

FLOODPROOFING NON-RESIDENTIAL STRUCTURES



Federal Emergency Management Agency



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Photographs

Sources for photographs included:

- Federal Emergency Management Agency, Washington, D.C.
- U.S. Army Corps of Engineers, Louisville District, Louisville, Kentucky
- U.S. Army Corps of Engineers, Lower Mississippi Valley Division, Vicksburg, Mississippi
- U.S. Department of Housing and Urban Development
- U.S. Water Resources Council

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SUMMARY

A. OBJECTIVE

This manual has been developed to illustrate a broad range of floodproofing techniques that can be used to reduce flood damages to existing or proposed non-residential structures. The manual is primarily directed at local officials, building owners, designers, contractors and other individuals or organizations that are interested in the design and implementation of floodproofing plans.

B. FORMAT

The manual includes six chapters and several appendices. Chapter I introduces the user to the permanent, contingent, and emergency floodproofing techniques that will be addressed in this manual. Chapter II describes the major physical, economic, and social factors that influence the feasibility of floodproofing a structure, and related sources of information and technical assistance. Chapters III and IV provide more detailed information that will facilitate the selection and conceptual design of appropriate floodproofing methods. Representative costs of the various elements of floodproofing are presented in Chapter V. Chapter VI contains several floodproofing case histories. These case histories have been included to provide information on floodproofing plans that are currently in use, and the conditions for which they were designed. Several appendices have also been included in the manual to provide a variety of supplemental information.

C. LIMITATIONS

Only riverine flooding and flooding in non-wave velocity coastal areas are addressed in this manual. Consideration is given to flood characteristics including depth, velocity, and rate-of-rise, and their effects on the various floodproofing techniques. Coastal flooding forces and phenomenon such as wave generated impacts or erosion are not addressed in this manual. The information presented in this manual has been developed specifically to reduce flooding problems associated with non-residential (industrial, commercial, and institutional) structures.

These structures range from small, wood-frame construction, similar to a typical residence, to multi-story concrete and steel structures. Much of the information regarding design criteria, the properties of materials, the values of flood water design forces, and other considerations have been adopted from standard engineering references, building codes, and other documents. Specific case studies (see Chapter VI) were investigated for the purpose of refining and supplementing data presented in prior reports. This manual is intended to serve as a general technical guide on the selection of alternative floodproofing techniques. It must be emphasized that the actual design and construction of the various techniques should involve the services of a registered professional engineer or architect or experienced contractor.

