



### What are the NFIP Technical Bulletins?

FEMA Technical Bulletins (TBs) provide guidance for complying with the minimum National Flood Insurance Program's (NFIP) floodplain management requirements pertaining to building performance. Eleven Bulletins, covering a range of topics, were released from 1993 to 2010. The Bulletins are primarily for use by state and local officials responsible for interpreting and enforcing building codes and NFIP regulations. They are also helpful to design professionals, builders, and homeowners.

### How are the NFIP Technical Bulletins changing?

The Bulletins are changing to modernize and streamline their content and presentation. The updated TBs will:

- incorporate relevant information from the latest International Codes® (I-Codes®) and American Society of Civil Engineers (ASCE) Standards,
- provide updated guidance and best practices observed from post-disaster assessments, and
- address known issues identified by a wide range of stakeholders.

These changes are intended to improve the TBs' usability, credibility, and content while presenting them in a streamlined format.

Overarching additions will include new introductory text, updated tables, figures, photos and references along with a section on applicable codes and standards. All updated TBs will have tables comparing codes/standards to the NFIP regulations. The 2018 I-Codes and ASCE 24-14 are used as the base codes and standards with the changes from the 2015 and 2012 I-Codes and ASCE 24-05 referenced. Incorporating information and references from the most recent consensus codes and standards keep the Technical Bulletins current and aligned with the field's latest concepts and advances.

In recognition of the variety of users of these valuable documents, the TB update process is managed by FEMA Building Science, in coordination with Floodplain Management and Risk Insurance with input from numerous stakeholders. Stakeholders include: FEMA Headquarters, FEMA Regional staff, NFIP State Coordinators, community floodplain management officials, Association of State Floodplain Managers (ASFPM) representatives, subject matter experts, and industry partners.

In 2019, FEMA plans to release the first group of updated TBs. These TBs and a description of their pending updates are described below.

### TB 0, *User's Guide to Technical Bulletins*



TB 0 describes the purpose and intended use of the Technical Bulletin series', includes common concepts and terms, lists useful resources and contains a subject index.

*New features in TB 0 will include:*

- Sections on how to use the TBs;
- A crosswalk between the NFIP Regulations and TBs;
- A compilation of key terms, useful resources, and supplemental information from succeeding TBs;
- Discussion on four key concepts and requirements for structures: Special Flood Hazard Areas, lowest floor/enclosure/basement, Substantial Improvement/Substantial Damage and coastal waves.

### TB 1, *Openings in Foundation Walls and Walls of Enclosures Below Elevated Buildings in Special Flood Hazard Areas*



TB 1 explains the NFIP requirements for openings on exterior walls and walls of enclosures below elevated buildings. Flood openings equalize flood forces by allowing the entry and exit of floodwaters.

In addition to illustrating enclosures that require openings and those that do not, TB 1 covers the requirements and guidance for installation of openings. This includes two options for satisfying the requirements, referred to as engineered openings and non-engineered openings.

*Updates to TB 1 include guidance for flood opening requirements in:*

- Unique configurations such as sloping sites, multiple enclosed areas, large enclosed areas and sites with shallow flooding;
- Above-grade (elevated) enclosed areas;
- Two-level enclosed areas.

The TB 1 update will also include an expanded discussion on completing the FEMA Elevation Certificate (EC) and the documentation required for certification of engineered openings.

### **TB 4, Elevators in Buildings Located in Special Flood Hazard Areas**



TB 4 discusses the NFIP requirements for elevator machinery and equipment that serve buildings and provides guidance on the installation of elevators in special flood hazard areas. Elevator types and their associated equipment are described, along with practical methods of protecting elevators from flood damage.

The updated TB 4 will include:

- Expanded discussion on the primary types of elevators and other conveyance mechanisms used in residential and commercial buildings, hydraulic elevators and traction elevators, pneumatic elevators, chair lifts, and platform lifts;
- Clarification of the definition of “basement” as it relates to the construction of elevator pits;
- Tables summarizing elevator system components, their physical location, and recommended flood protection techniques.

### **TB 5, Free of Obstruction Requirements for Buildings Located in Coastal High Hazard Areas**



TB 5 provides guidance on the NFIP's free-of-obstruction requirements in Coastal High Hazard Areas (Zone V) as well as general requirements for construction that minimizes flood damage potential in Zone V. TB 5 discusses methods for avoiding potential building and site obstructions that could divert or obstruct floodwater and waves below elevated buildings and impose additional flood loads on foundation systems or adjacent buildings.

Updates to TB 5 include:

- Clarification of the requirements for certification in Zone V;
- Expanded discussion for below BFE building elements such as access stairs and ramps, decks and patios, enclosed areas, foundation bracing and percent open area for lattice and louvers;
- Expanded discussion on site development practices such as accessory storage structures, detached garages, fences and privacy walls, the use of fill, swimming pools and spas, erosion control structures and others;
- New guidance on above grade enclosures, two-level enclosures, and detached garages.

### **TB 8, Corrosion Protection for Metal Connectors and Fasteners in Coastal Areas**



TB 8 provides guidance on the NFIP requirement for maintaining a building's load paths. It also provides readers with an understanding of the importance of connectors and fasteners with proper corrosion protection in coastal areas.

New features in TB 8 will include guidance for:

- How to select an appropriate connector and fastener material based on its intended location on the building;
- How preservative treated wood can impact corrosion protection and a sample wood product identification tag;
- Expanded descriptions of connector and fastener materials, corrosion protection coatings and maintenance, including inspection and scheduled replacement;
- Guidance for the selection of connectors and fasteners with various corrosion resistant materials and treatments and how combining dissimilar metals can cause premature corrosion.

**Access the current Technical Bulletins and stay updated by visiting our website at [www.fema.gov/nfip-technical-bulletins](http://www.fema.gov/nfip-technical-bulletins).**