



City of Mansfield

Tim Theaker, Mayor

Bureau of Building Inspections, Licenses and Permits

30 N. Diamond Street - Mansfield, OH 44902 – (419)755-9688 Fax-(419)755-9453
www.ci.mansfield.oh.us

Residential Accessory Building Plan Requirements

This checklist is used to detail building plan requirements and construction document details for residential accessory storage building plans and documents submitted for review. Detached, one-story accessory structures over 200 square feet require a building permit. Fees must be paid at the time of application before plan and document review commences. Please submit two (2) sets of plans and documents. Plans shall be neatly drawn to a consistent and recognized scale (1/4"=1' minimum). Plans are required to contain adequate information to be properly reviewed. Referring to code sections in general does not allow us to review proposed methods of construction. Plans containing general code references will be returned for more specific information. Drawings shall be reviewed under the most current edition of the Residential Code of Ohio (RCO).

General Plan and Application Information:

1. ___ Completed application for plan approval
2. ___ Items to be noted on the first sheet:
 - a. ___ Index of Drawings
 - b. ___ Area in gross square feet
 - c. ___ Number of Stories and Basement/Crawl Space/Slab

Site Plan: (minimum reqs. per RCO 106.1.1, No.2.)

3. ___ Shall be drawn to a recognized scale.
4. ___ Size and location of all existing and proposed structures.
5. ___ All property and interior lot lines with distances from lot lines.
6. ___ Setback and side yard dimensions.
7. ___ Locations of nearest streets.
8. ___ Established street grades.
9. ___ Types and sizes of all utility lines.
10. ___ Elevations of all proposed finished grades.
11. ___ Floodplain

Architectural and Floor Plans:

12. ___ Floor and Foundation Plan
 - a. ___ Foundation layout with dimensions
 - b. ___ Footing diameter and thickness
 - c. ___ Door sizes with Schedule
 - d. ___ Window sizes with Schedule
 - e. ___ Stairways
13. ___ Attic Access
14. ___ Floor Construction
 - a. ___ For garages, show slope or floor drains
 - b. ___ Lofts or storage area framing
15. ___ Roof Framing Plan

Building Structural Design Information:

16. ___ Soil Bearing Pressure
17. ___ Floor Live Loads
18. ___ Lumber Sizes, Grades, and Species.
19. ___ Manufacturer's Truss Diagrams if used.
20. ___ Method(s) of anchoring for non-frost protected structures per RCO 301.2.1.

Elevation View of Exterior:

21. ___ Elevation Views of all sides of building showing:
 - a. ___ Grade
 - b. ___ Walls
 - c. ___ Openings- windows/doors
 - d. ___ Siding Materials
 - e. ___ Locations of above ground utilities

Cross Sections:

22. ___ Footing size, depth, and reinforcing
23. ___ Exterior Grade
24. ___ For conventional framed structures
 - a. ___ Foundation walls
 - b. ___ Exterior wall members, sheathing and spacing
25. ___ For pole structures
 - a. ___ Foundation Details
 - b. ___ Pole size
 - c. ___ Pole spacing
 - d. ___ Treated Framing within 6" of ground
 - e. ___ Girt size and spacing
 - f. ___ Knee bracing
26. ___ Vapor Barriers

Cross Sections (cont'd):

- 27. ___ Floor Construction
- 28. ___ Floor Insulation
- 29. ___ Wall Insulation
- 30. ___ Interior Wall Finish
- 31. ___ Exterior Siding and sheathing
- 32. ___ Headers
- 33. ___ Ceiling Height and Finish
- 34. ___ Roof Insulation
- 35. ___ Roof Trusses or Rafters
- 36. ___ Roof Pitch
- 37. ___ Collar ties or truss bracing
- 38. ___ Fascia, Soffit, Flashing, and Gutters
- 39. ___ Roof Sheathing size or purlin size spacing
- 40. ___ Roof membrane and covering
 - a. ___ Headers
 - b. ___ Roof Pitch
 - c. ___ Roof Trusses or Rafters
 - d. ___ Collar ties or truss bracing
- 41. ___ Roof Ventilation

Electrical:

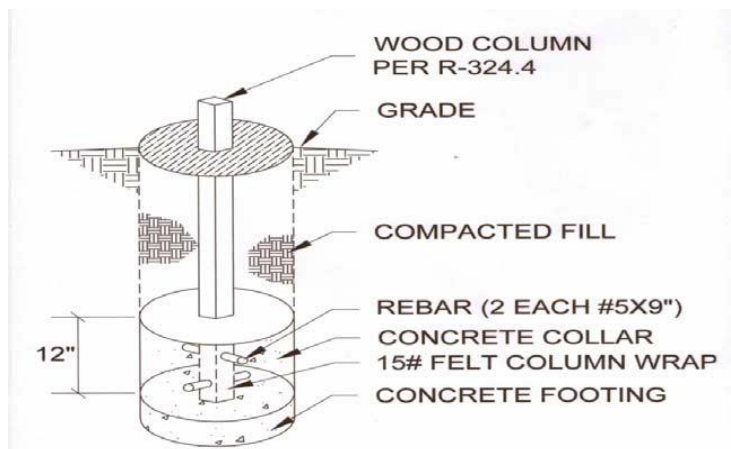
- 42. ___ Submit electrical panel location and panel schedules with conduit, wire & grounding conductor sizes and types.
- 43. ___ Provide a complete one-line service riser diagram
 - a. ___ Overhead or Underground Service
 - b. ___ Conductor Insulation Type and Rating
 - c. ___ Conductor Size
 - d. ___ Conduit Size or indicate SE/USE
 - e. ___ Disconnecting Means if used
 - f. ___ Grounding Conductor Size
 - g. ___ Ground Rod Size and Location(s)
 - h. ___ Bonding Jumpers:
- 44. ___ Submit complete electrical power and lighting plans with drawing symbol designation information. Include:
 - a. ___ Receptacles
 - i. ___ GFCI protection
 - b. ___ Lights
 - c. ___ Switches,
 - d. ___ Smoke alarms, Carbon Monoxide alarms other fixtures
- 45. ___ Electrical equipment and fixture schedules.

Special Notes

- Foundations- all foundation shall comply with Chapter 4 of the Residential Code of Ohio (RCO).
 - The minimum footing depth shall be 12" below grade per RCO 403.1.4.
 - Freestanding structures of light-frame construction (wood framed floor, wood stud walls with structural sheathing, rafters/trusses) with an area 600 square feet or less and an eave height of 10 feet or less do not require a frost protected foundation.
 - Freestanding structures of other than light-frame construction (metal building, post-frame buildings-see foundation requirements in Section R324) with an area 400 square feet or less and an eave height of 10 feet or less do not require a frost protected foundation
 - For structures with a frost-protected foundation, the minimum footing thickness shall be 6" for continuous footings. The bottom of the footing shall be a minimum of 36" below finished grade. See Section R324 for post-frame foundations.
 - Freestanding accessory structures without frost-protected foundations shall be properly anchored at all corners per RCO 301.1.
- Slab on grade foundations shall be prepared and sealed by an architect or engineer registered in the State of Ohio.
- All lumber shall be pressure treated or decay resistant in locations defined by RCO 317.1.
- Fasteners for pressure preservative and fire-retardant-treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper per RCO 317.3
- Garage floor surfaces shall be of approved noncombustible, nonpermeable material. A structure shall be classified as a garage for uses including storage, repair, painting, maintenance, or operation of a motor vehicle. A motor vehicle shall be defined as a passenger car, van, truck, or bus.

Post Frame Structures

- Post Frame Structures Shall Comply with Section 324 of the RCO.
- Post Frame Accessory structures are limited to all of the following conditions per R324.1. If any of the conditions are exceeded, then the plans shall be prepared by an Ohio Registered Design Professional (Architect or Engineer) and submitted as an alternative engineered design in accordance with R106.5.
 1. Residential accessory structures,(cannot be used as a dwelling unit)
 2. Single story,(no lofts or attic storage)
 3. Solid exterior structural sheathing or metal roof, and solid wall panels (girts and purlins per R324.4 and R324.5),
 4. No attic storage (attic storage would require engineered design per R106.5 and engineered trusses),
 5. Maximum building width of thirty six feet including the overhang,
 6. Maximum wall height of sixteen feet,(grade to top of post/column or truss carrier/header)
 7. Maximum mean roof height of twenty feet, and
 8. Maximum post spacing of eight feet (unless truss sit directly on post).



Post frame foundations shall be sized in accordance with RCO Table 324.3

Per R324.4.5, headers in exterior bearing walls and truss carriers shall be sized in accordance with Table 502.5(1). An excerpt of

Table 324.3				
Post Frame Pier Footing Diameters ^{1, 2, 3, 4}				
	Building with (length of truss) including overhang (feet)			
	24	28	32	36
Diameter (inches) 20# roof snow load	18	20	22	22
Diameter (inches) 30# roof snow load	18	22	24	26

1. Pier footing thickness shall be a minimum one-half of the diameter of the footing.
2. Based on 2000psf soil bearing capacity and truss loads of 20 or 30 psf live or snow load top chord, 10 psf dead load top chord, 5 psf dead load on the bottom chord and no live load on the bottom chord.
3. Fractional widths shall be rounded to the net higher pier footing diameter.
4. Table not to be used in Ohio case stud areas.

the table is shown below.

