Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Studio Westfort Heritage and Architecture

Westfort, a seed for the future

Colophon

Student:

Name: Gijs van Suijlichem
Student number: 4018729
Telephone number: 06 54 34 21 71
Email: g.vansuylichem@hotmail.com

Graduation Studio:

Studio Westfort Heritage and Architecture
"The challenge of Westfort, continuing a Shared Built Heritage"

Teachers:

1st Mentor Architectural Design
ir. Job Roos J.Roos@tudelft.nl

2nd Mentor Building Technology Design
Nicholas Clarke, Pr. Arch N.J. Clarke@tudelft.nl

3rd Mentor Cultural Value
Prof dr Marieke Kuipers M.C.Kuipers@tudelft.nl

4th Committed guest teacher
dr.ir. Louis H.M.J. Lousberg L.h.m.j.lousberg@tudelft.nl

Motivation:

During my educational years on the university, my interest grew within the fields of sustainability and modern architecture. In my eyes, the future focus of the architecture should be on sustainability. Years and years we built in the Western world without taking the existing buildings into account. This way of looking towards architecture is at a turning point. Nowadays we value these existing buildings and try to fit these lost pearls into the continuing shifting landscape. The way we developed the past decades isn't possible anymore, questions on sustainability and the crisis of 2008 changed our approach. The relationship between developed buildings, environment and user is the focus point for future architects.

In upcoming countries such as South Africa, a new way of designing can be applied, a more sustainable, well integrated approach. Transformation, renovation or interventions within the built environment can contribute to a mix between old and new, valuable characteristics of heritage will be preserved and new functions can be applied. There can be a balance between old and new, both contribute towards each other, valuable in their own unique way. An approach to balance old and new is what I have been searching for during my projects I did within the chair Heritage & Architecture.

The Westfort Studio offers all these challenges, a unique piece of history and heritage within an upcoming economy. What can heritage contribute in a fast growing country, how can these areas fit into the new functions ask from their surroundings? Westfort offers the opportunity to learn from the flaws in Western development and enables us to create a more sustaining toolbox of designing and approaching these viable areas.

Westfort

"The dream of a continuing Westfort, a seed for the future"

Location and History:

Westfort is located west of the inner city of Pretoria, one of the largest cities in Gauteng, South Africa. North of the village is one of the ridges stretching from east to west along Pretoria. The village is currently home to about 4000 people of all ages and from a variety of cultural backgrounds, and speak a number of languages including Sotho, Zulu, English and Afrikaans.

The village was established as leprosy colony in 1898, and was designed and overseen by the ZAR Department for public works in Pretoria. The head of the ZAR was a man named Sytze Wierda, a Dutch engineer origin from Friesland. A few years after the opening of the new leprosy colony the Second Anglo-Boer War started. After the War the complex kept expanding and continued to serve as leprosy hospital until it was closed down in 1996. After the closure Westfort was waiting for a new use. The current community appropriated the historical buildings and settled in them till today.

Problem statement:

Developments in the surrounding areas threaten the village of Westfort, the heritage law in South Africa protecting every building aged 65 years or older, is the only thing standing between Westfort and the upcoming developments. To remain the historical Westfort means it has the react on these developments, the design has to give an answer towards these development, creating a boundary or a relation between it.

The current community holds no legal title to the property but contributed a great effort to the survival of Westfort. A question is how these people and their intangible heritage they brought along with them finds a place in the developments within Westfort. How can they keep contributing to the survival of Westfort and be one of the components in the historical timeline that remains in the future of Westfort.

Lastly the state of the heritage, the new function and interventions should upgrade the heritage and convert the degrading state that the heritage is in at the moment.

The fast growing population on earth creates a shortage in food and water. Especially in Africa where water and food is a valuable resource this problem is a concern. Gauteng is the densest region in South Africa, every year the migration towards Gauteng grows making it a hotspot for developments. Water, food and energy usage is also in this region already a concern continuing to grow the next years. A more sustainable solution for water management, food and energy production has to be found.

Research Question:

How can a life cycle assessment and social values of Westfort determine the most sustainable approach defined within the boundaries of re-use or tabula rasa?

Sub questions Life Cycle Assessment (LCA):

- What is a LCA?
- In what values does a LCA define sustainability?
- What research has been done with a LCA to determine re-use or tabula rasa?

Sub questions social values:

- What kind of social values can we determine looking towards Westfort
- How do you value social values to define a sustainable approach

Design assignment:

How can Westfort become an interwoven sustainable center within the upcoming urban sprawl, giving extra qualities and services to its surrounding using the local potentials of the buildings, layout and initiatives started within a small part of the community.

