

BILL 10133

ORDINANCE 10001

AN ORDINANCE AMENDING THE KIRKWOOD CODE OF ORDINANCES, CHAPTER 5, SECTION 5-2(B) AND ADOPTING THE INTERNATIONAL RESIDENTIAL CODE FOR ONE-AND TWO- FAMILY DWELLINGS, 2009 EDITION, INCLUDING “APPENDIX A- SIZING AND CAPACITY OF GAS PIPING”; “APPENDIX B- SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES AND APPLIANCES LISTED FOR USE AND TYPE B VENTS”; “APPENDIX C- EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEMS”; “APPENDIX G-SWIMMING POOLS, SPAS AND HOT TUBS”; “APPENDIX K-SOUND TRANSMISSION”, AS PUBLISHED BY THE INTERNATIONAL CODE COUNCIL, WITH MODIFICATIONS, AS THE RESIDENTIAL CODE OF THE CITY OF KIRKWOOD REGULATING AND GOVERNING THE CONSTRUCTION, ALTERATION, MOVEMENT, ENLARGEMENT, REPLACEMENT, REPAIR, EQUIPMENT, LOCATION, REMOVAL AND DEMOLITION OF DETACHED ONE-AND TWO-FAMILY DWELLINGS AND MULTIPLE SINGLE FAMILY DWELLINGS (TOWNHOUSES) NOT MORE THAN THREE STORIES IN HEIGHT WITH SEPARATE MEANS OF EGRESS AS HERE-IN PROVIDED, WITHIN THE CITY OF KIRKWOOD; PROVIDING FOR ISSUANCE OF PERMITS AND COLLECTION OF FEES; AND REPEALING THE EXISTING RESIDENTIAL CODE.

WHEREAS, the ISO has recommended the City update its Building Codes to the latest codes, and

WHEREAS, the Building Commissioner’s Office reviewed the latest Building Codes and recommends adoption with modification, and

WHEREAS, the Chief Administrative officer has approved the recommendation of the Public Works Department in updating of the Building Code.

NOW THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF KIRKWOOD, MISSOURI, AS FOLLOWS:

SECTION 1. That Section 5-2 of the Kirkwood Code of Ordinance is hereby amended by inserted a new subsection (b) herein and renumbering subsection (b) to (c) follows:

(b) Adoption of International Residential Code: The provisions of the “2009 Residential Building Code” as modified, is hereby adopted as the City of Kirkwood Building Code. See separate publication and adopting modification ordinance on file in the office of the City Clerk.

SECTION 2. That a certain document, which is on file in the office of the City Clerk, being marked and designated as the 2009 International Residential Code, as published by the International Code Council, Inc., be and is hereby adopted as the Building Code of the City of Kirkwood, Missouri, for the control of building and structures as herein provided; and each and all of the regulations, provisions, penalties, conditions, and terms of the 2009 International Residential Code, are hereby referred to, adopted and made a part hereof, as if fully set out in this ordinance, with the additions, insertions, deletions, and changes, prescribed in this ordinance.

SECTION 3. That throughout the 2009 International Residential Code, wherever the terms “Name of Jurisdiction” or “Local Jurisdiction” appear, it shall be deemed to mean the City of Kirkwood, Missouri. Likewise, wherever the term “Department of Building Inspection” appears, it shall be deemed to mean Building Commissioner’s Office. Wherever the “Code” appears, it shall mean the 2009 International Building Code.

SECTION 4. The 2009 Residential Building Code is amended by the following provisions. Each section, subsection or clause of the code that numerically corresponds to one of the following numbered provisions is hereby deleted where so noted, or amended to read as set forth below. Each provision set out below without a corresponding section, subsection or clause number in the Code is hereby enacted and added thereto.

R101.1 TITLE. These provisions shall be known as the Residential Code For One-and Two-Family Dwellings of the CITY OF KIRKWOOD, and shall be cited as such and will be referred to herein as “this code”.

R102.7.2 – Add: Requirements: An alteration to any structure shall conform to the code requirements for a new structure and shall not result in an increase in hazard to the occupants. Portions of the structure not altered and not affected by the alteration are not required to comply with the code requirements for a new structure except as specified in Sections 3404.3 through 3404.7.

R102.7.3 – Add: Damaged Structures: If a structure is damaged by fire or any other cause, the renovation shall be considered an alteration and comply with Sections 102.7.3 through 102.7.6.

R102.7.4 – Add: Alterations Exceeding 50 Percent: If alterations or repairs are to be made within any period of twelve (12) months, costing in excess of fifty (50%) of the physical value of the structure, the requirements of this code for new structures shall apply. At the discretion of the Code Official, alterations required to resist earthquake loads may be phased as renovations to different portions of a structure occur.

R102.7.5 – Add: Damages Exceeding 50 Percent: If the structure is damaged by fire or any other cause to an extent in excess of fifty percent (50%) of the physical value of the structure before the damage was incurred, this code’s requirements for new structures shall apply.

