

## CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

*Author/requestor:*

Danny Desjarlais (Lead)

Simona Fischer, AIA

Anna Koosmann, AIA

Janneke Schaap, Assoc. AIA (primary contact)

*Date:* 07/08/2025

*Email address:*

[danny.desjarlais@lowsioux.com](mailto:danny.desjarlais@lowsioux.com)

[simona@msrdesign.com](mailto:simona@msrdesign.com)

[anna@awharchitects.com](mailto:anna@awharchitects.com)

[jschaap@oertelarchitects.com](mailto:jschaap@oertelarchitects.com) (primary contact)

*Model Code:* 2024 IRC

*Telephone number:*

612-839-0039 (primary contact)

*Code or Rule Section:* Appendix BL.

*Firm/Association affiliation, if any:*

*Topic of proposal:* Hemp-lime (Hempcrete)

*Code or rule section to be changed:* Appendices

*Intended for Technical Advisory Group ("TAG"):*

### General Information

Yes   No

- |  |                                     |                                     |
|--|-------------------------------------|-------------------------------------|
| A. Is the proposed change unique to the State of Minnesota?                            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| B. Is the proposed change required due to climatic conditions of Minnesota?            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| C. Will the proposed change encourage more uniform enforcement?                        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| D. Will the proposed change remedy a problem?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| E. Does the proposal delete a current Minnesota Rule, chapter amendment?               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| F. Would this proposed change be appropriate through the ICC code development process? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

### Proposed Language

1. The proposed code change is meant to:

☐ change language contained the model code book? If so, list section(s).

☐ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

☐ delete language contained in the model code book? If so, list section(s).

☐ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

☒ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.  
No.
3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~striking through~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.

Adoption of the 2024 IRC Appendix BL Hemp-Lime (Hempcrete) Construction, as amended by this proposal Code reference: <https://codes.iccsafe.org/content/IRC2024P2/appendix-bl-hemp-lime-hempcrete-construction>

Appendix BL: Hemp-lime Construction Code with commentary is provided in Addendum 1 as part of this application.

Proposed amendments for the Minnesota code are as follows:

**BL103.5. Mechanical, electrical and plumbing in hemp-lime infill.**

Electrical and telecommunication wiring, panels, and boxes, mechanical ducts, plumbing pipes and other mechanical, electrical and plumbing components made of metal ~~in or in contact with hemp-lime infill~~ shall be isolated ~~from hemp-lime infill with in~~ sleeves, pipes, conduits or tubing made of plastic, or ~~of metal in accordance~~ shall comply with Section BL103.4, or be separated from hemp-lime with approved alkaline-resistant materials.

**BL103.7.10 Roof overhangs.** Hemp-lime walls with direct-applied exterior plaster shall be provided with roof overhangs as follows:

1. 16" (406 mm) horizontal projection for one-story buildings

2. 24" (610 mm) horizontal projection for two-story buildings

Exception: Exterior hemp-lime walls with a ventilated cladding system.

4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.  
No.

**Need and Reason**

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)

Hemp-lime construction is a burgeoning new industry and method of construction that is growing in popularity. Currently, Alternative Materials and Methods compliance through the regulatory process

is the only way to construct a permitted hemp-lime-insulated building in Minnesota. By adopting IRC Appendix BL: Hemp-Lime (Hempcrete) Construction as amended by this proposal, design professionals, builders, and code officials will have a minimum construction standard by which to design, construct, plan check and inspect hemp-lime buildings that ensures their durability and safe use.

2. Why is the proposed code change a reasonable solution?

IRC Appendix BL has been approved through ICC's national model code development process to establish minimum construction standards for hemp-lime construction. It is a highly appropriate assembly with its balance of thermal mass and insulation that is durable due to its resistance to microbial growth and deterioration. It is well adapted for Minnesota's climate, and supports its relatively new agricultural hemp industry. Adoption of Appendix BL as amended is the best way to systematize consistent compliance with code standards.

3. What other factors should the TAG consider?

"Hemp-lime" or "hempcrete" construction refers to a wall assembly composed of a structural framing system, hemp-lime insulation, and plaster or other compatible cladding illustrated in Appendix BL. The materials and methods outlined in Appendix BL provide minimum requirements for safe and durable hemp-lime construction based on testing, research, successful practices and modern building science. Components and materials in hemp-lime walls provide equivalent or better quality, strength, effectiveness, fire resistance, durability, and safety compared with similar components in conventional wood-framed walls. The Commentary version of Appendix BL includes extensive additional guidance for interpreting the code provisions and additional information about best and/or acceptable alternative practices.

**TAG Concern: Use of WRB with plaster or nonplaster cladding**

- How does Appendix BL address the issue of a WRB behind plaster or non-plaster exterior cladding?
- When using plaster finishes, the moisture barrier should also include a means by which bulk environmental water can be directed to the building exterior via flashings.

Section **BL104.3.1 Membranes** prohibits the use of a WRB (or any other membrane) between plaster and hemp-lime to allow a mechanical bond between the hemp-lime and plaster, and to facilitate the transfer of moisture and allow the hemp-lime to dry. The moisture management characteristics of hemp-lime wall systems can hold and release significant amounts of any weather-related and occupant-generated moisture without damage to the structural members or degradation of the hemp-lime. These characteristics preclude the need for a water-resistive barrier.

