

# Comparison of Illinois Commercial Stretch Energy Code and International Energy Conservation Code (IECC) 2024



## 1. Purpose

In 2021, Illinois enacted the **Climate and Equitable Jobs Act (CEJA)**, which directs the Illinois Capital Development Board (CDB) to offer an optional “stretch” energy code that exceeds the efficiency requirements of the statewide base energy code. CEJA’s target is a **9% energy-efficiency gain** beyond the performance required by the current Illinois base energy code.

Beginning **January 1, 2025**, municipalities may adopt the **Illinois Commercial and/or Residential Stretch Energy Code** (Stretch Code) by ordinance, making it their local minimum for new construction, additions, and major

renovations. The CDB is currently in the process of developing the next statewide base code, which may reference the 2024 International Energy Conservation Code (IECC), and is expected to be adopted by January 2026.

This brief is a technical reference for municipal code officials, plan reviewers, designers and builders who must choose to either:

1. Adopt the Stretch Code now, or
2. Continue using the statewide base code and prepare for the base code to be updated based on IECC 2024.

## 2. How does the Commercial Stretch Code differ from IECC 2024? *(Details in Appendices A and B)*

### Step 1—Mandatory “Readiness” Package

The Stretch Code adds four mandatory measures that every new building, addition, or major renovation must include, regardless of which compliance path is chosen.

- Electric vehicle (EV)-ready parking
- Renewable energy use
- Electric-ready circuits (space/water heat, cooking, drying)
- Demand-response-capable thermostats and water heaters

### Step 2—Additional and Different Compliance Paths

After the Step 1 “Readiness” Package is documented, a building may follow any of the **compliance paths**. The table below highlights the Stretch Code-specific additions/adjustments for each compliance path, compared with using the same path under the base 2024 IECC.

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| COMPLIANCE PATH                                 | HOW STRETCH DIFFERS FROM THE BASE 2024 IECC   |
|---|---|
| IECC 2024—PRESCRIPTIVE OR SIMULATED-PERFORMANCE | Stretch code tightens the performance targets for both prescriptive and performance compliance pathways to meet CEJA efficiency goals.  |
| ASHRAE 90.1-2022                                | The stretch code swaps the cost metric for a site-energy use intensity (EUI) target to align with CEJA requirements.  |
| PASSIVE HOUSE (PHIUS)                           | Stretch code explicitly accepts a PHIUS-certified design as a full compliance path (readiness package still required). Under IECC this is only allowed if the local jurisdiction separately adopts it.  |
| COMMERCIAL ZERO-ENERGY                          | Stretch code makes the IECC's net-zero pathway permanently available—whether the renewable generation is on-site or off-site. Under the base IECC, a municipality would have to adopt that net-zero option separately before a building could use it. |

A building complies with the Illinois Commercial Stretch Energy Code only after it has documented all four readiness measures from Step 1 and fully satisfied one of the compliance paths listed in Step 2.

3. What stays the same?

Many aspects of IECC 2024 and the commercial stretch code are the same or similar for most occupancies, including blower door testing, duct tightness, pipe insulation, ventilation fan efficiency, lighting power densities and baseline envelope R-values/U-factors.

4. Where the Stretch Code goes beyond IECC 2024 (Details in Appendix B)

| STRETCH CODE REQUIREMENT   | PRACTICAL EFFECT  |
|--|---|
| Readiness packages<br>All paths  | <b>Avoids costly retrofits later.</b> Conduit, panel space and roof set-asides are installed during construction, so adding EV chargers, rooftop PV or converting to all-electric HVAC/appliances later requires only the equipment, not demolition and rewiring. Readiness measures reduce first-cost barriers to future electrification and grid-interactive demand response. |
| Requires 25% extra efficiency credits if building does not use heat pumps<br>Prescriptive path | <b>Incentivizes heat-pump installations.</b> By increasing the efficiency credit minimum only for combustion systems, the Stretch Code tilts prescriptive compliance toward electric heat pumps, cutting onsite combustion emissions while leaving true fuel neutrality in place for buildings that meet the higher bar.  |
| Performance path uses site energy only<br>Simulated-Performance                                | <b>Prioritizes load reduction and encourages electrification.</b> With a site-EUI target, designers must tighten the envelope and use efficient equipment before adding renewables. Because site-EUI values electricity and fossil fuels equally, high-efficiency electric or heat-pump systems become a practical way to meet the target.                                      |

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### 5. Guide to appendices

The detailed comparison tables referenced in this brief are organized as follows:

**Appendix A**—Commercial compliance paths

**Appendix B**—Requirements applicable to compliance paths (2024 IECC and Stretch Code)

**Appendix C**—Prescriptive path requirements

**Appendix D**—Simulated total building performance path (2024 IECC Stretch Code)

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## Appendix A—Commercial compliance paths: 2024 IECC and IL Stretch Code

