

# Industrial Hemp Conference

## Panel Discussion One: Shaping the Future of Eco-Friendly Building

Liam Donohoe (UK Hempcrete)

### Addressing Economic and Environmental Challenges

Liam Donohoe, Chief Operating Officer at [UK Hempcrete](#), addressed the significant economic implications associated with carbon emissions in the heating sector, which is a major contributor, surpassing both electricity and transport. He pointed out the looming financial burden ranging from €8 billion to €26 billion that society will face if carbon emissions are not tackled effectively. Liam emphasised the necessity of investing in sustainable infrastructure and advocated for a paradigm shift in insulation standards to incorporate bio-based materials. By aligning building regulations with the attributes of bio-based materials, the viability of producing and utilising these materials in Ireland would be enhanced, ultimately leading to lower life cycle costs.

### UK Hempcrete's Mission and Services

Founded in 2015, UK Hempcrete is a pioneering company specialising in hempcrete, a sustainable composite material made from hemp and lime. The company offers a suite of services, including comprehensive product design specification, energy certification, and consultancy for both new construction and retrofit projects. Their expertise is increasingly focused on retrofitting older buildings to achieve Net Zero energy targets by 2030. This involves collaboration with registered social landlords and community housing cooperatives, aiming to develop strategic retrofit plans that align with sustainability goals [UK Hempcrete](#).

**Educational Initiatives and Role at TU Dublin** Beyond his operational duties, Liam is deeply involved in education, serving as a part-time lecturer at Technological University Dublin (TU Dublin). He leverages his expertise to educate architects and engineers about the benefits and applications of Hempcrete. By showcasing successful projects and real-world applications, Liam aims to bridge the knowledge gap and promote Hempcrete's market potential. His educational outreach is pivotal in transforming Hempcrete from a niche product into a mainstream building solution.

Liam is an advocate for education within the construction industry. He has been actively involved in training architects and engineers, ensuring they are well-versed in the application and benefits of hempcrete. By promoting successful case studies and real-world applications, UK Hempcrete aims to bridge the knowledge gap and expand hempcrete's market potential. This educational outreach is crucial to transforming hempcrete from a niche product into a widely accepted building solution.

### Advantages of Hempcrete

Liam elaborated on the distinct advantages of hempcrete over traditional building materials. Hempcrete is a lightweight, non-structural material that excels in insulation and moisture absorption, offering superior thermal performance. This means it retains heat longer, creating a stable and comfortable indoor environment. Hempcrete's natural properties contribute to healthier

indoor air quality, with anecdotal and empirical evidence supporting its benefits, such as lower energy bills and improved occupant health. Liam emphasised the importance of disseminating this information to the mainstream market and working alongside companies like Kingspan to ensure that testing and standards reflect hempcrete's inherent advantages.

### **Company Details and Contact Information**

UK Hempcrete is headquartered in Cromford, England, and operates with a dedicated team focused on sustainable building practices. They offer consultancy, technical support, and training services tailored to specific project needs. For more information or to discuss potential projects, UK Hempcrete can be contacted via email at [info@ukhempcrete.com](mailto:info@ukhempcrete.com) or by phone at +44 (0)1629 343143 [Contact UK Hempcrete](#).

In summary, Liam Donohoe's contributions highlight the strategic importance of hempcrete in addressing both environmental and economic challenges. His work at UK Hempcrete highlights a commitment to advancing sustainable construction practices and promoting the widespread adoption of bio-based materials.

### **Patrick Daly (TU Dublin)**

My name is Patrick Daly, and I'm a lecturer and researcher at TU Dublin. My background lies in architecture, technical design, and project management. For over 15 years, I've delved into sustainable building practices, focusing significantly on hemp. More than 12 years ago, we undertook an EPA-funded study on the potential of straw as a construction material in Ireland. More recently, I've been involved with the Circular Reno Project, which explores agricultural crops like hemp, straw, and miscanthus to develop their supply chains in Ireland. We are also investigating how these materials can be incorporated into modular systems—a relatively new phenomenon. Across Europe, around 15 to 17 companies are integrating these bio-based crops into modular and prefabricated systems, which is quite innovative and demonstrates significant investment in bio-based construction systems.

The integration of sustainable thinking in education is a challenge. Some universities are introducing these ideas, but it often remains aspirational and theoretical. What we lack is the hands-on, skills-based training that Steve's school embodies—training that shows how to mix and use these materials. Unfortunately, traditional curriculums in secondary schools and universities focus on conventional methods, like masonry construction, rather than innovative materials. This gap exists partly because some lecturers come from an older school of thought. At TU Dublin, we've developed a Master's program in Energy and Environmental Design to address this, incorporating skills like LCA circularity and energy analysis.

