Codes & Standards Policy

2. **FEMA Required Minimum Codes and Standards**

If the building is eligible for repair, replacement, or is being constructed as an improved or alternate project, FEMA generally requires that the Applicant incorporate the natural hazard-resistant codes and standards and related provisions referenced in the most recent published edition of the International Code Council’s (ICC) International Building Code (IBC), International Existing Building Code (IEBC), or International Residential Code (IRC) into the building design and construction. This includes natural hazard-resistant provisions, such as tornado, wind, seismic, and flood as identified in the IBC, IEBC, or IRC regardless of the type of incident that caused the damage. In accordance with these codes and standards, the Risk Category of the eligible building determines the applicable tornado, wind, seismic, flood, snow, ice, and rain loads. FEMA provides PA funding for the eligible increased cost associated with meeting these codes and standards at the cost-share for the disaster.

Generally, the IBC, IEBC, or IRC apply when a building:

- Is substantially damaged;
- Suffered substantial structural damage; or
- Is eligible for replacement in accordance with 44 CFR part 206.226(f).

The determination of whether a code or standard is triggered may be made by:

- A building official or inspector;
- The Recipient’s or Applicant’s registered design professional; or
- Other appropriate and qualified individual.
Post-Disaster Building Code Support

- Code Adoption Support in the USVI and PR
  - Assisting with the adoption of 2018 IBC/IRC
  - Supported code change proposals and local amendments that accounts for the unique conditions
- Provided model code-coordinated flood ordinances
- Training and outreach
- Consistency with FEMA Recovery Programs
Post-Disaster Building Code Support

- Code Enforcement Support in USVI and PR
  - Direct support for permitting departments
  - Prescriptive design guides for residential structures
  - Microzoning maps
  - Training
Post-Disaster Building Code Support

- Code Enforcement Support
  - Emergency Management Assistance Compact (EMAC) permit officials
  - Hazard Mitigation Grant Program (HMGP) Post-Disaster Code Adoption and Enforcement Mission
  - MAT and other PTS Support
**Houston, TX: A Case for Higher Standards**

<table>
<thead>
<tr>
<th>Construction Date</th>
<th># of homes</th>
<th>Average Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre 1981 (No NFIP)</td>
<td>365</td>
<td>$175,028</td>
</tr>
<tr>
<td>Post 1981 (NFIP)</td>
<td>308</td>
<td>$86,870 (50% reduction)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction Date</th>
<th># of homes</th>
<th>Average Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre 2000 (no freeboard)</td>
<td>454</td>
<td>$175,187</td>
</tr>
<tr>
<td>Post 2000 (1’ of freeboard)</td>
<td>219</td>
<td>$50,715 (71% reduction)</td>
</tr>
</tbody>
</table>
## Houston, TX: A Case for Higher Standards

<table>
<thead>
<tr>
<th>RULES</th>
<th>EXISTING</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REGULATED AREA</strong></td>
<td>100-year</td>
<td>100 + 500-year</td>
</tr>
<tr>
<td><strong>ELEVATION</strong></td>
<td>100-year + 1 foot</td>
<td>500-year + 2 feet</td>
</tr>
<tr>
<td><strong>ZERO NET FILL</strong></td>
<td>100-year</td>
<td>100 + 500-year</td>
</tr>
<tr>
<td><strong>SUBSTANTIAL IMPROVEMENTS</strong></td>
<td>100-year</td>
<td>100-year</td>
</tr>
<tr>
<td><strong>ELEVATION OF ADDITIONS</strong></td>
<td>100-year + 1 foot</td>
<td>500-year + 2 feet (exemption for small additions in 500-year)</td>
</tr>
<tr>
<td><strong>FOUNDATION</strong></td>
<td>All types permitted outside floodway</td>
<td>All types permitted outside floodway</td>
</tr>
</tbody>
</table>
The Evolution of Mitigation in FL

https://www.fema.gov/media-library/assets/videos/153336
Mitigation Assessment Teams

- Hurricane Harvey, Irma, & Maria MATs
  - USVI, PR, TX, and FL
  - 16 Recovery Advisories
  - Drafting MAT reports
  - Providing Technical Assistance and Training

- To stay updated, subscribe to Gov Delivery, topic categories: MAT and Building Science Updates

Codes and Standards Tools

- Updated resources from FEMA Building Science Resources for the 2018 I-Codes
  - Summary of Changes to Flood Provisions
  - Flood Code Master
  - Reducing Flood Losses through the I Codes
  - Training Material

https://www.fema.gov/building-code-resources
Codes and Standards Engagement

- ASCE 24 development:
  - ASCE 24-20 Committee established in 2017
  - FEMA BSB and ASFPM are represented on the committee
  - First ballot complete, anticipate next ballot to open this summer
    - FEMA submitted over 40 items on the first ballot
Codes and Standards Tracking

- Building Code Adoption Tracking (BCATS), 2nd Quarter 2018:
  - Flood 71% (Shown on Map), Hurricane 74%, Earthquake 83%, Multi-Hazard 67%
  - 15,200 communities with freeboard requirements
ASTM Flood Resistant Material Standard

- **E3075 - Standard Test Method for Water immersion and Drying for Evaluation of Flood Damage Resistance (Dec 2016)**—establishes procedures

- **Standard Practice** for Determining the Flood Damage Resistance Rating of Materials and Assemblies—includes valuation criteria

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- **Dec. 2016** - Test Method published by ASTM (E3075)
- **April 2017** - Discussed Standard of Practice at Committee Week
- **Feb. 2018** - Standard Practice due date for subcommittee balloting review
- **April 2018** - Standard Practice reviewed at Committee Week
- **October 2019** - Standard Practice adopted by reference into the I-Codes.
National Building Code Losses Avoided Study

• Relative impact to States for adopting model building code
  • What might it save us nationally?
  • FEMA previously completed Regional pilot – now combining and analyzing ALL the states

• Risk
  • Actual building stock
  • Hazard
  • Impact or Consequence
  • Building code adoption and enforcement

• Estimate annual losses avoided
Technical Bulletins

• Updated Technical Bulletins will be released in 2018 and 2019.

• Anticipate releasing updated TBs 1, 4, 5, and 8 first

• Anticipate releasing the remaining TBs in 2019

• Coordinating with Floodplain Management, Insurance, and other stakeholders

https://www.fema.gov/nfip-technical-bulletins
Education & Outreach

• EMI Curriculum
• Building Science Helpline
• Workshops and Conferences
• Building Safety Month
Risk Management Directorate, Building Science Branch

www.fema.gov/building-science/
FEMA-BuildingScienceHelp@fema.dhs.gov
(866) 927-2104