Iowa Residential Energy Code Compliance Pilot Study

- State of Iowa
50 new single family residential homes
Samples taken in two of Iowa’s climate zones
Hybrid home rule state – Statewide Energy code
Iowa Residential Energy Code Compliance Pilot Study

Methodology

- Plan Review & Inspection – Third Party
- DOE–BECP Residential Data Collection Checklists
- Random Sample Generator
- Store and Score Online Data Entry
- Final Report & Data Analysis
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Compliance Approach Breakdown

- Performance: 38%
- Prescriptive: 36%
- Trade-off: 26%
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IOWA ENERGY CODE COMPLIANCE RATES PER CLIMATE ZONE

Zone 6 Compliance Rate – 64.2%

Zone 5 Compliance Rate – 71.0%

Overall Compliance Rate – 70.1%
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- Compliance Rates

  - 70.1 Overall
  - Confirmation of many preconceived notions
  - Higher compliance in metro areas/ lower in rural
  - Many of the same deficient items found in 2003 study still existed
## Iowa Residential Energy Code Compliance Pilot Study

### Energy Code Compliance Percentages

<table>
<thead>
<tr>
<th>Energy Code Components</th>
<th>Percent of Homes Compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmable T-Stats</td>
<td>100</td>
</tr>
<tr>
<td>High Efficacy Lighting</td>
<td>95</td>
</tr>
<tr>
<td>Air Sealing</td>
<td>85</td>
</tr>
<tr>
<td>Duct Sealing</td>
<td>75</td>
</tr>
<tr>
<td>Exterior Wall Insulation</td>
<td>70</td>
</tr>
<tr>
<td>Doors Label</td>
<td>60</td>
</tr>
<tr>
<td>Window Labels</td>
<td>50</td>
</tr>
<tr>
<td>Attic Insulation</td>
<td>40</td>
</tr>
<tr>
<td>Exterior Basement Insulation</td>
<td>30</td>
</tr>
<tr>
<td>Interior Basement Insulation</td>
<td>25</td>
</tr>
<tr>
<td>Energy Code Certificate Posted</td>
<td>20</td>
</tr>
<tr>
<td>HVAC Load Calculations</td>
<td>15</td>
</tr>
<tr>
<td>Plans/ Energy Code Documentation</td>
<td>10</td>
</tr>
</tbody>
</table>

*The chart above visualizes the percentage of homes compliant with various energy efficiency measures as part of the Iowa Residential Energy Code Compliance Pilot Study.*
Top Deficiencies

- Documentation – Plans & Specifications
- HVAC Load Calculations – ACCA Manuals
- High Efficacy Lighting
- Posted Energy Code Certificate
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- Barriers of the Study
  - Jurisdictional Cooperation
  - Timeline
  - Random Sample Generator
  - Quality Assurance of Checklists
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Steps to 90% Compliance

- Many Cities will continue to use HERS raters to bridge gap in funding
- Education of Code Officials and Home Builders still needed
- Utility rebate programs for above code upgrades
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- Steps to Compliance already in action
  - Larger cities requiring the submittal of design documents and ACCA Manuals J and D
  - Committee of Building Officials, Energy Raters, and others discussing energy efficiency plans with the Iowa Utilities Board/Office of Consumer Advocate
  - Investor Owned Utility providing homebuilder training specifically on energy code and energy efficiency
  - State Building Code Bureau providing greater outreach to local building departments regarding energy code support
  - State Energy Code Inspections in Rural Areas
Thank You

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