481—301.24(103A) Residential energy code. The International Energy Conservation Code – Residential Provisions, 2012 edition, published by the International Code Council, located at www.iccsafe.org, is adopted by reference as the residential energy code of the state of Iowa building code, applicable to residential construction limited to three or fewer stories throughout the state of Iowa, with the following amendments:

301.24(1) Delete section R101.1.

301.24(2) Delete section R101.2 and insert in lieu thereof the following new section:

R101.2 Scope. This code applies to residential buildings and the building sites and associated systems and equipment as defined pursuant to 481—subrule 301.23(2). The remodeling or renovation of one- and two-family dwelling units is not within the scope of this code.

301.24(3) Delete section R103.3.1.

301.24(4) Delete section R103.3.2.

301.24(5) Delete section R103.3.3.

301.24(6) Delete section R104.1 and insert in lieu thereof the following new section:

R104.1 General. Construction or other work that is required to be inspected by state law or local ordinance shall be in accordance with sections R104.2 through R104.8. The commissioner has authority to perform audits to ensure compliance with this code. When local governments conduct compliance audits, the information may be provided to the Department of Energy or to the commissioner in a timely way. Local governments may contract with the commissioner to conduct audits.

301.24(7) Delete sections R108 and R109 and all sections contained therein.

301.24(8) Delete section R402.1.1 and insert in lieu thereof the following new section:

R402.1.1 Insulation and fenestration criteria. The building thermal envelope shall meet the requirements of Table R402.1.1 based on the climate zone specified in chapter 3.

Table R402.1.1

Table R402.1.1 Insulation and Fenestration Requirements by Component[a]

Climate Zone	Fenestration U-Factor[b]	Skylight U-Factor[b]	Glazed Fenestration SHGC[b,e]	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value[i]	Floor R-Value	Basement Wall R-Value[c]	Slab R-Value & Depth[d]	Crawl Space[c] Wall R-Value
1	NR	.75	.25	30	13	3/4	13	0	0	0
2	.40	.65	.25	38	13	4/6	13	0	0	0
3	.35	.55	.25	38	20 or 13+5[h]	8/13	19	5/13[f]	0	5/13
4	.35	.55	.40	49	20 or 13+5[h]	8/13	19	10/13	10, 2ft	10/13
5	.32	.55	NR	49	20 or 13+5[h]	13/17	30[g]	15/19	10, 2ft	15/19
6	.32	.55	NR	49	20 or 13+5[h]	15/20	30[g]	15/19	10, 4ft	15/19
7 & 8	.32	.55	NR	49	20+5 or 13+10[h]	19/21	38[g]	15/19	10, 4ft	15/19

[a] R-values are minimums. U-factors and SHGC are maximums. When insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed R-value of the insulation shall not be less than the R-value specified in the table.

[b] The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed .30.

[c] "15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.

[d] R-5 shall be added to the slab edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Climate Zones 1 through 3 for heated slabs.

[e] There are no SHGC requirements in the Marine Zone.

[f] Basement wall insulation is not necessary in warm-humid locations as defined by Figure R301.1 and Table R301.1.

[g] Or insulation sufficient to fill the framing cavity, R-19 minimum.

[h] First value is cavity insulation; second value is continuous insulation or insulated siding. Therefore, "13+5" means R-13 cavity insulation plus R-5 continuous insulation or insulated siding. If structural sheathing covers 40 percent or less of the exterior, continuous insulation R-value shall be permitted to be reduced by no more than R-3 in the locations where structural sheathing is used – to maintain a consistent total sheathing thickness.

[i] The second R-value applies when more than half the insulation is on the interior of the mass wall.

301.24(9) Delete section R402.4.1.2 and insert in lieu thereof the following new section:

R402.4.1.2 Testing shall meet the following requirements: The building or dwelling unit is tested and verified as having an air leakage rate not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 4 air changes per hour in Climate Zones 3 through 8. Testing is conducted with a blower door at a pressure of 0.2 inches w.g. (50 pascals). Where required by the code official, testing is conducted by an approved third party and a written report of the results is signed by the party conducting the test and provided to the code official. Testing is 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 are closed, but not sealed beyond the intended weatherstripping or other infiltration control measures;
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers are closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, are open;
4. Exterior doors for continuous ventilation systems and heat recovery ventilators are closed and sealed;
5. Heating and cooling systems, if installed at the time of the test, are turned off; and
6. Supply and return registers, if installed at the time of the test, are fully open.

301.24(10) Delete section R403.2.2 and insert in lieu thereof the following new section:

R403.2.2 Sealing is mandatory and shall meet the following requirements: Ducts, air handlers, and filter boxes are sealed. Joints and seams comply with either the International Mechanical Code or International Residential Code, as applicable.

Exceptions:

1. Air-impermeable spray foam products may be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets are equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification do not require additional closure systems.

Duct tightness is verified by either of the following:

1. Postconstruction test: Leakage to outdoors is less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29 m^2) of conditioned floor area or total leakage is less than or equal to 6 cfm (170 L/min) per 100 square feet (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots are taped or otherwise sealed during the test.
2. Rough-in test: Total leakage is less than or equal to 6 cfm (170 L/min) per 100 square feet (9.29 m^2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. All registers are taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage is less than or equal to 3 cfm (85 L/min) per 100 square feet (9.29 m^2) of conditioned floor area.

Testing is conducted by an approved third party and a written report of the results is signed by the party conducting the test and provided to the code official.

Exception: The duct leakage test is not needed for ducts and air handlers located entirely within the building thermal envelope unless cavities are used for returns.

301.24(11) Delete section R403.2.3 and insert in lieu thereof the following new section:

R403.2.3 Building cavities (mandatory). Building framing cavities cannot be used as supply ducts. Building framing cavities may be used as return ducts if both of the following conditions exist:

1. Ducts must be tested for duct leakage in accordance with section R403.2.2.
2. Exterior wall cavities cannot be used for return ducts.

301.24(12) Delete the first clause of the Standard Reference Design for Building Component "Air exchange rate" in Table R405.5.2(1) and insert in lieu thereof the following new clause: "Air leakage of 5 air changes per hour in Climate Zones 1 and 2, and 4 air changes per hour in Climate Zones 3 through 8 at a pressure of 0.2 inches w.g. (50 Pa)."

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