Residential Code of Ohio (RCO)
Effective January 1, 2013
Summary of the Significant Changes

Chapter 1 This Chapter regulates the administration of the building code by certified residential building departments, including knowledge and experience requirements for code enforcement officials, and the steps an owner needs to take to obtain a plan approval or "permit" to build.

Chapter 2 This Chapter sets forth the definitions of terms used in Chapters 1 - 44. Significant changes[1] to this Chapter include new definitions for structural insulated panels.

Chapter 3 This Chapter regulates the planning and design of dwelling units including:

- Dead loads, live loads, roof loads, floor loads, snow loads, wind loads and seismic loads
- Fire-resistant construction
- Light, ventilation and heating requirements
- Minimum requirements for room areas
- Ceiling height requirements
- Sanitation
- Requirements for toilets and bath and shower spaces
- Requirements for glazing, hazardous locations of glazing, site-built windows and skylights
- Requirements for garages and carports
- Requirements for emergency escape and rescue openings
- Means of egress requirements, including provisions for egress doors, hallways, stairways and ramps
- Guards
- Optional automatic sprinkler system
- Requirements for smoke alarms
- Requirements for installation and location of carbon monoxide alarms
- Regulates the use of foam plastic
- Requirements for decay protection for wood and wood-based products
- Requirements for termite protection
- Requirements for premise identification (address)
- Accessibility
- Addresses elevators and platform lifts when installed
- Establishes flood-resistant construction provisions
- Addresses construction of storm shelter within home or building when installed
- Requirements for post frame accessory structures

[1] Several items included in this summary were identified as significant by the International Code Council in its *Significant Changes to the International Residential Code 2009 Edition.*

Significant changes to this Chapter include: alternative standard for log homes added 301.1.1); adds a 6th design alternative for high wind areas; adds required protection of glazed openings for garage doors (301.2.1.1); adds structural insulated panels to list of approved prescriptive construction methods (301.2.3); adds language permitting floor framing to exceed 16 inches in height if overall story height not exceeded 301.3); adds provision lowering balcony live load requirements and considers depth of insulation relative to truss bottom chord depth part of limited attic storage area (301.5); adds provision requiring that exterior walls fire resistance rating must meet ASTM E 119 or UL 263 (302.14); recognizes ANSI Z97 as alternative test procedure for safety glazing products (308.1.1); permits transition fittings in handrails (311.7.7); adds requirement for carbon monoxide alarms (315); adds requirements for the protection against decay in wood based products (317.1); adds requirements for fasteners and connectors in contact with preservative-treated and fire-retardant-treated wood (317.3); adds requirement that wood/plastic composites used on decks must comply with ASTM D 7032 3 (317.4); adds requirement that buildings constructed within floodways must comply with ASCE 24 unless approved by flood plain administrator (322); adds new language requiring storm shelters to comply with ICC/NSSA-500 when installed (323); adds Ohio-specific language for construction of post frame structures (324).

Chapter 4 This Chapter sets forth the prescriptive requirements for constructing footings and walls for foundations of wood, masonry, concrete, and precast concrete. It addresses the control surface water and subsurface drainage, soil tests, and the prevention of moisture, decay and pests in basements and crawl spaces.
Significant changes to this Chapter include: adds language permitting performance method to demonstrate compliance with surface drainage (401.3); requires soil tests when quantifiable data indicates questionable soils are likely present; adds minimum requirements for materials used in precast foundations (401.3); adds alternative for location of bars in footing and adds requirement for vertical dowels with hooks when concrete for footing is placed prior to placement of slab (402.3); adds requirement for anchor bolts to be spaced a maximum of 6 feet on center in foundation (403.1.6); adds requirements for crushed stone footings (403.6); adds foundation wall requirements consistent with new Portland Cement Association standard PCA 100 (404.1); adds requirement that precast concrete foundation walls shall be designed in accordance with accepted engineering practice (404.5); adds requirement that drainage pipe must extend a minimum 1 foot beyond edge of wall in precast foundations supported by crushed stone (405.1.1); adds dampproofing requirements for precast concrete foundation walls enclosing habitable or useable spaces located below grade (406.4); and adds provision for steel columns requiring that they shall not be less than 3-inch-diameter Schedule 40 pipe (407.3).

Chapter 5 This Chapter sets forth the requirements for the design and construction of floor systems that will be capable of supporting minimum design loads including wood

floor framing, wood floors on the ground, steel floor framing and concrete slabs on the ground.
Significant changes to this Chapter include: adds prescriptive method for attaching wood deck to house (502.2.2.1); requires that engineered wood products must be installed in accordance with manufacturer's recommendations (502.7); when lightweight construction is utilized, floor assemblies are now required to be provided with a ½ inch gypsum board membrane or a 5/8 inch wood structural panel membrane (502.13); and adds prescriptive alternatives for cold-formed steel floor framing and expands use in 3-story buildings (505).

