(Published _____)

ORDINANCE NO. _____

AN ORDINANCE relating to Chapter _____.

BE IT ORDAINED BY THE COMMISSIONERS OF THE UNIFIED GOVERNMENT OF WYANDOTTE COUNTY/KANSAS CITY, KANSAS:

Section 1. That Sections _____ are hereby amended to read as follows.

Sec. 8-411. - International Residential Code for One- and Two-Family Dwellings—Adopted.

(a) *Residential code adopted.* There is incorporated by reference, for the purpose of adopting regulations, provisions, conditions, terms, and specifications for the control of buildings and structures within the city, the issuing, suspension, and revocation of permits, the collection of fees, making of inspections, the execution of plan reviews, the enforcement of this chapter, and the fixing of penalties for violations hereof, the ~~2012~~ 2018 International Residential Code for One- and Two-Family Dwellings, including appendices A, B, C, D, E, G, H, J, M, N, O, P and Q with amendments, as published by the International Code Council, Inc., excepting only such parts or portions thereof as are specifically added or amended in this chapter. Further, if there exists or arises any conflict between the provisions of the publication and this code, then the provisions of this code are controlling.

(b) *Marked copies of code on file.* There shall be ~~not less than three copies~~ one copy of the standard code adopted by reference in subsection (a) of this section kept on file in the office of the unified government clerk, to which shall be attached a copy of Ordinance No. O-57-04, and which shall be marked or stamped "Official Copies as Incorporated by Ordinance No. O-57-04," with all sections or portions thereof intended to be omitted clearly marked to show any such deletion or change, and said code shall be open to inspection and available to the public at all reasonable hours. The neighborhood resource center, code enforcement division, rental inspections division and building inspection division, municipal judges and all administrative departments of the unified government charged with the enforcement of this article shall be supplied, at the cost of the unified government, such number of official copies of such standard ordinance similarly marked, deleted and changed as may be deemed expedient.

(Code 1988, § 8-334; Ord. No. O-57-04, § 25, 9-16-2004; Ord. No. O-44-11, § 22, 10-20-2011; Ord. No. O-29-12, § 22, 5-3-2012; Ord. No. O-48-16 , § 1, 7-28-2016)

State Law reference— Adoption by reference authorized, K.S.A. 12-3009 et seq., 12-3301 et seq.

Sec. 8-412. - Same—Amendments.

The ~~2012~~ 2018 International Residential Code for One- and Two-Family Dwellings, adopted by reference in section 8-411, is amended in the following respects:

Sections R101.1—R114.2 of Chapter 1, Administration are hereby deleted. See administration provisions in section 8-25 of this chapter.

Section R202 definition of carport, portable is added as follows:

Carport, portable. A detached manufactured accessory building customarily used for the shelter or storage of vehicles and /or watercraft, including canopies used for such, which can be easily moved without disassembly, after removal of any tie-down or other anchoring provisions intended to compensate for wind displacement, and which is generally a frame covered by lightweight metal membrane material. See portable carports section R309.2.

Section R301.2(1) Table is amended to read as follows:

Section R301.2(1) International residential code data entry; table R301.2(1) Climatic and Geographic Design Criteria.

Table R301.2(1) shall include the following data:

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

GROUND SNOW LOAD	WIND DESIGN		SEISMIC DESIGN CATE-GORY [f]	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP [e]	ICE BARRIER UNDER-LAYMENT RE-QUIRED [h]	FLOOD HAZARDS [g]	AIR FREEZING INDEX [i]	MEAN ANNUAL TEMP [j]
	Wind Speed [d] (MPH)	Topographic Effects [k]		Weathering [a]	Frost Line Depth [b]	Termite [c]					
20	90	No	A	Severe	36	Moderate to	6°F	NO	See Ch. 27	1000	54.7° F

						Heavy					

Ground Snow Load: Twenty (20) pounds per square foot.

Wind Speed: Ninety (115) miles per hour.

Seismic Design Category: A

Weathering: Severe.

Frost Line Depth: Thirty-six (36) inches.

Termite: Moderate to Heavy Decay: Slight to Moderate.

Winter Design Temperature: Six (6) degrees Fahrenheit.

Ice Shield Underlayment Required: Yes

Flood Hazards: See Article 27 Flood Plain Ordinance

Air Freezing **Index: 927**

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

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.l(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)A]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.

e. The 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 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. 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 currently effective FIRMs and FBFM, or other flood hazard map adopted by the community, as may be 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° Fahrenheit)" 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 effect, the jurisdiction shall fill in this part of the table with "YES." Otherwise the jurisdiction shall indicate "NO" in this part of the table.

R302.1 is amended to read as follows:

302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1(1).

Table R302.1(2) is deleted. Table 302.1(1) Exterior walls shall be used.

R302.2 is amended to read as follows:

R302.2 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: A common 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses 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~~ 6 Structural independence.

R302.2.~~4~~ 6 Exception 5 is amended to read as follows:
Exception 5. Townhouses separated by a common 2-hour fire resistance rated wall as provided by section 302.2

R302.3 is amended to read as follows:
R302.3 Two-Family Dwellings. Two-Family Dwelling units shall be constructed and separated in accordance with the requirements of townhomes as set forth in this code.

R302.3. Exception ~~1 is deleted~~: Dwelling units stacked upon each other.

R302.4.2 Membrane Penetrations. Exception 2-2.1 is amended to read as follows:
R302.4.2 Exception 2(2.1) By a horizontal distance of not less than 24 inches (610 mm) except at walls or partitions constructed using parallel rows of studs or staggered studs.

Section R302.5.2 Duct Penetration is amended to read as follows:
Section R30~~9~~2.5.2 Duct Penetration. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gauge (0.48 mm) sheet steel or other approved material and shall have no openings into the garage.
Exception: Supply duct openings may be permitted; provided the openings are protected by a minimum 20-minute rated fire damper(s).

Table 302.6 is amended to read as follows:

Table 302.6 DWELLING/GARAGE SEPARATION

SEPARATION	MATERIAL
From the residence and attics	Not less than 5/8 inch Type X gypsum board or equivalent applied to the garage side.
From all habitable rooms above the garage	Not less than 5/8 inch Type X gypsum board or equivalent applied to the garage side.
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 5/8 inch Type X gypsum board or equivalent applied to the garage side.

Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 5/8 inch Type X gypsum board or equivalent applied to the interior side of the exterior walls within this area.
Attic access panels.	Not less than 5/8 inch Type X gypsum board or equivalent Materials approved for 1 hour fire resistive construction.
Pull down stairs	Shall be rated or be adequately protected with not less than Type 5/8 inch Type X gypsum or equivalent materials approved for 1 hour fire resistive construction.

