



# INTEGRATING SUSTAINABILITY AND HEALTH IN BUILDINGS THROUGH RENEWABLE MATERIALS



INNORENEW CoE INTERNATIONAL CONFERENCE  
2020



## **INNORENEW CoE**

Livade 6, 6310 Izola, Slovenia

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# WELCOME



As we open the second InnoRenew CoE International Conference, it's hard not to think of all that has changed in the year and a half that has passed since our debut conference.

Although the pandemic has dramatically changed our day-to-day lives, it has not changed society's need to address the rapidly changing climate, reconsider our economic priorities, and refocus our attention on important social issues. Buildings remain part of the solution to many problems, and I think it is becoming clear that we need to consider much more about buildings than the basics of shelter.

As the pandemic kept us indoors, many of us may have realised that our indoor environment plays an even more important role in our well-being and happiness than we previously acknowledged. Likewise, we may have considered more carefully how buildings affect the well-being of those who live in different circumstances. Access to safe, comfortable, and healthy living and working spaces is (and should be) a priority in a just society.

Another major change that will affect our work in the years to come is the introduction of the European Green Deal, which will be a major driver of sustainable development in Europe. The European Green Deal prioritises investment and innovation in building renovation solutions for energy performance and attempts to ensure these solutions reach all members of society. The European Green Deal recognizes the need to establish high-performance housing for all and will support renovation in social housing, schools, and other facilities that are often left behind. This is a step in the right direction for inclusive, high-performing buildings.

I rarely find proclamations of success convincing when it comes to sustainability – especially about buildings. We must continue to drive change through research, development, and innovation to make our built environment a beacon of sustainable development. We cannot be satisfied with the environmental performance of our products or buildings; we cannot allow people to be excluded from our advancements; and we cannot forget that buildings impact the well-being and happiness of their occupants.

At this year's InnoRenew CoE International Conference, we wanted to showcase how renewable materials play an integral role in sustainable construction by highlighting environmental performance, safety, and health as well as the economic, digital, and social links that bind us to the materials in the built environment. Conference presenters will discuss advances in design, material development, health research, retrofitting, environmental assessment, and many other topics that increase the efficiency and performance of the building and renewable materials sectors.

Carlo Battisti, President of Living Future Europe, will weave together these complementary threads in his keynote address, "Healthy, living transparent. The quiet revolution of materials". He works to push for change and supports researchers, architects, engineers, and other construction professionals to achieve it. His efforts have expanded knowledge and acceptance of restorative sustainability and regenerative design within Europe's construction community. We are excited and grateful for his participation in our conference.

Together, the contributions paint a hopeful picture. But we must continue to push the science forward, embed these innovations in normal construction practices, and ensure inclusion of all who can benefit from our hard work.

While I wish these matters could have been discussed in person in Izola, we must embrace new options for discourse on these topics. I hope the conference inspires you to reach out to one another and continue sharing, collaborating, and building communities that embrace the challenge of creating a sustainable and just built environment. You may also consider our new open access and peer-reviewed journal, *Interdisciplinary Perspectives on the Built Environment*, as a place to share the insights your work provides.

Thank you,

Dr Michael Burnard  
Deputy Director, InnoRenew CoE  
Assist. Prof., University of Primorska

# SCHEDULE AT A GLANCE

## MORNING

**WELCOME**  
9:00–9:05

**KEYNOTE**  
9:05–9:35

**FLASH TALKS**  
9:35–10:35

**COFFEE BREAK**  
10:35–11:00

**HUMAN HEALTH IN THE  
BUILT ENVIRONMENT**  
11:00–12:30

**LUNCH**  
12:30–14:00

## AFTERNOON

**COMPLEMENTARY TOPICS**  
14:00–15:30

**COFFEE BREAK**  
15:30–15:55

**SUSTAINABLE CONSTRUCTION  
WITH RENEWABLE MATERIALS**  
15:55–17:25

**CLOSING**  
17:25–17:30

# KEYNOTE ADDRESS



**CARLO BATTISTI**  
**PRESIDENT, LIVING FUTURE EUROPE**

*Healthy, living, transparent.  
The quiet revolution of materials.*

Carlo Battisti has a degree in civil engineering from the Politecnico of Milan, nearly twenty years of experience in construction companies and a master's in management and organizational development from MIP International Business School. His certifications include Certified Project Manager IPMA®; LEED®, Living Future and WELL Accredited Professional; GBC Home AP, GBC Historic Building AP; USGBC® and WELL Faculty™.

