2021 IECC Update Timeline

- January 14: Residential and Commercial Code Proposals Due to ICC
- March 4: Proposals Made Available by ICC
- By March 29: Registering with ICC
- April 28 to May 8: Testifying in Favor of Energy Efficiency at ICC Committee Action Hearings
- July 24: Public Comments due to ICC
- September 23: Assigning Governmental Member Voting Representatives
- October 23 to 30: Testifying in Favor of Energy Efficiency Proposals at ICC Final Action Hearings
- Late November: Voting Online for Energy Efficiency Proposal

THE IECC PROCESS EXPLAINED: A GUIDE FOR NEW VOTERS

November 6, 2019 from 9:30 - 11:00 am Pacific (12:30 - 2:00 pm Eastern)

This free webinar will provide:
- a brief overview of energy codes,
- a high-level overview of the efficiency proposals
- explain how voting in the IECC works,
- summary of resources to help in casting votes

Register at www.newbuildings.org/events
Eric Makela
Director of Codes
eric@newbuildings.org

ICC IECC Code Change Proposals

Eric Makela
New Buildings Institute
IECC Code Development Update

Residential Public Comments Submitted: Approximately 168

Commercial Public Comments Submitted: Approximately 159

ICC IECC Residential Code Change Proposals
Opaque Envelope Proposals

- Code Change Proposal Numbers: RE29, 36

Fenestration Proposal

- Code Change Proposal Number: RE37
Duct Leakage Testing

Proposal
• Requires mandatory testing for total leakage for all ducts regardless of location
  • Total leakage for ducts in conditioned space \( \leq 8 \text{ cfm/100 ft}^2 \)

• Code Change Proposal Number: RE112

Ventilation System Testing

Proposal
• Require ventilation systems to be tested and verified to provide the minimum flow rates
  • Flow hood box
  • Flow grid
  • Other airflow measuring device

• Code Change Proposal Numbers: RE130
High Efficient Water Heating

R403.5.1 (IRC N1103.5.1) Water heating equipment. Service water heating equipment shall be one or more of the following types:

1. Storage gas water heater with a uniform energy factor (UEF) that meets the requirements of Table R403.5.1.
2. Storage electric water heater, utilizing and not less than 1.0 kW of on-site renewable energy.
3. Heat pump water heater.
4. Tankless water heater.
5. Grid-enabled water heater.
6. Solar water heating system having a solar fraction of not less than 0.5.
   Exception: Installation of one or more of the following types:
   1. Replacement water heating equipment
   2. Storage gas water heater with a uniform energy factor (UEF) that meets the requirements of Table R403.5.1.
   3. Storage electric water heater, utilizing and not less than 1.0 kW of on-site renewable energy.
   4. Solar water heating system having a solar fraction of not less than 0.5.
   5. Any other type of water heating system not explicitly listed in Section R403.5.1 (IRC N1103.5.1), and not less than 1.0 kW of on-site renewable energy.

• Code Change Proposal Numbers: RE126

High Efficient Water Heating

Table R403.5.1 (IRC N1103.5.1) Minimum Uniform Energy Factor (UEF) for Storage Gas Water Heaters

<table>
<thead>
<tr>
<th>FIRST HOUR RATING</th>
<th>MINIMUM UEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Small</td>
<td>0.24</td>
</tr>
<tr>
<td>Low</td>
<td>0.59</td>
</tr>
<tr>
<td>Medium</td>
<td>0.64</td>
</tr>
<tr>
<td>High</td>
<td>0.68</td>
</tr>
</tbody>
</table>

a. The first hour rating of a water heater is determined by the federal test procedure. It is listed on the Energy Guide label affixed to the water heater.

SECTION R202 (N1101.6) GENERAL DEFINITIONS

GRID-ENABLED WATER HEATER. An electric water heater that includes controls that enable activation for use as part of an electric thermal storage or demand response program.

SOLAR FRACTION. The fraction of total annual water heating energy met by a solar water heater.

• Code Change Proposal Numbers: RE126
Residential Lighting

Proposal
• Increases lamp and luminaire efficacy requirements to what is available on the market

<table>
<thead>
<tr>
<th>CFL / LED / Long Tube Fluorescent</th>
<th>Efficacy Requirement (lu/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamps</td>
<td>65</td>
</tr>
<tr>
<td>Luminaires</td>
<td>45</td>
</tr>
</tbody>
</table>

• Code Change Proposal Numbers: RE7

Energy Rating Index

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>ENERGY RATING INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>57 52</td>
</tr>
<tr>
<td>2</td>
<td>57 52</td>
</tr>
<tr>
<td>4</td>
<td>62 54</td>
</tr>
<tr>
<td>5</td>
<td>61 55</td>
</tr>
<tr>
<td>6</td>
<td>61 54</td>
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<tr>
<td>7</td>
<td>58 53</td>
</tr>
<tr>
<td>8</td>
<td>58 53</td>
</tr>
</tbody>
</table>