Certification is another challenge. In the Irish context, hempcrete is not yet mainstream certified, despite meeting equivalent standards elsewhere in Europe. There's no technical barrier to using hempcrete in Ireland, and individuals can prove compliance on a case-by-case basis. However, there's no current manufacturer in Ireland seeking certification that I'm aware of. This lack of certification adds complexity to using these materials, especially for larger projects. We need localised production and construction systems to reduce costs and optimise sustainability, supporting local economies with low carbon footprints.

The diversity in hemp construction is growing. The industry began with the hempcrete movement in France and has expanded to include products like hemp quilts, blocks, bats, and boards. These materials can replace conventional ones, offering unique construction methods. Modular construction offers another opportunity, allowing for better quality control and faster on-site construction. In Europe, hemp is being integrated into modular systems and even conventional materials for additional properties, like reducing shrinkage in concrete.

Government policy could play a significant role in promoting bio-based materials. We're lobbying for mandatory integration into green procurement, following examples like the Netherlands, where a market activation team received substantial funding to kick-start bio-based construction.

Finally, the construction industry must embrace change. It's traditionally conservative, but skills-based education for design and construction professionals is crucial for integrating sustainable practices. We need to move beyond theoretical knowledge and provide practical training to drive this change.

## Ronan McDermott (HempBuild)

**Background and Company Overview** Ronan McDermott, based in County Meath and Dublin, has a rich background in natural plaster. About a decade ago, his interest in lime and clay led him to discover hempcrete as the ideal substrate for his work. This discovery marked the beginning of his journey into hemp construction. Today, Ronan's company specialises in retrofitting stone cottages and homes using hemp blocks, balancing the charm of natural materials with the modern demand for swift construction. His team has successfully completed over 100 projects across Ireland, earning numerous customer testimonials. As the director, Ronan ensures that his team not only supplies and installs hemp products but also provides thorough follow-up support. They cater to DIY home builders and offer full installation services.

**Collaboration with Local Councils** Ronan's engagement with local councils has been fruitful. When approached about a project involving a wood-frame building, he found the council to be highly receptive. The project utilised hempcrete, which naturally complements other eco-friendly materials like natural plasters and paints. Ronan and his team used Italian cork plaster for the interior and traditional lime plaster for the exterior, following a conservation approach. This project exemplified the synergy between hempcrete and natural materials, creating a sustainable and aesthetically pleasing result.

**Benefits of Hemp Construction** Ronan highlighted the unique advantages of hemp-built homes, particularly in Ireland's humid climate. Inside a hemp house, humidity levels are significantly lower, creating a microclimate and a chemical-free environment. This natural construction method offers excellent thermal regulation, with heat being retained within the building's fabric. As a result, hemp houses are highly energy-efficient, contributing to improved air quality and health benefits for residents, such as alleviation of skin conditions and better sleep quality.

**Industry Collaboration and Certification** Ronan's company collaborates with [ISO Hemp](#), a Belgian company producing five to six million hemp blocks annually. These blocks come with Belgian agrément and fire certifications, which Ronan successfully promotes in Ireland. He underscores the critical role of farmers in supporting the hemp industry, as large-scale production requires collaboration among farmers in France, Holland, and Belgium.

**Fire Resistance of Hempcrete** Addressing concerns about fire safety, Ronan attested to the fire-retardant properties of hempcrete. In a real-world incident involving a faulty fire in a yoga studio, the building's hempcrete walls remained intact while the rest of the structure was compromised. This experience highlights hempcrete's resilience and reliability as a building material.

Ronan McDermott's work in hemp construction demonstrates the potential for sustainable building practices that harmonise natural materials with modern efficiency. His projects reflect a commitment to quality, innovation, and environmental stewardship, paving the way for a greener future in construction.

### **HempBuild Overview**

HempBuild is a company that specialises in supplying and distributing sustainable construction products, including IsoHemp hempcrete blocks, Hempflax Plus insulation, and various lime-based materials. Their focus is on providing natural, energy-efficient, and non-toxic building solutions. They offer consultancy services for homeowners, builders, and architects interested in utilising hemp in construction [HempBuild](#).

HempBuild has been involved in numerous projects, ranging from new builds and extensions to deep retrofits of farmhouses and apartments. Their expertise extends to assisting with all aspects of a project, from material supply to design and installation [HempBuild Projects](#).

For more information or inquiries, you can contact HempBuild Sustainable Products Ltd. at Suite 10688, 5 Fitzwilliam Square, Dublin 2, D02 R744. They can be reached by phone at +353 (01) 234 3711 or via email at [info@hempbuild.ie](mailto:info@hempbuild.ie) [HempBuild Contact](#).

