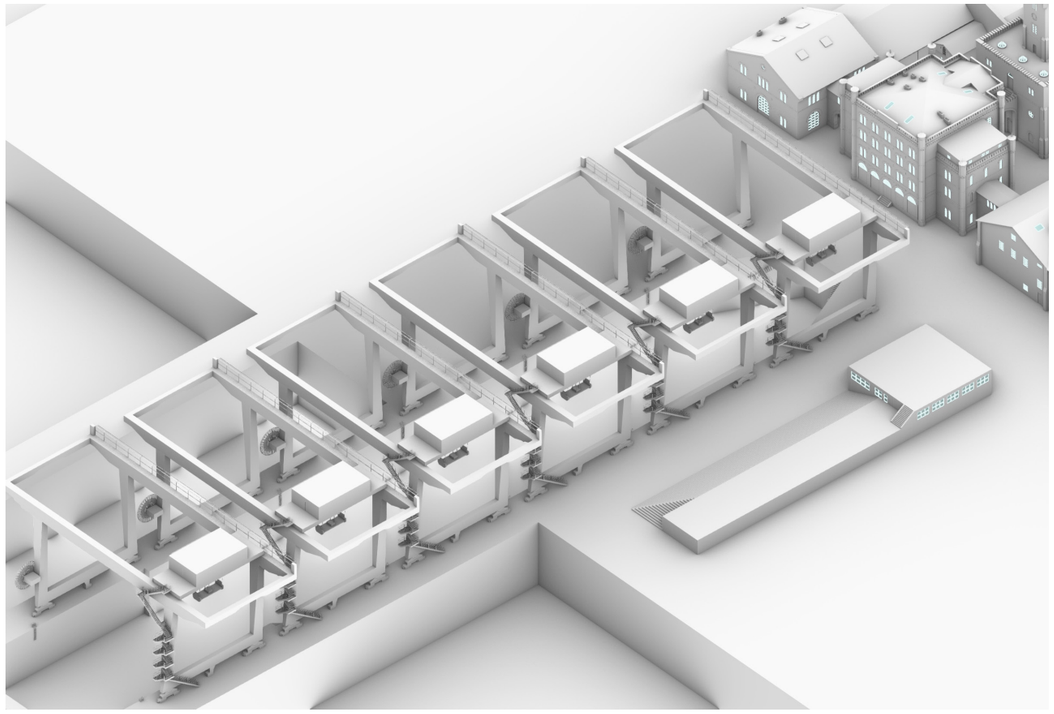


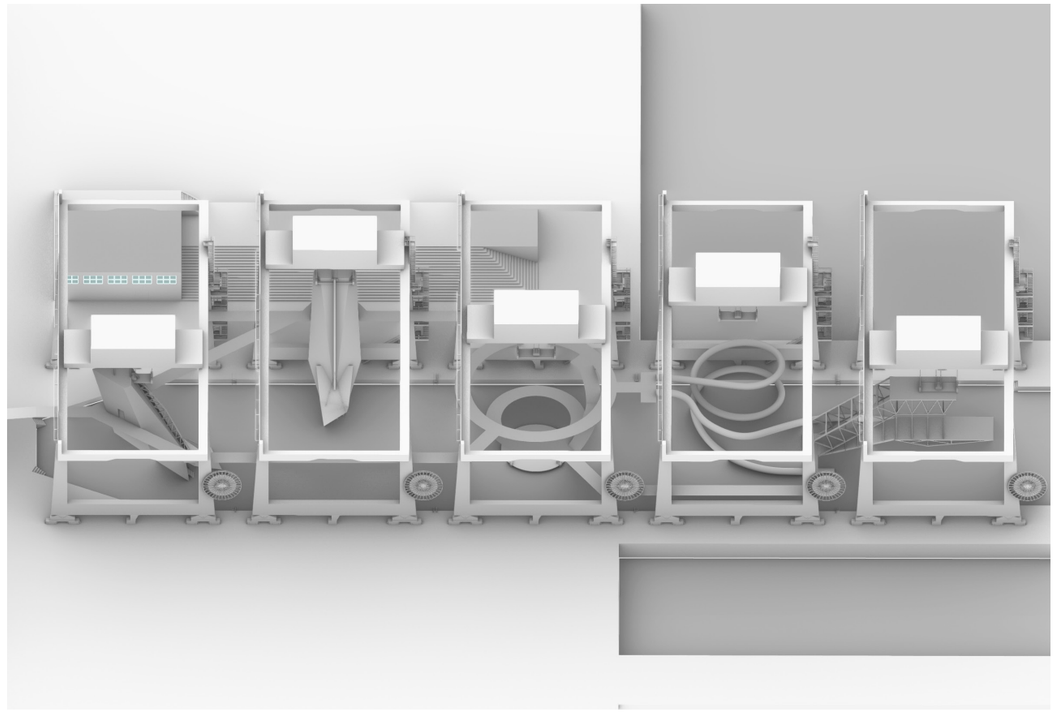


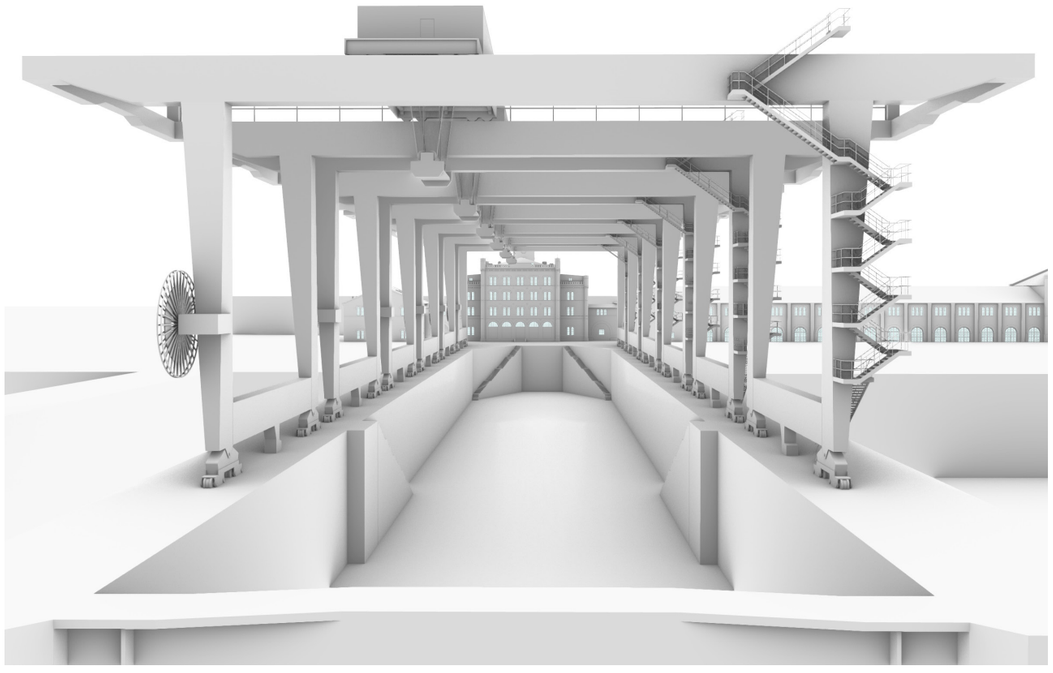


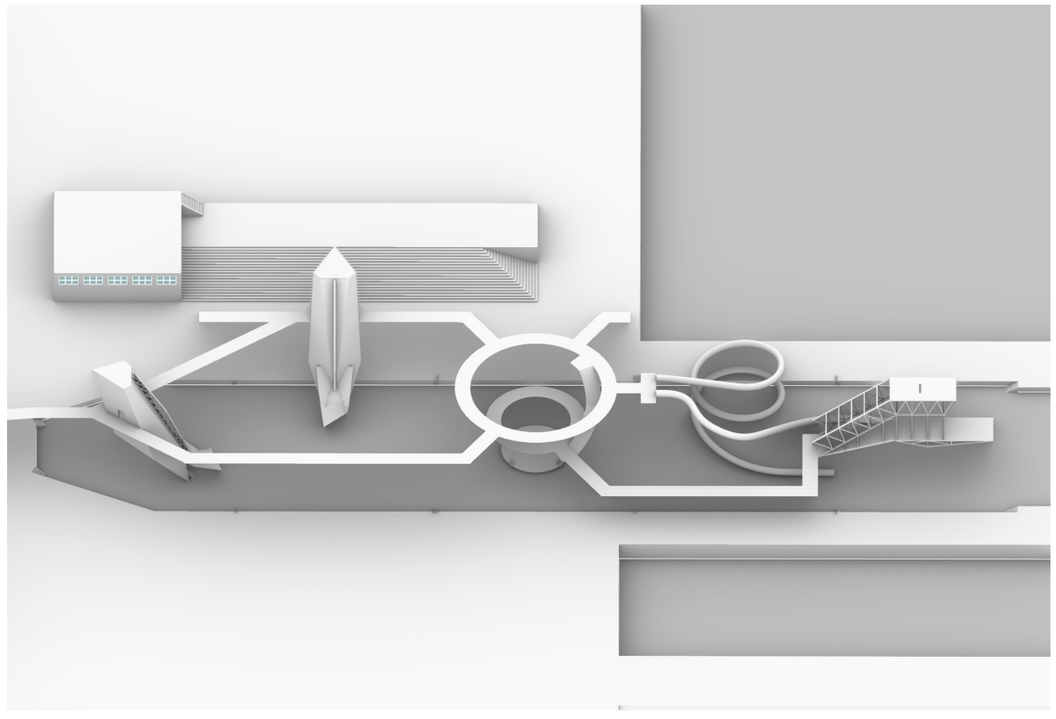


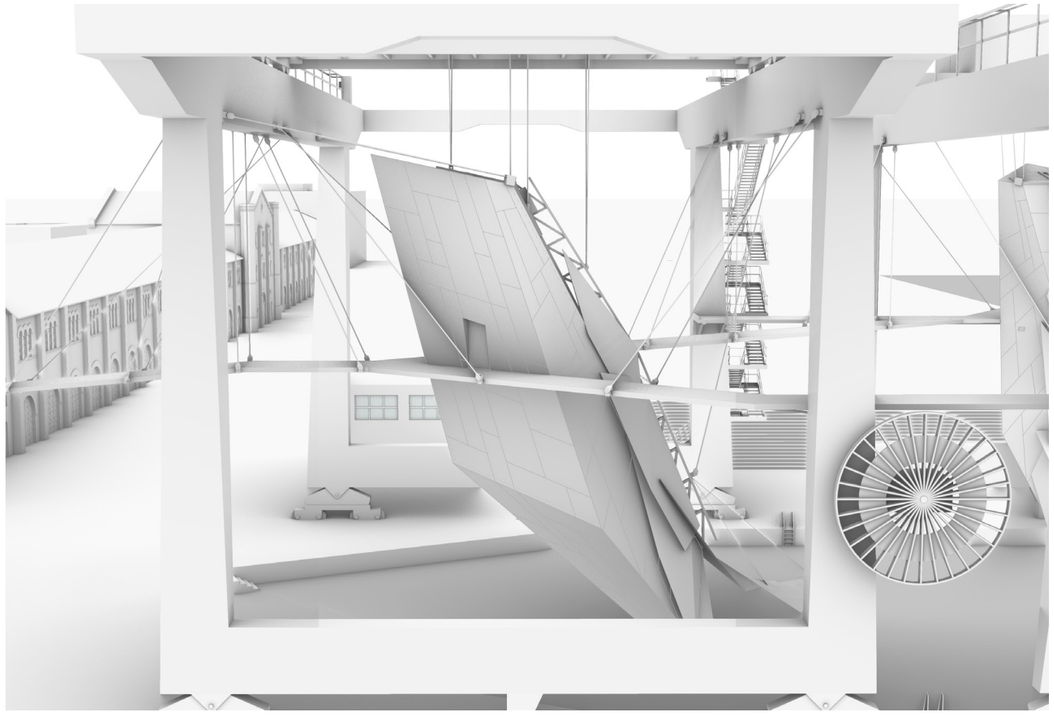


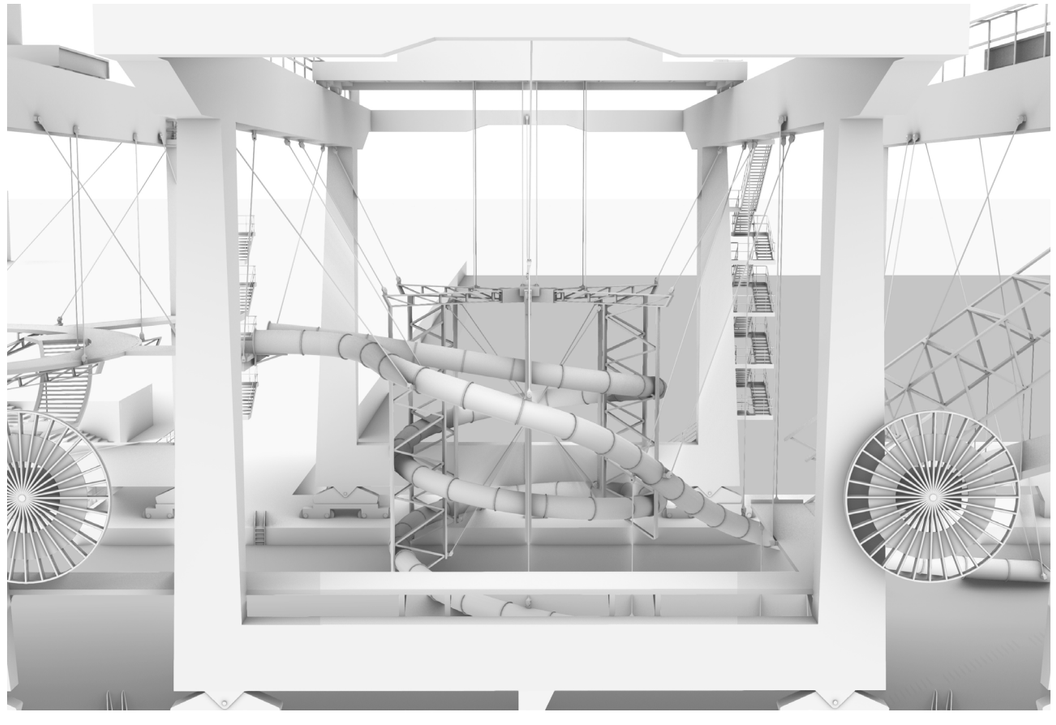


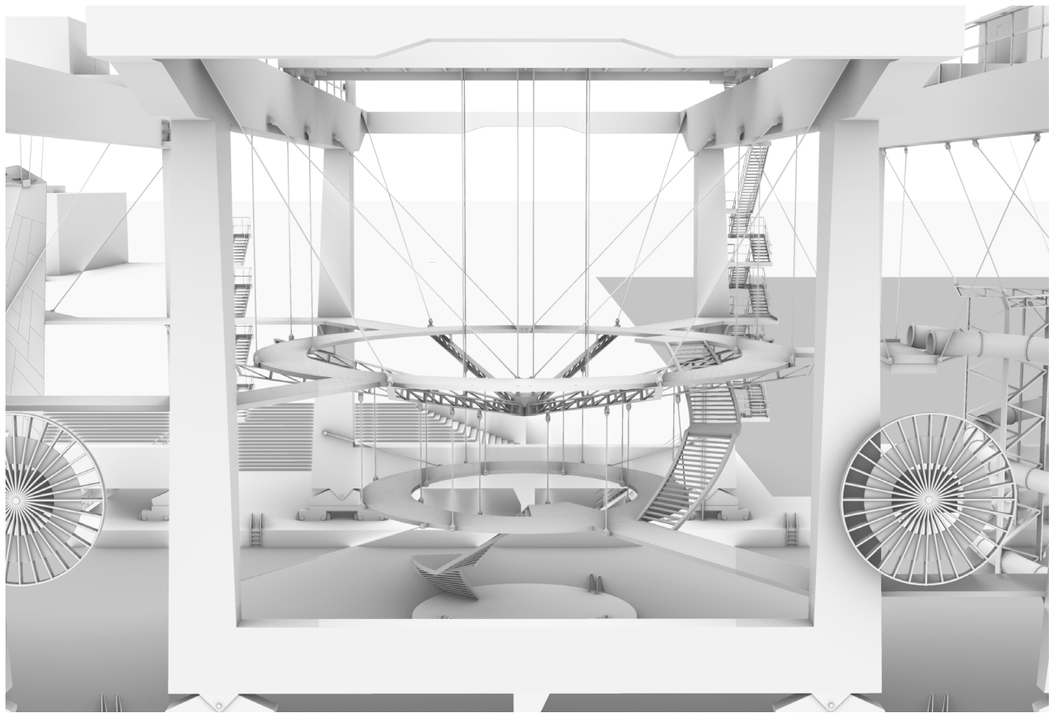


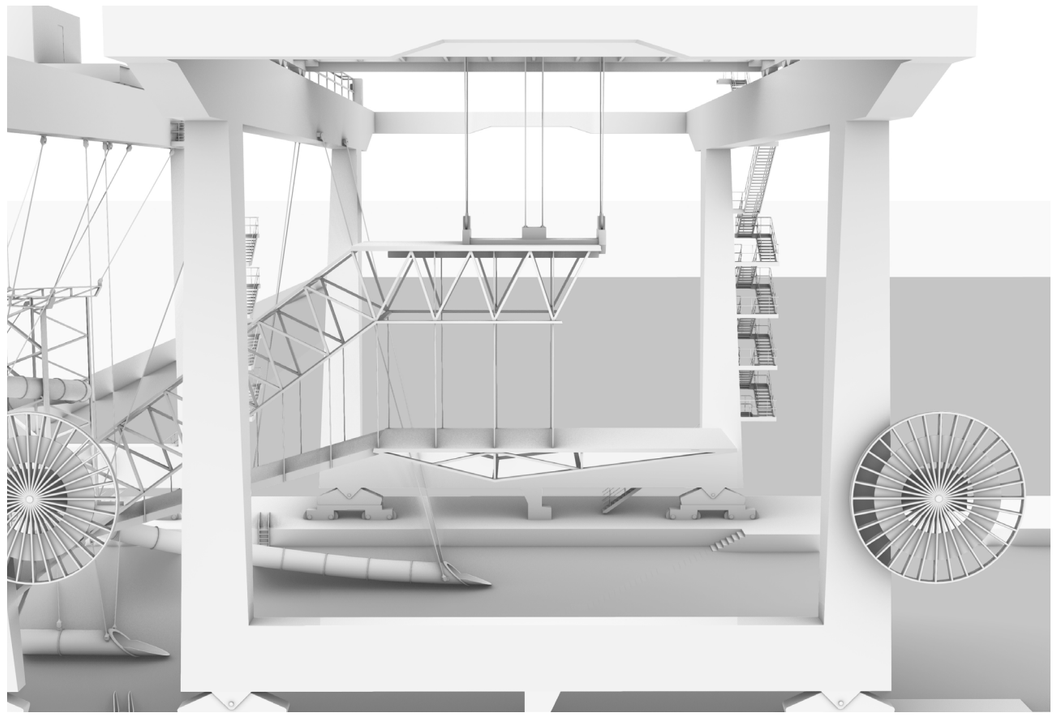


