

July 12, 2012

Alternative Technology Advisory Committee

**Subject:**

Application #8 Load Bearing Cob Construction

Application #5 Rocket Mass Heater

**Attendees:** Ed Vranizan, Terry Whitehill, Ben Howell, Kathy Bash, Ron Hayes, Samir Mokashi, Joshua Klyber, Aron Faegue

**Guests:** None

**Meeting Notes:**

This meeting was a continuation of the discussion from the May 10, 2012 ATAC meeting.

May 10, 2012: The key issue of discussion, beyond the history and sustainable qualities of cob construction, is that there is inadequate information for conventional structural and seismic analysis of load bearing cob construction. The problem is that without laboratory testing there is no way to predict the way structural cob will react, The fact that cob is made with local clay and is therefore non-uniform (across localities) further complicates the compilation of a data set that would enable analysis from a building code standpoint.

The committee agreed that they would make a recommendation to the applicant on the process to change the building code and incorporate cob construction.

Terry Whitehill/City of Portland outlined the typical paths for code changes:

1. Changes in the national codes that transfer to the states.
2. Alternate Means and Methods as describe in the building code.
3. Codes Guides - From Local Municipalities
4. Appendix to State Building Codes.

The New Zealand Building Code Section: NZS 4297:1998; Engineering design of earth buildings is a reference that could be used as a reference to draft an Appendix to the State Code.

Proposed Approach:

The applicants purchase a copy of the NZS 4291: 1998 and use it as the basis for load bearing cob construction pursue an appendix to the State code.

**Action Items:**

Terry Whitehill to contact the State to determine the path to change the code.

Ed Vranizan to contact Simon Mrkusic/Architect in New Zealand. Contacted July 15, 2012; the comments are listed below:

You may be able to access it through the Auckland University Architecture Library system. I did however design and have built a reinforced adobe residence in the Bay of Plenty about 25 years ago. It has stood the test of time so far. The structural concept relied on a continuous timber plates with regular treaded rods connecting the top plate to the foundation. There is quite a bit of it going on here now and the structural approaches may have moved on.

Christchurch's earthquake was very unusual in that it produce vertical acceleration that was off the charts and beyond what current Codes allowed for as a worst case scenario. A lot of new research is going on here in the engineering schools to address these excessive forces and liquefaction etc. When the new recommendations come out they ought to be a good reference source.

Kathy Bash: Kathy will draft the diagram of the Rocket Mass Heater to include in the application.