

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	F. P. C. (Fabian) Castenmiller
Student number	4538803

Studio		
Name / Theme	Energy transition in the existing building stock	
Main mentor	K. (Queenen) Qian	Design & Construction management
Second mentor	Erwin Mlecnik	Real estate management
Argumentation of choice of the studio	This studio has a constructive subject and approach for making a master thesis. Actually making plans to renovate something and tackle the energy crisis head on, like an engineer would, this really grabbed my attention. There is a lot of free choice in what kind of buildings and policy I want to research. And the mentors are sympathetic and give me the support, teaching, and insight I need. It fits with my personality, I want to build things and actually make an impact in the world.	

Graduation project	
Title of the graduation project	Exploring barriers and opportunities in the energy transition of the Dutch monumental building stock <i>Case study: Examining the monument 'relief program' of the Dutch Cultural Heritage Agency</i>
Goal	
Location:	The Netherlands
The posed problem,	The monument 'relief program' of the Dutch Cultural Heritage Agency is designed to help monument owners sustainably retrofit their monument while preserving the cultural heritage values. The program helps with advise, guidance, and financial support, however still some monument owners do not make the jump to sustainably retrofit. Does the decision making of the monument owners explain the lack of guidance? Or does the monumental sector need an obligation to sustainably

	retrofit when a monument is sold, or maintenance or restoration occurs?
research questions and	<p>Main: How can the Dutch monumental building stock be sustainably retrofitted while preserving cultural heritage values and keeping stakeholders satisfied?</p> <p>Sub1: How have sustainable retrofits in cultural heritage buildings been inhibited regarding the decision making of monument owners? (literature study)</p> <p>Sub2: How have sustainable retrofit obligations been successful for the energy transition? (literature study)</p> <p>Sub3: How have sustainable retrofit obligations been perceived and supported among the population of the legislative body and among owners of the buildings affected?</p> <p>Sub4: Why are monument owners not willing to retrofit even though they get advice, guidance, and financial support in the 'relief program' from the Dutch Cultural Heritage Agency? (interviews)</p> <p>Sub5: Are monument owners satisfied with a sustainable retrofit obligation when their monument is sold, or during maintenance or restoration? i.e. is there a support base for this policy among monument owners? (interviews)</p> <p>Sub6: Do policy makers think a sustainable retrofit obligation for monuments will increase the energy transition or just be a burden on monument owners? i.e. will this policy be effective? (interviews)</p>
design assignment in which these result.	<p>The monument 'relief program' of the Dutch Cultural Heritage Agency is a recent program for advice, guidance and financial support to help monument owners to sustainably retrofit their monument. This program is relevant to study because sustainably retrofitting the Dutch monumental building stock requires knowledge about decision making on the part of monument owners and in introducing the right policy on the part of policy makers. The</p>

	<p>objectives of this study are to:</p> <ol style="list-style-type: none"> 1. Investigate why monument owners inside the monument 'relief program' are sometimes still not willing to sustainably retrofit even though they are helped with a tailor-made advice to their exact monument, guidance in the process of retrofitting, and financial support for the advice and guidance. 2. Explore whether there is a support base among monument owners to be subjected to a sustainably retrofit obligation policy (like energy label C for offices) that comes into being when a monument owners sells their monument, or maintenance or restoration occurs. 3. Ascertain with policy makers whether a sustainably retrofit obligation policy would be effective and not burden monument owners. <p>The research will add to the literature on decision making of monument owners and to literature about policy making about sustainably retrofitting monuments obligations.</p>
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Process

Method description

The research instruments to collect, generate and reduce the necessary information for answering the research questions are a literature study and semi-structured interviews. In the following order:

- First the literature study.
- Second the semi-structured interviews with policy makers, mainly the policy makers of the Dutch Cultural Heritage Agency.
- Thirdly the semi-structured interviews with monument owners, contact information provided by the Dutch Cultural Heritage Agency.
- Lastly a cross-case study analysis of answers from the interviews, a cross-case study analysis of the difference between answers and the expectations from the literature. And a quantitative instrument consisting of the quantitative observations of all semi-structured interviews.

The character of semi-structured interviews lends flexibility because it enables the collecting of more detailed data, the documentation of various opinions and experiences, and the investigation of difficult problems (Leavy, 2014). Semi-structured interviews, as opposed to structured interviews, are preferred because

they let the interviewee explore any angles, they think are crucial while still maximizing the knowledge producing potential of dialogues. Additionally, structured interviews provide the interviewer greater control over how the discourse steers toward subjects that are important to the research project than unstructured interviews do (Leavy, 2014).

The interviews will take place face to face or online through Zoom, and will approximately last for 60 minutes. The main topics discussed in the in-depth interviews will be the sub-questions. Probing is allowed, if certain participants do not understand a question the participant will be steered so the question is properly understood and answered. Bryman (2016, p.213) who explained probing, adds that sometimes answers need to be clarified with a number if answers include words like often, sometimes and usually. This is probing as well and will be used in this research because it will lead to a more thorough understanding. Bryman (2016, p.213) also explains prompting, this won't be used.

