Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	**Sarah Hermsen**
Student number	4699785

Studio		
Name / Theme	Technologies and Aesthetics	
Main mentor	Peter Koorstra	Research tutor
Second mentor	Veerle de Vries	Design tutor
Argumentation of choice of the studio	I knew beforehand that during my graduation, I want to explore sustainable - at that time still undefined what this would be exactly - detailing techniques with regards to traditional building methods, which this studio offers plenty of opportunity for. I was assigned a 'Formstudies' studio during MSc2 and enjoyed the overall way of working at that time. This might have to do with how the 'Formstudies' chair is focused on seeing the consequences of design choices firsthand through models. I found this method worked well before, which made me choose this studio for the MSc 3 and MSc 4 as well. Furthermore, I was intrigued by the themes that were posed for this studio. As mentioned before, I knew I wanted to focus on detailing while exploring the possibilities of combining old and new building techniques. The aspect of relating aesthetics to techniques makes this more interesting and was a nice principle for my graduation project. Lastly, in my opinion, the aspect of working off a scenario for the future only strengthens a design. Therefore, the '100 years from now' point of view that is required from the studio Technologies and Aesthetics spoke to me as well.	

Graduation project	
Title of the graduation project	The Craft of the New (title in progress)
Goal	
Location:	Reitdiep area, Groningen
The posed problem,	The rapid development and evolution of sustainable architecture poses a challenge in terms of outdated

	knowledge and potential wastage of materials and techniques.
research questions and	What can we implement from traditional timber craftmanship of roof constructions of Groningen farms into modern (sustainable) building techniques for timber roof constructions? It will explore the possibility of drawing inspiration from past building techniques to design for the future – as to navigate the field of tension around aging knowledge in sustainable architecture.
design assignment in which these result.	This graduation project aims to respond to the accelerated innovation and evolving demands of sustainability 'trends' in architecture. The design will also strive to navigate time sensitivity due to aging knowledge, by focusing on creating a position towards the overall innovation of sustainable architecture. My proposed design will house a craftmanship center – where newly developed knowledge on sustainable building methods (which might vary over the next 100 years) is gathered and sustainable building techniques are taught and explored- with a form language and building techniques that that relate to the existing heritage and timber roof structures.

[This should be formulated in such a way that the graduation project can answer these questions.
The definition of the problem has to be significant to a clearly defined area of research and design.]

Process

Method description

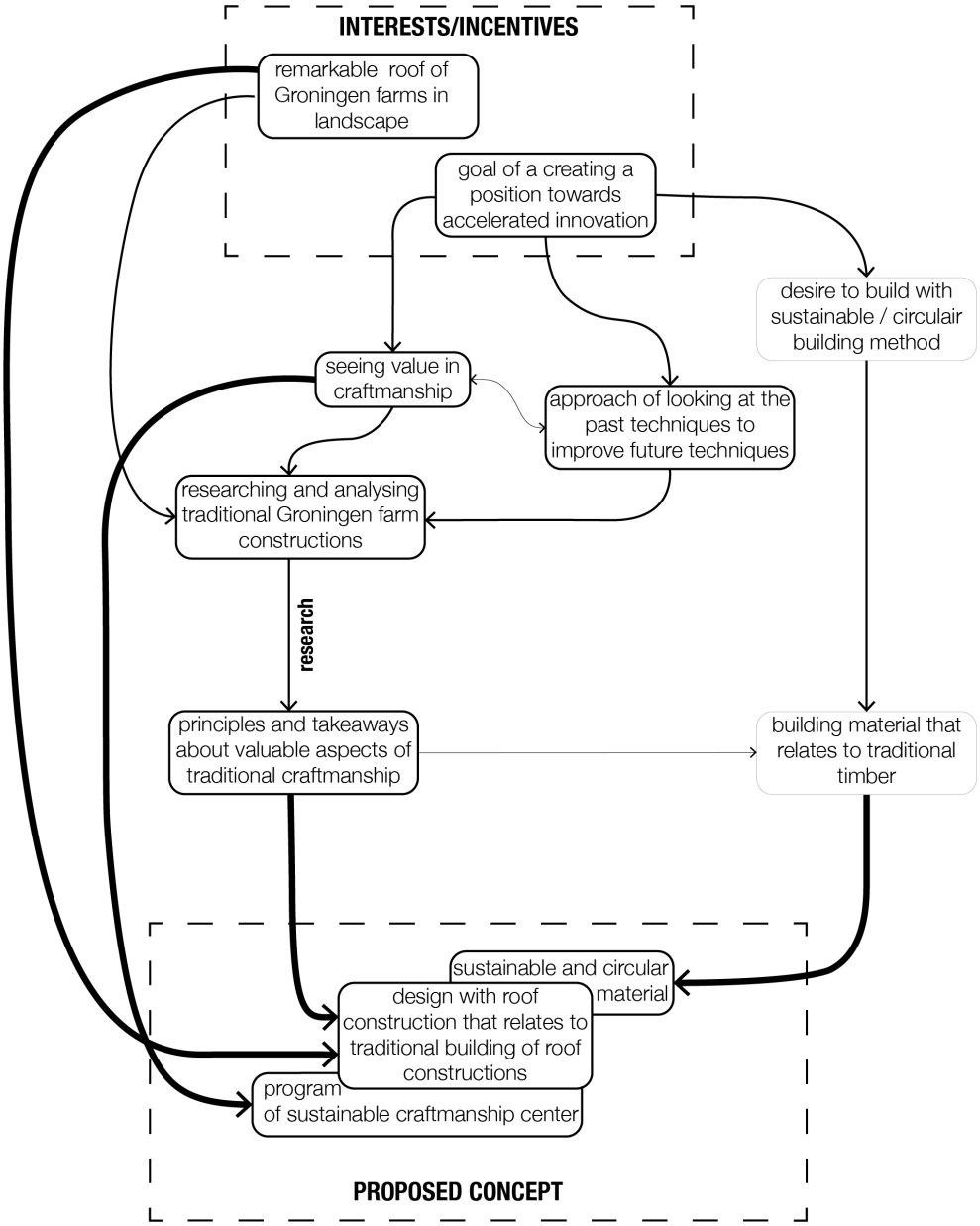
The posed research question will be answered through a case study of a Groningen farm. The construction joints and building principles are analysed. The context of said farm was studied to understand the construction. This is done through literature research. The things that stand out in this both the case study and the literature

