

# 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:

Personal information		
Name	Nicoleta Cozma	
Student number	5603684	

  

Studio		
Name / Theme	Revitalizing Heritage: Zero Waste Church	
Main mentor	Catherine M.N. Visser	Architecture (Heritage & Design)
Second mentor	Anet Meijer	Building Technology
Third mentor	Wido Quist	Research (Heritage & Technology)
Argumentation of choice of the studio	<p>The choice of this studio as my graduation subject was straightforward. I've always been fascinated by heritage and the adaptability of older buildings to embrace new functions. A part of this fascination was also linked to the aesthetical aspect of the buildings, but also to the history they represent. However, further into my studies I've come to understand that, as a designer, I enjoy much more working with something pre-existing. It also happens that during one BA philosophy course, the teacher told us a phrase that just made sense to me: in 10 years, new buildings will become obsolete. It is indeed one of my convictions that anything new is only a reinterpretation of the already existing, therefore there is no more need of power showcasing through architecture. This is especially valid in the current climate context. Re-utilizing the existing heritage happens to be, as the course description mentions, the best way towards sustainable design. I believe sustainability should not be a question in architecture anymore, but a prerequisite for everything we build. Learning to work with heritage in order to create modern spaces that respond to modern lifestyles is the key towards sustainability. The emphasis this course puts on circularity was therefore also of extreme importance for my choice.</p> <p>To continue, I found that the theme of a residential program in a religious heritage building is, of course, very pertinent for the Dutch situation, but also could represent the future of more European countries that face rapid urbanization. This would mean that, indeed, in the future,</p>	

	the need to revitalize already existing buildings will be more sought for, which would also lead to the need of handling heritage.
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<b>Graduation project</b>	
Title of the graduation project	Nature meets the human soul
<b>Goal</b>	
Location:	Nieuwendammerdijk 227, 1025 LK Amsterdam, Netherlands
The posed problem,	How can the re-design of religious neo-gothic architecture assist in the reinforcement of spirituality towards nature?
research questions and	<ol style="list-style-type: none"> <li>1. Why is an eco-oriented design approach important nowadays?</li> <li>2. What are the main characteristics of biophilic design, and in what way is vernacular heritage intrinsically biophilic?</li> <li>3. What are the links between spirituality, biophilic architecture and the feeling of wellness?</li> <li>4. What is the place of biophilic design in a zero-waste redesign framework?</li> </ol> <p>What are the characteristics of neo-gothic churches that are generally valuable?</p> <ol style="list-style-type: none"> <li>5. In what ways is neo-gothic religious architecture incorporating biophilic ideas?</li> <li>6. What are the biophilic elements that neo-gothic churches lack?</li> </ol>
design assignment in which these result.	Redesigning the Augustinus church in Nieuwendammerdijk, Amsterdam, as a biophilic building that is not interrupting the ecosystem, but is, on the contrary, treated as one of its parts.
<b>Process</b>	
<b>Method description</b>	
The theoretical research will be based on thematic literature around the theory of biophilic design. This will help identify pre-existing biophilic ideas in neo-gothic churches, but also the lack thereof. The design process will strive to understand	

spatially how these qualities can be improved, and present an alternative way of building that also supports the values of the monument.

First of all, the idea of biophilic design will be defined, having as a main source the book "Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life" by Kellert S.R. et al.

As a result, the attributes of biophilic design will be identified in the Augustinus church, as a case study. This work will be illustrated through a series of schemes. This compilation will further be the basis of the redesign process.

For the redesign, the general mindset is to look at the building as part of the existing ecosystem that has been shaped until now. This way I will be proposing an alternative way to look at heritage, as not only the building by itself but also as the urban, ecological environment that was created through time. Hand-in-hand with the attributes of biophilic design, respecting the local biodiversity will reshape the church in a space that is both respectful for the existing and for the future use. For this, different designs will be tested in a 1/50 model. The impact of the redesign variants will be measured through their incidence on the existing biophilic situation and spatial quality. For this, a framework with different characteristics will be created. Finally, the best variant will be identified and implemented in a final design, supported by a theoretical redesign framework in the shape of the research paper.

## **Literature and general practical preference**

The scientific literature that will be used in this graduation project is based on the theory of care, wellness and nature, the concept of biophilia and biophilic design, ideas of eco-philosophy and eco-psychology, and their link to the idea of spirituality, defined not as a religious idea but more as an inherent link between people and nature.

