ILLINOIS SPECIFIC AMENDMENTS TO THE IECC 2015 EDITION

CHAPTER 1 [CE]
SCOPE AND ADMINSTRATION

SECTION C101
SCOPE AND GENERAL REQUIREMENTS

C101.1 Title. This code shall be known as the *Illinois Energy Conservation Code* or "this Code" and shall mean:

With respect to the State facilities covered by 71 Ill. Adm. Code 600.Subpart B:

This Part, all additional requirements incorporated within Subpart B (including ASHRAE 90.1 Standards, including all published errata but excluding published supplements that encompass ASHRAE 90.1-2013), and any statutorily authorized adaptations to the incorporated standards adopted by CDB are effective January 1, 2016.

With respect to the privately funded commercial facilities covered by 71 Ill. Adm. Code 600.Subpart C:

This Part, all additional requirements incorporated within Subpart C (including the 2015 International Energy Conservation Code, including all published errata and excluding published supplements that encompass ASHRAE 90.1-2013), and any statutorily authorized adaptations to the incorporated standards adopted by CDB, are effective January 1, 2016.

C101.1.2 Adoption. The Board shall adopt amendments to this Code within 12 months after its publication. Any such update in this Code shall take effect within 6 months after it is adopted by the Board and shall apply to any new building or structure in this State for which a building permit application is received by a municipality or county, except as otherwise provided by the EEB Act.

C101.1.3 Adaptation. The Board may appropriately adapt the International Energy Conservation Code to apply to the particular economy, population or distribution. No unit of local government, including any home rule unit, may apply energy efficient building standards to privately funded commercial facilities in a manner that is less stringent than the Code as described in 71 Ill. Adm. Code 600. Subpart C. However, geography and climate of the State and construction within the State, consistent with the public policy objectives of the EEB Act.

C101.5 Compliance. *Commercial buildings* shall meet the provisions of the *Illinois Energy Conservation Code* covered by 71 Ill. Adm. Code 600.Subpart C. The local authority having jurisdiction (AHJ) shall establish its own procedures for enforcement of the Illinois Energy Conservation Code. Minimum compliance shall be demonstrated by submission of:

1. Compliance forms published in the ASHRAE 90.1 User's Manual; or
2. Compliance Certificates generated by the U.S. Department of Energy's COMcheck™ Code compliance tool; or
3. Other comparable compliance materials that meet or exceed, as determined by the AHJ, the compliance forms published in the ASHRAE 90.1 User's Manual or the U.S. Department of Energy's COMcheck™ Code compliance tool; or
4. The seal of the architect/engineer as required by Section 14 of the Illinois Architectural Practice Act [225 ILCS 305], Section 12 of the Structural Engineering Licensing Act [225 ILCS 340] and Section 14 of the Illinois Professional Engineering Practice Act [225 ILCS 325].

C102.1.1 Above code program.
nothing in the EEB Act or Subpart C prevents a unit of local government from adopting an energy efficiency code or standards that are more stringent than this Code. The requirements identified as "mandatory" in Chapter 4 shall be met.

SECTION C109
BOARD OF APPEALS

C109.1 General. In order to hear and decide appeals of orders, decisions or determinations made by the *code official* relative to the application and interpretation of this Code, there may be created a board of appeals. The *code official* shall be an ex officio member of the board of appeals but shall not have a vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *code official.*

C109.3 Qualifications. The board of appeals shall consist of members who are qualified by experience and training.

CHAPTER 2 [CE]
DEFINITIONS

SECTION C202
GENERAL DEFINITIONS

ADD THE FOLLOWING Definitions:

AUTHORITY HAVING JURISDICTION or AHJ. Means the organization, officer or individual responsible for approving equipment, materials, an installation or procedure.

BOARD. Means the Illinois Capital Development Board.

COUNCIL. Means the Illinois Energy Conservation Advisory Council whose purpose is to recommend modifications to the *Illinois Energy Conservation Code.*

EEB ACT. Means the Energy Efficient Building Act [20ILCS 3125].

