

Lee County Post-Frame Building Standard

12.0 General:

The provisions of this section shall apply to the design and construction of post frame buildings intended for non-exempt agricultural or farm structures, and utility, storage, or residential accessory structures 400 square feet in area or larger. The term “post-frame” refers to any structural framing/support system whose main, load-bearing, vertical framing elements are wood poles or posts. These poles or posts may be embedded in the ground, supported by concrete piers, or attached to a concrete wall or slab. The provisions of this section are deemed to comply with the spirit and intent of the minimum design and construction provisions of the 2015 edition of the International Building Code. Lee County offers no guarantee on buildings utilizing these design specifications.

12.1 Limitations:

Buildings designed and constructed under these provisions shall not exceed limitations of this section. Buildings that exceed the limitations of Sections 12.1.1 through 12.1.6 shall be designed in accordance with requirements of the 2015 International Building Code by a professional licensed by the State of Alabama to practice in the design of buildings.

12.1.1 Use:

Buildings designed and constructed under the provisions of this section shall be limited to agricultural, utility, storage, or residential accessory structures. Buildings designed and constructed under the provisions of this section shall not be used for human habitation, places of employment, commercial purposes, or open to the public. Post frame buildings intended for such purposes shall have structural and architectural plans prepared by a design professional licensed by the State of Alabama showing compliance with the applicable codes and standards for the proposed use and occupancy.

12.1.2 Area:

Buildings shall not exceed 3000 square feet in area.

12.1.3 Height:

The sidewall height of buildings designed under these provisions shall not exceed 14 feet or one story in height.

12.1.4 Width:

The maximum width of buildings designed under these provisions shall not exceed 40 feet.

12.1.5 Braced Wall:

Buildings shall be provided with exterior braced walls. Bracing shall be located in the sidewalls at each corner by means of a nominal 2 inch by 4 inch diagonal brace or other approved bracing.

12.1.6 Openings in Exterior walls:

No single opening for doors, windows or other purposes that exceed 16 feet in width shall be placed in exterior walls. Buildings open on one side shall be provided with acceptable bracing for wind resistance.

12.2 Definitions:

Agricultural Building/Farm Structure

A detached structure designed and constructed to house farm implements or supplies, hay, grain, poultry, livestock, or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated, packaged or sold; nor shall it be a place frequented by the public. It does not include any structure which is primarily used for the storage of nonagricultural items or to park private automobiles, trucks, campers, motor homes, boats, or any other recreational vehicles.

Braced Wall:

A wall that has diagonal bracing.

Butt Encased:

Concrete encasement of a pole or post at the lower 12 inches of its embedment in the earth.

Footing:

That portion of a foundation that spreads and transmits loads directly to the soil.

Girt:

The horizontal wall framing members that span between posts and are used to support exterior wall covering.

Pole or Post:

A treated round, square or rectangular wood member, that is solid sawn or laminated, and is intended to be embedded in the ground to support building structural loads and transmit the loads to the footing.

Purlin:

The structural members that span between rafters or trusses used to attach and support metal roof coverings and transfer the roof loads to the rafters or trusses.

Residential Accessory Structure:

A detached building, other than an Agricultural or Farm structure as defined in Section 11.3, whose use is subordinate or incidental to the customary functions of the primary residential structure on a lot. Garages, workshops, storage or garden sheds, carports, and pool houses are all examples of Accessory Structures.

Utility/Storage Building:

For the purposes of this standard, a building or structure more than 400 square feet in size that is on the same property as the primary residence, but does not meet requirements to be an Accessory Structure as defined in this section; nor is it an exempt Agricultural Storage Building.

12.3 Design Loads:**12.3.1 Live Load:**

The roof snow load shall be 5 pounds per square foot.

12.3.2 Dead Load:

The roof dead load shall be 4 lbs. per square foot for roofs that utilize a metal roof covering. Dead loads of 7 lbs. per square foot shall be used if wood shakes, wood shingles or asphalt composition shingles are utilized. If other roof coverings are used the loading specified by the roof covering manufacturer shall apply.

12.3.3 Wind Load:

Buildings designed and constructed under these provisions shall be considered to be designed for a 90 mph wind located in an exposure C wind zone.

12.4 Foundation Design:

Foundations for buildings designed and constructed under provisions of these requirements shall be designed and installed in accordance with this section. Foundations shall be designed to support the imposed load and be capable of resisting wind uplift and overturning. The loading requirements that shall be applicable for buildings designed and constructed under these provisions shall be as specified in this section.

12.4.1 Foundation Diameter:

The diameter of holes for poles or post foundations and the required footing thickness shall be in accordance with Table 12.1. Footings shall be placed to a depth so that building loads are supported on natural undisturbed soils. Unless unusual site conditions exist soil bearing capacity shall be assumed to have 1500 p.s.f bearing capacity.

Building Width	Post Spacing	Footing Thickness	Footing Diameter
24	8 to 10 Feet	6 Inches	15 Inches
30	8 to 10 Feet	6 Inches	17 Inches
36	8 to 10 Feet	6 Inches	18 Inches
40	8 to 10 Feet	6 Inches	18 Inches

TABLE 12.1 MINIMUM FOOTING DIMENSIONS

12.4.2 Pole or Post Embedment:

Poles or posts shall be embedded in the earth to a minimum depth of 4 feet from the top of the footings.

12.4.3 Shallow Pole or Post Embedment:

When it is necessary to use a pole or post embedment depth of less than 48 inches but not less than 30 inches due to rock or other local site conditions, knee bracing shall be provided and the post foundation hole shall be backfilled to grade with concrete. Embedment depth of less than 30 inches is not allowed under this standard.

