Welcome!

Earthquake Country Alliance

- 4000+ Public-Private-Grassroots leaders
- Statewide committees develop resources and deliver programs
- Regional Alliances organize meetings and outreach activities
- California’s Office of Emergency Services provides NEHRP funding for ECA earthquake mitigation activities
- USC’s Southern California Earthquake Center (SCEC.org) administers ECA

Join: EarthquakeCountry.org/join
NEHRP is a partnership of four federal agencies that provide resources to mitigate and reduce losses caused by earthquakes in the U.S., including support for:

- Research on the causes and effects of earthquakes
- Building design recommendations to reduce earthquake damage and disruption
- Activities that advocate earthquake risk reduction awareness and practices

ECA also receives funding from NSF and USGS via their support of SCEC.

ECA Statewide Activities

Develop Messaging and Resources:
- EarthquakeCountry.org
- EarthquakeCountry.org/resources
- Terremotos.org

Support Tsunami Preparedness Week:
- TsunamiZone.org/california

Created and Coordinate
The Great California ShakeOut:
- ShakeOut.org/california

Webinars & other events
- EarthquakeCountry.org/calendar
ECA Sector-Based Outreach Committees

- Public Sector
- Businesses
- Accessibility
- Non-Profit & Faith-Based Organizations
- Healthcare
- Higher Education
- PreK-12 Education
- EPIcenters (Museums, parks, libraries, etc.)

Each meets bimonthly; Join us!
EarthquakeCountry.org/committees

ECA Outreach Bureaus (Regional & Statewide)

- **Events Bureau**
  - Speakers for online/in-person events
  - Booths and tables at events
  - Request presenter or information table:
    EarthquakeCountry.org/events

- **Participation Bureau**
  - ShakeOut and Tsunami Week recruitment and communications
  - County/City Partners for local engagement

- **Media Bureau**
  - Statewide and local coordination
  - Media event planning
  - Year-round messaging / news releases
  - Post-earthquake shared messaging
Seven Steps To Earthquake Safety

1. Secure Your Space
2. Plan To Be Safe
3. Organize Supplies
4. Minimize Financial Hardship

BEFORE

5. Drop, Cover, and Hold On
6. Improve Safety

DURING

7. Reconnect and Restore

AFTER

EarthquakeCountry.org/sevensteps
Terremotos.org/sietepasos

Updated Materials in 15 Languages

EarthquakeCountry.org/languages
Welcome!

ECA Southern California
Spring 2022 Workshop

Co-Chairs, ECA SoCal Coordinating Committee

Margaret Vinci
Caltech

Heidi Rosofsky
Global Vision Consortium

Alan Hanson
Simpson Strong-Tie, retired
ECA SoCal Coordinating Committee

Coordinating Committee Chairs: Heidi Rosofsky (Global Vision)
Margaret Vinci (Caltech)
Alan Hanson (Simpson Strong-Tie)

Media Bureau Coordinators: Marilyn Jimenez (LA Red Cross)
Jessica Kellogg (City of LA EMD)

Participation Bureau Coordinator: Pei-Lun Lee (Orange County Emergency Management)

Events Bureau Coordinators: John Hammett & Lance Webster (Volunteers)

ShakeOut/Tsunami Events Coordinator: Pauline Louie (US Housing and Urban Development)

Communications Coordinator: Jeffrey Snoddy (City of Torrance)

Regional Workshops Coordinator: Open position

Membership Coordinator: Open position

SCEC Regional Liaison for ECA SoCal: Gabriela Noriega (USC/SCEC) socal@earthquakecountry.org

ECA SoCal 2022 Calendar

May 11 ECA SoCal Spring 2022 Workshop
May 17 ECA Community Engagement Webinar #5: Coachella Valley Disaster Preparedness Network EarthquakeCountry.org/community
June ECA San Diego Area Webinar
August 10 ECA SoCal Summer 2022 Workshop
October 20 Great California ShakeOut
Register now at ShakeOut.org/california
November 9 ECA SoCal Fall 2022 Workshop

EarthquakeCountry.org/socal
Today’s Agenda

Welcome and Statewide ECA Updates

ECA SoCal Chairs: Coordinating Committee & 2022 Calendar

2022 ECA SoCal Mini Award Project Lightning Talks
Updates about funded projects from Award Recipients

Quakes Break: So Cal Seismic Activity since last workshop
Margaret Vinci (Manager, Office of Earthquake Programs, Caltech)

What’s the Story on Soft-Story Retrofits?
Daniel Zepeda (Principal, Degenkolb Engineers)

Open Discussion and Networking

ECA SoCal Mini Awards

Program Overview &

2022 Recipient Presentations
ECA Mini Awards

- **Purpose:** provide materials for ECA member projects that improve earthquake resilience by promoting mitigation, awareness, and preparedness, and multiply impact of programs

- **Purchases:** $500 to $1000 each

- **Eligibility:** Proposals for earthquake mitigation and education activities

- **Pre-defined packages:** Sets of materials will be available, however you can also customize them or propose other items

- **2023 Awards:** Apply in Fall 2022

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2022 ECA SoCal Mini Awards

- Service Center for Independent Life
- Spring Knolls 55+ Emergency Response Team
- City of Palos Verdes Estates Police
- Bristol Hospice - Northern LA Branch
- Keck Medicine of USC
- Northeast Valley Health Corporation
- Colmena Academy
- St. Martin of Tours Academy
- Health Center Partners of Southern California
- Therese Cattouse Child Care
- Del Webb Rancho Mirage Emergency Preparedness Advisory Committee
Mini Award Overview

- ECA Home Fastening Starter Kit

- Overall goal: Introducing the disabled and elderly community to the importance of Earthquake preparedness and safety. Including the importance of retrofitting homes and apartment buildings in case of an emergency. Being able to exit your home safely with these easy to install fastening starter kits.

- Received 20 Residential Home Fastening Starter Kits.

- Installed 20 Home Fastening kits in 20 of our members homes.

- Evaluation plan, to install and introduce earthquake awareness and the importance of safety with our home fastening kits.
Mini Award Status

- We installed fasteners on bookshelves, dressers, living room shelves, standing clock and behind television entertainment/ tv's. Along with installing seismolatch fasteners in members kitchen cabinets.