CHAPTER 4 [CE] COMMERCIAL ENERGY EFFICIENCY

SECTION C402 BUILDING ENVELOPE REQUIREMENTS

C402.2.2 Roof assembly. The minimum thermal resistance (*R*-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as specified in Table C402.1.3, based on construction materials used in the roof assembly. Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.

Exceptions:

1. Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25 mm) or less and where the area-weighted *U*-factor is equivalent to the same assembly with the *R*-value specified in Table C402.1.3.

2. Where tapered insulation is used with insulation entirely above deck, the *R*-value where the insulation thickness varies 1 inch (25 mm) or less from the minimum thickness of tapered insulation shall comply with the *R*-value specified in Table C402.1.3.

3. Unit skylight curbs included as a component of a skylight listed and labeled in accordance with NFRC 100 shall not be required to be insulated.

4. For roofs on existing buildings with slope less than 2.5 units vertical in 12 unites horizontal (2.5:12), refer to Section C503.1, exceptions.

5. For roofs on existing buildings, refer to Section C503.1 or C504.2.

Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.

C402.5.1 Air barriers. A continuous air barrier shall be provided throughout the building thermal envelope. The air barriers shall be permitted to be located on the inside or outside of the building envelope, located within the assemblies composing the envelope, or any combination thereof. The air barrier shall comply with Sections C402.5.1.1 and C402.5.1.2. For roof air barriers on existing buildings, refer to Section C503.1 or C504.2.

Exception: Air barriers are not required in buildings located in *Climate Zone* 2B.

C402.5.1.1 Air barrier construction. The *continuous air barrier* shall be constructed to comply with the following:

1. The air barrier shall be continuous for all assemblies that are the thermal envelope of the building and across the joints and assemblies.

2. Air barrier joints and seams shall be sealed, including sealing transitions at joints between dissimilar materials. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.

3. Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Paths for air leakage from the building to the space between the roof deck and roof covering used air barrier, shall be caulked, gasketed or otherwise covered with a moisture vapor-permeable material. Joints and seals associated with penetrations shall be sealed in the same manner or taped or covered with moisture vapor-permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed and shall be securely installed around the penetration so as not to dislodge, loosen or otherwise impair the penetrations' ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation. Sealing of concealed fire sprinklers, where required, shall be in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.

4. Recessed lighting fixtures shall comply with Section C402.5.8. Where similar objects are installed that penetrate the air barrier, provisions shall be made to maintain the integrity of the air barrier.

CHAPTER 5 [CE] EXISTING BUILDINGS

SECTION C503
ALTERATIONS

C503.1 General. *Alterations* to any building or structure shall comply with the requirements of the code for new construction. *Alterations* shall be such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the *alteration*. *Alterations* to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. *Alterations* shall not create an unsafe or hazardous condition or overload existing building systems.

Alterations complying with ANSI/ASHRAE/IESNA 90.1. need not comply with Sections C402, C403, C404 and C405.

Exceptions: The following *alterations* need not comply with the requirements for new construction, provided the energy use of the building is not increased:

1. Storm windows installed over existing *fenestration*.

2. Surface-applied window film installed on existing single-pane *fenestration* assemblies reducing solar heat gain, provided the code does not require the glazing or *fenestration* to be replaced.

3. Existing ceiling, wall or floor cavities exposed during construction, provided that these cavities are filled with insulation.

4. Construction where the existing roof, wall or floor cavity is not exposed.

5. *Roof recover*.

6. *Air barriers* shall not be required for *roof recover* and roof replacement where the *alterations* or renovations to the building do not include *alterations*, renovations or *repairs* to the remainder of the building envelope.

CHAPTER 1 [RE] SCOPE AND ADMINISTRATION

SECTION R101
SCOPE AND GENERAL REQUIREMENTS

R101.1 Title. This code shall be known as the *Illinois Energy Conservation Code* or "this Code", and shall mean:

With respect to the residential buildings covered by 71 Ill. Adm. Code 600.Subpart D:

This Part, all additional requirements incorporated within Subpart D (including the 2015 International Energy Conservation Code, including all published errata but excluding published supplements) and any statutorily authorized adaptations to the incorporated standards adopted by CDB is effective January 1, 2016).

