Expanding Access-
Grant Programs for Seismic Retrofits

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CEA CALIFORNIA EARTHQUAKE AUTHORITY™ THE STRENGTH TO REBUILD®

CEA

CEA is a not-for-profit residential earthquake insurer.

CALIFORNIA:
MANDATORY OFFER LAW

Earthquake coverage is excluded from homeowner's insurance policy.

However, insurance companies are required to offer a separate earthquake insurance policy at time of homeowner policy sale.

WHEN M6.7 NORTHRIDGE EARTHQUAKE STRUCK IN 1994:

- One of the costliest natural disasters in U.S. history.
- Caused $20 billion in residential damage.
- Destroyed or severely damaged thousands of single-family homes.
- Left about 22,000 people homeless.
- Most insurance companies stopped writing Homeowners insurance; prompted creation of CEA.

Publicly Managed • Privately Financed

A not-for-profit provider of residential earthquake insurance

Governing Board:

Governor

Insurance Commissioner

State Treasurer

Governor
Gavin Newsom

Insurance Commissioner
Ricardo Lara

State Treasurer
Fiona Ma

Non Voting:

Assembly Speaker

Senate Rules Chair

Assembly Speaker
Anthony Rendon

Senate Rules Chair
Toni Atkins

Privately Financed:

1,132,605 Policyholders

Mission:

Educate

Mitigate

Insure

CEA Participating Insurers

CEA Participating Insurers

CEA Claim Paying Capacity

Rating Agencies require CEA to have enough claim paying capability for a 1 in 400 year return period.

$19.08 Billion

Capital Reserves

Invested per CEA investment policy

$ 5.7 Billion

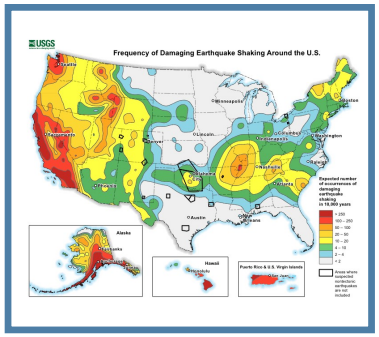
Annual Transfer to Loss Mitigation Fund

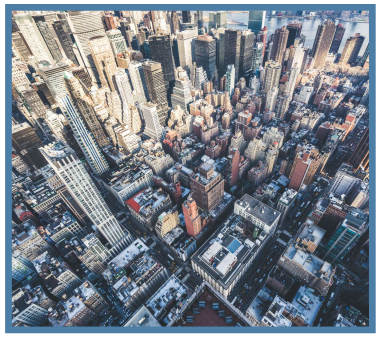
5% of investment income ($5 million maximum)

$ 5 Million

Things to Know About Earthquake Risk

RISK = HAZARD + VULNERABILITY + EXPOSURE





HAZARD

Earthquake hazard includes surface faulting, ground shaking, landslide, liquefaction, tectonic deformation, tsunamis, and seiches.

SEISMIC VULNERABILITY

Older homes have known vulnerabilities to earthquake damage.

Seismic Vulnerability

Four Typical Seismic Vulnerabilities identified in ATC 110 (FEMA P-1100)

Crawlspace Wall

Living-space-over garage "LSOG"