- Lessons learned or expected: We learned that there is a great need for educating our members on what can be a potential hazard in their home during an earthquake and how receptive our members are to making small changes for safety.

THANK YOU!

PRESENTERS:

Diane Alford  
Diane@SCIL-ILC.ORG

Janice Ornelas  
Janice@SCIL-ILC.ORG

Service Center for Independent Life

107 S Spring St. Claremont CA 91710  
(909) 621-6722  
WWW.SCIL-ILC.ORG
Spring Knolls Association

May 9, 2022

Spring Knolls is an over-55 community in Murrieta and we received some of the Saf-T-Proof Residential Home Fastening Starter Kits from the ECA. We gave them out at Emergency Preparedness meetings, and also installed some in our Library. See photos:
Strapping the Library Bookcases

Safe-T-Proof Straps for Bookcase
Self-Adhesive Strap Fasteners

Remove Back, Adhere to Case
Locate Studs, Install Straps

Strap Fasteners Installed!
Summary:

The kits were very beneficial for the community. We have strapped all of the bookcases in our Library.

Many thanks to the ECA, as well as Safe-T-Proof!
A prepared community is a resilient community
Residents are the first line of preparedness
- 5,000 households
- 250 MYN booklets
Buy in with NW & DDP/NART, PVE-CARES
Train the trainer

**Mission:** Working within our existing “Know The Drill” campaign, we are educating the community on their role in all types of responses.

<table>
<thead>
<tr>
<th>CHALLENGES</th>
<th>OPPORTUNITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tough to engage people on this topic</td>
<td>Engaging NW to work from a Block Captain level with support from DDP &amp; City</td>
</tr>
<tr>
<td>Residents don’t have time</td>
<td>Sending videos with invitation shortens in person</td>
</tr>
<tr>
<td>Need incentives</td>
<td>NW is offering PPE in lieu of membership for remaining 2022 (idea from Pasadena)</td>
</tr>
<tr>
<td>People don’t want to host in own home</td>
<td>We are making City Hall available with a follow up with Fire/PD walk around</td>
</tr>
<tr>
<td>Longevity of message/program</td>
<td>Incorporate into our Know the Drill website challenges</td>
</tr>
<tr>
<td>Consistency</td>
<td>NW and DDP taking ownership to engage their own districts</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Considering a city wide HELP/OK drill with DDP/NART/NW and City staff Fall of 2022</td>
</tr>
</tbody>
</table>
Mini Award Status

Hosted Train the Trainer
Marketing event via Newsletter
Know The Drill website
NW May events (7 events)
Individual Requests

Events Completed/Scheduled

Condos Via Campesina (35)
Montemalaga (26)
Cataluna Place (15)
May 22 HMMN events (60)
More to come!

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BRISTOL HOSPICE- NORTHERN LA BRANCH

- 700 N CENTRAL AVE #550 GLENDALE, CA

- Embracing a Reverence for Life/ Hospice Care
- End of Life Patients, Patients with life expectancy of < 6 months
- www.Bristolhospice.com

- BRENDA MANKE, BUSINESS OPERATIONS MANAGER
- BRENDA.MANKE@BRISTOLHOSPICE.COM
Mini Award Overview

- New Office Location 2018, prior to Pandemic - Setting up Earthquake Safety within the office
- To make a safe and livable environment in the new office by securing items identified as potential hazards
- Award contained, Office electronic safety straps, big screen safety straps, bookshelves and storage safety straps, picture securing putty and wax, cabinet safety latches
- Potential staff of 45 and unlimited number of volunteers and guest will now have a safer office area
- A walk thru was completed with members of the Safety Committee. Areas of concern were identified, and corrective actions were presented in the proposal.

Mini Award Status

- Areas of concern identified, grant proposal submitted, received award notice, Mini award items received, Items currently being installed, TEAM educated.
- Photos, pictures, TV, bulletin boards secured 5/5/2022
- Office equipment safety straps installation began on 5/6/2022
- As part of the project, the Safety Team identified and educated the staff. Staff are now carrying the lessons learned to their private homes. We are now assisting with education and installation of earthquake safety products to 45 families outside of the work office.
- Staff are now excited to participate in California ShakeOut Events
• Project currently in process of installation. Finished photos not available at this time......................But we are very excited to have received this award and get our office into a safer status.
• Thank you, The Bristol Hospice-Northern LA Staff
Mini Award Overview

- Secure a Healthcare Clinic Project
- The project goal was to improve earthquake safety by securing heavy equipment to minimize potential damage in the clinical environment.
- Equipment received consisted of file cabinet anti-tip fasteners, cabinet door latches, monitor anti-tip fasteners, table-top equipment fasteners, and heavy equipment fasteners.
- Beneficiaries of this project consist of staff and patients that receive radiation therapy. By minimizing damage to the building space, the clinic will be able to continue operations and treatment to our vulnerable population.
Mini Award Status

• Highlights of Activity so Far: Clinical leadership was actively engaged. This project has given us an opportunity to implement an earthquake safety mitigation program that can be used across the organization.

• Lessons Learned: Aesthetics, aesthetics, aesthetics. Trying to juggle the installation of earthquake equipment with an artistic approach gives a new meaning to beauty is pain.

• When we approached the installation, we went with an old military phrase: "Out of Sight Out of Mind"

Keck Medicine of USC

Upright Equipment Fasteners

Keck Medicine of USC
Computer Monitor Anti-Tip Fastener

Keck Medicine of USC

MAKING THE IMPOSSIBLE, POSSIBLE.
Automatic Cabinet Door Latches

Keck Medicine of USC
Introduction

• 16 Health Centers and 1 Mobile Health Center
  – Services include:
    • Adult Medicine
    • Pediatrics
    • Dental
    • Women’s Health
    • Behavioral Health

• 13 WIC Facilities
• 4 Administrative Offices
  – 2 Corporate
  – Warehouse
  – WIC Administrative Offices

ECA Mini Grant Project Proposal

• Requested $500 Secure a Healthcare Clinic Package
• Items from the package would be used at our “flagship” clinic site San Fernando Health Center.
• This site is located near the San Fernando Fault, San Andreas Fault, Santa Susana Fault, and Sierra Madre Fault.
• This site has been previously impacted by large magnitude earthquakes.
• Staff would also receive education materials including the Seven Steps to Earthquake Safety and a list of items that should be in an earthquake emergency kit.
• A drill would be conducted at the facility and 100% of staff participating would drop, cover, and hold on.
ECA Mini Grant Project Update

Our facilities team installed the items from the package including the refrigerator fasteners.

