Background

Energy Codes in Missouri
Background

- MEEA managed a statewide residential energy code baseline study funded by Missouri Division of Energy
- Baseline study surveyed residential construction practices (2016) relative to the energy code
- Six key opportunities for improved compliance were identified
### Findings from Study

#### Potential Measure Level Savings

<table>
<thead>
<tr>
<th>Measure</th>
<th>Electricity Savings (kWh at meter)</th>
<th>Natural Gas Savings (therms)</th>
<th>Energy Savings (MMBtu)</th>
<th>Electricity Savings</th>
<th>Natural Gas Savings (dollars)</th>
<th>Energy Cost Savings (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement Wall Insulation</td>
<td>732,822</td>
<td>847,765</td>
<td>87,277</td>
<td>$89,990</td>
<td>$971,746</td>
<td>$1,061,737</td>
</tr>
<tr>
<td>Duct Leakage</td>
<td>3,706,493</td>
<td>400,964</td>
<td>52,743</td>
<td>$455,157</td>
<td>$459,603</td>
<td>$914,760</td>
</tr>
<tr>
<td>Lighting Efficacy</td>
<td>4,830,095</td>
<td>-64,040</td>
<td>10,076</td>
<td>$593,136</td>
<td>$-73,405</td>
<td>$519,731</td>
</tr>
<tr>
<td>Wall Insulation</td>
<td>1,624,312</td>
<td>203,688</td>
<td>25,911</td>
<td>$199,466</td>
<td>$233,476</td>
<td>$432,942</td>
</tr>
<tr>
<td>Window U-Factor</td>
<td>329,806</td>
<td>75,268</td>
<td>8,652</td>
<td>$40,500</td>
<td>$86,276</td>
<td>$126,776</td>
</tr>
<tr>
<td>Ceiling Insulation</td>
<td>222,191</td>
<td>21,867</td>
<td>2,945</td>
<td>$27,285</td>
<td>$25,065</td>
<td>$52,351</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11,445,719</td>
<td>1,485,512</td>
<td>187,604</td>
<td>$1,405,534</td>
<td>$1,702,761</td>
<td>$3,108,297</td>
</tr>
</tbody>
</table>
Findings from Study
AC was waay oversized
A Support Program was Born

Ameren Missouri

Residential Energy Code Support Program

Home is where the heart is, but it's also where several energy-saving opportunities can be found! The Code Support Program from Ameren Missouri provides home builders, code officials and other industry professionals with trainings, educational materials and resources designed to ensure quality, energy-efficient home design and construction.

Register for Upcoming Trainings

Why Participate?
Overview of Program

How do we address non-compliance?

• Code Compliance Collaborative
  – Opportunity for residential construction professionals to discuss opportunities and barriers to energy code compliance

• In-Field Code Consultant
  – Proactively engages building industry to educate, investigate and improve energy code understanding in a small group or 1-on-1 setting

• In-Person Classroom Training
  – Full day training focused on the what, why and how of the residential energy code

• Resources
  – Key educational resources and handouts were developed
Code Collaborative

• 3 meetings in 2019
• In-person and virtual
• Opportunity to spread the word
• Gather feedback to feed the program
• Identify areas of concern
Energy Code Consultant
Locations Visited

City
- Affton
- Arnold
- Brentwood
- Camdenton
- Crestwood
- Creve Coeur
- Crystal City
- Eldon
- Fenton
- Jefferson City
- Kirkwood
- Linn
- Maryland Heights
- Owensville
- Richmond Heights
- Rock Hill
- Rolla
- Sikeston
- St. James
- St. Louis
- St. Paul
- Sunset Hills
- Town and Country
- Union
- Wildwood

# Customers

- 1
- 20
- 40
- 60
- 86

MEEA
Midwest Energy Efficiency Alliance
Energy Code Consultant
People and Professionals

Profession
- Architect
- Code Official
- Construction Trade
- Education
- Energy Rater
- Lender
- Manufacturing/Supply House
- Non Profit
- Real Estate
- State Gov.

412 Professionals
• Unplanned opportunity for 1-hour training
  – City of St. Louis – update to 2018 IECC
    • Inspectors requested training
    • Developed key points to prime for longer training

• Word got out
  – Requests from code official groups, supply houses, building and design firms and others
In-Person Training

• Held 4 trainings in 2019
• Focused on building science – the “why” behind the code
• Local HBA, Code Officials and Architects were big supporters
• Timing is key to success
ENSURING QUALITY CONSTRUCTION BY

City of St. Louis, Missouri Professionals

The City of St. Louis has adopted an amended version of the 2018 International Energy Conservation Code (2018 IEC) as the baseline code for residential buildings in the city. You can use the checklist below to verify key residential code requirements that are easy to identify.

While this checklist doesn’t include every requirement, it serves as a helpful guide for professionals as they seek or verify compliance with the local residential energy code in the field. Please refer to your local published energy code for complete documentation of all requirements and consult your local code official for questions and clarification. In Missouri, building energy codes are adopted at the local level, so these requirements may not apply to all jurisdictions in the state.

Mandatory Requirements:

Energy Certificate
- Energy certificate located on circuit breaker box is completed and signed

Air Sealing
- All holes between floors and through exterior walls/ceilings have been sealed with caulk or foam, in accordance with Table 402.4.1.1.
- Air leakage rate tested and verified to be ≤3 ACH50

Mechanical Ventilation
- Installed according to requirements in the 2018 International Residential Code or International Mechanical Code

Windows & Doors
- Windows, skylights and sliding glass doors infiltration rate ≤ 0.3 cfm/ft²
- Swinging doors infiltration rate ≤ 0.5 cfm/ft²

Other Requirements

The first criteria when determining an insulation installation’s grade is measuring any missing insulation.

(Diagrams based on Home Energy Rating System Standards)
Motivating Utility Factors

Big impacts, but why?

- Energy and Demand Savings
- Cross promoting other programs
- Flexibility to respond to customer needs
- Engage non-typical EE customer base
- Good will program
- Gather feedback from collaborative
- Program opens door for other opportunities
Changes for 2020?

- Real Estate and Appraiser Training
  - Great interest from collaborative
- New training curriculum based on feedback
  - 2018 IECC
  - Code and existing buildings
- Expanded informal 1-hour training
- Supply house integration
Lessons Learned

- Networks are key
- Find local champions
- Let the Collaborative be your guide
- Be flexible and adapt
- Hire a Matt Belcher clone
Thank you!

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