research will be compared to a recent timber roof construction. The outcome of these elements will make it possible to give an answer to the research question.

Furthermore, studies and analysis of the location are made to make sure that the design is grounded in its context.

The program of the design is related to the research. What is required of the building in terms of square meters, space and circulation is researched by analysing references with a similar program.

The full concept comes together based on multiple interests and an aim to create a position as an architect. An overview of these factors is given in the scheme below.



Literature and general practical references

- Project Villa Schipper De Leeuw by DP6 as case study for modern day timber construction techniques.
- Farms 'Maarhuizen' and 'De Haver' as case study for traditional timer construction techniques.
- Technical focused schools/colleges will be researched as reference for the requires of the program of the design – as they provide insights in the required space and machinery for education on construction.
- Use of documents and material from Groningen archive.
- Use of documents from Architecture firm ONIX on project 'De Haver'
- The monumental index of monuments:

De Rijksdienst voor het Cultureel Erfgoed. (z.d.). Rijksmonumentenregister - Index of Dutch national monuments. In *Cultureelerfgoed.nl*. Geraadpleegd op 22 december 2023, van https://monumentenregister.cultureelerfgoed.nl

Main literature:

Jans, J. (1967). *Landelijke bouwkunst in Oost-Nederland*.

Janse, H. (1988). *Bouwtechniek in Nederland: Houten kappen in Nederland, 1000-1940*. Delftse Universitaire Pers.

Berends, G. (1996). *Historische houtconstructies in Nederland.* SPA Uitgevers.

Centraal College van Deskundigen Restauratiekwaliteit. (2020). *Historische houtconstructies: Uitvoeringsrichtlijn* (URL 3001). Stichting Erkende Restauratiekwaliteit Monumentenzorg. Geraadpleegd op 23 december 2023, van https://www.stichtingerm.nl

Opdam, P. (2017). *Landelijke Bouwkunst: De schoonheid van monumentale boerderijen in Nederland*.

van Wijk, P. A. M., & van Aalst, J. P. H. (1985). *Boerderijen bekijken: historish boerderij-onderzoek in Nederland*. De Horstink.

Groningse Herenboerderij. (z.d.). Agriwiki. Geraadpleegd op 26 december 2023, van https://www.agriwiki.nl/index.php?title=Groningse_herenboerderij

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?
2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

The studio's manual describes the themes and assignment of the studio as follows:

'This studio explores the relation between the technical design innovations and the demands and consequences of climate change for the specific architectural form language and aesthetics that comes along with and belongs to these developments. [...] The assignment is to design an off-grid building that provides itself with energy and uses bio-based materials. This building is set a 100 years from now.' (Studio Manual)

My graduation project responds to this by working based off of principles, that are created through research and case studies. These principles will add to my personal position towards 'aging knowledge' in architecture. I will elaborate on why this is relevant:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (World commission 1987)

It can be concluded that in 1987 the concerns for sustainability were concerns regarding following generations. Nowadays, sustainability is known as an urgent matter. Where sustainable designs aimed to be 'less' harmful to the environment, it is now required to make sustainable designs that have zero net emissions. Regenerative Architecture even aims to have a negative emission and regenerate energy and recourses, as the name suggests. These requirements are also expected from the outcoming design for this studio. However, how do we know these 'sustainable requirements' won't evolve further? This evolving of the definition of sustainability alone reflects the constant development within the sustainability movement, also the case in the world of architecture.
Due to this rapid development, the way we built today is bound to be outdated quickly. This can be described as 'aging knowledge', a known occurrence in other academic fields as well. It can be argued that this can become a problem if we don't reflect on how to approach this current development in our society as a whole. There seems to be a trendiness to the sustainable movement, demands and trends alternate rapidly - partially due to the acceleration in innovation. Greenwashing and time sensitive structures are something to be aware of. The phenomenon of 'fashion in architecture' that comes with the trendiness, could be characterized as unsustainable. I find this an important matter to keep in mind as an architect. However, this seems to be a field of tension and there is no concrete answer to what is right and wrong. After all, innovation is needed for suitable solutions to be developed - and should be something to strive for, but is the way we do it currently the best approach?

This discomfort and tension are the foundation for my need to create a position towards the overall innovation of sustainable architecture. I realise this is probably a lifelong question I will be aiming to answer. This graduation project won't give an answer, but it will hopefully add to my position towards the underlying field of tension around 'aging knowledge' in sustainable architecture. This overarching holistic question about how to navigate 'aging knowledge' in sustainable architecture will shape me as an architect, which I think is valuable to think of as a graduating MSc student.