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	Ventsislav Kartselin
Student number	5483204

Studio		
Name / Theme	Architectural Design Crossovers	
Design mentor	Alper S. Alkan	Architecture
Research mentor	Cecilia Furlan	Urban Design
Building technology mentor	Jelke Fokkinga	Technical Building Design
Argumentation of choice of the studio	Growing up in a city where visible and invisible traces of history, culture, socioeconomics, and geography have been intertwined has developed my interest in the layers that compose our habitat. Seeing the world as a diverse network, aligned with the notion of heterogeneity as a pervasive factor in contemporary European cities, has been a driving force behind my choice of graduation studio. Furthermore, I saw the interdisciplinary framework as an opportunity to investigate urban complexity through new lenses.	

Graduation project	
Title of the graduation project	Urban (waste)lands. Revitalisation of marginalised urban land through hybrid architecture
Goal	
Location:	London, The United Kingdom
The posed problem,	
As urbanisation and population growth put increasing pressure on resources, we must rethink our building culture. With their high population density and fast-paced development, cities like London are particularly vulnerable to the negative impacts of carbon emissions and energy consumption. Therefore, the need to reduce the environmental impact of construction while continuing to meet the demands of urban growth has become an urgent challenge. Despite the growing awareness of the importance of sustainable construction, there still needs to be greater understanding of how to meet the high demand for new construction while striving for resilient environments.	

research questions and	How could (waste)lands emerge as a potential resource for the socially progressive and resilient future of the city?
design assignment in which these result.	

In the context of the research, the design response relies on the concept of "hybrid architecture", referring to a concept incorporating multiple different functions, materials, and forms in order to provide a unique and innovative solution. The hybridity is seen not only as an architectural approach, but as an overarching concept, infiltrating the project from micro to the macro. On the urban scale the idea is based on the repurposing, remedifying, and stratifying marginalised sites, shifting the architectural discipline towards the appreciation of the palimpsest rather than the tabula rasa. At the same time the proposal facilitates a new material culture, juxtapositioning reclaimed and non-extractive, renewable materials with the purpose of exploring the potential and challenges of carbon- and energy positive buildings in London. With this design agenda, the project relies on a hybrid framework that can perform a variety of tasks and be accessed by a wide range of user groups while re-imagining and revitalisting the site conditions through sustainable technologies, materials, and systems.

Process

Method description

The topic of (waste)lands is already tackled in scientific fields, such as urban planning, geography, social sciences, and more recently, urban ecology and soil science.[1] Nevertheless, from a methodological perspective, and going beyond semantic reflections what remains under-researched is how designers (architects, urban planners, engineers) can react to those findings and how could design tools become capable of reviving the potential of the (waste)land approaching it through a paradigm shift of a non-extractive future. Therefore, for my research, I would rely on a mixed-methods approach, including both qualitative and quantitative research methods, with varying scale levels and analytical capacities. Divided into micro (the material), meso (the area of the potential site and the city), and macro (regional scale), the tools become useful for the telescopic analysis of flows and space. The compiled information will be communicated through maps, diagrams, aerial photos, and charts. The maps would play a key role in that only after going through case-specific operations such as selecting, synthesising, combining, and processing existing features. By translating flows into the built environment and the urban realm, a pattern of qualitative or quantitative information that would otherwise be undetectable on the ground might potentially be revealed.[2]

Additionally, reaching out to researchers, public partnerships and private companies has given me a more balanced view on the topic of waste and construction and demolition materials. Understanding that the existing database only provides an ephemeral snapshot of reality, the meso analysis of the data, quantitative and qualitative, would focus mostly on the areas which are included in the future ambitions of the city. Additionally, as part of the macro analysis using data by the city administration could supposably reveal dominant material categories and flows in the defined territory; economic activities and actors that are involved in the material flow system; and the locations where is a concentration of flows related to waste in the city. It is important to look at and incorporate in the analysis the official plans related to the ambitions that the city has in terms of its self-sustaining capabilities. This could reveal potential sites for the design, which would be aligned with the urban development plans. The change of economic cycles that London has gone through can be shown

[1] Francesca Di Pietro, Urban Wastelands (Cham: Springer International Publishing, 2021), http://dx.doi. org/10.1007/978-3-030-74882-1. 5

