Promise made, promise kept: Cellulose insulation for a greener and more resilient European building stock

A PUBLICATION BY THE
EUROPEAN CELLULOSE INSULATION ASSOCIATION

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"Promise made, promise kept:
Cellulose fiber insulation continues to play the first fiddle as the greenest of the green and most resilient insulation material."

Pasi Typpö
Chairman of the Board

Common European action, as set out by the highly ambitious yet crucial European Green Deal with the overarching goal of making Europe climate neutral by 2050, was never more important than today.

With the lingering effects of the energy crisis, the ongoing geopolitical instability following the War in Ukraine, and the accelerating impacts of climate change across Europe, the action requires not only a joint approach, but even more so a swift and targeted implementation. This is even more true for the fragmented nature of the building sector.

ECIA and its members hereby reaffirm their strong belief that a dedicated renovation fund, combined with a commitment to make the renovation wave truly green and sustainable — and not merely greenwashed — will play a decisive role in its success.

The time is now for resilient and green insulation materials to take center stage. From low embodied energy, via locally sourced raw materials to decades of bringing comfort to homes and wallets alike – cellulose fibre insulation continues to keep its made promises.

As part of its commitment to innovation and sustainability, ECIA actively participated in the Horizon Europe project Calimero, which addressed the integration of environmental improvements and sustainability assessments, considering also economic and social dimensions. The project directly supports the European Green Deal.

Pasi Typpö
Chairman of the Board
European Cellulose Insulation Association

Promise 1: Greenest of the Green

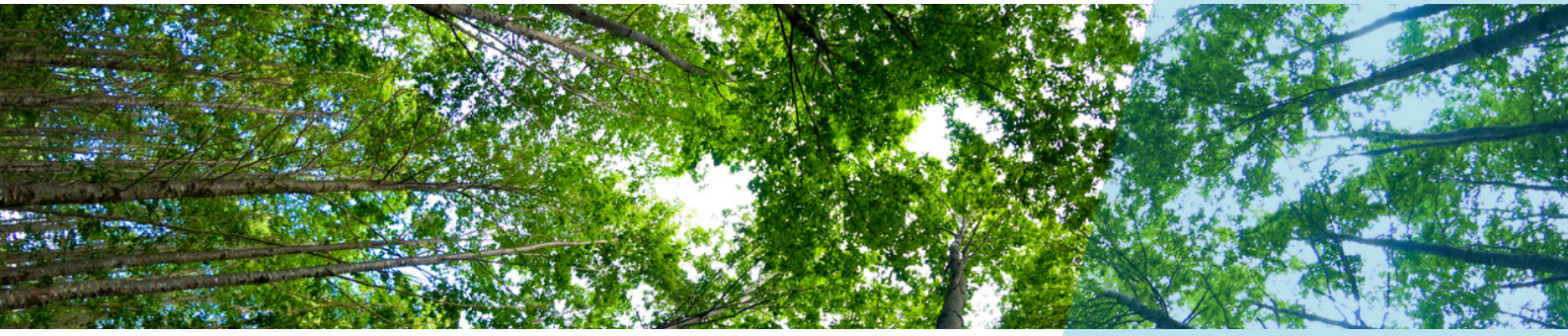
In the core of the European Green Deal's and #NextGenerationEU's proclamations, the word green remains a guiding principle. Today, these initiatives aim to make the European Union a greener and more sustainable place to live and work for generations to come, with cellulose fibre insulation ticking all the required boxes.

Yesterday's news is today's insulation:

The bio-based, natural thermal insulation material made of cellulose fibres is produced by upcycling clean and sorted daily newspapers, which make up to 95 %of the final product. Through its production cycle, the fibres are treated with mineral additives, which allow the final product to be fire and mould resistant. You may enjoy your daily newspaper with a cup of coffee in good conscience, knowing through ECIA members' cooperation with printing houses, municipalities and recycling companies, your old newspaper will find its way into homes providing comfort through its insulation capacities.

Green through and through:

Manufacturers' commitment to the circular economy and upcycling can only be truly meaningful if the production process itself avoids excessive fossil fuel use or high energy consumption. It's reassuring to know that cellulose fibre insulation performs well in this regard. Its low primary energy demand for production—including all processes—is approximately 5 kWh/m^3 at a density of 50 kg/m^3, which further strengthens the material's impressive ecological footprint during manufacturing. Combined with manufacturers' dedication to sourcing green electricity, the finished product, ready for shipment, stands out as a genuinely sustainable solution—green through and through.



