

Resources On The Web

- * <http://strawbuilding.org/> California Straw Bale Association (CASBA)
- * http://www.links2go.com/topic/Straw_Bale
- * <http://www.dsaarch.com/>
- * <http://mha-net.org/html/sblinks.htm>
- * <http://www.strawhomes.com/index.html>
- * <http://www.zianet.com/snm/strawble.htm>
- * <http://www.sustainable.doe.gov/buildings/gbpr/inc.shtml> Green buildings
- * <http://www.cedn.org/> Ecosystems

Video Resources

- * Building with Straw (Videos)
- * Vol. 1 A Straw Bale Workshop (73 mins.)
- * Vol. 2 A Straw Bale Home Tour (68 mins.)
- * Vol. 3 Straw Bale Code Testing (40 mins.)
- * Construction with Strawbale
- * Leo Newport;

Book Resources

- * Build It With Bales: A Step-By-Step Guide to Straw-Bale Construction, Version Two by S.O. MacDonald, Matts Myhrman [USA]
- * Buildings of Earth and Straw: Structural Design for Rammed Earth and Straw Bale Architecture by Bruce King [USA]
- * Earth Plasters for Straw Bale Homes by Keely Meagan 2000 [USA]
- * Living Homes: Integrated Design & Construction by Thomas J. Elpel [USA]
- * The Beauty of Straw Bale Homes by Athena Swentzell Steen, Bill Steen [USA] 2001

Applicable Statutes and Regulations

“Guidelines For Straw-bale Structures”

HSC Chapter 4.5 (Sections 18944.30-18944.40)

[Find at <http://www.leginfo.ca.gov/calaw.html>]

“State Housing Law” (Residential Construction)

HSC Sec. 17910, et. seq., [<http://www.leginfo.ca.gov>]

Title 24, California Code of Regulations

“Employee Housing Act”

HSC Sec. 17900, et seq., [<http://www.leginfo.ca.gov>]

Title 25, California Code of Regulations

STATE HOUSING LAW

MISSION STATEMENT

The State Housing Law Program improves and assists in the implementation and enforcement of building and maintenance standards that promote, preserve, and expand safe, durable, affordable, and accessible housing throughout California.



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THE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT



QUESTIONS AND ANSWERS ON STRAW - BALE CONSTRUCTION



What is Straw-bale Construction?

Straw-bale construction uses baled straw in walls covered by stucco. Straw usually is a waste product that farmers do not till under the soil, but instead sell as animal bedding or a landscape product due to its durable nature. In many areas of the country, it also is burned, causing severe air quality problems.

Straw-bale construction can be used for various residential structures and accessory buildings, particularly where energy efficiency is important. Properly installed, it now meets residential building codes as well as special laws governing farmworker housing.

Health and Safety (HSC) Code Section 18944.30(a)(3): Rice straw is an annually renewable source of cellulose that can be used as an energy-efficient substitute for stud-framed wall construction.

Q. How do you incorporate plumbing and electrical systems?

A. In California, builders must install pipes, which could sweat or leak, inside continuous sleeves within bale walls. While ordinary Romex nonmetallic electrical cable (NM) is used often in bale walls, underground feeder (UF) cable can be used if extra security is desired. The cable generally is set three inches into the bale walls, safe from punctures. This also places it into the firm portion of the bales, where it can be securely pinned. Electrical boxes typically are secured to tapered wooden stakes driven a minimum of 12 inches into the bales.

Frequently Asked Questions

Q. Isn't there a fire danger?

A. Unlike wood frame construction, in which a series of chimneys (stud cavities) form the wall, bales are dense and difficult to burn. HSC Section 18944.40(a) states "Straw-bale walls, when covered with plaster, drywall, or stucco, shall be deemed to have the equivalent fire resistive rating as wood-frame construction with the same wall-finishing system". Loose straw, sometimes used to fill cavities, is more vulnerable to fire and should be sealed with plaster or treated with fire retardants.



Q. Must local building departments accept plans for straw-bale buildings?

A. In California, a city or county building department may choose to adopt the "Guidelines for Straw-bale Structures" as set forth in the Health and Safety Code (HSC), Sections 18944.30-18944.40. The provisions for a city or county to apply this method are set forth in HSC, Section 18944.31.

Another method local building departments may choose to use for straw-bale structures is as an alternate method of construction as prescribed by Title 24, Part 2, California Code of Regulations, Sections 104.2.8.1 & 104.2.8.1.2.

Q. Won't the straw decompose?

A. Plowed into the ground, most straw takes six months to decompose. Rice straw, which has high silica content, takes twice that time. Straw has been used as an insulating material for many centuries, and has been found in excellent condition in Egyptian tombs thousands of years old. If kept dry, straw should not degrade.

Q. What about termites and pests?

A. The normal precautions against termite infestation used in wood construction should be followed in straw-bale construction. Studies performed by independent groups can be found on the Internet.

Q. What is the insulation value?

A. Straw-bale walls have been tested for heat transmission, and have been rated as high as R-55. A conservative number, used by the California Energy Commission, is R-30. A conventional 2 x 6 wall with fiberglass insulation contains insulation rated for R-19, but when the total wall assembly is considered, scores about R-9.

Q. How do straw-bale walls carry vertical and lateral loads?

A. While the California Health and Safety Code permits the use of both load-bearing and non-load-bearing construction, most California builders use a wood post-and-beam system that carries vertical loads in a conventional manner. Structural design to withstand wind and earthquake loads can be conventionally engineered. Straw-bale walls are primarily subjected to wind and earthquake loading against their faces.

