FEMA Building Science Resources to Assist with Reconstruction after Hurricane Sandy

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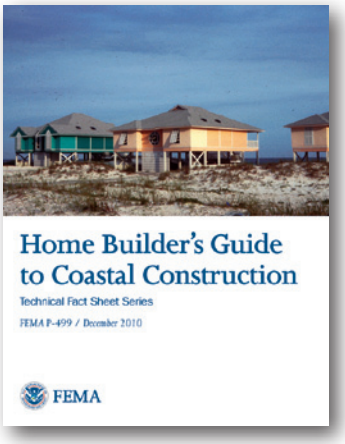
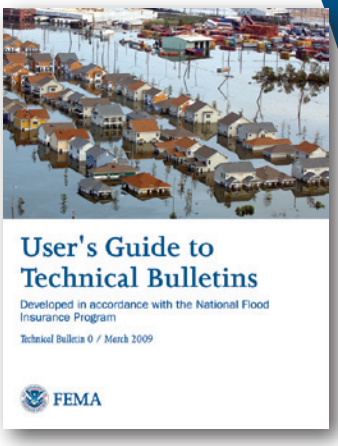
FEMA has produced numerous publications detailing best practices for natural hazard mitigation associated with hurricane impacts. This flyer summarizes a few of the readily available publications and resources that can be used by homeowners during reconstruction following Hurricane Sandy.

Recovery Advisories

After major disasters, FEMA's Mitigation Assessment Teams (MATs) often conduct forensic investigations of building performance and publish the results in various publications. One subset of these publications is Recovery Advisories, which present guidance on design, construction, and restoration of buildings in areas subject to the effects of the particular disaster. MATs have published Recovery Advisories for Hurricanes Charley, Ivan, Katrina and Ike. Some of the titles are *Initial Restoration for Flooded Buildings*, *The ABC's of Returning to Flooded Buildings*, *Designing for Flood Levels Above the BFE*, *Siding Installation in High-Wind Regions,* and *Asphalt Shingle Roofing for High-Wind Regions.* All Recovery Advisories are available at http://www.fema.gov/fema-mitigation-assessment-team-reports#2.



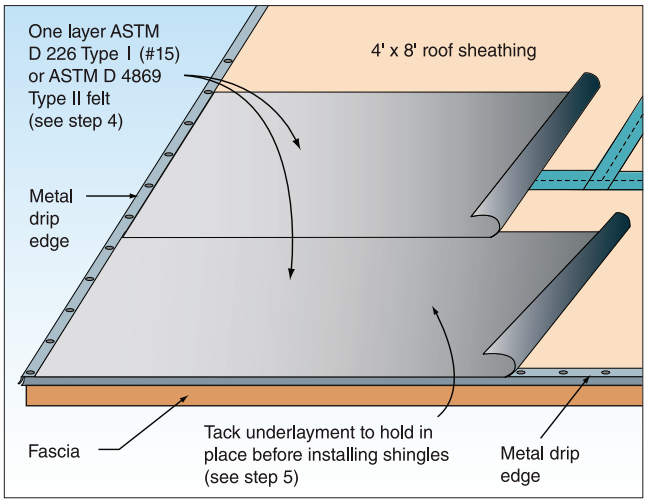


Technical Bulletins

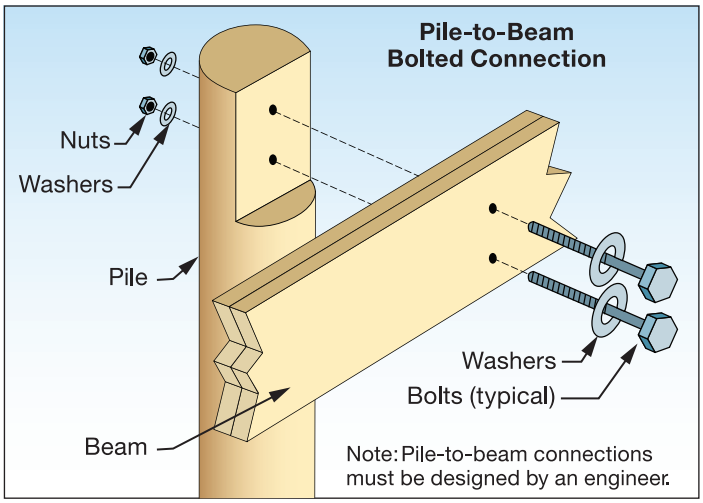
Technical Bulletins provide guidance on complying with the minimum building performance requirements of the National Flood Insurance Program (NFIP). NFIP regulations are contained in Title 44 of the Code of Federal Regulations Section 60.3. FEMA has published 11 Technical Bulletins, and titles include *Openings in Foundation Walls and Walls of Enclosures, Non-Residential Floodproofing Requirements,* and *Certifications to Free-of-Obstruction Requirements.* All Technical Bulletins are available at http://www.fema.gov/national-flood-insurance-program-2/nfip-technical-bulletins.

FEMA P-499, *Home Builder's Guide to Coastal Construction Fact Sheets,*

provides technical guidance on constructing residential buildings in coastal environments. The information is aimed at improving building performance in coastal areas that are subject to flood and wind forces. The 37 fact sheets contain information on planning, foundations, load paths, wall systems, openings, roofing, attachments, and repairs. FEMA P-499 is available at http://www.fema.gov/library/viewRecord.do?id=2138.