Section R303.3 Bathrooms Exception is amended to read as follows:

~~*Section R303.3 Bathrooms.* Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet (0.3 M^2), one-half of which must be openable.~~

Exception: The glazed areas shall not be required where artificial light and a mechanical ventilation system are provided. The minimum ventilation rates shall be 50 cfm (24 L/s) for intermittent ventilation or 20 cfm (10 L/s) for continuous ventilation. Ventilation air from the space shall be exhausted directly to the outside or to an attic ventilated in accordance with section R806. The point of discharge of the exhaust air shall be at least three feet from any opening into the building. A point of discharge in the attic space must discharge at a roof vent or soffit vent.

Section R303.4 of the ~~2012~~ 2018 International Residential Code is hereby amended to read as follows:

R303.4 Mechanical ventilation. Where the air infiltration rate of a dwelling unit is less than three (3) air changes per hour when tested with a blower door at a pressure of 0.2 inch w.c. (50 Pa) in accordance with Section N1102.4.1.2, the dwelling unit shall be provided with whole-house mechanical ventilation in accordance with Section ~~M1507.3~~ M1505.4. (History: Ord. BC-2936 §36, 2012)

Section R306.5 is added to read as follows:

Section R306.5 New Single-family dwellings toilet facilities. Toilet facilities shall be provided within 500 feet (measured from the property line adjacent to the street for platted subdivisions along the public way) for all new single-family dwellings starting from the time of the first footing inspection until facilities are available in the dwelling. If the facilities are not located on the job site, the location of the required facilities shall be posted on the job site or other certification provided to the building

official to verify the availability of toilet facilities. The facilities on the site shall be removed prior to issuance of a temporary certificate of occupancy.

R309.2 Carports is added to read as follows:

R309.2 Carports. Carports shall be open on at least two sides. Carport floor surfaces shall be of approved noncombustible material. Carports not open on at least two sides shall be considered a garage and shall comply with the provisions of this section for garages.

Exceptions:

~~1: Asphalt surfaces shall be permitted at ground level in carports.~~

2: Portable carports shall be assembled to comply with the manufacturer's instructions and anchored to the ground in compliance with one of the following methods. At a minimum there must be an anchoring point on each side of the carport for every 50 square feet of area covered by the carport.

1) One continuous 8 inches wide by 36 inches deep concrete stem wall on each longitudinal side of the carport with threaded anchor bolts embedded to match the carport manufacturer's recommended anchorage spacing.

2) A 4 inches thick concrete slab that extends beyond the perimeter of the carport in each direction with threaded anchor bolts embedded in the slab, deepened to 8 inches at each anchorage location, to match the carport manufacturer's recommended spacing.

3) Bolting the support legs, or adjacent cross support, to an existing concrete slab that is a minimum of 4 inches thick, to match the carport manufacturer's recommended anchorage spacing. The method of attaching the upright frame to the slab must be shown in the application for building permit.

4) Install concrete footings under each leg and bolt the legs, or adjacent cross support, to the new footings with threaded anchor bolts embedded to match the carport manufacturer's recommended anchorage spacing. The new footings are to be approximately 1 foot × 1 foot × 2 foot deep. The method of attaching the upright frame to the footing must be shown in the application for building permit.

5) An alternate anchoring design that provides a permanently paved hard surface floor and anchors the portable carport to the ground and that is approved by the building official. If an alternative method is proposed, complete installation details must be provided for review.

The plans and details submitted must clearly indicate the method of anchoring and the flooring to be used. If new concrete footings are to be installed, they must be inspected when formed and prior to pouring of concrete. In all cases, a final inspection must be requested by the applicant.

Fabric covered carports: All fabric covered carports or similar facilities shall comply with City setback requirements in the zone in which they are located. Unless the facility is considered a structure under the Building Code, no building permit shall be

required for their placement. Fabric covered facilities shall be properly maintained, cleaned, and repaired as necessary. There shall be no electricity or other utilities provided to fabric covered carports, or similar facilities.

Section R309.5 Fire sprinklers in private garages is amended to read as follows:

R309.5 Fire sprinklers are optional in private garages. The garage walls shall be designed based on Table R302.1(1). Sprinklers in garages shall be connected to an automatic sprinkler system that complies with section P2904. Garage fire sprinklers shall be residential sprinklers or quick response sprinklers, designed to provide a density of 0.05 gpm/sq. ft. garage doors shall not be considered with respect to sprinkler placement.

Section R311.3.2. Floor elevations for other exterior doors.

Delete - Exception: A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.

~~*Section R311.7.5.1* Riser height is amended to read as follows:~~

~~*Section R311.7.5.1 Riser height.* The maximum riser height shall be 7¾ inches (196 mm). The riser height shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than three-eighths of an inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing or tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the opening between treads does not permit the passage of a 4-inch diameter (102 mm) sphere.~~

~~Exception: Stairs constructed on or before March 30, 2005 may be permitted to have a maximum rise of 8 inches.~~

~~Exception: Existing stairs meeting the requirements of Appendix J (Section AJ501.8.4) as amended in this document.~~

~~*Section R311.5.3.2* Tread depth is amended to read as follows:~~

~~*Section R311.5.3.2 Tread depth.* The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the treads leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and do not have to be within 3/8 inch (9.5 mm) of the rectangular tread depth.~~

~~Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point within the clear width of the stairs. Within any flight of stairs, the greatest winder tread depth at the walkline shall not exceed the smallest by more than 3/8 inch (9.5 mm).~~

~~Exception: Stairs constructed on or before March 30, 2005 may be permitted to have a minimum tread of 9 inches.~~

~~Exception: Existing stairs meeting the requirements of Appendix J (Section AJ501.8.4) as amended in this document.~~

Section R312.1.1 is amended to read as follows:

Section R312.1.1 Guards required. Guards shall be located along open- sided walking surfaces, including stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically from the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.
In addition, guards are required at retaining walls over 30 inches above grade when walking surfaces are within ten feet of the high side of the retaining wall.

Section R313.1 Townhouse automatic sprinkler systems, is amended to read as follows:

R313.1 ~~Townhouse automatic fire sprinkler systems.~~ An automatic fire sprinkler system is optional in townhouses. ~~Fire sprinkler system design for townhouses shall comply with section P2904~~.

R313.2 1 and 2 family dwellings automatic fire systems, is amended to read as follows:

R313.2 An automatic sprinkler system is optional in 1 and 2 family dwellings. Fire sprinkler system design for 1 and 2 family dwellings ~~shall comply with section P2904 or NFPA 13D~~.

