Graduation Project Reflection

- *Delta Interventions* -

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Introduction

The building I designed for my graduation project focused on finding ways in which to break the rules governing functions of the historic building, as said by Paul Virilio, to "inhabit the inhabitual", by reusing and giving new functions to buildings that have been abandoned. The building will host three main functions related to a water knowledge hub. It will be a space where a water *research* center, a water *educationa*l facility and finally a *practical* water company come together. The combination of these functions and programs is intended to increase the development and growth of each one of these fields. The space was envisioned as a way of helping these three fields interact with each other. The research facility can benefit from the education facility, and vice versa. The private company can benefit from the research done by the research center, and the research center can benefit from the founding of the private company. Finally the education facility can take advantage of the company in order for their students to learn from real practice. These new ways of interaction can benefit all three parties and help them innovate and progress in new ways. This new typology of building needs to embrace the connection and communication between the different parties by exploring new configuration of spaces. This new space will reuse a historic building located in Hunters Point, San Francisco, CA. The reuse of the historic building embraces and reminds the users of the technological advancements that took place in Hunters Point at the time when the building was being use. The reuse of the building will also help developing a more sustainable project by reducing the use of materials.

1. Relationship between research and design

1.1 Research on Typology

When talking about the re-use of abandoned buildings it is essential to carry a proper survey of the existing building as well as a research on both, its historical value and use. The type to which a building belongs to, might become a determining factor on the kind of re-use the building will be given. On the other hand, it could have no mayor impact on the re-use the building may experience.

One of the main focuses of the research of my graduation project was to understand how much is the functionality of a building constricted by the type of building it was conceived as, therefore influencing the process of renewal and re-use of a building. If the type of the building deeply influences its functionality, the new use of the building will have to be restricted to a similar use to that of the initial one; on the other hand, if the type of the building does not have a major impact on the functionality of the building, then the new use of the building could be more flexible.

This topic was of particular interest in relation to the location where my graduation project takes place, Hunters Point, San Francisco. Hunters Point is a shipyard on San Francisco Bay which was abandoned in 1994, leaving behind a series of buildings and infrastructure which still stand today. My graduation project focused on the restoration, reuse and renewal of the abandoned shipyard that Hunters Point is nowadays. In order to proceed in a proper manner, it is important to define the typology of the shipyard, as well as the typology of the abandoned buildings found in Hunters Point. In order to do so, it was crucial to understand what typology really means and the influence it has on buildings, or even on an urban scale.

The theorists on the topic of type have very different concepts on what the real definition of the word is, each one of them has a proper line of thought and arguments to define it the way they do, and this makes it impossible for anyone to give type a true, single meaning. This debate has been an ongoing discussion for the past three centuries, it could still be argued in many different ways and new theories may appear. This is why, in the designing process of my graduation project it was essential to understand that it is not conceivable to try to come up with a single answer, but rather it is important to comprehend how type was understood and used by different architects, and in specific how type was conceived both on the

shipyard in an urban scale as well as in the buildings in an architectural way. In the specific case of the re-use and renewal of the building I chose for my graduation project, it was crucial to research and analyze the particular architect and the context where the building was created, in order to understand in which way time and place influenced the type of building it was. Only understanding how type was used and how it influenced the design and production of the building it was possible to comprehend how to continue with the process of re-use and renewal of the building. This analysis was complex and laborious, but it deeply impacted the final result of re-use and restoration.

The building 253, which is the building re-used and restored in my graduation project was specifically conceived related to its function. The building served as a place for repairing ship, it was a ship parts storage and part of the building served as the administrative offices of the Crossroad Ships Company. These very specific functions required a building that would have a very strong structure, very high ceilings and a lot of light. These elements create a very defined type of building and deeply influenced the architecture of the building. Due to how the building was designed according to those specific requirements, the building presents itself as a very open space, which creates the possibility for new uses and it provides with enough flexibility to have a completely different function than the original one. It is important to mention that this is not a unique case, most of industrial buildings which have been abandoned present themselves with several possibilities for re-use and renewal, this is due to their particular open layout, which require less interventions and more opportunities for variety. In the case of building 253, Argan and Sempre's ideas of typology are the ones that relate more to how the building was conceived, the building and its program depend on each other, therefore the type is strongly tied to its function, which in the case of industrial buildings gives the possibility for new functions due to the openness of the space.

1.2 Research on Behavioral Evolution

The topic of behavioral evolution was one of the main issues researched in my design. The research showed how the needs of human beings are constantly changing, how the activities that are done and the behaviors, are no longer something permanent; instead, they are continuously varying and frequently modified. These constant changes have a great impact on the built environment, and in an era of rising

technology and fast information, these changes take place in a much faster and brutal way. Places are designed and built in such a rigid way, that they become obsolete in short periods of time. The research exposed that the way people use the space is no longer as permanent as it used to be, instead, people require spaces that can be transformed as fast as they do. There is an urgent need for cities and buildings to become as flexible as possible. Spaces can no longer just have one singular function; instead, they need to be chameleonic.

