

Summer School on Circularity in the Built Environment

Faculty of Architecture and the Built Environment at TU Delft

10 - 12 July 2022



Intro

Transitioning to a Circular Built Environment is a challenging task. In the Netherlands, the government's plan is to reduce the use of primary resources by 50% as soon as 2030 and to turn fully circular by 2050. Building industry, policy makers, planners and practitioners are now directing their efforts towards minimizing consumption while maximizing chances of reuse. The shift to a Circular Built Environment, however, requires a new mindset as well as a cooperative approach at all scales with all interested and affected parties. Innovations and the knowledge created should therefore be openly and widely shared and constantly evaluated.

The Circular Built Environment Hub (CBE Hub) of the Faculty of Architecture and the Built Environment at TU Delft hosted the first edition of the Summer School on Circularity in the Built Environment from 10 to 12 July 2022. Students from all levels of education (BSc, MSc) as well as PhD researchers and professionals participated in a 3-day intensive workshop. The workshop focused on the topic of scales in the context of the area of Binckhorst.

Overview

Decisions for the development of the built environment are usually based on economic criteria and are expedited by spatial and temporal emergencies and/or restrictions.

Circularity is offering a new set of values that are not only economic or environmental, but also strategic in terms of space planning and the politics of space.

The Summer School builds on TU Delft and CBE Hub experience and expertise to further explore how circularity can contribute to our understanding and managing of the complexity of the built environment. We will monitor how circularity reshuffles priorities and how that ultimately impacts decision-making, meaning and power distribution amongst the multiple stakeholders involved.

We at the CBE Hub consider circularity to cross all scales: from materials; to components and to buildings and from neighbourhoods; to cities and to regions.

What we claim is that the change circularity calls for is systemic, and therefore situated in the entanglement of each scale with the six aspects of technology, management, design, economy, resource flows and the dynamic relations of all stakeholders involved.

Focus

We will focus on the topic of scales. Together, we will identify the synergies between the scales and aspects as shown in the CBE Hub diagram and thus map in detail how each scale ultimately contributes to the transition to a Circular Built Environment.

You will have the opportunity to deepen your understanding of the theoretical aspects of circularity and CE and to learn from current examples from practice. You will also be required to contextualise this knowledge in Binckhorst, a district in the Hague that aspires to become an exemplary circular redevelopment for South Holland with mixed residential-commercial and industrial uses.

Binckhorst will provide the space canvas for our reasoning. How does circularity -as it currently manifests at the different scales- ultimately affect planning decisions? Can production and consumption of buildings and building products be handled locally? When it comes to a CBE, can we create self-sufficient communities? To what extent do actions in one place affect others, and vice versa? The urgency of the matter has been further enhanced by the recent pandemic: what if we could no longer import the products we need and export the ones we no longer want? Can circularity help us tackle the uncertainty of our current global production networks? Can it guide our planning for what we cannot control?

Organisers & partners

TU Delft is one of the world's leading schools of Architecture and the Built Environment. Circularity features as one of the school's key educational themes and CBE Hub - established already since 2017- brings together researchers from all departments interested and/or invested in the topic of circularity. Counting more than sixty members already, CBE Hub supports circular research initiatives and educational activities at all levels of education.

The Summer School is organised by:

Tillmann Klein is Professor Building Product Innovation at the Delft Technical University. He leads the Circular Built Environment Hub at the Faculty of Architecture and the Built Environment and he is editor in chief of the scientific open access "Journal of Façade Design and Engineering".

Olga Ioannou is Assistant Professor at the Architectural Engineering + Technology Department of Faculty of Architecture and the Built Environment at TU Delft. She is also member of the CBE Hub Steering Committee with a specific focus on supporting the integration of circularity in education.

Bob Geldermans has been involved in research and education at TU Delft, Faculty of Architecture & the Built Environment, since 2011. His main focus is on regenerative resource systems. He is a member of the CBE Hub steering committee and the Campus Real Estate Sustainability Team at TU Delft, and Guest Professor at the University of Antwerp, Faculty of Design Sciences.

Karel Van den Berghe is Assistant Professor in Spatial Planning and Urban and Regional Economy at the TU Delft and lecturer at the Erasmus University Rotterdam. Next to his academic education and research, he is part of different strategic expert advisory groups in The Netherlands, Belgium and for the EU.

Programme

DAY 1 | FOCUS ON BINCKHORST

Morning: Lectures & Discussion / Afternoon: Visit to Binckhorst in den Haag

Day 1 is dedicated to getting to know Binckhorst. The area will provide the canvas for our reasoning about scales as it aspires to become an exemplary circular redevelopment for South Holland with mixed residential and industrial commercial uses. But how does the increasing need for more housing affect planning in terms of circularity? Our guests on that day will introduce participants to the notion of circularity and will discuss what its current limitations are. An organized visit to Binckhorst will take place in the afternoon after the lunch break.

