



iCLIMaBUILT

Functional and advanced insulating and energy harvesting
and storage materials across climate adaptive building envelopes

Volume 5



Project Overview

iclimabuilt's goal is to create an open access ecosystem for developing, upscaling and testing innovations in building envelope materials and technical systems via its 9 Pilot Lines (PLs) to reach Nearly Zero Energy Buildings (nZEB) balance.

Through the iclimabuilt project a cross-domain business ecosystem combining the capabilities of different experts, building the connection between suppliers and users, based on the cooperation within interdisciplinary entities to support new product development/upscaling and testing, satisfy customer needs based on a case-by-case assessment of the underlying barriers of each technology, and eventually incorporate the next round of innovations in building envelope materials and technical systems will be formed.

27
Partners

14
Countries

10
Work Packages

48
Months

Project Overview

iclimabuilt will support the translation of research results into innovations and will help small high-tech firms to scale up and cope with the continuous rising of technological complexity by providing a **Single-Entry-Point** for necessary infrastructures and tools to test, validate and upscale new technological solutions.

iclimabuilt will do so with the aim to accelerate the development of additional leading-edge technology by focusing on:

- **Materials Development**
- **Design and Assembly of Technical Systems**
- **Monitoring and Characterization Strategies to Support Decision-Making**
- **Dissemination and Exploitation Activities**
- **Refined and Expedited Access to Financing Solutions**