According to the analysis done on behavioral evolution it was concluded that nowadays spaces, buildings and cities need to be as flexible as their users are, they must be more than a single element, and they should be able to transform into something different and even go back to their original form whenever needed. Activities that used to have a particular way of operating and followed certain rules and standards no longer do. The way people interact with each other and what they do is endlessly shifting. The research showed that people do not work, study or even live the way they used to, and new typologies of users have emerged, therefore new typologies of buildings must emerge as well. These new typologies must be as flexible as possible, especially if they want to endure in a world where nothing is permanent anymore but "everything that is solid melts into air"[1]. Although new typologies of buildings might emerge and there is a striving need for functional flexibility, it is important to have in mind that even when humans evolve and their activities change, there are basic requirements and needs that humans will always have, and it is crucial to take those into consideration, even when designing a flexible building. Flexibility in the built environment is a complicated concept and a complex thing to achieve, when done properly it will lead to the durability of a city and a building.

The design of the building was done with flexibility as a driving factor. The purpose of the design of the building was to create a place where new interactions are created, new interactions between research, education and practice. The goal of creating a new typology of building was to create a space of communication, where knowledge is seen as a common wealth which can help new developments emerge. In order to do so this space needs to have spatial connections between laboratories, classrooms and offices, where people with different backgrounds can connect and exchange knowledge in order to achieve a

[1] Marx and Engel. Communist Manifesto. 1848.

common goal. A careful study was done on the way in which different activities can occur in a common space. This study took into consideration different factors of the spaces where new connections were required in order to understand how they can interact with each other. The determining factors of the spaces that were analyzed were level of noise control, level of light control, size of groups and activities that can be done in particular spaces. According to the matrices generated by this analysis the different spaces on the program of the building were clustered according to the compatibility they had in the analyzed factors. This helped producing groups of spaces that normally would not be connected and make it possible to connect them, therefore creating a new typology of building. This new typology embraces the connections and interaction, and allows for flexible spaces which can be used in different ways and where different activities can be done.

2. Relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework

In Deltas we find water in its purest and most natural environment. The flow of water transforms the land, and it creates unbelievable landscapes, which are diverse and unique, a landscape which is only characteristic of Deltas. The water found in the Delta does not only allow for beautiful and unique features, the water gives a place the possibility of livelihood and it becomes a vehicle for economic and social development. This is the reason why we repeatedly see in history and even nowadays that the biggest cities in the world tend to be located in Deltas. Some clear examples are Tokyo, Hong Kong, New York and London. In the case of Deltas, water becomes a much more unpredictable element, the tide constantly changes and it is affected by different aspects like external factors altering the source of water, such as weather and even moon cycles, this volatility can be a tool as a well as a threat.

Water can adapt and transform into anything, as seen in Chinese philosophy, water is formless and shapeless, which means it can be transformed into whatever it needs to be transformed, if water is placed in a cup, the water becomes the cup, if placed on a teapot, the water becomes the teapot. In order to play with the irregularity of the water in Deltas and be able to design spaces in an architectural or even urban scale, we must use the adaptability that water offers. Considering the importance that Deltas have in our society designing with water, and especially in Deltas, designing for adaptability and flexibility are crucial skills any architect should have.

2.1 Deltas and Adaptability

One of the main topics developed in my graduation project in relation to Deltas is Adaptability. Climate change has brought uncertainty in the way in which nature behaves; therefore buildings should be capable of responding to unpredictable changes in their environment. Adaptive buildings are crucial for the present and the future growth of cities; it is necessary in order to have a sustainable development for buildings to be capable to endure, and this is only possible if buildings are able of adapting to new circumstances. It is necessary for architects and urban planners to carefully analyze the present and future situations that a place might encounter, in order to properly assess the changes that the building or city might have to experience.

The topic of adaptability was used in my graduation project as a principle for designing both in an urban and an architectural scale. The masterplan was designed in a way in which it can adapt to changes in the shoreline of the San Francisco Bay. These changes will eventually occur due to climate change; therefore, it was important to design a masterplan that could eventually adapt to new circumstances. Within the masterplan, the building was located in an area, which based on predictions of future scenarios, will not be susceptible to flooding, which in a way assures the safety of the building.

These principles led me to conclude that when realizing an urban or architectural project it is necessary not only to look at the past and history of a place, but it is essential to be able to forecast future scenarios where the environment could drastically transform. Each particular place will have to deal with different challenges, which is why the level of adaptability that a city or building might require deeply depends on the specific necessities or circumstances that the building or city will have to encounter in the future. The process of making adaptable cities and buildings is already being explored and there is no doubt that there is still a very long way to go, but it is necessary to understand that adaptability towards the environment and nature in buildings and cities is no longer a luxury, but a requirement every building or city should meet.

3. Relationship between the project and the wider social context

3.1 Impact on Abandoned Areas

Deserted buildings, towns and even cities can be found all around the world. This problematic includes ex-industrial constructions, warehouses, corporate buildings, homes and retail areas; the amount of abandonment has only increased in the past century. As architects, it is important to realize the impact that abandonment has in cities, as well as the enormous opportunities that abandoned areas or buildings represent.