Section R326.2 is added to read as follows:

R326.2 Swimming Pools and Spas shall be protected by barriers per Section 305, Barrier Requirements, of the 2018 ISPSC, International Swimming Pool and Spa Code as published by the International Code Council, Inc., excepting only such parts or portions thereof as are specifically deleted or amended by this Section.

Section 305.2.1,1 *Barrier Height and Clearance*: The top of the barrier shall not be less than 72 inches above grade where measured on the side of the barrier that faces away from the pool or spa.

Section R402.1 Wood Foundations:

*R402.*1 Wood Foundation systems are not allowed. All other references in this code to wood foundations systems are null and void.

Section R403.1.1 Footing reinforcement is amended to read as follows:

Section R403.1.1.1. Continuous footing reinforcement. Continuous footings for basement foundation walls shall have minimum continuous reinforcement consisting of not less than two No. 4 bars, uniformly spaced, located a minimum of three inches (76 mm) clear from the bottom of the footing.

Section R403.1.1.2 Column pads is ~~amended~~ added to read as follows:

Section R403.1.1.2 Column pads. Column pads shall be a minimum of 24 inches (610 mm) by 24 inches (610 mm) and eight inches (203 mm) deep. Reinforcement shall consist of a minimum of three No. 4 bars each way, uniformly spaced.

Section R404.4 Retaining walls is amended to read as follows:

Section R404.4 Retaining walls that are not laterally supported at the top and that retain in excess of 48 inches of unbalanced fill shall be designed t ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Retaining walls shall be designed foe a safety factor of 1.5 against later sliding and overturning.

Section R405.2 Water discharge is added to read as follows:

Section R405.2 Water discharge. Roof water and water from intermittent sources such as sump pumps, foundation drains, gutters downspouts and similar sources shall not discharge closure than three (3) feet from the foundation or to an approved drainage system.

~~*R501.3* Fire protection of floors is deleted.~~

Section R801.3 Roof drainage is amended to read as follows:

Section R801.3 Roof drainage. All dwellings shall have a controlled method of water disposal from roofs that will collect and discharge all roof drainage to the ground surface at least 3 feet from foundation walls or to an approved drainage system.

~~*Part IV Energy Conservation* is deleted.~~

Part IV Energy Conservation ~~is added~~.

~~*Part IV Energy Conservation.*~~

~~*Chapter 11. ENERGY EFFICIENCY*~~

~~*SECTION N1101 GENERAL*~~

~~*N1101.1 Scope.* This chapter regulates the energy efficiency for the design and construction of buildings regulated by this code.~~

~~Exception: Portions of the building envelope that do not enclose *conditioned space*.~~

~~*N1101.2 Compliance.* Compliance shall be demonstrated by either meeting the requirements of the *International Energy Conservation Code* or meeting the requirements of this chapter. Climate zones from Figure N1101.2 or Table N1101.2 shall be used in determining the applicable requirements from this chapter.~~

~~Table N1101.2 CLIMATE ZONES, MOISTURE REGIMES AND WARM-HUMID DESIGNATIONS BY STATE, COUNTY AND TERRITORY~~

Key:

A-Moist, B-Dry, C-Marine, Absence of moisture designation indicates moisture regime is irrelevant.

Asterisk (*) indicates a warm humid location.

Kansas - Wyandotte - Zone 4A

N1101.3 Identification. Materials, systems and *equipment* shall be identified in a manner that will allow a determination of compliance with the applicable provisions of this chapter.

N1101.4 Building thermal envelope insulation. An *R*-value identification *mark* shall be applied by the manufacturer to each piece of *building thermal envelope* insulation 12 inches (305 mm) or more wide. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and *R*-value of insulation installed in each element of the *building thermal envelope*. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled *R*-value, installed density, coverage area and number of bags installed shall be listed on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the area covered and *R*-value of installed thickness shall be listed on the certificate. The insulation installer shall sign, date and post the certificate in a conspicuous location on the job site.

N1101.4.1 Blown or sprayed roof/ceiling insulation. The thickness of blown in or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be in written in inches (mm) on markers that are installed at least one for every 300 square feet, throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers 1 inch (25 mm) high. Each marker shall face the attic access opening. Spray polyurethane foam thickness and R-value shall be listed on the certificate provided by the insulation installer.

N1101.4.2 Insulation mark insulation. Insulating materials shall be installed such that the manufactures R-value mark is readily observable upon inspection.

N1101.5 Fenestration product rating. U-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100 by an accredited, independent laboratory, and *labeled* and certified by the manufacturer. Products lacking such a *labeled U*-factor shall be assigned a default *U*-factor from Tables N1101.5(1) and N1101.5(2). The solar heat gain coefficient (SHGC) of glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory, and *labeled* and certified by the manufacturer. Products lacking such a *labeled* SHGC shall be assigned a default SHGC from Table N1101.5(3).

Table N1101.5(1) DEFAULT GLAZED FENESTRATION U-FACTORS

FRAME TYPE	SINGLE PANE	DOUBLE PANE	SKYLIGHT	
			Single	Double
Metal	1.2	0.8	2	1.3
Metal with thermal break	1.1	0.65	1.9	1.1
Nonmetal or metal clad	0.95	0.55	1.75	1.05
Glazed block	0.6			

Table N1101.5(2) DEFAULT DOOR U-FACTORS

DOOR TYPE	U-FACTOR
Uninsulated metal	1.2
Insulated metal	0.6
Wood	0.5
Insulated, nonmetal edge, max 45% glazing, any glazing double pane	0.35

Table N1101.5(3) DEFAULT GLAZED FENESTRATION SHGC

SINGLE GLAZED		DOUBLE GLAZED		GLAZED BLOCK
Clear	Tinted	Clear	Tinted	
0.8	0.7	0.7	0.6	0.6

N1101.6 Insulation product rating. The thermal resistance (*R*-value) of insulation shall be determined in accordance with the CFR Title 16, Part 460, in units of h · ft ^{2} · °F/Btu at a mean temperature of 75°F (24°C).

N1101.7 Installation. All materials, systems and *equipment* shall be installed in accordance with the manufacturer's installation instructions and the provisions of this code.

N1101.7.1 Protection of exposed foundation insulation. Insulation applied to the exterior of basement walls, crawl space walls and the perimeter of slab-on-grade floors shall have rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend a minimum of 6 inches (152 mm) below grade.

N1101.8 Above code programs. The *building official* or other authority having *jurisdiction* shall be permitted to deem a national, state or local energy efficiency program to exceed the energy efficiency required by this chapter. Buildings *approved* in writing by such an energy efficiency program shall be considered in compliance with this chapter.

