



STATE OF WASHINGTON
STATE BUILDING CODE COUNCIL

May 2018
Log No. _____

1. State Building Code to be Amended:

X International Residential Code

Section(s):

AR101, AR02, AR103, AR104, AR105
AU101, AU102, AU103, AU104, AU105, AU106, AU107, AU108, AU109, AU110
AS101, AS102, AS103, AS104, AS105, AS106, AS107, AS108, AS109
BL101, BL102, BL103, BL104, BL105, BL106, BL107, BL108

Title:

Appendix BI Light Straw-Clay Construction (was Appendix AR)
Appendix BJ Strawbale Construction (was Appendix AS)
Appendix BK Cob Construction (Monolithic Adobe) (was Appendix AU)
Appendix BL - Hemp-Lime (Hempcrete) Construction (new appendix)

2. Proponent Name (Specific local government, organization or individual):

Proponent: James Henderson DBA NW Natural Homes LLC

Title: Partner

Date: 08/19/2024

Name: James Henderson

Address: 180 Howard Rd, Port Angeles WA 98363

Phone: (360) 460 3484

E-Mail address: james@nwnaturalhomes.com

Proponent: Cob Research Institute

Title: Code Development team member

Date: 8/17/202

Name: Sasha Rabin

Address: PO Box 243, Potter Valley CA 95469

Phones: (O) (928)-243-2243 (C) (928)-243-2243

E-Mail address: sashasrabin@gmail.com

Proponent: Clay Sand Soul

Title: Owner

Date: 8/18/24

Name: Josh Burg

Address: 906 NW 43rd St Vancouver WA 9866

Phone: (O) (505)401-6786 (C) 505-401-6786

E-Mail address: thebuilderburg@gmail.com

Proponent: Jess Tong

Title: Individual

Date: 8/19/2024

Address: 551 E Runnion Rd Sequim, WA, 98382

Phone: (O) (510) 423 - 3737 (C) (510) 423 - 3737

E-Mail address: jessicamatong@gmail.com

Proponent: Whatcom Waves

Title: Executive Director

Date: 8/19/24

Name: SuneetaEisenberg

Address: 3131Bennett Dr.Bellingham, WA98225

Phone: (360)739-8703

E-Mail address: whatcomwomenswaves@gmail.com

Proponent: Brandon Youst

Title: Individual

Date: 8/19/24

Address: 2716 Bartell Way, Northport, WA 99157

Phone: 570-449-590

E-Mail address: brandon.youst@gmail.com

4. Proposed Code Amendment. Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code, additional pages may be attached.

Clearly state if the proposal modifies an existing amendment or if a new amendment is needed. If the proposal modifies an **existing amendment**, show the modifications to the existing amendment by underlining all added language and striking through all deleted language. If a new amendment is needed, show the modifications to the **model code** by underlining all added language and striking through all deleted language.

Code(s) _____ IRC _____ **Section(s)** _____ Appendices BI, BJ, BK, BL

Enforceable code language must be used.
Amend section to read as follows:

Adopt statewide the following 2024 IRC appendices: BI (was AR), BJ (was AS), BK (was AU), and BL (new appendix), and remove the opening sentence “The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.”

5. Briefly explain your proposed amendment, including the purpose, benefits and problems addressed. Specifically note any impacts or benefits to business, and specify construction types, industries and services that would be affected. Finally, please note any potential impact on enforcement such as special reporting requirements or additional inspections required.

We are encouraging SBCC to adopt the following IRC appendices for the 2024 code adoption cycle:

Appendix BI - Light Straw-Clay Construction [formerly Appendix AR]
Appendix BK - Cob Construction (Monolithic Adobe) [formerly Appendix AU]
Appendix BL - Hemp-Lime (Hempcrete) Construction [new appendix in the 2024 IRC]
Appendix BJ - Strawbale Construction [formerly Appendix AS]

Each one describes and regulates an alternative wall system, all of which use natural materials in various ways. In the state of Washington there are many contractors, small businesses, and individual home owners who would benefit from more accessibility to be able to build with these alternative means of construction.