Our facilities team also installed the countertop fasteners.

We held the drill on 4/29/2022 and 100% of staff onsite participated.

Colmena Academy

• Our mission is to empower students with Autism to reach their potential with an individualized and inclusive educational experience. Which includes: general education and alternative curriculum, tailored alternative and augmented communication modes, inclusion field trips and experiences, guided meditation and yoga, cooking classes, art classes, occupational therapy, speech therapy, and behavioral therapy.

• 7860 Mission Center Ct., San Diego, CA, 92108
• www.colmenaacademy.org
• Celina Viloria celinav@beellc.org 619-777-6057
2022 ECA Mini Award

- Earthquake Mitigation and Preparedness Project
- $500 Secure a Workplace Clinic Package
- Our package included: Furniture straps, Appliance straps, Cabinet straps, TV and other electronics straps, picture hooks, and many other items for securing our office space.
- Beneficiaries: Students and Staff at Colmena Academy
- Evaluation plan: We have taken inventory of all packaged items and assigned where they need to be installed. We were able to install some of the straps to the bigger pieces of furniture and electronics. More putty will be distributed to the smaller items in our office. The cabinet door latches will be added to our kitchen cabinets, and the appliance strap will be attached to the refrigerator. Our school already looks and feels so much safer. Having all of this equipment to secure our space gives us the piece of mind to focus on our students safety during an emergency evacuation.

Mini Award Status

Electronics Straps

Bookshelf Straps
Health Center Partners of Southern California, a family of companies, includes 17-member organizations of Federally Qualified Health Centers, Indian Health Centers, both urban and sovereign, and Planned Parenthood of the Pacific Southwest, collectively serving 917,000+ patients each year, at 170 practice sites across San Diego, Riverside, and Imperial counties.

**ABOUT OUR PROGRAM**

- The Emergency Preparedness and Response Program assists the health centers in their preparation for public health emergencies through direct support and representation at the State, Local, Tribal, and Territorial (SLTT) levels.

- The Emergency Preparedness Coordinators (EPCs) come together from our member organizations to promote collaboration on a wide range of emergency and disaster preparedness topics (training, policy and procedure development, business continuity, best practices, regulatory compliance, active participation in county operations during emergencies, etc.).

www.hcpsocal.org
“When Health Centers Shake”

- Our goal is to bring awareness to our members about the risk of earthquakes in our region, and the importance of applying mitigation efforts inside a health center. We were able to show the emergency managers how cost effective and easy it is to assess risk and install earthquake fasteners throughout their facilities.

- We received a package worth $500 from Ready America® for different types of earthquake fasteners and a gas shut-off wrench.

- Two member organizations directly received the benefits of this project. Here are some quick stats about these two members.

  Father Joe’s Villages
  - 4 Block Campus in Downtown San Diego
  - Established in 1950 to serve San Diegans experiencing homelessness and poverty, Father Joe’s Villages has grown to include a comprehensive campus and scattered-site programs that house over 2,000 people nightly. It all began with a small chapel in downtown San Diego.

  Neighborhood Healthcare
  - 17 locations throughout San Diego and Riverside counties.
  - Neighborhood Healthcare offers a wide range of quality health care and wellness services to every member of the community regardless of situation or circumstance. As a private, non-profit 501(C)(3) community health organization, Neighborhood Healthcare serves 291,000 medical, dental, and behavioral health visits from 78,000 people annually.

- Evaluating the success of this project will be continuous by surveying our members periodically to see if their earthquake mitigation priorities shift from response and recovery, to mitigation when they identify earthquakes as a top hazard. Overall, our program will continue to bring awareness about how cost-effective and easy it is for anyone to implement their own non-structural seismic hazard mitigation project that is low cost for such a high level of seismic risk.

Highlights and Lessons Learned

Safety Officer and Facilities Manager: Inside their PPE warehouse.
- Bookcase straps
- Cabinet Door Latch
- Furniture Safety Straps

Quality Specialist / Site Manager: Inside a main clinical site that is connected to a housing unit.
- Appliance Straps
- File Cabinet Strap
- Museum Wax

This was a great project to work on with our member health centers and a reminder that we cannot stop an earthquake, but we can mitigate the effects in a cost-effective way. To continue education for the members we serve, I have created an 8-page booklet to include ideas for mitigation efforts specifically for equipment found inside a health center, information on Ready America® products they can purchase on their own, and resources that the ECA has developed.
St. Martin of Tours Academy

• Located in San Diego

• St. Martin of Tours Academy fosters confidence, intelligence, and curiosity through a climate of cooperation and trust by preserving dignity throughout the learning process, accentuating all children’s God-given gifts in a Catholic environment.

• Primary audience: 190 students K-8; 35 staff members

• Jennifer Miller, Principal

Mini Award Overview

• Secure a School project

• Project goal: As the new principal at St. Martin of Tours Academy, Jennifer Miller took an opportunity to review the campus and made changes, adding signage sharing water shut-off, AED location and access routes. None of the appliances were secured.

• Received mitigation items to secure school space

• Beneficiaries include students, teachers, administrators, and parents

• Evaluation plan: Creation and completion of a spreadsheet, sharing the number and type of items secured with their Advisory Board as well as constituents. School often sends surveys to gain feedback on other projects, and is doing the same for this project.
Therese Cattouse Child Care

Rocket Rules booklets
and
Secure a Childcare Center Package

Del Webb Rancho Mirage

Secure 10 Living Spaces Package
Q&A

Please ask questions in the chat tool.

