

San Francisco Chronicle

# SURVIVAL GUIDE

SFCHRONICLE.COM | SUNDAY, OCTOBER 15, 2023



ARE YOU READY  
FOR THE NEXT BIG ONE?

Here's how to secure your family and home



**GET PREPARED. WORRY LESS.**

PROTECT YOUR BIGGEST ASSET FROM  
THE **NEXT EARTHQUAKE.**

[StrengthenMyHouse.com](https://StrengthenMyHouse.com)





## 4

## HIGH RISK

Thousands of buildings across the Bay Area are highly vulnerable in a major quake.

## 9

## PLANNING

Tips for preparing a go kit, being fire-safe, organizing finances, creating an action plan.

## 16

## RECOVERY

How to help others, contact loved ones, find news and resources, get financial help.

## 19

## CHECKLIST

A complete checklist to keep on hand for preparing and recovering from a quake.

## ON THE COVER

Two residents stand in front of their collapsed apartment building in the Marina district the day after the Loma Prieta earthquake.

Photo by Frederic Larson/  
The Chronicle 1989



Scott Sommerdorf/The Chronicle 1989

Children pass a home near the corner of Fifth and Jefferson streets in Watsonville damaged by the Loma Prieta quake.

# The Big One is coming — take action to prepare

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Earthquakes are an inevitable part of life in California, a threat we live with daily. Even though we haven't experienced a major shaker in decades, quakes are an ever-present risk in a region where two of the globe's major tectonic plates meet.

Anyone who lived through the 1989 Loma Prieta quake in the Bay Area and Santa Cruz can tell you it was a life-changing experience. After 15 violent seconds, damage from the magnitude 6.9 quake was widespread, and cataclysmic in some places. There were aftershocks. Roads and bridges were down, power and communication were out.

## ONLINE EXTRA

The guide is available in a downloadable form at [sfchronicle.com/survival](http://sfchronicle.com/survival).

Each year, an earthquake of magnitude 8 or higher — stronger than the Great Quake of 1906 that decimated much of San Francisco, estimated at 7.9 — is expected to strike somewhere on Earth. Our Bay Area, which is underlain by multiple fault lines, is always a candidate for such a temblor. Experts predict, and history suggests, that we are overdue for a

major quake, particularly along the Hayward Fault in the East Bay.

To help you prepare, the Chronicle offers this guide to preparation and survival. It has tips on putting together an emergency kit; securing your home; taking care of your loved ones, neighbors and pets; and getting your finances in order. It tells you which apps and websites can help keep you safe and informed, and provides critical information on what to do if and when the Big One hits and how to recover afterward. Please keep it on hand for reference, but begin taking action today to prepare for the inevitable.



# Is your family prepared for any **EMERGENCY?**

CREATE YOUR OWN PLAN TO STAY SAFE.

## Emergency supply kit checklist

- |   |  |  |  |
|---|--|--|--|
| <input type="checkbox"/> Drinking water                                   | <input type="checkbox"/> Radio                             | <input type="checkbox"/> Medication and eyeglasses | <input type="checkbox"/> Cash and credit cards |
| <input type="checkbox"/> Non-perishable food, including baby and pet food | <input type="checkbox"/> Flashlight                        | <input type="checkbox"/> Blankets and clothing     | <input type="checkbox"/> Toiletries            |
| <input type="checkbox"/> Tools and utensils                               | <input type="checkbox"/> First aid kit                     | <input type="checkbox"/> Children's activities     | <input type="checkbox"/> Important documents   |
| <input type="checkbox"/> Batteries  | <input type="checkbox"/> Mobile phone and portable charger |  |  |



1

### UPDATE YOUR INFO FOR OUTAGE ALERTS

Update your contact information at [pge.com/outagealerts](https://www.pge.com/outagealerts) so we can reach you in an emergency.



2

### CONFIRM YOUR EMERGENCY EXITS

from your home and establish a location where your family or roommates can reunite after evacuating.



3

### PLAN FOR YOUR PETS

by including them in practice drills and helping them get comfortable with a leash or carrier during stressful situations.



4

### LEARN HOW TO OPEN YOUR GARAGE DOOR MANUALLY

in the event the door is unable to open automatically during an outage.



5

### CHECK YOUR STANDBY GENERATOR

and ensure that it is working properly because it can help avoid damage to personal property and keep emergency first responders safe.



