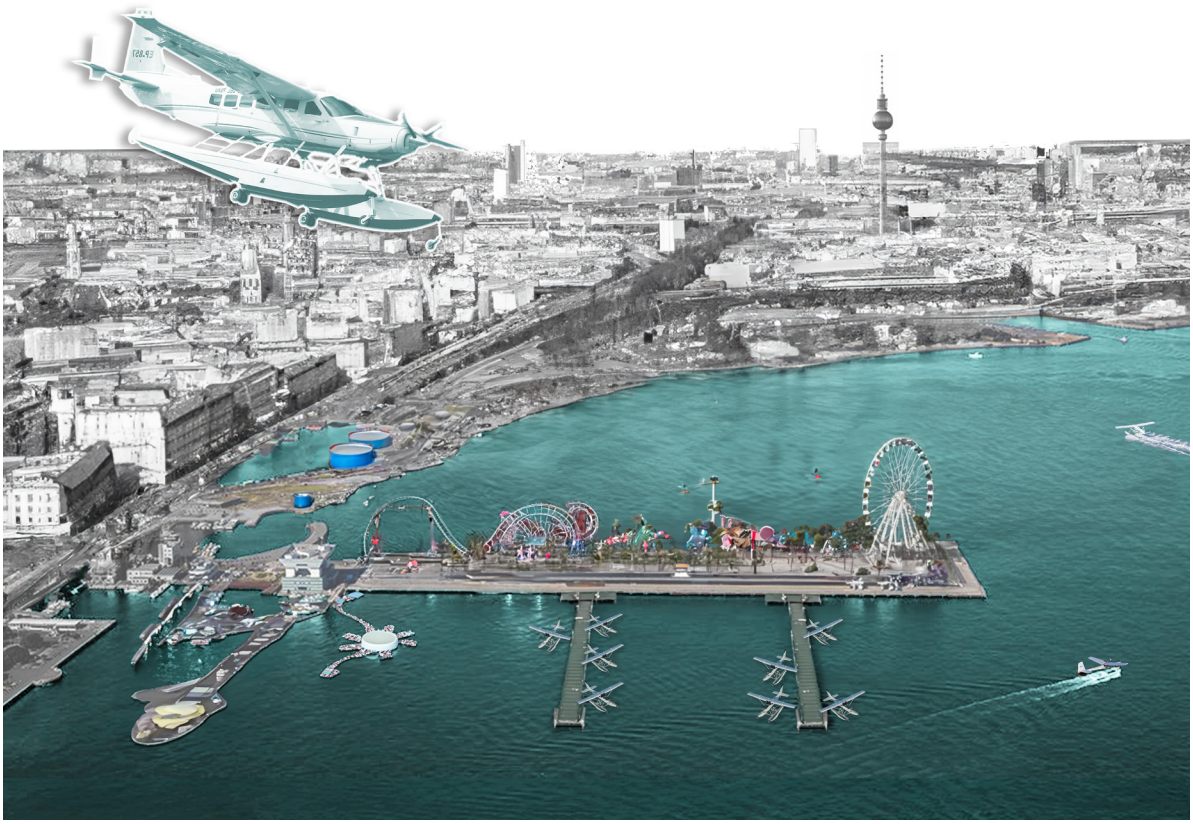

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Reflection Paper

URBAN TAKEOFF –
WATER AIRPORT OF HEALTH AND PLAY

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00 Project Description

In an era of rising concerns for sustainability and health, this project started with an ambition of reimagining the future of aviation. It is believed that a revolution would take place, in which aircrafts are fuelled by renewable energy and airports in the urban area would serve as a public infrastructure and play a role in recreating a healthy city.

This brings me to asking a research question of "how to design an airport in the urban context which dedicates its infrastructure for a healthier city?"

Through research and design, different users' needs could be addressed through integration of leisure and functions in an urban water airport. A new type of architecture would be created by mixing the uses of an airport pier and a seaside leisure pier. This water airport would contribute to maintaining a healthy city.

01 Relations between Graduation Project Topic and Studio Topic

The graduation project is named Urban Takeoff – Urban Airport of Health and Play. Taking place in the Complex Projects Studio of Bodies & Building, Berlin, the graduation project is highly intertwined with all three scales and aspects of architecture. Issues tackled are of global relevance but in the urban context of Berlin, in form of an airport and in an effort to meeting multiple users' needs.

In the largest scale of airport and Berlin, rapid expansions of both pose problems such as high carbon emissions, noise pollutions and inaccessible urban structure in cities. With the advancement of aviation technology, especially hydrogen-powered aircrafts, flights in the future would be made quieter and carbon neutral. This thesis also proposes bringing back seaplanes, which would not require kilometre-long asphalt runways but to utilise natural waterbodies. It is high time for architects and planners to rethink the possibility of integrating airports into cities instead of creating more barriers in between.