Compliance Path Options (Meet all Mandatory Requirements, then choose ONE Compliance Path)

| COMPLIANCE PATH        | 2024 IECC   | IL COMMERCIAL STRETCH CODE  |
|------------------------|---|---|
| IECC                   | Prescriptive and performance options are available.   |   |
|                        | <p><b>Prescriptive and performance options are available.</b></p> <p>Prescriptive Path—2024 IECC commercial provisions; includes backstop that sets glazing limits and envelope requirements.</p> <p>Simulated Total Building Performance Path—2024 IECC commercial provisions; allows trade-off of envelope components with better HVAC.</p>   | <p><b>2024 IECC prescriptive and performance pathways.</b> Comply with 2024 IECC prescriptive or performance pathways; strengthened to meet CEJA efficiency targets.</p>  |
| ASHRAE                 | ASHRAE 90.1-2022  | Buildings must comply with ASHRAE 90.1-2022. Revises the performance pathway in <b>ASHRAE 90.1-2022</b> to align with CEJA targets using site EUI rather than utility cost.   |
| PASSIVE HOUSE          | The code official or other authority having jurisdiction is permitted to deem a national, state, or local energy efficiency program, <b>such as PHIUS, or other third-party building standards</b> , as exceeding the energy efficiency required by the code. Buildings must still meet requirements identified in Table C407.2(1). <b>Applies only if adopted by a jurisdiction.</b> | Allows PHIUS certification as a compliance pathway in the Illinois Stretch Code. Projects must comply with measures from C407.2 and meet mandatory requirements as well as <b>achieve PHIUS certification.</b>  |
| COMMERCIAL ZERO-ENERGY | Allows language from Appendix CC as a compliance pathway only if adopted by a jurisdiction.   | Adopts language from Appendix CC as a compliance path. <b>With On-Site Renewable Energy:</b> On-site renewable energy systems or RECs required by building type to generate specified amount of energy. The minimum renewable energy requirement shall be determined by multiplying the gross conditioned floor area + the semi-heated gross floor area of the proposed building by the prescriptive renewable energy requirement from Table CC103.1 <b>Without On-Site Renewable Energy:</b> Offsite renewable energy shall comply with sections CC103.3.1 and CC103.3.2, which set minimum renewable energy procurement thresholds based on building energy use and the method of renewable energy procurement. |

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## Appendix B—Requirements applicable to compliance paths (2024 IECC and Stretch Code)

Requirements applicable to all compliance paths in both the 2024 IECC and the IL Stretch Code (Sections C402, C403)

| REQUIREMENT                       | 2024 IECC   | IL COMMERCIAL STRETCH CODE  |
|-----------------------------------|---|---|
| <b>Blower Door Test</b>           | A blower door test is required for all buildings. Certain testing exemptions are available for buildings less than 10,000 sq ft or over 50,000 sq ft, per Section C402.6.2.1.                               |   |
| <b>Duct Testing</b>               | All ducts must be tested for tightness  |   |
| <b>Duct Tightness</b>             | Conditioned: $\leq 4$ cfm/100 sq ft   |   |
| <b>Duct Insulation</b>            | <b>Unconditioned spaces:</b> $\geq R-6$   <b>Conditioned spaces:</b> CZ 4: $\geq R-8$<br>CZ 5: $\geq R-12$  |   |
| <b>Cavities as Ducts</b>          | Prohibited  |   |
| <b>Piping Insulation</b>          | Table C403.13.3 (1) or Table C403.13.3 (2)  |   |
| <b>Ventilation</b>                | Comply with Chapter 4 of the International Mechanical Code  |   |
| <b>Ventilation Fan Efficiency</b> | Comply with Table C403.8.5  |   |
| <b>High Efficacy Lighting</b>     | Lighting power density may not exceed the threshold for the applicable building use, as specified in Tables C405.3.2(1) and C405.3.2(2). Lighting controls must be installed, as defined in section C405.2. |   |
| <b>EV-readiness</b>               | Not required unless specifically referenced in the adopting ordinance.  | EV-Readiness is required. Minimum standards for installation of EV infrastructure and/or the minimum numbers of EV-ready spaces are set based on building use.<br><br>The number of required <b>EV spaces</b> , <b>EV capable spaces</b> , and <b>EV-ready spaces</b> <sup>1</sup> shall be determined in accordance with Section C405.14.1 and Table C405.14.1 based on the total number of automobile parking spaces and shall be rounded up to the nearest whole number. |
| <b>Solar-readiness</b>            | Not required unless specifically referenced in the adopting ordinance.  | Must meet solar-readiness standards based on building size. For commercial buildings five stories or less above the grade plane and with low-slope roofs, the solar-ready zone should be on the roof.<br><br>The orientation of the solar-ready zone should be between 110 degrees and 270 degrees of true north.   |

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<sup>1</sup>An EV-ready space is defined as an automobile parking space provided with electrical infrastructure, including raceway or cable assemblies, electrical capacity, an electrical distribution equipment space, necessary for connection to EV supply equipment.



