



Clean Planet
Happy People
Shared Prosperity

SBEfin^{org} EMERGING CONCEPTS FOR SUSTAINABLE BUILT ENVIRONMENT

Virtual Conference November 23-25, 2022

DAY 1 23 November



HARRI HAKASTE



USHA IYER-RANIGA



JONATHAN DUWYN

10:00 OPENING OF THE CONFERENCE

Pekka Huovila, Chair of the International Scientific Committee, Finland

10:05 PRINCIPAL PARTNER SAINT GOBAIN

10:10 SBE SERIES INTRODUCTION

Anders Persson, FIDIC



10:20 KEYNOTE PRESENTATION

Chaired by: Anders Persson, FIDIC

Paving the future for Circular Built Environments

Harri Hakaste, Ministry of the Environment, Finland

Usha Iyer-Raniga, RMIT University, Australia

Jonathan Duwyn, UNEP, France

12:00 NETWORKING BREAK

STREAM 1

12:15 SESSION 1

CIRCULAR NEIGHBOURHOODS

Chaired by: Jesús Salcedo, UN-Habitat Headquarters, Land Housing and Shelter

12:15 Towards solutions and infrastructure for circular neighbourhoods in rural areas
Dr. Wendy Wuyts, Norwegian University of Science and Technology, Norway

12:30 The equitable housing workshop. Mapping and improving stakeholders' decision-making process for circular equitable housing projects.
Margaux Lespagnard, Vrije Universiteit Brussel, Belgium

12:45 Combining BIM & GIS Information to Simulate Circularity of Building Stocks in City-A Case Study of Taipei City
Yun-Tsui Chang, National Taiwan University, Taiwan

13:00 Sustainable development goals and indicators for circular built environment. Regional comparison based on a global survey.
Pekka Huovila, Green Building Council Finland

13:15 Dynamic Life Cycle Assessment - Parameters for scenario development in prospective environmental modelling of building stocks
Dr. Katarina Slavkovic, Université Catholique de Louvain, Belgium

13:30 Nested Phoenix: a bottom-up Python model for the life cycle environmental performance of urban built stocks
Prof. André Stephan, Université Catholique de Louvain, Belgium

STREAM 2

SESSION 2

RESPONSIBLY SOURCED MATERIALS 1

Chaired by: Venkata Gandikota, Innofrugal

Improving the life cycle greenhouse gas emissions of transport infrastructure assets – a case study in Brussels, Belgium
Soroosh Ataee, Université Catholique de Louvain, Belgium

Assessing material and embodied flows related to building services in office buildings – the case of Brussels, Belgium
Sébastien Loreau, Université Catholique de Louvain, Belgium

A review of embodied life cycle assessment tools used to support the building design process
Fabian Prideaux, KU Leuven, The University of Melbourne, Australia

Developing a 'Design with Reuse' guide: A case study analysis from a design procedural perspective for the integration of reclaimed wood in façade architecture.
Gabrielle Kawa, Vrije Universiteit Brussel, Belgium

Value network mapping applied to the flat glass sector: constraints and leverage points for circularity
Esther Geboes, Vrije Universiteit Brussel, Belgium

Emissions at a crossroad – a crossroad NZE design method
Søren Dietz, Bjerg Arkitektur - Green Lab., Niue

