

INTRODUCTION

Presentation given at the Nillumbik Mudbrick Association 2006 AGM
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I would like to thank everyone attending tonight and extend our thanks to the committee for the effort they have made in trying to obtain rational discussion and a resolution on earth building within the guidelines of the energy rating schemes

An alternative view on Earth Building

I would like to preface my comments by reminding everyone that -

We all are representatives of one industry *The Earth building Industry* either as practitioners in our particular field, or consumers of the finished product as a home owner

I appreciate that I am speaking to the converted, and I respect the fact that many of us may have very different views on many aspects of earth building, but that same diversity of ideas that has often caused differences can also be a weapon for change if we work together.

COMMENTS

I would like to comment on a few issues that should be considered when we are faced with the present political system that believes in a one size hat fits all scenario

Present legislation threatens not only our industry and our income, but also the rights of many Australians when faced with impractical draconian legislation founded on a need to come up with political answers for reducing greenhouse gases at the cost of many people's rights.

PASSION

We tend to be passionate in our beliefs about earth housing, but have we been practical when facing the problems that have risen as a result of the introduction of energy rating schemes

We have a passion and belief in ourselves and the rights of any Australian to have input into the design and construction of their home, and the right to determine how they can reduce their impact on our environment is paramount

RECOGNITION

However to achieve recognition as an industry, we need to understand our strengths, be aware of our weaknesses, understand the opportunities that are available to us, and never underestimate the threats we face.

R RATING

Firstly we need to understand and accept that earth bricks do not have a good R rating

“R rating” is for lightweight materials, and yes it is important in the roof of your earth buildings, however -

- If you wish to increase Greenhouse gases, have poorly designed or orientated buildings with little or no thermal mass.
- If you wish to rely on energy consuming mechanical heating and cooling and choose to live in a closed box with increased risk to your family’s health because of questionable air quality and chemical emissions from many building products and fittings.
- If you wish to run the risk of power brown outs during summer, and high energy bills and have little or no opportunity to build your own healthy house for your family,.

If the answer to any of the above is “Yes”, then the present energy rating schemes are not only a necessity, but they go a long way to support the irrational academic based bureaucratic nightmare many people now face when trying to build a sustainable home.

So where have we gone wrong? And what can we do to overcome this position

We need to be aware of the facts.

If you design or build a house incorrectly, it does not matter what it is built from, it will not work efficiently.

As an industry we need to talk about the positive aspects of earth building that are being recognized in Australia and Internationally.

We must not roll over or think that cavity earth brick is the answer, and succumb to impractical, expensive, or unproven methodology just to survive.

Understand that many potential clients in Nillumbik and other Shires have had to surrender their rights, and given up on building an earth home as a result of flawed advice to government and possible pressure from vested interests.

Why? Not because they do not recognize the benefits, but because they perceive it to be too difficult to fight for approval in light of the bad media and introduced legislation .

Earth building products have many other properties and advantages that nearly all other building materials do not have.

1 Earth is free of the chemicals and toxins used in many other building products

Remember once you add cement or bitumen products to clays, it is no longer an earth brick, it is a stabilized brick, with higher embodied energy and the possibility of increased health risks to the consumer. ***Clay is nature's own bonding material***

2 Earth has high U values, that is thermal mass or capacitance. The ability to take in heat, store and download heat via the surface when there is a temperature difference

How does this work?

With external heat on a hot day, the heat enters the brick by down loading to the external surface. Whenever there is cloud cover, shading, change of wind direction, or velocity creates a drop in surface temperature, the heat in the wall downloads back to the atmosphere

On hot days whenever a door is opened, higher temperature air enters the building. Internal earth surfaces take in the heat and regulate the internal temperature.

In an insulated house, when higher air temperature enters the building you have an increase in temperature which can result in hotter internal temperatures than external temperature particularly in the evenings.

With earth buildings, temperature follows one of the basic principles of physics. It moves from the higher temperature regions to the lower temp zone.

On a cold day the reverse is applicable, where when the door is opened and cold air enters the building, heat stored in earth walls downloads into the room to help maintain room temperature.

With insulated walls, room temperatures drop when cold air enters, requiring mechanical heating to maintain a comfortable temperature range, increasing energy demands.