The masterplan of Hunters Point focused on finding ways in which Hunters Point can regain its past and alongside regain its identity, giving the inhabitants a sense of belonging, therefore transforming them into a community. The research looked at ways in which a space that has been marginalized and it is a hub for segregation, can transform into a space that can unite people and shorten the gap that it is preventing them from growing together, a space where new social circles can be created. This is why my project focuses on the restoration, renewal and reuse of Hunters Point as well as the abandoned buildings that this area presents. Re-using these spaces and bringing them back to life is of crucial importance for the social aspects of a community. Giving back a space its identity could eventually help create an identity for a community that does not have one, which is the case of Hunters Point.

3.2 Impact on Low levels of Education

In Hunters point the average number of adults who have a college degree is almost 40% lower than the city's average; it is one of the lowest percentages in the entire city. Education is necessary for the development of any human being, it helps to create not only professional but also social skills. When the average percentage of people with college degrees increases, then competition increases as well, for those who do not hold a college degree, the opportunity of getting a high paying job significantly decreases. This creates a repetitive cycle, in which the person cannot progress because it doesn't have proper education, and he doesn't have proper education because he cannot progress.

Thus, Hunters Point will transform into a knowledge and community hub. The Hub will be home of different institutions, varying from research centers, education facilities, governmental institutions and

private companies. The focus of the community hub will be on art, culture and health. Hunters Point is home to the biggest artist community in the United States, making it the perfect place where to explore and exploit the artistic side of its inhabitants. Culture and art will serve as a way to give identity to the place, as well as to create a more livable area. Besides the main programs that Hunters Point will host, Hunters Point will also provide its users residential, recreational, and retail areas. This will transform the space into a place of living, working, learning and leisure.

Education as the main theme does not only extend to the masterplan of Hunters Point. The building, which is the main graduation project, hosts three main functions that the knowledge hub requires. It will be a space where a research center, an educational facility and finally a company come together. The combination of these functions and programs is intended to increase the development and growth of each one of these fields. The space is envisioned as a way of helping these three fields interact with each other. The research facility can benefit from the education facility, and vice versa. The private company can benefit from the investigation done by the research center, and the research center can benefit from the founding of the private company, meaning a practical focus on the subject. Finally, the education facility can take advantage of the company in order for their students to learn from real practice. These new ways of interaction can benefit all three parties and help them innovate and progress in new ways.

3.3 Impact on the Environment

The San Francisco Bay Area contains one of the nation's largest and fastest growing economies. The Bay Area has the highest gross domestic product (GDP) in the nation and is the 19th largest economy in the world. Yet this economy is at high risk from coastal flooding. Much of the Bay Area —around 500 square kilometers—is close to the shoreline in low-lying areas, which in places is as much as 4 meters below sea level. These areas house public and private infrastructure worth more than $50 billion, which is vital to the Bay Area's vibrant economy. Moreover, these low-lying areas contain much of the Bay Area's "infrastructure network"—power, water, transportation, communications—that links businesses and communities throughout the region. All of these areas are vulnerable to coastal flooding due to storm surges, "king tides" (exceptional high tides), and other extreme weather events. Rising sea level will only exacerbate the problem by increasing the frequency of extreme water

levels, but its failure to defend against coastal flooding will have major economic and social consequences for the Bay Area.

The issue of flooding is tackled by the graduation project from many aspects, starting from the masterplan design to the masterplan setting and finally the program of the building itself. On those three levels the project relates and assesses the problem of flooding that the San Francisco Bay presents. The masterplan of Hunters Point was designed based on the different levels of flooding. In case of flooding, Hunters Point will flood in diverse ways and different zones will be more prompt to flooding than others, some areas could flood with a sea level rise of just 0.5m, while others could flood when occurring a 2 meters sea level rise. Taking the probability of flooding into consideration, different zones were created. Each one of the zones has a specific type of urban fabric, a specific use and a particular type of architecture, according to their particular needs.

Hunters Point will transform into a knowledge hub. The focus of the knowledge hub will be water. On San Francisco Bay, as well as all around the globe, the need for a space where innovation, creation, education and establishment of new regulations in the field of water is indispensable. The historic connection of Hunters Point with water and its strategic location and configuration as a port, makes Hunters Point the perfect place where such a water knowledge hub could be placed. The Hub will be home of different water institutions, varying from water research centers, water education facilities, water governmental institutions to water related private companies. This research and education center will bring creation, knowledge and innovation in the field of water, which will eventually help tackle the problems that San Francisco, and even the entire world has in terms of flooding.

Finally, the program of the building for the graduation is an education, research and practice center for water related topics. This building is intended to embrace the interaction between different parties, allowing them to grow and develop in a more efficient manner. The building hosts laboratories, classrooms, startup hubs, a library, offices, meeting rooms, an auditorium, working spaces and an exhibition gallery, all intended to the use of education and research of water. This will help create a culture and knowledge around water, therefore generating solutions for the future.