

Bio-minded society for net-zero carbon construction.

This event was held on 17 July 2024 at UWE Frenchay Campus with the aim of exploring ways to overcome barriers-to-adoption and accelerate the uptake of biobased materials in the construction industry amongst diverse stakeholders and 'end-users' including built environment professionals focusing on net-zero carbon construction.

The event was part of ongoing research and public engagement activities by the "*Smart Bio Based Construction*" (SmartBioC) (<https://www.smartbioc.com/>) project at UWE Bristol. SmartBioC is redefining performance indicators used to assess sustainable building choices and it is implementing smart digital technologies and 'serious games' to enable widespread use of biobased materials and building components.

Activities and Outcomes

The event kicked off with a welcome session and housekeeping announcements, followed by an introduction of the research by SmartBioC's principal investigator [Dr Hector Archila](#). Subsequently, an inspirational talk titled "*Harnessing the Wisdom of the Natural World*" delivered by [Dr Lidia Badarnah](#) focussed on nature-inspired design set the tone for the event.

Co-creation Activity 1: SmartBioC's Five Capitals

One of the main aims of the research and the event was to embrace awareness on the topic in an easy-to-understand, interactive and engaging way, understanding holistic 'wicked' issues facing the adoption of biobased building solutions in a simpler way.

[Rebecca Lashley](#) led the first interactive session, where participants used online surveys and 'mood boards' to understand and rank five capitals (natural, social, human, manufactured, financial) in their decision-making process for building choices. This activity encouraged participants to consider a balanced approach to sustainability through integrating overarching and holistic effects of construction on the environment, human health, carbon emissions, local resource availability, skills, etc.

This information was then depicted through '[mood boards](#)' to reflect the conclusion that each group came up with. Following this, three invited speakers shared their insights on sustainability, society and construction:

- [Dr Diana Waldron](#) discussed the "Home-Grown" project and the work of Wood Knowledge Wales.
- Peter Tomson from "[We Can Make](#)" highlighted innovative uses of Ash die-back for windows and talked about people and place-led housing.
- [David Harris](#) provided an overview of the Eden Project in Dundee, emphasising regenerative design.

Co-creation Activity 2: SmartBioC's Top Trumps

[Clare Davidson](#) facilitated the second activity, where participants engaged with "SmartBioC's Top Trumps" a cards game designed to playfully display information on the performance of

biobased building assemblies and compare them against traditional construction methods.

Participants enthusiastically played and discussed the information provided on the cards neatly designed by SmartBioC's very own Product Designer [Martin Bello](#), which used the 'five capitals' to score the benefits of different biobased materials.

Talks & Pitches

In the afternoon session, participants attended additional talks and business pitches:

- [Dave Judd](#) from Ecological Building Systems presented examples of recent projects using biobased materials.
- [Richard Broad](#) from the Alliance for Sustainable Building Products discussed their efforts to promote sustainable building products.
- Short pitches by [George Mikurcik](#) (EcoCoCoon), [Jenny Ford](#) (Materials In Mind), [Martin Chastney](#) (Cheltenham Borough Council) and [Fiona Dowling & Morwenna Peters](#) from Bristol Materials Network completed the interventions from guest speakers.

SmartBioC's Demos & Research briefing

The event featured a demonstration of SmartBioC's digital tools by [Hamza Usman](#), including a WebGL demo and an augmented reality app. SmartBioC's gamification approach is aimed at facilitating end-user's selection and implementation of biobased materials in construction.

Revit models for four biobased building assemblies, developed by SmartBioC's team members [Salma Abdelrehim](#) and [Ei Thay](#), were also presented. Salma also demonstrated how to add carbon footprint information to the models in Revit.

Following the demonstrations, [Fernanda Speciale](#) presented the project's multi-criteria assessment framework using the five capitals model which is at the core of the research and can enable more informed and wider use of biobased materials in construction.

Panel Discussion and Closing

A panel discussion allowed participants to delve deeper into the challenges and opportunities of biobased construction. The event concluded with closing remarks and a networking session, fostering connections among attendees and setting the stage for future collaborations.

Overall, the 'Bio-minded event' successfully achieved its objectives: inspiring participants, sharing knowledge, transferring research findings, promoting community participation, and generating actionable insights for a sustainable future. The outcomes included a deeper understanding of the five capitals approach, enhanced awareness of innovative biobased solutions, and strengthened networks for ongoing collaboration in the pursuit of net-zero carbon construction.

Find out more about the event and the research on www.smartbioc.com and to find out more, please contact the project lead at: Hector.Archila@uwe.ac.uk

[Event video](#)

| [Event Slides](#)

| [Event Agenda](#)