Chapter 6 This Chapter sets forth the requirements for design and construction of wall systems capable of supporting minimum design loads (dead, live, snow, wind or seismic loads), contains all bracing requirements, and regulates exterior windows and doors.
Significant changes to this Chapter include: fastening requirements have been modified to reflect current industry standards (602.3(1)); adds new requirements for wood structural panels uses in exterior wall sheathing (602.3); adds requirements that when drill or notching a top plate, metal ties must extend at least 6 inches beyond each side of the opening (602.6.1); incorporates requirements for wall bracing from the 2012 International Residential Code (602.10); incorporates provisions compatible with AISI S230, Standard for Cold-Formed Steel Framing (603); permits masonry units filled with mortar or grout for corbelling (606.3); adds requirements for minimum length of masonry walls in above-grade masonry wall construction (606.12.2.1); adds new concrete foundation wall requirements consistent with new Portland Cement Association standard PCA 100 (611); adds alternatives for minimum window sill height requirement of 23 inches including the installation of a window fall prevention device or performance criteria for devices which limit the openings of the window which still must have emergency and rescue capabilities (612.2); and adds requirements for use of structural insulated panel wall construction (613).

Chapter 7 This Chapter sets forth the requirements for exterior and interior wall coverings such as gypsum board and ceramic tile.
Significant changes to this Chapter include: adds performance requirements for wind resistance of exterior wall coverings and fastening requirements to reflect current industry standards (703); adds requirement for protection against corrosion of lintels (703.7.3); adds requirements for the minimum embedment and cover dimensions for metal wall ties in mortar of masonry veneer (703.7.4); and adds fastening requirements for vinyl sofit and vinyl siding installation over foam plastic sheathing (703.11).

Chapter 8 This Chapter sets forth the requirements for the design and construction of roof-ceiling systems to ensure that they resist wind uplift.
Significant changes to this Chapter include: incorporates provisions compatible with AISI S230, Standard for Cold-Formed Steel Framing and permits use in 3-story buildings (804); permits alternatives to wire mesh to prevent entry of insects

in attic ventilation and reduces minimum opening dimension to 1/16 inch 806); adds requirement for measuring vertical height of attic access from the top of the ceiling framing members to underside of roof framing members (807.1).

Chapter 9 This Chapter sets forth the requirements for the design and construction of roof assemblies primarily focusing on roof coverings for weather protection.
Significant changes to this Chapter include: Section 905.2 amended to add testing requirement in accordance with ASTM D 7158 for asphalt shingles, establish appropriate maximum basic wind speed for and require flashing to be minimum of 4 inches high and 4 inches wide and step flashing shall be turned out so as to direct water away from wall and onto roof or gutter (905.2); and adds requirement that minimum spacing between wood shakes increased to 3/8 inch (905.8.6).

Chapter 10 This Chapter sets forth the requirements for the construction of masonry chimneys and fireplaces.
Significant changes to this Chapter include: adds requirements for minimum thickness, parging, and lining to masonry fireplace smoke chamber (1001); and adds requirements for non-water-soluable mortar in clay flue liners (1003).

Chapter 11 This Chapter sets forth the requirements for energy efficiency of the building and building systems. It provides multiple methods for compliance:

- 2009 International Energy Conservation Code (IECC)
  Significant changes to the 2009 IECC incorporated by reference by this rule include: adds requirement for programmable thermostats; increases energy efficiency (R-value) requirements for window and wall components; adds requirements for duct tightness testing outside insulated space; adds testing requirements for blower door performance or visual inspection.
- Ohio Home Builders Association (OHBA) Prescriptive Energy Code Option (Section 1105)
  This option was developed to be an alternative to the 2009 IECC requirements and broken down into two compliance paths: (1) R 15 or R13 + 3 or (2) R 13. Significant changes included in this option include: reduced above grade wall insulation requirement; reduced foundation wall insulation requirement; reduced piping insulation requirement; adds ceiling insulation requirement; adds requirement for building infiltration with testing; adds requirements for duct tightness with testing; adds increased high efficacy requirement, and adds requirement for more efficient windows.
- Sections 1101 through 1104
  Significant changes to these sections were to incorporate modifications issued by the United States Department of Energy to achieve equivalent energy efficiency to the 2009 IECC.

Chapter 12 This Chapter refers to the user to Chapter 1 for the administration of mechanical installation.

Chapter 13 This Chapter sets forth the requirements for the installation of mechanical equipment and appliances.
Significant changes to this Chapter include: adds limitations for location of installation of appliances to prevent damage from vehicles (1307).