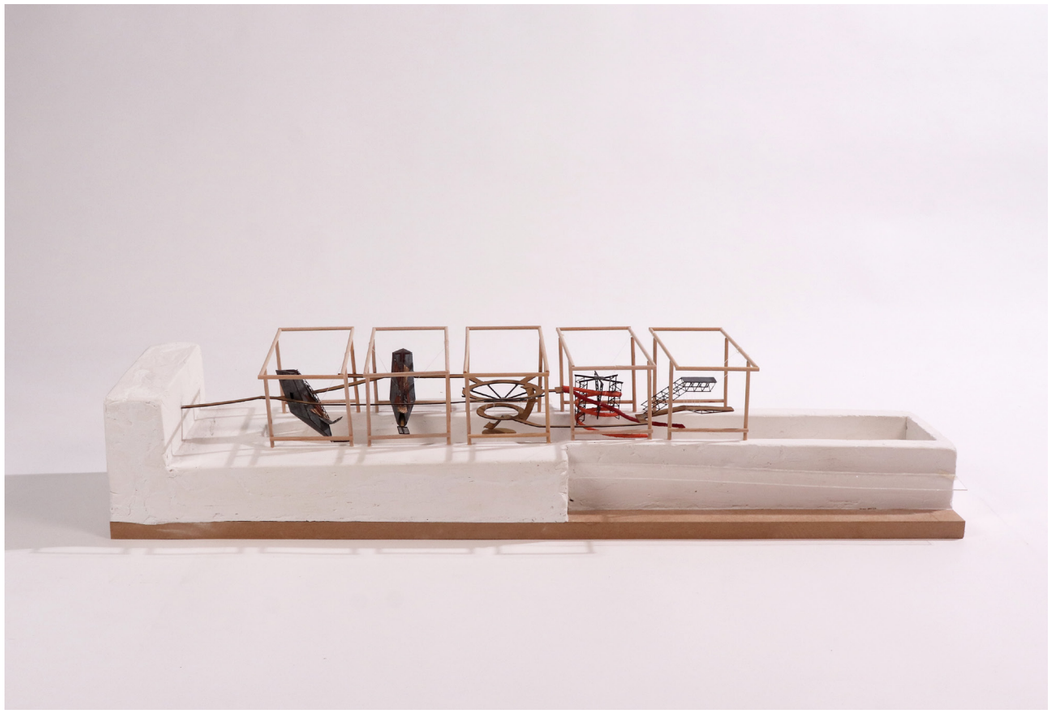


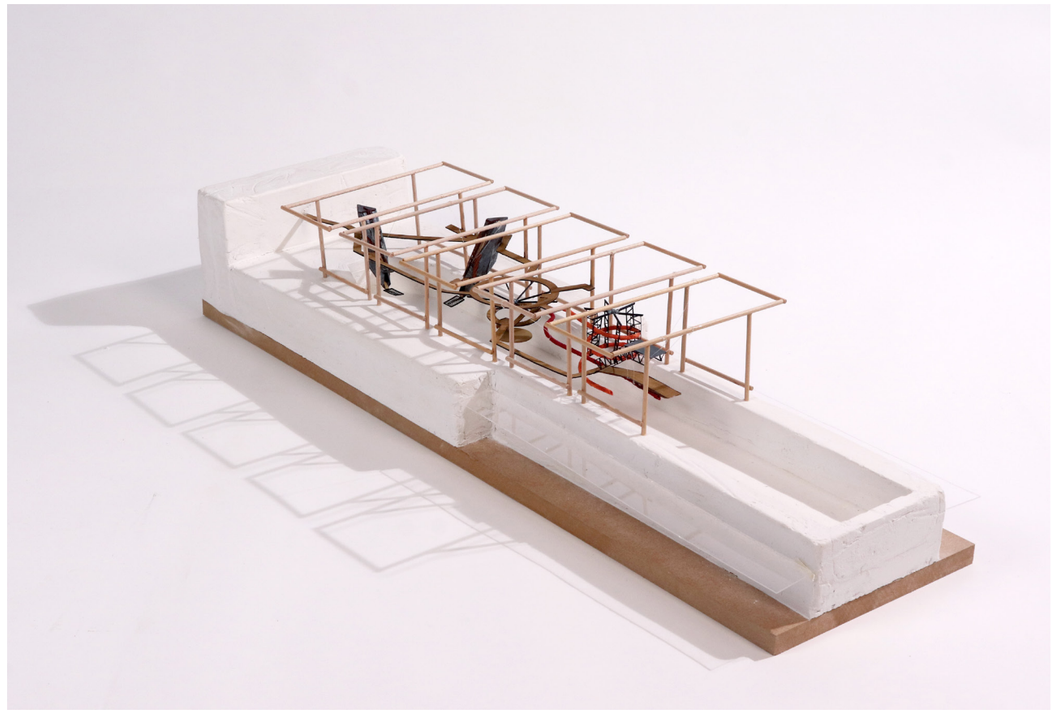


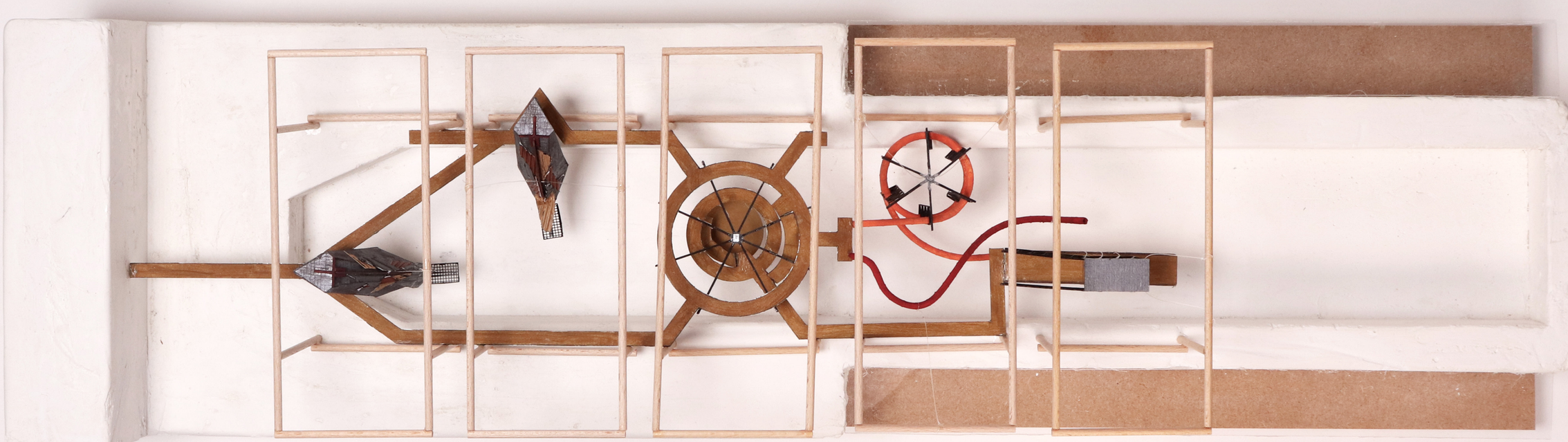


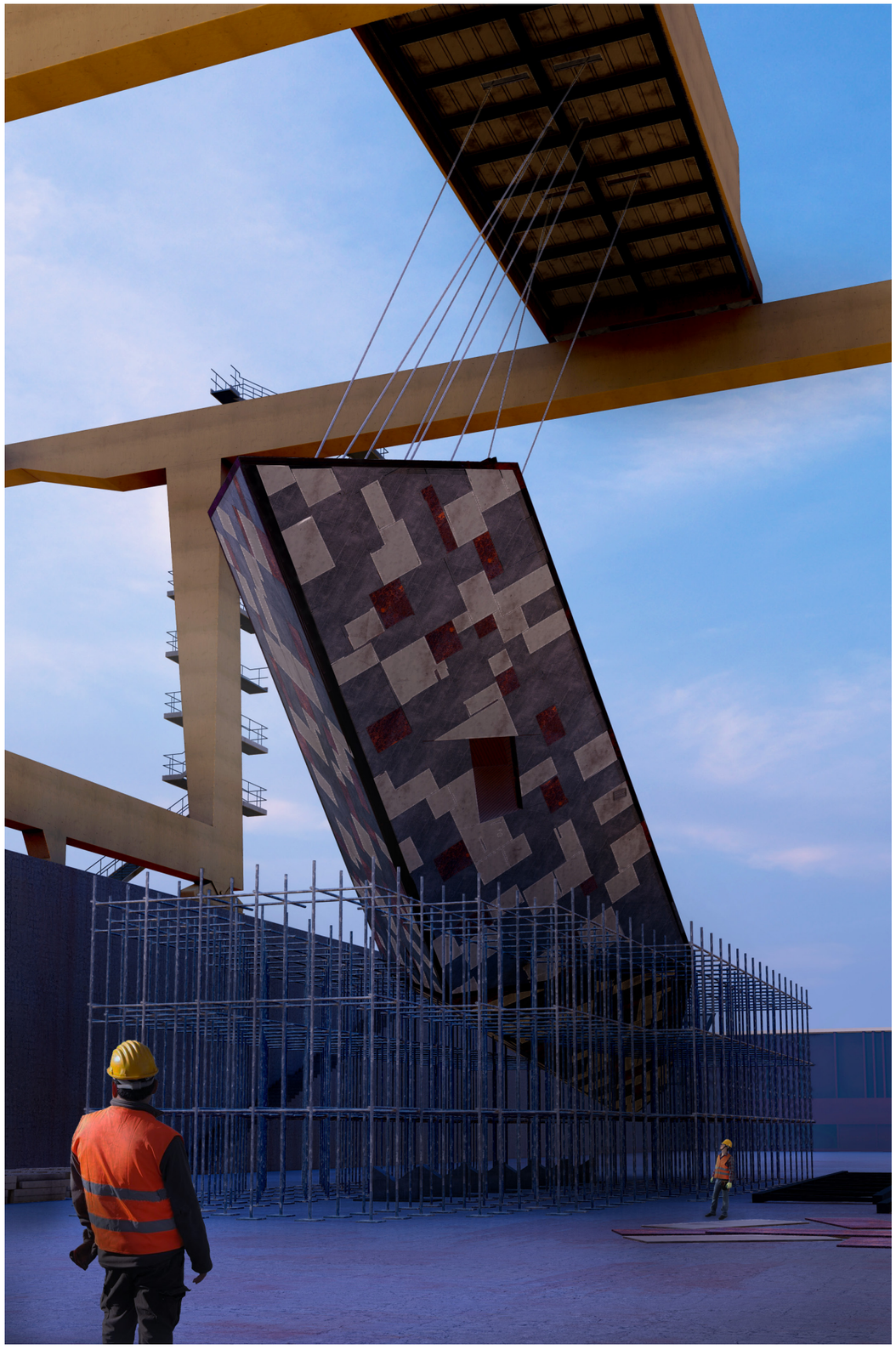


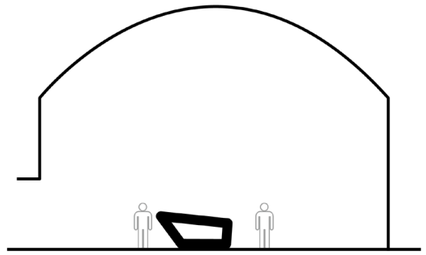




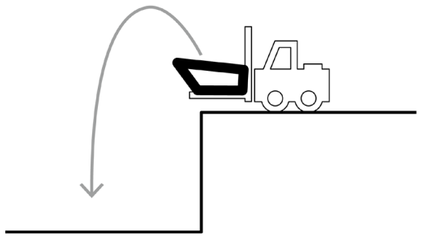




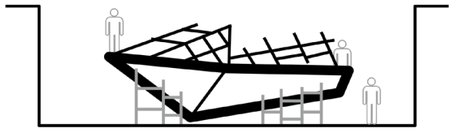




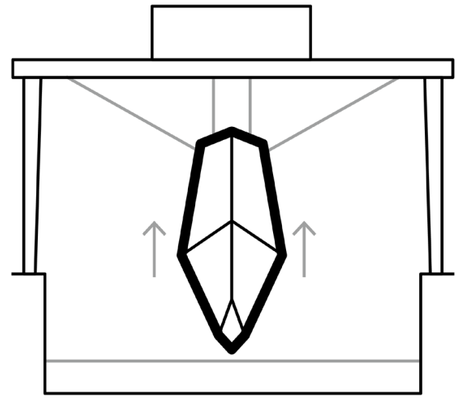
