

## Straw bale building update

*The Australasian Straw Bale Building Association (AUSBALE) promotes the use of straw bale construction. Members facilitate this by running workshops, sometimes in conjunction with education facilities.*

# Is it cheaper to build a straw bale house?

BY INGRID LEUSCH  
EDITED BY THE AUSBALE COMMITTEE

This is probably the most commonly asked question we get from potential clients and owner builders. It seems to be a widespread belief that it is cheaper to build a house with straw bales (and other natural or so called 'alternative' materials such as mud brick, rammed earth etc.), compared to conventional houses built with bricks, brick veneer, fibre cement cladding and the like.

### Why use straw bales?

We personally and professionally do not promote this belief but rather like to draw the focus back to 'why build with straw bales.' The main reason to choose straw bales over other materials is the outstanding energy efficiency that can be provided. If designed with consideration of passive solar principles and other appropriate design measures, straw bale houses require no, or very little, energy for heating and cooling. This is a very important factor for the environmentally conscious homeowner and with ever rising electricity costs becoming a very important issue for most of us.

Other reasons would include: sustainable and renewable building material; healthy, non-toxic, natural, comfortable, creative, low embodied energy; no further processing; innovative, recyclable, safe; high fire resistance, and, of course, beauty.

### Breaking down the costs

Building a house is a costly enterprise, no matter what materials are used. When we discuss costs of a straw bale house we explain that the straw bale walls are only part of a completed house. External walls, in this case rendered straw bale walls, make up about 20% of the total build costs. Let's take an approximate figure of \$250,000 to build an average sized, three bedroom house; that would make the straw bale wall system worth \$50,000 at 20% of total building costs.

Where does the rest of the money go? Excavations and other site works, services, permits and insurances, water tanks and hot water system, footings and floor, frame, roof, doors and windows, plumbing and electrical, internal walls and ceilings, wet rooms, kitchen, wardrobes and storage, fit-out and painting. All of these involve materials and labour costs and these components are about the same in costs as for any house, regardless of the external envelope.

### Costs per square metre

There are many resources that provide tools for estimating and calculating building costs and some give approximate construction costs per square metre. For most areas of NSW and ACT these generally suggest a square metre cost of about \$1,800 to

build a custom designed house with standard finishes (good quality but not luxury) on a good site to completion. For an averaged sized three bedroom house of 160m<sup>2</sup> this would result in a cost of \$288,000. These cost estimations are for a completed house, ready for your family to live in, not just a shell or to lock-up stage. In other states this figure may be different.

If we use a rough ballpark figure splitting costs 50:50 into materials and labour, it could be suggested that owner builders could get away with about \$900 per square metre if they provide all the labour. However, for most owner builders this can be very difficult to achieve. Even if they have plenty of handyman experience and other skills needed to build a house, excellent support from their spouses, plus lots of free help from neighbours, friends and family with possibly some trade skills, there are still a lot of unavoidable costs. For example, there are some regulations that do not allow you to do your own plumbing and electrical work (unless you have the appropriate trade licence).

It may also be advisable to hire a carpentry and roofing crew to get big jobs like framing, roof construction and roof skin done quickly and efficiently. Rendering straw bale walls is another big job requiring many hours of hard yakka. Hiring experienced plasterers and possibly a rendering pump may

seem expensive but you may come around to appreciate their skill, speed and finished product, especially in view of all the other jobs that still need to be done.

## Lowering the costs

It has been estimated that it can take owner builders about four times longer to complete a project than it would take with a builder responsible for the job. This could be a very big time commitment and a big ask on relationships and families. If you have the skills and the time needed for building a house, we believe it may be possible to reduce the suggested average square metre cost of \$1800 substantially.

However, we would not advocate trying to half this figure. Start at a cost of \$900 per square metre and then add about 20% to allow for some help from tradespeople – some respite from doing it all on your own – and another 10 to 20% to the overall budget to allow for unforeseen circumstances, changes in material choices and costs, delays and damage due to unfavourable weather, and so on. This basically comes to a more realistic estimated square metre cost of about \$1200 to \$1300 to build a straw bale house from scratch to finish as a well organised, competent and dedicated owner builder.