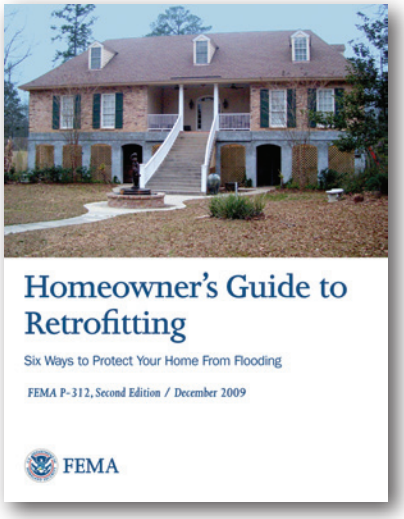


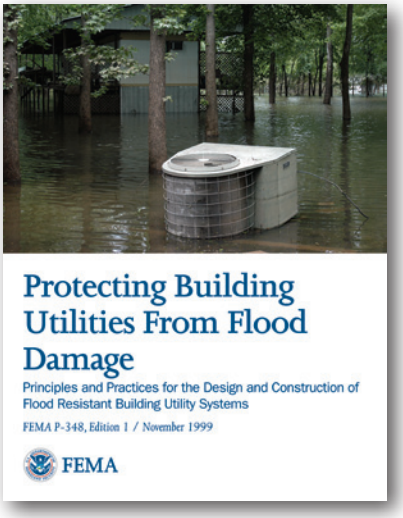
(Source: FEMA 499, Fact Sheet 7.2, Figure 3)



(Source: FEMA 499, Fact Sheet 3.3, Figure 1)

FEMA P-312, *Homeowner's Guide to Retrofitting: Six Ways to Protect Your Home from Flooding,* is a guide for homeowners who want to know how to protect their homes from flooding. The guide provides clear information and straightforward guidance about flood mitigation options. Floodproofing methods are explained, including how they meet particular needs. The guide is written for people with little or no experience in flood protection or construction. FEMA P-312 is available at http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=1420.

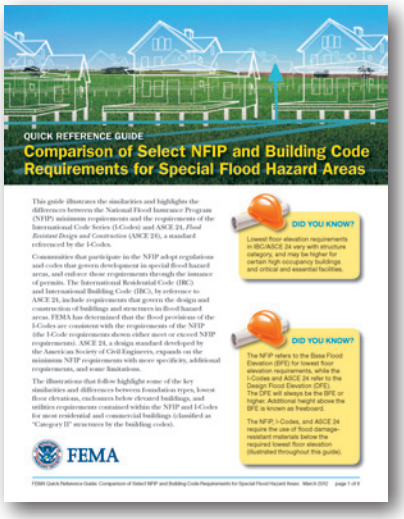




FEMA P-348, *Protecting Building Utilities from Flood Damage,* contains the design and construction requirements for utility systems in residential and non-residential structures in flood-prone areas that must be met to comply with NFIP floodplain management requirements. The publication provides guidance on designing and constructing building utility systems so that the buildings are fully operational and can be re-occupied as soon as electricity, sewer, and water have been restored. FEMA P-348 is available at http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=1750.

Other Resources

FEMA's Building Science Branch has produced numerous publications on the impacts of hurricanes. The list of publications is available in the *Catalog of FEMA Wind, Flood, and Wildfire Publications, Training Courses, and Workshops.* The Building Science Branch website (http://www.fema.gov/building-science) has links to additional resources for homeowners, local and government officials, engineers, and designers. Notable resources are the Substantial Damage Estimator software, *Protecting Your Property or Business from Flooding,* and *Protecting Your Property or Business from High Winds,* (http://www.fema.gov/protect-your-property-or-business-disaster) and FEMA's new *Quick Reference Guide: Comparison of Select NFIP and Building Code Requirements for Special Flood Hazard Areas.* This guide highlights the similarities and the differences between NFIP minimum requirements and the requirements of the International Codes and American Society of Civil Engineers. These resources are available through the FEMA Library at http://www.fema.gov/library. FEMA also has building code resources that include *Flood Resistant Provisions of the 2012 International Code Series, Highlights of ASCE 24-05 Flood Resistant Design and Construction,* and *Reducing Flood Losses Through International Codes.* The FEMA building code resources can be found at http://www.fema.gov/building-science/building-code-resources.



For more information, see the FEMA Building Science Frequently Asked Questions website at http://www.fema.gov/frequently-asked-questions-building-science.

If you have any additional questions on FEMA Building Science Publications, contact the helpline at FEMA-Buildingsciencehelp@fema.dhs.gov or 866-927-2104.

You may also subscribe to the FEMA Building Science e-mail list serve, which is updated with publication releases and FEMA Building Science activities. Subscribe at https://public.govdelivery.com/accounts/USDHSFEMA/subscriber/new?topic_id=USDHSFEMA_193

Visit the Building Science Branch of the Risk Reduction Division at FEMA's Federal Insurance and Mitigation Administration at http://www.fema.gov/building-science.

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