DAY 2 | FOCUS ON SCALES

Morning: Lectures & Discussion/ Afternoon: Workshop

CBE Hub research considers circularity to cross all scales: from materials; to components and to buildings and from neighbourhoods; to cities and to regions and situated in the entanglement of each scale with the six aspects of technology, management, design, economy, resource flows and the dynamic relations of all stakeholders involved. DAY 2 sessions aspire to steer attention to the interdependence of scales. A number of selected guests will discuss all scales from materials all the way to regions. During the afternoon workshop, participants will contextualize this input specifically for Binckhorst.

DAY 3 | FOCUS ON CREATING SYNERGIES

Morning: Lectures & Discussion/ Afternoon: Workshop

Day 3 is dedicated to examining models of cooperation within the circular built environment. How does the systemic character of circularity manifest amongst stakeholders? Can there be new types of collaboration and what are the requirements for such collaborations to succeed? Our guest lecturers will showcase examples of synergistic alliances at neighbourhood and at city scale. A second workshop will follow in the afternoon: participants will engage in identifying circular scenarios for the future development of Binckhorst.

Invited Guests and Lecturers

DAY 1 | FOCUS ON BINCKHORST



Olga Ioannou is Assistant Professor at the Architectural Engineering + Technology Department of Faculty of Architecture and the Built Environment at TU Delft. She is also member of the CBE Hub Steering Committee with a specific focus on supporting the integration of circularity in education.



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DAY 2 | FOCUS ON SCALES



Arjan van Timmeren is full professor Environmental Technology & Design at TU Delft, Faculty of Architecture and the Built Environment, Department Urbanism. Besides he is Scientific Director of Resilient Delta Initiative in Rotterdam, Academical Portfolio Director ‘Sustainable Cities’ for the TUD Extension School for continuing education, and was (co)founding Scientific Director, and now Principal Investigator at AMS Institute in Amsterdam. His work focuses on sustainable development in the built environment, with emphasis on Urban Metabolism, Circular and Biobased Economy, Resilient Water and (delta)strategies, -Urban Climate & environmental behaviour, and Nature based technologies. He leads several (inter)national projects and has seats in (inter)national steering groups, quality teams and scientific boards.



Alexander Wandl is an Urbanist and Associate Professor at the Chair of Environmental Technology and Design at the Faculty of Architecture and the Built Environment, Delft University of Technology. His research focuses on developing sustainable urbanization, using an extended territorial metabolism approach and integrating (GIS-supported) methods and tools from different disciplines. As scientific coordinator of the Horizon 2020 financed research project REPAiR - Resource Management in peri-urban areas - he is at the forefront of developing spatial strategies, which support the transition towards more circularity.



“
If we don't change
the rules producing
unwanted
outcomes, we will
get the same
outcome.
”

Ellen Van Bueren

Ellen van Bueren is professor of Urban Development Management at the Faculty of Architecture and the Built Environment at TU Delft. With a background in public administration and planning, she focuses on the governance, management and decision-making for a sustainable built environment. Working from a socio-technical-ecological systems perspective, she is focusing on topics as circular economy and the circular development of the built environment and climate adaptation of the built environment. Ellen has advisory board member positions at public and private organisations and is involved in MSc programmes. She is also member of the Reflection Group for the Circular Economy at the Socio-Economic Council (SER) advising the Dutch government and parliament.



“
While the intention
to build net-zero
carbon may be there,
various barriers that
exist make this not
so easy in practice
”

Ben Croxford

Ben Croxford received his PhD, from University of Westminster in 1994. He has been working in the area of sustainability at UCL for many years including running the Masters in Environmental Design and Engineering programme for 6 years. His research covers the broad area of sustainable environmental design and includes projects on air quality, and more recently urban manufacturing. He is one of the co-founders of UCL's Circular Economy Lab. Current research interests include low carbon retrofits and enabling independent living for an aging population.



“Circularity is an unsustainable, expensive hobby and also the future of building.”

Sol van Kempfen

Sol van Kempfen is representing Sustainer Homes. The company has been working on an integrated platform since 2014 that connects all stakeholders in the construction column. The platform facilitates a seamless process for the realization of circular, bio-based and modular homes, apartments, offices and, more recently, utility buildings. Knowledge from project development, the design phase, the (prefab) assembly, the use phase and the end-of-life phase come together in the smart wooden building system.



