

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	J.L. Moens
Student number	4678443

Studio		
Name / Theme	The Modern Mall – Adapting 20 th century heritage	
Main mentor	Lidy Meijers	Heritage & Architecture (Design)
Second mentor	Federica Marulo	Heritage & Architecture (Research)
Argumentation of choice of the studio	There are still a lot of unnecessary wastes and damages to the environment and I believe that the built environment (on a world scale) plays a key role in providing solutions to it. Nowadays, the built environment is part of the problem itself, but by preserving existing architecture, nature and cities in a sustainable way, I believe that the built environment can have a positive influence on maintaining our world. New techniques and developments can enhance our existing architecture, but at the same time, it is essential to preserve our cultural heritage and traditions. Modern heritage plays a big role in shaping our cities and societies. This contrast between conservation and progression sparked my interest. That is why I find it interesting to broaden my knowledge about the topic of Modern Heritage. I hope to apply my obtained knowledge in the redesign of a modern shopping mall.	

Graduation project	
Title of the graduation project	The sustainable mall, a holistic approach to sustainable renovations of modern shopping malls in the Netherlands
Goal	
Location:	In de Bogaard, Rijswijk
The posed problem,	Most renovations in modern shopping malls have been made with the goal of ensuring economic sustainability and

	<p>survival in the long run. However, designing in a sustainable way also encompasses social and environmental aspects. Issues regarding those aspects are sometimes ignored and that is why a lot of malls have to deal with vacancy and a state of disrepair.</p> <p>Structured frameworks on holistic approaches to sustainable (re-)design have been developed in the past, but the appliance of it on Dutch modern shopping malls is missing.</p>
research questions and	<p>RESEARCH</p> <p>Main question:</p> <p>What is the effect of interventions in three Dutch modern shopping malls with different structures [covered, partly covered and open] on the environmental, social and economic aspects of sustainability?</p> <p>Sub questions:</p> <ol style="list-style-type: none"> 1. How are modern shopping malls related to the environmental, social and economic aspects of sustainability? 2. What are design interventions in three Dutch modern shopping malls with different structures? 3. What are the environmental, social and economic impacts of these past and current design interventions? 4. How can the design interventions in the three Dutch shopping malls be compared in terms of a holistic approach to sustainability?

	<p>DESIGN</p> <p>How can shopping mall “In de Bogaard” (Rijswijk) be renovated to promote environmental, social and economic sustainability?</p>
design assignment in which these result.	<p>Shopping malls have a certain life span that consists of four stages: innovation, accelerated development, maturity and decline. In order to evaluate existing modern malls and redevelop matured and declining malls into sustainable centres that are used for more than only shopping, vacant and degraded parts of existing malls have to be renovated or adapted. However, the existing structures and historic elements have to be respected and can influence the redesign.</p> <p>In my project I am striving to design in an optimal sustainable way by connecting the three aspects of sustainability (environment, society, economy) in shopping mall “De Bogaard”, Rijswijk. By analyzing the heritage value of different building parts, it becomes clear how most of the building can be re-used.</p>

Process

Method description

To answer the research and design questions, both qualitative and quantitative methods will be used in order to respond to social (qualitative), environmental and economic (quantitative) aspects of sustainability (Kamari, 2017).

The core of the research is built around three case studies and dives into three renovations of modern shopping malls in the Netherlands. The research methods that are needed are described in these steps:

A literature study on holistic sustainable renovation of modern heritage is conducted to create a base for understanding the link between sustainable renovation and heritage.

Three case studies of interventions in modern shopping malls [with an open structure, semi-open structure and closed structure] in the Netherlands are analyzed in terms of the three aspects of sustainability to create a wide spectrum of possibilities of how to intervene in a sustainable way.

The three case studies will be compared conform a cross-case analysis by using the wheel of Kamari (Kamari et. al, 2017) and conclusions can show what the relation is between different types of structure and the way how to intervene in heritage in a sustainable way. The case studies will be linked to the broader definition of sustainability.