R102.7.6 – Add: Alterations Under 50 Percent: If the cost of alterations or repairs to be made within any period of twelve (12) consecutive months, is between five and fifty percent (5%-50%) of the physical value of the structure, the Code Official shall determine to what degree the portions so altered or repaired shall be made to conform to the requirements for new structures to insure the safety, health and general welfare of the occupants and the public.

R102.7.7 – Add: Alterations Under 5 Percent: If the cost of alterations or repairs to be made within twelve (12) consecutive months is five percent (5%) or less of the physical value of the structure, the Code Official shall permit the restoration of the structure to its condition previous to damage or deterioration with the same kind of materials as those of which the structure was previously constructed; provided that such construction does not endanger the general safety and public welfare and complies with the provisions for existing roofs.

R102.7.8 – Add: Physical Value: In applying the provisions of this section, the physical value of the structure shall be determined by the Code Official based on the current Building Valuation Data Report.

R103.1 – Delete in its entirety and add: The Kirkwood Building Department is hereby created and the official in charge thereof shall be known as the Building Official.

R105.1 – General: SECTION R105 PERMITS (Sections R105.1 through R105.8) in the 2009 International Residential Code is deleted and SECTION 105 PERMITS of the Kirkwood Building Code is adopted in lieu thereof.

R106.1 - Construction Documents: SECTION R106 CONSTRUCTION DOCUMENTS (Sections R106.1 through R106.5) in the 2009 International Residential Code is deleted and SECTION 106 CONSTRUCTION DOCUMENTS of the Building Code is adopted in lieu thereof.

R107.1 - General: SECTION R107 TEMPORARY STRUCTURES AND USES (Sections R107.1 through R107.4) in the 2009 International Residential Codes is deleted and SECTION 107 TEMPORARY STRUCTURES AND USES of the Kirkwood Building Code is adopted in lieu thereof.

R108.1 - Payment of Fees: SECTION R108 FEES (Sections R108.1 through R108.5) in the 2009 International Residential Code is deleted and SECTION 108 FEES of the Kirkwood Building Code is adopted in lieu thereof.

R109.1 – General: SECTION R109 FEES (Sections R109.1 through R109.4) in the 2009 International Residential Code is deleted and SECTION 109 INSPECTIONS of the Kirkwood Building Code is adopted in lieu thereof.

R110.1 - Use and Occupancy: SECTION R110 CERTIFICATES OF OCCUPANCY (Sections R110.1 through R110.5) in the 2009 International Residential Code is deleted and SECTION 110 CERTIFICATES OF OCCUPANCY of the Kirkwood Building Code is adopted in lieu thereof.

R112.1 – General: SECTION R112 BOARD OF APPEALS. (Sections R112.1 through R112.3) in the 2009 International Residential Code is deleted and the Kirkwood Building Code is adopted in lieu thereof.

R113.1 – General: SECTION R113 VIOLATIONS (Sections R113.1 through R113.4) in the 2009 International Residential Code is deleted and the Kirkwood Building Code is adopted in lieu thereof.

R202 – Delete “Manufactured Homes” in its entirety

R202 – Delete in its entirety and add: Height, Building, see Kirkwood Zoning Ordinances.

R202 – Add: Story, one-half, A space under a sloping roof which has the line of intersection of roof decking and wall face not more than three (3) feet above the top floor level, and in which space not more than two-thirds (2/3) of the floor area is used for residential living purposes. Floor areas with a ceiling height of five (5) feet or greater shall be included in the computation of allowed living space. A half-story shall not contain cantilevered areas, or more than twenty-five (25) percent open dormer floor area. In single-family residences, a half-story shall not contain independent apartment or living quarters.

TABLE R301.2 (1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

Ground Snow Load: insert, 20 PSF

Wind Speed: insert, 90 MPH

Topographic Effects: insert, No

Seismic Design Category: insert, C

Weathering: insert, Severe

Frost Line Depth: insert, 30 inches

Termite: insert, moderate to heavy

Winter Design Temp.: insert, 2° F

Ice Barrier Underlayment: insert, No

Flood Hazard: insert, May 24, 1985

Air Freezing Index: insert, 1500 days

Mean Annual Temp: insert, 54° F

Delete footnotes a thru k, in their entirety and add:

Add: a thru k

- a. Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index (i.e. “negligible,” “moderate” or “severe”) for concrete as determined from the Weathering Probability Map [Figure R301.2 (3)]. The grade of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216 or C 652.
- b. The frost line depth may require deeper footings than indicated in Figure R403.3(1) [R403.1(1)]. The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.
- c. The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.
- d. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(4)]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
- e. The jurisdiction has selected the outdoor design dry-bulb temperature from the columns of 99.6 percent values for winter from the 2001 ASHRAE Fundamentals Handbook. Additional design temperature criteria can be found in Section M1401.3 [outdoor design dry-bulb temperature shall be selected from the columns of 97 ½-percent values for winter from Appendix D of the International Plumbing Code. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local weather experience as determined by the Building Official].