1. Partially assemble in the workshop



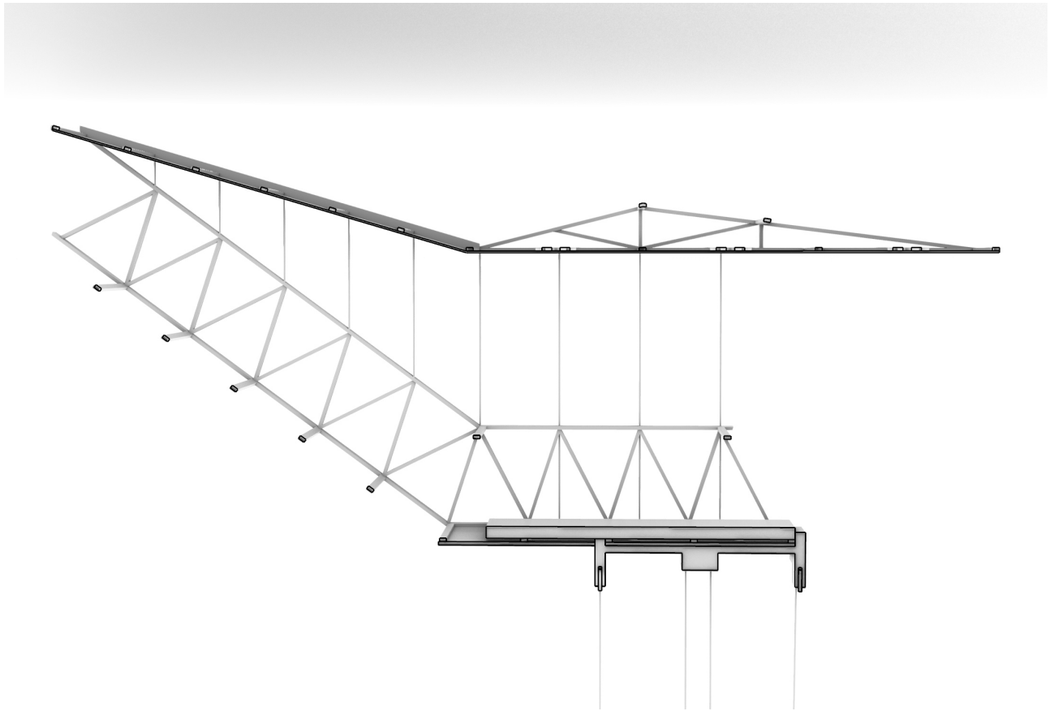
2. Transfer to the drydock

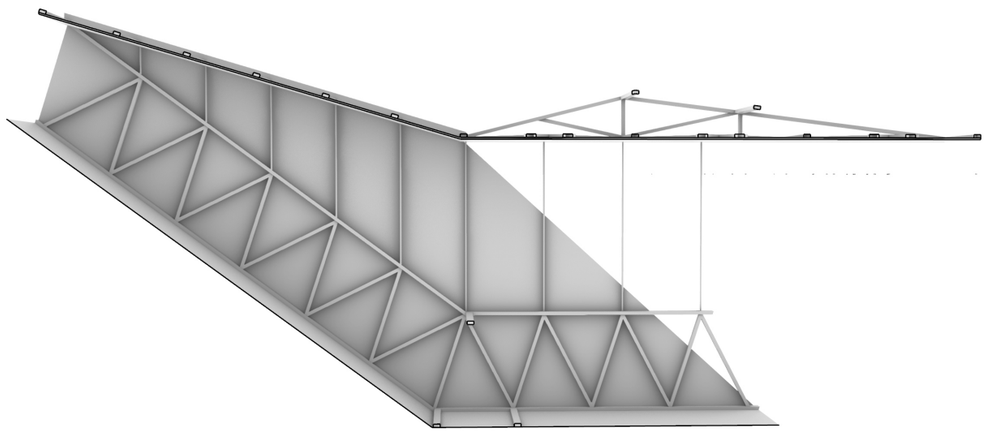


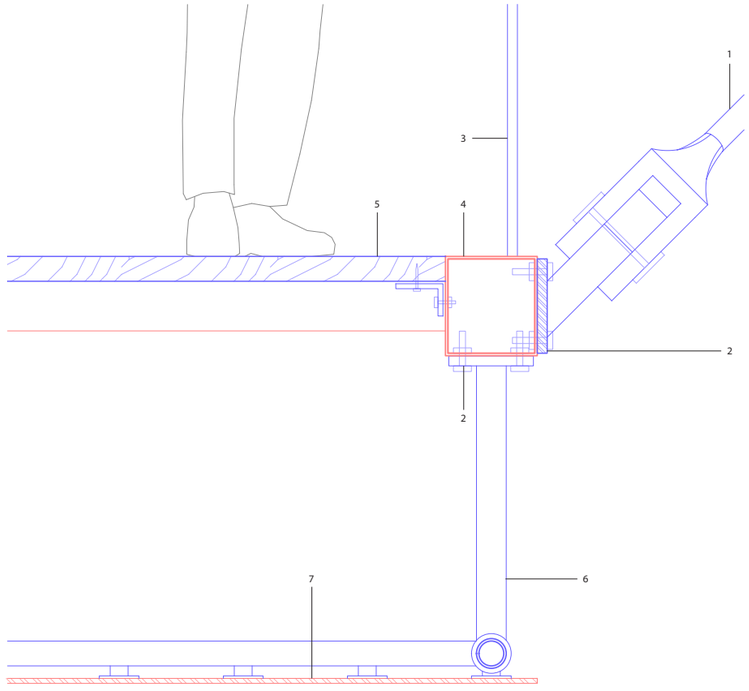
3. Assemble inside the drydock



4. Hang up by the crane & fill with water

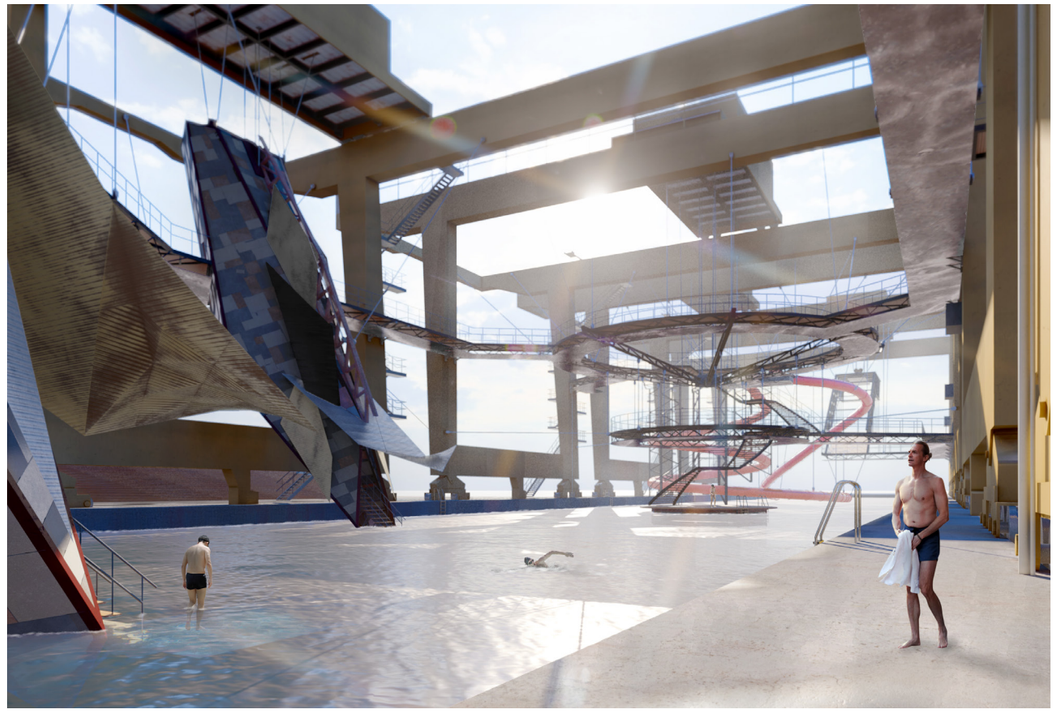


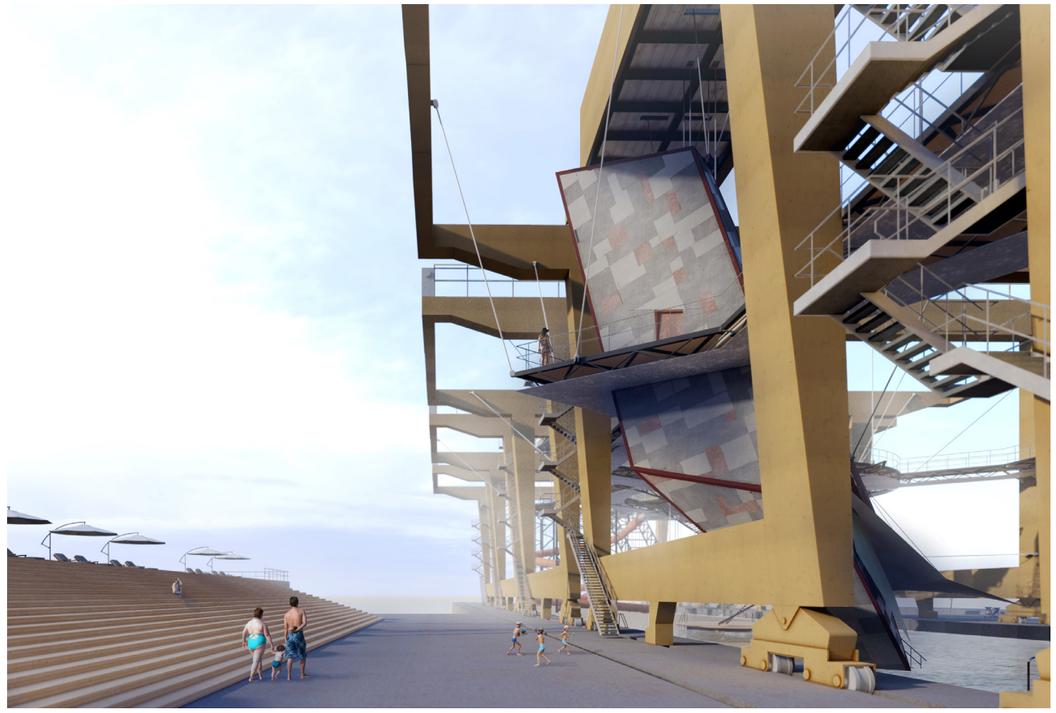


