REFLECTION

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Research	Rethinking HVAC systems: The possibilities of passive and bio-inspired techniques in residential buildings
Design	'It Takes A Village': Communal living in the Binckhorst

INTRODUCTION

'It takes a village' is a project that brings the people of the Hague together in a community-setting living environment, where human interaction is stimulated within the different layers of the building. The building is located in the developing area of the Binckhorst in The Hague, where innovation and sustainability are high on the agenda. It consists of a cave-like communal plinth with a café, library, meeting rooms, gym and workplace, covered in earth, which roof functions as a park. Five towers rise up on top of the plinth and house modular studios which can be linked together to create bigger apartments.
A scenic route is created through the whole building where human interaction is stimulated. In the park surrounding and on top of the building, meeting areas for people from the whole city are created, in the plinth the sane occurs for people from the surrounding area, and in the towers with connecting air bridges this happens for people who live in the building.
The in earth embedded plinth functions as thermal mass, which keeps the air temperature constant to help cool the houses in summer and pre-heat them during the winter.
The towers function as solar chimneys, where the air in the top of the tower is heated via a solar space, creating a pull of air that moves the cool air from the plinth to the tower and naturally ventilates and cools the houses.

The project tackles five main problems in its design, namely loneliness, lifeless architecture, ecological danger, housing need, and rising water.
With the communal design of the building, offering essential functions in the plinth and creating a scenic route throughout the building for human interaction, loneliness as known in 'standard' corridor living towers is tackled.
The alteration in architecture, from the heavy and cave like plinth, to the open and green park, to the light and cozy living towers, results in the architecture being an experience which triggers different emotions rather than box shaped architecture that don't align with the human scale.
The climate design is a bio-inspired principle based on an termite hill, where passive ventilation and cooling is created by the difference in air pressure and the use of earth as a thermal mass, creating a low energy need building.
The adaptable housing units and extensive communal function result in less floorspace needed for private housing, meaning more people can be housed on a smaller area.
And lastly, the Hague is located close to the sea, meaning it will at some point have to deal with the rising water levels occurring in the Netherlands. On and surrounding the building, multiple decreases are made in the landscape where water can gather which is a short term solution. When the water rises

multiple meters, the concrete plinth can be stripped from its functions and filled with water which will not affect the houses on top. The park can then be used to enter the different towers.

The project's name stems from the saying 'it takes a village to raise a child', which refers to the community needed to raise a child in a healthy and safe environment, but also for the child to grow and experience different values. This projects takes especially the last part of this saying into account, translating it to the community we need as humans to grow and experience life. Polarization, for example, is a fast growing problem which can be led back to humans living in increasing isolation. Humans are supposed to live in communities, to interact, understand each other and to tackle problems together. This project stimulates human interaction, to live together, to be part of the village. Because it takes a village to be human.

REFECTION

The studio I choose for graduation is Architectural Engineering, within the master track Architecture. My project, which is explained in the introduction, is a solid combination of engineering and architecture. The research, which was a technical dive into bio-inspired and passive installation techniques, is well embedded in the design of the building, since the most shapes of the building are based on the research. The termite-hill principle, which is bio-inspired, shapes the architecture of plinth and the shape of the towers (which are hexagons) are based on passive energy saving principles. The whole climate system, orientation, used shading, inclination of the roof, use of solar spaces and insulation values are based on the research I did. These aspect in turn shape the overall architecture of the project. In the end, the design resulted in the use of some other techniques than originally research, which let to some more research on these, newly added, principles, the termite hill for example and the use of a solar chimney in combination with a solar space.

My methodology for the research was mostly based on literary review and some testing of the researched techniques on a hypothetical building. For the research this worked fine, yet in hindsight it would have been useful to have more feeling for the design principles so the research could have been more focused on techniques I would actually implement. Furthermore, the decision-making process during both the research and design phases often took longer than it should have. I think a clearer overview of what I wanted to reach with the project early on would have helped, together with taking a step back more often to see the bigger picture.

Looking back, the approach I chose worked partially. The research gave my design a strong technical foundation, but also a slower start in the design process since I focused maybe too much on the technical aspects rather then the architectural story. Combining the research and design however became a valuable learning experience where the insights from the research shaped the architecture, while design decisions broadened my research to other passive and bio-inspired techniques which I hadn't look into yet. The feedback from the tutors helped me throughout the process to stay close to the core of the project and redirected me from the tiny details to working on the overall principles of my design.

This project is the biggest I have worked on in my academic career so far, this, together with it being completely newly built which means I had lesser context to start with, made it a challenging process for me. I think the project has a lot of different aspect both technically and socially, which makes it for my personal development an educational process while it, in my opinion, also links very good to the social aspects we face today as a society. I really believe that buildings like this, where bringing people together is stimulated in a time where we are getting so estranged from each other, might very well be a big part of the solution of multiple social dilemmas, like the loneliness, polarization, housing need, but also environmental dilemmas like climate change.

This project has ultimately given me a clearer understanding of how I work as a designer—driven by curiosity and meaning, but in need of structure and perspective along the way—and I feel better equipped to translate complex ideas into coherent architecture in future projects.