The recording of today’s webinar will be available next week at: EarthquakeCountry.org/socal

To be notified of future events and recordings, join ECA (free!): EarthquakeCountry.org/join

Please take our survey: SurveyMonkey.com/r/JLY6P6X  Questions? info@earthquakecountry.org

Quakes Break:
SoCal Seismic Activity
since last ECA Workshop

Margaret Vinci
Manager, Office of Earthquake Programs,
Caltech Seismological Laboratory
Quakes Break

Southern California Seismic Activity
Feb – May 2022

Margaret Vinci
Caltech Seismological Laboratory
Office of Earthquake Programs

Southern California Seismic Network

- Earthquake Sensor
- Low Latency Datalogger
- Computer

- Ground motion data sent back to Caltech/USGS servers at the speed of light
- Information provided: magnitude, location, time and depth
- San Luis Obispo to Mexico border
Southern California experiences an earthquake every 3 minutes

4,486 earthquakes this quarter (188 were quarry blasts)
- 308 – M2.0+
- 31 – M3.0+
- 2 – M4.0+
- 0 – M5.0+

Events M3.5 and higher: A quiet quarter with no significant earthquakes - largest events light or minor scattered across reporting region

02/06/22 – M3.6 near Trabuco Canyon
02/10/22 – M3.9 near Santa Paula
02/26/22 – M4.0 near Santa Paula
* 03/22/22 – M3.4 Ontario (felt 757 people far west as Huntington Beach- shallow 4.5 mi deep)
* 04/03/22 – M3.6 near Barstow
* 04/14/22 – M4.5 near El Sauzal, Ensanada (felt in lower San Diego; ShakeAlert triggered)
* 04/16/22 – M3.8 near Maneadero, Mexico
* 04/19/22 – M3.7 swarm near Brawley (5 day period 60 events M1.2 to M3.7) (most likely Imperial Fault) Historically active area with 114 events M4+ in area since 1932 largest M6.9 in 1940
05/09/22 – M3.6 Julian felt MMI V Did You Feel It

Activity

- Reminder that damaging earthquakes can occur outside of SoCal and our fault risk does not stop at the border
- 2010 El Mayor Cucapah M7.2 MMI VII earthquake created damage to buildings and irrigation systems in the Imperial Valley
- Gulf of California is being created by the Laguna Salada Fault system
- Did You Feel It earthquake tool recorded 4,601 responses
Earthquake Resources After an Earthquake

So Cal Seismic Network:  
www.scsn.org

So Cal Earthquake Data Center:  
scedc.Caltech.edu

Did You Feel It:  
earthquake.usgs.gov/data/dyfi/

ShakeAlert Apps:  
MyShake, QuakeAlertUSA, SDemergency, Google Android and WEA

Q&A

Please ask questions in the chat tool.

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EarthquakeCountry.org/socal

To be notified of future events and recordings, join ECA (free!):  
EarthquakeCountry.org/join

Please take our survey:  
SurveyMonkey.com/r/JLY6P6X

Questions?  
info@earthquakecountry.org
What’s the Story with Soft-Story?
An Overview of Active City Seismic Ordinances

May 11, 2022
Daniel Zepeda, S.E.
Degenkolb Engineers

1906 San Francisco (M7.8)
1925 Santa Barbara (M6.8)

1933 Long Beach (M6.4)
1940 El Centro (M6.9)

1971 San Fernando (M6.5)
1987 Whittier Narrows (M5.9)

1989 Loma Prieta (M6.9)
1994 Northridge (M6.7)

2014 Napa (M6.0)
2019 Ridgecrest (M6.4 and M7.1)

Vulnerable Buildings

Chapter 16.0
Tier 1 Checklists

16.1 BASIC CHECKLISTS
16.1.1 Very Low Vulnerability Checklist
This Very Low Vulnerability Checklist shall be completed for all buildings types in areas of very low vulnerability for the risk assessment being conducted. The USGS reference magnitude (Mw) is 4.5. vulnerable buildings include:

- Buildings with intact structural systems
- Buildings with minimal disruption
- Buildings with minimal to no damage

Thereof all the evaluation statements on this checklist shall be marked compliant (C). Non-compliant (N) statements are marked for the appropriate (N) in the checklist. Compliance statements identify important issues that require further investigation. Certain evaluations may not apply to the buildings being evaluated. For non-compliant and unknown evaluation statements, this chapter provides a check list for further evaluation using the corresponding Tier 2 Evaluation procedures corresponding section numbers or in parentheses following each evaluation statement.

16.1.2 Very Low Vulnerability Checklist

A completed checklist shall be documented and retained for all buildings types in areas of very low vulnerability for the risk assessment being conducted. This checklist is the Very Low Vulnerability Checklist and shall be submitted with the completion of the completed checklist to the Building Department for review. The checklist is to be completed for all buildings types in areas of very low vulnerability and shall be retained by the building owner and/or the building department for reference.

This section outlines the procedures for evaluating the buildings in areas of very low vulnerability. The procedures are based on the Basic Configuration checklist, the building type, and the vulnerabilities identified.

The authors in the procedures following each evaluation statement refer to the Basic Configuration checklist, the building type, and the vulnerabilities identified. The procedures require the completion of the Basic Configuration checklist and the evaluation of the vulnerabilities identified.

Structural Components

- CONCrete SheAR WALLS: The structural system shall consist of a complete, well-finished load path, including structural elements and connections, that are designed to transfer the forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.3.1.1, Fig. 1, Sec. 14.1.3)

- WALLS/Floor Diaphragms: The structural system shall consist of a complete, well-finished load path, including structural elements and connections, that are designed to transfer the forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.3.1.1, Fig. 1, Sec. 14.1.3)
Cripple Wall / Sill Plate

- House rocks off the cripple wall
- House falls when the cripple wall collapses

Soft Story Buildings

- A typical soft-story
- During an earthquake
- Possible solutions
  - Reinforced shear walls with seismic pinwood
  - Wood column, Open walls, Soft story
  - Reinforced shear walls
  - Force bolts and braces added to foundation

- Column can be replaced or retrofitted with steel frames
Non-Ductile Concrete

Pre-Northridge Steel Moment Frame
Masonry or Concrete Buildings with Wood or Bare Metal Deck Roofs (e.g. Tilt-Ups)

URM-Unreinforced Masonry Units
The Hazard

90% of world earthquakes happen on Ring of Fire according to USGS


2/22/2011 M 6.3 Christchurch, New Zealand (2013 M6.6)

7/04/19 M 6.4 Napa, USA

7/05/19 M 7.1 Ridgecrest, USA

12/26/2004 M 7.4 Guatemalan and Mexico

2/6/2016 M 6.4 Meinong, Taiwan (2010 M)


2/27/2010 M 8.8 Maule, Chile (2014 M8.3)

2/22/2011 M 6.3 Christchurch, New Zealand (2013 M6.6)

The Shakeout Scenario

What will a large earthquake do to SoCal?

https://earthquake.usgs.gov/scenarios/eventpage/sclegacyshakeout2full_se#shakemap
Why does it matter?

