AIA and the Importance of Energy Codes

National Adoption and Compliance Support
THE ENERGY PERFORMANCE LANDSCAPE
History of the Energy Code

- 1975 - ASHRAE developed the first national energy standard 90-75 Energy Conservation in New Building Design.
- 1983 - The Model Energy Code (MEC) was developed, and in 1998 became the IECC.
- 1989 - ASHRAE released the ASHRAE Standard 90.1 which was set as the national standard for commercial construction.
- 1994 - The International Code Council was established to develop a single set of coordinated national model construction codes.
- 1998 - The ICC develops the International Energy Conservation Code (IECC) as the successor to the MEC.
- Model codes and standards have laid the groundwork for beyond code programs like LEED and Energy Star.
Evolution of the Energy Code

Efficiency Gains in Residential and Commercial Model Energy Code Editions

Source: ACEEE
## Table A: 2030 Challenge Interim Code Equivalents

<table>
<thead>
<tr>
<th>CODE / STANDARD</th>
<th>COMMERCIAL</th>
<th>RESIDENTIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHRAE 90.1-2004</td>
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<tr>
<td>ASHRAE 90.1-2007</td>
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<tr>
<td>ASHRAE 189 (in progress)</td>
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<tr>
<td>IECC 2006</td>
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<tr>
<td>California Title 24 2005</td>
<td>15% - 20% below\textsuperscript{13}</td>
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<tr>
<td>California Title 24 2008</td>
<td>10% below\textsuperscript{14}</td>
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<tr>
<td>Oregon Energy Code\textsuperscript{15}</td>
<td>25% below</td>
<td>30% below</td>
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<tr>
<td>Washington Energy Code</td>
<td>25% below</td>
<td>25% - 30% below\textsuperscript{16}</td>
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<tr>
<td>RESNET HERS Index</td>
<td>65 or less</td>
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</tbody>
</table>
| LEED NC 2.2 / Homes   | New - EA Credit #1: 6 pts
Renovation - EA Credit #1: 8 pts | HERS Index: 65                  |
| LEED 2009 (in progress) | New - EA Credit #1: 7 pts
Renovation - EA Credit #1: 9 pts |                              |
| GBI Standard (in progress)\textsuperscript{17} | PATH A, 8.1.1.1: 150pts |                              |
| EECC Option\textsuperscript{18} (prescriptive path) | EC - 154            |                              |
| NBI Option\textsuperscript{19} (prescriptive path) | New - Core Performance w/ enhanced measures |                              |

Source: Architecture 2030
Disclosure Policies

U.S. Building Benchmarking and Disclosure Policies

Evolution of Policy

Architects & the Energy Code

Engagement Opportunities

Code Resources

a proud team of the
ARCHITECTS & THE ENERGY CODE
Architect Responsibilities in the Code Process

**CODE DEVELOPMENT**

- Support the ideals of design the goals of the profession, including the Architecture 2030 Commitment
- Ensure that needs of design professionals are considered
- Ensure that the codes are clearly written and easy to understand

**COMPLIANCE**

- Architects considered primarily responsible for code compliance
- Architects are obligated by their professional license to comply with all applicable codes
1. **Project Initiation and Design**
   **(Owner, Design Professional, and/or Contractor)**
   - **Owner Identifies a Need to Modify Its Building**
     - **Reasons**
       - Equipment failure
       - End of life replacement
       - Renovation (newly acquired, change in tenant, updating)
       - Energy efficiency upgrade
   - **Owner Procures Services of a Design Professional (DP) and (Sometimes) Contractor**
     - **Mechanisms**
       - RFQ/bid selection
       - Contract for design services
       - Purchase order
   - **Design Prepares Project Design**
     - **Scope**
       - Project plans
       - Design calculations as necessary
   - **Does the Project Require a Building Permit?**
     - **Yes**
     - **Energy Code Not Applicable**
     - **Energy Code Not Applicable (Other Code Requirements May Apply)**
     - **No**
   - **Is the Project Exempt from the Energy Code?**
     - **Yes**
     - **Energy Code Not Applicable (Other Code Requirements May Apply)**
     - **No**

2. **Permitting**
   **(Design Professional, Municipal Code Officials)**
   - **DP/Owner Representative Prepares Permit Application and Submits to Municipality Along with Plans**
   - **Municipal Building Department Receives Permit Application, Which Include Complete?**
     - **Yes**
     - **DP Makes Corrections**
     - **No**
   - **Municipal Building Department (and/or Designated 3rd Party Agency) Conducts Plan Review Complete?**
     - **Yes**
     - **DP Makes Corrections**
     - **No**

3. **Construction & Inspections**
   **(Design Professional, Contractor, Municipal Inspection Officials)**
   - **Construction Begins and DP (or Contractor) Requests Inspection**
   - **Inspection by Code Official OR 3rd Party Agency**
   - **Contractor Corrects Deficiencies; DP (or Contractor) Requests Re-Inspection**
   - **Does Work Pass Inspection?**
     - **Yes (Final Inspection)**
     - **No**
   - **Code Official Issues CO; Building Enters Service**
   - **Repeat Depending on Scope of Project**
     - Framing and sheathing inspections
     - Plumbing, mechanical, and electrical rough-ins
     - Insulation inspection
     - Plumbing, mechanical, and electrical finals

OVERCOMING THE BARRIERS
Challenges & Threats

- Architects are overburdened by the multitude of building codes
- Code compliance efforts are not valued by clients
- Disclosure policies will lead to increased accountability
- The growth of ESCO services could be a sign that design is being devalued
- ESCO’s could become competition for some architectural services
Opportunities & Recommendations

- **Become a leader** in the building code development process
- Use the energy code as a means to prove the value of design by directly attributing savings to design decisions
- **Apply your skills** to become more involved in the energy retrofit market
Compliance & Advocacy Support

- There are a number of organizations that offer resources for architects to implement energy codes more effectively and opportunities for architects to get involved to support energy codes.

- The OCEAN website serves as a hub for these organizations and individuals to explore energy code content or share relevant information.
Potential BCAP Initiatives

- Code Book Companion
- Integration of design tools and code compliance
- Student education and training
- Professional education and training
Thank You!

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