To create an interwoven center it has to connect with the surrounding neighborhoods. For this it will offer research, education and food. A research facility for urban farming from the Agricultural Research Council in Pretoria will be one of the main functions in Westfort. This facility will educate people how to grow their own crops and how to create a more sustainable living environment. Food will be produced by the community living in Westfort and the research facility. An urban square will be the center where people from other parts of Pretoria and the people in Westfort exchange their knowledge and food. A co-operation will be the connection third party overlooking this urban square and connecting research to living.

This urban square has to become a place where there is place for education, shopping, agriculture, research and recreation.

Method description

Analyzing:
An analysis has been done in the group of nine students. This analysis is focused on different scales each linked to Westfort. How can the data we found contribute to a function for Westfort, a foundation to build on. The large scale addresses the global context till the province of Gauteng, the medium scale from Gauteng till the village of Westfort and the small skill Westfort and its built environment.

Research:
Next to the analysis from the context extra research has to been done for the function. What kind of functions does a research facility needs? What kind of sustainable technology can be implanted? What kind of facilities does urban farming needs and how will change this the program? Extra research will focus on missing information needed to define the project.

Value assessment:
Working with heritage means working with an existing fabric. This has to be valuated to know what interventions can be done and what will harm the foundation of this existing fabric.

Sketching:
Sketching will help as fast way of communicating the design solutions. It will give me a fast way to test my solutions, create alternatives and communicate this in and easy way.

3D modeling and handmade models:
Modeling will help to communicate the design in a dimensional way. It will give a clear understanding of proportions, key details and overall look of the design proposition.

Literature:

Publications Agricultural Research Council Pretoria

Research South African students, University of Pretoria

Eeden van, H. (2014), Machinarium, University of Pretoria

Davey, C. (2010), Proximity vertical agriculture, University of Pretoria

Georgia Institute of Technology (2010), A Guide to Life Cycle Assessment of Buildings, The American Institute of Architects

Boyle, G. (1996) Renewable energy : power for a sustainable future, Oxford University

Dickson, D. (2011), The Vertical Farm: Feeding the World in the 21st Century, Picador

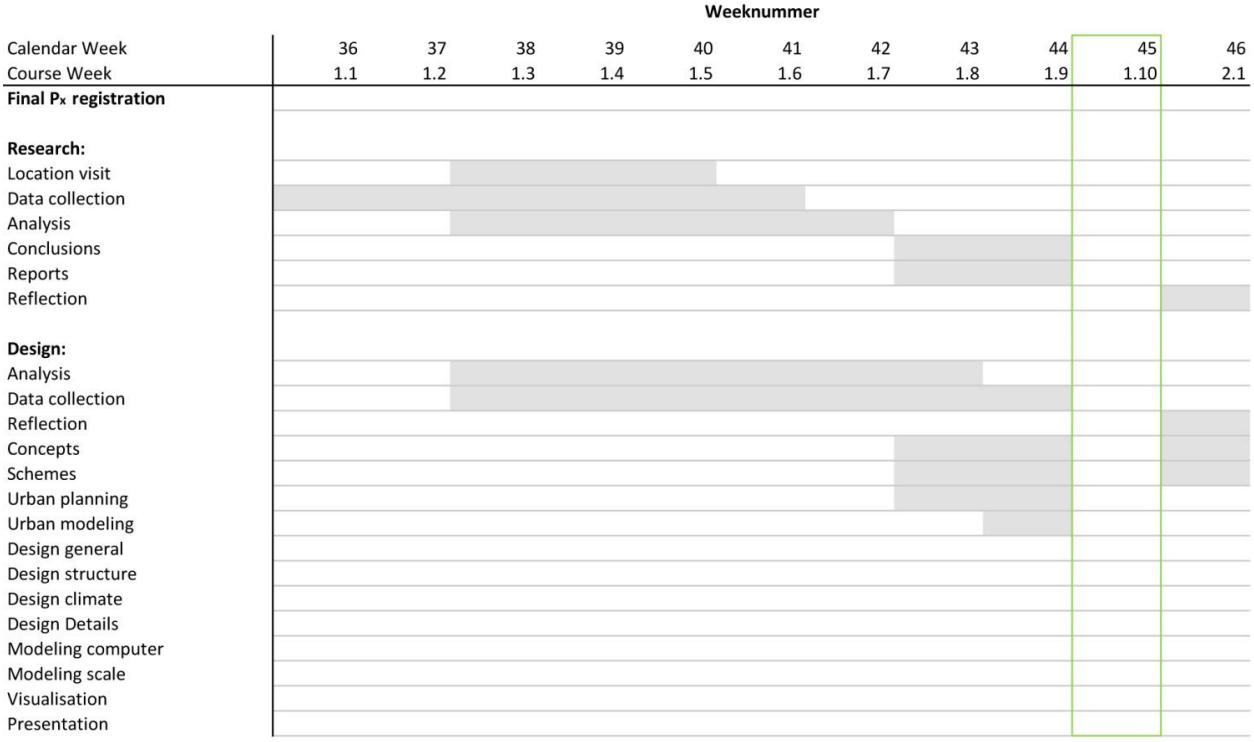
Kozai, T. (2016), Plant factory : an indoor vertical farming system for efficient quality food production, Amsterdam