N1101.9 Certificate. A permanent certificate shall be posted on or in the electrical distribution panel. The certificate shall not cover or obstruct the visibility of the circuit directory *label*, service disconnect *label* or other required *labels.* The certificate shall be completed by the builder or registered *design professional.* The certificate shall list the predominant *R*-values of insulation installed in or on ceiling/roof, walls, foundation (slab, *basement wall*, crawlspace wall and/or floor) and ducts outside *conditioned spaces*; *U*-factors for fenestration; and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the types and efficiencies of heating, cooling and service water heating *equipment.* Where a gas-fired unvented room heater, electric furnace and/or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be listed for gas-fired unvented room heaters, electric furnaces or electric base board heaters.

SECTION N1102 BUILDING THERMAL ENVELOPE

N1102.1 Insulation and fenestration criteria. The *building thermal envelope* shall meet the requirements of Table N1102.1 based on the climate zone specified in Table N1101.2.

N1102.1.1 R-value computation. Insulation material used in layers, such as framing cavity insulation and insulating sheathing, shall be summed to compute the component *R*-value. The manufacturer's settled *R*-value shall be used for blown insulation. Computed *R*-values shall not include an *R*-value for other building materials or air films.

N1102.1.2 U-factor alternative. An assembly with a *U*-factor equal to or less than that specified in Table N1102.1.2 shall be permitted as an alternative to the *R*-value in Table N1102.1.

N1102.1.3 Total UA alternative. If the total *building thermal envelope* UA (sum of *U*-factor times assembly area) is less than or equal to the total UA resulting from using the *U*-factors in Table N1102.1.2, (multiplied by the same assembly area as in the proposed building), the building shall be considered in compliance with Table N1102.1. The UA calculation shall be done using a method consistent with the ASHRAE *Handbook of Fundamentals* and shall include the thermal bridging effects of framing materials. The SHGC requirements shall be met in addition to UA compliance.

Table N1102.1 INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT[b] U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE[k]	FLOOR R-VALUE	BASEMENT[c] WALL R-VALUE	SLAB[d] R-VALUE AND DEPTH	CRAWL SPACE[c] WALL R-VALUE
4 except Marine	0.35	0.60	NR	38	13	5/10	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.35	0.60	NR	38	20 or 13 + 5[h]	13/17	30[f]	10/13	10, 2 ft	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 × 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.~~

~~Table N1102.1.2 EQUIVALENT *U*-FACTORS [a]~~

~~CLIMATE ZONE~~	~~FENESTRATION *U*-FACTOR~~	~~SKYLIGHT *U*-FACTOR~~	~~CEILING *U*-FACTOR~~	~~FRAME WALL *U*-FACTOR~~	~~MASS WALL *U*-FACTOR [b]~~	~~FLOOR *U*-FACTOR~~	~~BASEMENT WALL *U*-FACTOR~~	~~CRAWL SPACE WALL *U*-FACTOR~~
~~4 except Marine~~	~~0.35~~	~~0.60~~	~~0.030~~	~~0.082~~	~~0.141~~	~~0.047~~	~~0.059~~	~~0.065~~

5 and Marine 4	0.35	0.60	0.030	0.060	0.082	0.033	0.059	0.065

a. Nonfenestration *U*-factors shall be obtained from measurement, calculation or an approved source.

b. When more than half the insulation is on the interior, the mass wall *U*-factors shall be a maximum of 0.17 in zone 1,0.14 in zone 2,0.12 in zone 3,0.10 in zone 4 except Marine and the same as the frame wall *U*-factor in Marine zone 4 and in zones 5 through 8.

c. Basement wall *U*-factor of 0.360 in warm-humid climates as defined by Figure N1101.2 and Table N1101.2.

N1102.2 Specific insulation requirements.

N1102.2.1 Ceilings with attic spaces. When Section N1102.1 would require R-38 in the ceiling, R-30 shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Similarly R-38 shall be deemed to satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the *U*-factor alternative approach in Section N1102.1.2 and the Total UA alternative in Section N1102.1.3.

N1102.2.2 Ceilings without attic spaces. Where Section N1102.1 would require insulation levels above R-30 and the design of the roof/ceiling assembly does not allow sufficient space for the required insulation, the minimum required insulation for such roof/ceiling assemblies shall be R-30. This reduction of insulation from the requirements of Section N1102.1 shall be limited to 500 square feet (46 m^2) of ceiling area. This reduction shall not apply to the *U*-factor alternative approach in Section N1102.1.2 and the Total UA alternative in Section N1102.1.3

N1102.2.3 Access hatches and doors. Access doors from *conditioned spaces* to unconditioned spaces (e.g., attics and crawl spaces) shall be weather-stripped and insulated to a level equivalent to the insulation on the surrounding surfaces. Access shall be provided to all *equipment* which prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the *attic* access is opened and to provide a permanent means of maintaining the installed *R*-value of the loose fill insulation.

N1102.2.4 Mass walls. Mass walls, for the purposes of this chapter, shall be considered above-grade walls of concrete block, concrete, insulated concrete form

(ICF), masonry cavity, brick (other than brick veneer), earth (adobe, compressed earth block, rammed earth) and solid timber/logs.

N1102.2.5 Steel-frame ceilings, walls and floors. Steel-frame ceilings, walls and floors shall meet the insulation requirements of Table N1102.2.5 or shall meet the *U*-factor requirements in Table N1102.1.2. The calculation of the *U*-factor for a steel-frame envelope assembly shall use a series-parallel path calculation method.

Exception: In climate zones 1 and 2, the continuous insulation requirements in Table N1102.2.5 shall be permitted to be reduced to R-3 for steel frame wall assemblies with studs spaced at 24 inches (610 mm) on center.

Table N1102.2.5 STEEL-FRAME CEILING, WALL AND FLOOR INSULATION (*R*-*VALUE)*

WOOD FRAMER-VALUE REQUIREMENT	**COLD-FORMED STEEL EQUIVALENT R-VALUE [a]**
Steel Truss Ceilings[a]	
R-30	R-38 or R-30 + 3 or R-26 + 5
R-38	R-49 or R-38 + 3
R-49	R-38 + 5
Steel Joist Ceilings[b]	
R-30	R-38 in 2 × 4 or 2 × 6 or 2 × 8 R-49 in any framing
R-38	R-49 in 2 × 4 or 2 × 6 or 2 × 8 or 2 ×10
Steel Framed Wall	
R-13	R-13 + 5 or R15 + 4 or R-21 + 3 or R-0 + 10
R-19	R-13 + 9 or R-19 + 8 or R-25 + 7
R-21	R-13 + 10 or R-19 + 9 or R-25 + 8
Steel Joist Floor	

R-13	R-19 in 2 × 6 R-19 + R-6 in 2 × 8 or 2 × 10
R-19	R-19 + R-6 in 2 × 6 R-19 + R-12 in 2 × 8 or 2 × 10

For SI: 1 inch = 25.4 mm.

a. Cavity insulation *R*-value is listed first, followed by continuous insulation *R*-value.

b. Insulation exceeding the height of the framing shall cover the framing.