- f. The jurisdiction shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.
- g. Flood hazard areas shall be established by the Flood Damage Prevention ordinance [The jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of all currently effective FIRMs and FBFMs or other flood hazard map adopted by the authority having jurisdiction, as amended].
- h. In accordance with Sections R905.2.7.1, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the jurisdiction shall fill in this part of the table with "YES". Otherwise, the jurisdiction shall fill in this part of the table with "NO".
- i. The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99%) value on the National Climatic Data Center data table "Air Freezing Index – USA Method (Base 32°) at www.ncdc.noaa.gov/fpsf.html.
- j. The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32° Fahrenheit)" at www.ncdc.noaa.gov/fpsf.html.
- k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the jurisdiction shall fill in this part of the table with "YES". Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

R301.2.4 - Flood Plain Construction: Buildings and structures constructed in flood hazard areas (including A or V Zones) as established in Table R301.2 (1) shall be designed and constructed in accordance with Section R322, the Flood Damage Prevention Ordinance, and the Zoning Ordinance.

R302.1 – Delete exception number 2 in its entirety and add: "Walls of dwellings and accessory structures located on the same lot. And if less than ten foot between buildings, facing walls shall be protected with a single layer of ½ inch drywall from the inside.

R302.2 – Delete in its entirety and add: Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302.1 for exterior walls.

Exceptions:

1. A common 1-hour fire-resistance-rates wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses protected by a residential fire sprinkler system if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the rood sheathing. Electrical installations shall ne installed in accordance with Chapters 34 through 43. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.
2. A common 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses not protected by an automatic residential fire sprinkler system if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be

installed in accordance with Chapters 34 through 43. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.

R302.2.4 – Add: Structural Independence. Each individual townhouse shall be structurally independent.

Exceptions:

1. Foundations supporting exterior walls or common walls.
2. Structural roof and wall sheathing from each unit may fasten to the common wall framing.
3. Nonstructural wall and roof coverings
4. Flashing at termination of roof covering over common wall
5. Townhouses separated by a common 1-hour or 2-hour fire-resistance-rated wall as provided in Section R302.2.

R303.4.2 – Delete in its entirety and add: Exhaust openings. Exhaust air shall not be directed below 6 feet 8 inches (2032 mm) onto a walkway.

R306.5 – Add: Hose Bibb. Every dwelling shall provide one outside frost-proof hose bibb. Hose bibbs shall be protected from backflow in accordance with the Plumbing Code.

R306.6 – Add: Floor Drain. A floor drain shall be installed within 15 feet of and in the same room as the heating/cooling system(s) or hot water heater(s). The floor drain installations shall comply with the Plumbing Code.

R306.7 – Add: Gutters and Downspouts shall be installed and maintained in good working condition.

R309.5 – Add: Separation Required: The garage shall be separated from the residence and its attic area by not less than 5/8 inch Type X gypsum board applied to the garage side. All walls and ceiling areas shall be covered by not less than 5/8 inch Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 5/8 inch Type X gypsum board or equivalent.

R310.6 – Add: Alterations and Additions. All unfinished areas and reconfigured space converted to sleeping rooms and/or unfinished basement spaces being converted to habitable space, shall have emergency escape and rescue openings as listed in Section 310.1.

Exception:

Unfinished basement spaces being converted to habitable space other than sleeping rooms when smoke detectors, in addition to those required by section R314.1, are installed in each room/space of the basement. The smoke detectors shall be interconnected, throughout hard wired and equipped with battery back-up. Power source shall be code complying.

R311.3 – Add to exceptions: “openings protected by a guardrail shall not be required to have an exterior landing.”

R311.7.7 – Delete “four or more risers” and insert “three or more risers”

R313.1 – Delete in its entirety and add: Townhouse automatic fire sprinkler systems: Effective January 1, 2012, an automatic residential fire sprinkler system shall be installed in townhouses of more than four attached dwelling units.

Exception:

An Automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

R313.1.1 – Delete in its entirety and add: Design and installation: Automatic residential fire sprinkler systems for townhouses shall be designed and installed in accordance with the International Plumbing Code.

R313.2 – Delete in its entirety and add: One and two family dwellings automatic fire systems: A builder of single family dwellings or residences or multi-unit dwellings of four or fewer units shall offer to any purchaser on or before the time of entering into the purchase contract the option, at the purchaser's cost, to install or equip fire sprinklers in the dwelling, residence or unit. No purchaser of such a single-family dwelling, residence or multi-unit dwelling shall be denied the right to choose or decline to install a fire sprinkler system in such dwelling or residence being purchased.

R313.2.1 – Design and installation: Automatic residential fire sprinkler systems shall be designed and installed in accordance with the International Plumbing Code.

Note: Sections R313.1 and R313.2 will be reviewed by the City of Kirkwood three years from the date this ordinance becomes effective.

R315 – Delete in its entirety

R317.1.4 – Add: Posts, poles and columns supporting permanent structures and exposed to the weather, shall not be embedded in concrete or earth.