R101.1.2 Adoption. The Board shall adopt amendments to this Code within 12 months after its publication. Any such update in this Code shall take effect within 6 months after it is adopted by the Board and shall apply to any new building or structure in this State for which a building permit application is received by a municipality or county, except as otherwise provided by the EEB Act.

R101.1.3 Adaptation. The Board may appropriately adapt the International Energy Conservation Code to apply to the particular economy, population distribution, geography, and climate of the State and construction within the State, consistent with the public policy objectives of the EEB Act.

R101.5 Compliance. *Residential buildings* shall meet the provisions of the *Illinois Energy Conservation Code* covered by 71 Ill. Adm. Code 600. Subpart D. The local authority having jurisdiction (AHJ) shall establish its own procedures for enforcement of the Illinois Energy Conservation Code. Minimum compliance shall be demonstrated by submission of:

1. Compliance Certificates generated by the U.S. Department of Energy's REScheck™ code compliance tool; or

2. Other comparable compliance materials that meet or exceed, as determined by the AHJ, the U.S. Department of Energy's REScheck™ code compliance tool; or

3. The seal of the architect/engineer as required by Section 14 of the Illinois Architectural Practice Act [225 ILCS 305], Section 12 of the Structural Engineering Licensing Act [225 ILCS 340] and Section 14 of the Illinois Professional Engineering Practice Act [225 ILCS 325]

SECTION R102
ALTERNATIVE MATERIALS, DESIGN AND METHODS OF CONSTRUCTION AND EQUIPMENT

R102.1.1 Above code programs. No unit of local government, including any home rule unit, may regulate energy efficient building standards for residential building in a manner that is either less or more stringent than the standards established pursuant to this Code. The requirements identified as "mandatory" in Chapter 4 shall be met.

However, the following entities may regulate energy efficient building standards for residential buildings in a manner that is more stringent than the provisions contained in this Code:

i) A unit of local government, including a home rule unit, that has, on or before May 15, 2009, adopted or incorporated by reference energy efficient building standards for residential buildings that are equivalent to or more stringent than the 2006 International Energy Conservation Code;

ii) A unit of local government, including a home rule unit, that has, on or before May 15, 2009, provided to the Capital Development Board, as required by Section 55 of the Illinois Building Commission Act, an identification of an energy efficient building code or amendment that is equivalent to or more stringent than the 2006 International Energy Conservation Code; and

iii) A municipality with a population of 1,000,000 or more.

SECTION R109
BOARD OF APPEALS

R109.1 General. In order to hear and decide appeals of orders, decisions or determinations made by the *code official* relative to the application and interpretation of this code, there may be created a board of appeals. The *code official* shall be an ex officio member of the board of appeals but shall not have a vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *code official.*

R109.3 Qualifications. The board of appeals shall consist of members who are qualified by experience and training.

CHAPTER 2 [RE] DEFINITIONS
SECTION R202
GENERAL DEFINITIONS

ADD THE FOLLOWING Definitions:

AUTHORITY HAVING JURISDICTION or
AHJ. Means the organization, officer or individual responsible for approving equipment, materials, an installation or procedure.

BOARD. Means the Illinois Capital Development Board.

COUNCIL. Means the Illinois Energy Conservation Advisory Council whose purpose is to recommend modifications to the *Illinois Energy Conservation Code.*

EEB ACT. Means the Energy Efficient Building Act [20ILCS 3125].

LOCAL EXHAUST. An exhaust system that uses one or more fans to exhaust air from a specific room or rooms within a dwelling.

RESIDENTIAL BUILDING. Means a detached one-family or two-family dwelling or any building that is three stories or less in height above grade that contains multiple dwelling units, in which the occupants reside on a primarily permanent basis, such as a townhouse, a row house, an apartment house, a convent, a monastery, a rectory, a fraternity or sorority house, a dormitory, and a rooming house; provided, however, that when applied to a building located within the boundaries of a municipality having a population of 1,000,000 or more, the term "RESIDENTIAL BUILDING" means a building containing one or more dwelling units, not exceeding four (4) stories above grade, where occupants are primarily permanent.