The exception to this rule is Section **BL104.6.1 Water-resistive and air barriers**, which allows vapor permeable water-resistive barriers to be applied directly to the hemp-lime when nonplaster exterior cladding is installed in accordance with Section **BL104.6 Nonplaster exterior cladding**. The nonplaster cladding must be spaced not less than 1 inch from the face of the water-resistive barrier to the back of the cladding to allow for ventilation. The ventilation space must be open at the top and bottom and be provided with insect screening.

At the bottom of plaster a weep screed is required by Section **R703.7.2.1 Weep screeds** in the body of the code. The Commentary in Section **BL103.3.7 Openings in walls, Item 2**, and **BL103.7 Penetrations in hemp-lime walls, Item 3**, clarifies that appropriate flashing should be integrated with windows and doors, as required in the body of the code.

**TAG Concern: Moisture and height above grade**

- Provide sufficient height and flashing of the stem wall of hemp-lime (hempcrete) walls to ensure durability of the wall relative to Minnesota snow accumulation and safe discharge of any water that enters the wall system.

The current requirements in Appendix BL for the bottom of a hemp-lime wall have been carefully considered and are sufficient to ensure the durability of the hemp-lime material and wall system in all climate zones. Section **BL103.7.6 Separation of hemp-lime and earth or paved area** and Section **BL103.7.7 Separation of exterior plaster and earth or paved areas** require 8" separation to earth or paving. Section **BL103.7.8 Separation of hemp-lime and exterior plaster from foundation** requires the hemp-lime and its exterior plaster to be separated from the foundation "with an approved moisture barrier". Section **BL103.7.9 Base of wall flashing** requires the outer face of exterior walls to be "flushed to prevent water intrusion at the base of the wall". These requirements equal or exceed the requirements for conventional wood-framed walls with comparable finishes. Additionally, the lime binder is hygroscopic, with the ability to hold moisture without negative impacts to the hemp-lime or adjacent materials, surpassing the performance of many conventional materials. Due to its high alkalinity, lime is naturally mold-resistant.

#### **TAG Concern: Thermal performance**

- Demonstrate how a hemp-lime (hempcrete) wall system achieves the minimum thermal performance required in MN's Energy Code.

The building designer must select the thickness of hemp-lime and/or select the hemp-lime density as needed to achieve the minimum required thermal resistance value of the wall. Thermal resistance values of hemp-lime based on density are listed in **Table BL106.2 Thermal resistance of hemp-lime**. Continuous exterior insulation may be utilized as long as the exterior finish assembly meets the minimum vapor permeability requirements of Section **BL104.1 General**.

#### **Cost/Benefit Analysis**

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.  
Same or decrease. The adoption of Appendix BL as amended will only impact costs of construction for owners who choose to build with hemp-lime. The provisions contained in Appendix BL are not applicable unless pursuing hemp-lime construction, and do not contradict any other building code sections. Adoption of Appendix BL as amended, for anyone wishing to build with hemp-lime, will likely result in reduced costs due to streamlining the review process with applicable AHJ. Not including Appendix BL in the Minnesota code considerably increases the cost for anyone wishing to build a hemp-lime house, who then must go through the alternative materials and methods process, which not only increases costs for the applicant but also time and expense for the jurisdiction.

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.

See response to Cost/Benefit Analysis question 1.

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.

See response to Cost/Benefit Analysis question 1.

4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain.

No. The responsibility and cost for demonstrating compliance with requirements in Appendix BL, including the hemp-lime mix and density measurement, are borne by the owner.

5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed \$25,000 for any one small business or small city ([Minn. Stat. § 14.127](#))? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.

No. The owner or contractor will need to supply a report recording compliance with requirements particular to Appendix BL. The submission process will be similar to required blower door testing results, which cost considerably less than \$25,000 and are typically emailed to the inspector and filed with the building permit.

## **Regulatory Analysis**

1. What parties or segments of industry are affected by this proposed code change?

The adoption of Appendix BL will only impact parties who choose to build with hemp-lime. The provisions contained in Appendix BL are not applicable unless pursuing hemp-lime construction, and do not contradict any other building code sections.

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.

Adoption of Appendix BL, as amended, is the best way to systematize consistent compliance with code standards. The only viable alternative for someone wishing to build a hemp-lime house in the State now is to go through the Alternative materials and methods process in the current code. As explained elsewhere this is costly and time-consuming for both the applicant and jurisdiction. Adding Appendix BL, as amended, to the State code is the most straightforward, efficient and effective way to allow people to build the house they want.

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?

Hemp-lime construction is growing in popularity. Without adoption of Appendix BL, there is likelihood of inconsistent code enforcement methods leading to increased cost and complexity, including but not limited to longer permitting processes, delays in construction, and construction that does not comply with the minimum health, safety and welfare standards created by Appendix BL.

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.

No.

\*\*\*Note: The information you provide in this code change proposal form is considered Public Data and used by the TAG to consider your proposed modification to the code. Any code change proposal form submitted to DLI may be reviewed at public TAG meetings and used by department staff and the Office of Administrative Hearings to justify the need and reasonableness of any proposed rule draft subject to administrative review and is available to the public.

\*\*\*\*Note: Incomplete forms will be returned to the submitter with instruction to complete the form. Only completed forms will be accepted and considered by the TAG. The submitter may be asked to provide additional information in support of the proposed code change.