Section 405 – Foundation Drainage – Delete in its entirety and add:

R405.1 – Concrete or Masonry Foundations: Drains shall be provided around all concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade. Drainage tiles, gravel or crushed stone drains, perforated pipe or other approved systems or materials shall be installed at or below the area to be protected and shall discharge by gravity or mechanical means into an approved drainage system. Gravel or crushed stone drains shall extend at least 1 foot (305mm) beyond the outside edge of the footing and 6 inches (152 mm) above the top of the footing and be covered with an approved filter membrane material. The top of open joints of drain tiles shall be protected with stripes of building paper, and the drainage tiles or perforated pipe shall be placed on a minimum of 2 inches (51mm) of washed gravel or crushed rock at least one size larger than the tile joint opening or perforation and covered with not less than 6 inches (152 mm) of the same material.

Exceptions:

1. A drainage system is not required when the foundation is installed on well-drained ground or sand-gravel mixture soils according to the Unified Soil Classification System, Group I Soils, as detailed in Table R405.1.

2. Drains provided as detailed in Section R405.1.2 are approved as an alternate method to meet the requirements of this section.

R405.1.1 – Precast concrete foundation: Precast concrete walls that retain earth and enclose habitable or useable space located below-grade that rest on crushed stone footings shall have a perforated drainage pipe installed below the base of the wall on either the interior or exterior side of the wall, at least one foot (305 mm) beyond the edge of the wall. If the exterior drainage pipe is used an approved filter membrane material shall cover the pipe. The drainage system shall discharge into an approved sewer system to daylight.

R405.1.2 – Soil evaluations: An evaluation of the soil for the presence or absence of ground water is required. The evaluation report shall be based on either a subsurface soil investigation or satisfactory data from adjacent areas together with an inspection of the excavation prior to pouring concrete.

R405.1.2.1 – Groundwater present: Provide drain tile, perforated pipe, or other approved foundation drainage system, such as water channel system, around the perimeter of the outside of the foundation and inside the foundation. Drain discharge shall be by gravity to daylight or be connected to a basement floor sump

R405.1.2.2 – No ground water present: Provide drain tile, perforated pipe, or other approved foundation drainage system such as a water channel system, around the perimeter of the outside of the foundation or inside of the foundation. Drain discharge shall be by gravity to daylight or be connected to a basement floor sump.

R405.1.2.3 – Filter membranes: An approved filter membrane shall be placed over the top of the joints/pipe perforations. The tile/pipe shall be placed on 2 inches minimum gravel or crushed stone and have 6 inches minimum cover.

R405.1.2.4 – Drainage system: The drainage system shall discharge by gravity to daylight or be connected to an approved sump. The sump shall be a minimum of 15 inches in diameter and a minimum of 18 inches deep and be provided with a fitted cover. A sump pump shall be provided if the basement is finished or partially finished with pump discharge by an approved method.

R502.2.3 – Add: Exception: All decks that are 100 square feet or less in area surface.

R502.11.1 – Delete in its entirety and add: Design: Wood trusses shall be designed in accordance with approved engineering practice. The design and manufacture of metal plate connected wood trusses shall comply with ANSI/TPI 1. The truss design drawings shall be prepared and sealed by a Missouri Registered Professional Engineer.

R602.10.1.1 – Delete in its entirety and add: Braced wall panels: Braced wall panels shall be constructed in accordance with the intermittent bracing methods specified in Section R602.10.2, or the continuous sheathing methods specified in Sections R602.10.4 [and] R602.10.5, and R602.10.10. With the exception of the bracing method detailed in Section R602.10.10 [M] mixing of bracing methods shall be permitted as follows:

1. Mixing bracing methods from story to story is permitted
2. Mixing bracing methods from braced wall line to braced wall line within a story is permitted, except that continuous sheathing methods shall conform to the additional requirements of Sections R602.10.4 and R602.10.5

3. Mixing bracing methods within a braced wall line is permitted only in Seismic Design Categories A and B, and detached dwellings in Seismic Design Category C. The length of required bracing for the braced wall line with mixed sheathing types have the higher bracing length requirement, in accordance with Tables R602.10.1.2(1) and R602.10.1.2(2), of all types of bracing used.

R602.10.1.2 – Delete in its entirety and add: Length of bracing: The length of bracing along each braced wall line shall be the greater of that required by the design wind speed and braced wall line spacing in accordance with Table R602.10.1.2(1) as adjusted by the factors in the footnotes or the Seismic Design Category and braced wall line length in accordance with Table R602.10.1.2(2) as adjusted by the factors in Table R602.1.2.(3) or braced wall panel location requirements of Section R602.10.1.4. Only walls that are parallel to the braced wall line shall be counted toward the bracing requirement of that line, except angled walls shall be counted in accordance with Section R602.10.1.3. In no case shall the minimum total length of bracing in a braced wall line, after all adjustments have been taken, be less than 48 inches (1219mm) total.

Exception: Structures braced using Section R602.10.10

R602.10.10 – Add: Simplified bracing method for one and two family dwellings when the entire structure is sheathed with wood structural panels and located in wind exposure A or B. The construction documents shall detail the locations and widths of all braced wall panels in accordance with this section.