13:45 NETWORKING BREAK

DAY 1 23 November

14:30 SESSION 3 NEW SKILLS AND NEW BUSINESSES

Chaired by: Margherita Finamore, Pesaro Municipality

- 14:30 **Distributed cyber-physical systems that enhance local-based frugal innovation toward a sustainable built environment**
Prof. Tomonari Yashiro, The University of Tokyo, Japan
- 14:45 **How Frugal Innovation can empower citizens to make their life simpler and more sustainable. Insights from two ongoing initiatives**
Liza Wohlfart, Fraunhofer IAO, Germany Venkata Gandikota Innofrugal, Finland
- 15:00 **Successful social entrepreneurship and its potential contribution to more sustainable cities and built environments**
Carmen Antuña Rozado, VTT Technical Research Centre of Finland Ltd., Finland
- 15:15 **Architectural Practice Supporting Sustainability Transitions in the Built Environment**
Alise Plavina, NTNU Norwegian University of Science and Technology, Norway
- 15:30 **Building data models and data sharing. Purpose, approaches and a case study on explainable demand response** Prof. Nikos Sakkas, Apintech Ltd., Cyprus
- 15:45 **Designing and implementing solar photovoltaic system in secondary residence**
Dr. Kari Lilja, Satakunta University of Applied Sciences, Finland

SESSION 4 RESPONSIBLY SOURCED MATERIALS 2

Chaired by: Alicia Regodón, UN-Habitat Headquarters, Land Housing and Shelter

- BIMobility Simulator as a BIM-based solution for e-mobility integration in design process.**
Ilaria Di Blasio, Fraunhofer Italia, Italy
- Life Cycle Assessment through BIM-based advanced Calculation Virtual Environment Workflows**
Tassiane Feijo Brazzalle, Politecnico di Milano, Italy
- Materials role in pavement design and its impacts in LCA of road construction and use phase**
Dr. Koji Negishi, ORIS, France
- Building passports and material inventories – concepts, trends, job sharing**
Matthias Buchholz, Germany
- Typha as a circular building material**
Dr. Henk Brinksma & Dr. Michiel Van Der Stelt, University of Applied Science Utrecht, The Netherlands

16:00 NETWORKING BREAK

16:15 SESSION 5 CONSTRUCTION VALUE CHAIN 1

Chaired by: Ella Lahtinen, Green Building Council Finland

- 16:15 **A comparative analysis of sustainable construction tools and their applicability to the housing sector in two countries; Burkina Faso and Sri Lanka.**
Alicia Regodon & Jesus Salcedo, UN-Habitat Headquarters, Land Housing and Shelter
- 16:30 **A new method combining BIM and GIS data to optimize the sustainability of new construction projects in Switzerland**
Heinz J. Bernegger, ZHAW Zurich University of Applied Sciences, Switzerland
- 16:45 **Towards understanding disruption in the market for professional services in construction** Abbas Dehghani Tafti, Lulea University of Technology, Sweden
- 17:00 **Green Public Procurement and the circularity of the built environment**
Dr. Margherita Finamore, Pesaro Municipality, Italy
- 17:15 **Circularity in Built Environment - The case of Rwanda**
Dheeraj Arrabothu, Global Green Growth Institute (GGGI)

SESSION 6 RESPONSIBLY SOURCED MATERIALS 3

Chaired by: Anders-Johan Almås, Western Norway University of Applied Sciences

- Circularity and LCA - material pathways: cascade potential and cascade environmental impact of an in-use building product**
Simon Schaubroeck, KU Leuven, Belgium
- Embodied Carbon: a call to the building industry**
Daniel Rondinel, McGill University, Canada
- Potential of Earth-Based Bamboo Bio-Concrete in the Search for Circular and Net Zero Carbon Solutions to Construction Industry**
Prof. Lucas Caldas, Universidade Federal do Rio de Janeiro (UFRJ), Brazil
- Environmental evaluation of a prefab construction method employed to build the Evandro Chagas National Institute of Infectious Diseases**
Prof. Lucas Caldas, Universidade Federal do Rio de Janeiro (UFRJ), Brazil
- Analyzing Embodied Energy and Embodied Water of Construction Materials for an Environmentally Sustainable Built Environment**
Dr. Manish Dixit, Texas A&M University, United States

17:30 NETWORKING BREAK

17:45 KEYNOTE PRESENTATION

Chaired by: Jonathan Duwyn, UNEP

- 17:45 **Whole Life Cycle Considerations in the Development of Building-Integrated Clean Energy Systems**
Anna Dyson, Yale Center for Ecosystems in Architecture, United States