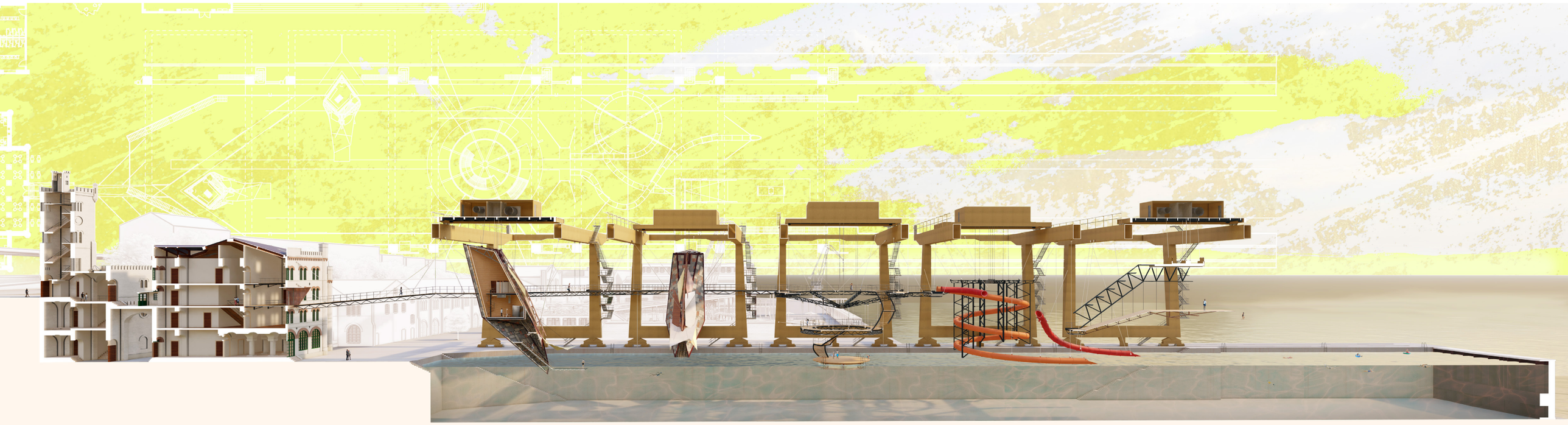


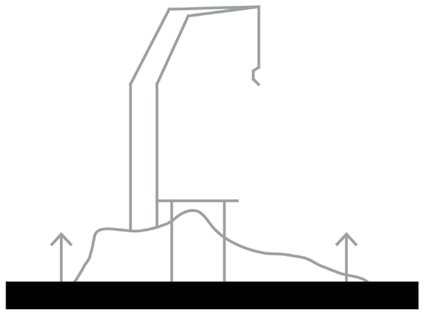
Detail Section | Suspension Condition
1:5

1 Steel Suspension Cable
2 Steel Connection Plate
3 Steel Tube Balustrade
4 Steel Truss Reused from Shipyard
5 Wooden Floor Deck
6 Additional Reinforcing Steel Truss
7 Polished Galvanised Steel Recycled From Air Ducts