To learn more ways to keep you and your community safe, visit [safetyactioncenter.pge.com](https://safetyactioncenter.pge.com).



## SURVIVAL GUIDE

# A huge earthquake could damage thousands of San Francisco buildings

About 3,400 structures at risk as local retrofitting enforcement lags, temblor threats rise

By Claire Hao

**T**housands of San Francisco buildings could have a significant vulnerability to earthquakes, similar to those that collapsed in the devastating earthquake that struck Turkey and Syria earlier this year.

An estimated 3,400 buildings, which are mostly commercial but also include residential structures, may be made of non-ductile concrete, according to a city planning office that is developing a yet-to-be-finalized retrofit program to boost the safety of concrete buildings.

In February, a 7.8 magnitude earthquake shook Turkey and Syria, killing tens of thousands of people — some of whom were trapped when non-ductile concrete structures collapsed. A more recent major quake in Morocco, magnitude 6.8, killed close to 3,000 people, with brick structures being a key point of vulnerability.

Non-ductile concrete buildings feature brittle concrete columns, beams, walls and other points of connection. They lack sufficient steel reinforcement, making them more susceptible to buckling from back-and-forth shaking, said Megan Stringer, president of the Structural Engineers Association of Northern California.

“Imagine if you were to take a straw, and you put it between your fingers and you push on it,” Stringer said. “Eventually that straw bends in the middle.”

In San Francisco, there is uncertainty as to whether the

3,400 buildings on a city list are actually made of non-ductile concrete. The Office of Resilience and Capital Planning used public records to arrive at the total so it could make an educated guess of which pre-1999 buildings were made of concrete, according to Angela Yip, senior communications and legislative analyst for the Office of the City Administrator. To know for sure what buildings are concrete and if they are at high risk in the event of an earthquake, a structural engineer needs to make an assessment of each building, Yip said.

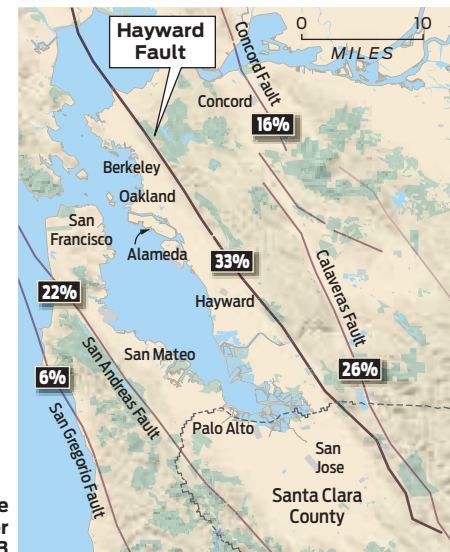
Neighborhoods with the largest concentration of possible non-ductile concrete buildings include the downtown area, South of Market and the Tenderloin, said Brian Strong, who runs the Office of Resilience and Capital Planning.

“There should not be the kind of reaction... of ‘Well, (Turkey is) a developing country, we have better codes, we have better construction practices, we could never get an earthquake that large.’ None of that is true. We have all of the same issues that they have there,” said David Friedman, a retired structural engineer who has worked in the

*Retrofit continues on W6*

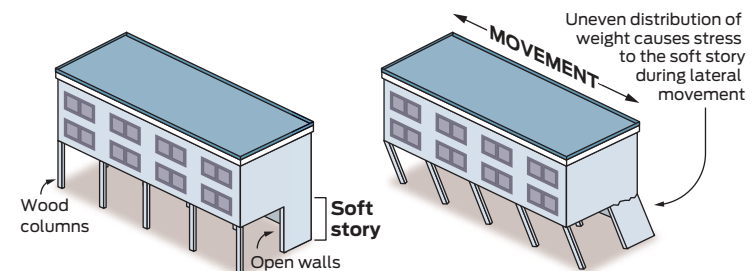
## Soft-story buildings

Some Bay Area cities are taking steps to require property owners to retrofit soft-story apartment buildings, which are known to be particularly vulnerable to collapse risks during earthquakes.