The main sources to be consulted are:

### *Books:*

1. Wilson E.O. (1984) Biophilia, Harvard University Press
2. Beatley, T. (2011) Biophilic Cities: Integrating Nature Into Urban Design and Planning
3. Kellert S.R., Heerwagen, J., Mador, M., (2011) Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life. John Wiley & Sons
4. Kellert, S.R. (2018) Nature by Design: The Practice of Biophilic Design, Yale University Press
5. Berto, R., Barbiero G., Barbiero, P. and Senes G. (2018) An Individual's Connection to Nature Can Affect Perceived Restorativeness of Natural Environments. Some Observations about Biophilia, from Behavioral sciences
6. DeSilvey, C. (2017) Curated Decay: Heritage Beyond Saving, University of Minnesota Press
7. Barasch, D (2019) Ruin and Redemption in Architecture, Phaidon Press
8. Nadarajah M., Yamamoto A. T., (2007) Urban crisis: culture and the sustainability of cities, United Nations University Press

9. Flowers, B. (2014) *Architecture in an Age of Uncertainty*, Ashgate Publishing, Ltd
10. Fitz, A., Krasny, E., Architekturzentrum Wien (2019) *Critical Care: Architecture and Urbanism for a Broken Planet*, MIT Press
11. Coles, R., Costa, S., Watson, S. (2018) *Pathways to Well-Being in Design: Examples from the Arts, Humanities and the Built Environment*, Routledge
12. Hes, D., Du Plessis C., (2014) *Designing for Hope: Pathways to Regenerative Sustainability*, Routledge

Articles:

13. Bock, N. "An Eco-theology: Toward a Spirituality of Creation and Eco-Justice", *CrossCurrents* Vol. 63, No. 4, Toward an eco-theology (2013), pp. 433-446 available online at:  
[https://www.jstor.org/stable/24462313#metadata\\_info\\_tab\\_contents](https://www.jstor.org/stable/24462313#metadata_info_tab_contents)
14. Ramzy, N.S. (2015), "Biophilic qualities of historical architecture: In quest of the timeless terminologies of 'life' in architectural expression" from *Sustainable Cities and Society*, issue 15 pp. 42–56
15. Shojazadeh H.R., Kazemi M., Shafizadeh A.A(2014) *Environmental Psychology in Architecture and Urban Design*, from *Research Journal of Recent Sciences*, Vol. 3(5), pp. 116-120
16. Bethelmy L.C., Corraliza José A (2019) *Transcendence and Sublime Experience in Nature: Awe and Inspiring Energy*, *Frontiers in Psychology*, vol. 10
17. Patuano A. (2020) *Biophobia and Urban Restorativeness*, *Landscape Architecture and Spatial Planning Group*, Wageningen University & Research
18. Coburn A., Kardan O., Kotabe H., Steinberg J., Hout M.C., Robbins A., MacDonald J., Hayn-Leichsenring G., G. Berman M.G. (2019) "Psychological responses to natural patterns in architecture", from *Journal of Environmental Psychology*, issue 62 pp. 133–145
19. Joye, Y. (2007) "Architectural Lessons From Environmental Psychology: The Case of Biophilic Architecture", from *Review of General Psychology*, Vol. 11, No. 4, 305–328
20. Shojazadeh H.R., Kazemi M., Shafizadeh A.A(2014) *Environmental Psychology in Architecture and Urban Design*, from *Research Journal of Recent Sciences*, Vol. 3(5), pp. 116-120
21. Ghom, Pashmeena Vikramjit; George, Abraham (2021). 'Dynamics of Performing Aesthetics in Architecture: A Critical Study'. *VITRUVIO – International Journal of Architectural Technology and Sustainability*, 6(2), pp. 82-101.
22. Bernard OSB Sawicki (2019) "Monastic architecture as a bridge between ecology and spirituality: A case study of a Benedictine monastery in Clerlande, Belgium", from *A Visual Approach to the Study of Religious Orders*, Routledge
23. El Hussein A.M, El Hussein A.A, *Spirituality and Social Values vs. Material Formalism: An approach to a human architecture* (2012), presented at ASIA Pacific International Conference on Environment-Behaviour Studies Mercure Le Sphinx Cairo Hotel, Giza, Egypt, 31 October-2 November 2012
24. Birch R, Sinclair B.R,(2013) *Spirituality in Place: Building Connections Between Architecture, Design, and Spiritual Experience*