R602.10.10.1 – Add: Wood structural sheathing: The building exterior walls shall be sheathed with 7/16 inch (11.1mm) or thicker plywood or OSB wood structural panels. The wood structural panels shall be applied to all exterior walls, gable ends, and band boards. All vertical joints between panels shall be blocked. Horizontal joints in braced wall panels shall be blocked.

R602.10.10.2 – Add: Braced wall panel locations: Braced wall panels shall be located in every exterior braced wall line in accordance with the following criteria:

1. The outside edge of the first braced wall panel meeting the width established in Table R602.10.10.3 shall be a maximum of 12.5 feet (3810mm) or less from each end of the braced wall line. The outside stud of the first braced wall panels closest to the end of the braced wall line shall be secured with a hold-down device securing the end stud to the foundation with a minimum uplift design value of 800 pounds.

Exception: The 800 pound hold-down device is not required when the braced wall panel is placed at the end of the braced wall line and there is a 24 inch (610) wide full height sheathed wall placed 90 degrees to the end of the braced wall line and panel.

2. The centerline spacing of braced wall panels in a braced wall line may not exceed 25 feet (7620mm).

R602.10.10.3 – Add: Braced wall panel widths: Braced wall panel locations shall be shown on the floor plans or the elevation views and meet the widths established in Table R602.10.10.3.

TABLE 602.10.10.3
SIMPLIFIED BRACING PANEL WIDTHS

	WIDTH OF SOLID PANEL a,b				
		8' wall height	9' wall height	10' wall height	12' wall height
Plywood/OSB Panel	3:1	32"	36"	40"	48"
Simplified Portal Wall	6:1	16"d	18"d	20"d	24"d

- a. Linear interpolation is permitted
- b. Wall height is the vertical distance from the bottom of the sole/sill plate to the top of the double top plate. An additional 2 inch (50.8mm) variation in height is allowed for pre-cut stud framing.
- c. The Simplified Portal Wall, if applicable shall be constructed in accordance with the applicable detail in Figure R602.10.10.3. The designer shall provide this detail on the construction documents.
- d. The Simplified Portal Wall width assumes the beam is placed under the top plate of the wall. A smaller width may be calculated for a lower top of beam height using the 6:1 height to width ratio.

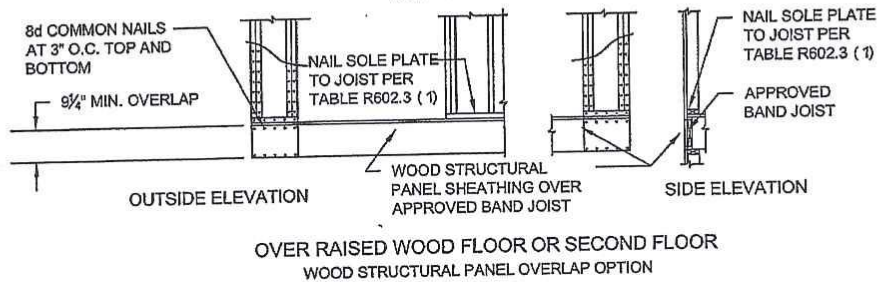
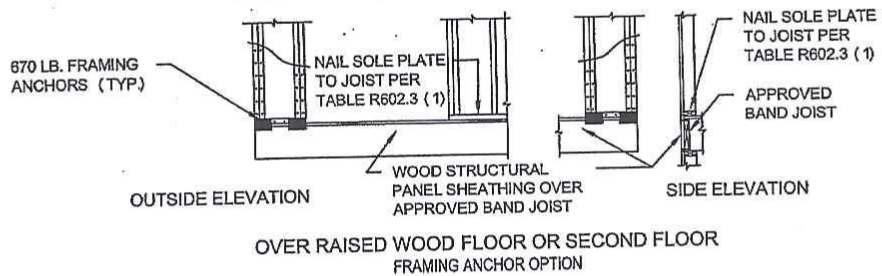
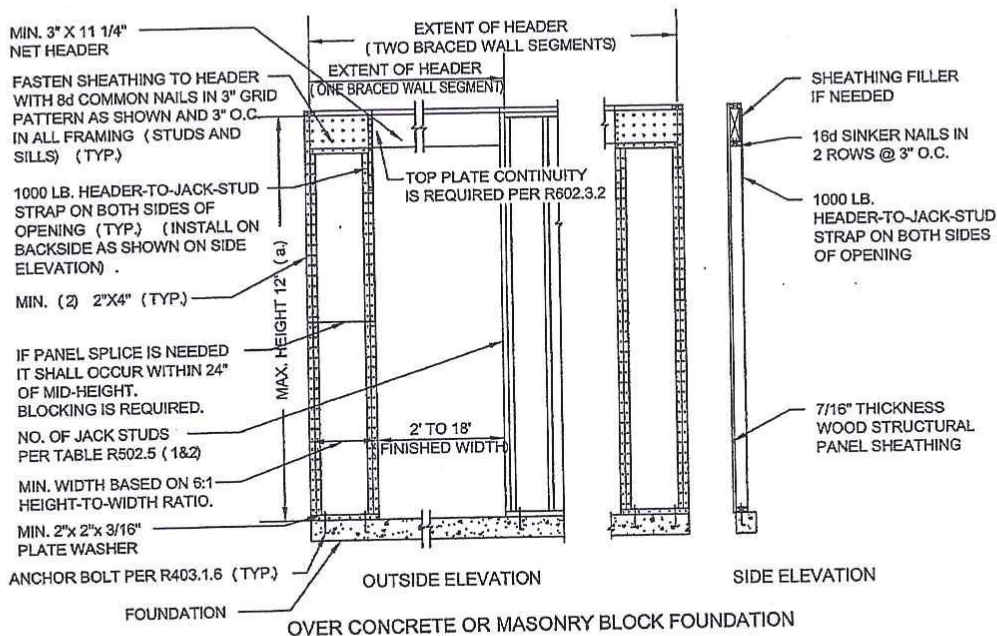
R602.10.10.4 – Add: Corner framing: The exterior wall corners shall be constructed in accordance with the applicable detail in Figure R602.10.10.4