Promise 2: Resilient product made in and for Europe

"For decades, production shifted to regions that seemed more cost-efficient. Today, the tide is turning. Across Europe, industries are rebuilding capacity at home to secure supply chains and strengthen economic sovereignty.

Global disruptions like the COVID-19 pandemic and the war in Ukraine have exposed critical vulnerabilities. They revealed how fragile international supply networks can be and underscored Europe's urgent need for self-reliance. Climate change adds yet another challenge, with extreme weather events becoming a regular headline across the continent.

Protecting people, communities, and economies from climate-related shocks must be a core priority in Europe's post-COVID recovery. Resilience-building should be embedded in the European Green Deal's sustainability transition, integrating economic, technological, social, and institutional innovation.

How can insulation material help in this regard, you may ask?
ECIA and its members, looking back at more than 50 years of experience on the European market, know of their responsibility towards the European Community facing current and future challenges. As to cellulose fibre insulation, the production plants were and will always be found in the heart of Europe. Additionally, cellulose fibre insulation materials are locally sourced, produced and used, ensuring independence from external shocks in the global supply chain. Lastly, cellulose fibre insulation tackles, through its thermal capacities, two of the most pressing issues faced by, in particular, the poorer segments of society: energy poverty and more extreme weather conditions

Significant progress has been made in the industry over the past year. Beyond gaining a deeper understanding of the entire process environment, prefabrication has now firmly established itself within the EU. Thanks to these advancements—especially for timber construction companies—it is now possible to blow cellulose fibres directly into complete prefabricated elements. This innovation not only streamlines production but also enhances efficiency and sustainability in modern building practices.

Promise 3: Comfort and health for generations

In Europe, homes are built for generations. In most European countries, at least half of the existing residential buildings were built before 1970. Combined with the fact that thermal insulation and energy efficiency was not at the forefront of discussions until the 2000s, this consequently leads to a grim picture of the current European building stock, in particular when it comes to the ambitious but crucial goal of carbon neutrality by 2050. As of today, less than 3 percent of current buildings within Europe do not need to be upgraded until mid of this century.

Based on estimations that 75 - 90% of current buildings will be still standing by 2050, retro-fitting moves to the center of attention for any home owner and public and private housing associations.

Cellulose fibre insulation continues to remain a trusted choice for retrofitting projects to provide multi-generational comfort, as it

- continuously performs for more than 60 years,
- adapts to your surroundings in storing and releasing humidity,
- serves as CO2 storage, and
- provides a pleasant inside temperature no matter the harsh conditions outside not only protects against cold – it actively enhances indoor comfort by regulating heat perfectly from the outside.

With the continued rise of temperatures and extreme weather occurrences, repeatedly resulting in heat waves and heavy storms and flooding, having an adaptable and tough insulation material to weather any climatic conditions is important for a long-term retrofitting project.

Promise 4: Proven performance and trusted expertise

ECIA and its members stand behind cellulose fibre insulation not only because it presents itself as the logical sustainable and resilient choice for energy renovations of the building envelope. In hundreds of tests conducted by universities, research facilities and in-house testing rounds, the integrity and performance of the material under assessment were proven time and time again.

This means for public stakeholders, contractors and customers alike the reassurance that any stated information in technical documents and elsewhere was not merely fabricated to describe a desired state, as recently and over the years discovered among market contenders' practices. On the contrary, the promises cellulose fibre insulation manufacturers make every single day by bringing their product to the market is a promise kept.

But the promise does not end at the doors of the production plant. Throughout a network of trusted experts, who are undergoing regular training and updates on the newest technologies available, the material is being blown in at the respective attics or walls, seamless and without waste but with a guarantee for a green, resilient, healthy comfort within each home for years to come.

ECIA's recommendations for a green and sustainable renovation wave:

The European Cellulose Insulation Association **fully supports** the European Commission's assessment that buildings and the renovations thereof play a decisive role in achieving carbon neutrality by 2050.

Hence, **investments in carbon-neutral buildings are of utmost importance and represent an opportunity to reconcile climate goals while jump-starting the European economy.** The construction sector's environmental responsibility and sustainability are indispensable preconditions for the implementation of the EU Green Deal, the Renovation Wave as well as the Circular Economy Action Plan.