Probability of an earthquake with a magnitude of greater than 6.7 from 2014-43

## Typical soft-story building



## Estimated soft-story buildings in the Bay Area

	Buildings	Total units	Year built
San Francisco	10,800	57,600	<1973
Oakland	2,810	24,000	<1991
Santa Clara Co.	2,630	33,119	NA
Berkeley	400	5,000	<1995
Palo Alto	331	NA	<1977
Alameda	178	2,623	<1985

Sources: Association of Bay Area Governments; USGS

John Blanchard / The Chronicle

## ADVERTISING FEATURE

# HELP PROTECT YOUR FAMILY AND STRENGTHEN YOUR HOME WITH AN EARTHQUAKE RETROFIT.

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**CALIFORNIA RESIDENTIAL  
MITIGATION PROGRAM**

No one can know when the next earthquake will strike, but nothing is better than the peace of mind that comes when you have done everything you can to keep your family safe. Most California residents live along the San Andreas fault zone, one of the largest faults in the world. Experts predict that there is more than a 99 percent chance that California will be struck by a significant earthquake in the next 30 years. However, even if you can't predict the next damaging earthquake, you can take action to protect your family and your home—and the solution may be simpler and more affordable than you think.

"We absolutely live in earthquake country, so it's important to understand your risk," says CEA's Chief Mitigation Officer Janiele Maffei. For Maffei and the CEA, helping Californians to protect their families from earth-

quake damage means empowering residents to strengthen their home.

"It's where your family sleeps at night. It's the single greatest investment someone will make in their life," says Maffei.

If your home was built before 1980 or even before the year 2000, it likely needs some earthquake retrofitting. One relatively easy fix is to get rid of an unreinforced chimney, which can topple even in a moderate earthquake, damaging your home and putting your family at risk. Another vulnerability is a stilt- or pole-supported home, perhaps built on a steep hillside. If your home is supported by stilts or poles, Maffei suggests you consult an engineer about how to better strengthen your home against earthquake damage.

Two vulnerabilities stand apart from the rest as the most common in homes across the state. The first is having a crawl space below a raised foundation home. Older homes built on a raised foundation typically have four or five steps up to the first floor, leaving a crawl space below the home with an access panel on the outside of the house. Maffei points out that if you have a home built before 1980, you may have this vulnerability. If your home was built before 1940, you definitely have it.

The second vulnerability to look out for is a home with a living space over a garage, known as a "soft story." These structures can be dangerous because an attached garage is often not strong enough to withstand earthquake shaking.

No matter what kind of retrofit you need, the CEA has made the process of earthquake retrofitting as simple as possible with a list of experienced retrofitting contractors. "Once they find a contractor, it's a pretty simple process,"

says Maffei, noting that many contractors on their list are earthquake retrofit specialists, so they know how to get the work done as quickly and efficiently as possible.

In order to better help Californians to strengthen their homes against earthquake damage, the CEA teamed up with Cal OES to create the California Residential Mitigation Program (CRMP), which established the Earthquake Brace + Bolt (EBB) and Earthquake Soft-Story (ESS) grant programs. Its website offers many additional resources for homeowners seeking to strengthen their homes against earthquake damage.



As part of the CRMP's charge to make homes for all Californians safer from earthquake damage, Maffei said it is currently in the process of expanding its grant programs. This includes the upcoming extension of the ESS grant program to multi-family units, especially in socially vulnerable neighborhoods. And, as always, it is planning to expand the number of zip codes where these programs apply.

More than anything, what makes Maffei's work worth it is the feedback she gets from homeowners who have been able to strengthen their homes and protect their families with an earthquake retrofit.

"You will sleep better at night. People tell me that they do."

Visit [StrengthenYourHouse.com](https://www.strengthenyourhouse.com) to learn more about your home's vulnerabilities and how to get prepared. ■



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## SURVIVAL GUIDE

## RETROFIT

From page W4

Bay Area for decades.

In a multistory building, non-ductile concrete construction can lead to a phenomenon seen in the Turkey-Syria earthquake known as “pancaking,” where one floor drops onto the next in succession, Friedman said. Lack of enforcement of modern construction codes contributed to the disaster.

Non-ductile concrete buildings are found throughout the Bay Area, said Sarah Atkinson, earthquake resilience policy manager with SPUR, the San Francisco Bay Area Planning and Urban Research Association.

They were generally built decades ago, and many have not been retrofitted for earthquake safety, with no mandates in any Bay Area city requiring that building owners do so.

