

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:

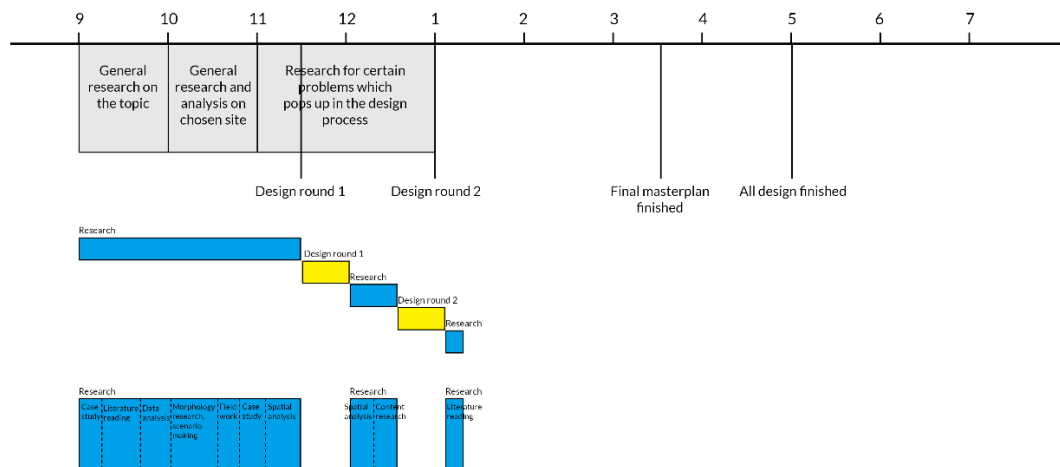
Personal information	
Name	Yuwei Zhao
Student number	5585015

Studio		
Name / Theme	Design of the Urban Fabric	
Main mentor	Rients Dijkstra	Section Urban design
Second mentor	Rodrigo Cardoso	Section Spatial Planning and Strategy
Argumentation of choice of the studio	This project is highly design-focused, its intended outcome will be design principle and strategy, and a set of urban design. Methodology wise, this project will mainly use a research-design hybrid methods. Therefore, it fits with Urban Fabric studio.	

Graduation project	
Title of the graduation project	A Reflection on Trendy Mix: designing sustainable mix in urban industrial areas, using M4H, Rotterdam as an example
Goal	
Location:	M4H, Rotterdam
The posed problem	Trendy mix is a type of popular mixed-use urban design that first appeared around 2005 and became fashionable after 2014. In these projects, to reach sustainability, designers mix innovative technology & design industries with high-quality housing and amenities. These projects have many problems. First, they are not socially sustainable because only certain work (highly educated jobs) and people are mixed. Second, they decrease a city's stableness and resilience. Trendy mixes are often built on urban industrial sites. They force out necessary industrial functions that are vital to the running of a city, such as food manufacturing and waste management, to either disappear or relocate to suburban areas. Third, there is a risk that designers blindly fall for trendy mix, especially when there is strong publicity behind it. PR package trendy mix in a way that highlights its advantages while hiding away its drawbacks. If designers cannot make objective decisions, we might produce an excessive number of trendy mixes that later turn into problems.
research questions and	What could a sustainable urban mix look like in the context of M4H, Rotterdam?
design assignment in which these result.	This project will explore the morphology, programme and design of sustainable urban mix through designing M4H. The intended outcome will be the design principle and strategy of sustainable urban mix, as well as a set of M4H design including masterplan, section, rendering and analysis diagrams.

Process

Method description



This project doesn't fit within the typical schedule with a fixed timeframe. When working on a project, for instance, the typical timeline is as follows: site analysis in March and April; research and fast design test in April to generate design principle and strategy; and the design in May and June. This fixed schedule is difficult to apply in this project. That is because in designs new problems arise. When you research those problems and add the results into the design, new possibilities that don't exist before you conduct the research will appear. Next, you might choose one of the new options for the design direction, but once more, new issues arise during that process.

Therefore, this project applies a research-design hybrid methodology. As shown in the figure above, the project has multiple phases of research & design, and a few fixed deadlines.