All of these systems can help address the increasing need to reduce our buildings' negative impacts on the environment, including the global climate, and address the impacts of a changing climate on buildings, including increased firestorms.

All of these earthen wall systems are very fire-resistant building materials, while also having a low environmental impact. The ability to build with site- or locally-sourced materials further reduces processing and transportation impacts as well as costs.

These appendices give the building official greater flexibility to consider empirical evidence and lifecycle impacts in meeting the intent of the code while not abridging health and life-safety requirements.

The appendices are well-developed, comprehensive, tied directly to other requirements of the well-established IRC, and well vetted through the code development process. In addition to our core team, they received input from experienced design and building professionals, industry representatives, and building officials, in California and other states.

Other compelling reasons for SBCC adoption of these appendices and their building systems include:

-High resistance to fire, now a concern through much of the US due to seasonal wildfires. Cob walls earned a 2-hour fire-resistance rating with ASTM E119 tests. Light straw-clay and hemp-lime walls are inherently fire resistant by virtue of their required plaster finishes.

-Climate beneficial, with low embodied carbon and/or high carbon sequestration of the constituent materials of straw, clay, earth, hemp and lime.

-Seismic safety, by using established testing protocol such as reverse cyclic in-plane testing and out-of-plane testing in university settings (for cob construction) or by making adjustments to the IRC's lateral force-resisting system requirements by compensating for additional system weight (for light straw-clay and hemp-lime). Prescriptive structural use in Seismic Design Categories A, B, and C, and with an approved engineered design required in SDC D. All non-structural provisions apply when an engineered design is employed. All three appendices were reviewed by and received input from multiple California civil and structural engineers and representatives of FEMA.

-Ensure safe and proper use of these (and other) building systems through plan check and inspections, especially for citizens who have been known to otherwise build without permits when faced with permitting obstacles.

-Use of low-cost, locally sourced, rapidly renewable, bio-degradable materials.

-Hemp-lime (hempcrete) is a burgeoning industry, gaining popularity and use since the cultivation of hemp was legalized in the U.S. in 2018.

-Removes impediments to greater use of these building systems.

6. **Specify what criteria this proposal meets.** You may select more than one.

The amendment is needed to address a critical life/safety need.

The amendment clarifies the intent or application of the code.

The amendment is needed to address a specific state policy or statute.

The amendment is needed for consistency with state or federal regulations.

The amendment is needed to address a unique character of the state.

The amendment corrects errors and omissions.

7. **Is there an economic impact:** Yes No

If no, state reason:

While these proposed changes have the potential to greatly benefit local builders and stakeholders, as well as local businesses that are emerging to supply materials and tools for these burgeoning industries, the proposed changes do not currently impact a large enough part of the industry to have a major impact.

If yes, provide economic impact, costs and benefits as noted below in items a – f.

a. **Life Cycle Cost.** Use the OFM Life Cycle Cost [Analysis tool](#) to estimate the life cycle cost of the proposal using one or more typical examples. Reference these [Instructions](#); use these [Inputs](#). Webinars on the tool can be found [Here](#) and [Here](#)). If the tool is used, submit a copy of the excel file with your proposal submission. If preferred, you may submit an alternate life cycle cost analysis.

b. **Construction Cost.** Provide your best estimate of the construction cost (or cost savings) of your code change proposal.

\$[Click here to enter text.](#)/square foot

(For residential projects, also provide \$[Click here to enter text.](#)/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

- c. ***Code Enforcement.*** List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

- d. ***Small Business Impact.*** Describe economic impacts to small businesses:

- e. ***Housing Affordability.*** Describe economic impacts on housing affordability:

- f. ***Other.*** Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

Please send your completed proposal to: sbcc@des.wa.gov

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.