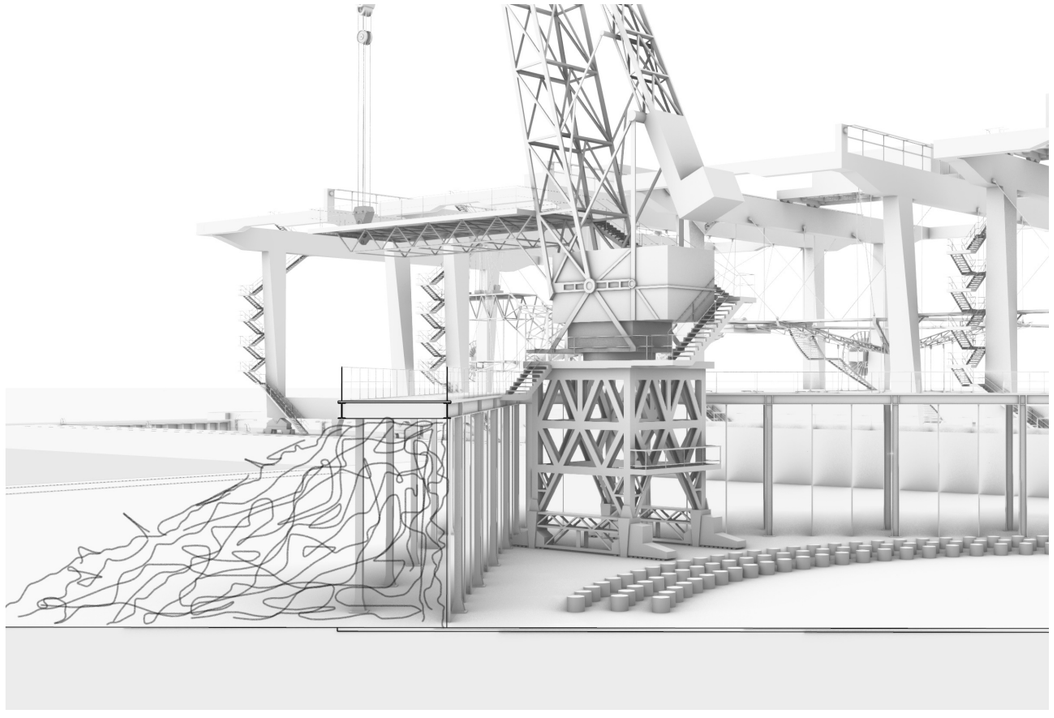


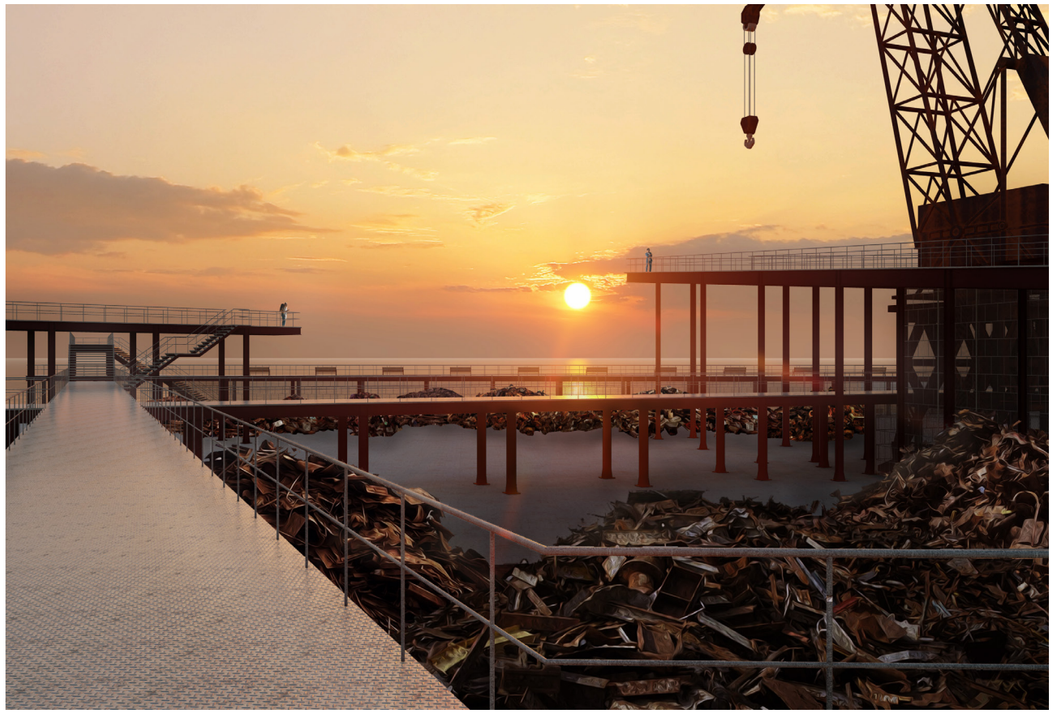


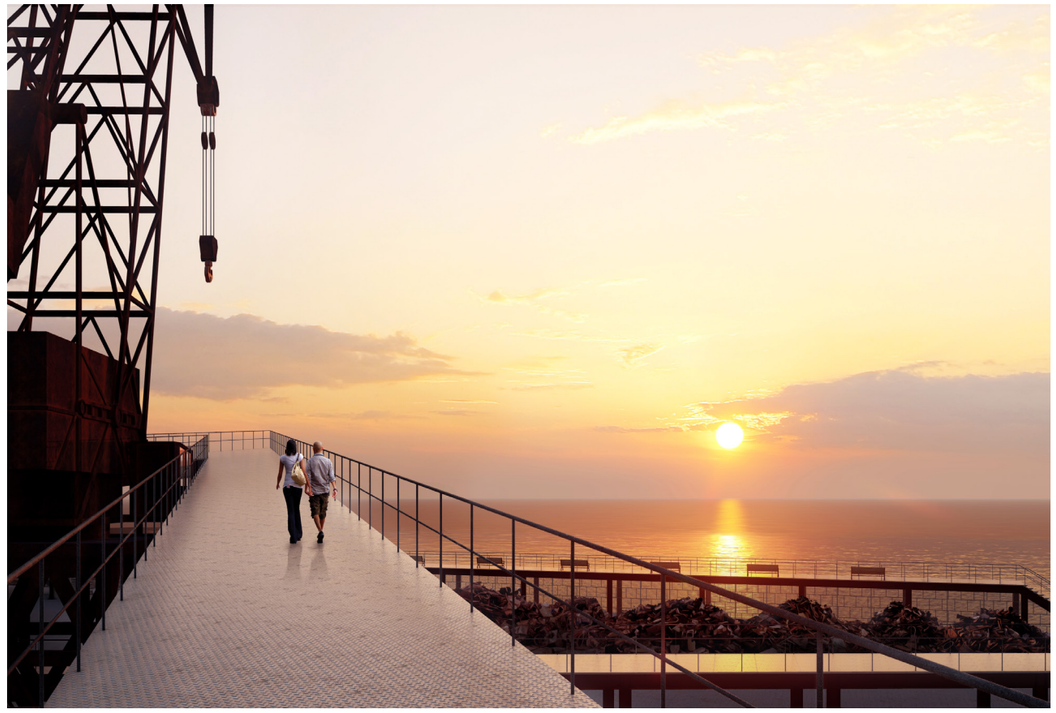


10. PARK | SCRAPYARD

OPEN SPACE FOR BOTH PEOPLE & MATERIALS

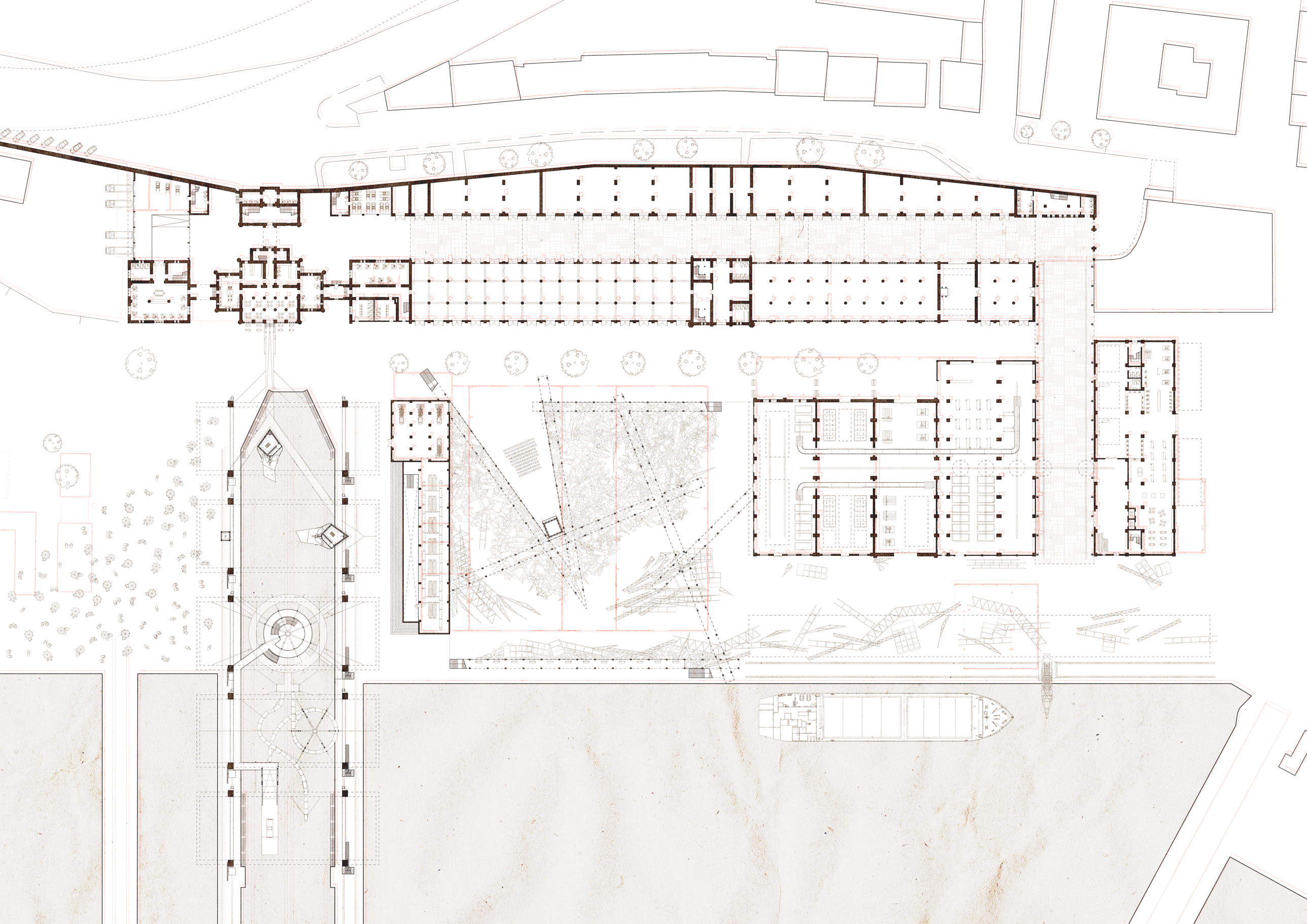


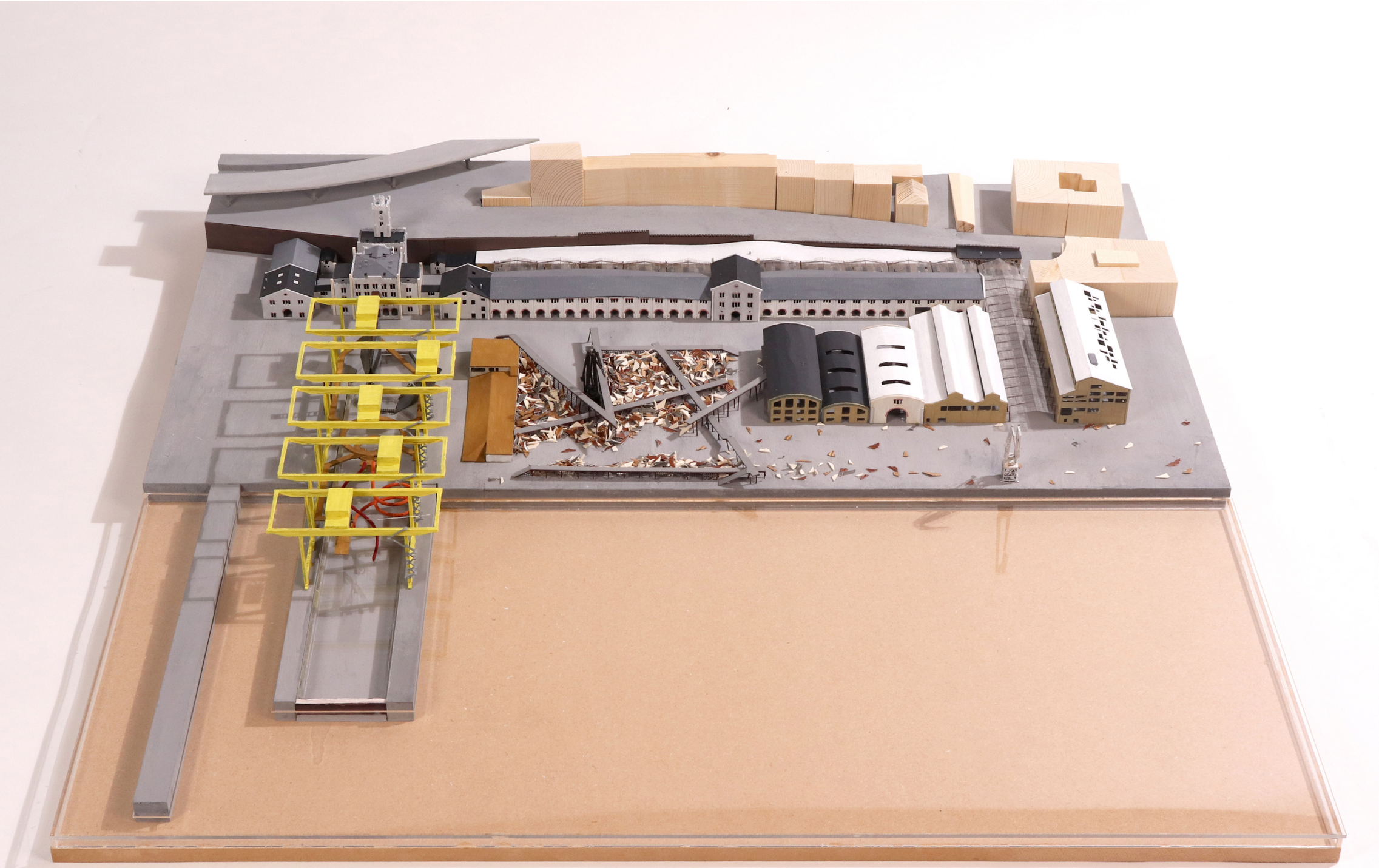


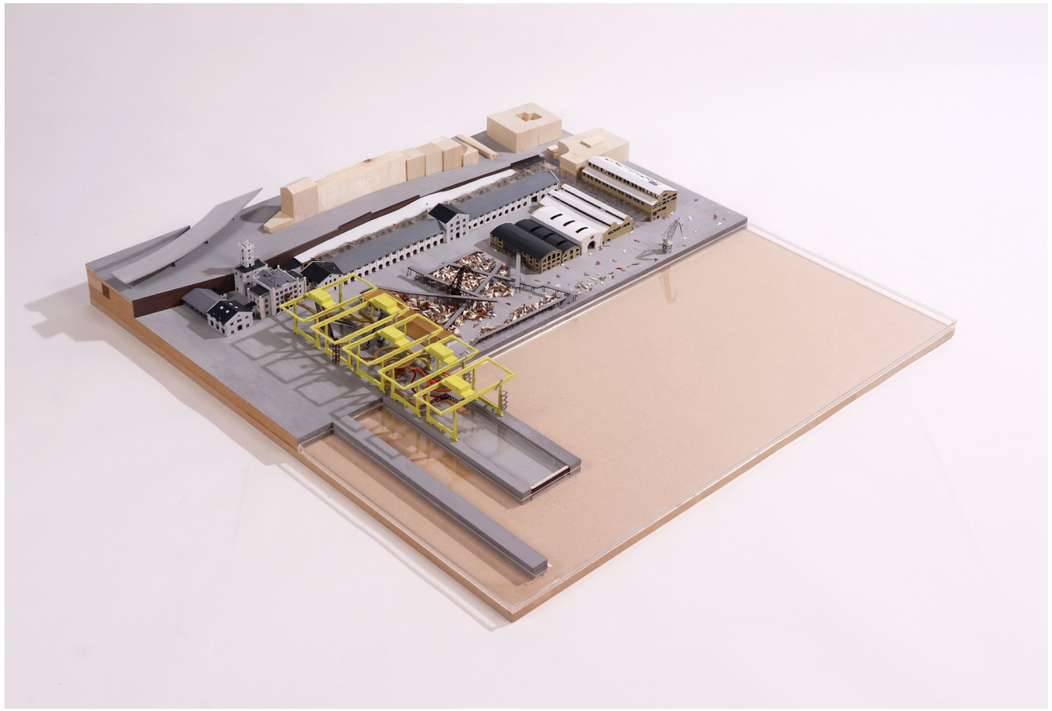


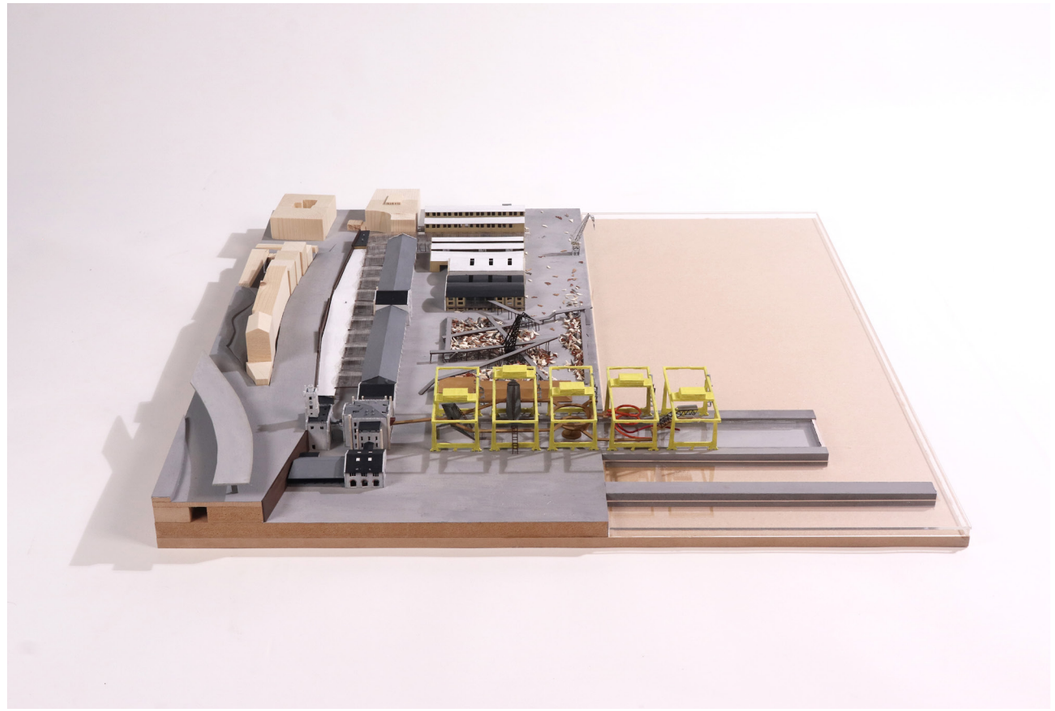
11. OVERVIEW

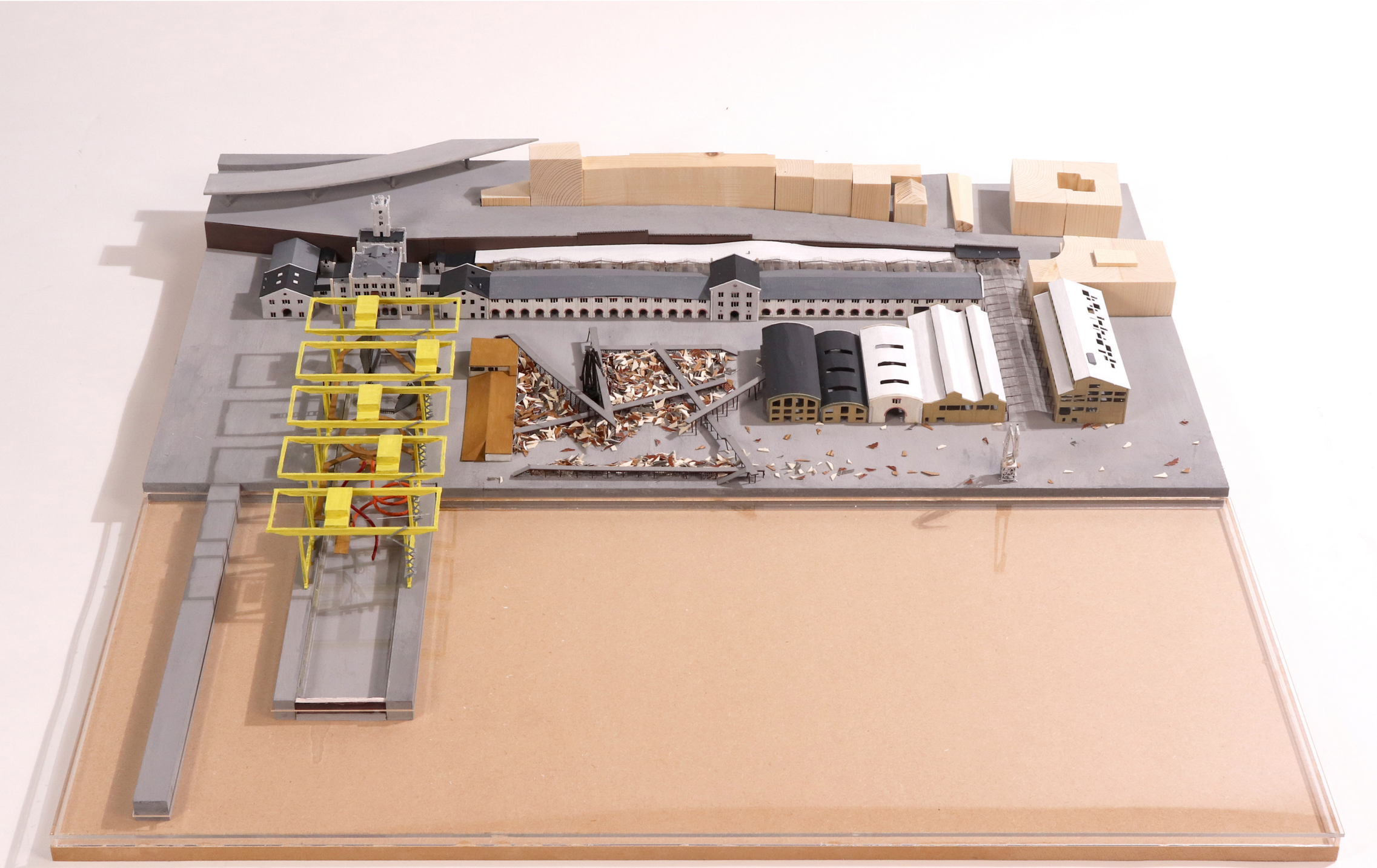
THE REGENERATIVE DECAY IN THE POST-INDUSTRIAL TRIESTE

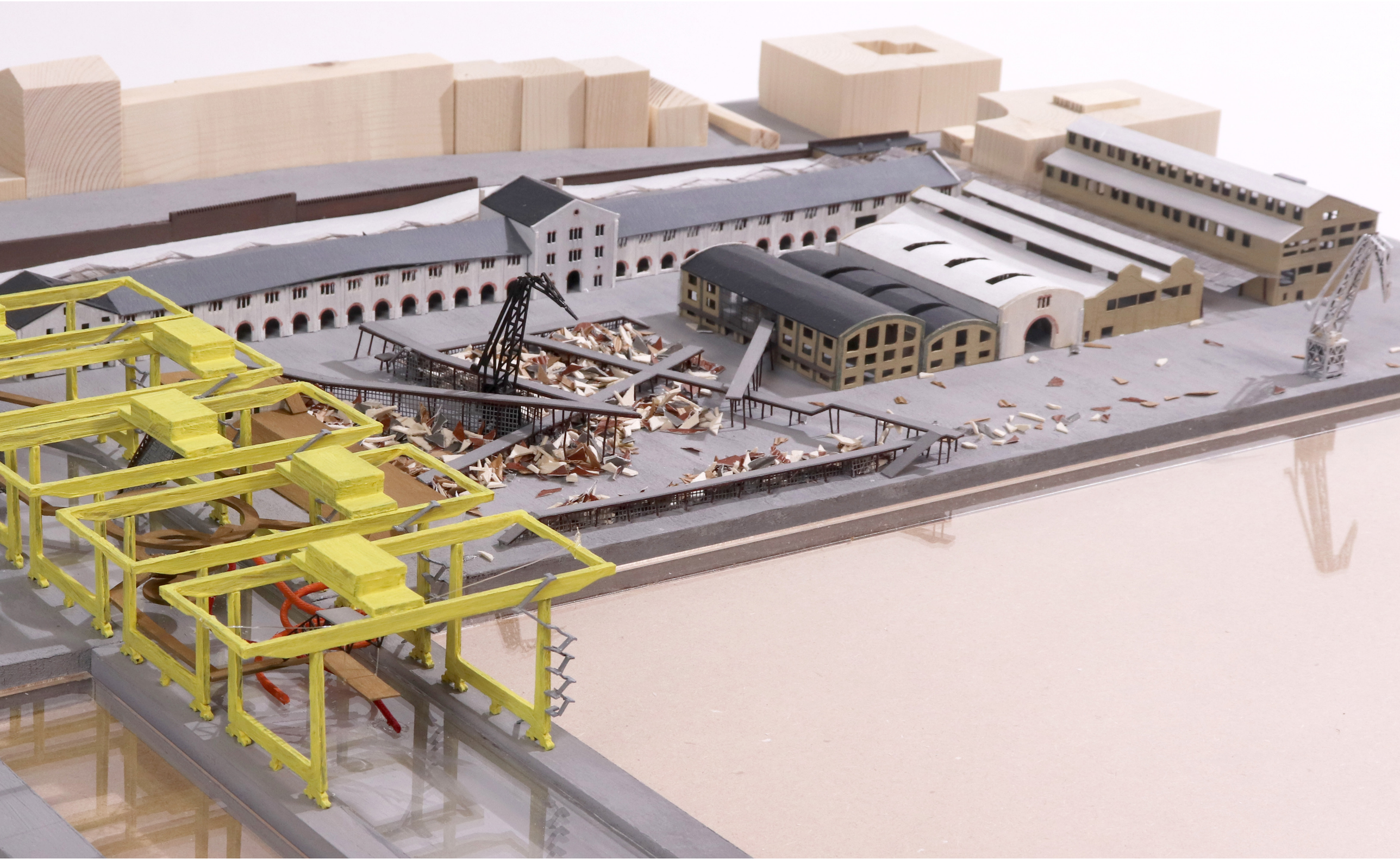


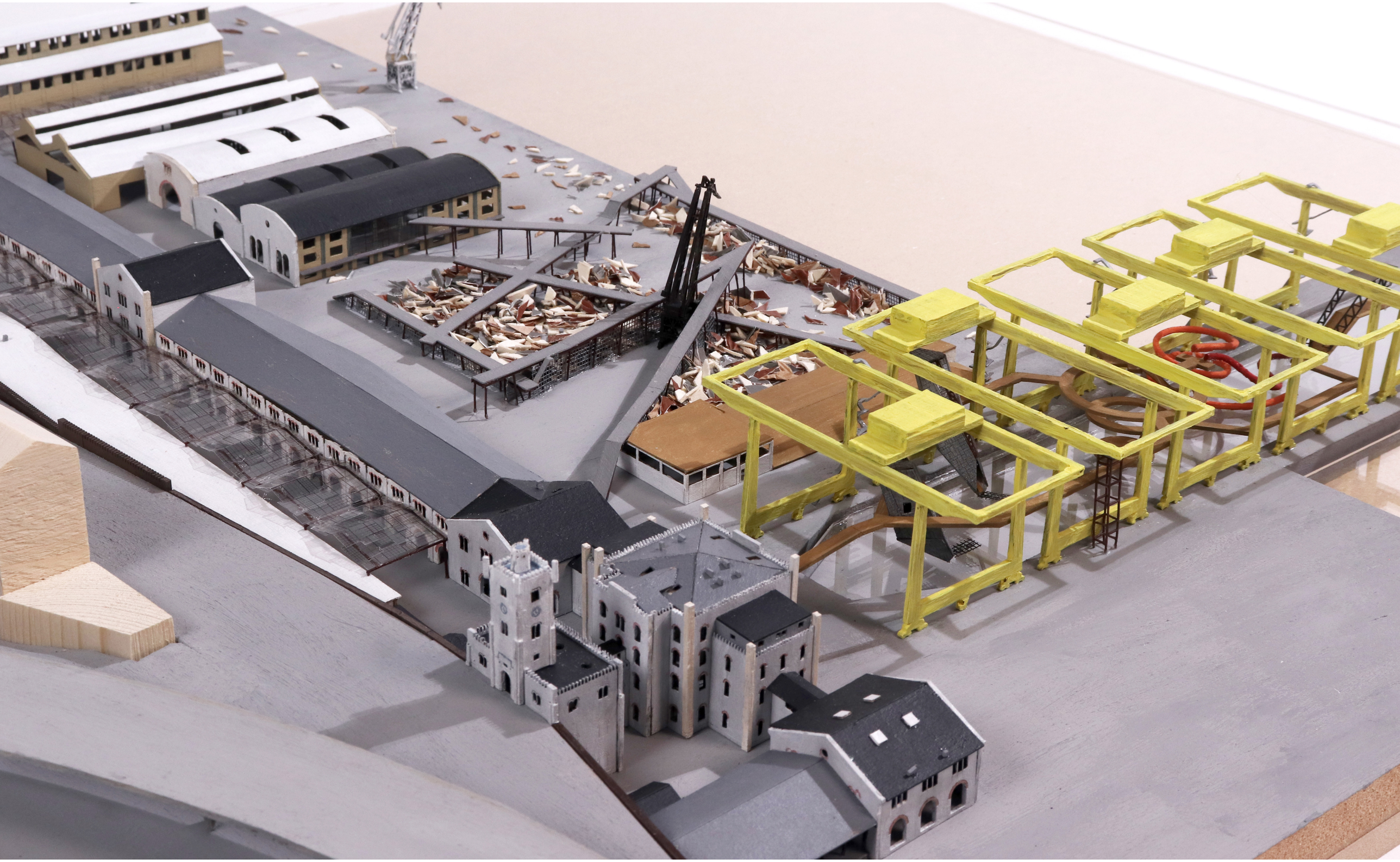












12. REFLECTION

Entering the post-industrial era in the 21st century, the port-industry-oriented Trieste began to face the radical transformation of the global economy and trading system. The swift changes in the building requirements eventually led to the rapid obsolescence of buildings, renouncing a large number of outdated structures into the already saturated pool of ruined landscapes in Trieste. Similar situations happened around the globe when industrial countries in the developed world had met the crossroads in economic development where their production industries began to dwindle. The changes in production mode had urged those cities to keep updating their hardware frequently, while putting an end to the prospering manufacturing sector, leaving a lot of retired buildings and infrastructures among the urban fabric in vacancy and a slow process of decay. To release the lands with strategic values for economic growth or social development under capitalistic urbanism, demolition and rebuilding, renovations, preservations and regenerations are considered the major approaches to handling abandoned buildings and ruins in the contemporary time. The option of including and embracing decay in the plan seems to be out of the picture. While the mainstream strategies of restoration and