The Renovation Wave initiative is **a unique opportunity to tackle climate change while delivering concrete benefits to European citizens**:

- **Single largest energy consumer:** Buildings are the single largest energy consumer with approximately 40% of EU energy consumption. It is estimated to go up to 50%, if the construction industry and its upstream value chain are included.
- I**ncreased urbanization**: In Europe in 2050, the volume of floor additions could top 20 billion square meters by 2050. The renovation of buildings in the residential sector has the most potential for energy savings. Residential buildings represent the largest share of the total building floor area in the EU (76%) and suffer from chronic investment barriers. **Engine to**
- **recovery:** The building sector represents 7-10% of today's workforce in the OECD, a major source of employment, hence economic growth and social welfare, with SMEs contributing more than 70% of the value-added in EU's building sector. Investments in energy efficiency stimulate the economy, especially the construction and renewable energy industries, generating about 9% of Europe's GDP and directly accounting for 18 million direct jobs.
  Energy efficiency measures for healthier and more inclusive societies: Buildings are
- where people live and work, and where people spend 95% of their time. Energy poverty, a major issue before the economic crisis, is now set to explode. 80 million Europeans already live in homes that make them sick. Buildings in Europe are highly inefficient: a 2017 BPIE study has shown that more than 97% of buildings must be renovated to achieve decarbonisation. Inadequate buildings can be tied to half of excess winter deaths. Prioritizing the usage of bio-based, natural and sustainable materials and technologies can significantly contribute to the health of its inhabitants and lifts people out of energy poverty. **Products & Know-how Made in Europe:** Europe has a lot of strengths in the construction area, with leading players covering
- the whole spectrum of the value chain (construction industry, technology providers, utilities, services business and specialized software companies).

Precondition for making the renovation wave a success:
In order to allow the EPBD's goal of decarbonizing the EU building stock by 2050, the Renovation Wave should be designed to reach **a minimum of a 3% renovation rate per year.**

Transforming the buildings sector will both take decades and require substantial financial and human resources, as well as integrated approaches and measures to be taken on multiple stakeholder levels:

Guiding Principles:

- **Swift implementation** of the "Energy Efficiency First" principle as the fastest and most cost-effective way to reduce emissions and stimulate sustainable economic recovery.
- **Political accountability** to be ensured through specific, enforceable milestones and review mechanism, given the 2050 decarbonisation objectives is decades away
- Assessment of environmental and energy performance by categories of buildings, reflecting the results into a minimum green public procurement threshold for sustainable products to **boost the use of bio-sourced, natural carbon storing materials** and solutions for better resource and energy efficiency
- Definition of clear energy efficiency measures as i**mprovements of the building envelope** (insulation, new windows, etc.), driven by economical, technical and environmental assessments
- **Connection** of Renovation Wave to **relevant, interlinked policy initiative**s: Circular Economy Action Plan, the SME strategy and EU Industrial Strategy.

Swift and unbureaucratic implementation:

- **Exempt** energy efficiency building renovation projects **from EU state aid rules**. More complex state aid procedures constitute barriers to swift implementations of building renovation projects.
- Encourage Member States to use **exceptional fiscal measures** to support the renovation of existing buildings (e.g. reduced VAT rates on labour intensive services in the construction sector and efficient construction materials, eco bonus, etc.)
- **Support** the introduction of **building renovation passports**, accompanied by specific financing/funding information and one-stop-shops (regional and local level) that accompany the building owner
- **Address potential liquidity problems** of the construction ecosystem involved in renovating the existing building stock, due to COVID-19 crisis
- **Ensure public funding from well-designed investment programmes** to complement the already committed private investments. High volumes of investments are necessary. Housing providers already committed to large investments for renovating houses before COVID-19. However, in order to adapt the entire social, cooperative and public housing stock, more investments are needed

Education and support for homeowners:

- Establish an EU wide programme to **massify free advice on renovation** (e.g. online tools to plan/sketch renovation developed under Horizon 2020)
- **Raise awareness** and increase public relations work **to communicate the consequences of low embodied energy materials** (grey energy), CO2 pricing, etc., so that owners can make educated decisions on the costs and benefits for the renovation projects of their buildings
- Reduce barriers to renovation for building owners by alleviating inconvenience of renovation for buildings owners and providing technical and financial assistance

Renovation wave as green, sustainable wave:

- **Prioritize the use of bio-sourced, natural carbon storing construction materials** and solutions with low embodied energy (grey energy)
- **Define accurate accounting rules** to measure and confirm the substitution effect of using bio-sourced products instead of carbon-intensive materials
- Ensure that materials used for construction and renovation return to the value-chain by fostering eco-design, **increasing recycling targets** and favouring wherever possible the use of secondary raw materials for construction and renovation products