

- **Hemp-Lime\_ASTM-E119\_TestA\_07.10.24\_IntertekReport\_12.13.24.pdf**  
<https://www.cdpasscess.com/proposal/11989/35949/files/download/9794/>
- **Hemp-Lime\_ASTM-E119\_TestB\_12.18.24\_IntertekReport\_02.05.25.pdf**  
<https://www.cdpasscess.com/proposal/11989/35949/files/download/9793/>
- **Hemp-Lime\_ASTM-E119\_TestC\_01.24.25\_IntertekReport\_02.05.25..pdf**  
<https://www.cdpasscess.com/proposal/11989/35949/files/download/9791/>
- **Hemp-Lime ASTM-E119 Wall Stud Structural Calcs\_2025.02.10.pdf**  
<https://www.cdpasscess.com/proposal/11989/35949/files/download/9790/>

RB291-25

## Public Hearing Results (CAH1)

**Committee Action CAH1:**

**Disapproved**

**Committee Reason:** The proposal was disapproved. There was a modification to limit the type of wood to douglas fir select structural since that was the type that was used in the testing. However the committee felt this was too limiting by not allowing for other types of woods. There appears to be an incorrect reference in Section BL105.1.1 that has some incorrect references in item 2. There is the same issue with the analytical testing that the modification corrected in RB289-25. Fire resistance testing information should be provided for Hemp-lime construction in Appendix BL, the proponents should come back in CAH2. (Vote: 7-3)

RB291-25

## Individual Consideration Agenda

### *Comment 1:*

IRC: BL105.1.1, BL105.1.2, BL105.1.3

**Proponents:** Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net); David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); Timothy Callahan, representing Callahan Home Designs (t.l.callahan@icloud.com); Cameron McIntosh, representing Americhanvre (cameron@americhanvre.com); Matthew Mead, representing Hempitecture Inc. (mattie@hempitecture.com); Tom Rossmassler, representing Hempstone, LLC (tom@hempstone.net) requests As Modified by Committee (AMC2)

**Modify as follows:**

2024 International Residential Code

## **APPENDIX BL HEMP-LIME (HEMPCRETE) CONSTRUCTION**

**BL105.1 Fire-resistance rating.** *Hemp-lime* walls do not have a fire-resistance rating, except for walls constructed in accordance with Sections BL105.1.1, BL105.1.2 or BL105.1.3. Fire-resistance ratings for other *hemp-lime* wall assemblies shall be determined by testing in accordance with ASTM E119 or UL 263, or an analytical method in accordance with Section 703.2.2 of the International Building

Code.

**BL105.1.1 One-hour rated hemp-lime wall with center stud framing.** One-hour fire-resistance rated load-bearing hemp-lime center stud walls shall comply with all of the following:

1. Shall be constructed with center stud framing per Figure BL103.1(2) with 2x4 studs at 16 inches (406 mm). The framed wall height shall not exceed 10 feet (3.05 m). Staggered 2x4 blocking shall be installed at mid-height between the studs.
2. Hemp-lime complying with Sections BL103.6.1 ~~BL106.3.1~~, BL103.6.2 ~~BL106.3.2~~ and BL107.1 shall be spray applied in accordance with Section BL103.6.4 to a thickness of 12 inches (305 mm).
3. Exterior and interior plaster shall be lime plaster complying with Section BL104.3.5, and shall be applied with 1/4-inch (6.4 mm) coats to a thickness of 3/4 inch (19 mm) on the exterior and 1/2 inch (12.7 mm) on the interior. Fiberglass stucco lath shall be embedded in the first exterior and interior coats.

**BL105.1.2 One-hour rated hemp-lime wall with exterior stud framing.** One-hour fire-resistance rated load-bearing hemp-lime exterior stud walls shall comply with all of the following:

1. Shall be constructed with exterior stud framing per Figure BL103.1(3) with 2x6 studs at 16 inches (406 mm). The framed wall height shall not exceed 10 feet (3.05 m). 2x4 on-edge blocking shall be installed at 5 feet (1.52 m) and 9 feet (2.74 m) between the studs and flush with their exterior face. 2x2 anchorage at 16 inches (406 mm) shall be fastened horizontally to inside face of the studs with 16d nails, and vertically at 16 inches (406 mm) to the horizontal anchorage.
2. A *vapor permeable* combined water-resistive and air barrier shall be stapled with lapped and taped joints at the 2x4 on-edge blocking.
3. A .06 inch x 2 3/8-inch (1.5 mm x 60mm) galvanized steel strap shall be installed diagonally from top plate to bottom plate and fastened to framing members per manufacturer's specifications.
4. 1x3 wood furring shall be installed vertically to each stud with 2 3/8 inch (60 mm) screws, and horizontally at 16 inches (406 mm) to the vertical furring.
5. 3/4-inch (19 mm) x 5 1/2-inch (127 mm) vertical wood siding shall be fastened at each horizontal furring member.
6. Hemp-lime complying with Sections BL103.6.1 ~~BL106.3.1~~, BL103.6.2 ~~BL106.3.2~~, and BL107.1 shall be spray applied in accordance with Section BL103.6.4 to a thickness of 12 inches (305 mm).
7. Interior plaster shall be lime plaster complying with Section BL104.3.5, and applied with 1/4-inch (6.4 mm) coats to a thickness of 1/2 inch (12.7 mm). Fiberglass stucco lath shall be embedded in the first coat.

