

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	Jurjen Vos
Student number	1353489
Telephone number	????????
Private e-mail address	JurjenVos@live.nl

Studio	
Name / Theme	Sustainable Design Graduation Studio (Climate Design & Product Innovation)
Teachers / tutors	Regina Bokel & Marcel Bilow
Argumentation of choice of the studio	To combine research on acoustic performance and using a new material in a building product

Graduation project	
Title of the graduation project	Mycelium Acoustic Panel
Goal	
Location:	- (Acoustic panel)
The posed problem,	Novel building material with unknown performance and application
research questions and	What are the specific qualities of mycelium? How can mycelium be used in an acoustic building product?
design assignment in which these result.	Design and make a mycelium acoustic panel
The goal is to see how the new material, mycelium grown on biological (waste) substrates, can be produced, designed with and perform in an acoustic building product.	
Process	
Method description	
Literature study: -On existing research on mycelium to see what is possible in terms of performance -On acoustic properties of building products in general to see how the performance can be improved	
Research by design:	

- Designing and making building products to find possible issues.
- Comparing test results with possible applications.
- Compare the final design with other building product specifications.

Acoustic testing:

- Impedance tube testing to see how the material/product will perform compared to conventional and other innovative building products.

Literature and general practical preference

-Literature on mycelium properties, most notable papers: (Pelletier et al., 2017), (Appels et al., 2019), (Haneef et al., 2017), (Islam, Tudryn, Bucinell, Schadler, & C. Picu, 2017), ...

-Literature on acoustic properties and design: (Cox, D'Antonio, & Schroeder, 2005), ...

-General practice of growing mycelium by companies and hobbyists

-Knowledge on microbiology from scientists/experts in the field

-Comparison with similar products already in use or in development

Reflection

-Relation graduation topic & studio/BT/MSc AUBS:

The graduation is about acoustic performance, product development and the design of interior (office) spaces. Related to respectively Climate Design (BT), Product Innovation (BT) and Architecture.

-Relevance graduation in social/professional/scientific framework:

Current building products either use non-renewable or unsustainable source materials. Mycelium on the other hand can be composted and has a low ecological footprint. Mycelium materials are still in development and have a wide range of possible properties. This graduation project looks at how production/growth, material properties, design and the application in practice influence each other. The amount of research is also limited, so material tests have an increased relevance.