reuse have already stirred up a few controversies that the preservative actions are actually depriving the heritage of its original values, it becomes critical to reflect on the current standpoint on the presentation of old buildings in the new age and rethink our relationship with decay as a way to help us proceed to the future. The research and design results may open up discussion in an alternative way the architectural field deals with modern historical buildings.

Researching under a set of methodology suggested by the Borders & Territories graduation studio, the results obtained from the research stage have been of great significance to inform and inspire rational and aesthetic decisions in the creative design process. Through extensive exercises of exploring the city of Trieste with the tool of mapping on all kinds of scales, I could build up my understanding of the site contexts from the macroscale of its geographical and geopolitical location as the intermodal gateway on the North Adriatic Sea into Central Europe, and from the microscale of its architectural articulations and thingness as the materialisation of the cultural and historical connotations. The information visualised from the act of mapping had suggested I investigate and, later, design with the lens of the relationship between the present and future with the industrial past with a focus on decaying architecture.

This lens developed from the research pointed my project toward a choice of site in a rather isolated area in the built environment, a consequence of the manufacture-orientated urbanism in the industrial era. The lens also provided the arguments for the programmatic decisions I made to reconnect the site to the living area and regenerate it as a public space for the city. The thematic of decay in the research was transposed into the idea of reuse and recreation