Chapter 14 This Chapter sets forth the requirements for heating and cooling equipment commonly found in 1-, 2- & 3- Family Dwellings.

Chapter 15 This Chapter sets forth the requirements for exhaust systems to prevent hazards and air contaminants.
Significant changes to this Chapter include: adds requirement that concealed exhaust duct which exceeds 25 feet be identified on a permanent label or tag within 6 feet of the duct connection or at electrical panel (1502); and adds requirement for make-up air in exhaust hood systems as required in the manufacturers installation guidelines (1503.4).

Chapter 16 This Chapter sets forth the requirements for the installation of supply, return and exhaust air systems.
Significant changes to this Chapter include: permits testing of flame spread of duct insulation materials in accordance with UL 723 (1601.3); adds language prohibiting underfloor plenums (1601.5); permits spray application of polyurethane foam to the exterior of ducts in attics and crawl spaces (1604.4.5); prohibits furnaces and air-handling systems that supply air to living spaces from also supplying air to or return air from a garage (1601.6); and prohibits unconditioned crawl space from being source of return air (1602.2).

Chapter 17 This Chapter provides that solid-fuel burning appliances shall be provided with combustion air in accordance with the manufacturer's installation guidelines, and oil-fire appliances shall be provided with combustion air in accordance with NPFA 13.
Significant changes to this Chapter include: previous prescriptive requirements have been replaced with a reference to the provisions of rule 4101:8-24.

Chapter 18 This Chapter sets forth the requirements for chimneys and vents to minimize the hazards associated with combustion from fuel-burning appliances.
Significant changes to this Chapter include: adds Ohio-specific language prohibiting the installation of unvented portable heaters in a house consistent with Revised Code and Ohio Fire Code (1801.1).

Chapter 19 This Chapter provides that stationary fuel cell power plants shall be tested in accordance with ANSI A21.83 and installed in accordance with manufacturer's installation guidelines and that gaseous hydrogen systems shall be installed in accordance with applicable requirements of International Fuel Gas Code, Ohio Fire Code and Ohio Building Code.

Chapter 20 This Chapter sets forth the requirements for the installation of boilers and water heaters and provides that the installation of boilers shall conform to manufacturer's instructions.

Chapter 21 This Chapter sets forth the requirements for the installation, alteration and repair of hydronic piping systems which are used in building space conditioning.
Significant changes to this Chapter include: adds requirements for cross-linked polyethylene and polypropylene tubing, raised temperature polyethylene (PE-RT) plastic tubing, and polyethylene/Aluminum/Polyethylene pressure pipe; and Table 2101.1 modified to add standards for installation of hydronic radiant floor heating systems.

Chapter 22 This Chapter sets forth the requirements for the installation of fuel oil storage and piping systems intended to prevent fires, leaks and spills involving fuel oil storage and piping systems.

Chapter 23 This Chapter sets forth the requirements for installation, operation and repair of solar energy systems.

Chapter 24 This Chapter sets forth the requirements for the installation of gas piping and gas appliance installation and gas appliance venting systems.
Significant changes to this Chapter include: modified definition of point of delivery to be the outlet of the first regulator that reduces pressure to 2 psig (13.8 kPa) or less (2403); adds requirements for condensate removal and auxiliary drain pans (2404.10); prohibits the installation of piping downstream from point of delivery through units other than the unit served by such piping (2415.1); prohibits regulator vent piping from exceeding the length specified in manufacturer's installation instructions (2414.6.3); adds standard for installation of appliances and recognizes corrugated stainless steel tubing installed in accordance with manufacturer's guidelines (2411.1); permits appliances to be installed at floor level in garage provided that the required combustion air is taken from the exterior (2408.2.1); adds requirement that appliances be supported and connected to the piping to prevent strain on the connections (2408.6); prohibits gas piping from penetrating building foundation walls below grade (2415.4); adds requirements for the sealing of ends of conduit embedded in slab and installed beneath buildings(2415.12); modifies shutoff valve requirements for appliances (2420.5); requires connectors not exceed 6 feet in overall length (2422.1.2.1); and adds a vertical clearance of 30 inches above cooking appliances from cabinets (2447.5).

Chapter 25 This Chapter refers the user to the Ohio Plumbing Code approved by the Board for the installation, testing and operation of plumbing systems except §§ 312.9 and 417.2 eliminating shower liner tests.