“These buildings collapse all the time in earthquakes across the world, and it’s very obvious to everyone that these are hazardous buildings,” Atkinson said. “Yet not many cities have actually taken steps to move forward with retrofit mandates of these buildings.”

In San Francisco, much of the city’s affordable housing stock is made of concrete — some of it potentially non-ductile, Strong said. In addition, some single-room occupancy units in the Tenderloin and in Chinatown, as well as some homeless shelters, might be in the same situation, he said.

Some of the most vulnerable non-ductile concrete buildings in the Bay Area were built during the 1950s to 1980s, though “up until the year 2000, there were still aspects of concrete buildings that were not sufficiently designed,” said Joe Maffei, principal at Maffei Structural Engineering and a consultant to the city.

A few Southern California cities have ordinances requiring retrofits of non-ductile concrete structures, including Los Angeles, Santa Monica and West Hollywood.

San Francisco is in the process of developing a proposed ordinance as part of the Concrete Building Safety Program that Strong oversees. The program began convening meetings in October 2022 with a working group that includes the mayor’s office, structural engineers, commercial building owners, affordable housing operators and neighborhood groups.

The proposal would be brought before the Board of Supervisors for approval,



Adam Pardee/Special to the Chronicle

**Dogs play at Hamilton Park across the street from the building at 2130 Post Street that recently underwent seismic upgrades.**

*“These buildings collapse all the time in earthquakes across the world. ... Yet not many cities have actually taken steps to move forward with retrofit mandates of these buildings.”*

*Sarah Atkinson, earthquake resilience policy manager  
with the San Francisco Bay Area Planning and Urban Research Association*

Strong said, but there is no timeline for when it would be ready, or when a proposed ordinance would require vulnerable concrete building retrofits to be completed by, he said.

The concrete building program is also looking at the risks of approximately 700 tilt-up buildings, another type of vulnerable concrete building in which slabs of concrete are lifted up to form the exterior walls, according to Strong. These buildings, commonly used to build supermarkets, warehouse facilities and car repair shops, tend to be in the South of Market and Bayview neighborhoods and along the more industrial areas of the eastern waterfront, according to Strong.

Any timeline for retrofits, for both non-ductile concrete and tilt-up buildings, is likely to be long. Santa Monica’s deadline is 10 years and West Hollywood’s is 20 years from the time notice was given to building managers, though both deadlines were extended because of the COVID-19 pandemic. Los Angeles’s deadline is 25 years.

Will there be enough time before the Big One? It’s impossible to say. Over the next 30 years in the Bay Area, there is a 72% chance of a 6.7 magnitude earth-

quake, a 51% chance of a 7.0 magnitude earthquake and a 20% chance of a 7.5 magnitude earthquake, according to the U.S. Geological Survey.

The East Bay’s Hayward Fault, which is believed capable of generating up to a magnitude 7.0 earthquake, has not produced a big quake since 1868 and is “due” for one, geologists say. The San Andreas Fault produced the estimated 7.9 magnitude earthquake of 1906 and could give San Francisco another huge shake again.

San Francisco already has ordinances on the books requiring retrofits for two other types of structural flaws, Strong said: unreinforced masonry buildings (which include brick, stone and totally unreinforced concrete buildings with little to no steel rebar — an issue in the Morocco quake) and soft-story buildings. Soft-story buildings are those in which the bottom floor doesn’t have a lot of reinforcement — where a parking garage or storefront shop sits, for example.

Ninety-two percent of the wood frame soft-story buildings known to be vulnerable have been retrofitted, Yip said. After the 6.9 magnitude 1989 Loma Prieta earthquake, San Francisco passed an ordinance requiring all unreinforced

masonry buildings to be retrofitted — and as of 2014, 95% have been retrofitted or demolished, according to the Structural Engineers Association of Northern California.

“Different from LA, which put together an ordinance for 25 years fairly quickly and threw everything into that — they threw their soft story into it, they threw concrete — we’re going to take the approach where we address one building type at a time,” Strong said.

Non-ductile buildings are difficult to retrofit. For one, they’re hard to identify: Whereas you can look at a building and tell that there’s a soft story, non-ductile concrete buildings require a structural engineer’s assessment to verify, Maffei said.