in the design. The reuse of existing industrial building structures, infrastructures, technical equipment, architectural artefacts and scrap materials recomposes the subject of decay into novel forms, objects and places that react to the functional needs of the city, material culture and the background of the post-industrial era.

Apart from the mapping exercises, the methodology of using conceptual physical models as an exploration in the Modi Operandi workshop worked for broadening the possibilities that my project could become. In physical model making, formal phenomena of decay including fragmentation, disorder and entropy, together with the references to deconstructivist theories and projects, were considered as the guiding principles in shaping the formal expression, architectonics, spatial qualities and materiality of different components in the design. Especially in the hanging elements, the methodology adopted in the research enabled radical quality to happen in the design.

One of the main dilemmas I encountered throughout the entire research and design project is the balance between theoretical ideas and actual realisation in reality. In the research stage, due to the nature of a search for alternatives in a “regressive” approach of embracing the old and scraps, the results were always challenged by the utopian viewpoint of new and progressive architecture. As the subject of decay always has a negative association, living in a scrapyard may be contrasting with the ideal form of the lifestyle of the mainstream public. When designing the project, there is always the dilemma between the pursuit of perfect, pure and accurate building forms for a comfortable regeneration, and the genuine expressions of the roughness and unpleasant aspect of the bricolage of scraps. That is one of the reasons why the work of Lebbeus Woods, a major