



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 PRESENTATIONS

Chaired by: Anders Persson, FIDIC

KEYNOTE 1 Harri Hakaste, Ministry of the Environment, Finland

KEYNOTE 2 Usha Iyer-Raniga, RMIT University, Australia

KEYNOTE 3 Jonathan Duwyn, UNEP, France

12:00 **NETWORKING BREAK**

STREAM 1

12:15 SESSION 1
CIRCULAR NEIGHBOURHOODS

Chaired by:

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

13:45 **NETWORKING BREAK**

STREAM 2

SESSION 2
RESPONSIBLY SOURCED MATERIALS 1

Chaired by:

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

DAY 1 23 November

14:30 SESSION 3 NEW SKILLS AND NEW BUSINESSES

Chaired by:

- 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 **Frugal innovation with citizens to improve city life. Case Bielefeld.** Carmen Antuña Rozado, VTT Technical Research Centre of Finland Ltd., Finland
- 15:00 **Successful social entrepreneurship and its potential contribution to a more sustainable built environment** 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:

- 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, Dr. Renaud De Montaignac & Nicolas Miravalls, ORIS, France
- Building passports and material inventories – concepts, trends, job sharing** Matthias Buchholz, Germany
- Innovation towards biobased energy concepts** Dr. Henk Brinksma, University of Applied Science Utrecht, The Netherlands
- Passive solar design in the architecture of a residential complex responsive to its climate: A case study in Iran** Saba Abdolshahi, Shahid Beheshti University, Iran

16:00 NETWORKING BREAK

16:15 SESSION 5 CONSTRUCTION VALUE CHAIN 1

Chaired by:

- 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, UN-Habitat, Spain, Jesus Salcedo, UN-Habitat, Kenya, Dr. Giulia Celentano, ETH Zurich, Switzerland
- 16:30 **Natural gas distributing steel pipeline pit survey methodology modification** Nikita Kondrahin, Riga Technical University, Latvia
- 16:45 **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
- 17:00 **Towards understanding disruption in the market for professional services in construction** Abbas Dehghani Tafti, Lulea University of Technology, Sweden
- 17:15 **Green Public Procurement and the circularity of the built environment** Dr. Margherita Finamore, Pesaro Municipality, Italy
- 17:30 **Circular Economy Design towards Zero Waste: Laying the foundation for constructive stakeholder engagement on improving construction, renovation and demolition (CRD) waste management** Dr. Naomi Keena, McGill University, Canada

SESSION 6 RESPONSIBLY SOURCED MATERIALS 3

Chaired by:

- Circularity and LCA - material pathways: technical cascade potential and cascade database of an in-use building product** Simon Schaubroeck, KU Leuven, Belgium
- 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 built environment.** 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** Arthur Araujo & 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** Ana Carolina Rocha Tostes de Oliveira, Bárbara de Oliveira Sá Alcântara & Stefani Raiane Martins De Paula, Universidade Federal do Rio de Janeiro, 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

17:45 NETWORKING BREAK

18:00 KEYNOTE PRESENTATION

Chaired by: Jonathan Duwyn (tbc.)

- 18:00 **KEYNOTE 4** 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: Usha Iyer-Raniga (tbc.)

10:00 **KEYNOTE 5** Matti Kuittinen, Ministry of the Environment of Finland, Finland

10:45 **KEYNOTE 6** Tjeerd Haccou, Space&Matter, The Netherlands

11:30 NETWORKING BREAK

11:45 SESSION 7 INDUSTRY

Chaired by:

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**
Mikko Suominen, City of Helsinki, Finland, 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

13:15 NETWORKING BREAK

14:00 SESSION 9 CONSTRUCTION VALUE CHAIN 2

Chaired by:

14:00 **Exploring Economic Impacts of Sustainable Construction Projects on Stakeholders: The Role of Integrated Project Delivery** Prof. Steve Rowlinson, The University of Hong Kong, Hong Kong

14:15 **Circular economy in the built environment sector – business risks and opportunities**
Veronica Palmgren, KPMG Oy Ab, Finland

14:30 **WVDM Living Lab: Sustainable renovation strategies for the VUB student residences of Willy Van Der Meeren** Prof. Waldo Galle, VUB Architectural Engineering, Belgium

14:45 **Long-term renovation strategy 2020-2050; assessment from a low carbon perspective view - case Finland** Terttu Vainio, VTT, Finland

15:00 **Incorporation of sustainable development goals into built environments-related business management concepts** Pekka Huovinen, Business Management PJH, Finland

15:15 **Energy Monitoring in existing Building Structures**
Prof. Alexander Redlein & Lisa Thrainer, Vienna University of Technology, Austria

15:30 NETWORKING BREAK

SESSION 8 INCLUSIVE AND RESILIENT CITIES 1

Chaired by:

Delivering net zero carbon - Targets and Pathways
Prof. Deo Prasad, University of New South Wales, Australia

Plastic Waste from New Zealand's Commercial Construction Sector: A Case Study of the Challenges, Opportunities and Potential for a Circular Economy
Dr. Terri-Ann Berry, Unitec Institute of Technology, New Zealand

The proposal of stockpiled container temporary housing that can be used as a detached house after the disaster. Yuta Sakanishi, Waseda University, Japan

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

SESSION 10 INCLUSIVE AND RESILIENT CITIES 2

Chaired by:

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 1960ties
Prof. Inge Vestergaard, Aarhus School of Architecture, Denmark

Smart City aims and ensures sustainability with IoT Platform- scalable result from Stardust Smart City project Maarit Vehviläinen, City of Tampere, Finland

