

# Energy Code Checklist for Residential Construction

(This form is required for New Residential Buildings, Additions, Alterations, Repairs and other Permits as Applicable)  
**Effective Jan. 1, 2016, the State of Illinois requires that all construction follow the Energy Efficient Building Act. This law requires the 2021 International Energy Conservation Code (IECC) be the energy code for all construction in Illinois. Code sections listed from the 2021 IECC-Residential Provisions.**

Project Address:			Permit #:	
Applicant Name:	Signature:	Checked By:		
Phone #:	Email:	Date:		
Project Type: (check one)	<input type="checkbox"/> New Building	<input type="checkbox"/> Addition	<input type="checkbox"/> Renovation	Method:

**Required Documentation with Permit Submittal:**

1. Energy Compliance Documentation – Choose ONE method. All methods must meet mandatory requirements.

**Prescriptive Compliance Option** - The Prescriptive Compliance Option requires compliance with Sections R401 through R404.

**Total Building Performance Option** -The Total Building Performance Option requires compliance with Section R405.

**Energy Rating Index Option** - The Energy Rating Index (ERI) Option requires compliance with Section R406.

**Additional energy efficiency (Mandatory)** - This section establishes additional requirements applicable to all compliance approaches to achieve additional energy efficiency per Section R401.2.5. Please see Page 3.

2. **Mandatory Requirements** – All projects must meet the ***mandatory*** requirements of the IECC.

Mandatory Requirements	Compliance
a) Certificate (R401.3) Permanent certificate posted on/near elec. panel with energy values.	<input type="checkbox"/> Will Comply (Provided by City) <input type="checkbox"/> Will Comply
b) Building Thermal Envelope (R402.4.1) Seal building envelope from air infiltration.	<input type="checkbox"/> Visual Inspection <input type="checkbox"/> Blower Door (Provide Report)
c) Air Sealing and Insulation Testing/Insp. (R402.4.1.2) Verify sealing and insulation. Blower Door Test Required for NEW BUILDINGS ONLY - 3 air changes per hour or less.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
d) Fireplaces (R402.4.2) Wood-burning have tight flue damper and outdoor combustion air.	<input type="checkbox"/> ≤ 0.3 cfm/sf (Check Label) <input type="checkbox"/> N/A
e) Fenestration Air Leakage (R402.4.3) Windows, sliding glass doors, skylights	<input type="checkbox"/> ≤ 0.5 cfm/sf (Check Label) <input type="checkbox"/> N/A
f) Fenestration Air Leakage (R402.4.3) Exterior swinging doors.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
g) Recessed Lighting (R402.4.5) IC-rated and air tight when in thermal envelope.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
h) Heating/Cooling System Controls (R403.1.1) Programmable thermostat for furnace.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
i) Duct Sealing (R403.3.4) All ducts sealed with approved material(s).	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
j) Building Cavities (R403.3.7) Building framing cavities shall not be used as ducts both S&R.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
k) Mechanical System Piping Insulation (R403.4) R-3 minimum for > 105°F or <55°F.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
l) Circulating Hot Water System (R403.5.1) Piping insulated R-3 min. and on/off switch.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
m) Mechanical Ventilation (R403.6) See State of Illinois Amendments for requirements.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
n) Equipment Sizing (R403.7) Heating/Cooling equipment sized per ACCA Manuals S & J.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
o) Hot Water Pipe Insulation (R403.5.2) R-3 Insulation on piping $\geq$ 3/4" in normal diameter. 2. Piping serving more than one dwelling unit. 3. Piping located outside the conditioned space. 4. Piping from the water heater to a distribution manifold. 5. Piping located under a floor slab. 6. Buried piping. 7. Supply and return piping in recirculation systems other than demand recirculation systems.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
p) Lighting Equipment (R404.1) Min. 90% of lamps in permanent light fixtures = high efficacy	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A

3. **Building Wall Section** – Required for all new buildings and additions. Additional documents may be required by the Building Official. Minimum (1) section required. For interior alterations include documents to illustrate code compliance as necessary. Use City of Rockford BUILDING WALL SECTION sheet to help with this requirement.
4. **Floor Plan** – Required for all new buildings and additions. Floor plan must indicate thermal envelope, conditioned/unconditioned spaces and heating system location.
5. **Prescriptive Requirements** – COMPLETE THIS TABLE, if Prescriptive Method is chosen. Letters correspond to #3 above in regards to the City of Rockford BUILDING WALL SECTION sheet.

