

# 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](mailto: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:

<b>Personal information</b>	
Name	Longyi Zhou
Student number	4775333

<b>Studio</b>		
Name / Theme	MSc. 3 Urban Architecture Graduation Studio	
Main mentor	Rosie van der Schans	Architecture
Second mentor	Lex van Deudekom	Building Technology
Third mentor	Eireen Schreurs	Research
Argumentation of choice of the studio	The studio this year deals with the question of ecology, under the pressure of housing crisis and urbanization. The social context and the unique site (Friche Josaphat) create fertile ground for imagination and novel architecture. The chair (Urban Architecture) which this studio falls under focuses on site-specific architecture, which encourages intensive reading into the site and fieldwork.	

<b>Graduation project</b>	
Title of the graduation project	Behaviorology in La Friche Josaphat – habitual engagement with climate through architecture
<b>Goal</b>	
Location:	Jardin Latinis in Friche Josaphat, Brussels
The posed problem,	The dichotomy of humans and nature has been established since civilisation with the first houses and villages, when “lines began to be drawn on lands”. Lines separated interiors and exteriors, ownerships, humans and nature, the “civilized” and the “savage” (Aureli et al., 2019). Nowadays, many buildings we see in Western Europe adopt the same anthropocentric visions. They utilise a generous amount of material to ensure an extremely high standard and comfort (Barber, 2020). Although

energy efficiency is crowned as sustainable, the higher comfort standard ultimately leads to higher energy consumption (Hill, 2012). And to achieve that, buildings are equipped with machines, installations, and devices, which cause additional damage as the earth is exhausted of minerals and metals. On the other hand, we see the condition of *smoothing*, which is discussed extensively by Boer (2023) in the *Smooth City*, whereas a city is curated with efficiency as priority. Smoothing eliminates all unpredictability, homogenizes, and excludes. The smooth city negates the inevitability of unhappiness by smoothing out any problems or injustice, instead of confronting them.

The negation of friction and unpredictability of smoothing is reminiscent of the elimination of the friction between the constructed and the natural climate. The friction and complexity of climate are smoothed out, through the symbolic "line" one draws. The line creates "easy unity of exclusion" rather than "difficult unity of inclusion" (Venturi, 1966, as cited in Hill, 2012). In the same way that cities are organized like large machines pumping flows of humans, buildings are made to be large devices that cut out any connection with the outside when a small sensor tells them to. Buildings thus prevent us from detecting a complete spectrum of non-human elements (Bennett, Aureli et al., 2019), focusing on the visual and showing a disinterest in the other senses (Hill, 2012).

A great deal of literature and architectural precedents explore

	<p>relationship between form and climate, such as the solar houses, passive houses, etc. Others highlight the role of nature by placing programmes outdoors, such as the open-air schools in Scandinavia and ones in the Netherlands. However, humans remain a sedentary figure in these cases. An active engagement is relatively less explored, while different thinkers such as Heidegger and Sennett highlight the existential significance of humans as carers, makers, and dwellers.</p>
<p>research questions and</p>	<p>How does the behaviorology of human, nature, and architecture manifest in Friche Josaphat across different scales? The urban- (Friche), the site- (Jardin Latinis), and the room-scale, specifically classrooms, due to the design assignment.</p> <ul style="list-style-type: none"> <li>- What is the ecology and climate of the Friche and what actors are involved?</li> <li>- What are the seasonal behaviors in Jardin Latinis and what kind of activities happen?</li> <li>- How are the climate conditions experienced by children during different types of activities in school?</li> </ul>
<p>design assignment in which these result.</p>	<p>The ecologically flourishing Friche Josaphat is vulnerable to urbanization. Although a new masterplan proposal can offer an alternative that protects the site's quality, it does not prevent future attempts at cleansing. At the same time, numerous schools in Brussels integrated the project "outdoor primary school", expressing a desire to educate responsible future residents, and to reconnect with nature. With eyes on the future, this thesis proposes a school building within the masterplan, where architecture becomes part of education, bringing climate back into the program</p>

	as part of life, ritual, and aesthetics, impacting the conditions of use and creating new habits. On the building scale, the school will have many different climate zones for different activities in different seasons. The floor plan can shrink and expand as climate conditions fluctuate. On a more detailed level, users are in charge of the climatization of the building through the manipulation of sunshades and ventilation. In such ways, architecture amplifies the presence of climate and stimulates inhabitants' habitual engagement with the climate.
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**Process**

**Method description**

The thesis begins with the posed problems of smoothening and human-nature dichotomy. To react to this problem, the thesis uses further literature studies and precedents to establish habits as a way to engage with climate. Using the framework inspired by Behaviorology (Atelier Bow-Wow, 2010), the research studies behaviors of humans and behaviors of climate through different time scales. Architecture design is then applied as the third kind of behavior, intermediating and facilitating the previous two. As the design assignment aims to complete a primary school design, the research will require findings specific to the primary user, children. Interviews and fieldwork will be conducted in several schools, exploring existing activities and habits and the interior climate in which they take place. Research is then conducted in the design location, looking for specific elements that provide ground for potential human engagements, such as the changing water level. This requires site visits during different climate conditions to explore different climatic contexts.