Development of 3D Printable Concrete: Manufacturing and application as urban furniture a first in Finland Gaurav Das, Renotech Oy, Finland

DAY 2 24 November

15:45 SESSION 11 RESPONSIBLY SOURCED MATERIALS 4

Chaired by:

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

17:15 NETWORKING BREAK

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

Chaired by:

- 17:30 **Which drivers and obstacles affect in applying circular economy principles in the construction and real estate sector in Finland?** *Ella Lahtinen*, Green Building Council Finland, Finland
- 17:45 **Business models for rolling out Positive Energy Buildings** *Mia Ala-Juusela** (Finland) - VTT, Finland
- 18:00 **Process-specific digital recording of construction-site LCA-inventory to identify decarbonisation pathways** *Anna Wagner*, Technical University Munich, Germany
- 18:15 **Area Neutrality: safeguarding urban biodiversity with a new land management framework in Trondheim, Norway** *Amy McCormack*, NTNU Norwegian University of Science and Technology, Norway
- 18:30 **Renaissance of villages for the revitalization of marginal areas** *Dr. Sara Torabi Moghadam & Maurizia Pignatelli*, Politecnico di Torino, Italy
- 18:45 **Towards integration of smart and resilient city: literature review** *Mustafa Shahrabani*, Kaunas Technology University, Lithuania

19:00 NETWORKING BREAK

19:15 SESSION 15

Chaired by:

- 19:15 **Public and private developers toward social-ecological sustainable housing in Sweden: A resilience perspective** *Johanna Mattsson*, Mälardalen University/Dalarna University, Sweden, *Dr. Carin Nordström*, Dalarna University, Sweden, *Dr. Lars Lindbergh*, Umeå University, Sweden
- 19:30 **Iffent** *Paavo Pärn*, Iffent OÜ, Estonia
- 19:45 **Responsible sourcing for concrete as a construction material in Latin América** *Manuel Lascarro*, Colombian Chamber of Cement and Concrete PROCEMCO, Colombia

20:15 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:

- Building-level climate change adaptation for safe-resilient cities: The case of façade maintenance workers** *Ransi Athauda*, University of Moratuwa, Sri Lanka
- 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
- The aim to grow 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. Maarja Nuutinen*, VTT Technical Research Centre of Finland Ltd., Finland
- A step towards resilient public administration - energy reporting in Baden-Wuerttemberg (Germany)** *Andrea Immendoerfer, David Fischbach & Robin Stutz*, KEA-BW, Germany
- iQRe: An Integrated Cross Scale Urban Resilience Assessment framework** *Ahmed Khoja*, Munich University of Applied Sciences, Germany

SESSION 14 INCLUSIVE AND RESILIENT CITIES 5

Chaired by:

- Understanding urban trends while adopting rural development as an approach to achieving urban sustainability** *Lilian Smart*, University of Huddersfield, United Kingdom
- HARMONIA: strategy of an integrated resilience assessment platform (IRAP) with available tools and geospatial services.** *Prof. Julia Nerantzia Tzortzi*, Politecnico di Milano, Italy, *Prof. Anastasios Doulamis*, National Technical University of Athens, Greece, *Dr. Ioannis Rallis*, Technical University of Athens, Greece, *Dr. Maria Stella Lux*, Politecnico di Milano, Italy, *Dr. Giovanni Barbotti*, Politecnico di Milano, Italy, *Dr. Ioannis Tzortzis*, National Technical University of Athens, Greece
- Quantifying stress level reduction induced by urban greenery perception** *Prof. Maider Llaguno-Munitxa*, UCLouvain, Belgium
- Circular-green economy: analysis based on the theory of resources and capabilities** *Dr. José G. Vargas-Hernández*, Unidad Zapopan, Mexico
- 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
- Seismic Structure-Soil-Structure Interaction (SSSI) between piled neighboring bridges: Influence of height ratio** *Dr. Mohanad Alfach*, University of London, United Kingdom



SBEfin by **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, Finland, Ninni Westerholm, HELST, Finland, Jeremy Gibberd, GAUGE, South Africa, Jonathan Duwyn, UNEP, France

10:30

WORKSHOP 3

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

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

12:00

WORKSHOP 5

Tools for Circular and Sustainable Housing in the Global South

Pekka Huovila, FIGBC, Finland, Dr. Usha Iyer-Raniga, RMIT University, Australia, Jonathan Duwyn, United Nations Environment Programme, France

13:30

WORKSHOP 7

Compact modelling for Smart Cities

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

15:00

WORKSHOP 9

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

16:30

WORKSHOP 11

AI applications in buildings. Explaining and building confidence on their results

Prof. Nikos Sakkas, Apintech Ltd., Cyprus, Dr. Stavros Hadjiyiannis, CyRIC Ltd., Cyprus

WORKSHOP 2

Enhancing the sustainability of traditional walking street markets through creating the vitality

Phoowadech Wongsom, Chiang Mai University, Thailand

WORKSHOP 4

Municipalities Leadership in Neighbourhood Renovation Planning

Prof. Targo Kalamees, Tallinn University of Technology, Estonia

WORKSHOP 6

Safety and Seniors

Dr. Anna Grabowska, Academy of Third Age, Poland

WORKSHOP 8

Design of Global and General Applicable Systems

Hedwig Vanwallegem, Belgium

WORKSHOP 10

by Saint Gobain

tbd.



WORKSHOP 12

Biodiversity Museum of Nature and Culture Exposition Concept (BMNCEC)

Yvan Trésor Karugira, Center of the Fourth Industrial Revolution, Burundi