Non-ductile concrete buildings also require more invasive, complicated retrofits than soft-story apartment buildings, Maffei said. Multiple floors might need to be retrofitted as opposed to the single floor for soft-stories, and more people living in non-ductile buildings might have to move elsewhere as the retrofits are completed — a process that could take months, added Atkinson of SPUR.

Because concrete buildings vary so much in their design, costs also range from \$40 per square foot to up to \$200 per square foot, Maffei said. Strong said the wood frame soft-story retrofit program cost around \$75,000 per building; the cost of the concrete retrofit program “is going to be likely to be much higher than that,” Strong said.

When San Francisco’s wood frame soft-story apartment building retrofit program first started in 2013, the economy was in a better place and building owners were more able to absorb extra costs, access affordable loans or refinance, Atkinson said. That’s less the case now, she noted.

“It’s very likely that this time around, the city’s financing options are going to make-or-break the potential for this program to move forward,” Atkinson said.

The pace of retrofit programs in the Bay Area must speed up, Friedman said — and that requires finding the political will to put resources towards an issue that is not always front-of-mind.

“I can understand stakeholders balking at what the cost of retrofitting a non-ductile concrete building will be; it will be expensive. But we’re dealing with buildings that (can) kill people, and at some point, we have to get a sense of urgency,” Friedman said.

*Claire Fonstein contributed to this report.*



## SURVIVAL GUIDE

# How Bay Area transit services prepare for the next big earthquake

By Ricardo Cano

Public transit demonstrated its resilience in the immediate aftermath of the 1989 Loma Prieta earthquake, when BART ran 24-hour service to compensate for severe damage to the Bay Bridge.

BART riders traveling through the underwater Transbay Tube when the quake hit made it through safely — with some turbulence. No one was injured, and the BART system escaped without any major damage, even though its tracks cross several fault lines.

The region's transit operators have been preparing for the Bay Area's next big earthquake and say they have emergency plans in place.

BART's earthquake early-warning detection system alerts the system to pending quakes and automatically signals trains to slow down at higher seismic intensities. The regional rail agency has "three basic levels of response," based on a quake's severity and damage, according to agency spokesperson James Allison. Operators and front-line staff go through several emergency response and evacuation drills every year, he said.

Riders on BART during an earthquake "should listen for instructions from BART personnel," Allison said. Following an earthquake, he said, BART trains will stop (except for trains in the Transbay Tube and Berkeley hills tunnel) until it is determined it is safe to move the train to the nearest station, where riders will get off. Trains in the tube or tunnel move to the nearest station and then hold.

During this holding period, BART personnel assess the damage and determine the level of response. If the earthquake magnitude is high, for example, trains would stop or proceed to the closest station slowly for track inspections.

Muni's quake preparedness plan includes guidance similar to BART's.

After an earthquake, riders should stay in their Muni bus or train and wait for the operator's instructions. Buses above ground will pull over to the closest and safest location. Trains in the



Jessica Christian/The Chronicle

**BART has an early-warning detection system that alerts the system to pending quakes and regulates speed accordingly.**

subway "will stop immediately," according to Muni's most recent emergency plan, and riders stuck underground during an earthquake should stay in the train unless instructed to evacuate by the operator.

Like BART, Muni personnel would assess damages and inspect the system's infrastructure to determine how soon Muni service could continue. Motor buses would replace electric trolley buses and streetcars if an earthquake damaged the system's power lines.

The impact an earthquake would have on Caltrain service depends on its severity. An earthquake with a magnitude higher than 5.0 would restrict trains'

speeds to 20 mph on the Peninsula's commuter rail system, if it strikes within a 50-mile radius.

Earthquakes with a magnitude of 5.8 or higher and within the same radius trigger more stringent protocols. A quake that powerful would require trains in service to stop completely until inspection crews check the condition of the tracks and Caltrain's infrastructure and identify any potential hazards, according to Caltrain.

The agency that operates the San Francisco Bay Ferry also doubles as the coordinator for the region's water transit response.

When a big earthquake hits, the Wa-

ter Emergency Transit Agency would activate its emergency operations center, and personnel would perform "'windshield' checks on ferries and terminals to determine what can be safely operated where," ferry spokesperson Thomas Hall said. Ferries would also be used in shuttling evacuees and first responders.

"We practice this plan with training exercises multiple times a year," Hall said. "We hope to never have to use it, but we're confident in our ability to provide emergency water transit when called upon."