## **Steve Allin**

**Background and Early Ventures** Steve Allin, a pioneer in hemp construction based in County Kerry, shared his remarkable journey at the Industrial Hemp Conference. Over 28 years ago, Steve started using hemp to build his own home. What began as a personal project quickly evolved into a passion that drove him to invest €10,000 in a hemp company, which was a significant sum for a young family man at the time. Unfortunately, the investment did not pan out as hoped due to the company's unrealistic technological goals. Despite this setback, Steve's determination led him to develop a prototype machine for processing fibres, collaborating with experts from both Northern and Southern Ireland.

**Promoting Hemp in Construction** Steve has been a relentless advocate for hemp as a building material. He was involved in supplying materials for over 200 projects before transferring his business to the Traditional Lime Company, which specialises in binders and plasters. Realising the importance of education, Steve wrote the first book on hemp building to efficiently disseminate knowledge and reduce the time spent explaining the process over the phone.

**Formation of the International Hemp Building Association** To further promote hemp construction, Steve founded the International Hemp Building Association, holding its first conference in Kenmare. This initiative has since grown to host 12 events worldwide, drawing attention from global experts and fostering international collaboration.

**Innovations in Hemp Building Technology** Steve has been at the forefront of developing hemp spraying technology, creating machinery capable of constructing self-supporting emergency housing

units in just one day. These innovative structures are particularly beneficial for refugee housing, as they do not require traditional frameworks.

**Educational Efforts and Challenges** With over 20 years of experience in conducting hemp building courses around the world, Steve emphasises the crucial role of education in the industry. He advocates for the integration of hemp building into architectural education, criticising the current focus on concrete and steel in Ireland. Steve's efforts include developing training modules for continued professional development, ensuring that builders and architects are well-versed in hemp construction.

**Thoughts on 3D Printing with Hemp** During the discussion, Steve addressed questions about 3D printing in construction. He clarified that while 3D printing with hemp is technically feasible, it does not produce structural buildings. Instead, he promotes spraying technologies as a faster and more efficient alternative.

**Industry Challenges and Opportunities** Steve highlighted the efforts of the European Industrial Hemp Association in promoting hemp construction and addressing regulatory hurdles. He called for imaginative architects willing to take on the responsibility of using hemp, noting successful projects around the world. Despite the growing interest, Steve emphasised the need for government support and structured approaches to expand the hemp industry in Ireland.

**Hemp Cultivation and Yields** Steve provided insights into hemp cultivation, noting that yields vary significantly by region. While average yields in Europe are around six to eight tonnes per hectare, regions like Finland achieve higher yields due to extended daylight hours during the growing season.

Steve Allin's contributions to hemp construction are extensive and impactful. His work spans innovation, education, and advocacy, paving the way for sustainable building practices worldwide.

## Hannah Roughneen (Kingspan)

Planet Passionate is our global environmental sustainability programme that aims to impact on three big global challenges; climate change, circularity and protection of the natural world.

One of our key goals is product decarbonisation, i.e. the development of existing or new products with lower embodied carbon and utilisation of recycled and / or renewable raw materials.

We aim to offer a comprehensive product portfolio to help address every building need. This includes providing a complete spectrum of insulation technologies, a key element of our product decarbonisation strategy. In 2024, we launched our BioKor® insulation brand. This brand includes products made from a majority of bio-based raw materials.

Our HemKor® product range was brought to market in 2023 is included in this product range. Also, in January 2024, we acquired a majority stake in STEICO, a global leading wood fibre insulation business. Steico's suite of wood based building envelope solutions broadens our range of bio based products.

Cost can be a barrier for bio-based products. While architects and engineers may prioritise the environmental impact, customers often focus on cost. We're marketing primarily in mainland Europe due to high demand, especially in Germany, the Netherlands, and Belgium. In the UK and Ireland, interest is growing and regions like New Zealand and Australia, bio-based insulation is still emerging,

sometimes using more locally available materials like sheep wool. America is slowly adapting this technology.

Certification is a significant hurdle for smaller companies producing fibre-based products, often due to time and cost. Recently, a hemp insulation standard was introduced, focusing on thermal properties, but comparisons are still made against other insulation standards. This creates challenges for products like hemp, mycelium, and seagrass, which have unique properties.

Life Cycle Assessments (LCA) are crucial in evaluating environmental impacts, but there is no single standard, leading to inconsistencies in comparisons. [Eco Platform](#) is working to harmonise EPD hubs across Europe to standardize environmental impact assessments. Understanding the production and energy consumption associated with raw materials is vital, and we strive to minimize transportation, sourcing hemp from Germany and the Netherlands for local production.

Our primary focus is on insulation materials, but the principles apply to hempcrete as well. We've conducted our own life cycle assessments, showing that hemp's carbon sequestration leads to negative carbon emissions. We continuously explore ways to reduce the energy intensity of our own operations, whilst also increasing generation and procurement of renewable energy.