Zooming into the infrastructural scale, airports and its architecture are one of the biggest topics explored. As gigantic city infrastructures, airports are often regarded as a self-contained bubble isolated from society. The project investigates into breaking the borders between airport infrastructure and society and opening up such massive buildings for the public. Meanwhile, possibilities of spatially integrating hydrogen facilities into the airport infrastructure are also investigated to accommodate the foreseeable evolution of the aviation industry.

Lastly, the seemingly contradicting issues of airports and health are addressed. Travelling by planes has always been regarded as highly controversial in terms of health and climate debates. Instead of health, efficiency of flows and logistics has long been the priority when it comes to airport design. The project explores the feasibility of partly opening up the water airport for public, different kinds of users are brought into the picture. It is believed that a balance between efficiency and users' well-being shall be achieved in airport design. Through the introduction of urban-rural flights and playscapes in the building, physical and mental health of users would be improved. More specifically to our daily experiences, boredom and waiting time at the airport could be totally different in the future.

All in all, the graduation project topic could be interpreted using the very structured framework of the studio.

02 Relation between Design and Research

Throughout the research stage, also as the "health" group, in the first semester, information on existing problems on health in Berlin and aviation in general were gathered. Three types of users were brought into picture so as to illustrate the role of an urban airport: rural patients coming to Berlin for medical facilities, urban escapers flying to rural destinations for a break, and public visitors in the city coming to the airport for relaxation. The theoretical solution to different users' health is considered to be "play", which is to create a playful airport that is at least partially opened to the public and dedicates its infrastructure to making the city healthy.

The result of the research is carried out and executed in the second semester. Architectural qualities of an airport pier for boarding, disembarking and even plane watching are compared to the seaside leisure pier for pure fun and play. The design stage of this project started with a focus and ambition of integrating the two types of infrastructure after seeing their similarities in terms of their forms and functions.

While brainstorming suitable massing and urban strategies, it was discovered that further research is needed in terms of the possible play elements that could take place in a water airport, festive behaviours of Berliners, as well as similar precedents of leisure piers. For me, the line between last part of the research phase and the first part of the design phase has been ambiguous where I quite often moved back and forth.

03 Reflection on Working Methods

Throughout the two semesters of working on the graduation project, the process of work could be regarded as very linear, structured with step-by-step approaches. During the research phase, I was guided to spend equal amount of time on understanding firstly the program, then the site and lastly the client of this project. As for the design stage, a similar schedule was planned where 5 weeks were dedicated to building concept, 5 weeks for design and 5 weeks for material explorations.

Personally, I appreciated this approach of working. Previously I have also tried to be as structured as possible in my own way of thinking, designing as well as presenting. Being able to comfortably work with schedules and constraints is also one of the reasons for choosing Complex Projects as my graduation studio. By having such a working method, I believe that it would be more likely to achieve an all-rounded graduation project touching upon most aspects of architecture.

Currently, multiple aspects of the urban airport of water and play are being developed, such as circulation and flows of airport logistics, responses to the site and public program with an leisure playscape, as well as building tectonics and general principles of material application.

On the other hand, after trying to strictly work with a pre-designed, structured approach made me realised that there are actually more possibilities to one project. As a case in point, I could imagine that the design of playscapes in this project are driven by more in-depth research into existing or even new materials for play. I could also imagine that the hydrogen facilities are more extensively researched and could be more visually implemented with more expressions in the building.

However, these possibilities of the project could only be discovered with an even greater amount of time spent, or otherwise some of the other aforementioned architectural aspects would have to give way for some to be substantially explored.

04 Reflection on Academic and Societal Value

This thesis is developed with reference to the latest aviation technology advancements and evolutions. It also corresponds to urban-airport relations and emphasises on promoting users' mental health.

In terms of applications of the industry, environmental downsides of current travelling patterns have been significantly growing due to the boom in air traffic. There is a pressing need for the industry to evolve and especially stop fuelling aircrafts with kerosene but with hydrogen, which incurs zero emissions. Therefore, nowadays, the industry is conceptualising “hydrogen hubs at airports” and is at the stage of bringing them to reality. This project proposes an initial architectural concept for a hydrogen-fuelled water airport in the centre of Berlin.

Meanwhile, this graduation project, especially research done by the entire health-group would contribute to raising awareness of health in public architecture. Specifically, airports have always been regarded as a piece of urban infrastructure for efficient processes: check-in, security check, baggage handling, streamline operations and minimising costs. As architects, user experiences and public well-being shall not be neglected. Therefore, this graduation topic explores one of the ways of providing positive impacts on users’ health: play for mental well-being.

05 Reflection on Transferability of Project Results

In my opinion, the project results could partially be transferred to other projects in terms of technology and users’ well-being. It explores a new type of energy production facilities in a large-scale public building where public safety and security are always on top of all concerns. With such an amount of space dedicated to hydrogen energy production, these facilities could even work with the building in terms of climate control and tectonics to create synergies.

Last but not least, the project is established on the position that users should be the top priority while designing architecture. The adaptation of a playscape in an airport has always been the decision after considering how the action of play could improve one’s mental wellbeing, as well as how passengers could easily feel bored in airports nowadays. I believe that the mindset of creating better spaces for users could always be applied to each and every project.