The Cob Report

Bringing the ancient art of Cob Earth Wall Building into the modern world. Cob is a method of building walls using a mix of clay rich earth, sand, straw and water.

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Greetings!

As 2021 comes to close, we want to share what we have been up to this year at the Cob Research Institute. Since the Cob (Monolithic Adobe) Construction Appendix AU was accepted into the International Residential Code in late 2019, we have been working steadily on many ways to improve the code's accessibility and usability. We are currently wrapping up some laboratory testing and finalizing our edits to the code to be submitted by the January deadline for the IRC's next adoption cycle. Read more about the edits and testing below.

We need funding to continue this good work, which will take many years to complete. With a very small budget, we are doing groundbreaking work to make earthen building legally accessible to everyone. All donations, large and small, go directly toward paying our consultants, lab fees, and testing expenses.

Thank you for supporting our work!

The CRI team

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Read below about:

-ASTM E119 fire test
-Thermal testing of cob samples
-Cob Appendix updates for the next 2022 IRC code cycle

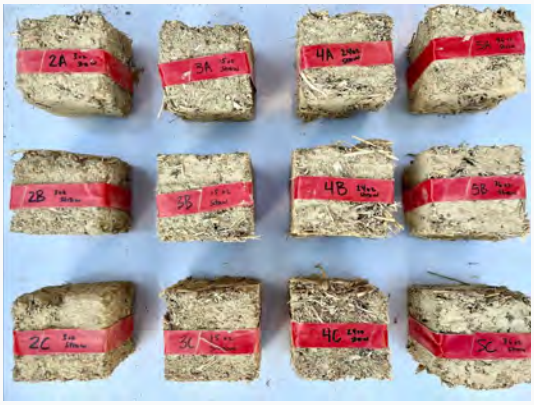
ASTM E119 fire test

CRI has been collaborating with several other organizations to complete the testing needed to improve the code in the next cycle of adoptions. One of these collaborations has been with Quail Springs to perform an ASTM E119 fire rating test on a cob wall. Cob's natural fire resistance is one of the most important factors driving official recognition of cob and the adoption of our code. People have been using earth to build ovens and fireplaces for centuries, which is just one of many reasons we know that earthen walls will certainly not burn in a fire. However, in some situations, building codes require the use of materials with a fire rating that can only be determined by a laboratory test. Once cob has a certified fire rating, it will make its use possible as a firewall between dwelling units and close to property lines in densely built areas.

The Quail Springs natural building team went to Texas in May and built two cob walls inside a fire testing facility. The walls have been drying for almost 6 months, and the test is scheduled for early December, when testing facility will expose each wall to high heat on one side, then rotate the wall with a crane and blast it with a fire hose. We feel confident about the test walls' ability to withstand heat and fire, but their resistance to the fire hose stream is less certain. In a real world fire situation, a cob wall would not actually be on fire to warrant a fire hose blasting it for several minutes. This is another example of how modern testing does not always make sense with traditional building materials. In our unofficial test, we found that the longer the fire had been against a section of the wall, the better it held up to the fire hose.

Thermal Testing of Cob Samples

Cob walls have a high thermal mass, helping to stabilize daytime and nighttime temperatures indoors. However, typical structural cob is too dense to be a good thermal insulator. It would take an extremely thick wall to meet the requirements of energy codes in the climate zones of much of the US. CRI board members are evaluating the possibility of increasing the straw content of cob to reduce density and improve insulating properties. Data from tests on both structural cob and non-structural light straw clay or slipstraw walls indicate a strong inverse correlation between density and R-value. Interpolation between these two data sets suggests that a cob mix with a density of around 70 pounds per cubic foot may result in a wall of acceptable thermal efficiency at only 18 inches of thickness. Typical structural cob is approximately 110 pounds per cubic foot and would require 36 inches of thickness to have the same R-value. CRI Board member Sasha Rabin has been developing a recipe which consistently achieves close to the target 70 lb/ft^3 and has just shipped specimens to a laboratory for both thermal and structural analysis. Stay tuned for the exciting results in our next newsletter!



Cob APPENDIX updates for the next 2022 IRC code cycle

The International Code Council (ICC) operates on a 3-year code cycle for publication of the International Residential Code (IRC), where the Cob (Monolithic Adobe) Construction Appendix AU resides. Submissions for updates to the 2024 IRC are due January 10th, 2022. These proposals will be presented, defended and either adopted or opposed at the

ICC hearing later in the spring. CRI is proud of all the work we have put into developing Appendix AU. Like any code, it is and will remain a work in progress. Some updates that we are developing for this cycle include better thermal information, increased window buck flexibility, a fire rating, and test sample size adjustments. Most of these proposals are based on new testing conducted by CRI and colleagues, which were not available when the original code was submitted. Additionally, a few of the new proposed changes are based on feedback from people using the code. If you have something specific you would like to see changed in the code, please contact us ASAP.

A word about CRI.

The Cob Research Institute is a public interest 501(c)3 non-profit organization founded in 2008 with the mission to remove legal obstacles to building with cob.

CRI needs to be able to support a small staff to do the work of making a cob building code a reality. The needed research, testing, code development, and ultimate gaining of acceptance by the code authorities is expensive and CRI is working to do this on your behalf. Please do your part and support the CRI effort. Become a part of the CRI team ! I'd like to thank you in advance for your generosity.

john fordice - cri director