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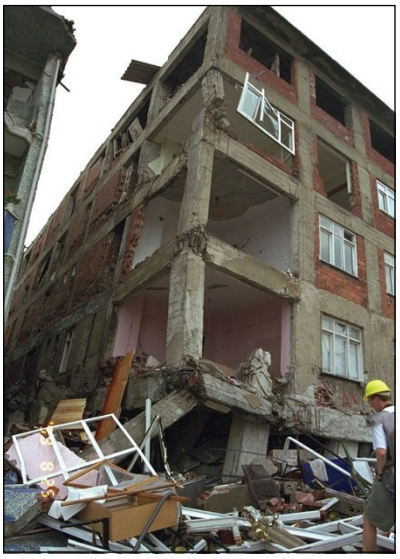

Program Plan for the Development of Collapse Assessment and Mitigation Strategies for Existing Reinforced Concrete Buildings

NEHRP Consultants Joint Venture
A partnership of the Applied Technology Council and the Consortium of Universities for Research in Earthquake Engineering

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NIST
National Institute of Standards and Technology
U.S. Department of Commerce

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Cover photo – 1999 Koceali (Turkey) earthquake (courtesy of NISEE Earthquake Engineering Online Archive)

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Prepared for
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Gaithersburg, MD 20899-8600

By
NEHRP Consultants Joint Venture
A partnership of the Applied Technology Council and the Consortium of Universities for Research in Earthquake Engineering

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Preface

The NEHRP Consultants Joint Venture is a partnership between the Applied Technology Council (ATC) and the Consortium of Universities for Research in Earthquake Engineering (CUREE). In 2007, the National Institute of Standards and Technology (NIST) awarded a National Earthquake Hazards Reduction Program (NEHRP) "Earthquake Structural and Engineering Research" contract (SB1341-07-CQ-0019) to the NEHRP Consultants Joint Venture to conduct a variety of tasks, including Task Order 69297 entitled "Integration of Collapse Risk Mitigation Standards and Guidelines for Older Reinforced Concrete Buildings into National Standards: Phase I." The objective of this project was to develop a program plan for establishing nationally accepted guidelines for assessing and mitigating risks in older concrete buildings.

Work on this project was intended to be an extension of a National Science Foundation (NSF), George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) Grand Challenge project, "Mitigation of Collapse Risks in Older Reinforced Concrete Buildings," being conducted by the Pacific Earthquake Engineering Research (PEER) Center. The purpose of the Grand Challenge project is to utilize NEES resources in developing comprehensive strategies for identifying seismically hazardous older concrete buildings and promoting effective hazard mitigation strategies for those buildings found to be at risk of collapse. Results from the NEES Grand Challenge project are expected to be directly applicable to the long-term objectives of this project.

This report is intended to provide the basis of a multi-phase program for the development of nationally accepted guidelines for the collapse prevention of older nonductile concrete buildings. It summarizes the scope and content of a series recommended guidance documents, the necessary analytical studies, and estimated costs associated with their development.

The NEHRP Consultants Joint Venture is indebted to the leadership of Dave Hutchinson, Project Manager, Ken Elwood, Project Director, and to the members of the Project Technical Committee, consisting of Craig Comartin, Bill Holmes, Dominic Kelly, Laura Lowes and Jack Moehle for their contributions in developing this report and the resulting recommendations. The Project Review Panel, consisting of Nathan Gould, Afshar Jalalian, Jim Jirsa, Terry Lundeen, Mike Mehrain and Julio Ramirez, provided technical review and commentary at key developmental

milestones on the project. The names and affiliations of all who contributed to this report are provided in the list of Project Participants.

The NEHRP Consultants Joint Venture also gratefully acknowledges Jack Hayes and Jeff Dragovich (NIST) for their input and guidance in the preparation of the report, and Peter Mork (ATC) for report production services.

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