## Literature and general practical references

Several authors have discussed, although not using the same terms, a similar topic, and what the positive counterpart can look like to such antagonistic relationships. Numerous designers and authors have discussed the topic of architecture's role between human and nature.

J. Hill (2012) talks about weather and architecture while being inspired by the Smithsons. Alison & Peter Smithson attempted to reconnect with nature through architecture, resulting in the design of the Upper Lawn Pavilion. With some loss in comfort, one who lives in the pavilion experiences nature and weather to a fuller spectrum (Hill, 2012). From a pure functionalist point of view, it might be imperfect, but it is a strong statement regarding human's "reverence for the natural world". (Hill, 2012). Hill argues for an "active rather than sedentary engagement with the environment." Buildings become a "register of climate", emphasizing its effect on materials, impact on use conditions, and highlighting the hybrid aesthetics created by man-made objects and the elements.

Traditional Japanese houses, regardless of being built in a cold climate, are not insulated nor double-glazed all-round as opposed to Western principles of sustainable buildings, despite having lower energy consumption (Knowles, 2023). Many characterize completely open spaces towards the outside. Besides timber offering a reasonable amount of insulation, they are only partially heated. The heated dining table is the only warm place in the house, and residents would live more collectively during colder months. The flexible layout of this architecture shrinks and expands the living space with natural patterns. This position towards nature and fluctuating lifestyle, in this case, is expressed with an adaptive architecture. On warm days, the openness again welcomes nature inside, and residents live less compactly in the house (Knowles, 2023). Similar to a fireplace being the warm spot in the living room, or a bonfire, the warm space creates fond images for Western cultures alike.

Barber (2020) extensively talks about the phenomenon of air-conditioning as the manifestation of the human nature dichotomy, and what modern architecture looked like before air-conditioning. The book highlights architectural elements for climate control instead of devices. Notably, it asks the question if architecture can induce human habits and change human attitudes towards energy and fossil fuels through engagement with climate. Such engagement can be, for example, occupants manipulating sun shading devices by hand. When people's consciousness of nature becomes so strong, the engagement with it will then be integrated into one's daily actions (Barber, 2020).

More reading into the collection by Decroos et al. (2020) establishes how ecology influences aesthetic deliberations of architecture. They believe that architecture can be part of the solution to the environmental crisis, not through advancement in technical standards, but by reimagining an ecological culture that shapes people's minds. While the active human engagement with climate in buildings is relatively less

explored, different authors such as Heidegger (1927, as cited in Auret. H, 2019), Sennett (2018) and Whyte (1980) highlight the existential and social significance of humans as carers, makers, and dwellers. Behaviorology studies the intertwining relation of human behaviors, natural laws (behaviors of nature), and (behaviors of) architecture, aiming to achieve a new kind of 'organic' architecture (Atelier Bow-Wow, 2010). Tsukamoto and Kaijima, the founders, proposed introducing time scale when observing behaviors and rhythms. They further argue that form should support or be consistent with behaviors that already exist/in effect, allowing elements to behave optimally (Atelier Bow-Wow, 2010). This acts as a framework for research methodology, that is studying existing habits on different time scales.

Hence, the graduation research of this thesis sets out to investigate human behaviours, habitually influenced by the behaviour of climate. The design assignment seeks to propose how building synthesizes and facilitates the two.

### **Bibliography**

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

The graduation project responds to the studio topic by reconsidering the relationship between humans and nature.

The Friche Josaphat, lying between the pressure of ecological value and land value for development, inspired the curiosity of how nature and humans coexist in the Anthropocene. A great deal of literature and precedents have addressed a similar topic. However, most dwell on the relationship between architectural form and climate. The aspect of use, engagement, habit etc. remains relatively less explored.

As humans are always portrayed as passive, sedentary users inside a building, the thesis explores the possibility of humans actively engaging in shaping their environment, creating comfort, and with a heightened consciousness of nature.

Architecture can perhaps take part in solving the environmental crisis not by constant advancement in technology, but in shaping the habits and minds of the human.

As such, the design assignment of this graduation project will integrate human behaviour, the use, and building technology. The design will take into account that the user is no longer a mere "scale figure", but an active force adapting to the climate of outside and of the interior.