Hillside House

Chimney

Seismic Vulnerability

Crawlspace Wall Vulnerabiilty

Berkeley, California

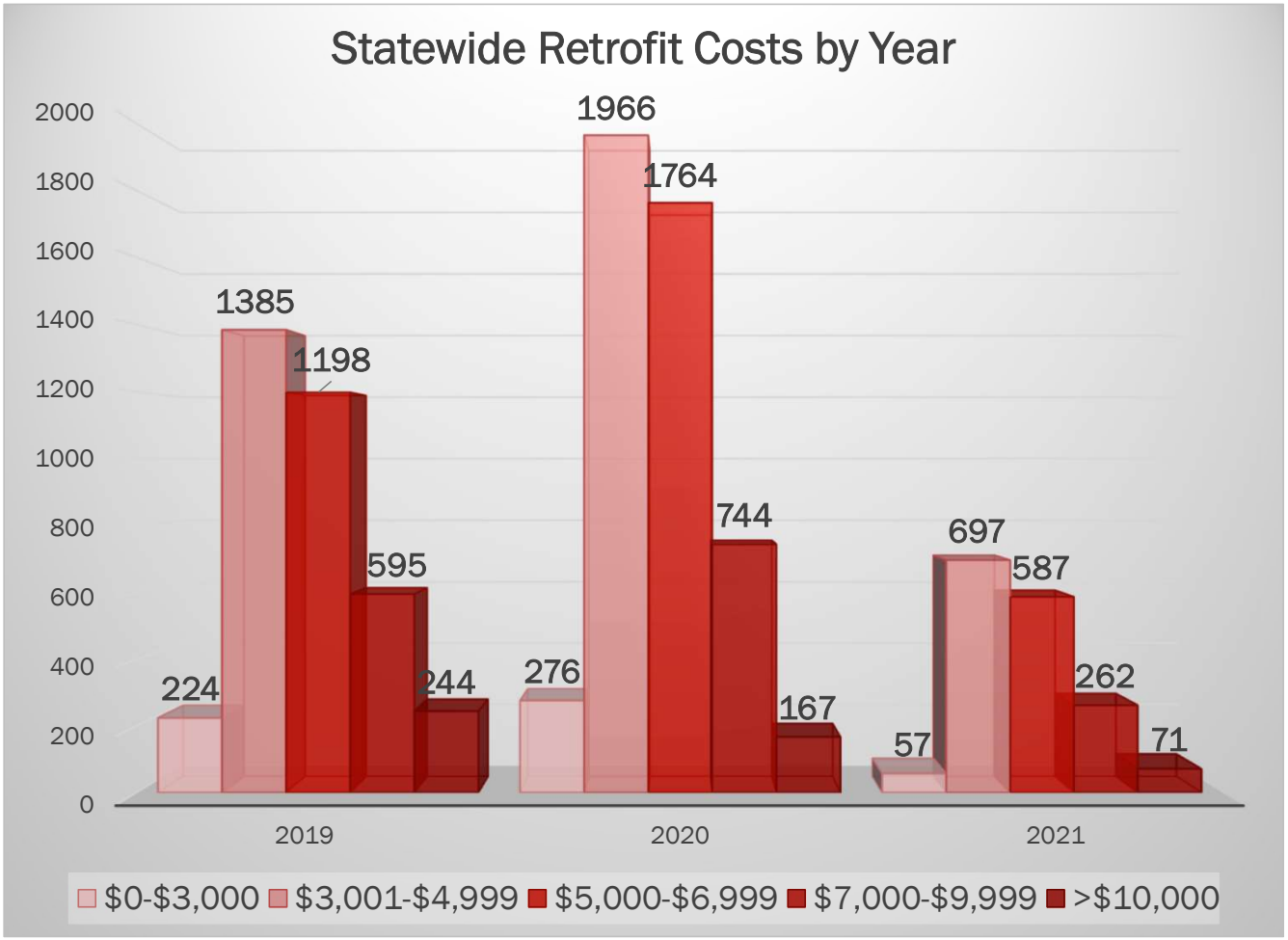
Earthquake Brace + Bolt Retrofit - EBB

California Residential Mitigation Program Retrofit Grants - Earthquake Brace + Bolt

Earthquake Brace + Bolt Program:

- Retrofits crawlspace with plywood bracing and new bolting
- Provides up to $3,000 grant
- Currently requires owner-occupied
- In select ZIP Codes with high seismic hazard
- Has collected **important** data:
  - Retrofit averages $5,200 in CA
  - More expensive in Northern CA
  - Number of retrofitted houses in a City

Earthquake Brace + Bolt Retrofit - EBB



- Current Avg Cost: $6,177
- Median Cost: $5,102

- 8% of Retrofits less than $3,001
- 48% of Retrofits less than $5,000
- 77% of Retrofits less than $7,000
- 93% of Retrofits less than $10,000

Equity Based Analysis of Cripple Wall Retrofits in LA City

Presentation to the CRMP Board, February 14, 2023

“Despite generally occupying older buildings, the neighborhoods with the highest representation of Black, Hispanic and low-income households have retrofit rates that are lower than the rest of LA City.

Disparities in the retrofit rate based on race and ethnicity, income and education significantly reduced from 2013-onwards (after the EBB program was introduced) relative to pre-2013. Despite generally occupying older buildings, the neighborhoods with the highest representation of Black, Hispanic and low-income households have retrofit rates that are lower than the rest of LA City.

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Henry V. Burton, Ph.D. S.E.
Associate Professor and Presidential Endowed Chair in Structural Engineering
University of California, Los Angeles

2021/2022 EBB Program includes supplementary grants specifically aimed at underserved neighborhoods.