ANNA DYSON

DAY 2 24 November



MATTI KUITTINEN



TJEERD HACCOU

10:00 KEYNOTE PRESENTATIONS

Chaired by: [Dr Akvan Gajanayake](#), RMIT University

- 10:00 **Building wellbeing within planetary boundaries**
[Matti Kuittinen](#), Ministry of the Environment of Finland, Finland
- 10:45 **Designing Circular Neighbourhoods**
[Tjeerd Haccou](#), Space&Matter, The Netherlands

11:30 NETWORKING BREAK

11:45 SESSION 7 INDUSTRY

Chaired by: [Lauri Tähtinen](#), Green Building Council Finland

- 11:45 **Partnering with Nature - In search of regenerative approaches in urban environments**
[Katri Einola](#), Ramboll Finland, Finland
- 12:00 **Maptionnaire - Insights that enable cities to change**
[Dr. Maarit Kahila](#), Maptionnaire, Finland
- 12:15 **Evolution of recycling in infra structure and green area construction**
[Elina Regårdh](#), WSP, Finland
- 12:30 **Timber-Hybrid Makes the Breakthrough: Natural Principles Take Hold in Large Scale Projects**
[Elif Istanbuluoglu](#), CREE Buildings, Austria
- 12:45 **Conceptual and circular procurement is key to overcome actual crises!**
[Thijs Kurstjens](#), Atrive, The Netherlands
- 13:00 **from universal science to global INDUSTRY**
[Prof. Hendrik Hendrickx](#), Free University Brussels, Belgium

SESSION 8 INCLUSIVE AND RESILIENT CITIES 1

Chaired by: [Mia Ala-Juusela](#), VTT Technical Research Centre of Finland

- Delivering net zero carbon built environment - Targets and Pathways**
[Prof. Baojie He](#), Chongqing University, China
- Determining the Feasibility of a Circular Economy for Plastic Waste from the Construction Sector in New Zealand**
[Dr. Terri-Ann Berry](#), Unitec Institute of Technology, New Zealand
- Streetscape Scenarios of Ephemeral Public Spaces before and during the pandemic of COVID-19 in Ura-Harajuku, Tokyo** [Luciene Yeziret Espejo Blasquez](#), Tokyo Institute of Technology, Mexico
- Role Of Natural Environment As Stimulating Outdoor Play Space For Children – A Study Of Bhopal, India**
[Prof. Richa Raje](#), School of planning and Architecture, Bhopal, India
- Development of A Framework for Urban Heat Adaptation in 15-Minute City**
[Xueke Chen](#), Chongqing University, China
- Circularity and LCA - material pathways: the cascade potential and cascade database of an in-use building product**
[Simon Schaubroeck](#), KU Leuven, Belgium

13:15 NETWORKING BREAK

14:00 SESSION 9 CONSTRUCTION VALUE CHAIN 2

Chaired by: [Elina Samila](#), Green Building Council Finland

- 14:00 **WVDM Living Lab: Sustainable renovation strategies for the VUB student residences of Willy Van Der Meeren** [Prof. Waldo Galle](#), VUB Architectural Engineering, Belgium
- 14:15 **Long-term renovation strategy for 2020-2050: assessment from a low-carbon perspective—case Finland** [Terttu Vainio](#), VTT, Finland
- 14:30 **Incorporation of sustainable development goals into built environments-related business management concepts**
[Pekka Huovinen](#), Business Management PJH, Finland
- 14:45 **IoT-based architecture for efficient energy monitoring in existing building structures**
[Prof. Alexander Redlein](#), Vienna University of Technology, Austria
- 15:00 **Circular Economy Design towards Zero Waste: Laying the foundation for constructive stakeholder engagement on improving construction, renovation and demolition (CRD) waste management**
[Daniel Rondinel](#), McGill University, Canada