WHOLE HOUSE MECHANICAL VENTILATION SYSTEM. An exhaust system, supply system, or combination thereof that is designed in accordance with Section R403.6 to mechanically exchange indoor air for outdoor air when operating continuously or through a programmed intermittent schedule to satisfy the whole house ventilation rate. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

SECTION R401 GENERAL

R401.2 Compliance. Projects shall comply with one of the following:

1) Sections R401 through R404.

2) Section R405 and the provisions of Sections R401 through R404 labeled "Mandatory."

3) With the concurrence of the *code official*, an alternative method, an energy rating index (ERI) approach in Section R406 and the provisions of Sections R401 through R404 labeled "Mandatory".

SECTION R402 BUILDING THERMAL ENVELOPE

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENES-TRATION *U*-FACTOR[b]	SKYLIGHT[b] *U*-FACTOR	GLAZED FENES-TRATION SHGC[b,e]	CEILING *R*-VALUE	WOOD FRAME WALL *R*-VALUE	MASS WALL *R*-VALUE[i]	FLOOR *R*-VALUE	BASEMENT[c] WALL *R*-VALUE	SLAB[d] *R*-VALUE & DEPTH	CRAWL SPACE[c] WALL *R*-
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5[h]	8/13	19	5/13[f]	0	5/13
4 except Marine	0.35	0.55	NR	49	20 or 13+5[h]	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	20 or 13+5[h]	13/17	30[g]	10/13	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10[h]	15/20	30[g]	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10[h]	19/21	38[g]	15/19	10, 4 ft	15/19

For SI: 1 foot = 304.8 mm

a *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity which 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 skylights does not exceed 0.30.

[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 required 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 required 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] The first value is cavity insulation, the second value is continuous insulation, so "13+5" means *R*-13 cavity insulation plus *R*-5 continuous insulation.

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

TABLE R402.1.4
EQUIVALENT U-FACTORS[a]

CLIMATE ZONE	FENES-TRATION *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
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.059	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

[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 Climate Zone 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.87 in Climate Zone 4 except Marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.

[c] Basement wall *U*-factor of 0.360 in warm-humid locations as defined by Figure R301.1 and Table R301.1

R402.2.2 Ceilings without attic spaces. Where Section R402.1.2 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 R402.1.2 shall be limited to 500 square feet (46 m^2) or 20 percent of the total insulated ceiling area, whichever is less. This reduction shall not apply to the *U*-factor alternative approach in Section R402.1.4 and the total UA alternative in Section R402.1.5.

Exception:
For roofs on existing buildings with slope less than 2.5 units vertical in 12 units horizontal (2.5:12), refer to Section R503.1.1.

R402.2.9 Basement walls. 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 within six-inches (152 mm) of the basement floor, whichever is less. Walls associated with unconditioned basements shall meet this requirement unless the floor overhead is insulated in accordance with Sections R402.1.2 and R402.2.8.

Exception: Walls associated with conditioned basements may be insulated from the top of the *basement wall* down to 4 feet (1219 mm) below grade when the Basement Wall R-value is at

least 15/19, (Basement Wall U-Factor of 0.050).

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding five air changes per hour (ACH) in Climate Zones 4 and 5. The building or dwelling unit shall be provided with a whole – house mechanical ventilation system as designed in accordance with Section R403.6. Testing shall be conducted in accordance with ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test, indicating the ACH, shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after all penetrations of the *building thermal envelope* have been sealed.

Exceptions:

1. For additions, alterations, renovations or repairs to existing buildings, building envelope tightness and insulation installation shall be considered acceptable when the items in Table R402.4.1.1, applicable to the method of construction, are field verified. Where required by the *code official*, an *approved* third party independent from the installer, shall inspect both air barrier and insulation installation criteria.

2. For heated attached private garages and heated detached private garages accessory to one- and two-family dwellings and townhouses not more than three stories above grade plane in height, building envelope tightness and insulation installation shall be considered acceptable when the items in Table R402.4.1.1, applicable to the method of construction, are field verified. Where required by the *code official*, an *approved* third party independent from the installer, shall inspect both air barrier and insulation installation criteria. Heated attached private garage space and heated detached private garage space shall be thermally isolated from all other habitable, conditioned spaces.