[2] Furlan, Cecilia, Alexander Wandl, Chiara Cavalieri, and Pablo Muñoz Unceta. “Territorialising Circularity.” unknown, February 7, 2022. https://www.researchgate.net/publication/ 358436731_Territorialising_Circularity.

through maps and diagrams, how production-related buildings and areas associated with different stages of development overlap or change. It could also answer the question of whether there is a tendency to use existing sites rather than start new ones and what circumstances lead to one or the other. The “choreography” of the earlier phases of capitalist urbanisation and infrastructural expansion could also play an important role in the analysis of contemporary urban and material ecologies. Chosen case studies with focus on examples of sustainable construction projects that have utilised urban (waste)lands, but also in which reclaimed, and bio-based material played a critical role, have been researched.

This multifaceted approach will provide a comprehensive understanding of the potential and challenges of using (waste)lands as material and land banks in carbon positive construction in cities like London.

Literature and general practical preference

To achieve an overall understanding of both the notions of waste and land the research began with studying of those primary resources:

Amenta, Libera, and Arjan van Timmeren. “Beyond Wastescapes: Towards Circular Landscapes. Addressing the Spatial Dimension of Circularity through the Regeneration of Wastescapes.” Sustainability 10, no. 12 (December 12, 2018): 4740. https://doi. org/10.3390/su10124740.

Bakshi, Anita, and Frank Gallagher. “Design with Fourth Nature.” Journal of Landscape Architecture 15, no. 2 (May 3, 2020): 24–35. https://doi.org/10.1080/18626033.2020.18 52690.

Belanger, Pierre. Landscape as Infrastructure: A Base Primer. Routledge, 2016.

Berger, Alan. Drosscape: Wasting Land Urban America. Princeton Architectural Press, 2007.

Bertagna, Alberto, and Sara Marini. The Landscape of Waste. Skira - Berenice, 2011.

Brenner, Neil, and Nikos Katsikis. “Operational Landscapes: Hinterlands of the Capitalocene.” Architectural Design 90, no. 1 (January 2020): 22–31. https://doi.org/10.1002/ ad.2521.

Furlan, Cecilia “Unfolding Wasteland:,” in Mapping Landscapes in Transformation (Leuven University Press, 2019), 131–48, http://dx.doi.org/10.2307/j.ctvjsf4w6.8.

Clément, Gilles. Manifest Der Dritten Landschaft. Merve Verlag Berlin, 2010.

Corboz, André. “The Land as Palimpsest.” Diogenes 31, no. 121 (March 1983): 12–34. https://doi.org/10.1177/039219218303112102.

Di Pietro, Francesca . Urban Wastelands. Cham: Springer International Publishing, 2021. http://dx.doi.org/10.1007/978-3-030-74882-1.

Douglas, Mary. Purity and Danger: An Analysis of Concepts of Pollution and Taboo. Routledge, 2013.

Gandy, Matthew. “Marginalia: Aesthetics, Ecology, and Urban Wastelands.” Annals of the Association of American Geographers 103, no. 6 (November 2013): 1301–16. https://doi. org/10.1080/00045608.2013.832105.

Ghosn, Rania, and El Hadi Jazairy. “Geographies of Trash.” Journal of Architectural Education 68, no. 1 (January 2, 2014): 68–81. https://doi.org/10.1080/10464883.2013.817 179.

Lynch, Kevin. Wasting Away. Random House (NY), 1990.

Marini, Sara. “The Architecture and the Value of the Waste.” In Carbon Footprint and the Industrial Life Cycle, edited by Rodrigo Martínez, 391–406. Cham: Springer International Publishing, 2017. http://dx.doi.org/10.1007/978-3-319-54984-2_18.

Moore, Sarah A. “Garbage Matters.” Progress in Human Geography 36, no. 6 (March 13, 2012): 780–99. https://doi.org/10.1177/0309132512437077.

Sheppard, Lola, and Mason White. “States of Disassembly.” In Imminent Commons: The Expanded City: Seoul Biennale of Architecture and Urbanism 2017. Actar D, Inc., 2017.

Tuin, Iris van der, and Nanna Verhoeff. “Dirt“ in Critical Concepts for the Creative Humanities. Rowman & Littlefield, 2021.

Additionally, to explore the potential of reclaimed and cultivated materials, and the necessary for those new tectonics and conception, another set of readings and practical references were researched.