N1102.2.6 Floors. Floor insulation shall be installed to maintain permanent contact with the underside of the subfloor decking.

N1102.2.7 Basement walls. Exterior walls associated with conditioned basements shall be insulated from the top of the *basement wall* down to 10 feet (3048 mm) below *grade* or to the *basement* floor, whichever is less. Walls associated with unconditioned basements shall meet this requirement unless the floor overhead is insulated in accordance with Section N1102.1 and Section N1102.1.2.6.

N1102.2.8 Slab-on-grade floors. Slab-on-grade floors with a floor surface less than 12 inches below *grade* shall be insulated in accordance with Table N1102.1. The insulation shall extend downward from the top of the slab on the outside or inside of the foundation wall. Insulation located below *grade* shall be extended the distance provided in Table N1102.1 by any combination of vertical insulation, insulation extending under the slab or insulation extending out from the building. Insulation extending away from the building shall be protected by pavement or by a minimum of 10 inches (254 mm) of soil. The top edge of the insulation installed between the *exterior wall* and the edge of the interior slab shall be permitted to be cut at a 45-degree (0.79 rad) angle away from the *exterior wall.* Slab-edge insulation is not required in jurisdictions designated by the code official as having a very heavy termite infestation.

N1102.2.9 Crawl space walls. As an alternative to insulating floors over crawl spaces, insulation of crawl space walls shall be permitted when the crawl space is not vented to the outside. Crawl space wall insulation shall be permanently fastened to the wall and extend downward from the floor to the finished *grade* level and then vertically and/or horizontally for at least an additional 24 inches (610 mm). Exposed earth in unvented crawl space foundations shall be covered with a continuous Class I vapor retarder. All joints of the vapor retarder shall overlap by 6 inches (152 mm) and be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the stem wall and shall be attached to the stem wall.

N1102.2.10 Masonry veneer. Insulation shall not be required on the horizontal portion of the foundation that supports a masonry veneer.

N1102.2.11 Thermally isolated sunroom insulation. The minimum ceiling insulation *R*-values shall be R-19 in zones 1 through 4 and R-24 in zones 5 through 8. The minimum wall *R*-value shall be R-13 in all zones. New wall(s) separating the sunroom from *conditioned space* shall meet the *building thermal envelope* requirements.

N1102.3 Fenestration.

N1102.3.1 U-factor. An area-weighted average of fenestration products shall be permitted to satisfy the *U*-factor requirements.

N1102.3.2 Glazed fenestration SHGC. An area-weighted average of fenestration products more than 50 percent glazed shall be permitted to satisfy the solar heat gain coefficient (SHGC) requirements.

N1102.3.3 Glazed fenestration exemption. Up to 15 square feet (1.4 m^2) of glazed fenestration per *dwelling unit* shall be permitted to be exempt from *U*-factor and SHGC requirements in Section N1102.1. This exemption shall not apply to the *U*-factor alternative approach in Section N1102.1.2 and the Total UA alternative in Section N1102.1.3

N1102.3.4 Opaque door exemption. One side-hinged opaque door assembly up to 24 square feet (2.22 m^2) in area is exempted from the *U*-factor requirement in Section N1102.1.1. This exemption shall not apply to the *U*-factor alternative approach in Section N1102.1.2 and the Total UA alternative in Section N1102.1.3

N1102.3.5 Thermally isolated sunroom U-factor. For zones 4 through 8 the maximum fenestration *U*-factor shall be 0.50 and the maximum skylight *U*-factor shall be 0.75. New windows and doors separating the sunroom from *conditioned space* shall meet the *building thermal envelope* requirements.

N1102.3.6 Replacement fenestration. Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the replacement fenestration unit shall meet the applicable requirements for *U*-factor and solar heat gain coefficient (SHGC) in Table N1102.1.

N1102.4 Air leakage.

N1102.4.1 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. All joints, seams and penetrations.
2. Site-built windows, doors and skylights.
3. Openings between window and door assemblies and their respective jambs and framing.

~~4. Utility penetrations.~~

~~5. Dropped ceilings or chases adjacent to the thermal envelope.~~

~~6. Knee walls.~~

~~7. Walls and ceilings separating the garage from *conditioned spaces.*~~

~~8. Behind tubs and showers on *exterior walls.*~~

~~9. Common walls between *dwelling units.*~~

~~10. Attic access openings.~~

~~11. Rim joists junction.~~

~~12. Other sources of infiltration.~~

~~*N1102.4.2 Air sealing and insulation.* Building envelope air tightness and insulation installation shall be demonstrated to comply with one of the following options given by Section N1102.4.2.1 or N1102.4.2.2.~~

Section N1101.13 Compliance is amended to read as follows*:*

SectionN1101.13 Compliance. Projects shall comply with one of the following:

1. Sections N1101.14 through N1104.
2. Section N1105 and the provisions of Section N 1101.14 through N1104 indicated as “mandatory”
3. The energy rating index (ERI) approach in SectionN1106.

Section N1101.13.1 Home energy rating system. The permit applicant of record shall elect which compliance path will be followed at the time permit application is made. The ERI index rating option can be met by constructing a residence that scores 80 or less on the HERS index. All HES ratings shall be performed by a rater accredited by the Residential Energy Services Network (RESNET/ICC). The final HERS Certificate indicates that the dwelling unit achieved a compliant HERS Index score must be submitted to the City before the issuance of a certificate of Occupancy. The final Hers certificate shall identify the project address and the HERS raters name and contact information.

Exception: Equivalent ERI ratings as approved by the Code Official.