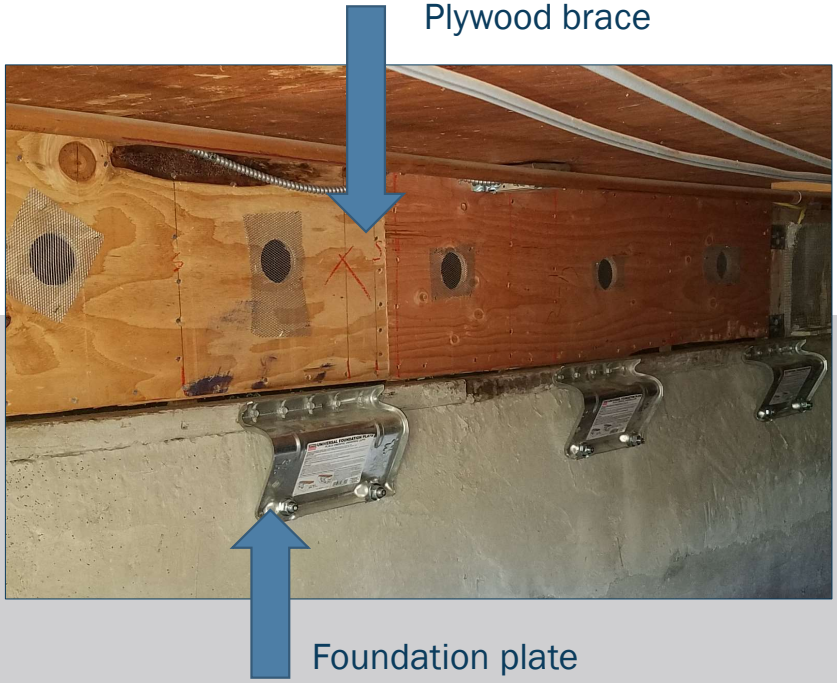
The supplementary grant:

- Will provide, in most cases, **100% OF THE FUNDS** needed
- Was marketed widely and offered in all EBB ZIP Codes

