



# City of Mansfield

## Tim Theaker, Mayor

### Bureau of Building Inspections, Licenses and Permits

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www.ci.mansfield.oh.us

### Residential Building Plan and Construction Document Approval Requirements

The building plan approval process is a separate process required in addition to any Mansfield City Planning Commission approval requirements. The following document provides a background, commentary, and requirements for building plan approval.

Residential Code of Ohio for One-, Two-, and Three-Family Dwellings Section (RCO) 105.1 states that any owner or authorized agent who intends to construct, enlarge, alter, repair, move, or change the occupancy of a building or structure, or portion thereof, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical, plumbing system, other building service equipment, or piping system the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required approval. RCO Section 106.1 requires that construction documents (plans) are submitted with an application for plan approval to the Bureau prior to beginning any construction work for a building or structure. The following checklist is used to detail commercial building plan and construction document requirements for review as required by RCO Section 106.1.

A minimum of three (3) sets of plans and construction documents, an application for plan approval, and proper fees shall be submitted for plan approval. Documents that cannot be prescriptively reviewed under the RCO or as specifically noted in the RCO shall bear the seal and the signature of the design professional who prepared the plans and documents. Plans must be legible and contain adequate information to be properly reviewed. Referring to code sections in general does not allow the review of proposed methods of construction. Plans containing general code references will be returned for more specific information.

#### **General Plan and Application Information:**

1. \_\_\_ Address, contact information, and Ohio license number (if applicable) for:
  - a. \_\_\_ Owner, Designer(s), General, Electrical, and Mechanical Contractors, Other Contractors
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
3. \_\_\_ A note for items that are not pertinent (ex. heating systems in an unheated building) shall be clearly described on the drawings. Alternate methods of compliance shall be described.
4. \_\_\_ Residential Plan Submittal Checklist. Copy for use is attached at the end of this guide. 2 pages total

#### **Site Plan:** (minimum reqs. per RCO 106.1.3, No.2.)

5. \_\_\_ Shall be drawn to a recognized scale.
6. \_\_\_ Size and location of all existing and proposed structures.
7. \_\_\_ All property and interior lot lines with distances from lot lines.
8. \_\_\_ Setback and side yard dimensions.
9. \_\_\_ Locations of nearest streets.
10. \_\_\_ Established street grades.

11. \_\_\_ Types and sizes of all utility lines.
12. \_\_\_ Elevations of all proposed finished grades.
13. \_\_\_ Floodplain location with base flood elevations, if applicable.

#### **Architectural and Floor Plans:**

14. \_\_\_ Complete floor plans, including:
15. \_\_\_ Details for means of egress
  - a. \_\_\_ Stairways-
    - i. \_\_\_ Treads
    - ii. \_\_\_ Risers
    - iii. \_\_\_ Handrails
    - iv. \_\_\_ Guardrails
    - v. \_\_\_ Landings
16. \_\_\_ Complete window, door, and room finish schedule
  - a. \_\_\_ Door sizes and locations
  - b. \_\_\_ Window sizes and locations
  - c. \_\_\_ Tempered Glass Locations
17. \_\_\_ Attic Access
18. \_\_\_ Garage details
  - a. \_\_\_ Garage Floor Slope and/or Floor Drains
19. \_\_\_ Smoke Alarm and Carbon Monoxide alarm Locations
20. \_\_\_ Floor Framing/Construction Plan

### **Building Structural Design Information:**

- 21. \_\_\_ Soil Bearing Pressure
- 22. \_\_\_ Footings
  - a. \_\_\_ Type of Footing
  - b. \_\_\_ Size
  - c. \_\_\_ Footing Material
  - d. \_\_\_ Footing Depth
  - e. \_\_\_ Reinforcing- number, type, size
- 23. \_\_\_ Floor Live Loads  
\_\_\_ Bedroom \_\_\_ Attic \_\_\_ Living Area \_\_\_
- 24. \_\_\_ Foundation plan – indicate design bearing pressure, details, anchorage (bolt sizes, spacing, layout, etc.), reinforcing clearances in concrete, floor slab, insulation details, vapor barriers etc.
- 25. \_\_\_ Floor framing plans(engineered floor systems)
- 26. \_\_\_ Roof framing plans
- 27. \_\_\_ Connection details
- 28. \_\_\_ Manufacturer's Truss Diagrams (if used).
- 29. \_\_\_ Engineered Beams w/Specs (LVL,Glu-Lam, etc.)

