Mitigation of Seismic Risk in Older Concrete Buildings

NEES-R Grand Challenge

Thalia Anagnos, Mary Comerio, Tara Hutchinson, Ricky Lopez, Adolfo Matamoros, Peter May, Jack Moehle (PI), Khalid Mosalam, Julio Ramirez, Judy Steele, Jon Stewart
“50% of the casualties are coming from 5% of the buildings.”
Project thesis

• Available guidelines are too conservative
  – most buildings are found inadequate
  – retrofit costs are high
• This “always bad” message
  – is not credible
  – is impeding action
• Improved procedures
  – can reduce the problem
  – can make retrofit programs feasible
• What we learn, both technical and societal, can be translated to other building types and localities.
Research program overview

- Inventory one or two major cities
- Test critical components to collapse
- Investigate simple retrofit methods
- Systems studies, including soil-foundation-structure interaction
- Improved computer simulation
- Regional simulation

- Craft and evaluate appropriate policies
  - Identify different classes of the problem
    - Structural configuration
    - Occupancy
    - Economic conditions
  - Identify feasible mechanisms
  - Model risk reduction impacts
  - Evaluate economic impacts
Collaborations with existing organizations

- ASCE Standards Committees
- American Concrete Institute
- Applied Technology Council
- EERI Concrete Coalition