25. Mukhametzyanova, L. R., Yao M.K., Emanova, J.G., Pozdnyakova K.G. (2017) Neogothic Space Interpretation, from Helix Vol. 8(1)
26. Vyas, L. (2022) "New normal" at work in a post-COVID world: work-life balance and labor markets, from Policy and Society, Volume 41, Issue 1, Pp. 155–167,  
Available online at: <https://doi.org/10.1093/polsoc/puab011>
27. Newbold, J. W., Rudnicka, A., Cook, D., Cecchinato, M.E., Gould S.J.J., & Cox A.L. (2022) "The new normals of work: a framework for understanding responses to disruptions created by new futures of work" from Human-Computer Interaction, pp. 508-531
28. Palgi Y., Shrira A., Ring L., Bodner E., Avidor S., Bergman Y., Cohen-Fridel S., Keisari S., Hoffman Y. (2020) "The loneliness pandemic: Loneliness and other concomitants of depression, anxiety and their comorbidity during the COVID-19 outbreak." J Affect Disord  
available online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7330569/>
29. Robb C.E., de Jager C.A., Ahmadi-Abhari S., Giannakopoulou P., Udeh-Momoh C., McKeand J., Price G., Car J., Majeed A., Ward H., Middleton L. (2020), "Associations of Social Isolation with Anxiety and Depression During the Early COVID-19 Pandemic: A Survey of Older Adults in London, UK", from Frontiers in Psychiatry vol. 11  
available online at:  
<https://www.frontiersin.org/articles/10.3389/fpsyt.2020.591120>
30. Berto, R., Barbiero G., Barbiero, P. and Senes G. (2018) An Individual's Connection to Nature Can Affect Perceived Restorativeness of Natural Environments. Some Observations about Biophilia, from Behavioral sciences
31. Martínez-Soto J., de la Fuente Suárez L.A., Ruiz-Correa S. (2021) Exploring the Links Between Biophilic and Restorative Qualities of Exterior and Interior Spaces in Leon, Guanajuato, Mexico.

#### Videos:

32. Using biophilic design to heal body, mind, and soul  
Available online at:  
[https://www.youtube.com/watch?v=uAmbZCtNC9U&ab\\_channel=TEDMED](https://www.youtube.com/watch?v=uAmbZCtNC9U&ab_channel=TEDMED)
33. Biophilia, the future of architecture | Matthias Olt | TEDxSeattle  
Available online at:  
[https://www.youtube.com/watch?v=OXZzsty5BGY&ab\\_channel=TEDxTalks](https://www.youtube.com/watch?v=OXZzsty5BGY&ab_channel=TEDxTalks)

#### Sites:

34. Environmental ethics  
Available online at: <https://plato.stanford.edu/entries/ethics-environmental/#WilBuiEnvPovPol>
35. Choosing sufficiency for greater fulfillment and satisfaction  
Available online at: <https://ec.europa.eu/research-and-innovation/en/horizon-magazine/choosing-sufficiency-greater-fulfillment-and-satisfaction>

36. Bat populations suffering under church closures

Available online at: <https://nltimes.nl/2022/10/27/bat-populations-suffering-church-closures>

37. Housing crisis

Available online at: <https://dutchreview.com/expat/housing/why-is-there-a-housing-shortage-in-the-netherlands-the-dutch-housing-crisis-explained/>

## 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 graduation project handles directly the vast problem of heritage at risk of demolition, the Dutch residential crisis, and the urgency of change in the construction field. My case study, the Augustinus church, is a building currently without use. Its redesign into a residential building will preserve the homely feel of its environment, while offering a biophilic alternative to the day to day life of its inhabitants. It strives to improve the connection people have with their natural environment, handling the building not as a separated element, but as part of the urban ecosystem. Because of this, it is strongly linked with the Architecture master track, as it questions the status quo of how we build.

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

As it is currently evident, a change needs to take place in the building system. The pandemic has shown that our buildings can directly impact our mental health, and current data shows proof of the fact that the climate urgency is more urgent than ever. With my graduation work, I try to put emphasis on the fact that we need to change our mindset in how and why we build. My take is that we need to build sustainably, with respect towards both the inhabitants of the building, but also our environment. It so happens that multiple studies have shown the importance of nature for our wellbeing. The theory of biophilia and biophilic design are not new, however, put into our current context, it seems that this is what we need in order to start restoring our planet. With the vast amount of churches being decommissioned in the Netherlands nowadays, big, prominent pieces of buildings are becoming vacant, and are often times demolished. If the most sustainable way of building is reusing an existing structure, then this is an opportunity that shouldn't be missed. All this considered, there is currently not much work that describes biophilic ideas put into practice. This is why, as a final result, this project should compile information that creates a framework to be used for the future re-design of neo-gothic churches. It would create a better understanding of the ways these types of buildings were built to respect nature, and will propose an alternative to the status quo of modern construction. The final design should not only

obey the modern building standards and regulations, but also improve its inhabitants' wellbeing, connection with their environment and should approach nature with respect through the use of biophilic design concepts. With the end design making use of a maximal number of natural elements, it should also be a self-regulating building, and thus a circular one.

The notion of zero-waste shall be englobed through the maximal preservation of pre-existing biophilic elements. In addition, since the Augustinuskerk is, as other neo-gothic churches are - a national monument, the redesign should also respect the values represented by the building itself.