La población en San Francisco y Los Angeles (según el censo de EEUU)
La población de Los Angeles creció 5 veces en la década después del terremoto de 1906 en San Francisco.

![Graph of population growth in San Francisco and Los Angeles](http://graphics.latimes.com/northridge-pages/
http://pubs.usgs.gov/fs/fs-046-03/fs-046-03.html)

Figure 14: The population of the Cities of San Francisco and Los Angeles. US Census Data.
The population of Los Angeles grew fivefold in the decade after the 1906 earthquake struck.

(La población en San Francisco y Los Angeles (según el censo de EEUU)
La población de Los Angeles creció 5 veces en la década después del terremoto de 1906 en San Francisco.)
What can we do? A Seismic Programs Case Study

School Building Seismic Program:
- 334 “Safe” Buildings: 1 Damaged
- 75 “Unsafe” Buildings: 18 Damaged

Repair vs. Upgrade

Evaluation / Repair

Evaluation / Upgrade

Full Retrofit vs. Partial Retrofit

Voluntary Ordinance
Wood Cripple Wall and Sill Plate Anchorage

IEBC CH. A3
(Sim to LA Div 92)

Does NOT apply to buildings with the following:
- Group R-1, R-2, or R-4 w/ more than 4 units
- LFRS with Pole foundations
- Cripple Walls > 4’-0”
- More than 3 stories or 3 stories w/ cripple walls > 14” tall
- Building constructed on concrete slab on grade

FEMA DR-4193-RA2
(Standard Plan Set)

Does NOT apply to buildings with the following:
- More than 2 units and/or More than 2 stories
- Non continuous foundations or w/out a crawl space
- Cripple walls > 7’-0”
- No brick veneer > 4’ in height
- Roof Weight more than 11 psf
- Ss > 2.34 and S1 > 0.97

* Buildings that are excluded form the Provisions listed above will require analysis by and engineer or architect.
Voluntary Ordinance
Wood Cripple Wall and Sill Plate Anchorage

1990’s Voluntary Wood Soft Story Ordinances

DIVISION 93
VOLUNTARY EARTHQUAKE HAZARD REDUCTION IN EXISTING WOOD FRAME RESIDENTIAL BUILDINGS WITH SOFT, WEAK OR OPEN FRONT WALLS
(Added by Ord. No. 172,018, Eff. 5/21/98.)
Mandatory Soft Story Ordinances

2013 San Francisco Ordinance

2015 LA Ordinance

SWOF Scope

LOS ANGELES: YES
SANTA MONICA: YES
WEHO: YES
BEVERLY HILLS: YES
PASADENA: YES
CULVER CITY: YES

LA: YES
SM: YES
WEHO: YES
BH: YES
PAS: YES
CC: YES

LA: NO
SM: TBD
WEHO: SOMETIMES
BH: SOMETIMES
PAS: NO
CC: SOMETIMES

LA: YES
SM: DEPENDS
WEHO: DEPENDS
BH: DEPENDS
PAS: DEPENDS
CC: DEPENDS

LA: YES
SM: DEPENDS
WEHO: DEPENDS
BH: DEPENDS
PAS: DEPENDS
CC: DEPENDS
2022 COLA Ordinance Status

Santa Monica Ordinance

<table>
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<tr>
<th>Building Type Categories</th>
<th>Date Notice Sent</th>
<th>Quantity (Approx.)</th>
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<th>Compliance Date - Permit Issue</th>
<th>Compliance Date - Complete</th>
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<td>August 14, 2017</td>
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<td>December 2017</td>
<td>May 2018</td>
<td>August 2020</td>
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<td>URB*</td>
<td>August 28, 2017</td>
<td>100</td>
<td>November 2017</td>
<td>February 2018</td>
<td>August 2019</td>
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<td>Soft Story - 2 Stories and +10 units</td>
<td>Sept 25, 2017</td>
<td>400</td>
<td>September 2021</td>
<td>September 2022</td>
<td>September 2025</td>
</tr>
<tr>
<td>Soft Story - 3+ or more units</td>
<td>October 23, 2017</td>
<td>180</td>
<td>October 2021</td>
<td>October 2022</td>
<td>October 2025</td>
</tr>
<tr>
<td>Non-Usable Concrete*</td>
<td>October 23, 2017</td>
<td>70</td>
<td>October 2020</td>
<td>April 2022</td>
<td>October 2027</td>
</tr>
<tr>
<td>Steel Moment Frames</td>
<td>October 23, 2017</td>
<td>80</td>
<td>October 2020</td>
<td>October 2029</td>
<td>October 2037</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 7-15 units</td>
<td>November 27, 2017</td>
<td>350</td>
<td>November 2021</td>
<td>November 2022</td>
<td>November 2025</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 7-15 units</td>
<td>February 19, 2018</td>
<td>350</td>
<td>February 2022</td>
<td>February 2023</td>
<td>February 2026</td>
</tr>
</tbody>
</table>

Projects with a pending application as of March 1st, 2020, or submitted between March 1st, 2020 and the expiration of COVID-19 emergency are entitled to a two-year extension to all applicable compliance dates.
**1986 URM Legislation**

- Seismic Zone 4 Inventory of URM
- Affected 365 local governments
- Mostly affected Los Angeles and San Francisco metropolitan areas (28 million people). San Diego was not Zone 4 at the time.
- Roughly 25,900 URM buildings with an average of 10,000 sqft. Note that total building stock is 12M buildings.

http://www.seismic.ca.gov/pub/CSSC%202006%20URM%20Report%20Final.pdf

**1990 URM Legislation**

- Inventory URM
- Establish loss reduction programs (Each jurisdiction can choose its own type of loss reduction program)
  - Mandatory Strengthening
  - Voluntary Strengthening
  - Notification Only
  - Other
- Report Progress to California Seismic Safety Commission

http://www.seismic.ca.gov/pub/CSSC%202006%20URM%20Report%20Final.pdf
### 2004 URM Legislation