Table N1102.41~~.2 AIR BARRIER AND INSULATION INSPECTION~~ Under Climate Zone 4, amend the flowing item:

~~COMPONENT~~	~~CRITERIA~~
~~Air barrier and thermal barrier~~	~~Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier.~~

	~~Breaks or joints in the air barrier are filled or repaired.~~ ~~Air-permeable insulation is not used as a sealing material.~~
~~Ceiling/attic~~	~~Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed~~ ~~Attic access (except unvented attic), knee wall door, or drop down stair is sealed.~~
~~Walls~~	~~Corners and headers are insulated.~~ ~~Junction of foundation and sill plate is sealed.~~
~~Windows and doors~~	~~Space between window/door jambs and framing is sealed.~~
~~Rim joists~~	~~Rim joists are insulated and include an air barrier.~~
~~Floors (including above garage and cantilevered floors)~~	~~Insulation is installed to maintain permanent contact with underside of subfloor decking.~~ ~~Air barrier is installed at any exposed edge of floor.~~
~~Crawlspace walls~~	~~Insulation is permanently attached to walls.~~ ~~Exposed earth in unvented crawlspaces is covered with Class I vapor retarder with overlapping joints taped.~~
~~Shafts, penetrations~~	~~Duct shafts, utility penetrations, knee walls and flue shafts opening to exterior or unconditioned space are sealed.~~
~~Narrow cavities~~	~~Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.~~
~~Garage separation~~	~~Air sealing is provided between the garage and conditioned spaces.~~
~~Recessed lighting~~	~~Recessed light fixtures are airtight, IC rated and sealed to drywall.~~ ~~Exception-fixtures in conditioned space.~~
~~Plumbing and wiring~~	~~Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or~~

	~~sprayed/blown insulation extends behind piping and wiring.~~
~~Shower/tub on exterior wall~~	~~Showers and tubs on exterior walls have insulation and an air barrier separating them from the exterior wall.~~
~~Electrical/phone box on exterior wall~~	~~Air barrier extends behind boxes or air sealed type boxes are installed.~~
~~Common wall~~	~~Air barrier is installed in common wall between dwelling units.~~
~~HVAC register boots~~	~~HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.~~
~~Fireplace~~	~~Fireplace walls include an air barrier.~~

'Wood Frame Wall R-Value' — 13

(Remainder of table unamended.)

~~*N1102.4.2.1 Testing option.* Tested air leakage is less than 7 ACH when tested with a blower door at a pressure of 50 pascals (0.007 psi). Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances.~~

Section N1102.4.1.2. Testing is amended to read as follows:

Section N1102.4.1.2. Testing The building or dwelling unit shall have an air leakage rate of not exceeding 5 air changes per hour when tested with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Building leakage testing shall be conducted where required by the building official. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Where required by the building official, the testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed beyond the intended weatherstripping or other infiltration control measures;

2. Dampers ~~shall be closed, but not sealed;~~ including exhaust, intake, makeup air, back draft, and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open;
4. Exterior or interior terminations ~~openings~~ for continuous ventilation systems ~~and heat recovery ventilators~~ shall be ~~closed and~~ sealed;
5. Heating and cooling system(s), where installed at the time of the test, shall be turned off; and
6. ~~HVAC ducts shall not be sealed; and~~
7. ~~7.~~ Supply and return registers, where installed at the time of the test shall ~~not be sealed~~ be fully open.

~~*N1102.4.2.2 Visual inspection option.* The items listed in Table N1102.4.2, applicable to the method of construction, are field verified. Where required by the code official, an *approved* party independent from the installer of the insulation, shall inspect the air barrier and insulation.~~

~~*Section N 1102.4. Fireplaces.* Is amended.~~

~~*N1102.4.3 Fireplaces.* New wood burning fireplaces shall have outdoor combustion air. (Deleted the requirement for gasketed doors).~~

~~*N1102.4.4 Fenestration air leakage.* Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cubic foot per minute per square foot [1.5(L/s)/m2], and swinging doors no more than 0.5 cubic foot per minute per square foot [2.5(L/s)/m^2], when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory, and listed and *labeled* by the manufacturer.~~
~~Exception: Site-built windows, skylights and doors.~~

Section N1102.1.1 Rooms containing fuel-burning appliances is deleted.

~~*N1102.4.5 Recessed lighting.* Recessed luminaires installed in the *building thermal envelope* shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and *labeled* as meeting ASTM E 283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the *conditioned space* to the ceiling cavity. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.~~

~~*SECTION N1103 SYSTEMS.*~~

~~*N1103.1 Controls.* At least one thermostat shall be installed for each separate heating and cooling system.~~

~~*N1103.1.1 Programmable thermostat.* Where the primary heating system is a forced air furnace, at least one thermostat per *dwelling unit* shall be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day. This thermostat shall include the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F (13°C) or up to 85°F (29°C). The thermostat shall initially be programmed with a heating temperature set point no higher than 70°F (21°C) and a cooling temperature set point no lower than 78°F (26°C).~~

~~*N1103.1.2 Heat pump supplementary heat.* Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.~~

~~*N1103.2 Ducts.*~~

~~*N1103.2.1* Insulation Supply ducts in attics shall be insulated to a minimum of R-8. All other ducts shall be insulated to a minimum of R-6.~~
~~Exception: Ducts or portions thereof located completely inside the *building thermal envelope.*~~

~~*N1103.2.2 Sealing.* Ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.4 Duct tightness shall be verified by either of the following:~~

1. ~~Post-construction test: Leakage to outdoors shall be less than or equal to 8 cfm (3.78 L/s) per 100 ft^2 (9.29 m^2) of conditioned floor area or a total leakage less than or equal to 12 cfm (5.66 L/s) per 100 ft^2 (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler end closure. All register boots shall be taped or otherwise sealed during the test.~~
2. ~~Rough-in test: Total leakage shall be less than or equal to 6 cfm (2.83 L/s) per 100 ft^2 (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the roughed in system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm (1.89 L/s) per 100 ft^2 (9.29 m^2) of conditioned floor area.~~

~~Exception: Duct tightness test is not required if the air handler and all ducts are located within *conditioned space*.~~

Section N1103.3.5 Building Cavities is amended to read as follows:

N1103.2.3 Building cavities. Building framing cavities shall ~~not~~ be permitted to be used as supply ducts. Building framing cavities used as ducts or plenums shall be sealed to prevent leakage through the thermal envelope.