Exceptions to R324.4.5

1. Not required if trusses or ceiling joists/rafters bear directly on the columns
2. "Openings on the gable end walls supporting a door or roof total load not exceeding 5 sq.ft. per lineal feet of wall area that require beams or headers must be sized per Table 324.4.5.

Table 324.4.5			
Gable End Header Sizes			
Opening Width (feet)	10	12	16
Header Size (inches)	2-2x8	2-2x10	2-2x12

Beams supporting trusses or rafters and ceiling joist attachment shall be connected to columns by one of the following methods:

1. Bolts that are 1/2-inch diameter through-bolted to the side of the column;
2. Bolts that are 1/2 inch diameter, directly attached to a 3-ply column notch, enclosing the truss or rafter at the top of column; or
3. Other fasteners with minimum shear or withdraw values state in Table 324.4.7.

PARTIAL Table 502.5(1)				
Girder Spans ^a and Header Spans ^a for Exterior Bearing Walls				
(Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir ^b)				
Girders and Headers Supporting	Size	Ground Snow Load		
		30		
		20	28	36
		Span	Span	Span
Roof and Ceiling	2-2x4	3'-6"	3'-2"	2'-10"
	2-2x6	5'-5"	4'-8"	4'-2"
	2-2x8	6'-10"	5'-11"	5'-4"
	2-2x10	8'-5"	7'-3"	6'-6"
	2-2x12	9'-9"	8'-5"	7'-6"
	3-2x8	8'-4"	7'-5"	6'-8"
	3-2x10	10'-6"	9'-1"	8'-2"
	3-2x12	12'-2"	10'-7"	9'-5"
	4-2x8	9'-2"	8'-4"	7'-8"
	4-2x10	11'-8"	10'-6"	9'-5"
4-2x12	14'-1"	12'-2"	10'-11"	

TABLE 324.4.7				
BEAM OR TRUSS CONNECTION AT COLUMNS MINIMUM FASTENERS OR TOTAL SHEAR OR WITHDRAW VALUES ^{1,2,3}				
	Building Width (Length of Truss) including overhang (feet)			
	24	28	32	36
Shear or withdraw (pounds) 20# snow load	3360	3920	4480	5040
Number of Bolts 20# snow load	2	2	2	3
Shear or withdraw (pounds) 30# snow load	4320	5040	5760	6480
Number of Bolts 30# snow load	2	3	3	3

1. Based upon truss loads of 20 or 30 PSF live or snow load top chord, 10 PSF dead load top chord, 5 PSF live load on the bottom chord and no live load on the bottom chord
2. Based upon post spacing at intervals not exceeding 8 feet.
3. When beams are attached to each side of the column and the fasteners do not extend through both beams such as through-bolts, the required values are one-half the amount shown above for each beam.

Structural fasteners shall comply with Table R 324.7

TABLE 324.7		
STRUCTURE FASTENERS		
Fastener Schedule for Structural Members		
Description of Building Element	Number and Type of Fastener	Attachment Type
Uplift blocking to column	5-16d Hot Dipped Galvanized	Each Block
Skirt board to column	2-16d Hot Dipped Galvanized	Face nail
Wall girt to column	2-16d Hot Dipped Galvanized	Face nail
Diagonal bracing to column	2-16d Hot Dipped Galvanized	Face nail
Diagonal bracing to skirt board	2-10d Hot Dipped Galvanized	Face nail
Diagonal bracing to wall girts	2-10d	Face nail
Knee brace to column	3-16d Hot Dipped Galvanized	Face nail
Knee brace to top chord of truss or rafter	3-10d	Face nail
Knee brace to bottom chord of truss or ceiling joist	3-10d	Face nail
Roof purlin to truss or rafter with span of 2' or 4'	2-16d	Face nail
Roof purlin to truss or rafter with span of 8'	Mechanical fastener with uplift protection greater than 225 pounds	Per manufacturer installation manual

Knee bracing shall be provided in accordance with R324.6. The brace shall extend from the top chord of the truss or rafter adjacent to the post or column at a 45 degree angle. The vertical distance down from the bottom chord of the truss or ceiling joist to the point where the brace attached to the column shall comply with OBC Table 324.6.

Table 324.6	
Knee Brace Vertical Distance	
Wall Height	Vertical Dimension
8'-0" and 9'-0"	1'-6"
10'-0" and 11'-0"	2'-0"
12'-0" and 13'-0"	3'-0"
14'-0" through 16'-0"	4'-0"

