



# **TECHNICAL BULLETIN**

## **PERMIT AND RESOURCE MANAGEMENT DEPARTMENT**

2550 Ventura Avenue, Santa Rosa, CA 95403  
(707) 565-1900 FAX (707) 565-1103

B-31

### ***Straw Bale Construction***

#### **INTRODUCTION**

The purpose of this technical bulletin is to clarify the plan check and inspection requirements for straw bale construction.

#### **TECHNICAL DETAILS**

##### **1. Plan Requirements**

- a. All building and structure plans using straw bales are required to be designed, stamped, and signed by an architect or engineer licenced to practice in California.
- b. Generic requirements for straw bale construction are found in Health and Safety Code Sections 18944.30 to 18944.40. Deviations from these requirements must be justified by design.
- c. Straw bale construction requires complete engineering analysis and structural details. The analysis shall at a minimum include gravity loads, in-plane lateral loads and out-of-plane lateral loads, The licenced professional shall pay particular attention to necessary connections to transfer lateral loads to the elements designed to resist them.
- d. The following shall be detailed on the plans:
  - i. Interface of the bottom bale and the foundation, including waterproofing and connections
  - ii. Connections between bales
  - iii. Framing elements
  - iv. Connections between bales and other elements, including roof framing
  - v. Opening details
  - vi. Finish materials
  - vii. Typical installation of electrical boxes and conductors
  - viii. Typical installation of plumbing piping
  - ix. Other details may be required by the plan reviewer when necessary.

##### **2. Inspection requirements**

- a. The owner shall hire the architect or engineer of record to conduct structural observation of the lay up and installation of the straw bales.

Observed deficiencies shall be brought to the attention of the owner, contractor, and building inspector, and such deficiencies shall be corrected before covering the deficient work.

- b. The building inspector shall inspect the straw bale walls at the following times:
  - i. After the foundation is poured and before the bales are placed
  - ii. During the lay up of the straw bales
  - iii. At the close-in inspection, before any lath or wall finish is installed.
- c. At the close-in inspection, the building inspector shall be provided with the structural observation report referenced in item 1 (a) above. This report shall address all the items in item 1 (c) above which are concealed at the close-in inspection, and shall clearly state that the items meet the requirements of the applicable codes and the approved plans.
- d. At the lath inspection, the building inspector shall be provided with a report showing the results of moisture testing of the bales done on the day of the lath inspection. The building inspector will select the bales to be tested. Testing shall be done with a probe capable of being inserted into the center of the bales, in accordance with Section 18944.35 of the Health and Safety Code. The moisture content of the bale shall not exceed 20% of the total weight of the bale.
- e. All lath shall be inspected by the building inspector before being covered.
- f. A final inspection shall be performed by the building inspector.

## REFERENCES

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Revised: