

Exploring the benefits of sustainable construction materials and active modules to boost energy efficiency in buildings

12 September 2023 – Construction experts from across Europe have published two white papers on two key innovations in the building industry. The first publication is on [prefabricated active modules for facades and roofs](#), the second is [on sustainable construction materials](#). The white papers assess the benefits of these technologies, identify existing barriers and give recommendations for mass deployment.

The Implementation Working Group on Energy Efficiency in Buildings (IWG5) established two task forces dedicated to these topics at the beginning of the year. The task forces published white papers that aim at updating the IWG5's Implementation Plan, that sets out actions required to achieve European and national energy targets for buildings.

IWG5 provides expert knowledge on decarbonising the buildings sector to the European Strategic Energy Technology (SET) Plan. It is composed of government representatives of European and associated countries, industrial stakeholders, non-governmental organisations, and research institutes. IWG5 creates on a regular basis task forces with experts in specific fields to give recommendations on how to boost the adoption of innovative and sustainable technologies in buildings. Future calls for experts can be found [here](#).

Active modules to enhance energy-efficient and sustainable construction practices

The task force on Active Modules was composed of energy efficiency experts from across Europe coming from energy and research ministries, relevant energy saving agencies, academia and from industry, including equipment manufacturers. Members of this task force focused on the latest advancements in technologies and techniques to use standardised panels for ventilated façades and roofs.

The white paper on active modules highlights the importance of the following elements:

- Synergy among different construction players to trigger market adoption of active modules.
- Holistic analysis of the costs and benefits of active modules to determine the overall impact.
- Exploiting digital opportunities is crucial to leverage the advantages of digitization in the decision-making and design processes and enable data-driven approaches through IoT and AI systems connected to building management.
- Engagement from the entire construction value chain ecosystem is fundamental and only through tight collaboration can market-ready solutions be achieved.

The need for concerted efforts, collaboration, and embracing digitalisation to drive the successful implementation of active modules is essential to pave the way for a future of energy-efficient and sustainable buildings for applicable market ready solutions.

Additionally, specific actions and investments are necessary to promote the widespread adoption of active modules as they can contribute to cost reduction, energy efficiency, and energy load management.

Advanced materials can contribute to resilient and sustainable value chains in the EU

Construction materials play a pivotal role today, impacting many different fields. A wise design of materials can significantly improve buildings energy efficiency, reducing both construction and operating costs. However, when choosing a material, costs and sustainability aspects should be taken into consideration. Innovative materials with thermal and moisture buffering capabilities, materials specific for ageing in place, optimal multi-domain comfort materials and materials capturing air contaminants and pollutants should also be considered.

The task force on Advanced Materials was composed of experts from the field of new materials as well as sustainability across Europe coming from energy and research ministries, relevant agencies, academia and industry.

In their white paper, the task force members summarise the latest technical findings in the field of innovative materials and technical solutions applicable for the construction of new buildings and/or refurbishment of existing buildings while also considering sustainability aspects. The white paper also recommends the following:

- Broader spectrum solutions centred on advanced materials paving the way for a significant change in the entire construction industry, triggering a positive ripple effect in multiple domains.
- Measurement and monitoring techniques to regularly gather multi-domain information exploitable in development, transformation, and integration phases of innovative sustainable materials, making their life cycle optimized during use and beyond.
- **Citizens' well-being** and quality of life.

To achieve the EU's targets for decarbonization, building renovation, energy efficiency and renewable energy, actions to speed up both research on sustainable construction materials and the uptake of the developed solutions are required, such as funding schemes, dissemination and exploitation activities to enhance citizens' awareness and engagement, and management of the lessons learnt, and skills needed.

For more news on the project and on actions to decarbonize the buildings sector, [subscribe to the "Policy Radar" newsletter](#), visit our website www.iwg5-buildings.eu and follow the project on social media (@IWG5_Buildings).

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