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## Appendix B—continued

Requirements applicable to all compliance paths in both the 2024 IECC and the IL Stretch Code (Sections C402, C403)

| REQUIREMENT               | 2024 IECC  | IL COMMERCIAL STRETCH CODE  |
|---------------------------|--|---|
| <b>Electric-readiness</b> | Not required unless specifically referenced in the adopting ordinance. | <p>Full electrification is not required. Natural gas can be used, but commercial buildings are required to be electric-ready for water heating, space heating, cooking and clothes drying.</p> <p>New R-2 occupancy commercial buildings to include electric infrastructure that would be required for electric appliance installation at time of combustion appliance replacement.</p> |
| <b>Demand Response</b>    | N/A  | Demand-response-capable thermostats and water heaters required.   |

## Appendix C—Prescriptive path requirements

Prescriptive Path (Sections C402-C406) requirements: 2024 Commercial IECC and IL Commercial Stretch Code

| REQUIREMENT                           | 2024 IECC   | IL COMMERCIAL STRETCH CODE  |
|---------------------------------------|---|---|
| <b>Buildings with Heat Pumps</b>      | Achieve at least the minimum number of efficiency credits stated in Table C406.1.1(1) for the applicable building occupancy group and climate zone.   |   |
| <b>Buildings without Heat Pumps</b>   | Same number of energy credits required for buildings with, and without heat pumps.  | If a building does not use heat pumps for main space heating and cooling, the minimum number of energy credits required by Table C406.1.1(1) shall be multiplied by 1.25 to meet a higher credit threshold. |
| <b>Max. Envelope Air Infiltration</b> | <p>The measured air leakage shall not be greater than 0.35 cfm/ft<sup>2</sup> of the building thermal envelope area at a pressure differential of 0.3-inch water gauge (75pa).</p> <p><b>Exception:</b> buildings larger than 25,000 sq ft in CZ 4.</p> |   |
| <b>Min. Wood Frame R-Value</b>        | <p>CZ 4: R-0 + R-12ci or R-13 + R-3.8ci or R-20</p> <p>CZ 5: R-0 + R-16ci or R-13 + R-7.5ci or R-20 + R-3.8ci or R-27</p>   |   |
| <b>Max. Wood Frame Wall U-Factor</b>  | <p>CZ 4: 0.064</p> <p>CZ 5: 0.051</p>   |   |

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**Appendix C—continued**

Prescriptive Path (Sections C402-C406) requirements: 2024 Commercial IECC and IL Commercial Stretch Code

| REQUIREMENT  | 2024 IECC | IL COMMERCIAL STRETCH CODE |
|--|-----------|----------------------------|
| Min. Floor R-Value   |           | R-14.6ci                   |
| Max. Floor U-Factor  |           | 0.057                      |
| Min. Below Grade Wall R-Value  |           | R-7.5ci                    |
| Max. Basement Wall U-Factor  |           | c-0.119                    |
| Min. Roof/Ceiling R-Value<br>Insulation Entirely Above Roof<br>Deck  |           | R-30ci                     |
| Min. Roof/Ceiling R-Value<br>Metal Buildings                         |           | R-19 + R-11 LS             |
| Min. Roof/Ceiling R-Value Attic<br>and Other                         |           | R-49                       |
| Max. Roof/Ceiling U-Factor<br>Insulation Entirely Above Roof<br>Deck |           | 0.032                      |
| Max. Roof/Ceiling U-Factor<br>Metal Buildings                        |           | 0.035                      |
| Max. Roof/Ceiling U-Factor<br>Attic and Other                        |           | 0.021                      |
| Max. Fixed Fenestration<br>U-Factor                                  |           | 0.34                       |
| Max. Operable Fenestration<br>U-Factor                               |           | 0.45                       |

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Appendix D—Simulated total building performance path (2024 IECC Stretch Code)

Simulated Total Building Performance Path (Sections C406-C407) 2024 IECC and IL Commercial Stretch Code

| REQUIREMENT                   | 2024 IECC  | IL COMMERCIAL STRETCH CODE   |
|-------------------------------|--|--|
| Total Performance Requirement | An annual energy cost that is less than or equal to the percent of the site energy use of the standard reference design calculated in Equation 4-33.   | <p>A site energy use that is less than or equal to the percentage of the site energy use (SEUC) of the standard reference design calculated in Equation 4-34. The reduction in site energy use of the proposed design associated with on-site and off-site renewable energy shall not be included in the total site energy use.</p> <p>As opposed to Equation 4-33 in the 2024 IECC, 4-34 does not allow for efficiency trade-offs, maintaining efficiency levels defined in CEJA.</p> |
| Max. Air Infiltration         | <p>The measured air leakage of the building envelope shall not exceed 0.25 cfm/ft<sup>2</sup> at a pressure differential of 0.3-inch water gauge (75pa).</p> <p><b>Exception:</b> Buildings over 25,000 sq ft of conditioned floor area.</p> |  |
| Additional Compliance Package | Buildings shall comply with measures from C406.2 to achieve not less than the number of required efficiency credits from table C406.1.1(1) based on <i>building</i> occupancy group and <i>climate</i> zone.                                 | Same as IECC 2024, with the addition of any energy credit adjustments in accordance with C406.1.1.1.   |