~~*N1103.3 Mechanical system piping insulation.* Mechanical system piping capable of carrying fluids above 105°F (40°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.~~

~~*N1103.4 Circulating hot water systems.* All circulating service hot water piping shall be insulated to at least R-2. Circulating hot water systems shall include an automatic or *readily accessible* manual switch that can turn off the hot water circulating pump when the system is not in use.~~

~~*N1103.5 Mechanical ventilation.* Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.~~

~~*N1103.6 Equipment sizing.* Heating and cooling *equipment* shall be sized as specified in Section M1401.3.~~

~~*N1103.7 Snow melt system controls.* Snow- and ice-melting systems supplied through energy service to the building shall include automatic controls capable of shutting off the system when the pavement temperature is above 50°F (10°C) and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F (5°C).~~

~~*N1103.8 Pools.* Pools shall be provided with energy conserving measures in accordance with Sections N1103.8.1 through N1103.8.3.~~

~~*N1103.8.1 Pool heaters.* All pool heaters shall be equipped with a *readily accessible* on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.~~

~~*N1103.8.2 Time switches.* Time switches that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on swimming pool heaters and pumps.~~

~~Exceptions:~~

~~1. Where public health standards require 24-hour pump operation.~~

~~2. Where pumps are required to operate solar- and waste-heat-recovery pool heating systems.~~

~~*N1103.8.3 Pool covers.* Heated pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools heated to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.~~

~~*N1104.1 Lighting equipment.* A minimum of 50 percent of the lamps in permanently installed lighting fixtures shall be *high-efficacy lamps*.~~

~~*Section M1201.1-M1202.3, Chapter 12* is hereby deleted.~~

~~*Section M1201.1-M1202.3, Chapter 12 Mechanical administration* is deleted in its entirety. See Administration provisions in section 8-25.~~

Sections M2001, M2002, M2003, and G2452 (Boilers) are deleted.

Section G2408.7 is added to read as follows:

Section G2408.7 Liquefied petroleum gas piping shall not serve any gas water heater or appliance located in a pit or basement where heavier than air gas might collect to form a flammable mixture. Water heaters or appliances so served shall not be installed in an above-grade under-floor space or basement unless such location is provided with an approved means for removal of unburned gas.

Section G2411.3 Arc-resistant CSST is deleted.

Section G2414.5 is amended to read as follows:

Section G2414.5 Metallic tubing. Seamless copper, aluminum alloy or steel tubing shall not be utilized for the distribution of fuel gas. Stainless steel tubing may be utilized when approved by the building official.

Section G2414.5.2 is amended to read as follows:

Section G2414.5.2. Copper tubing. Copper and brass tubing shall not be utilized to distribute natural gas nor shall it utilized to distribute any other fuel gas within a building or structure.

G2417.4. Test Pressure Measurement is amended to read as follows:

G2417.4.1 (406.4.1) Test pressure. This inspection shall include an air, CO2, or nitrogen pressure test of not less than 10 pounds per square inch (68.9 kPa) gauge pressure.

G2417.4.2 (406.4.2) Test duration. The test duration shall not be less than 15 minutes.

~~*Section P2501.1—P2503.9 Chapter 25* is hereby deleted.~~

~~*Section P2501.1—P2503.9, Chapter 25 Plumbing administration* is hereby deleted in its entirety. See administration provisions in section 8-25.~~

Part VII, Chapter 25, Plumbing Administration, is deleted.

Section P2603.5.1 Sewer depth is amended to read as follows.

Section P2603.5.1 Sewer depth. Building sewers shall be installed not less than 12 inches (305 mm) below the surface of the ground.

Section 2706.1.2. Standpipes is amended to read as follows.

P2706.1.2 Standpipes. Standpipes for automatic clothes washers shall extend a minimum of 30 inches (762 mm) and a maximum of 42 inches (1067 mm) above the finished floor. The trap for a clothes washer standpipe shall be installed at a minimum of 6 inches (150 mm) maximum of 18 inches (457 mm) above the finished floor. Access shall be provided to all standpipe traps and drains for rodding.

Section P2708.2 Shower drain is amended to read as follows:

Section P2708.2 Shower drain. Shower drains shall have an outlet of not less than 2 inches (51 mm).

Section P2902.5.3 is amended to read as follows:

Section P2902.5.3 Lawn irrigation systems. The potable water supply to lawn irrigation systems shall be protected against backflow by a device approved by the Board of Public Utilities, Kansas City, Kansas, Water Department.

Section P2903.5 is amended to read as follows:

Section P2903.5 Water hammer. The flow velocity of the water distribution system shall be controlled to reduce the possibility of water hammer. Water-hammer arrestor shall be installed where quick-closing valves are utilized. Water hammer arrestors shall be installed in accordance with manufacturer's installation instructions. Water hammer arrestors shall conform to ASSE 1010.
Exception: Each water supply line to a fixture, except tank type water closets, may terminate with an air chamber. All air chambers shall be placed in a vertical position in a tee opening. Each air chamber shall be not less than 12 inches in length and of a diameter not less than the branch it serves.

Section P2903.8.2 is amended to read as follows:

Section P2903.8.2 Minimum size. Where the developed length of the distribution line is 60 feet (18,288 mm) or less, and the available pressure at the meter is a minimum of 40 lbs. per square inch (276 kPa), the minimum size of individual distribution lines shall be not less than ½ inch (12.7 mm) diameter. Certain fixtures such as one-piece water closets and whirlpool bathtubs shall require a larger size where specified by the manufacturer. If a water heater is fed from the end of a cold water manifold, the manifold shall be one size larger than the water heater feed.

Section ~~P2905.4~~ P2906.4 is amended to read as follows:

Section ~~P2905.4~~ P2906.4 Water service piping. Approval, inspection, materials and testing of water service piping shall be in accordance with the policies prescribed by the Board of Public Utilities, Kansas City, Kansas, Water Department. If there is an occurrence that a system might meet the definition of water service pipe under this code and not be under the jurisdiction of the ~~board of public utilities~~Board of Public Utilities, such water service pipe shall conform to NSF 61 and shall conform to one of the standards listed in table P2905.4. Water service pipe or tubing installed underground and outside of the structure shall have a minimum working pressure rating of 160 psi at 73 degrees Fahrenheit (1,103 kPa at 23 degrees C). Where the water pressure exceeds 160 pounds per square inch (1,103 kPa), piping material shall have a rated working pressure equal to or greater than the highest available pressure. Water service piping materials not third-party certified for water distribution shall terminate at or before the full open valve located at the entrance to the structure. Ductile iron water service piping shall be cement mortar lined in accordance with AWWA C104.

Section ~~P2905.4.2~~ P2906.4.2 is amended to read as follows:

Section ~~P2905.4.2~~ P2906.4.2 Water service installation. Installation of water service piping shall be in accordance with the policies prescribed by the Board of Public Utilities, Kansas City, Kansas, Water Department. If there is an occurrence that a system might meet the definition of water service pipe under this code and not be under the jurisdiction of the board of public utilities, trenching, pipe installation and backfilling shall be in accordance with section P2604.2. Water service pipe is permitted to be located in the same trench with a building sewer provided such sewer is constructed of materials listed for underground use within a building in section P3002.1. If the building sewer is not constructed of materials listed in section P3002.1, the water service pipe shall be separated from the building sewer by a minimum of 5 feet (1,524 mm), measured horizontally, of undisturbed or compacted earth or placed on a solid ledge at least 12 inches (305 mm) above and to one side of the highest point in the sewer line.