SESSION 10 INCLUSIVE AND RESILIENT CITIES 2

Chaired by: [Heikki Moilanen](#), Green Building Council Finland

- Resistant, responsive, resilient cities: Urban planning as means for pandemic prevention** [Dr. Emilia Rönkkö](#), University of Oulu, Finland
- Nature-based Solutions for Industrial Logistic Parks.**
[Elena Agudo-Sierra](#), UCLouvain, Belgium
- Designing the regenerative city? A case study of urban actors working to integrate ideas of biodiversity in Copenhagen**
[Lotte Nystrup Lund](#), Royal Danish Academy, Denmark
- Reusing concrete panels from the industrial mass housing of the 1960s**
[Prof. Inge Vestergaard](#), Aarhus School of Architecture, Denmark
- New kind of IoT platform for Smart City by innovative procurement procedure**
[Maarit Vehviläinen](#), City of Tampere, Finland

15:15 NETWORKING BREAK

DAY 2 24 November

15:45 SESSION 11

Chaired by: Jeremy Gibberd. GAUGE

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| 15:45 | <p>First steps in the development of standardised processes for life cycle assessments of geotechnical works</p> <p>Dr. Loretta von der Tann, Norwegian Geotechnical Institute, Norway</p> |
| 16:00 | <p>Barriers for data management as an enabler of circular economy: an exploratory study of the Norwegian AEC-industry</p> <p>Alessia Bellini, NTNU Norwegian University of Science and Technology, Norway</p> |
| 16:15 | <p>Demolish, recycle, build new or renovate? Energy use throughout the life cycle.</p> <p>Dr. Ulla Janson, Lund University, Sweden</p> |
| 16:30 | <p>Circular material passports for buildings – Providing a robust methodology for promoting circular buildings</p> <p>Dr. Verena Göswein, 3drivers – Engenharia, Inovação e Ambiente, Lda., Portugal</p> |
| 16:45 | <p>Responsible sourcing of concrete and CO2 reduction certification</p> <p>Cynthia Imesch, The Concrete Sustainability Council, Switzerland</p> |
| 17:00 | <p>Modeling Artificial Neural Networks to Predict Asbestos-containing Materials in Residential Buildings</p> <p>Pei-Yu Wu, RISE Research Institutes of Sweden, Lund University, Sweden</p> |

17:15 NETWORKING BREAK

17:30 SESSION 13
**CONSTRUCTION VALUE CHAIN 3 &
INCLUSIVE AND RESILIENT CITIES 4**

Chaired by: Margherita Finamore, Pesaro Municipality

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| 17:30 | Business models for rolling out Positive Energy Buildings
<i>Mia Ala-Juusela</i> , VTT, Finland |
| 17:45 | Process-specific digital recording of construction-site LCA-inventory to identify decarbonisation pathways <i>Anna Wagner</i> , Technical University Munich, Germany |
| 18:00 | Area Neutrality: safeguarding urban biodiversity with a new land management framework in Trondheim, Norway
<i>Amy McCormack</i> , NTNU Norwegian University of Science and Technology, Norway |
| 18:15 | Renaissance of villages for the revitalization of marginal areas
<i>Maurizia Pignatelli</i> , Politecnico di Torino, Italy |
| 18:30 | Towards integration of smart and resilient city: literature review
<i>Mustafa Shahrabani</i> , Kaunas Technology University, Lithuania |