Building Components	Prescriptive Standard	Proposed/ Actual Value	Remarks
<b>Insulation (R402.2.1.3) Prescriptive Standard is Minimum R-Value</b>			
A. Ceilings with Attic Spaces (R402.2.1)	R-49 / R-38		R-49 for standard truss, can be reduced to R-38 with Raised Heel/Energy Truss
B. Ceilings without Attic Spaces (R402.2.2)	R-30		Limited to 500 sf OR 20% of the total insulated ceiling area, whichever is less
C. Wood Frame Wall (Table R402.1.2)	R-20 + 5 or R-13+10ci or 0 + 15		R-20 for interiors cavity or R-13 for interiors cavity + R-10 continuous insulated sheathing
D. Floors Over Unconditioned Space (R402.2.7)	R-30		Floor insulation shall maintain permanent contact with subfloor decking
E. Basement Walls (R402.2.8.1)	R-15ci or 19 or 13 + 5ci		R-15 continuous insulation on the interior or exterior or R-19 for interior wall cavity
F. Slab-on-Grade Floors (R402.2.9)	R-10ci		Insulation depth shall be the depth 4 feet when slab is less than 12" below grade
G. Crawl Space Walls (R402.2.10)	R-15ci or 19 or 13 + 5ci		R-15 continuous insulation on the interior or exterior or R-19 for interior wall cavity
<b>Fenestrations (R402.3) Prescriptive Standard is Maximum U-Factor</b>			
H. Windows, Sliding Glass Doors, and Swinging Doors with >50% glazing	U-0.30		An area weighted average may be used to satisfy the U-factor requirements but must include all windows, skylights, glass doors and opaque doors. Provide documentation if this is used.
J. Skylights	U-0.55		

(The above table is based on wood frame construction and common building practices, if not addressed in the table above, please attach separate documentation to illustrate code compliance. See code book for sunrooms. Values are based on Climate Zone 5A in the 2021 IECC).

## 6. Other Prescriptive Requirements:

Other Prescriptive Requirements if applicable	Compliance
Duct Insulation (R403.3.1) S&R ducts outside of thermal envelope $\geq$ R-8 for ducts $\geq$ 3" diameter and $\geq$ R-6 for ducts < 3" diameter.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
Duct Tightness Test (R403.3.5) Required if furnace or any duct is outside of the thermal envelope.	<input type="checkbox"/> Rough-in <input type="checkbox"/> Final <input type="checkbox"/> N/A
Duct Leak Test (403.3.6) For all ducts 4 cfm/100sqft outside the building envelope, 8cfm/100sqft inside building envelope.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
Eave Baffle (R402.2.3) For air-permeable insulations in vented attics, a baffle shall be installed adjacent to soffit and eave vents.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
Attic Hatches (R402.2.4) Access doors to attic must be weather-stripped and insulated.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
Gasketed Electrical Boxes (402.4.6) Boxes installed in the building envelope.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A
IL State EV Charging Act (765 ILCS 1085) EV Capable Charging Space - $\frac{3}{4}$ " conduit within 3' of EV parking space and min 40am space in the electrical panel.	<input type="checkbox"/> Will Comply <input type="checkbox"/> N/A

### Notes:

- i. For further clarification of the above items, please refer to the 2021 International Energy Conservation Code (IECC).
- ii. The City of Rockford has other useful material related to the energy code, please visit us at [www.rockfordil.gov](http://www.rockfordil.gov)
- iii. Visit the State of Illinois Energy Code page for amendments and other info at [www.ildceo.net/energycode](http://www.ildceo.net/energycode)
- iv. For free, up-to-date energy references, energy training and energy code info, visit [www.energycodes.gov](http://www.energycodes.gov)

## City of Rockford Energy Code Checklist (2021 IECC)

**R401.2.5 Additional energy efficiency** - This section establishes additional requirements applicable to all compliance approaches to achieve additional energy efficiency:

1. For buildings complying with Section R401.2.1 (**Prescriptive Compliance Option**), one of the additional efficiency package options shall be installed according to Section R408.2:

- R408.2.1 Enhanced envelope performance option.
- R408.2.2 More efficient HVAC equipment performance option.
- R408.2.3 Reduced energy use in service water-heating option.
- R408.2.4 More efficient duct thermal distribution system option.
- R408.2.5 Improved air sealing and efficient ventilation system option.

2. For buildings complying with Section R401.2.2 (**Total Building Performance Option**), the building shall meet one of the following:

- One of the additional efficiency package options in Section R408.2 shall be installed without including such measures in the proposed design under Section R405
  - R408.2.1 Enhanced envelope performance option.
  - R408.2.2 More efficient HVAC equipment performance option.
  - R408.2.3 Reduced energy use in service water-heating option.
  - R408.2.4 More efficient duct thermal distribution system option.
  - R408.2.5 Improved air sealing and efficient ventilation system option.

OR

- The proposed design of the building under Section R405.3 shall have an annual energy cost that is less than or equal to 95 percent of the annual energy cost of the standard reference design.
  - R405.3.1 Compliance software tools. Documentation verifying that the methods and accuracy of the compliance software tools conform to the provisions of this section shall be provided to the code official.
  - R405.3.2 Compliance report. Compliance software tools shall generate a report that documents that the proposed design complies with Section R405.3.
    - Compliance report for permit application
    - Compliance report for certificate of occupancy

For buildings complying with the **Energy Rating Index Alternative** Section R401.2.3, the Energy Rating Index value shall be at least 5 percent less than the Energy Rating Index target specified in Table R406.5.

**R406.5 ERI-based compliance.** Compliance based on an ERI analysis requires that the *rated proposed design* and confirmed built dwelling be shown to have an ERI less than or equal to the appropriate value indicated in Table R406.5 when compared to the *ERI reference design*.

CLIMATE ZONE	ENERGY RATING INDEX
0-1	52
2	52
3	51
4	54
5	55
6	54
7	53
8	53