“Understanding the relation of scales in the build environment will unlock more holistic approaches toward circularity.”

Tillmann Klein

Tillmann Klein is Professor Building Product Innovation at the Delft Technical University. He leads the Circular Built Environment Hub at the Faculty of Architecture and the Built Environment and he is editor in chief of the scientific open access “Journal of Façade Design and Engineering”.

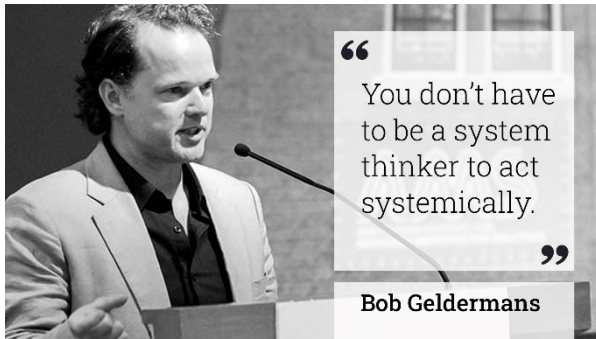


“Circular concrete shows high performance but low environmental impact over its full life cycle.”

Henk Jonkers

Henk Jonkers received his PhD degree from Groningen University in 1999. After 7 years working as research scientist at the Max-Planck-Institute for Marine Microbiology in Bremen he moved to Delft University of Technology where he is currently leading the Sustainability research group within the Materials & Environment section of the Materials, Mechanics, Management and Design (3MD) department at the CEG Faculty of the Delft University of Technology. His main research concerns development of bio-adapted-, self-healing-, and sustainable construction materials.

DAY 3 | FOCUS ON CREATING SYNERGIES



Bob Geldermans focuses on regenerative resource systems with a specific interest in the design and materialisation of building products and architecture. Prior to his work at the University of Antwerp, Bob worked at TU Delft, AMS Institute and Except Integrated Sustainability. In Delft, he has coordinated the Cradle-to-Cradle Inspired Lab and co-developed the CBE Hub. Bob's PhD dissertation aimed at the relation between adaptable building and circular building. Further back, he had his own practice at the intersection of visual arts and applied design. Bob's main goal is to help bridging gaps between scientific research, education and practice

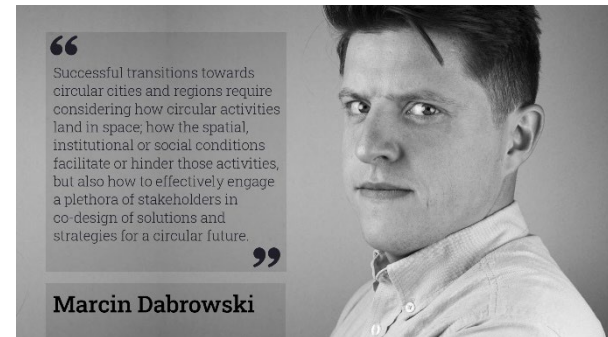


Els Leclercq (PhD) is an urban researcher, designer and teacher with extensive experience both in academic research projects as in practice through her design studio. Within her research and design projects she predominantly focuses on the transition to circular, sustainable, smart and shared cities and how new forms of collaboration, including citizen's engagement, can accelerate this transition. She is particularly interested in the role of public space and the public sphere play in such processes. Els is an experienced lecturer and speaker and is author of a number of published articles, blogs, and books.



Birgit Hausleitner is an architect and urbanist, and lecturer at the section of Urban Design, at the Faculty of Architecture and the Built Environment, Delft University of Technology. Her research comprises work on urban diversity and mixed-use cities. She investigates the urban morphological and socio-spatial conditions that facilitate, introduce, or improve living and working combinations, with a particular interest in spaces for urban manufacturing and micro-economic activities. Her most recent projects include JPI Urban Europe' Cities of Making' (research lead TU Delft team), a research project exploring the future of urban manufacturing in Europe with case studies in Brussels, London and Rotterdam, and Liveable Manufacturing, a research project concerned with manufacturing as part of mixed-use areas in Amsterdam (PI).

She is involved in developing multi-scalar analytic methods and multi-scalar and multi-actor design instruments, more specifically pattern languages. Furthermore, she coordinates and teaches urban design theory, urban morphology, and research and design studio education of the MSc of Urbanism.



Marcin Dąbrowski is an urbanist, a spatial planner, and a governance and policy expert, with a background in political science but eyes focused on sustainable futures of cities and regions. His interests span across the disciplines of spatial planning and regional and urban studies, focusing on governance across a range of urban sustainability and urban development issues.