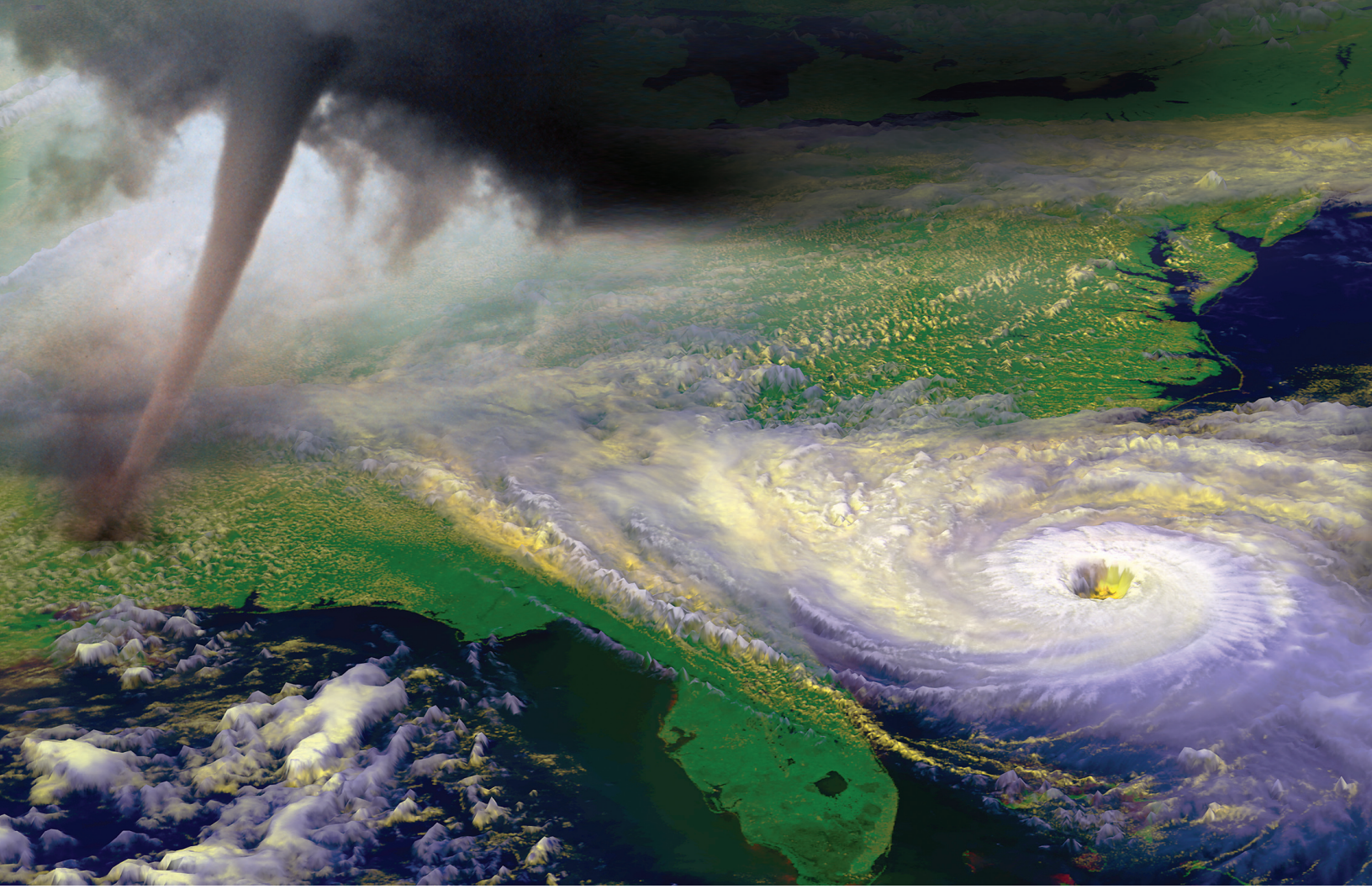

Design and Construction Guidance for Community Safe Rooms

FEMA P-361, Second Edition / August 2008

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Preface

Federal Emergency Management Agency (FEMA) publications presenting design and construction guidance for both residential and community safe rooms have been available since 1998. Since that time, thousands of safe rooms have been built using FEMA's Hazard Mitigation Assistance Program. A growing number of these safe rooms have already saved lives in actual events. There has not been a single reported failure of a safe room constructed to FEMA criteria. This Second Edition of FEMA 361 presents updated and refined design criteria for safe rooms when compared to the First Edition's 2000 criteria. The changes to the design criteria are the result of post-disaster investigations into the performance of safe rooms and shelters after tornadoes and hurricanes. Further, the changes also consider the new consensus standard from the International Code Council® (ICC®) and the National Storm Shelter Association (NSSA) released in August 2008, the *ICC/NSSA Standard for the Design and Construction of Storm Shelters* (ICC-500). The criteria presented in this publication address how to design and construct a safe room that provides near-absolute protection for groups of individuals sent to a building or structure expecting it to be capable of providing them life-safety protection from wind, windborne debris, and flooding.

FEMA continues to support the development of consensus codes and standards that provide minimum acceptable requirements for the design and construction of hazard-resistant buildings; and FEMA supported and participated in the development of the ICC-500. Although the ICC-500 took much of what was presented in the First Edition of this publication and updated and codified it through the consensus standard process, some design criteria remain different between the two documents. The technical differences related to wind design criteria for both tornado and hurricane hazards, the design missile criteria for hurricane safe rooms, peer review requirements for the safe room designs, and siting requirements with respect to flood hazards are presented at the beginning of Chapter 3 of this publication. FEMA has maintained different criteria than what is provided in the ICC-500 in the same way FEMA continues to provide best-practices and design guidance on all types of hazard resistance construction (from residential buildings to critical facilities). Should safe room designers, operators, and emergency managers implement the FEMA criteria in their projects, they can feel confident knowing that they used the best-available information to guide the design and construction of a safe room (public or private) that provides near-absolute protection from the deadly winds and debris associated with extreme-wind events.

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