



# City of Mansfield

## Jodie Perry, Mayor

### Bureau of Building Inspections, Licenses and Permits

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### 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:**

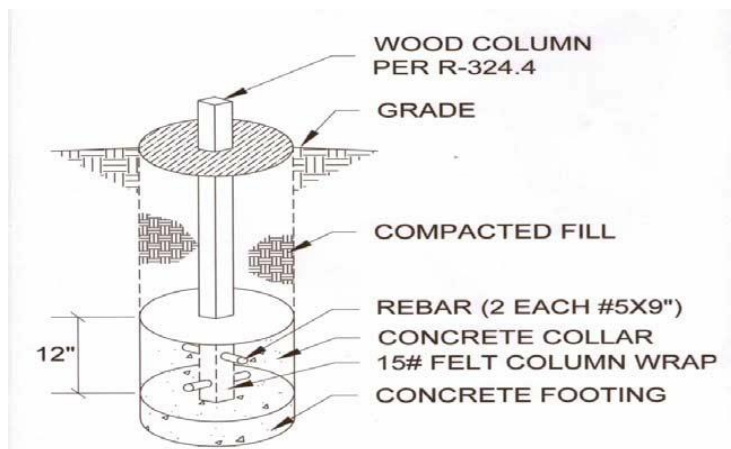
- 42. \_\_\_ Submit electrical panel location and panel schedules with conduit, wire & grounding conductor sizes and types.
- 43. \_\_\_ Provide a complete one-line service riser diagram
  - a. \_\_\_ Overhead or Underground Service
  - b. \_\_\_ Conductor Insulation Type and Rating
  - c. \_\_\_ Conductor 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 <sup>1, 2, 3, 4</sup>				
	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.

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

1. Bolts that are ½-inch diameter through-bolted to the side of the column;
2. Bolts that are ½ 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.

TABLE 324.4.7				
BEAM OR TRUSS CONNECTION AT COLUMNS MINIMUM FASTENERS OR TOTAL SHEAR OR WITHDRAW VALUES <sup>1,2,3</sup>				
	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.

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"

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

PARTIAL Table 502.5(1)				
Girder Spans <sup>a</sup> and Header Spans <sup>a</sup> for Exterior Bearing Walls				
(Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir <sup>b</sup> )				
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"	

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