An open innovation test bed for building envelope materials



Partners

National Technical University of Athens/R-NanoLab

Eurecat- Technology Centre of Catalonia

Technical University of Dresden

SINTEF

Norwegian University of Science and Technology

Research Institutes of Sweden

INEGI – Institute of Science and Innovation

Innovation in Research and Engineering Solutions

University of Strathclyde

Granta Design

Hamburg University of Technology

Stratagem Energy

Fraunhofer Institute for Solar Energy Systems

Polytechnic University of Turin

Technological Institute of Aragon

Cidetec

E2ARC Architecture Research for Cities

AiDEAS

TEGnology

Fenx

European Research Center for Design and Materials Technologies

Bergamo Tecnologie

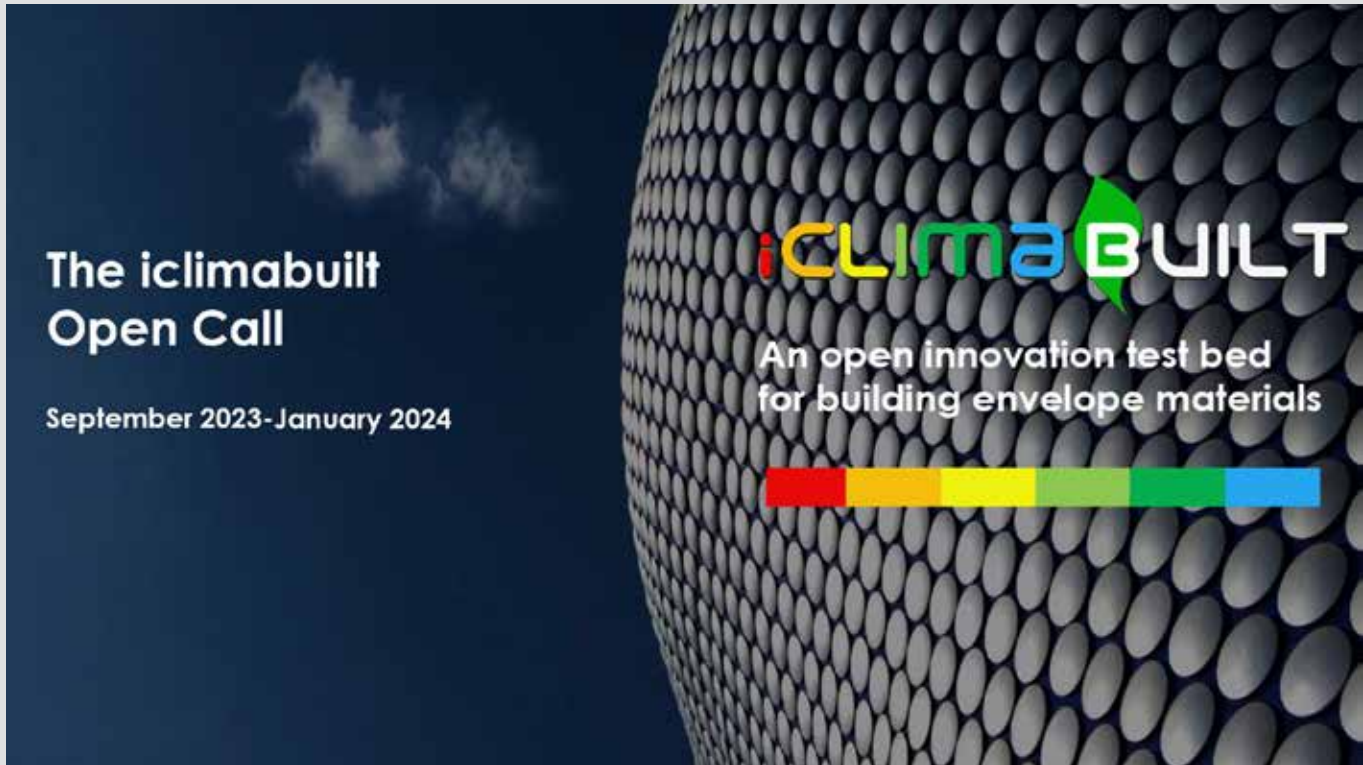
Open Source Management

Rubitherm Technologies GmbH

University of Birmingham

BioG3D

Leipzig University of Applied Sciences



The Open Call of iclimabuilt OITB project has been extended by one month and ended on January 31, 2024!

Iclimabuilt is an Open Innovation Test Bed, funded by the EU, with the aim to create an open access ecosystem for developing, upscaling and testing innovations in building envelope materials and technical systems.

For the scope of validating the developed ecosystem, iclimabuilt will, through the Open Call, support and help small and medium-sized high-tech firms to scale up and cope with the continuous rise of technological complexity, assisting in the transformation of research results into innovations.

Take advantage of the offered services and be one of the Experimentation Teams that will shape the future of sustainable building materials!

Introduce your technologies and deploy test cases referring to materials for building envelopes towards nZEB. Iclimabuilt's ecosystem will offer you services for free (development, testing, upscaling, validation etc.) and put at your disposal the Pilot Lines of the project. In addition, we will support you by providing 70% funding to your project!

PL3 and TC7 results

TC7.2 acoustic panels have been produced and partially shipped by BIOG3D (14/11/2022) to POLITO, (15/05/2023 and 23/08/2023) to CIDETEC, and (16/06/2023) to EUT for functional properties optimisation, lab-scale testing, and long-term monitoring, respectively.

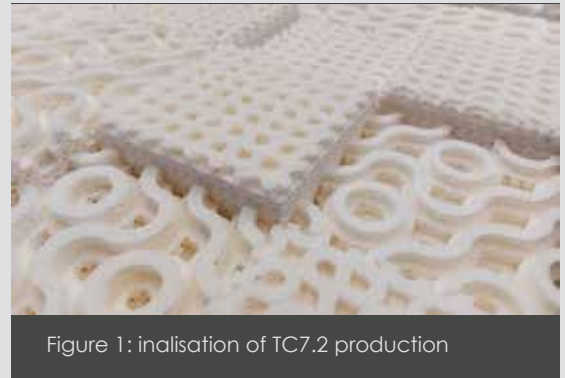


Figure 1: inalisation of TC7.2 production



Figure 2: TC7.3/TC7.4 shipment to Amposta LL.

TC7.3/TC7.4 absorbing components have been finalised and shipped by BIOG3D (22/12/23) to EUT for integration in the Amposta Living Lab.