#### Table 2. Status of Compliance with the URM Law in 2004

<table>
<thead>
<tr>
<th>Cities &amp; Counties</th>
<th>Number</th>
<th>Percent</th>
<th>Population</th>
<th>Percent</th>
<th>URM’s</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>*with inventory not complete</td>
<td>6</td>
<td>2%</td>
<td>115,789</td>
<td>&lt;1%</td>
<td>55</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>*with inventory complete, but no URM programs</td>
<td>17</td>
<td>5%</td>
<td>594,687</td>
<td>2%</td>
<td>354</td>
<td>1%</td>
</tr>
<tr>
<td>*with no URM buildings</td>
<td>82</td>
<td>22%</td>
<td>2,937,420</td>
<td>10%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>*With URM programs</td>
<td>260</td>
<td>71%</td>
<td>24,729,760</td>
<td>87%</td>
<td>25,536</td>
<td>98%</td>
</tr>
<tr>
<td>Totals</td>
<td>365</td>
<td>100%</td>
<td>28,377,656</td>
<td>100%</td>
<td>25,945</td>
<td>100%</td>
</tr>
</tbody>
</table>

### 2004 AB 2533

**Earthquake Warning.**

This is an unreinforced masonry building. You may not be safe inside or near unreinforced masonry buildings during an earthquake.

[http://www.seismic.ca.gov/pub/CSSC%202006%20URM%20Report%20Final.pdf](http://www.seismic.ca.gov/pub/CSSC%202006%20URM%20Report%20Final.pdf)

### 2006 URM Legislation

#### Table 3. Number and Scope of URM Loss Reduction Programs in California’s Zone 4 as of October 2006

<table>
<thead>
<tr>
<th>Type of Loss Reduction Programs</th>
<th>Entities</th>
<th>Percent</th>
<th>Population</th>
<th>Percent</th>
<th>URM’s</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>134</td>
<td>52%</td>
<td>15,829,977</td>
<td>64%</td>
<td>19,043</td>
<td>75%</td>
</tr>
<tr>
<td>Voluntary</td>
<td>39</td>
<td>15%</td>
<td>2,593,002</td>
<td>10%</td>
<td>1,269</td>
<td>5%</td>
</tr>
<tr>
<td>Notification Only</td>
<td>46</td>
<td>18%</td>
<td>2,630,043</td>
<td>11%</td>
<td>1,487</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>41</td>
<td>15%</td>
<td>3,676,738</td>
<td>15%</td>
<td>3,737</td>
<td>14%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>260</td>
<td>100%</td>
<td>24,729,760</td>
<td>100%</td>
<td>25,536</td>
<td>100%</td>
</tr>
</tbody>
</table>

[http://www.seismic.ca.gov/pub/CSSC%202006%20URM%20Report%20Final.pdf](http://www.seismic.ca.gov/pub/CSSC%202006%20URM%20Report%20Final.pdf)
Santa Monica Ordinance

<table>
<thead>
<tr>
<th>Building Type Categories</th>
<th>Date Notice Sent</th>
<th>Quantity (Approx.)</th>
<th>Compliance Date - Evaluation Report Due</th>
<th>Compliance Date - Plans Submitted</th>
<th>Compliance Date - Retrofit Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Tilt-Up</td>
<td>August 14, 2017</td>
<td>30</td>
<td>December 1, 2017</td>
<td>May 2018</td>
<td>August 2020</td>
</tr>
<tr>
<td>USHP</td>
<td>August 28, 2017</td>
<td>100</td>
<td>November 17, 2017</td>
<td>February 18, 2018</td>
<td>August 23, 2019</td>
</tr>
<tr>
<td>Soft Story - &gt;3 stories</td>
<td>Sept 25, 2017</td>
<td>400</td>
<td>September 21, 2021</td>
<td>September 2022</td>
<td>September 2025</td>
</tr>
<tr>
<td>Soft Story - 3 to 9 or more units</td>
<td>October 23, 2017</td>
<td>150</td>
<td>October 21, 2021</td>
<td>October 22, 2021</td>
<td>October 2025</td>
</tr>
<tr>
<td>Non-Ductile Concrete*</td>
<td>October 23, 2017</td>
<td>70</td>
<td>October 20, 2021</td>
<td>April 2022</td>
<td>October 2027</td>
</tr>
<tr>
<td>Steel Moment Frame*</td>
<td>October 23, 2017</td>
<td>80</td>
<td>October 20, 2021</td>
<td>October 22, 2021</td>
<td>October 2029</td>
</tr>
<tr>
<td>Soft Story - 2 stories, 2 or more units</td>
<td>November 27, 2017</td>
<td>350</td>
<td>November 27, 2021</td>
<td>November 2022</td>
<td>November 2025</td>
</tr>
<tr>
<td>Soft Story - 2 stories, 7 to 15 units</td>
<td>February 19, 2018</td>
<td>350</td>
<td>February 22, 2021</td>
<td>February 23, 2021</td>
<td>February 2026</td>
</tr>
<tr>
<td>Soft Story - 2 stories, 7 to 15 units</td>
<td>May 7, 2018</td>
<td>200</td>
<td>May 2022</td>
<td>May 2023</td>
<td>May 2026</td>
</tr>
<tr>
<td>Soft Story - 2 stories, 7 to 15 units</td>
<td>July 30, 2018</td>
<td>250</td>
<td>July 2022</td>
<td>July 2023</td>
<td>July 2026</td>
</tr>
</tbody>
</table>

*Projects with a pending application as of March 13, 2020, or submitted between March 13, 2020 and the expiration of COVID-19 emergency are entitled to a two-year extension to all applicable compliance dates.