Exception: Braced wall panels located in accordance with Section R602.10.10.2.

R602.10.10.5 – Add: Braced wall line spacing: When the perpendicular distance between the exterior or braced wall lines exceeds 50 feet (15240mm) the registered design professional shall include the following certification on the drawings.

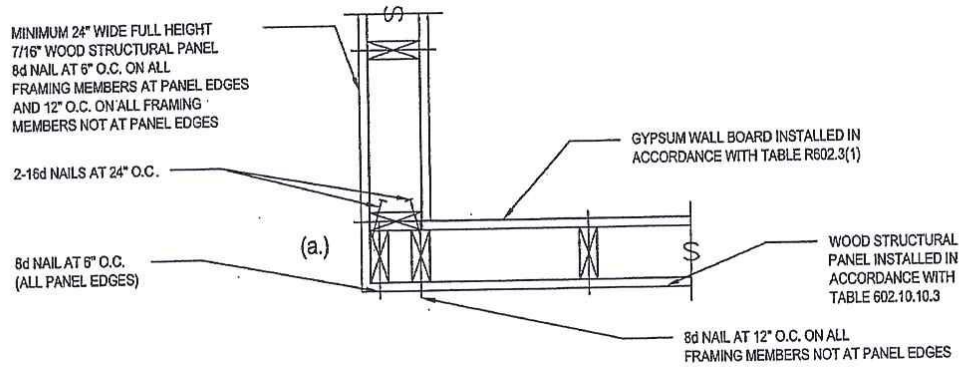
The interior and exterior wall configuration braces the structures in accordance with or equivalent to the lateral bracing provisions of Section R602.10 of the International Residential Code, 2009 edition or Section 2305 of the International Building Code, 2009 edition.

R602.10.10.6 – Add: Maximum wall height: Height may not exceed 12 feet (3658mm) (12 feet 2 inches (3708mm) actual). Walls greater than 12 feet (3658mm) in height shall be designed and detailed by the registered design professional to resist wind loads in both the longitudinal and transverse directions.