reference in the project, stayed in the form of paper architecture and theories. However, the attention paid to the realisation of the design marked the differences between the graduation thesis and the paper architecture. The struggles to cooperate building integration into a theoretical design result in plenty of compromises. Yet, skills such as critical views on making decisions in the dichotomy and innovation to bring the contrary together could be developed in the process.

I would view my graduation project as a reflection of the knowledge I have acquired so far throughout my master’s programme. My MSc1 and MSc2 design course in my first-year study under the track of Architecture fall rather into a practical aspect of understanding how architecture work technically, socially and aesthetically, and what kinds of possibilities we could develop from the technological solutions to answer the global or regional issues and crises in our time. The freedom I have in the graduation studio allows me to take a step back from what I have already learnt, what I and the field are taken for granted by questioning and challenging the present attitude toward the missed, ignored or overlooked parts in the architectural field and our built environment. The topic of decay has always been treated as an antagonistic problem to be solved for the sake of architectural monumentality, heritage preservation and building maintenance. However, my graduation project can enable me to see it as an opportunity for the extension of our existing knowledge on the phenomenon itself and even the potential it possesses to alter our built environment rather than considering it as a problem to be eradicated. It is a critical review of the architectural understanding and position I have developed in my master’s programme by pushing the boundary of my knowledge of the field.