Literature:

Caviar, Space. Non-Extractive Architecture: On Designing Without Depletion. MIT Press, 2021.

Hebel, Dirk E., Marta H. Wisniewska, and Felix Heisel. Building from Waste: Recovered Materials in Architecture and Construction. Birkhäuser, 2014.

Hebel, Dirk E., and Felix Heisel. Cultivated Building Materials: Industrialized Natural Resources for Architecture and Construction. Birkhäuser, 2017.

Heisel, Felix, and Dirk E. Hebel. Urban Mining Und Kreislaufgerechtes Bauen.: Die Stadt Als Rohstofflager., 2021.

Hillebrandt, Annette, Petra Riegler-Floors, Anja Rosen, and Johanna-Katharina Seggewies. Manual of Recycling: Gebäude Als Materialressource / Buildings As Sources of Materials. Detail, 2019.

Fitz, Angelika, Elke Krasny, and Architekturzentrum Wien. Critical Care: Architecture and Urbanism for a Broken Planet. MIT Press, 2019.

Material Cultures, and Amica Dall. Material Reform: Building for a Post-Carbon Future. MACK, 2022.

Mostafavi, Mohsen, and David Leatherbarrow. On Weathering: The Life of Buildings in Time. MIT Press, 1993.

Pearlmutter, David, Dimitra Theochari, Thomas Nehls, Pedro Pinho, Patrizia Piro, Alisa Korolova, Spiros Papaefthimiou, et al. “Enhancing the Circular Economy with Nature-Based Solutions in the Built Urban Environment: Green Building Materials, Systems and Sites.” Blue-Green Systems 2, no. 1 (December 3, 2019): 46–72. https://doi.org/10.2166/bgs.2019.928.

Rau, Thomas, and Sabine Oberhuber. Material Matters: Developing Business for a Circular Economy. Taylor&Francis, 2022.

Ruby, Ilka, and Andreas Ruby. *The Materials Book*. Ruby Press, 2021.

Among others, these are some of the practices which are incorporating in their project state-of-the-art approaches in relation to a non-extractive material culture:

Amateur Architecture Studio, China
BC Materials, Belgium
In-situ, Switzerland
Lendager, Denkmark
Leth & gori, Denmark
Material Matters, UK

Additionally, some of the aforementioned literature is at its core a reflective collection of built and conceptual projects.

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)?

Resulting from processes of urbanisation and deurbanization, growth and shrinkage, (waste)lands occur as a by-product of the dynamics related to the city. Their appearance as a social, ecological, economic, political, and architectural construct at various territorial scales necessitates a multidisciplinary reading to comprehend their complexities. Their presence becomes more significant in the context of high-paced and densely urbanised environments. As a result, London may be perceived as the most extreme case in Europe and the most suitable case study in the context of the graduation project. Having that in mind the Architectural Design Crossover studio "Heterogenous city: London" reflects most closely my initial fascination and some of the most critical global challenges.

Rethinking the concept of waste and wasting also introduces the project to the topic of reuse and rethinking of existing materials in cities. Thus, (waste)lands appear not only as land but also as a material bank. Understanding the opportunities and challenges in the work with reclaimed building materials, elements and buildings goes in line with the state-of-the-art sustainable thinking, critical part of the agenda at the TU Delft. Furthermore, addressing the potentials for reducing the environmental impact of buildings by investing more care in how we deal with our "imminent commons"[3] such as raw materials, water, soil, and air is consistent with the 2030 Agenda for Sustainable Development, which was adopted by all United Nations Member States in 2015.

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

In the light of the continuously shifting demographics, socioeconomic shifts of power, climate change, resource scarcity, and rapid urbanization, the world is faced with a challenge that must be addressed with ever greater urgency. The potential that designers and engineers have could be as mediating and actively expressing agents, bridging the gaps between decision-making parties and research institutes.

In this case, the research on (waste)lands and the use of non-extractive and recycled materials in architecture can contribute to reducing the environmental impact of buildings and creating healthier and more livable spaces for communities. It could become a proof-of-concept for a new building culture, allowing for future inspiration and replications for cases with similar conditions.

3 Imminent Commons: The Expanded City: Seoul Biennale of Architecture and Urbanism 2017, edited by Alejandro Zaera-Polo. Actar D, Inc., 2017.