Submission to the Rural and Regional Affairs and Transport References Committee

Inquiry into the opportunities for the development of a hemp industry in Australia

Submitted by:
Jeremy Thomas and **Kirstie Wulf.**
Founders/directors of the Hemp Building Directory (HBD)

Date: 9/10/2025

1. Introduction

The Hemp Building Directory (HBD) is a social enterprise partnership dedicated to advancing the use of hemp in construction, with a primary focus on hempcrete. We operate as a central resource hub for architects, suppliers, builders, educators and the public. Through our Directory, events, and educational content, we connect industry stakeholders, both peer to peer and to consumers, and promote evidence-based, sustainable building solutions.

Our mission is to accelerate the transition to low-carbon, healthy, and resilient buildings by advocating for hemp-based materials, with hempcrete, hemp building products and sustainability at the forefront.

Contents

2.1 The role of hempcrete in climate action

Hempcrete is a bio-composite material made from the woody core of the hemp plant (shiv or hurd), combined with a lime-based binder.

2 pathways slide show

Its significance lies in:

- **Carbon storage**: Industrial hemp absorbs atmospheric carbon dioxide during growth. When used in hempcrete, this biomass becomes a long-term carbon sink, locking carbon into the walls of a building for decades, if not centuries.
    - Ref W Ecofibre Industries - Hemp Plant Analysis 2004.doc
- **Operational energy savings**: Hempcrete's good thermal mass and high insulation properties reduce the energy required for heating and cooling, cutting operational emissions.
- **End-of-life sustainability**: Hempcrete is recyclable, biodegradable, and non-toxic.

In a climate emergency, materials that both **store carbon** and **reduce ongoing emissions** are rare and invaluable. Hempcrete is one of the few scalable options that achieves both.

2.2 Social

- **Healthy living environments**: Hempcrete regulates indoor humidity, reduces mould risk, and improves air quality, contributing to occupant wellbeing.
- **Lower household energy bills:** Hempcrete's natural insulation reduces heating and cooling costs, improving affordability for households, particularly in low-income communities.
- **Community resilience:** Buildings constructed with hempcrete are more comfortable in extreme heat or cold, supporting resilience in regions impacted by climate change.
- **Improved educational and workplace environments:** Hempcrete's non-toxic, humidity-regulating properties create healthier schools and workplaces, boosting concentration and productivity.
- **Bushfire BAL FZ rated:** hempcrete has the highest fire rating so can meet the requirements of all of Australia's bushfire zones, where few other competing materials have Hempcrete's sustainability credentials, helping to create resilient climate adapted buildings.
    - See supporting documentation links and the end of this doc.
- **Enhanced housing equity:** By supporting healthier, longer-lasting, and more affordable homes, hempcrete can contribute to fairer housing outcomes across urban and regional communities.
- **Cultural and lifestyle benefits:** Hempcrete enables locally made, sustainable housing solutions that strengthen community identity and pride in regional areas.

Building with Hempcrete: Lessons from Narara Ecovillage for Future Owner-Builders

Five buildings are constructed for hempcrete at the Narara Ecovillage. This article, and accompanying podcast, covers affordability and performance to beauty and community and how the residents of Narara Ecovillage have shown that natural materials don't just make houses, they make homes.

3. Alignment with the inquiry's terms of reference

(a)(i) Australian farming systems

- Industrial hemp for building requires minimal pesticides and can improve soil structure through deep root systems.
- Rotational hemp cropping supports soil health and reduces erosion.
- Opportunities exist for integrating hemp into existing farming systems, especially in regions seeking drought-resilient crops.

(a)(iv) Australian construction industry

- Hempcrete is underutilised in Australia due to limited awareness, insufficient training, fragmented supply chains, and regulatory uncertainty including the absence of AU Standards.
- Barriers include:
    - The limited availability of tested, standardised hempcrete products and systems. While the National Construction Code allows hempcrete to be approved through a Performance Solution, the cost and complexity of product testing creates a barrier for smaller operators, and discourages wider adoption
    - A shortage of trained installers, highlighting the need for government-funded programs to build workforce capacity, and for biobased building materials to be included in standard construction training courses.
    - Underutilised manufacturing capacity for hempcrete-ready shiv/hurd and binder, due to limited demand and lack of consistent industry support.
    - Australia Hemp Masonry manufactures a lime base binder in Sydney and it is one of the most used binders in Australia. AHM has supplied binder for 200 completed structures and many more being built.
- Solutions include national technical standards, accredited training programs, and investment in processing facilities.

(a)(v) Australia's economy

- Expanding hemp building could stimulate regional manufacturing and job creation in farming, processing, construction and research.
- Export potential exists for hempcrete blocks, pre-fabricated panels and specialist knowledge.

(b) Research and development needs

- Comparative carbon accounting for hempcrete vs. conventional materials in Australian climates.

- Development of prefabricated hempcrete panel systems to speed up construction.
- Long-term durability testing to further inform building codes.

(c) Regulations

- Nationally consistent hemp licensing to avoid cross-border barriers for growers and processors.
- A legislated definition of hemp or **industrial hemp** (cannabis with less than 1% THC) **removed** from the poisons schedule and administered under the Department of Agriculture as a regular crop, not a drug.
- Recognition of hempcrete in the National Construction Code to simplify approvals.