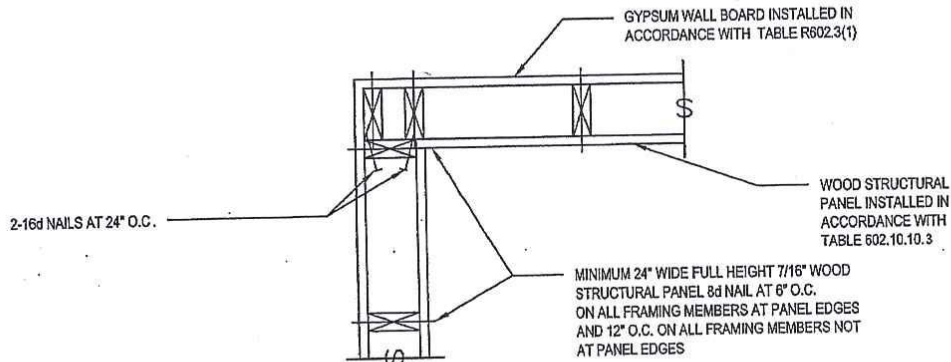


**FIGURE R602.10.10.3
SIMPLIFIED PORTAL WALL**

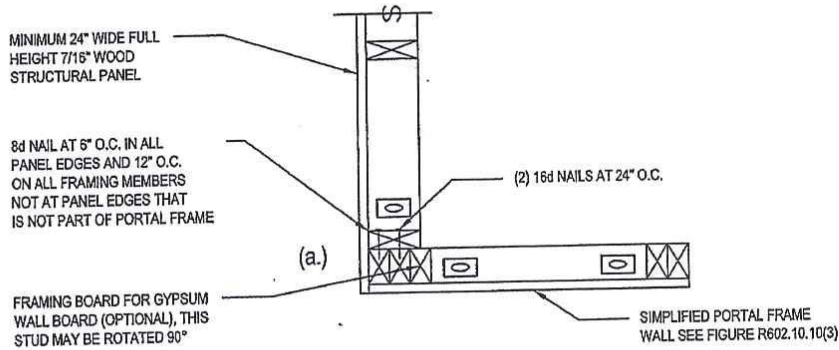
- a. CRIPPLE WALL FRAMING CONSISTING OF STUD FRAMING, SINGLE BOTTOM PLATE, AND DOUBLE TOP PLATE MAY BE ADDED TO THE TOP OF THE NARROW PORTAL WALL AS LONG AS THE COMBINED HEIGHT OF THE TWO WALLS IS LESS THAN OR EQUAL TO 12 FEET AND THE TWO WALLS ARE STRAPPED TOGETHER ON THE INTERIOR SIDE WITH A 16 GAUGE METAL 1 1/2 INCH WIDE BY 21 INCH LONG STRAP. A MINIMUM 10 INCHES OF THE STRAP SHALL BE CONNECTED TO EACH WALL OR GABLE TRUSS WITH 9 - 16D NAILS FOR A TOTAL OF 18-16D NAILS IN THE ENTIRE STRAP. STRAPS SHALL BE LOCATED AT EACH END OF THE CONNECTED WALLS OR WALL AND GABLE TRUSS WHERE SPACE ALLOWS FOR THE 10 INCH LENGTH OF STRAP. THE SPACING BETWEEN THE STRAPS MAY NOT EXCEED 4 FEET ON CENTER. THE STRAPS SHALL NOT BE BENT HORIZONTALLY TO ACCOMMODATE WOOD FRAMING. IF APPLICABLE, NAILERS SHALL BE ADDED TO ONE OF THE WALLS OR GABLE END USING A MINIMUM OF 9-16D NAILS TO CREATE THE VERTICAL PLANE NEEDED TO MOUNT THE STRAP.



OUTSIDE CORNER DETAIL



INSIDE CORNER DETAIL



CORNER DETAIL

USED IN CONJUNCTION WITH SIMPLIFIED PORTAL WALL

FIGURE R602.10.10.4
SIMPLIFIED BRACING EXTERIOR CORNER FRAMING

- a. END STUD INDICATED ON THE ABOVE DETAILS MAY BE SHIFTED 7/16" TO ALLOW STUD FACE TO BE ALIGNED WITH SHEATHING, OR AN OPTIONAL NON-STRUCTURAL FILLER PANEL MAY BE USED.

R801.2.1 – Add: Minimum thickness of all wood roof structural panels shall be nominal 1/2 inch.

N1101.9 – Delete in its entirety

Table N1102.1 – Add: To climate zone 3 – 13 L basement wall R-Value, 5 M to crawlspace wall R-value. Add: to climate zone 4 except marine – 0.40 fenestration U – factor, 30 to ceiling R-value, 13 L to basement wall R-value and 5 M to crawl space wall R-value.

Add:

- L. Unfinished basements may have a total of 20% of the total basement wall area exposed above the outside finished grade/ground level as un-insulated concrete foundation walls. The foundation wall area above the outside grade/ground level that may be un-insulated is determined by the formula 0.20 times the basement wall height of all walls (including insulated exterior frame walls for walkout basements and walls common to both basement and attached garages) times the perimeter of these basement walls. Exposed foundation wall area above the outside finished grade/ground level exceeding 20% of the total basement wall area shall be insulated with R-5 insulation. When required in unfinished areas, the basement foundation wall insulation shall extend down to the basement floor slab or to a minimum of 24 inches below the outside finished grade is above the floor slab elevation.
- M. Naturally vented crawl space wall R-value may be 0.

See attached table:

TABLE N1102.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT a

Climate Zone	Fenestration U-Factor	Skylight U-factor b	Glazed Fenestration SHGC	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-value k	Floor R-Value	Basement Wall R-Value c	Slab R-Value And Depth d	Crawl Space Wall R-Value c
1	1.2	0.75	0.35 j	30	13	¾	13	0	0	0
2	0.65 i	0.75	0.35 j	30	13	4/6	13	0	0	0
3	0.50 i	0.65	0.35 e,j	30	13	5/8	19	13 l [5/13 f]	0	5 m [5/13]
4 except Marine	0.40 [0.35]	0.60	NR	30 [38]	13	5/10	19	13 l [10/13]	10, 2ft	5 m [10/13]
5 and Marine 4	0.35	0.60	NR	38	20 or 13+5 h	13/17	30 f	10/13	10, 2ft	10/13
6	0.35	0.60	NR	49	20 or 13+5 h	15/19	30 g	10/13	10, 4ft	10/13
7 and 8	0.35	0.60	NR	49	21	19/21	30 g	10/13	10, 4ft	10/13

- a. R-values are minimums. U-factors and solar heat gain coefficient (SHGC) are maximums. R-19 batts compressed in to nominal 2 x 6 framing cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full thickness R-value.
- b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- c. The first R-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.
- d. R-5 shall be added to the required slab edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less, in zones 1 through 3 for heated slabs.