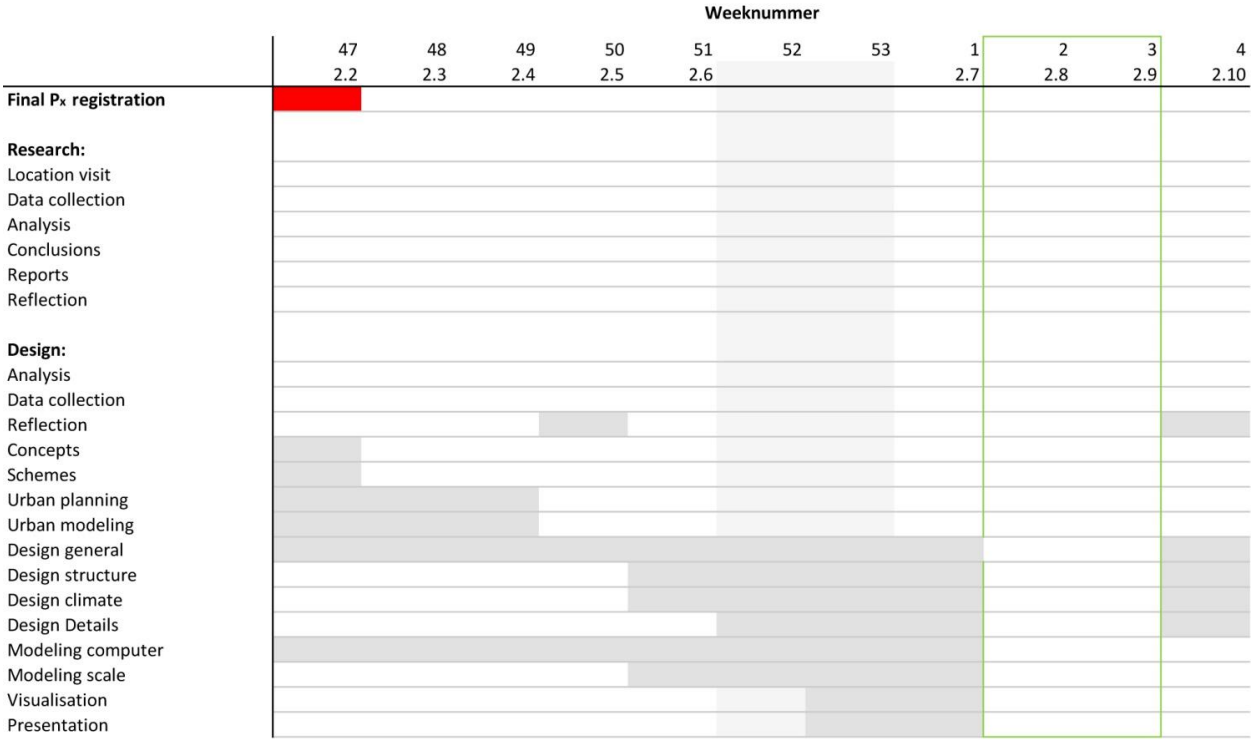
Relevance:

This project continues on the wider interest I have for sustainability. It is a step for deepening my toolbox, making a more integrated system. It challenges me combine sustainability with heritage, two things that, if done well, can go hand in hand when designing.

Secondly it gives me a wider few on designing in the world. A foreign project like Westfort in South Africa comes with new design challenges, culture, design heritage, actors, culture and climate. Collecting the right data, analyzing the side and design a plan creates an extra challenge when you're not able to visit the project often.

Time planning:





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Final Px registration											
Research:											
Location visit											
Data collection											
Analysis											
Conclusions											
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Urban modeling											
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Design structure											
Design climate											
Design Details											
Modeling computer											
Modeling scale											
Visualisation											
Presentation											

Weeknummer

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