Testing an earth brick for R value using steady state testing procedures is not relevant

Because if you start with an incorrect premise for testing the performance of a material or a building, you will end up with flawed results that are at the least misleading .

OTHER ADVANTAGES OF EARTH

One of the principal advantages of Earth when combined with good design, is earth wall's 4 Hour fire rating. Earth walls were tested by CSIRO to Australian Standards and results are detailed in Bulletin 5

Passive designed Earth buildings are climate responsive buildings having:

- No chemical off-gassing, resulting in healthy buildings
- Low embodied energy
- Reduced energy requirements for heating or cooling
- A 50 Decibel Sound reduction with 250 mm walls
- Good humidity control and excellent ambience
- Are suitable for multi storey load bearing applications
- Bricks are air dried and can be produced in isolated areas
- Earth walls can be recycled
- Minimum waste during construction, reducing land fill requirements

Earth bricks remain the one product that has the above qualities and, enables people to self build sustainable houses easily.

A QUICK DASH AROUND THE WORLD

Earth has been the most universal building material used throughout the world for thousands of years, from parts of the Great Wall of China to North Africa and Europe and also here before Australia's white history.

Earth buildings have provided comfortable living zones, often as the homes of many generations of individual families. Earth buildings have often proved to be the only buildings that could be easily repaired after years of conflict.

England

Research by Sheffield University is indicating that if building construction is to continue, England will have to go to unfired earth.

Germany

Researching health issues of sealed buildings

Wrapping a house in foil retains high levels of electro-magnetic radiation from phones and appliances in the building, requiring foil insulations to be earthed. Research into "sick building syndrome" as a resulting from the off gassing from manufactured products furniture, carpets, paint etc.

Products using cement get a negative value in building assessments and energy rating

Recommend use of earth and in non earth buildings requiring a minimum 20mm clay render on internal walls to reduce the effect of electromagnetic fields.

Belgium

Researching the effects that many products other than earth have on peoples health. in particular children.

Recognise benefits of 19Deg C as the preferred temperature maximum for brain function

France

Cretare is their leading earth building center, researching and promoting major earth building projects around the world

Bosnia

In many villages in the Bosnia, apparently there can be snow and ice several feet deep against the houses for several months. Anecdotal comments are the families with earth houses need a fire for about 6 hours per day houses from other materials need heating 24 hours a day

Denmark

A visitor from Denmark explained that they live in a heritage village. Their house was built in 1800 and had an extension in 1850 temperature range from –10 degree in winter to low 30s in summer. The family installed floor heating but explained it was a waste of money because it is only used 2 to 4 days a year

Italy

Unfired Earth locks up greenhouse gases. Italian research is showing that firing bricks not only uses large amounts of energy that release greenhouse gases and or create nuclear waste from power generation. Research has shown that the firing process actually releases greenhouse gases that have been locked up in the unfired clays

America

Have carried out extensive research and recognise benefits of 19Deg C as preferred temperature maximum for brain function

Many American building codes are now emphasizing the need for thermal mass and indicate that it is the first 100mm from internal and external faces that is critical

That is why our standard of 250mm width is required to provide a thermal lag time

Australia

Defence scientific organizations have also come to the conclusion that 19 Deg C is the maximum temperature for the optimum brain function

They have also had to develop special communications equipment at a very high frequency so that operational soldiers in Afghanistan, Iraq and other areas can communicate when they are inside earth buildings.

CSIRO are aware that if you drop the comfort temperature range used in Nat hers and other like programs to 19.5C many earth houses that have a ½ or 1 star rating will jump to 4 to 4½ star

The introduction of a 15 or 20 star program based on a more holistic view would see earth in the high numbers and most other materials struggling around 5 to 7.

The Senate hearing on energy efficiency recommended that energy rating schemes as proposed should not be implemented for house ratings but were acceptable as a design tool

Earth bricks are 100% Australian owned and manufactured, and as an industry we are one of the few not threatened with Chinese imports

Irrespective of your position in our industry either as a designer, builder, renderer, bricklayer, manufacturer, home-owner, truck operator, or any other trades-person that forms part of this industry, I believe we have a responsibility to your own families, and any one that may wish to build a truly sustainable building and help in the reduction of greenhouse emissions

Understand your product – promote its qualities - make a commitment to support an industry with a great future

The future will be healthy houses

Thank you