12.4.4 Footings:

Footings of concrete, 1 inch diameter or larger gravel or other approved materials shall be placed under poles or posts. Footings shall have a minimum thickness in accordance with Table 12.1.

12.4.5 Backfill:

Posts shall be either butt encased with concrete, or be fully embedded with concrete, or be provided with other approved means to provide resistance to wind uplift. If posts are provided with butt encasement or blocked anchors, the remaining annular space of the post foundation holes may be backfilled with firmly tamped clean soil or sand in maximum 8 inch layers.

12.4.6 Concrete Placement:

Concrete used for footings or post encasement shall be placed as wet mix.

12.4.7 Pole or Post Anchor:

Poles or posts shall be anchored to the encasing concrete whether butt encased or fully encased, with a minimum ½ inch reinforcing bar placed through a drilled hole in the pole or post. The rebar shall have a minimum one (1) inch of concrete cover from the bottom and top of the encasing concrete. Blocked anchors shall be provided when the backfill of the annular space consists of earth, sand or gravel tamped in 8 inch layers. Blocked anchors shall be of the same dimension as the base of the post.

12.5 Wall Construction:

12.5.1 Pole or Post Size and Spacing:

Poles or posts may be solid sawn or laminated. Poles or posts shall be of a minimum dimension as required by Table 12.2 based on the building height and spacing of posts. The spacing of poles or posts shall not exceed the maximum shown in Table 12.2 for the dimension of post that will be used.

12.5.2 Wood Subject to Decay or Termite Damage:

Wood embedded in the ground or concrete, or otherwise in direct contact with the earth shall be treated for ground contact. Wood that is in contact with the ground or is located within 18 inches of the ground shall be pressure treated with a preservative or have natural resistance to decay and termites.

TABLE 12.2 POST SIZE AND SPACING REQUIREMENTS

EFFECTIVE BUILDING HEIGHT IN FEET*				
	8	10	12	14
POST SIZE	POLE OR POST SPACING IN FEET			
4X4 Nominal	7	6	4	4
4X6 Nominal	15	12	9	8
6X6 Nominal	15	15	15	15
POST SIZE				

2-2X6 Laminated	7	6	4	4
3-2X6 Laminated	15	14	10.5	10
4-2X8 Laminated	16	16	16	16

* For roof slopes 4:12 or less, the effective height is the vertical distance from grade level to the eave. For roof slopes greater than 4:12 the effective height is the vertical distance from grade level to the eave, plus one half of the roof height.

** The larger post dimension shall be in the same direction of the building width.

12.5.3 Girt Framing:

When siding is to be attached to the exterior walls of pole or post framed buildings, wall girts shall be installed. Wall girts shall be of a minimum size for the span as required by Table 12.3.

TABLE 12.3 WALL GIRT SPANS

Girt Span		
8 feet	10 feet	12 feet
2X4 24 inches O.C. 2X6 36 inches O.C.	2X6 36 inches O.C.	2X6 36 inches O.C.

12.5.3.1 Girt Nailing:

Girts shall be fastened to the posts using 16d ring shank hot dipped galvanized nails or other approved fasteners.

12.5.4 Bracing:

Exterior sidewalls shall be braced at building corners. Braces shall be a minimum 2X4 nominal dimension lumber installed diagonally or be of other approved bracing materials.

12.5.5 Exterior wall Covering:

Exterior wall coverings, when provided, shall be of an approved weather resistant material. Steel panel exterior wall coverings shall be of minimum 29 gage.

12.5.6 Headers and Beams:

Headers or beams required to support building loads shall be designed to safely carry the imposed loads.

12.5.7 Beam Support:

Beams, headers or girders that are used to support roof framing shall be supported by notches in the poles or posts and shall be secured by ½ diameter bolts secured with washers and nuts or ½ inch by 4 ½ inch lag bolts.

12.5.8 FASTENERS:

Fasteners for pressure treated wood and fasteners used in locations exposed to weather shall be of hot-dipped zinc galvanized, aluminum alloy wire fasteners or stainless steel fasteners.

12.6 Roof Ceiling Construction:

Roof framing may be of conventional light frame construction as allowed by the 2015 edition of the International Building Code or may be of trusses as specified by section 12.6.1 of this standard or may be of other alternate designs that have been designed by a professional engineer licensed by the State of Alabama.

12.6.1 Trusses:

Trusses may be site built or be shop fabricated. Trusses shall be designed by a professional engineer licensed by the State of Alabama.

12.6.2 Conventional Framing:

The framing details for conventional roof construction shall conform to the requirements of the 2015 edition of the International Building Code.

12.6.3 Roof-Members-To-Building-Frame Connection:

Blocking, straps, approved framing anchors or mechanical fasteners shall be installed from the side of the roof framing member to the exterior posts or other supporting members. Tie straps shall be a minimum of 1 1/8 inch by 0.036 inch, 20 gage sheet steel and shall be corrosion resistant.

12.6.4 Purlins:

Purlins shall be installed with the wide dimension perpendicular to the load that it supports. Purlins shall be supported on top of the trusses or shall be provided with approved hangers. The span of purlins shall not exceed the values specified in Table 12.4.

12.6.5 Roof Covering:

The roof covering shall be of an approved material as specified in the 2015 edition of the International Building Code.

TABLE 12.4 PURLIN SPANS*

GRADE	DIMENSION	MAXIMUM SPAN
#1	2X4/ 2X6/ 2X8	8'6"/ 12'3"/ 15'9"
#2	2X4/ 2X6/ 2X8	8' 12' 15'
#3	2X4/ 2X6/ 2X8	6' 9' 11'

***The spans given in this table are based upon use of Spruce-Pine-Fir design values. Spans of other species may vary.**