

MARIPOSA COUNTY ORDINANCE NO. 902

AN ORDINANCE ADOPTING STANDARDS FOR THE  
UTILIZATION OF STRAW-BALE TECHNOLOGY IN STRUCTURES

WHEREAS, AB 1314 was adopted by the State Legislature which established within the California Code of Regulations new standards for the use of straw bales as a construction component, and

WHEREAS, these standards cannot be used unless an express finding is made by the Board of Supervisors that the use is reasonably necessary based on local conditions, and

WHEREAS, by allowing the use of baled straw, a more affordable alternate construction material will be available to the citizens of Mariposa County;

NOW, THEREFORE, THE BOARD OF SUPERVISORS of Mariposa County, a political subdivision of the State of California, does ordain as follows:

SECTION I: The Board of Supervisors makes the following findings:

1. California Health and Safety Code, Chapter 4.5, Part 2.5, Division 13, §§ 18944.30, et seq. provides the opportunity for local agencies to adopt construction standards and permit the use of straw bales in the construction of structures;
2. Use of straw bales will promote the provision of cost and energy efficient structures and will assist California's agricultural community by providing another outlet of a byproduct of its activities;
3. California communities' air quality is adversely affected by the burning of straw and it is, therefore, desirable to encourage other uses such as construction materials. Air quality regulations are restricting the burning of straw such that it is important to allow other uses of it;
4. The application of the guidelines in AB 1314 is necessary because of the local climatic conditions in that contaminated air from the Valley communities is carried to Mariposa County by prevailing winds, and economic conditions in that straw house construction will provide another alternative for low-cost housing.

SECTION II: A new Chapter 15.14 shall be added to Title 15 and entitled "Straw Bale House Construction". Chapter 15.14 shall read in its entirety as follows:

"15.14.010 Citation and authority.

The use of straw bales shall be permitted in the construction of structures to the extent and subject to the standards set forth in Chapter 4.5 (commencing with § 18944.30) of Part 2.5 of Division 13 of the California Health and Safety Code.

15.14.020 Straw bale construction standards.

All foundations for a straw bale house shall be a minimum of fifteen (15) feet from a bank. All foundations shall be one (1) foot above grade. Grade shall fall away from the structure at least 2% of the first ten (10) feet.

15.14.030 Approval by engineer.

All straw bale house shall have the plans approved and stamped by a civil or structural engineer.

15.14.040 Determination of building permit fee.

For purposes of determining square footage of a straw bale house for payment of permits, the square footage shall be determined as if the outside perimeter of the house was constructed with a 2" x 6" standard framing."

SECTION III: This Ordinance shall become effective thirty (30) days after final passage pursuant to Government Code § 25123.

SECTION IV: PASSED AND ADOPTED by the Board of Supervisors of Mariposa County this 2nd day of July, 1996 by the following vote:

AYES: Reilly, Balmain, Stewart, Parker, and Taber  
NOES: None  
ABSENT: None  
ABSTAINED: None



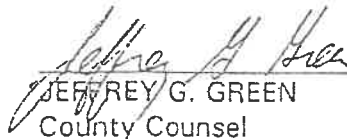
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DOUG BALMAIN, Chairman  
Mariposa County Board of Supervisors

ATTEST:

APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:



\_\_\_\_\_  
MARGIE WILLIAMS  
Clerk of the Board



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JEFFREY G. GREEN  
County Counsel

## QUESTIONS OFTEN ASKED ABOUT STRAW-BALE CONSTRUCTION

Q. What about termites rodents & insects?

A. A house built of baled straw is at far less risk from termites than a wood frame building. Good maintenance of your wall system (no holes) will deny unwanted critters access to your home.

Q. What about fire?

A. As long as the bales are covered with stucco, mud plaster, gypsum plaster, aluminum siding or sheetrock, a bale building will be extremely fire-resistant. Some fire testing is now being done.

Q. What about humidity and/or high rainfall?

A. Humidity appears not to be a problem, although not as much use has been made of the technique in areas with consistently high humidity. There is however, a large two-story post & beam straw-bale house now on the historical register at the Burritt Museum, Huntsville, Alabama, built in 1936.

Q. What about building codes?

A. Check with your local building code officials. Testing has been completed at the University of Arizona (see Order Form under engineering test report summary) and further testing is underway.

Q. What about durability/longevity?

A. The evidence provided by hay and straw-bale structures built by Great Plains homesteaders starting in the late 1800's indicate that bale houses, if properly built and maintained, can have a useful life span of at least 90 years, even in areas where high winds are common.

Q. What about obtaining a building loan convertible to a home-owner's mortgage and the availability of homeowners insurance?

A. The early straw-bale houses were pay-as-you-build, uninsured structures. Some recent builders have chosen to seek and have obtained convertible building loans and homeowners insurance. This issue will get easier as more straw-bale homes are built.

Q. Will a straw-bale house cost less to heat and cool than a typical frame or block house?

A. Since typical construction seldom provides wall-system R-values greater than R-19, a well-built straw-bale house with walls providing R-values of from R-40 to R-50 (depending on surface coverings, density of bales, thickness of walls) will cost less to heat and cool than a typically built home of comparable size. These energy savings will accrue to the owner month after month for the life span of the building.

Q. What about bale size, composition, & availability ?

A. The smaller rectangular bales (usually wheat, rice, rye & oats) normally used for building come in the two-tie (plastic string or wire) version (about 18" wide, 14" high and 36-42" long); and the three-tie version (23" wide, 16" high and 42-48" long). A firm, dry, two-tie bale appropriate for building will weigh about 55 pounds; a three-tie bale, about 80 pounds. Dry hay can be used, but straw (the dry stems of grains) is cheaper and more resistant to bacterial decomposition. Ordinary bales available at feed stores for bedding straw are usually dense enough, but be sure to check when bales are most plentiful (usually early summer) and secure your bales in advance of your wall-raising.

Q. Since straw-bales are a relatively low-mass material, will they work in a passive solar design?

A. The major physical components of an ideal passive solar design would include adequate thermal mass (to store and release heat on a 24-hour cycle) and an insulating exterior wrap to reduce heat loss to the outside. In straw bale construction, proper placement of high mass materials like stucco, mud plaster, brick, concrete, tile, adobe or rammed earth in the interior of the structure would provide the thermal mass, while the thick, highly insulative walls would greatly reduce heat loss by conduction. Straw bales on the outside, earth on the inside - WE WIN, THE PLANET WINS.

