

The Hayes at Stone 27/28 September 2008

Building walls made from straw is much less labour intensive than using other materials. It encourages individuals to be creative and leads to final structures that are climatically adapted and energy efficient. Building with straw bales allows inexperienced and unskilled people the opportunity to become directly involved in creating their own homes.

What is straw?

Straw is the dry stalk left in the earth after harvest and is traditionally considered a waste product, burned or baled and sold for animal use. It is a natural, non-toxic building material with low environmental impact and excellent insulation properties which exhibits great flexibility of design and ease of construction.



① First we build a structure to protect the building site from the wind and the rain; this is because the damage from water is, by far, the greatest potential hazard to a bale structure. Straw buildings should be designed with this necessary protection; otherwise problems may be experienced ranging from mould and mildew to complete disintegration of the bales.

② We make a timber framework can be fabricated to support us the basic structure of the building. This timber frame will provide more support than the bales alone, resulting in minimal impact on the walls internally yet forming a moisture barrier between the bales and their supporting platform.

③ It is a requirement we reinforced the floor with planks of wood in the area where the straw bales were going to be stacked.



Construction of the building:

④ We made the window, door frames and headers can be made from wood. To create a sound structure, we used a plank of wood to join the window and the door together.

⑤ We started by stacking the straw bales around the gateway and we formed the walls to a height of two bales.

Straw bale buildings are thermally efficient and conserve energy; the wall insulation allows smaller heating or cooling systems to be installed, leading to ongoing savings in heating costs.

In contrast to timber used for wood framing, straw can be grown in less than a year in a completely sustainable production system. Where the climate permits and timber is scarce but straw is plentiful, this allows the conversion of straw into a maintainable renewable resource to be used as a durable building material.



① We used baling twine to attach the straw bales to each other so they did not move. We forced the baling twine through the bales ② using a threading device similar to a needle.
 ③ The length of the straw bales were measured and a third extra added to the length, we threaded the baling twine in one end of the bales and took it out of the other end, so that each straw bale was joined to the next. We repeated the same process for all four sides,



④ where there was a window we cut a shorter piece of rope as necessary
 ⑤ Bale walls can be fastened together using bamboo pins. As an alternative wood can be used (internally or externally) with wire mesh on the surface if desired.



⑥ To ensure that the straw bales were well connected we cut a stake/pin longer than the width of the straw bale and we hammered the stake through the top of the bale into the bale below.
 ⑦ Strengthen the corners using sticks that were bent and we used the hammer to drive one end of the stick into one corner bale and the other end into the other corner bale.



⑧ Once you have staked all of the rows of straw bales, the roof can be fitted. The most vulnerable parts of a straw bale wall are the top and bottom, so the roof structure should go on as quickly as possible after the walls have been stacked, and if there is any delay the walls should be covered.



⑨ We rendered the walls with a mix of clay, water, sand and straw. ⑩ This will result in a building with long-lasting protection, thermal resistance (insulation) and low maintenance.