Earthquake Brace + Bolt

Short Cripple Wall Requires Framing Clips, Foundation Plates, and Plywood

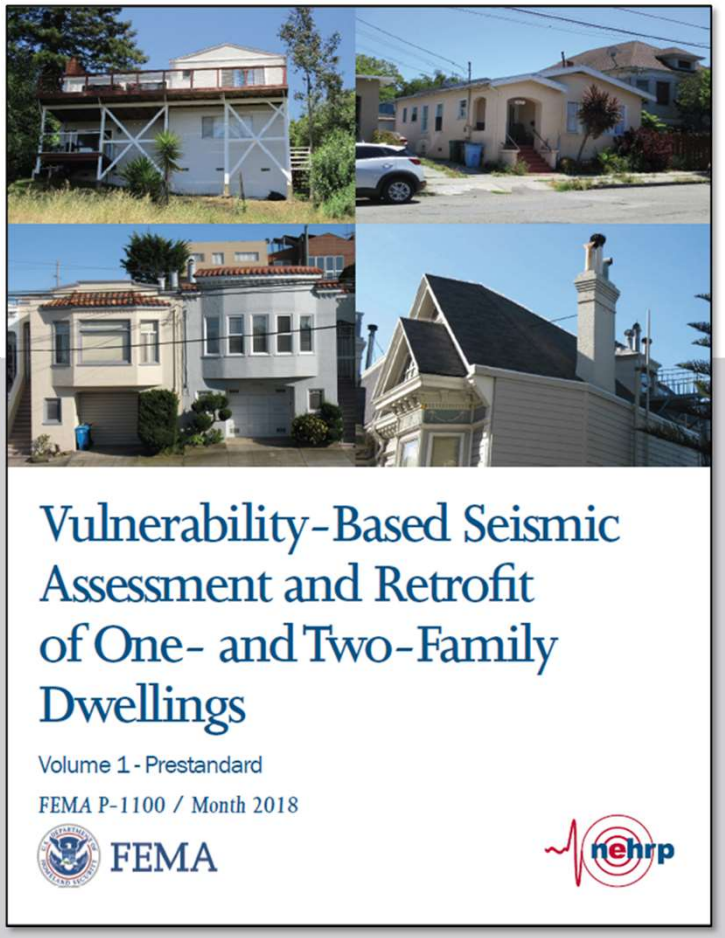
Crawlspace **Before** Retrofit

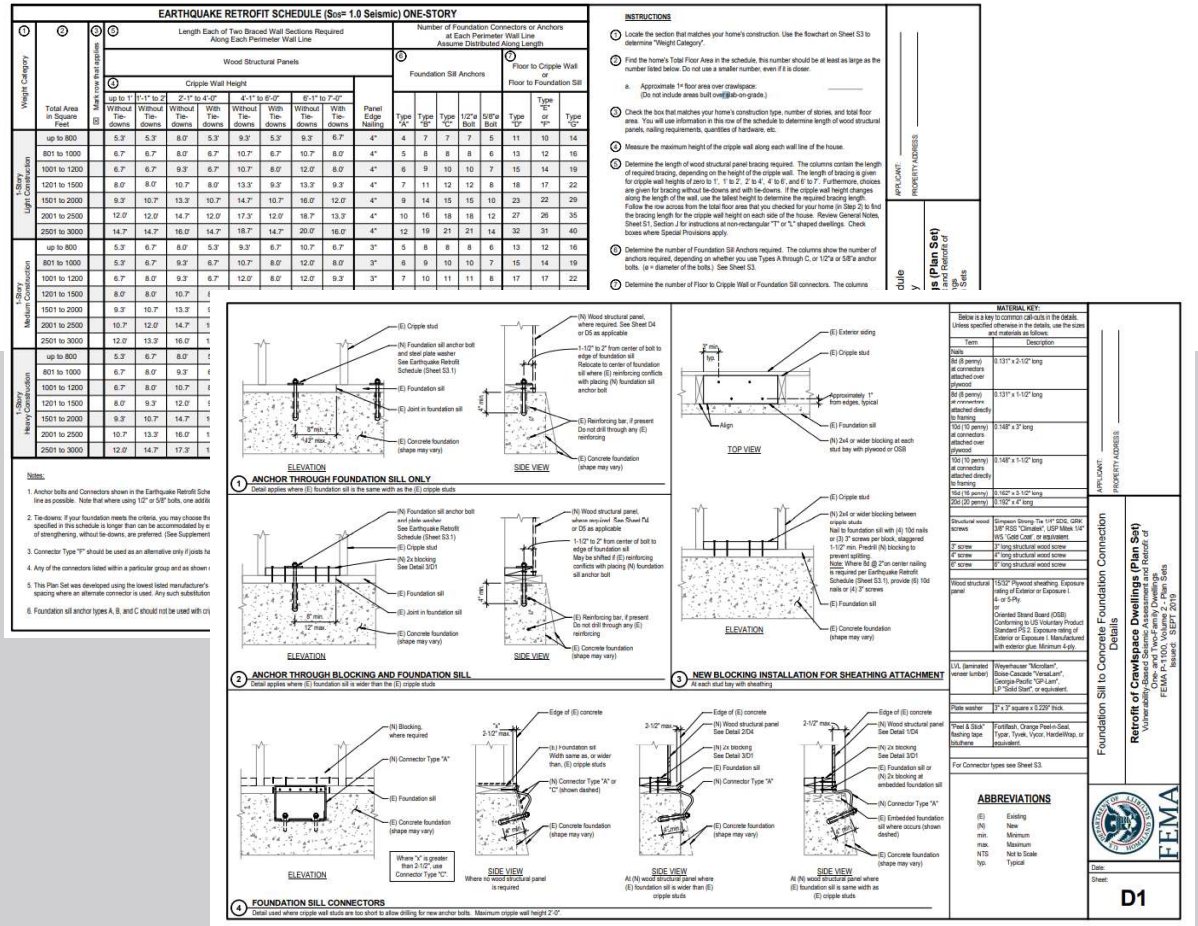


Crawlspace **After** Retrofit

Seismic Vulnerability

ATC 110 / FEMA P-1100





RETROFITTING WORKS

2014 M 6.0 Napa Earthquake

Unretrofitted – Red Tagged

Retrofitted – Green Tagged

RETROFITTING WORKS

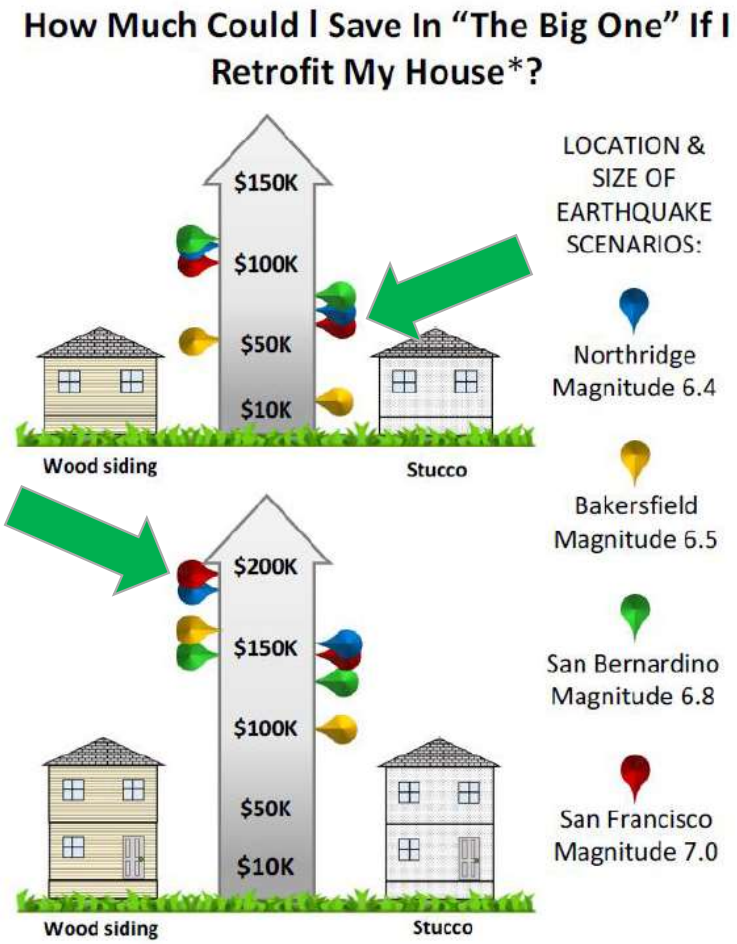
2022 and 2023 Ferndale, CA M6.4 and M5.3 Earthquakes

Unretrofitted – Red Tagged

Retrofitted – Green Tagged

Seismic Vulnerability

Research by Pacific Earthquake Engineering Research Center (PEER)



"Scenario" earthquake

Note: Savings based on:

- 1200 sf one-story house
- 2400 sf two-story house
- $200/sf replacement cost

Seismic Vulnerability

Living-Space-Over-Garage (Soft-Story)

The “Soft-Story” was created when the garage doors were installed in 1920s

Seismic Vulnerability

Bay Area Living-Space-Over-Garage (Soft-Story)

Soft-Story damage in Marina District - 1989 Loma Prieta Earthquake

Seismic Vulnerability

Living-Space-Over-Garage (Soft-Story)

1971 San Fernando EQ

1989 Loma Prieta EQ

1994 Northridge EQ

2014 Napa EQ

Seismic Vulnerability

Multi-Family Soft-Story

Source: LA Times

Northridge Meadows Apartments –
Northridge M6.7 Earthquake 1994

Multi-Family Soft-Story Retrofit Grant Program (MFSS)

Potential FEMA Grant Funding

- 2021 FEMA BRIC Grants - $20 million in FEMA review
- 2022 FEMA BRIC Grant application submitted - $20 million
- 2023 FEMA BRIC Grant application submitted - $20 million
- SB 189 - $250 million (not included in budget)

EXPOSURE

Using age as a proxy we estimate there are over 1 million houses with the crawlspace vulnerability. We have no inventory for the soft-story single-family house.