Exception: the required separation distance shall not apply where a water service pipe crosses over a sewer pipe, provided that the water service pipe is sleeved to at least 5 feet (1,524 mm), horizontally from the sewer pipe centerline, on both sides of the crossing with pipe materials listed in Tables P2905.4, P3002.1(1), or P3002.2.

Section P2905.5.1 is added as follows:

Section P2905.5.1 Under concrete slabs. Inaccessible water distribution piping under slabs shall be copper water tube minimum Type L, brass, ductile iron pressure pipe, galvanized steel pipe, chlorinated polyvinyl chloride (CPVC) or crosslinked polyethylene (PEX) plastic pipe or tubing—all to be installed with approved fittings or bends. The minimum pressure rating for plastic pipe or tubing installed under slabs shall be 100 psi at 180 degrees Fahrenheit (689 kPa at 82 degrees Celsius).

Section 2906.6.1 Saddle tap fittings is deleted.

Table P3002.2 Building Sewer Pipe is amended as follows.

Table P3002.2 Building Sewer Pipe. Delete "PS 25, SDR 41 (PS 28), PS 35, SDR 35 (PS 46), PS 50, PS 100" from "Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters". (Remainder of Table unamended.)

Section P3005.4.2 is amended to read as follows:

Section P3005.4.2 Building drain and sewer and slope. Pipe sizes and slope shall be determined from table P3005.4.2 on the basis of drainage load in fixture units (DFU) computed from table P3004.1. The minimum size of a building sewer serving a dwelling unit shall be 4 inches.

Section P3102.1 is amended to read as follows:

Section P3102.1 Main vent required. Every building shall have a main vent that is either a vent stack or a stack vent. Such vent shall run undiminished in size and as directly as possible from the building drain through to the open air above the roof. The minimum size of a main vent for a dwelling unit shall be 3 inches.

P3105 Fixture Vents.

P3105.1 Distance of trap from vent. Exception is deleted.

Section P3114.3 is amended to read as follows:

Section P3114.3 Where permitted. Individual vents, branch vents, circuit vents and stack vents shall be permitted to terminate with a connection to air admittance valve only when it is structurally not feasible to install a hard-piped venting system and approved by the building official.

In existing construction, where the existing vent system is not accessible to the fixture location without the removal of finish materials or other existing construction

Individual- and branch-type air admittance valves shall conform to ASSE 1051. Individual and branch type air admittance valves shall vent fixtures that are on the same floor level and connect to a horizontal branch drain.

Section P3114.5 is amended to read as follows:

Section P3114.5 Access and ventilation. All air admittance valves shall be readily accessible. The valve shall be located in a ventilated space that allows air to enter the valve.

Section 3902.2 Garage and accessory building receptacles is amended to read as follows.

Section 3902.2 Garage and accessory building receptacles. All 125 volt, single-phase, 15- and 20-amp receptacles installed in garages and grade level portions of unfinished accessory buildings used for or work areas shall have ground fault circuit- interrupter protection for personnel. [210.8(A)(3)]

Exceptions:

1. A dedicated receptacle supplying only a permanently installed fire alarm or burglar alarm system.
2. A dedicated receptacle supplying only a garage door opener.
3. A dedicated receptacle supplying only a refrigerator and/or freezer.
4. A dedicated receptacle supplying a sump pump.

Section 3902.5 Unfinished basement receptacles is amended to read as follows.

Section 3902.5 Unfinished basement receptacles. All 125 volt, single-phase, 15- and 20-amp receptacles unfinished basement areas shall have ground fault circuit- interrupter protection for personnel. [210.8(A)(3)]

Exceptions:

1. A dedicated receptacle supplying only a permanently installed fire alarm or burglar alarm system.
2. A dedicated receptacle supplying only a garage door opener.
3. A dedicated receptacle supplying only a refrigerator and/or freezer.
4. A dedicated receptacle supplying a sump pump.

Section E3902.16 Arc-fault circuit interrupter protection. Exception is added as follows:

Section E3902.16 Exception: AFCI protection is not required for the smoke detector/fire alarm circuit.

Section E3601.6.2 is amended to read as follows:

Section E3601.6.2 Service disconnect location. The service disconnecting means shall be installed at a readily accessible location either outside of a building or inside nearest the point of entrance of the service conductors. When service entrance conductors are more than 10 feet in length from the point of entry to the service panel, a separate means of disconnect must be installed at the service cable entrance to the building or structure. Service disconnecting means shall not be installed in bathrooms or closets. Each occupant shall have access to the disconnect serving the dwelling unit in which they reside.

Section E3902.13 Exception is added as follows:

E3902.13 Arc-fault circuit interrupter protection for branch circuit extensions or modifications

Exception: This section will not apply where existing dwelling unit premises wiring circuits make the application of this section impracticable, as determined by the building official.

Informational Note: Two examples of the application of this exception are where the existing dwelling unit has a multi-wire branch circuit or utilizes a listed panelboard for which there is no listed device for the application of AFCI protection.

E3907.9 is added as follows:

Section E3907.9 is added as follows:

Section E3907.9 Cabinets and panelboards shall not be located in a bathroom or closet.

E4002.14 Tamper-resistant receptacles is deleted.

Section AJ501.8.4 Appendix J Stairs (Existing Buildings) is added as follows:

Section AJ501.8.4 Appendix J Stairs (Existing Buildings). Any alteration to or the replacement of an existing stairway in an existing structure shall not be required to comply with the requirements of a new stairway as outlined in section R311.7 where the existing space and construction will not allow a reduction in pitch or slope.

(Code 1988, § 8-335; O-57-04, § 25, 9-16-2004; Ord. No. O-44-11, § 23, 10-20-2011; Ord. No. O-29-12, § 23, 5-3-2012; Ord. No. O-48-16 , § 1, 7-28-2016)

Section 2. These ordinances shall take effect and be in full force from and after its passage, approval, and publication in the *Wyandotte Echo*.

PASSED BY THE BOARD OF COMMISSIONERS OF THE UNIFIED GOVERNMENT OF WYANDOTTE COUNTY/KANSAS CITY, KANSAS, THIS _____ DAY OF _____, 2021.

David Alvey, Mayor/CEO

Attest:

Unified Government Clerk