Significant changes[2] to the Ohio Plumbing Code incorporated by reference by this Chapter include (many do not apply to 1-, 2- & 3- Family): adds definition for depth of trap seal and removed definition of ball cock; requires steel to be used in protecting pipes and shall have a thickness of not less than 0.0575 inch (305.8); added fixture requirements for R-3 congregate living occupancy and requires adult day and child are to have a bathroom or shower per Table 403.1; added exception in Table 403.1 removing the requirement for drinking fountains in buildings with an occupant load of 15 or fewer; adds prescriptive method for calculating fixture requirements; adds requirement for public access toilet facilities at all times with Ohio-specific modification that allows owner to control the access (403.3.1); adds requirements for posting of directional signs to public facility (403.4.1); prohibits drinking fountains, water coolers and bottled water dispensers in public restrooms (410.2); adds requirement for ready access to floor drains (412.2); changed minimum diameter requirement for grinders and shall be connected to a drain from 2 inches to 1 ½ inches; adds CSA B 125.3 standard as compliance option for water limiting device for the delivery of tempered water (416.5, 424.5, 425.3.1); adds requirement for support devices for water supply riser (417.2); adds ASME A112.19.19 permitting vitreous china waterless urinals (419.1); adds requirement that waters heaters shall be provided with access for inspection, service, repair and replacement (502.5); permits relief valve from water heater to drain into pan rather than be separately piped to drain (5406.); Table 604.3 modified to reflect the actual flows and pressures needed for industry products; adds specifications for access to integral factory- or field-installed valves (604.10.3); Tables 605.3, 605.4, 605.3, 605.5 have been modified to eliminate polybutylene piping; adds requirements that PEX tubing be factory marked with the appropriate standards for the fittings that the manufacturer specifies; adds language recognizing additional joining methods for Polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (605.21); adds requirement that dielectric union connecting copper or copper-alloy tubing to galvanized steel pipe joints comply with standard ASSE 1079 (605.24.1); adds requirements for prevention of backflow with an exception for freeze proof yard hydrants (608.7); adds additional marking requirements for piping conveying nonpotable water (608.8); adds contamination protection for water-powered sump pumps as result of approved Petition 1001 (608.12); adds language prohibiting backflow preventers from being installed in areas subject to freezing (608.14.2); adds requirement that backflow preventers discharge to an approved indirect waste receptor or to the outdoors where it will not cause damage or create a nuisance (608.14.2.1); Tables 702.1, 702.2, 702.4 modified to add ASTM standards for polyvinylidene fluoride plastic pipe and update ASTM standards for acrylonitrile butadiene styrene plastic pipe, polyvinyl chloride plastic pipe, asbestos cement and vitrified clay; removes the prohibition of dead ends in piping system (former

[2] Several items included in this summary were identified as significant by the International Code Council in its *Significant Changes to the International Plumbing, International Mechanical Code, International Fuel Gas Code 2009 Edition.*

704.5); Table 709.1 modified to add provisions relating to sizing of floor sinks and shower drains; adds provisions for clear water discharges in refrigerated display cases (709.4.1); adds requirements for food service waste discharge with Ohio-specific exception for approved health care related fixtures, devices and equipment (802.1); eliminates Ohio-specific provision for discharge of water from pool deck drains for swimming pools (802.1.4); adds language which eliminates a vent under certain circumstances (903.2); Ohio-specific language reverts back to 2003 provisions eliminating application of section 912.2 to floor drains (912.2); prohibits air admittance valves to be used to vent sumps or tanks of any kind without engineered design (917.8); retains Ohio-specific exception for a fixture trap when it is supplied with water on a regular basis (1002.4); adds sizing requirements for grease interceptors and automatic grease removal devices and exception for outdoor interceptors that have a volume of not less than 500 gallons (1003.3.4); adds requirement for installation of backwater valves in storm drainage systems (1101.9); Tables 1102.4 and 1102.7 modified to add ASTM standard for polyethylene plastic pipe; adds Table 1106.2(2) for the sizing of rectangular vertical conductors and leaders; and limits the use of water-powered sump pumps (1113.1.5).

Chapter 29 This Chapter provides the installation requirements for fire sprinklers when an owner chooses to install them.

Chapter 34 This Chapter incorporates the 2011 Edition of the National Electric Code (NEC) NPFA 70 to regulate the installation, testing and operation of electrical systems. Significant changes to the 2011 NEC incorporated by reference by this Chapter include: adds requirements for GFCI protection near sinks; adds receptacles for balcony, decks & porches; adds receptacle requirements for large foyers; adds requirements for ground rods; adds requirements for listed fan boxes; adds requirement for grounded conductor at switch locations; adds requirements for GFCI protection of electrical heating cables in kitchen masonry floors; adds Ohio-specific exemption from GFCI protection requirements for sump pumps and garage doors.

Chapter 44 This Chapter lists technical standards referenced in various in rules 4101:8-1 through 4101:8-34.