This estimate includes materials and labour for a custom designed house that: is built to standards, complies with building codes, has quality and durability in mind, is of an average size, is in either a semi-rural or residential area and, if you are ever able to part with your beautiful straw bale house, has a good resale value.

All of this said, it needs to be kept in mind that it is very difficult to calculate an owner builder budget as every one of them is totally different, with different levels of skills, availability of time, available free and possibly skilled help. The projects are all different in size, design, finishes and sophistication, sites are different, standards may be different – many variables indeed.

## \$300 per square metre!

You may have heard many stories that a straw bale house can be built for around \$300 per square metre. This may be possible if: you build a

very basic and small dwelling, you do all the labour yourself, use second-hand materials, are able to take plenty of time off work and dedicate every weekend, holiday and available spare time for a couple of years plus, find all the necessary tradies in your family and circle of friends, are not worried about resale value, don't need a mortgage, don't need to get it past lock-up stage quickly, use very basic finishes etc.

## Things to keep in mind

Here are a few thoughts to consider when planning your straw bale house and trying to keep your budget from blowing its seams.

- Visit straw bale houses in your area and talk to other owner builders about their experience.
- Research, research, research and attend straw bale building workshops if possible.
- Consider hosting a working bee with an experienced facilitator for your project.
- Get quotes and prices from several sources.
- To avoid costly mistakes use professionals where needed e.g. architects, designers, engineers and builders with straw bale building experience (Ausbale has a 'Find a Professional' menu on its website).
- Number, size and quality of windows can affect overall costs.
- If your site is difficult, excavations and other site preparation can be a lot more expensive.
- Cathedral ceilings/high roof pitches can greatly increase construction costs.
- Size of house: there are standard sizes for trusses and if size/shape of house exceeds these, trusses may need to be especially designed and fabricated.
- Shape of house: more angles and corners can increase labour and material costs.
- Site: you may need to factor in the cost of installing public services.
- Building a house is huge. Adopt a realistic and business like approach to planning, budgeting and running your project.
- Set realistic time frames, especially if you have other commitments with work and family.

- Think carefully about what you can afford – money and time wise – take your time in the planning phase and keep your partner/family involved.
- Do not compare your one off project/design to project homes as advertised project home costs can be very unrepresentative for a good quality custom home.
- Think carefully about the real needs of you/your family when considering size of house, number of bedrooms, ensuites and bathrooms. Do you really need a study, a rumpus, two living areas, an office, a hobby room, formal dining room ... don't get lost in your own house, keep it simple!

Happy planning, happy building, happy living in your dream home. ■

*Ingrid Leusch is from Yesterday-Today-Tomorrow straw bale construction: [www.strawtec.com.au](http://www.strawtec.com.au). This article has been written on behalf of Ausbale.*

## Postscript

Clients of ours had lovingly collected and restored second-hand timber and second-hand timber doors and windows to use in their straw bale house. With new bush fire codes in place, council did not approve the use of these materials and they had to purchase and use one of seven specified fire retardant timbers on exposed faces, including for windows and external doors. Another expense!



### • AUSBALE

Australasian Straw Bale Building Association is a group of building industry professionals, researchers, owner builders, and interested people who share knowledge and experiences.  
[www.ausbale.org](http://www.ausbale.org)

### • Home design directory

This website has a construction cost estimator as well as articles and tools related to new home design, home improvements, house construction, renovations, extensions, interior design, remodelling, decorating, landscaping and gardening.  
[www.homedesigndirectory.com.au](http://www.homedesigndirectory.com.au)

### • Construction costs

Mortgage House website has a few calculators.  
[www.mortgagehouse.com.au](http://www.mortgagehouse.com.au) >Home Loans For >Construction Costs per Square Metre