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 including exhaust, intake, makeup air, backdraft 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 doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

SECTION 403
SYSTEMS

R403.6 Mechanical ventilation (Mandatory). Where the air infiltration rate of a building or *dwelling unit* is five air changes per hour or less when tested in accordance with Section R402.4.1.2, the building or *dwelling unit* shall be provided with ventilation that meets the requirements of this section or the *International Mechanical Code*, as applicable, or with other *approved* means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

R403.6.2 Recirculation of air. Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or to another *dwelling unit* and shall be exhausted directly to the outdoors. Exhaust air from bathrooms and toilet rooms shall not discharge into an *attic*, crawl space or other areas inside the building. (M1507.2, 2015 IRC)

R403.6.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections R403.6.4 through R403.6.6. (M1507.3, 2015 IRC)

R403.6.4 System design. The whole-house ventilation system shall consist of one or more supply or exhaust fans, or a combination of such, and

associated ducts and controls. Local exhaust or supply fans are permitted to serve as such a system. Outdoor air ducts connected to the return side of an air handler shall be considered to provide supply ventilation. (M1507.3.1, 2015 IRC)

R403.6.5 System controls. The whole-house mechanical ventilation system shall be provided with controls that enable manual override. (M1507.3.2, 2015 IRC)

R403.6.6 Mechanical ventilation rate. The whole house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table R403.6.6(1). (M1507.3.3, 2015 IRC)

Exceptions:

1. The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table R403.6.6(1) is multiplied by the factor determined in accordance with Table R403.6.6(2).

2. The total required outdoor air ventilation rate (Q_{tot}) shall be as specified in Table 403.6.6(1) or calculated in accordance with Equation 4-1.

$CFMtotal = 0.01CFA + 7.5(Nbr + 1)$ **(Equation 4-1)**

Where:
$CFMtotal$ = total required ventilation rate, (cfm)
CFA = conditioned floor area of residence, (ft^2)
Nbr = number of bedrooms (not to be less than 1)

R403.6.6.1 Different Occupant Density. Table R403.6.6(1) assumes two persons in a dwelling unit and an additional person for each additional bedroom. Where higher occupant densities are known, the airflow rate shall be increased by 7.5 cfm (3.5 L/s) for each additional person. Where *approved* by the authority having jurisdiction, lower occupant densities may be used.

R403.6.6.2 Airflow Measurement. The airflow rate required is the quantity of outdoor ventilation air supplied and/or indoor air exhausted by the whole-house mechanical ventilation system installed, and shall be measured using a flow hood, flow grid, or other airflow measuring device. Ventilation airflow of systems with multiple operating modes shall be tested in all modes designed to meet Section R403.6.6. Where required by the *code official,* testing shall conducted by an *approved* third party. A written report of the results of the test, indicating the verified airflow rate, shall be signed by the party conducting the test and provided to the *code official.*

R403.6.7 Local exhaust rates. Local exhaust systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table R403.6.7. (M1507.4, 2015 IRC)

TABLE R403.6.6(1) (M1507.3.3(1), 2015 IRC)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/

TABLE R403.6.6(2) (M1507.3.3(2), 2015 IRC)
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS[a], [b]

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor[a]	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.
b. Extrapolation beyond the table is prohibited.

TABLE R403.6.7 (M1507.4, 2015 IRC)
MINIMUM REQUIRED LOCAL EXHAUST RATES FOR ONE- AND TWO-FAMILY DWELLINGS

AREA TO BE EXHAUSTED	EXHAUST RATES
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms-Toilet Rooms	Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m3/s

SECTION R405
SIMULATED PERFORMANCE ALTERNATIVE (PERFORMANCE)

TABLE R405.5.2(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Air Exchange Rate	Air leakage rate of 5 air changes per hour in climate zones 4 and 5. Testing shall be conducted in accordance with ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inches w.g. (50 Pascal). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the *proposed design*, but no greater than $0.01 \times CFA + 7.5 \times (N_{br} + 1)$ where: CFA = conditioned floor area N_{br} = number of bedrooms Energy recovery shall not be assumed for mechanical ventilation.	For residences that are not tested, the same air leakage rate as the standard reference design. For tested residences, the measured air exchange rate[a]. The mechanical ventilation rate[b] shall be in addition to the air leakage rate and shall be as proposed.

