

# Straw bale building

## An ancient technology reborn



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A new competitor has come out in the construction industry: straw. The latest revolution in real estate is based on this simple, inexpensive and environmentally friendly material.

Currently, buildings of straw exist in the United States, Australia, India, China and in different countries of Latin America, Asia, Europe and Africa. In Germany, a sports complex has been built using this technology.

It consists of blocks of cereal straw or tall grass, which are coated with mixtures that include lime or clay to protect them from external agents. This system, although seemingly rudimentary, enables high resistance and excellent living space constructions, with thermal and acoustic insulation allowing significant energy saving.



Grain comprises the largest area of cultivation in Europe and America, where straw is no longer used for animal feed, being rather a waste. In some places, straw can be used as a fertilizer, in others it can even be burned. In recent years, straw is gaining followers all over the world as a construction material. Straw blocks are a new and interesting biomaterial: renewable, ecological, economic and abundant.



Straw was used in construction for thousands of years in combination with clay to keep out humidity. Today, due to the environmental impact of the construction industry (40% of global energy consumption derives from building construction and maintenance), this technique has the greatest potential, because of its competitiveness and environmental advantages.

Straw is a renewable and abundant resource that permits many architectural solutions, in both modern and rustic style. Blocks are efficient, very durable and available to anyone, the price of a 300 blocks truckload ranging from 250 to 500 dollars.

Straw bale building is one of the best examples of green building. Using this highly insulating element we get healthy spaces, which are very effective in seismic zones. Being flexible, the walls bear and resist better than conventional systems such as concrete and are fire resistant.

If constructed with appropriate technology and well maintained, straw bale buildings can last at least 100 years.

### What is straw bale building?

Straw blocks are made by the waste remaining from harvest. Some of the most widely used grains are barley, wheat, rye and rice. The waste is compressed by a packing machine which produces the straw bales so well known to farmers. The construction technique consists in utilizing straw blocks as if they were bricks.

On the walls, layers of mud or lime are applied as plaster. This protects the wall from humidity and eliminates the risk of fire the absence of sufficient oxygen for combustion. Once these layers are applied, the walls do not differ in any way from any other conventional construction material. These walls, moreover, sweat better, which helps maintain due to indoor air quality.



### Environmental benefits of straw bale building



The environmental impact of the construction industry is not slight. The main negative impact affects land use causing direct effects on the water cycle. Material extraction and processing produces 45% of total CO<sub>2</sub> emissions. Other major negative environmental impacts are related to the use and abuse of power and water.

Every year, more than 500 million tons of straw wastes are burned on the planet and straw building blocks can help controlling atmospheric pollution and global warming. A large reduction in the amount of burned straw could reduce the production of carbon monoxide and nitrous oxide.

If the straw waste is packaged and used in construction, the devastation of timber areas decreases significantly. 500 million tons of waste straw could be used to build over 80 million units of 100m<sup>2</sup>, to house more than 400,000,000 people.

The cost of a ton of straw is 50 times less than a ton of concrete. The benefits of straw bale building could reduce more than 100 times the energy cost of any building, thus increasing their ecological value.

To find out more information about straw bale building practices in different countries:

- [Red de Construcción con bolas de paja](#)
- [La maison en paille](#)
- [Straw bale construction](#)