18:45 CLOSING THE CONFERENCE FOR SCIENTIFIC AND INDUSTRY SESSIONS INTRODUCTION OF THE WORKSHOPS

Pekka Huovila, Chair of the Scientific Committee

SESSION 12

INCLUSIVE AND RESILIENT CITIES 3

Chaired by: Miisa Tähkänä, Green Building Council Finland

- Socially and culturally sustainable public participation in urban development: Map questionnaire as a bridge-building tool in Kontula shopping mall**
Dr. Pilvi Nummi, Aalto University, Finland
- Growth target as a barrier to knowledge integration and provision of alternative scenarios in urban planning**
Dr. Tiina Merikoski, Aalto University, Finland
- Services for sustainable future lifestyle in smart blocks – empowering people to make a difference**
Dr. Maaria Nuutinen, VTT Technical Research Centre of Finland Ltd., Finland
- Obligatory Municipal Energy Reporting – Experiences from Southern Germany**
Andrea Immendoerfer, KEA-BW, Germany
- iQRe: An Integrated Cross Scale Urban Resilience Assessment framework**
Ahmed Khoja, Munich University of Applied Sciences, Germany
- Capacity of Public-Private Collaborations to Incorporate Sustainable Business Models for Housing Development in Sweden: A Resilience Perspective**
Johanna Mattsson, Mälardalen University/Dalarna University, Sweden

SESSION 14

INCLUSIVE AND RESILIENT CITIES 5

Chaired by: Terttu Vainio, VTT Technical Research Centre of Finland

- HARMONIA: strategy of an integrated resilience assessment platform (IRAP) with available tools and geospatial services.**
Prof. Julia Nerantzia Tzortzi, Politecnico di Milano, Italy
- Quantifying stress level reduction induced by urban greenery perception**
Prof. Maider Llaguno-Munitxa, UCLouvain, Belgium
- The modern tropical architecture and social-environmental classification - An analysis of the Prefeito Mendes de Moraes Housing Complex**
Marina Calazães, Universidade Federal do Rio de Janeiro, Brazil
- Technical upgrade in factory to reduce energy consumption and increase employee wellbeing**
Janne Porkka, VTT Technical Research Centre of Finland
- Responsible sourcing for concrete as a construction material in Latin América**
Manuel Lascarro, Colombian Chamber of Cement and Concrete PROCEMCO, Colombia



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**EMERGING CONCEPTS FOR
SUSTAINABLE BUILT ENVIRONMENT**

Virtual Conference November 23-25, 2022

DAY 3 25 November

Workshops

09:00

WORKSHOP 1

Circular solutions for sustainable material economy in urbanizing Africa

Harri Hakaste, Ministry of the Environment Finland, Ninni Westerholm, Tampere University, Finland, Jeremy Gibberd, GAUGE, South Africa, Jonathan Duwyn, UNEP, France Dheeraj Arrabothu, Global Green Growth Institute, Rwanda, Usha Iyer-Raniga, RMIT University, Australia, Pekka Huovila, Green Building Council Finland

10:30

WORKSHOP 3

Urban Nature Labs: Sharing the Knowledge on Co-creation of NBS

Annika Kettunen, Ramboll Finland, Maarit Särkilähti, City of Tampere, Finland, Salla Leppänen, City of Tampere, Finland

12:00

WORKSHOP 5

Compact modelling for Smart Cities

Carmen Antuña Rozado, Henri Wiman & Dr. Markos Xenakis, VTT Technical Research Centre of Finland Ltd.

13:30

WORKSHOP 2

Municipalities Leadership in Neighbourhood Renovation Planning

Prof. Targo Kalamees, Tallinn University of Technology, Estonia

WORKSHOP 4

Sustainable housing in Africa

Helena Sandman, Leapfrog projects ab, Finland

WORKSHOP 6

Design of Global and General Applicable Systems

Hedwig Vanwalleghem, Belgium

WORKSHOP 8

To Zero and Beyond! Toward the Next Generation of EU Building Performance Assessments and Energy Certificates

Ahmed Khoja, Munich University of Applied Sciences, Germany, Dr. Marina Malinovec Puček, Energy Institute Hrvoje Požar, Croatia, Peter Gyuris, Geonardo Environmental Technologies, Hungary, Dr. Lilia Galai Dol, Scientific and Technical Building Centre (CSTB), France, Dr. Sylviane Nibel, Scientific and Technical Building Centre (CSTB), France