

Building Codes Save: A Nationwide Study of Loss Prevention

To determine losses avoided when modern hazard-resistant building codes are adopted in areas of high wind, flood, and seismic hazards.

INCENTIVIZES WHOLE-COMMUNITY MITIGATION

- Demonstrates the value of adopting and enforcing hazard-resistant building codes nationwide
- Incentivizes building code adoption to reduce disaster losses
- Informs local investment decisions to increase resilience

QUANTIFIES DISASTER RISK REDUCTION

- Identifies anticipated damages prevented during natural hazards due to provisions in modern building codes.
- Supports FEMA Strategic Plan, National Mitigation Investment Strategy, and building more resilient communities



LOSS MODELING FRAMEWORK

COVERED HAZARDS

Three dominant natural hazards in the United States are covered in the study



Flood



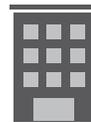
Hurricane Wind



Earthquake

MODELING PLATFORM

Hazus is used to evaluate pre- and post-code building performance



Physical



Building Code Adoption



Economic

LOSSES AVOIDED STUDY APPROACH

The nationwide study uses a methodology that was developed and validated through the following phases:

PHASE 1

Pilot Study



Community-based study

PHASE 2

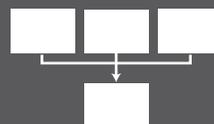
Regional Study



Region IV demonstration study

PHASE 3

Planning and Methodology Development



Creating and validating a national methodology

PHASE 4

National Study



Underway

To learn more about how disaster-resistant building codes reduce risk, sign up for the FEMA Building Science Branch's GovDelivery [here](#).

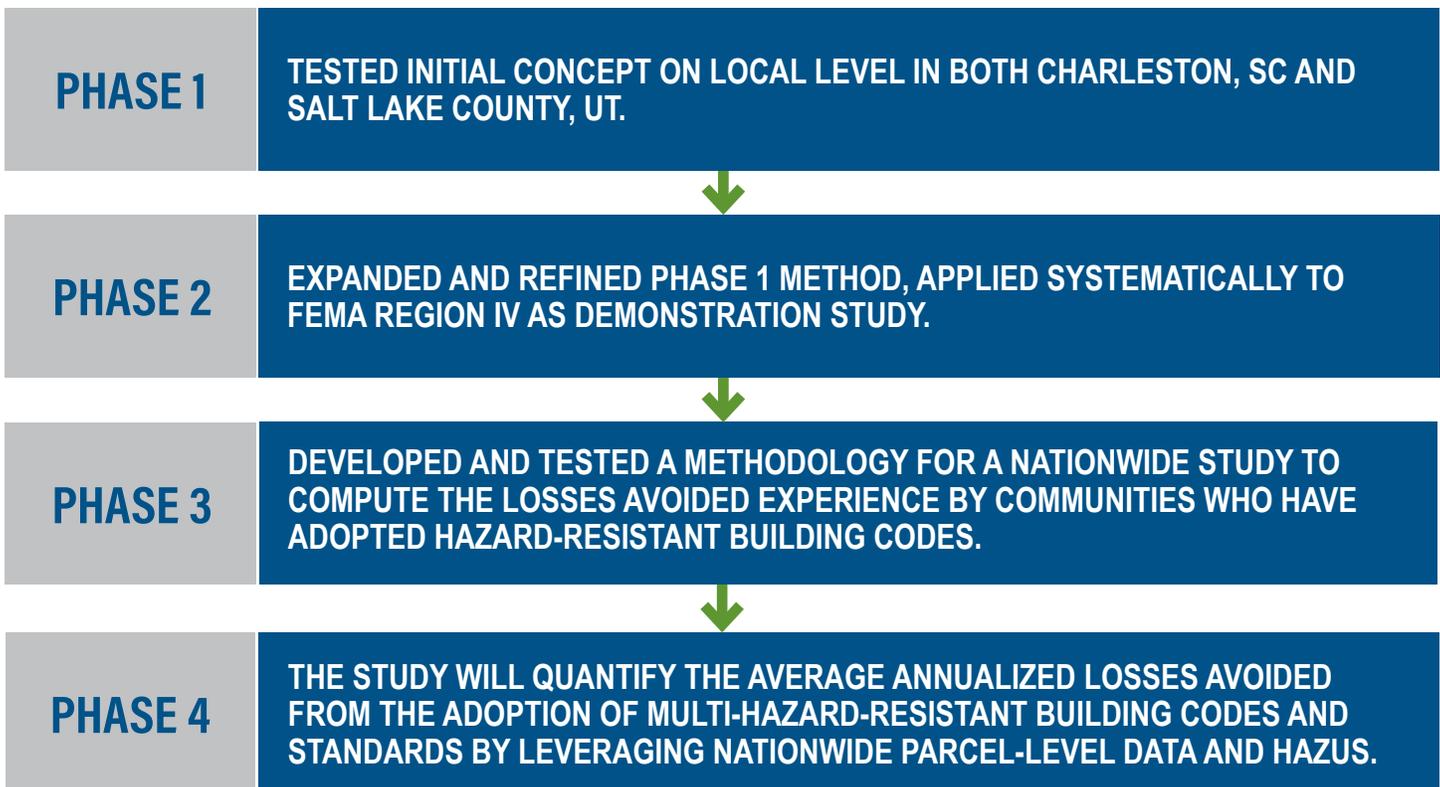
WHAT IS THE STUDY?

Building Codes Save: A Nationwide Losses Avoided Study is a multi-phase project to quantify the benefits, in terms of economic losses avoided, from State and Local adoption of modern hazard-resistant building codes and standards. The study uses nationwide parcel-level datasets with key hazard-resistant building-specific characteristics, such as foundation, roof, and frame type; square footage; and year built. The study also uses multifrequency earthquake, flood, and hurricane wind hazard data; and State and Local building code adoption history. Using this data and FEMA's Hazus Program, the study will calculate the change in Average Annualized Losses (Losses Avoided) as hazard-prone communities across the country adopted the 2000 I-Codes and later versions.

WHY DID FEMA BEGIN THIS UNDERTAKING?

The adoption and enforcement of modern, hazard-resistant building codes and standards helps to reduce the costs of natural disasters and make communities more resilient, but not all communities adopt them. Structures built to comply with or exceed modern consensus codes and standards typically avoid damages or sustain less damages than structures built prior to their adoption. The initial cost to construct buildings to modern hazard-resistant codes and standards is often far exceeded by these avoided damages over the life of the structure, especially in the most hazardous areas.

This study will encourage the adoption and enforcement of modern, hazard-resistant building codes and standards across the nation by quantifying the benefits of doing so in terms of losses avoided from commercial, industrial, and residential structures in earthquake, hurricane wind, and flood prone areas. The results will be used to further the National Mitigation Investment Strategy's Recommendation 3.1, *Encourage Communities to Adopt and Enforce Up-to-Date Building Codes* and other Agency and Partner efforts to advance building codes and standards.



Learn more about how Building Codes Save: A Nationwide Losses Avoided Study is applying the methodology that's been eight years in the making! Sign up for the FEMA Building Science Branch's GovDelivery [here](#).