• Code Change Proposal Numbers: RE7
Flex Point Options

• Code Change Proposal Numbers: RE206, 207

Flex Point Options

• Code Change Proposal Number: RE209
Zero Energy Appendix

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>ENERGY RATING INDEX net including onsite power</th>
<th>ENERGY RATING INDEX including onsite power (as proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>43</td>
<td>0</td>
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<tr>
<td>2</td>
<td>45</td>
<td>0</td>
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<tr>
<td>3</td>
<td>47</td>
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<td>46</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>45</td>
<td>0</td>
</tr>
</tbody>
</table>

• Code Change Proposal Numbers: RE223

Questions???
Major Commercial Proposals

Major changes
Clarification and restructuring
Fenestration efficiency
Opaque envelope efficiency
Air leakage

- High output water heating equipment
- Controlled receptacles
- Lighting efficacy
- Lighting power density
- C406 Points
- Ready and resilient
### Opaque Envelope Changes

**Climate Zone**

<table>
<thead>
<tr>
<th>Climate Zone</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below-grade wall</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>R-15</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Floors</td>
<td>NR</td>
<td>NR</td>
<td>R-20</td>
<td>R-30</td>
<td>R-15</td>
<td>R-15</td>
<td>R-15</td>
<td>R-15</td>
</tr>
<tr>
<td>Slabs-on-grade roofs</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

### Fenestration SHGC Changes

**SHGC**

| SHGC | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out | In | Out |
|------|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|
| H < 0.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.38 | 0.38 | 0.38 | 0.38 | 0.45 | 0.45 | 0.45 | 0.45 |
Envelope Leakage Testing and Verification

Code Change Proposal Numbers: CE96, 97 & 99

- Buildings other than Group R and Group I occupancies required to be leakage testing to meet 0.4 cfm/ft² of envelope.
  - Exceptions for building size and climate zones
- Group R and I to be tested to meet 0.30 cfm/ft²
- Envelope air barrier verification for all buildings not tested

Controlled Receptacles

Requires automatic controls for 50% of receptacles installed in Enclosed offices, conference rooms, breakrooms, copy rooms, classrooms

Provide either split controlled receptacle or controlled receptacle within 12” of uncontrolled receptacle

First provision in the code that focuses on plug loads (CE216)

- Code Change Proposal Number: CE216
Light Efficacy Upgrade

Increases efficacy requirement for lighting in dwelling units to:

- 65 lu/W for lamps
- 45 lu/W for luminaires

Modified to exempt kitchen appliance lighting

Proposal Number | PC Vote Recommendation
-----------------|-------------------------
CE 162 (Vote 14-1) | As Modified

C406 Points Option

Current C406 Point Options savings inequality

![Graph showing variation in building cost savings for different options]
C406 Points Option

Reduced LPD
Enhanced lighting controls
Extra area daylight responsive controls
Efficient kitchen equipment
CE218, 226, 229, 235 & 240

CE218 Public Comments
PC 1: Modified the credits upward for HPWH for Group R, I, E for Other occupancies
C406 Points Option

CE218 Public Comments

PC 2:
Exempts buildings in Utility and Miscellaneous Group U
Requires building in Storage Group S, Factory Group F, High-hazard Group H, Low Energy Buildings as defined in C402.1.1 and Equipment buildings as defined in C402.1.2 to achieve 7 credits
Group R and I in Climate Zones 3C, 4B, 4C and 5C required to achieve 7 credits

C406 Points Option

CE218 Public Comments

PC 3: Modified the credits downward for renewables for Group B, R, I, E M and Other occupancies
C406 Points Option

Other Public Comments Associated with CE218

<table>
<thead>
<tr>
<th>Proposal Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 226 (Approved)</td>
<td>Allows credits for reducing LPD by 10 and 15%. Credit for high efficacy lighting</td>
</tr>
<tr>
<td>CE229 (Disapproved)</td>
<td>Modifies the enhanced lighting control requirements</td>
</tr>
<tr>
<td>CE240 (Approved)</td>
<td>Allows credits for commercial cooking appliances</td>
</tr>
</tbody>
</table>

Ready and Resilient

Require onsite renewable for commercial buildings

- Code Change Proposal Number: CE53

Solar and storage ready appendix
Public comment references IFC and NFPA 70 Section 110.26

- Code Change Proposal Number: CE262
Ready and Resilient

EV Ready and Capable for commercial buildings
Modification from 40 amp to 50 amp circuit

EV Capable: conduit, breaker space

EV Ready: conduit, breakers space, overcurrent protection, wire, outlet

• Code Change Proposal Number: CE217

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