### **Elevation View of Exterior:**

- 30. \_\_\_ 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 Section:**

- 31. \_\_\_ Detailed cross section from foundation to roof
- 32. \_\_\_ Footing size and depth
- 33. \_\_\_ Exterior Walls/floors for conventional framed structures
  - a. \_\_\_ Material Sizes and framing
  - b. \_\_\_ Vapor Barriers
  - c. \_\_\_ Floor Construction- joist sizes, spacing, spans
  - d. \_\_\_ Floor Insulation
  - e. \_\_\_ Wall Construction methods
  - f. \_\_\_ Wall Insulation
  - g. \_\_\_ Siding
  - h. \_\_\_ Headers / Girders / Posts & Spacing
  - i. \_\_\_ Roof Trusses or Rafters (with roof pitch)
  - j. \_\_\_ Truss bracing or collar ties
  - k. \_\_\_ Roof Sheathing or purlins
  - l. \_\_\_ Roof underlayment and covering
- 34. \_\_\_ Exterior Walls for pole structures
  - a. \_\_\_ Pole Sizes and spacing
  - b. \_\_\_ Vapor Barriers
  - c. \_\_\_ Floor Construction
  - d. \_\_\_ Floor Insulation
  - e. \_\_\_ Wall Construction methods
  - f. \_\_\_ Wall Insulation
  - g. \_\_\_ Siding

- h. \_\_\_ Headers / Girders / Posts & Spacing
- i. \_\_\_ Roof Trusses or Rafters (with roof pitch)- sizes, spacing, spans
- j. \_\_\_ Truss bracing or collar ties
- k. \_\_\_ Roof Sheathing or purlins
- l. \_\_\_ Roof underlayment, ice protection and covering

### **Electrical:**

- 35. \_\_\_ Submit electrical panel locations and panel schedules with conduit, wire & grounding conductor sizes and types.
- 36. \_\_\_ 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 (where required)
  - f. \_\_\_ Grounding Conductor Size
  - g. \_\_\_ Ground Rod Size and Location(s)
  - h. \_\_\_ Bonding Jumpers:
    - i. \_\_\_ Water Heater
    - ii. \_\_\_ Water Meter
- 37. \_\_\_ Submit complete electrical power and lighting plans with drawing symbol designation information. Include:
  - a. \_\_\_ Receptacles
  - b. \_\_\_ Lights
  - c. \_\_\_ Smoke Alarms and Carbon Monoxide Alarms
  - d. \_\_\_ Switches, other devices, etc
- 38. \_\_\_ Electrical equipment and fixture schedules.
- 39. \_\_\_ Ground-fault (GFCI)
  - a. \_\_\_ Kitchens
  - b. \_\_\_ Bathrooms
  - c. \_\_\_ Storage/Basement/Garage
  - d. \_\_\_ Exterior
- 40. \_\_\_ Arc-fault (AFCI) protection
  - a. \_\_\_ Bedrooms
  - b. \_\_\_ Other areas
- 41. \_\_\_ Tamper resistant receptacles
- 42. \_\_\_ Stairway Illumination
- 43. \_\_\_ Habitable Room Illumination
- 44. \_\_\_ Indicate Disconnecting means and overcurrent protection devices.
- 45. \_\_\_ Energy Conservation Code calculations including method of compliance for building envelope, electrical power and lighting, and mechanical systems

### **Mechanical:**

- 46. \_\_\_ HVAC plan and equipment schedule, including:
  - a. \_\_\_ Furnace Location
  - b. \_\_\_ Water Heater Location(s)
- 47. \_\_\_ Bathroom Ventilation
- 48. \_\_\_ Habitable Room Ventilation
- 49. \_\_\_ Heating/Cooling Equipment sizing calculations showing compliance with ACCA Manual S and loads calculated per ACCA Manual J.
- 50. \_\_\_ Energy Conservation Code calculations including method of compliance for mechanical systems.

