



COCONINO COUNTY ARIZONA
COMMUNITY DEVELOPMENT



STRAW BALE CONSTRUCTION GUIDELINES

- The frame of a straw bale structure shall be a rigid construction of post and beam, braced and anchored to resist lateral, sliding and uplift forces. The bracing of the structural frame shall be detailed on the plans. The use of straw is an infill material between the structural frame.
- The wood frame members in contact with the stucco and straw shall be wrapped with Grade D building paper for protection from moisture migration. Two layers of Grade D paper are required over wood sheathing in contact with stucco.
- Two pressure treated plates, spaced the width of the bales, anchored with bolts into the slab at 4 feet on center and $\frac{3}{4}$ inch plywood flooring shall be built for the base of the stacking of the straw bales. This plywood flooring should be covered with 15 pound felt. The open space below the plywood shall be filled with rigid insulation.
- Rebar shall extend 24 inches vertically out of the foundation as a structural connection to the straw bales at 4 feet on center and within 12 inches of all corners. Rebar or bamboo pins shall be driven into the bales at 4 feet on center maximum with laps no less than 16 inches minimum.
- The exterior surfaces of the straw bale shall be finished with an exterior grade of stucco and lath. The interior surfaces may be stucco or other approved material and lath. The lath shall be attached to the framing and plates at the perimeter and fastened with a corrosion resistant tie wire weaved through the bales to attach to the lath on the other side. The lath shall be fastened at 2 square feet or closer. Other approved retainer pins may be used as an option.
- Earthen plaster when used as the finish surface over the straw bale, the material composition of the plaster shall be part of the plans to be approved. A letter, disclosing the use of the earthen plaster, with the material composition, approval by the owner and a clause stating that Coconino County shall not be held liable in the event of failure, shall be attached and recorded to the Property Deed with the Records Office.
- Doors and windows shall be framed out through the straw bale wall and flashed with approved and recognized methods.
- Intersecting interior partitions shall be attached to full length vertical framing attached top and bottom in the straw bale wall sized large enough to attach the lath at the corners.
- Electric wiring when run through the straw bales and exposed to the lath and plaster shall be Underground Feeder Rated (UF) or install in an approved raceway.
- The Straw Bale Construction Guideline is given to explain a recognized type of straw bale post and beam bearing construction and is not intended to limit other types of construction; provided the methods show sufficient evidence of structural integrity and stability, meets the intent of the Building Code life safety provisions and the prescriptive or performance criteria of the Energy Code as determined through the plan review and building inspection process. Coconino County does not recognize load bearing straw bale construction due heavy snow loads throughout the region and because straw bale is not a recognized construction method according to the Building Code.
- County Straw Bale details are available as clarification for the construction of these buildings.