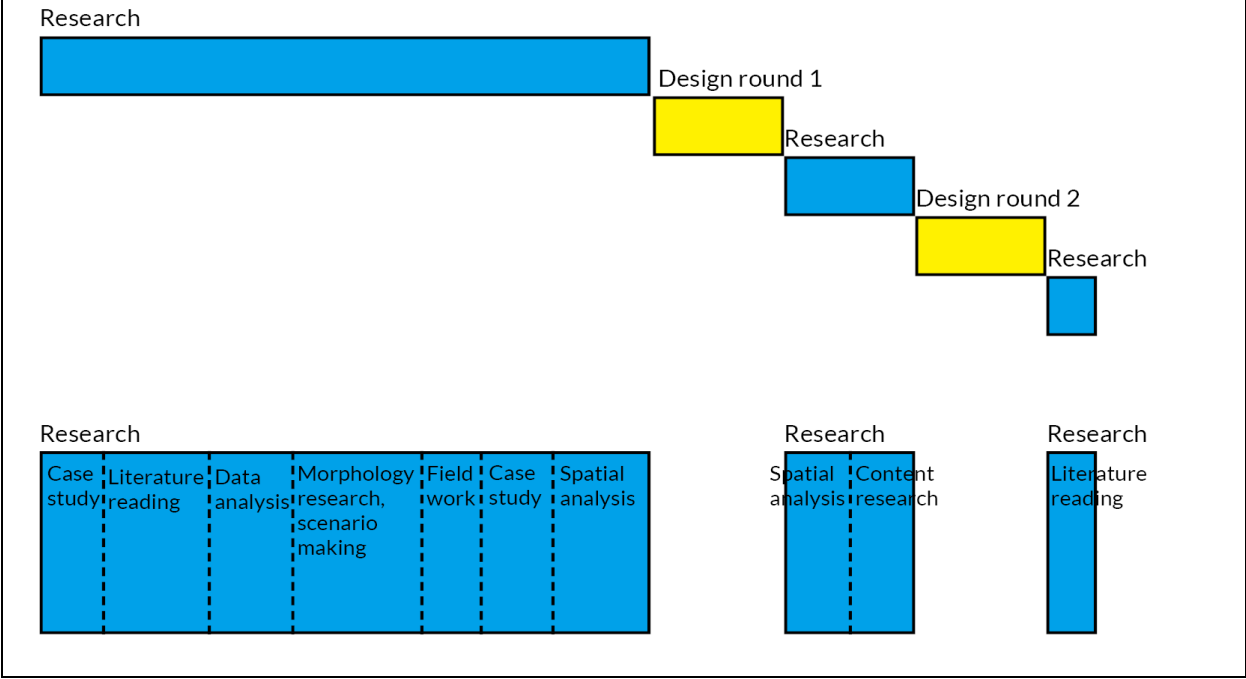
There are several reasons why there are multiple design phases. Firstly, to properly understand the research results' relationship to the site to combine and apply them in design. The second reason is to quickly test and refine the design. Finding a workable sustainable urban mix solution is the third reason. The purpose of deadlines is to push the project progressing forward.

The following table and picture list the research and design methods used before P2.

Time		Method	Content/Goal
September	Early	Case study of trendy mix	to study the basics of trendy mix, including timeline and geographical distribution, sustainability value, spatial pattern, programmes in the buildings. The goal of this research is to understand the general features of trendy mix and to find a good site.
	Mid	General Literature reading	to study the concepts related to trendy mix. Ideal city image(Lijnbaan is an earlier ideal city image, whereas trendy mix is a present one), technology transformation, and industrial revolution (when designing trendy mix, designers more or less consider the future or frontiers of work, which specifically related to technology)
	Late	Data analysis via Gis	to learn the general existing situation of the site, and that of the larger Rotterdam area.
October	Early	-	-

	Mid	Morphological research, scenario making	Studio essential. Study how M4H forms today's morphology (change in industry, urban tissue, different use of building, street, and public space), space in use, and drosscape. Scenario-making combines literature, concepts, and morphological research to make a first-design direction exploration.
	Late	Field work	Ethnographical mapping. Provisional understanding of how people use the site, and the environmental quality of it.
November	Early	Spatial analysis through Geo-urbanism approach	Analysing M4H from a geo-graphic approach. Understand the context from regional and territory aspects, forming a more than human and more than city landscape perspective.
	Mid	Case study of London modern mixes	Research London's modern urban mixes. London has some interesting cases because there are mixes designed after 2005, but doesn't belong to the trendy mix category. Yet those mixes achieved some of the goals that trendy mixes want to have. This research aims to find alternatives for trendy mix.
	Late	Design by research & research by design Round 1	Combine all the research and analysis to design future M4H. This aims to discuss what could be mixed into M4H. Okay, I don't want trendy mix, then what are you going to mix? Round 1 discuss that. Also through round 1, I form some design principles, which will be refined through further design and research. Design in round 1 is many quickly drawn options of mixes, then develop/discard based on arguments of each option. Finding one possible option, I quickly made a detailed design with road network, land use (what is mixed), and axis diagram.
December	Early	Spatial analysis of the context: industrial areas in Rotterdam Ring	Research the industrial areas in the Rotterdam Ring. How many are there, where are they located, and what industries and companies are there. The result is a mapping, a company list, and a categorization of industries in Rotterdam, from which I further get which industries will be in M4H, and which will be out.
	Mid	PR Reflection through content research	I gradually noticed that there is a PR pushing trendy mix to get more and more attention. Therefore, I research the PR material of some cases to understand which part of a trendy mix is the dazzling PR, and which part is the actual design. Two goals: first is to understand the real design part of the trendy mix to form a deeper reflection on it; second is to find an objective position as a designer, not fall into the trap of trendy mix.
	Late	Design by research & research by design Round 2	Based on new research results, I again drew 20 or so conceptual options of sustainable mix. The drawings show possible ways to mix work and living. After arguing and debating the feasibility of the options, I narrow them down to five good options. Then I sketched these schemes into road network and detailed landuses to debate which option works best. In the end, I chose one optimal option, and drew its axis diagram, from which I learned that there are several places in M4H that could be positioned as central areas. I picked one place and did some detailed design of that central area. Two goals: first is to form some logical and sustainable way of mixing living and work; second is to use detailed design to understand the site better for future fieldwork and site analysis.
January	Early	Christmas break	-
	Mid	Literature reading	on the history of urban mix, and the historical development of trendy mix, academic analysis of trendy mix (both compliments and critics)
	Late	Preparing P2	-

This picture shows how different research and analysis techniques are combined within one research period.



Literature and general practical references

Literature

Coupland, A. (2005). Reclaiming the city: Mixed use development. Routledge.

Croxford, B., Domenech, T., Hausleitner, B., Hill, A. V., Meyer, H., Orban, A., ... & Warden, J. (2020). Foundries of the future: A guide for 21st century cities of making.

Grant, J. (2002). Mixed use in theory and practice: Canadian experience with implementing a planning principle. *Journal of the American planning association*, 68(1), 71-84.

Hirt, S. A. (2016). Rooting out mixed use: Revisiting the original rationales. *Land Use Policy*, 50, 134-147.

Lane, R. N., & Rappaport, N. (Eds.). (2020). The design of urban manufacturing. Routledge.

Ryckewaert, M., Zaman, J., & De Boeck, S. (2021). Variable arrangements between residential and productive activities: conceiving mixed-use for urban development in brussels. *Urban Planning*, 6(3), 334-349.

Xu, M., David, J. M., & Kim, S. H. (2018). The fourth industrial revolution: Opportunities and challenges. *International journal of financial research*, 9(2), 90-95.

Practice references

No.	Name
1	Barbican centre, London
2	Brooklyn Navy yard, New york
3	CADIZ, Antwerp
4	Caxton works, London
5	Centre Sportif Jules Ladoumègue, Paris
6	Faraday works, London
7	Groot Handelsgebouw, Rotterdam
8	Hamerkwartier, Amsterdam
9	Jaarbeurs, Utrecht
10	Kensington depot, London
11	Lingotto Fiat Building, Turin, Italy
12	M4H, Rotterdam
13	Novacity, Brussel
14	Porte de la Chapelle, Paris
15	Strijp-S, Eindhoven
16	Strijp-T, Eindhoven
17	The Lake Square, Uppsala
18	Toni-Areal, Zurich
19	Triango, Paris
20	Werksviertel, Munich
21	Wick Lane, London
22	Zoho, Rotterdam
23	Les entrepôts Macdonald, Paris
24	Buiksloterham
25	Community land trust in Bijlmer
26	De wasserij
27	Keilepand
28	Buygivework Brixton, UK
29	Eilndje, Antwerp, Belgium

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)?

My topic fits with the studio topic very well, both its content (industrial area redesign is very interesting right now) and the methodology (design by research and research by design is the main method of the studio and even the master track). My graduation project combines the knowledge and techniques that have been taught in this master.

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

This project reflects on an important topic in the professional field – trendy urban mix. It can raise people's attention on this topic. Also, it equips me with lots of knowledge and experience in designing mix projects, which is a good tryout as a young designer, and also a valuable stepping stone for future professional work.