The next step will be the verification of long-term monitoring approaches, as well as the final prototypes' demonstration and evaluation in terms of acoustics (TC7.2), thermal comfort (TC7.3) and air-quality improvement (TC7.4), in Living Labs corresponding to different climatezones.

Participations

BIOG3D has participated as visitor at Formnext 2023, Frankfurt, GERMANY (7/11/23-10/11/23) and as supporting exhibitor at the booth of iclimabuilt in The Greener Manufacturing Show 2023, Cologne, Germany(8/11/23-9/11/23), promoting the Open Call to targeted audiences(e.g. recycled material providers).

On 25/01/24, BIOG3D participated as a speaker in the internal consortium workshop, showcasing upscaling strategies for materials developed in PLs. Design for Additive Manufacturing (DfAM) methods for upscaling the production capacity of PL3, dedicated to 3D printed IEQ applications were presented under the title: “Upscaling the production capacity of a 3D printing Pilot Line for Indoor Environmental Quality (IEQ) applications: Design for Additive Manufacturing (DfAM) approaches for material production capacity increment and material waste reduction”. The focus was put on two case studies related to (a) custom toolpaths for material waste reduction and surface morphology consideration, and (b) Fused Filament Fabrication (FFF) AM process parametrisation for multi-functional properties integration in a single fabrication process.



Figure 1: Internal workshop on upscaling the production capacity of PL3, dedicated to 3D printed IEQ applications.

Aerogels

Aerogels, known as lightweight and high-insulation materials, can improve the properties of nearly zero energy buildings. Our pilot line aims for a large-scale production plant to produce 1500 L aerogel particles per year.

The production of aerogels contains 4 steps: dissolution of precursor, gelation, solvent exchange and supercritical drying with CO₂. In this project, we scale-up our existing plant in each of these steps.

In the last month we focused on the the completion of the gelation and solvent exchange plant. In the gelation plant, 100 liters of gels can be produced in one batch. During solvent exchange, the water in the pores is replaced with ethanol so that the gels are dried supercritically.

By scaling up the plant, we can now generate sizeable amounts of aerogel, enabling adequate sample distribution to potential users for testing their applications. This represents a significant step towards commercialising aerogels.

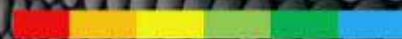


An overview of the sustainable eco-design process for energy efficient building products

Detail of TC3 element

ICLIMABUILT

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WEBINAR SERIES

An overview of the
sustainable eco-
design process for
energy efficiency
construction
products

Details:

- The applicable environmental legislation and regulations
- The roadmap of launching sustainable construction products to the market
- Life Cycle Assessment and its application in eco-design projects
- The benefits of the simulation works
- Practical cases of application

Date:

Tuesday 20th February 2024

Time:

10:00 – 11:30 CET (UTC +1)

[Registration Link](#)



Invited speaker:



Irene Ráfols



Raquel Busqué



Carolina Villa
González



Regina Enrich



Ginevra Li Castri



Contact:

natechanok.chitovranund@ri.se
info@iclimabuilt.eu

More info:

iclimabuilt.eu

Social media:



Live Cycle Assessment of the iclimabuilt innovative building materials

An internal workshop on LCA organized by IRES and SINTEF on 12/2/2024.

The workshop is dedicated to the Life Cycle Assessment (LCA) of innovative building materials into the iclimabuilt framework. The workshop includes insights into the LCA methodology and presentation of LCA results for specific iclimabuilt materials, followed by open discussions and Q&As.

The workshop aims to increase the iclimabuilt partners' knowledge and understanding of the potential environmental impacts of building materials manufacturing. In this content, the partners will be informed about any environmental hotspots across the material manufacturing lines, revealing options and recommendations for climate change mitigation.





Project Coordinator:

Prof. Costas A. Charitidis.
National Technical University of Athens,
9 Heroon Polytechniou St., Zographos,
Athens,
Greece GR-157 73

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Project info:

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