These structures are typically privately owned homes. Less than 13% of Californian homes are insured for earthquakes.

CALIFORNIA RESIDENTIAL MITIGATION PROGRAM

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STRENGTHEN YOUR HOUSE

Home > Strengthen Your House

Get Prepared. Worry Less.

Earthquakes in California are inevitable, but the damage they cause is preventable. While older houses in California are charming, many are also vulnerable to shake damage. Find your house type or hazard below and learn about its vulnerabilities, and what you can do to strengthen your property against earthquake damage. While seismic retrofitting a house does not guarantee against damage, it can help to improve its performance in an earthquake by making it stronger and more resilient. This can help make your house safer for you and your family.

Raised Foundation

Older houses with steps up to the first floor can shift off their foundations from shaking. They would be strengthened by bolting or bracing and bolting the house to its foundation.

LEARN MORE

Living Space Over Garage

Houses with one or more floors of living space over an attached garage are vulnerable to shaking. Retrofitting the garage space can make it more resistant to earthquakes.

LEARN MORE

Post & Pier

A house without a continuous perimeter foundation can shift or collapse in an earthquake. Adding a foundation that is braced and bolted will strengthen the house.

LEARN MORE

Chimneys & Fireplaces

Older chimneys can crack and fall away from the house during or after an earthquake. And brick, stone, or decorative fireplace components can be a hazard, inside.

LEARN MORE

Next Steps to Strengthen Your House

StrengthenMyHouse.com