## **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.
- Post frame structures shall comply with the Section R324 of the RCO
- 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.
- Technical support and free software compliance tools for Energy Code Compliance can be found at <http://www.energycodes.gov>

2013 Residential Code of Ohio. *This form (2 pages total) shall be completed in its entirety and submitted with all building plans for residential new construction, additions, and alterations to one, two, and three-family dwellings. Incomplete submittals will be returned for additional information.*

Work Type:     New                     Alteration                     Addition                     Replacement

For New Construction:

Unfinished Basement Square Footage	_____	sf
Finished Basement Square Footage	_____	sf
First Floor Square Footage (less decks or garage)	_____	sf
Second Floor Square Footage	_____	sf
Attached Garage Square Footage	_____	sf
Covered Porch(es)	_____	sf
Deck(s)	_____	sf
<b>Total Area</b>	_____	<b>sf</b>

For Additions/Alterations:

existing square footage	_____	sf
added/altered conditioned area	_____	sf
added/altered unconditioned area	_____	sf
<b>Total Area</b>	_____	<b>sf</b>

**ELECTRICAL SYSTEMS DESCRIPTION**

**Service Type:**    Overhead            Underground    **Service Size** \_\_\_\_\_ **amps**  
**Overhead Service mast used?** Yes / No    **Service Entrance Conduit Size and Type** \_\_\_\_\_  
**Meter Location** \_\_\_\_\_    **Exterior Service Disconnect?** Yes / No    **Generator Switch?** Yes / No  
**Service Conductor Wire Size and Insulation Type** \_\_\_\_\_    Al / Cu  
**Electrical Panel Location** \_\_\_\_\_  
**Grounding Electrode Conductor Size** \_\_\_\_\_    **Size and # of Ground Rods used** \_\_\_\_\_  
**Water line type:**    metal    plastic            **Metal Water lines are required to be grounded and/or bonded.**  
**Water meters (if used) and water heaters are required to have jumpers installed**  
**Detached or outbuildings fed from electrical service?** Yes / No  
**Number of New or added light fixtures** \_\_\_\_\_    **Number of fixtures that will use high efficacy bulbs** \_\_\_\_\_

Please remember to show meter, electric panel, and electrical service disconnects on drawings. Show the location of all utilities on the site plan.

## **MECHANICAL SYSTEMS DESCRIPTION**

**Heating Type (circle all that apply):** Forced Air                      Geothermal                      Radiant Fireplace w/chimney

Ventless Fireplace/Gas Log      Wood Stove      Other \_\_\_\_\_

**Furnace Location:**                      Basement                      Garage                      Attic                      Other \_\_\_\_\_

**Furnace Capacity:** \_\_\_\_\_ **BTU's / KW**

**Fuel Type:**      Electric                      Nat. Gas.                      LP                      Other \_\_\_\_\_

**Water Heater Location:**                      Basement                      Garage                      Attic                      Other \_\_\_\_\_

**Fuel Type:**      Electric                      Nat. Gas.                      LP                      Other \_\_\_\_\_      **Tankless WH?** Yes / No

**Condensing Unit Location:**      Front Yard                      Rear Yard                      Side Yard                      Right      Left

**Is the basement being conditioned?** Yes / No

Please remember to show all mechanical equipment on drawings. Show the location of all utilities on the site plan.

## **ENERGY CODE COMPLIANCE**

**Unless specified below, energy code compliance will be assumed through RCO Section 1105, Ohio Home Builders Alternative Energy Code Option Compliance Path #2 using the R-Value approach as follows:**

### **Table 1105.2.1**

Wood Frame Wall R-Value	R-13
Mass Wall R-Value	R-13 (R-17 1/2 of insulation on interior side)
Floor R-Value	R-30
Slab R-Value and depth	R-10 (perimeter, for slabs less than 12 inches below grade)
Crawl Space Wall R-Value	R-10 continuous or R-13 cavity
Ceiling R-Value	R-49 (see notes for use of R-38 and R-30 in areas)
Fenestration U-Factor	0.32
Skylight U-factor	0.60
Exterior Door U-Factor	0.60

The air handler and all ducts are located within the conditioned space.

Wood burning fireplaces have gasketed doors and outdoor combustion air.

Recessed lighting located within the building envelope shall be IC rated and labeled as meeting ASTM E 283.

A minimum of 75 percent of permanently installed light fixtures have high efficacy bulbs (CFL or LED).

A programmable thermostat will be installed.

A permanent certificate shall be posted on or in the electrical panel.

**For all submissions not using the above path, please indicate the energy code compliance method.**

- The International Energy Conservation Code. Complete energy code details are provided on the plans and a signed RESCheck report is attached
- Section 1101-1104 of the Residential Code of Ohio. Attach a RESCheck report for designs that use the Total UA alternative option.
- Section 1105 of the Residential Code of Ohio, Ohio Home Builders Alternative Energy Code Option Compliance Path #1. Attach a RESCheck report for designs that use the Total UA alternative option.