What Congress Can Do To Support Better Buildings

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Vice-President, Innovation
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What are Model Codes?

• Developed through a consensus-based process on a three year cycle
• All interested parties can make recommended changes
• Basis for state and local building codes and criteria for federal agencies (GSA, DOD, HUD, OBO, etc.).
The Family of Model Codes

- International Building Code (IBC)
- International Fire Code (IFC)
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Residential Code (IRC)
- International Energy Conservation Code (IECC)
- International Existing Building Code (IEBC)
- International Fuel Gas Code (IFGC)
- International Property Maintenance Code (IPMC)
- International Private Sewage Disposal Code (IPSDC)
- International Zoning Code (IZC)
- International Wildland-Urban Interface Code (IWUIC)
- ICC Performance Code (ICCPC)
- International Green Construction Code (IgCC)
- International Swimming Pool and Spa Code (ISPSC)
Carbon monoxide is killing public housing residents, but HUD doesn't require detectors

Residents of a South Carolina public housing complex are demanding answers after two of their neighbors died from the gas.

Requires installation of CO detection in residential structures

Retroactive installation of CO detection for existing residential structures
Modern building codes require storm shelters for schools in tornado prone regions. Yet of the 21 states that regularly face tornado risk, just 7 have requirements in their codes for tornado shelters in schools.
Additional Items Captured in Recent Codes

**2015 International Building Code**
- Storm Shelters
- Solar Panels
- Seismic Resistance

**2018 International Building Code**
- Structural Improvements
- Wind/Earthquake Loads
Energy Code Contributions to Resilience

**Durability**
Durability ensures home is livable for decades

**Moisture Management**
Rot, mold, mildew

**Works in Tandem with Other Model Codes**

**Extreme Weather Protection**
Better envelopes Habitability – more lives saved

**Energy Efficiency**
Grid Stability Microgrids Energy Storage

**Fire Safety**
Modern Codes Mitigate Damage

- $500M in annualized losses avoided across 8 SE states per FEMA
- Reduced windstorm losses by 72% since Florida’s statewide code
- Reduced hail damage 12-28% in Missouri
Building Codes are Highly Cost Effective Mitigation Measures

<table>
<thead>
<tr>
<th>Peril</th>
<th>National Benefit-Cost Ratio Per Peril</th>
<th>Exceed common code requirements</th>
<th>Meet common code requirements</th>
<th>Utilities and transportation</th>
<th>Federally funded</th>
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<tbody>
<tr>
<td></td>
<td>Overall Hazard Benefit-Cost Ratio 4:1</td>
<td>11:1</td>
<td>4:1</td>
<td>6:1</td>
<td>6:1</td>
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<tr>
<td>Riverine Flood</td>
<td>5:1</td>
<td>6:1</td>
<td>8:1</td>
<td>7:1</td>
<td></td>
</tr>
<tr>
<td>Hurricane Surge</td>
<td>7:1</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Too few grants</td>
<td></td>
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<tr>
<td>Wind</td>
<td>5:1</td>
<td>10:1</td>
<td>7:1</td>
<td>5:1</td>
<td></td>
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<tr>
<td>Earthquake</td>
<td>4:1</td>
<td>12:1</td>
<td>3:1</td>
<td>3:1</td>
<td></td>
</tr>
<tr>
<td>Wildland-Urban Interface Fire</td>
<td>4:1</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>3:1</td>
<td></td>
</tr>
</tbody>
</table>
Total Costs and Benefits of Meeting the 2018 IBC and IRC

**Benefit: $13 billion**
- 46% – Property: $7
- 23% – Additional living expenses and direct business interruption: $3
- 12% – Casualties and PTSD: $1
- 12% – Indirect business interruption: $1
- 6% – Insurance: $1
- 1% – Urban search and rescue: $0.02

Billions 2018 USD

**Cost: $1.2 billion**
Code Adoption Considerations

• Codes adopted
  – Statewide, variants, home rule
  – Amendments
  – Editions
• Legislative vs. regulatory updates
• Enforcement
Federal Validation

• **Existing Regulatory Validation**
  – FEMA’s strategic plan/minimum standards
  – HUD CDBG-DR
  – GSA/DOD code requirements
  – CPSC grants

• **Congressional Validation**
  – Bipartisan Budget Act cost-share
  – DRRA pre- and post-disaster assistance for administration and enforcement
  – Pre-disaster grant funding criteria
The federal government will spend billions (if not trillions) of dollars on infrastructure including schools, public housing, transit stations, bus terminals, airports, medical facilities, and community centers. In many instances, these structures will be built to the codes in place at the local level.

→ All projects receiving federal funds should be built to the latest edition of the model codes

- 15 states do not require jurisdictions adopt codes. In some of these states upwards of 25% of the residents live in communities with codes 9 years or older
- 8 states have no statewide energy conservation code and 11 have codes over 9 years old. Modern codes are ~25% more efficient than those in 2010.
FEMA found that requiring building codes as part of the National Flood Insurance Program would reduce losses, increase property values, reduce insurance rates, make NFIP more actuarially sound.

→ Include minimum code requirements in NFIP reauthorization

Federal agencies make significant contributions to code development and adoptions in the form of R&D, technical assistance and grants.

→ Provide appropriate funding for DOE BTO ($268 million) and NIST ($652.7 million for Scientific and Technical Research Services and $150 for construction)
May is Building Safety Month

- Annual public awareness campaign in its 39th year
- Proclamations from all levels of government
- Shared amplification
- Reception 5/22 5-730pm @LiUNA
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