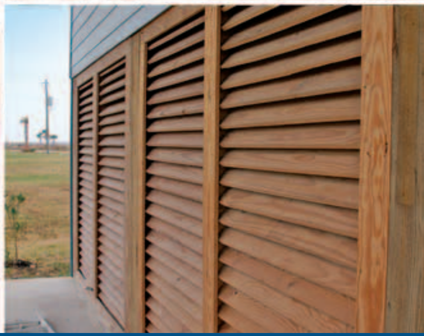

Coastal Construction Manual

Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas (Fourth Edition)

FEMA P-55 / Volume II / August 2011

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Preface

The 2011 *Coastal Construction Manual*, Fourth Edition (FEMA P-55), is a two-volume publication that provides a comprehensive approach to planning, siting, designing, constructing, and maintaining homes in the coastal environment. Volume I of the *Coastal Construction Manual* provides information about hazard identification, siting decisions, regulatory requirements, economic implications, and risk management. The primary audience for Volume I is design professionals, officials, and those involved in the decision-making process.

Volume II contains in-depth descriptions of design, construction, and maintenance practices that, when followed, will increase the durability of residential buildings in the harsh coastal environment and reduce economic losses associated with coastal natural disasters**.** The primary audience for Volume II is the design professional who is familiar with building codes and standards and has a basic understanding of engineering principles.

Volume II is not a standalone reference for designing homes in the coastal environment. The designer should have access to and be familiar with the building codes and standards that are discussed in Volume II and listed in the reference section at the end of each chapter. The designer should also have access to the building codes and standards that have been adopted by the local jurisdiction if they differ from the standards and codes that are cited in Volume II. If the local jurisdiction having authority has not adopted a building code, the most recent code should be used. Engineering judgment is sometimes necessary, but designers should not make decisions that will result in a design that does not meet locally adopted building codes.

The topics that are covered in Volume II are as follows:

- **Chapter 7 –** Introduction to the design process, minimum design requirements, losses from natural hazards in coastal areas, cost and insurance implications of design and construction decisions, sustainable design, and inspections.

- **Chapter 8 –** Site-specific loads, including from snow, flooding, tsunamis, high winds, tornadoes, seismic events, and combinations of loads. Example problems are provided to illustrate the application of design load provisions of ASCE 7-10, *Minimum Design Loads for Buildings and Other Structures*.
- **Chapter 9 –** Load paths, structural connections, structural failure modes, breakaway walls, building materials, and appurtenances.
- **Chapter 10 –** Foundations, including design criteria, requirements and recommendations, style selection (e.g., open, closed), pile capacity in soil, and installation.
- **Chapter 11 –** Building envelope, including floors in elevated buildings, exterior doors, windows and skylights, non-loading-bearing walls, exterior wall coverings, soffits, roof systems, and attic vents.
- **Chapter 12 –** Installing mechanical equipment and utilities.
- **Chapter 13 –** Construction, including the foundation, structural frame, and building envelope. Common construction mistakes, material selection and durability, and techniques for improving resistance to decay and corrosion are also discussed.
- **Chapter 14 –** Maintenance of new and existing buildings, including preventing damage from corrosion, moisture, weathering, and termites; building elements that require frequent maintenance; and hazard-specific maintenance techniques.
- **Chapter 15 –** Evaluating existing buildings for the need for and feasibility of retrofitting for wildfire, seismic, flood, and wind hazards and implementing the retrofitting. Wind retrofit packages that can be implemented during routine maintenance are also discussed (e.g., replacing roof shingles).

For additional information on residential coastal construction, see the FEMA Residential Coastal Construction Web site at http://www.fema.gov/rebuild/mat/fema55.shtm.

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