4. Recommendations

1. **Invest in processing infrastructure** for hempcrete-grade shiv to ensure reliable domestic supply close to the end users.
    a. Bast fiber can be used for many things. Just one use for Australians is by Planet Protector in their new $15 000 000 facility to create hemp insulation batts.
2. **Fund independent carbon and lifecycle assessments** of hempcrete in Australian conditions.
    a. **Primary stakeholders:** Carbon Market Institute (CMI), Clean Energy Regulator (CER) and Climate Active.
3. **Integrate hempcrete into national construction codes** to remove unnecessary regulatory hurdles.
    a. **Primary stakeholders:** Standards Australia and ABCB.
4. **Support training programs** for architects, builders, and trades to expand the skilled workforce.
5. **Support Education and Advocacy** nationally like the Australian Hemp Council and the Hemp Building Directory bodies with funding
6. **Encourage public-sector pilot projects** (schools, community housing, government buildings) to demonstrate feasibility and performance.
7. **Develop market incentives** (e.g., carbon credits, green building ratings) to accelerate uptake.

5. Expected Outcomes

If the government adopts the recommended actions, the following outcomes are expected:

- **Expanded domestic hemp supply chains**, ensuring farmers have a reliable and profitable rotational crop and processors can meet market demand.
- **Job creation in regional areas** through new farming, processing, manufacturing, and construction roles.
- **Reduced carbon emissions** from both embodied materials and building operations helping Australia meet climate targets.
- **Increased affordability and accessibility** of hempcrete products as scale and competition drive down costs.
- **Improved public health and wellbeing** by promoting healthy, non-toxic, and mould-resistant homes and buildings.
- **Enhanced global competitiveness**, positioning Australia as an exporter of hempcrete products, prefabricated panels and technical expertise.

6. Conclusion

Hempcrete offers Australia a unique opportunity: a building material that actively combats climate change while delivering healthy, durable, and aesthetically pleasing structures. With strategic support, hempcrete could help transform both the construction and farming sectors, positioning Australia as a leader in sustainable building innovation.

The Hemp Building Directory stands ready to contribute industry insights, connect stakeholders, and promote the outcomes of this inquiry to ensure the benefits of hemp building are realised nationwide.

Contact: Jeremy Thomas and Kirstie Wulf - Hemp Building Directory
Email: accounts@hempbuilding.au
Website: www.hempbuilding.au

Date: 5/09/2025

Supporting documentation

Dolder with all docs here:
https://drive.google.com/drive/folders/1e-fTh4m9uADKYe7cqAKLfYSbPLy2UW1-?usp=sharing

OzHemp Codemark Certificate of Conformity 2022

Deemed-to-Satisfy Provision(s):

- C1.1(b) Fire-resistance of building elements - Refer Limitation and
- G5.2 Bushfire – up to BAL–FZ (Achieved in compliance with FRL)

AHMC BAL Test Report

INTRODUCTION
1.1 General
The purpose of this report is to document the test undertaken by Ignis Labs on the AHM hemp-lime rendered hempcrete walling material provided by Australian Hemp Masonry Pty Ltd. The testing was undertaken within a pilot furnace in accordance with Sections 2 and 3 of AS 1530.4:2014 with the exemption of the measurement of deflection, the measurement of received total heat flux, and without applying a loading system.

AHMC BAL Assessment

INTRODUCTION
Assurance has been engaged to evaluate the FRL performance of AHMC hemp-lime rendered wall system to AS 3959:2018. The subject material has been tested to AS 1530.4:2014 by Assurance under test number IGNL-8027-04-01 conducted on the 12th of September 2024. The specimen was not tested with an applied load and as such this assessment relates only to non-loadbearing applications.

A comprehensive review of hempcrete as a sustainable building material

This review paper serves as a compendium of the multi-faceted realms of hempcrete, showcasing its potential as a bio-based material in construction applications.

A holistic sustainability overview of hemp as building and highway construction materials

Abstract

The construction sector, responsible for over one-third of global carbon emissions, is increasingly focusing on hemp-based construction materials to alleviate the environmental impact in the built environment; however, the lack of information and streamlined processes hinder widespread adoption. By conducting a comprehensive review of state-of-the-art research, this study explores the vast potential of hemp-based materials across the built environment, encompassing building and transportation applications. In this study, the material properties and application of hemp lime concrete for buildings, along with hemp fibre in asphalt for highways, are discussed, and crucial research gaps and technical challenges are identified. Employing a holistic\ sustainability approach, the material evaluation considers economic, social, and environmental factors. Notable hemp construction projects are presented as case studies, emphasising their environmental carbon credentials. Furthermore, tech- noeconomic challenges are scrutinised, and effective solutions are proposed. Beyond its role as a wall material, hempcrete's significant application as building insulation material is highlighted due to its exceptional hygro-thermal properties. The material also shows promise in enhancing asphalt mix for pavement construction. Evidence from life cycle analysis supports the claim that hempcrete can be considered a carbon-negative material.

Moreover, the findings indicate that the hempcrete industry has the potential to yield various macroeconomic and socio-economic advantages, including job creation, enhancing energy access, alleviating cost of energy, and improved societal health and well-being.

Marks And Spencer Cheshire Oaks Store

Point of note

Hemclad® panels in the external walls. These are a pre-fabricated wall panels that uses a lime based binder and hemp. The panels have a U value of 0.12, and have a relatively low embodied carbon footprint compared to traditional wall construction types. (Marks and Spencer have undertaken an independent study of the projects embodied carbon through Deloitte)

A sustainable storage solution

Abstract Portion

...To this end the Science Museum Group employed hemp in the form of hemp-lime concrete, to construct a new storage facility for its collections, drawing on research into the buffering ability of hygroscopic natural building materials. The objective was to reduce energy use, to decrease reliance on mechanical systems and to produce very stable levels of relative humidity, in order to ensure the preservation of significant heritage collections....

Letters of Support

Envirotecture

OzHemp