

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	Eleonora Farcomeni
Student number	5111625

Studio		
Name / Theme	Architectural Engineering - Harvest	
Main mentor	Mo Smit	Architectural Engineering
Second mentor	Paddy Tomesen	BT
Argumentation of choice of the studio	I choose this studio due to the possibility of investigate sustainable thematic into a technical prospective on different scales. The studio is seeking to face actual and relevant problems and propose resilient and future-proof solutions. Central for this course is how circular design strategies can contribute to valuable landscapes, villages or urban neighborhood, an assignment that is core of my architectural mission.	

Graduation project	
Title of the graduation project	Food community house in the Brettenzone: the local circular economy approach to reduce our environmental footprint
Goal	
Location:	Brettenzone, Amsterdam (The Netherlands)
The posed problem,	The way we produce and consume food poses big challenges for the years to come. While the population is growing, agriculture is one of the human endeavors having a major impact on the environment, underlining the urgency of rethinking our food strategy. Nowadays agriculture is responsible for a quarter of greenhouse gas emissions globally and it demands 70% of the global freshwater. Finally, In order to ensure the required annual quantity of food, a lot of the global Gha is devoted to food production. Those 3 elements - CO2, virtual water, and land accounting - are

	<p>together shaping the environmental footprint of the food system, also called foodprint. How can we reduce the impact on the food system in terms of natural resource usage? Which scenario could we build shifting our eating habits? Can we invest in cities and citizens with projects involving more the city dwellers in food-related practices? Rethinking our food strategy within cities starting from its inhabitants, following a bottom-top approach, can help realize the vision of a more sustainable consumption and generate significant environmental, economic, and health benefits within and beyond their boundaries.</p>
<p>research questions and</p>	<p>investigate the environmental footprint of food in general and zooms in on landuse, water and energy for the Brettenzone area and surroundings in Amsterdam, the Netherlands while also addressing strategies to reduce emissions, virtual water use and land accounting, proposing shifts in the current diet and the introduction of local food systems within cities.</p> <p>Related sub-questions, are:</p> <ul style="list-style-type: none"> What is the carbon footprint of food? What is the virtual water of food? What is the embodied land of food? How can we calculate the environmental footprint of a community related to its food consumption? How can we reduce the environmental footprint of food? Which future scenarios can we build?
<p>design assignment in which these result.</p>	<p>The project focuses on the case study of the Brettenzone, proposing a new food program able to give a new meaning to the neglected area. The design part started from a general masterplan of the park that proposes modular architectural additions, to focus then on the main intervention: the food community house. The community house is intended both for adults and children, for experts of farming and food-related practices, and interested beginners. The project wants to be accessible for all the social classes, constituting an alternative to the expensive gardening opportunities already present in the area. The resulting intervention, the food common house,</p>

	wants to be an experiment of closing the food and materials cycle on a local level, promoting more sustainable consumption patterns by involving more city dwellers in agriculture-related practices. Within the project new job opportunities can be created, value is given to the waste and food security is promoted. The project wants to promote the belief that we, as humans, can make a difference by taking care of how we use natural resources.
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Process

Method description

The research, as well as the design, started from exploring the boundary between two different epistemes typical of the architectural discipline: ecology - and the study of the natural environment - and praxeology - observing humans behaviors. Striving for action on those two sides, the project underlines the urgency of exploring and research the connections between humans behaviors and the surrounding nature, analyze our responsibilities and question our systems.

Embracing the philosophy of the Harvest graduation studio, the research focused on the Flow domain, exploring the food systems and their related cycles of water, land, and energy. Lots of resources are nowadays implied in food production: those elements, often called input of agriculture, make part of our environmental footprint. In particular, a lot of water and land is used to provide each year the required quantity of edible product, while a lot of CO2 is emitted. The data collected about these food-related flows have been collected and inserted into the FEWprint, a simulation model developed by the Ph.D. candidate Nick ten Kaat in collaboration with the Nexus Research Framework. The tool is being used as a parametric tool able to analyze consumption patterns and their environmental repercussion, simulate scenarios by shifting diet patterns, and test the repercussion of local production. Finally, in the design part, the tool was used to guide the landscape proposal and to calculate the customer's impact reduction in terms of carbon emissions.

Thies methodologies helped the project to set its goals of involving the local communities and at the same time is a tool to test the repercussion that such an intervention can have on a local scale. Moreover, thanks to the collaboration with the Nexus group, this project will be part of a separate scientific publication, showcasing the use of food tools in cities' development.

Within the design part, the data collected in the research part guided me in a coherent proposal, highly aware of its repercussion on the environment. Moreover, more research by designing was applied, carefully question all the material choices and learn how to use them to create architectonical quality while respecting their physical and technical characteristics. Finally, the quantitative data analysis and the qualitative methodologies of the design merged into the proposal of a biobased, circular, modular and local proposal: the food community house.

Literature and general practical preference

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REFERENCE PRACTICAL EXPERIENCE/PRECEDENT

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- Landschap Noord-Holland: Volunteer Nature Conservation Lange Bretten near Amsterdam
- Flevo Campus: How do we feed the city? Food hub in Almere
- LaBGreen De Bretten