**BL105.1.3 One-hour rated hemp-lime wall with double stud framing.** One-hour fire-resistance rated load-bearing hemp-lime double stud walls shall comply with all of the following:

1. Shall be constructed with double stud framing per Figure BL103.1(4), with exterior load-bearing 2x4 studs at 16 inches (406 mm) and interior nonload-bearing 2x3 studs at 24 inches (610 mm). The framed wall height shall not exceed 10 feet (3.05 m). 2x4 on-edge blocking shall be installed at 5 feet (1.52 m) and 9 feet (2.74 m) between the exterior studs and flush with their exterior face. Horizontal 2x4 anchorage shall be fastened to the interior face of the 2x4 studs at 30, 60, and 90 inches (.76, 1.52, and 2.29 m).
2. A *vapor permeable* combined water-resistive and air barrier shall be stapled with lapped and taped joints at the 2x4 on-edge blocking.
3. A .06 inch x 2 3/8-inch (1.5 mm x 60mm) galvanized steel strap shall be installed diagonally from top plate to bottom plate and fastened to framing members per manufacturer's specifications.
4. 1x3 wood furring shall be installed vertically to each stud with 2 3/8 inch (60 mm) screws, and horizontally at 16 inches (406 mm) to the vertical furring.
5. 3/4-inch (19 mm) x 5 1/2-inch (127 mm) vertical wood siding shall be fastened at each horizontal furring member.

6. Hemp-lime complying with Sections ~~BL103.6.1~~, ~~BL106.3.1~~, and ~~BL103.6.2~~, ~~BL106.3.2~~, and ~~BL107.1~~ shall be spray applied in accordance with Section BL103.6.4 to a thickness of 12 inches (305 mm).
7. Interior plaster shall be lime plaster complying with Section BL104.3.5, and applied with 1/4-inch (6.4 mm) coats to a thickness of 1/2 inch (12.7 mm). Fiberglass stucco lath shall be embedded in the first coat.

**Reason:**

In response to CAH1 IRC Committee comments, the Proposal as revised by this Comment does not specify species and grade of the framing lumber for the three fire-resistance rated assemblies for two reasons: 1) The attached revised structural calculations demonstrate that commonly used and IRC-allowed Douglas fir-larch, Southern pine, Hem-fir, and Spruce-pine-fir No. 3 studs (the weakest stud grade allowed by Section R602.2) are all capable of supporting the superimposed loads with the wall height and stud spacing of the test specimens in the three ASTM E119 tests, and 2) The fire the test specimens were subjected to did not reach or damage the load-bearing framing.

Note, the three ASTM E119 test reports were provided with the original proposal, and are still available via the link in this Comment.

Regarding the "analytical testing" method option introduced in the original proposal, this Comment leaves that language in place. After similar language was removed from RB289-25 at the CAH1, a fire safety consultant testified convincingly that the identical language in both RB289 and RB291 was appropriate, because test data from multiple ASTM E119 tests for both hemp-lime walls (in RB291) and strawbale walls (in RB289) provide ample basis for use of an analytical method. We have also submitted a Comment to restore that language in RB289-25.

During the CAH1 a Committee member identified that section numbers BL106.3.1 and BL106.3.2 in the proposal were incorrect in all three of the described fire-resistance rated assemblies. This Comment corrects the numbers to BL103.6.1 and BL103.6.2.

**Cost Impact:** The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

**Justification for no cost impact:**

The ASTM E119 tested wall assemblies described in the proposed code language simply take already acceptable (per Appendix BL) hemp-lime wall assemblies and state their newly assigned one-hour fire-resistance rating. Therefore the proposal has no cost impact.

**Attached Files**

- **Hemp-Lime No.3 Wall Stud Structural Calcs\_2025.05.01.pdf**  
<https://www.cdpassess.com/comment/1500/38889/files/download/10965/>

Comment (CAH2)# 1500

---