The interview answers will be compared to the literature study, this will be done through the use of a conceptual model of the decision making literature, and a conceptual model that was derived from the interviews. The answers of different interview participants will also be compared with each other. The monument owners and policy makers can give different perspectives to both sub questions 4 and 5. This will lead to both a more all-encompassing understanding of the reason why monument owners are not retrofitting, and the effectiveness and base of support for the retrofit obligation policy. The quantity of some answers will additionally generate a quantitative study where results are statistically organized, when some issues are more prevalent than others for example.

The research is structured in four phases.

The first phase (answering sub question 1, 2 and 3)

Consists of a theoretical study that leads into a theoretical framework and a state of the art relevant knowledge about decision-making of monument owners, or owners in general. And a state of the art research and theoretical framework about the sustainable retrofit obligation policy for monuments, this will align with the theory for the energy label C obligation that monuments did not have to adhere to, but offices do.

The second phase (answering sub question 4, 5 and 6)

This will be in depth, semi-structured interviews with policy makers. These interviews will also yield knowledge about the state of the art in policy making and whether the proposed monument sustainable retrofit obligation from the literature is in line with what a policy could look like in the Netherlands. The sustainable retrofit obligation could be an obligation to retrofit the monument in 4 years to a DuMo label C, which means both the monument has increased in sustainability and the cultural heritage value of the monument has also not decreased significantly, stayed the same, or even increased.

And in the second phase, the policy makers will be asked about subquestion 2: Why are monument owners not willing to retrofit even though they get advice, guidance,

and financial support?

The third phase (answering sub question 4 and 5)

This will include the interviews with the monument owners, asking them about both the barriers they perceived in decision making during the monument 'relief program'. And also their willingness or reluctance for the sustainable retrofit obligation.

The fourth phase (answer the main research question)

This phase will put all the findings together by the use of a cross-case study analysis. The cross-case study analysis will analyse the difference between the literature and the case of the monument 'relief program'. The difference between the literature about sustainable retrofit obligation policy and the support base and effectiveness of such a policy according to policy makers and monument owners. And the difference between the answers of policy makers and monument owners. And there will be a statistical analysis of the insights given by policy-makers and monument owners.

See table 1:

Phase	Question answered
1. Literature study of: (1) the literature about decision making among monument owners to sustainably retrofit. And (2) the literature about sustainable retrofit obligation policies.	Sub1: How have sustainable retrofits in cultural heritage buildings been inhibited regarding the decision making of monument owners? Sub2: How have sustainable retrofit obligations been successful for the energy transition? Sub3: How have sustainable retrofit obligations been perceived and supported among the population of the legislative body and among the owners of the buildings affected?
2. Semi-structured interviews with policy makers	Sub4: Why are monument owners not willing to retrofit even though they get advice, guidance, and financial support in the 'relief program' from the Dutch Cultural Heritage Agency? Sub5: Are monument owners satisfied with a sustainable retrofit obligation when their monument is sold, or during maintenance or restoration? Sub6: Do policy makers think a sustainable retrofit obligation for monuments will increase the energy transition or just be a burden on monument owners?
3. Semi-structured interviews with monument owners	Sub4: Why are monument owners not willing to retrofit even though they get advice, guidance, and financial support in the 'relief program' from the Dutch Cultural Heritage Agency? Sub5: Are monument owners satisfied with a sustainable retrofit obligation when their monument is sold, or during maintenance or restoration?
4. Cross-case study analysis, and statistical analysis of interviews	Main question

Literature and general practical preference

Tabel 1 – Phasing, own work

[The literature (theories or research data) and general practical experience/precedent you intend to consult.]

The literature to consult is in line with sub questions 1, 2 and 3. This includes literature about decision making of monument owners to sustainably retrofit (like: Van Der Heijden, 2019). Literature about the support base for sustainable retrofit obligation policies among the population of a legislative body and among the owners of the buildings in question. And literature about the effectiveness of energy retrofit obligation policies in terms of energy performance.

The research data will be the interviews which will be conducted with policy makers in the Dutch Cultural Heritage Agency, and with monument owners contacted by the Dutch Cultural Heritage Agency for the purpose of this study. Jaap Lageman is willing to guide this research and the researcher (me) at the Dutch Cultural Heritage Agency.

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)?

This graduation project is about the energy transition of the existing building stock, in particular the building stock with the most historical significance, i.e. monuments. This is completely in line with the studio, and fits needly within all master tracks, especially MBE, but also architecture, urban and landscape design deals with monuments and the energy transition.

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

This graduation work deals with decision making and drafting new legislation in and around monuments and the energy transition.

References

Bryman, A. (2016). *Social Research Methods*. Oxford University Press.

Leavy, P. (2014). *The Oxford Handbook of Qualitative Research*. Oxford University Press.

Van Der Heijden, J. (2019). Studying urban climate governance: Where to begin, what to look for, and how to make a meaningful contribution to scholarship and practice. *Earth System Governance*, 1, 100005. <https://doi.org/10.1016/j.esg.2019.100005>