Mandatory “Tilt-Up” Ordinances

Santa Monica Ordinance

<table>
<thead>
<tr>
<th>Building Type Categories</th>
<th>Date Notice Sent</th>
<th>Quantity (Units)</th>
<th>Compliance Date - Evaluation Report Due</th>
<th>Compliance Date - Final Report Submitted</th>
<th>Compliance Date - Retrofit Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete TMI Up*</td>
<td>August 14, 2017</td>
<td>30</td>
<td>December 2017</td>
<td>May 2018</td>
<td>August 2020</td>
</tr>
<tr>
<td>Soft Story - 2 Stories</td>
<td>Sept 25, 2017</td>
<td>400</td>
<td>September 2021</td>
<td>September 2022</td>
<td>September 2025</td>
</tr>
<tr>
<td>Steel Moment Frame*</td>
<td>October 23, 2017</td>
<td>70</td>
<td>October 2020</td>
<td>April 2022</td>
<td>October 2027</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 7 to 15 Units</td>
<td>November 27, 2017</td>
<td>150</td>
<td>November 2021</td>
<td>November 2022</td>
<td>November 2025</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 7 to 15 Units</td>
<td>February 19, 2016</td>
<td>200</td>
<td>February 2022</td>
<td>February 2023</td>
<td>February 2026</td>
</tr>
</tbody>
</table>

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Non-Ductile Concrete Ordinance

2008 to 2011 Concrete Coalition
Non-Ductile Concrete Ordinance

2015 LA Ordinance

2017 SM Ordinance

2017 WEHO Ordinance

2021 COLA ORDINANCE STATUS

NON-DUCTILE CONCRETE RETROFIT PROGRAM STATUS AS OF 7/1/2021

<table>
<thead>
<tr>
<th>Category</th>
<th>0-95%</th>
<th>95-99%</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>NODC BUILDINGS</td>
<td>1,317</td>
<td>1,317</td>
<td>303</td>
</tr>
<tr>
<td>Compliance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pending Compliance</td>
<td>1,200</td>
<td>1,200</td>
<td>40</td>
</tr>
<tr>
<td>Compliance</td>
<td></td>
<td></td>
<td>1,389</td>
</tr>
</tbody>
</table>

3 YEAR COMPLIANCE DATE (CHECKOUT SUBMITTIONS)

5 YEAR COMPLIANCE DATE (PLANS SUBMITTIONS)

25 YEAR COMPLIANCE DATE (DECEMBER CERTIFICATES OF COMPLIANCE)
Santa Monica Ordinance

<table>
<thead>
<tr>
<th>Building Type Categories</th>
<th>Date Notice Sent</th>
<th>Compliance Date Evaluation Report Due</th>
<th>Compliance Date Plans Submitted</th>
<th>Compliance Date - Retrofit Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete TIP Up*</td>
<td>August 14, 2017</td>
<td>December 2017</td>
<td>May 2018</td>
<td>August 2020</td>
</tr>
<tr>
<td>UBM</td>
<td>August 28, 2017</td>
<td>November 2017</td>
<td>February 2018</td>
<td>August 2019</td>
</tr>
<tr>
<td>Soft Story - 2 Stories and 10 units</td>
<td>Sept 25, 2017</td>
<td>September 2021</td>
<td>September 2022</td>
<td>September 2025</td>
</tr>
<tr>
<td>Soft Story - 5 or more units</td>
<td>October 23, 2017</td>
<td>October 2021</td>
<td>October 2022</td>
<td>October 2025</td>
</tr>
<tr>
<td>Non-Ductile Concrete*</td>
<td>October 23, 2017</td>
<td>October 2020</td>
<td>April 2022</td>
<td>October 2027</td>
</tr>
<tr>
<td>Steel Moment Frame*</td>
<td>October 23, 2017</td>
<td>October 2020</td>
<td>October 2029</td>
<td>October 2037</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 7 to 10 Units</td>
<td>November 27, 2017</td>
<td>November 2021</td>
<td>November 2022</td>
<td>November 2025</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 7 to 10 Units</td>
<td>February 19, 2016</td>
<td>February 2022</td>
<td>February 2023</td>
<td>February 2026</td>
</tr>
</tbody>
</table>

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1990’s L.A. Pre-Northridge Steel Moment Frames Inspection and Repair Ordinance

ABOUT 60% OF INSPECTED BUILDINGS HAD SOME LEVEL OF DAMAGE
### Santa Monica Ordinance

<table>
<thead>
<tr>
<th>Building Type Categories</th>
<th>Date Notice Sent</th>
<th>Quantity (Approx.)</th>
<th>Compliance Date - Evaluation Report Due</th>
<th>Compliance Date - Plan Submitted</th>
<th>Compliance Date - Retrofit Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete W/ Up</td>
<td>August 14, 2017</td>
<td>30</td>
<td>December 2017 (4 Months)</td>
<td>May 2018 (6 Months)</td>
<td>August 2020 (2 Years)</td>
</tr>
<tr>
<td>USM</td>
<td>August 26, 2017</td>
<td>100</td>
<td>November 2017 (2 Months)</td>
<td>February 2018 (6 Months)</td>
<td>August 2019 (2 Years)</td>
</tr>
<tr>
<td>Soft Story - 1-2 Stories and 16 units</td>
<td>Sept. 25, 2017</td>
<td>400</td>
<td>September 2019 (2 Years)</td>
<td>September 2020 (2 Years)</td>
<td>September 2023 (9 Years)</td>
</tr>
<tr>
<td>Soft Story - 3 or more units</td>
<td>October 23, 2017</td>
<td>150</td>
<td>October 2019 (2 Years)</td>
<td>October 2020 (3 Years)</td>
<td>October 2023 (9 Years)</td>
</tr>
<tr>
<td>Non-ductile Concrete</td>
<td>October 23, 2017</td>
<td>70</td>
<td>October 2020 (2 Years)</td>
<td>April 2022 (4 Years, 6 Months)</td>
<td>October 2027 (9 Years)</td>
</tr>
<tr>
<td>Steel Moment Frame</td>
<td>October 23, 2017</td>
<td>90</td>
<td>October 2020 (2 Years)</td>
<td>October 2029 (12 Years)</td>
<td>October 2037 (20 Years)</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 2-5 Stories</td>
<td>November 27, 2017</td>
<td>350</td>
<td>November 2018 (2 Years)</td>
<td>November 2020 (3 Years)</td>
<td>November 2093 (9 Years)</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 6-15 Stories</td>
<td>February 19, 2018</td>
<td>350</td>
<td>February 2019 (2 Years)</td>
<td>February 2021 (3 Years)</td>
<td>February 2024 (6 Years)</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 16-49 Stories</td>
<td>May 7, 2018</td>
<td>200</td>
<td>May 2020 (2 Years)</td>
<td>May 2021 (3 Years)</td>
<td>May 2024 (6 Years)</td>
</tr>
<tr>
<td>Soft Story - 2 Stories, 49+ Stories</td>
<td>July 20, 2018</td>
<td>250</td>
<td>July 2020 (2 Years)</td>
<td>July 2021 (3 Years)</td>
<td>July 2024 (6 Years)</td>
</tr>
</tbody>
</table>

### Mandatory Pre-Northridge Steel Moment Frame Ordinances

#### 2017 SM Ordinance

Seismic Retrofit Program

Seismic Retrofit Program is a part of the Southern Californians. Damage to vulnerable buildings physical injury and associated potential distress and losses. These losses can be categorical, economic, or social.