SECTION 406
ENERGY RATING INDEX COMPLIANCE ALTERNATIVE

R406.1 Scope. This section establishes an alternative compliance criteria using an Energy Rating Index (ERI) analysis.

For purposes of clarification, the Illinois Department of Commerce and Economic Opportunity ("Department") declares that Section R406 of the 2015 International Energy Conservation Code affords an alternative form of compliance and is not a mandate on the Department to provide training to Section R406.

CHAPTER 5 [RE] EXISTING BUILDINGS

SECTION R502
ADDITIONS

R502.1.1.2 Heating and cooling systems. New heating, cooling and duct systems that are part of the addition shall comply with Sections R403.1, R403.2, R403.3, R403.5 and R403.6.

> **Exception:** Where ducts from an existing heating and cooling system are extended to an addition, the new and existing duct systems shall not be required to be tested in accordance with Section R403.3.3. New duct systems shall be sealed in accordance with Section R403.3.2.

SECTION R503
ALTERATIONS

R503.1.1 Building envelope. Building envelope assemblies that are part of the alteration shall comply with Section R402.1.2 or R402.1.4, Sections R402.2.1 through R402.2.12, R402.3.1, R402.3.2, R402.4.3 and R402.4.4.

> **Exceptions:** The following alterations need not comply with the requirements for new construction provided the energy use of the building is not increased:
>
> 1. Storm windows installed over existing fenestration.
>
> 2. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
>
> 3. Construction where the existing roof, wall or floor cavity is not exposed.
>
> 4. *Roof recover.*
>
> 5. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
>
> 6. For *roof replacement* on existing buildings with a roof slope of less than 2 units vertical in 12 units horizontal (2:12), and where the roof covering is removed and insulation remains, and where the required R-value cannot be provided due to thickness limitations presented by existing rooftop conditions, (including heating, ventilating and air-conditioning equipment, low door or glazing heights, parapet heights, weep holes, and roof flashing heights not meeting the manufacturer's specifications), the maximum thickness of insulation compatible with the available space and existing uses shall be installed. Insulation used shall be minimum R-3.5 per inch. In areas where flashing may be terminated a minimum of 8 inches above the roof covering (including required insulation) insulation shall be a minimum of R-20.
>
> 7. R-value for roof assemblies with tapered insulation above deck with slope greater than 1/8 units vertical in 12 units horizontal (1/8:12) shall average R-20.
>
> 8. Surface-applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided the code does not require the glazing or fenestration assembly to be replaced.

R503.1.2 Heating and cooling systems. New heating, cooling and duct systems that are part of the alteration shall comply with Sections R403.1, R403.2, R403.3 and R403.6.

> **Exception:** Where ducts from an existing heating and cooling system are extended, the new and existing duct systems shall not be required to be tested in accordance with Section R403.3.3. Altered duct systems shall be sealed in accordance with Section R403.3.2.

SECTION R504
REPAIRS

R504.2 Application. For the purposes of this code, the following shall be considered repairs:

1. Glass-only replacements in an existing sash and frame.
2. Roof repairs.
3. Insulation with new roof covering for roof slopes less than 2 units vertical in 12 units horizontal (2:12) inches only in areas where the tapered insulation is used above an existing roof covering to create slope between drains or upslope from obstructions to water flow.
4. Repairs where only the bulb and/or ballast within the existing luminaires in a space are replaced provided that the replacement does not increase the installed interior lighting power.

Sections M1507.2 (R403.6.2), M1507.3 (R403.6.3), M1507.3.1 (R403.6.4), M1507.3.2 (R403.6.5), M1507.3.3 (R403.6.6), M1507.4 (R403.6.7)
Tables M1507.3.3(1) (R403.6.6(1)), M1507.3.3(2) (R403.6.6(2)), M1507.4 (R403.6.7)
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