- e. There are no SHGC requirements in the Marine Zone.
- f. Basement wall insulation is not required in warm-humid locations as defined by Figure N1101.2 and Table N1101.2.
- g. Or insulation sufficient to fill the framing cavity, R-19 minimum.
- h. “13+5” means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25% or less of the exterior, R-5 sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25% of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- i. For impact-rated fenestration complying with Section R301.2.1.2, the maximum U-factor shall be 0.75 in zone 2 and 0.65 in zone 3.
- j. For impact-resistant fenestration complying with Section R301.2.1.2 of the International Residential Code, the maximum SHGC shall be 0.40.
- k. The second R-value applies when more than half the insulation is on the interior.
- l. Unfinished basements may have a total of 20% of the total basement wall area exposed above the outside finished grade/ground level as un-insulated concrete foundation walls. The foundation wall area above the outside grade/ground level that may be un-insulated is determined by the formula 0.20 times the basement wall height of all walls (including insulated exterior frame walls for walkout basements and walls common to both basement and attached garages) times the perimeter of these basement walls. Exposed foundation wall area above the outside finished grade/ground level exceeding 20% of the total basement wall area shall be insulated with R-5 insulation. When required in unfinished areas, the basement foundation wall insulation shall extend down to the basement floor slab or to a minimum of 24 inches below the outside finished grade when the grade is above the floor slab elevation.
- m. Naturally vented crawl space wall R-value may be 0.

N1102.4.1 – Add: Building thermal envelope: The building thermal envelope shall be durably sealed to limit infiltration. The sealing methods between dissimilar materials shall allow for differential expansion and contraction. The following shall be caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material.

1. Openings between window and door assemblies and their respective jambs and framing.
2. Utility penetrations.
3. Walls and ceilings separating the garage from conditioned spaces.
4. Behind tubs and showers on exterior walls.
5. Common walls between dwelling units.
6. Rim joists junction.
7. Other sources of infiltration.

N1102.4.2 – Delete in its entirety

N1102.4.2.1 – Delete in its entirety

N1104.4.2.2 – Delete in its entirety

N1102.4.2.3 – Delete in its entirety

N1103.2.1 – Change R-8 to R-4

M1401.3 – Delete in its entirety and add: Sizing: Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with

ACCA Manual J or other approved heating and cooling calculation methodologies. The design temperatures for City of Kirkwood shall be in accordance with Table M1401.3.

TABLE M1401.3
DESIGN TEMPERATURES

	Outdoor	Indoor
Winter	DB 2°F	DB 70°F
Summer	DB 95°F WB 76°F	DB 78°F

M1503.4 – Delete in its entirety and add: Makeup air required: Exhaust hood systems capable of exhausting in excess of 600 cubic feet per minute (0.19 m³/s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

Add: - Delete TABLE M1601.1.1(2) in its entirety and replace with a new TABLE M1601.1.1(2) on the same subject to read:

TABLE M1601.1.1(2)
GAGES OF METAL DUCTS AND PLENUMS USED FOR HEATING AND COOLING

Type of Duct	Size (inches)	Minimum Thickness (inch)	Equivalent Galvanized Sheet Gage
Round ducts and enclosed rectangular ducts	14 or less	0.013	30
	Over 14	0.016	28
Exposed rectangular ducts	14 or less	0.016	28
	Over 14	0.019	26

P2501.1 - Scope: The Kirkwood Plumbing Code shall establish the administrative requirements applicable to plumbing systems and inspections within the City of Kirkwood.

Delete: P2501.2 thru P2503.8 in their entirety

P2601.1 – Scope: The Kirkwood Plumbing Code shall govern the installation of plumbing systems within the City of Kirkwood.

Delete: P2601.2 thru P2724 in their entirety

E3301.1 – Scope: The Kirkwood Electrical Code regulates electrical services.

All other sections of Part VIII - Electrical in the International Residential Code for (One- and Two-Family Dwellings, 2003 edition) are deleted in their entirety without substitution.

SECTION 5. Nothing in this ordinance or in the code hereby adopted shall be constructed to affect any suit or proceeding pending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing under any act or ordinance hereby repealed as cited herein.

SECTION 6. If any section, subsection provision, sentence, clause or phrase of this ordinance or of the 2009 International Residential Code, Seventh Printing, is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining

portions of this ordinance or of said code, and the City Of Kirkwood hereby declares that it would have passed the same, even though such portion so held to be unconstitutional had not been included therein, and to this end the provisions of this ordinance declared to be severable.

SECTION 7. This ordinance shall be in full force and effect after its passage and approval, as provided by law.

PASSED AND APPROVED THIS 21ST DAY OF APRIL 2011.

Mayor, City Of Kirkwood

ATTEST:

City Clerk

1st Reading: April 7, 2011

2nd Reading: April 21, 2011