Outcomes from the research can help to support design choices and help to understand what the role of sustainability can be in indoor and outdoor spaces in shopping malls. By evaluating different scenarios and making sketches and models, it becomes clear how a new program with the addition of housing and other functions can fit in the existing structure of "De Bogaard".

Literature and general practical preference

The value assessment tool used in my project that supports and analyzes holistic sustainable renovations is derived from:

Kamari, A., Corrao, R., & Kirkegaard, P. H. (2017). *Sustainability focused decision-making in building renovation*. International journal of sustainable built environment, 6(2), 330–350. <https://doi.org/10.1016/j.ijsbe.2017.05.001>

By focusing on modern shopping malls, the most important aspects of the Kamari wheel relevant to malls are filtered by using this source:

Lin, M., Shih, S., & Perng, Y. (2020). *Sustainable Shopping Mall Rehabilitation*. Sustainability, 12(17), 6698. <https://doi.org/10.3390/su12176698>

Literature research on how to assess social, environmental and economic sustainability in building renovations assists the evaluation interventions in shopping malls. Some important sources used for this are:

Aktas, G. G. (2011). *Sustainable Design Proposals in Shopping Center Public Interiors*. INTERNATIONAL JOURNAL of ENERGY and ENVIRONMENT, 6(1). <https://www.naun.org/main/NAUN/energyenvironment/17-568.pdf>

Carretero, J., & Higuera, E. (2017). *The suitability of sustainable retrofitting means for shopping malls, in an environmental and urban background. A resume of the methodology*. UPLanD, Journal of Urban Planning, Landscape & environmental Design, ISSN 2531-9906, 2017, Vol. 2, No. 2, 2(2), 85–96. <https://doi.org/10.6092/2531-9906/5259>

Magee, L., Scerri, A., & James, P. A. (2012). *Measuring Social Sustainability: A Community-Centred Approach*. Applied Research in Quality of Life, 7(3), 239–261. <https://doi.org/10.1007/s11482-012-9166-x>

Milani, B. (2005). BUILDING MATERIALS IN A GREEN ECONOMY: COMMUNITY-BASED STRATEGIES FOR DEMATERIALIZATION [Thesis]. University of Toronto.

Documents such as “Metamorfose van een winkelcentrum” (Doesburg, Gabriëlle & Roes) about “De Bogaard” address the use and the architectural composition of several parts of the shopping mall. This is used in my design to understand the intentions of the architecture of the mall.

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)?

The modern shopping mall and the topic of sustainability are very closely related, since a lot of modern malls do not meet the current sustainability demands yet. By integrating sustainability into their design, operations, and tenant selection, modern shopping malls can reduce their environmental impact, conserve resources, and contribute to a more sustainable future. I can learn from innovations on the reuse of materials, energy, waste management and maintenance management etc. and use the knowledge for further architectural projects.

The topic of the modern mall touches upon different scales, since it has a distinct function in the neighborhood and it is integrated in the structure of the city while the architectural details can create a coherent ensemble of the building(s). The obtained knowledge from the bachelor and master comes together in this complex project.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

Sustainability is a condition that must be re-examined over time. With the ever changing society and advancements in technology, the possibilities for buildings to get a high score on sustainable renovation are growing. From an academic perspective, the critical examination of past design interventions in modern shopping malls and the mapping of their sustainability features is an essential contribution to the field of sustainable design. This research can provide insights into the effectiveness of past sustainability interventions, as well as identify areas for improvement and innovation in future designs. The outcomes of sustainable value assessments are relevant for stakeholders in the decision-making process, and this research can help to clarify and expand the existing knowledge on the sustainability of Dutch shopping malls. By examining holistic sustainable designs for shopping malls, this graduation can contribute to the advancement of sustainable project development and support the transition towards a more sustainable built environment.