Communicating the Brace and Bolt Benefit

Applying Risk Communication Best Practices in the CEA-PEER Fragility Curve Project

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Steps to Effective Risk Communication
What Are Your Objectives?

“A risk communication is successful to the extent that it contributes to the outcomes its sponsor desires.”

-- National Research Council
Who is Your Audience?

Technical Understanding

ATC 110: Retrofit Design
Practicing engineers

Research engineers
Loss modelers
Underwriters
CEA Mitigation
CEA Insurance Partners
CEA Comms
CEA Governing Board

Deliverables:
CEA-PEER Study Part 1: Technical Methods and Results
CEA-PEER Study Part II: Retrofit Benefits and Implications

Receptivity to New Information

Real Estate Agents
Lenders
Homeowners
Local Leaders / Electeds
Building Officials
Insurance Agents
Home Inspectors
General Contractors

Research engineers
Practicing engineers

Technical Understanding
CEA-PEER Stakeholder Audience Target

CEA-PEER Study Part II: Retrofit Benefits and Implications

Technical Understanding

Receptivity to New Information

- Practicing engineers
- Research engineers
- Loss modelers
- Underwriters
- CEA Insurance Partners
- CEA Mitigation
- CEA Comms
- CEA Governing Board
- Home Inspectors
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- CEA Insurance
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- Homeowners
- Local Leaders / Electeds
- Real Estate Agents
- Lenders
- General Contractors
Craft Messages With the Receiver in Mind

- What does the audience currently think or do?
- What is at the heart of what you want a receiving audience member to know?
- What do you want the receiver to do?
  - Connect
  - Conclude
  - Remember
  - Tell Others
  - Info Search / Ask Questions
Your Goals vs. Their Goals

**SENDER-DRIVEN COMMUNICATION**
- What I know
- What I have a desire or duty to say
- What I think they should know
- What I think they should do

**RECEIVER-FOCUSED COMMUNICATION**
- How it affects them
- What they can do about it
- Ways to get more info or help
- Ways to overcome obstacles
Our Words vs. Their Words

- seismic → earthquake
- cripple wall → crawlspace
- lateral bracing → plywood bracing
- anchorage → anchoring, bolting
- empirical → real-life data
Reporting on Research: Balancing Problem, Project, and Prescription
Everything on the Page Should Pull Its Weight

- Columns
- Font
- White space
- Icons
- Directionality
- Color
- Proportion/relative size
- Relative position
- Labels, captions
- Legend, key

Type of Siding

WOOD

STUCCO
How much could I save in “The Big One” if I retrofit my house?

- Example reduction in repair costs for a one-story, 1,200 square foot wood siding or stucco house. (LEFT)

- Example reduction in repair costs for a two-story, 2,400 square foot house on the right, with an unbraced crawlspace. (RIGHT)

- Assumed construction cost of $200 per square foot.

- Potential savings could be higher or lower depending on the size and shape of the house, the quality and types of construction materials, and local construction market conditions.
The Brace and Bolt Benefit

New CEA study shows earthquake retrofits can save thousands of dollars for owners of single-family wood-frame homes in California.

Inadequate bracing andanchoring is a major cause of earthquake losses for wood-frame houses with first floors elevated over a crawlspace. Past quakes have cost individual homeowners tens or hundreds of thousands of dollars in damage, and most did not have earthquake insurance to cover repairs.

In 2020, the California Earthquake Authority (CEA) will publish results of a three-year project that analyzed how earthquake retrofits benefit older houses with crawlspaces.

The study found that retrofitting a house under the California Earthquake Authority’s Brace and Bolt Program can significantly reduce damage. A typical crawlspace retrofit costs $4,000 to $7,000. Depending on factors like the number of stories, exterior siding materials, and region of the state, the study estimated savings of $10,000 to $30,000 or more (as much as 30%) in avoided repair costs after a major earthquake with about one in ten chance of occurring over the life of a typical 30-year mortgage.

On behalf of the entire PEER Team, thank you!

A Work in Progress

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$\text{Example reduction in repair costs for a two-story, 2,400 square foot house on the right, with an unbraced crawlspace. (RIGHT)}$

$\text{Assumed construction cost of $200 per square foot.}$

$\text{Potential savings could be higher or lower depending on the size and shape of the house, the quality and types of construction materials, and local construction market conditions.}$

The Pacific Earthquake Engineering Research (PEER) Center, a consortium of eleven premier west coast universities, led the study. The PEER team tested crawlspace walls with and without brace and bolt retrofitting, then used state-of-the-art computer modeling to estimate how retrofits can reduce losses in vulnerable pre-1970s housing styles common in California. Workshops with insurance and risk modeling professionals were used to generate realistic cost data and assure the usability of results in future rate-setting and incentive programs.

Results of the study were overwhelmingly positive.

For all housing styles and locations considered, bracing and bolting a house significantly reduced risk, offering significant financial protection of homeowners’ most important investment.