Since 2009, he has been working with IDM South Tyrol (Italy) as an innovation manager in the Business Development department, Construction. From 2010 to 2011, he worked with the Energy and Environment Cluster of Trentino as manager of the business unit for sustainable products. From 2015 to 2016, he was the co-owner of a startup focused on LEED consulting. In 2015, he co-founded the Living Future Italy Collaborative.

Since 2017, he has been working with Eurac Research as Chair and Project Manager of COST Action 16114 RESTORE (REthinking Sustainability TOwards a Regenerative Economy). The RESTORE COST Action (2017–2021) will affect a paradigm shift towards restorative sustainability for new and existing buildings and space design across Europe through the collaboration of 160+ researchers from 40 European countries.

Since 2018, he is European Executive Director for the International Living Future Institute and current President of Living Future Europe. The Institute's mission will hasten the change and provide needed direction towards a regenerative design transition in Europe. It is actively pursuing European market alignment and adaptations of the Living Building Challenge (LBC).

# AGENDA

## WELCOME | 9:00-9:05

Dr Michael Burnard, InnoRenew CoE

## KEYNOTE | 9:05-9:35

Carlo Battisti, Living Future Europe

## FLASH TALKS | 9:35-10:35

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\*Unable to present



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# AGENDA

## SUSTAINABLE CONSTRUCTION WITH RENEWABLE MATERIALS | 15:55-17:25

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## CLOSING | 17:25-17:30

**THANK YOU FOR ATTENDING IRIC2020!**

SEE YOU NEXT YEAR

[HTTPS://INNORENEW.EU/IRIC2021](https://innorenew.eu/iric2021)





# *Sustainable Construction with Renewable Materials*

## ***A European reference house for Life Cycle Assessment of wooden residential buildings***

Erwin M. Schau<sup>1</sup>, Eva Prelovšek Niemelä<sup>2</sup>, Aarne Johannes Niemelä<sup>3</sup>,  
Tatiana Abaurre Alencar Gavric<sup>4</sup>, Iztok Šušteršič<sup>5</sup>

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The construction industry accounts for 15 % of all greenhouse gas emissions. During their use phase, buildings use 40 % of the total energy consumption, which contributes significantly to air pollution and other environmental impacts. While the energy consumption during the use phase is predicted to decrease as efficient buildings, like zero and near zero energy buildings, become more common, climate change and other environmental problems from the production or raw materials, construction and end of life remain serious concerns that need to be solved urgently.

Life cycle assessment (LCA) and the EU-recommended Environmental Footprint (EF) are well known and accepted tools to measure a comprehensive set of environmental impacts throughout a products life cycle. However, to assess how good (or bad) a wooden building performs environmentally is still a challenge. In the EU Environmental Footprint pilot phase from 2013 – 2018, an average benchmark for the different product groups was found to be very useful. Based upon the recommendations for a benchmark of all kinds of European dwellings, we developed a scenario of a single-family house nearly zero energy building. This scenario results cover 16 recommended LCA impact indicators and can be normalised and weighted into one single point for easy and quick comparisons. The results are presented as the average impact per one square metre (m<sup>2</sup>) of floor area over one year.

The developed benchmark for wooden buildings is a suitable comparison point for new wooden building designs. The benchmark can be used by architects and designers early in the planning stages when changes still can be made to improve the environmental performance of wooden buildings or to improve the communication and interpretation of the LCA results for customers and other stakeholders. This presentation will discuss the methodology, results and compare the results of the wooden building with the benchmark of average European dwellings made of different materials.

**Keywords:** life cycle assessment, Environmental Footprint, buildings, benchmark, wood

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The InnoRenew CoE International Conference 2021

# HEALTHY AND SUSTAINABLE RENOVATION WITH RENEWABLE MATERIALS

June 10-11 | Izola, Slovenia



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