Meetings will be held to discuss the Seismic Retrofit Program and to provide an opportunity for property owners to ask questions and provide feedback. Meetings are open to the public and will be held at City Hall in the Community Development Building.

#### 2017 WEHO Ordinance

[Image of WEHO Ordinance related to Seismic Retrofit Program]
## Southern California Summary

### SOUTHERN CALIFORNIA

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>No. of Affected Buildings</th>
<th>Ordinance</th>
<th>Ordinance Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beverly Hills</td>
<td>300 Reported</td>
<td>Wood Soft-Story built prior to 1978</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td>Barabas</td>
<td></td>
<td>Wood Soft-Story built prior to 1978</td>
<td>Voluntary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reinforced Concrete and Masonry Buildings with Flexible Diaphragms</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steel Moment Frames built prior to 1995</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td>Culver City</td>
<td>303 Reported</td>
<td>Wood Soft-Story built prior to 1978</td>
<td>In Development</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>13,500 Reported</td>
<td>Wood Soft-Story 4 units or more built prior to 1978</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td></td>
<td>1,500 Reported</td>
<td>Non-ductile Concrete built prior to 1977</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td>Long Beach</td>
<td></td>
<td>Wood Soft-Story built prior to 1978</td>
<td>Voluntary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reinforced Concrete Buildings with Flexible Diaphragms</td>
<td>Voluntary</td>
</tr>
</tbody>
</table>

### Palos Verdes Peninsula

- 500 Reported
- Wood Soft-Story built prior to 1978
- Approved and in effect

### Santa Monica

- 209 Reported
- URN built prior to 1975
- Approved and in effect

- 34 Reported
- Core/CMU with Flex Diaph. Built prior to 1994
- Approved and in effect

- 1,573 Reported
- Wood Soft-Story built prior to 1978
- Approved and in effect

- 66 Reported
- Non-Ductile Concrete built prior to 1977
- Approved and in effect

- 89 Reported
- Northridge Steel Moment Frames built prior to 1995
- Approved and in effect

### Torrance

- Inventory in Progress
- Ordinance Scope in Progress

### West Hollywood

- 720 Reported
- Wood Soft-Story built prior to 1978
- Approved and in effect

- 55 + (50 potential steel or concrete) Reported
- Non-Ductile Concrete built prior to 1977
- Approved and in effect

- 31 + (50 potential steel or concrete) Reported
- Northridge Steel Moment Frames built prior to 1995
- Approved and in effect

## Northern California Summary

### NORTHERN CALIFORNIA

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>No. of Affected Buildings</th>
<th>Ordinance</th>
<th>Ordinance Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>64 Reported</td>
<td>Wood Soft-Story 5 units or more built prior to 1985</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td>Berkeley</td>
<td>327 Reported</td>
<td>Wood Soft-Story 5 units or more built prior to 1978</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td>Fremont</td>
<td></td>
<td>Wood Soft-Story built prior to 1978</td>
<td>Voluntary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tie-Up and Reinforced Masonry Buildings with Flexible Diaphragms build prior to 1976 UBC</td>
<td>Approved and in effect</td>
</tr>
<tr>
<td>Oakland</td>
<td>1,380 Reported</td>
<td>Wood Soft-Story 5 units or more built prior to 1991</td>
<td>Screening Only</td>
</tr>
<tr>
<td>Palo Alto</td>
<td>204 Reported</td>
<td>Wood Soft-Story</td>
<td>In Development</td>
</tr>
<tr>
<td>Richmond</td>
<td>Inventory in Progress</td>
<td>Ordinance Scope in Progress</td>
<td>In Development</td>
</tr>
<tr>
<td>San Francisco</td>
<td>4,956 Reported</td>
<td>Wood Soft-Story built prior to 1978</td>
<td>Approved and in effect</td>
</tr>
</tbody>
</table>

https://degenkolb.com/seismic-ordinances/seismic-ordinances/?msclkid=61527a92d13b11ecb3e9704276223729
### Current Activities

- City of Torrance Developing Ordinances for SWOF, NDC, PN-SMF and RW
- City of Long Beach Scheduled to Survey SWOF, NDC, PN-SMF and RW
- ATC is developing proposed NDC and RW ordinances for Bay Area
- Seattle working on URM technical provisions
- Proposed AB 1721 Soft-Story bill would provide $400M fund over 5Y
### Other Things We Can Do

#### Safety
- **5 ★** Injuries and blocking of exit paths unlikely
- **4 ★** Serious injuries unlikely
- **3 ★** Loss of life unlikely
- **2 ★** Loss of life possible in isolated locations
- **1 ★** Loss of life likely in the building

#### Repair cost
- **5 ★** Minimal damage (< 5%)
- **4 ★** Moderate damage (< 10%)
- **3 ★** Significant damage (< 20%)
- **2 ★** Substantial damage (< 40%)
- **1 ★** Severe damage (40%+)
- NE Not Evaluated

#### Recovery
- **5 ★** Within hours to days
- **4 ★** Within days to weeks
- **3 ★** Within weeks to months
- **2 ★** Within months to a year
- **1 ★** More than one year
- NE Not evaluated

### BORP: Building Occupancy Resumption Program
Questions?
Short Announcements

Please take our brief survey about today’s workshop: SurveyMonkey.com/r/JLY6P6X

Open Discussion & Networking

Please take our brief survey about today’s workshop: SurveyMonkey.com/r/JLY6P6X
Connect with ECA SoCal

- EarthquakeCountry.org/socal
- socal@earthquakecountry.org
- Terremotos.org
- Twitter.com/eca
- info@earthquakecountry.org

Please take our brief survey about today’s workshop: SurveyMonkey.com/r/JLY6P6X