Reach Ricardo Cano: [ricardo.cano@sfgchronicle.com](mailto:ricardo.cano@sfgchronicle.com); Twitter: @ByRicardoCano

## SURVIVAL GUIDE

# Information technology is key to staying in touch

By Anna Kramer

Power blackouts and poorly thought out evacuation-alert systems have left Californians without critical information during natural disasters in the past. But there are some free apps for your phone, numbers to text, systems to register for and technology to buy that could ensure that you have the most accurate and up-to-date information when disaster strikes, even during a power blackout. To ensure you get critical information when you need it, it's best to choose a diverse range of disaster-preparedness technology options. The Federal Emergency Management Agency also reminds people that mobile networks can become overwhelmed in a crisis, and it is often easier to receive information via text than by a phone call or via an app during those times. All of these apps are available for iOS in the Apple App Store or Android in the Google Play store unless otherwise indicated.

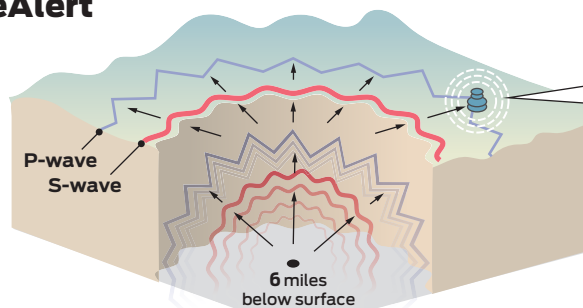
## Free apps

**MyShake:** The MyShake app will send ShakeAlert earthquake warnings to enrolled Californians. The app broadcasts earthquake early warnings issued by the state's ShakeAlert system, which uses a network of earthquake detectors to provide seconds of early warning of a quake. Android phone users will receive the ShakeAlert warnings regardless of whether they have downloaded the app because of a partnership between Google and the Governor's Office of Emergency Services.

**American Red Cross:** The nonprofit provides a number of free emergency alert apps for download, including an all-inclusive Emergency app and one specifically for earthquakes. Other apps include one called First Aid, which provides information if you need to render first aid.

## How ShakeAlert app works

When an earthquake hits, fast-moving P-waves, slower-moving S-waves and then surface waves radiate.



Sensors detect the initial P-waves, which rarely do damage, and send information about projected size, location and shaking to processing centers. If the quake fits the correct profile, an alert is sent out. The system does not predict quakes, but warns within seconds that waves are on the way. It is designed so you can prepare for the more dangerous S-waves and following surface waves.

Source: [earthquake.usgs.gov](http://earthquake.usgs.gov)

Graphics by John Blanchard / The Chronicle

**Zello:** This app can turn your phone into a walkie-talkie, allowing you and anyone else with the app to communicate via short audio messages. It can be a helpful way to stay connected to others during an emergency, or to make quick contact with separated family members.

**5-0 Radio Police Scanner:** You can listen to live police scanners using this free app, including San Francisco's City Police Dispatch and San Francisco fire and emergency medical services. Police scanners can sometimes provide useful information during natural disasters.

## County-specific apps

**Alameda County:** To enroll in the county's AC Alert system, download the Everbridge app and search for AC Alert. The system allows you to provide multiple methods of emergency contact and other useful information. You can also register for AC Alert at [www.acalert.com](http://www.acalert.com).

**Santa Clara County:** The ReadySCC free mobile app helps you create an emergency preparedness kit and an emergency preparedness family plan, including important emergency contacts and links to resources and information.

## Phone and email

You can register your phone and email address for location-specific alerts with local and federal government sources.

If you text "PREPARE" to 43362, your phone number will be signed up for FEMA text alerts and emergency preparedness tips.

Save the number 43362 in your contacts. If you text this number with the word "SHELTER" and your ZIP code, you can find open shelters.

## County-specific alerts

For most Bay Area counties, you can sign up for local government and public safety alerts, including emergency warnings, via Nixle, by texting your ZIP code to 888-777.

You can also fill out an online registration form to receive alerts via phone or email for some Bay Area counties. Search your local county government website for information on signing up in Marin, San Mateo, Santa Clara, Sonoma and Solano counties.

## Twitter

You can also receive useful information from emergency alerts shared on county and other government Twitter accounts.

**San Francisco:**  
@SF\_Emergency

**Contra Costa:**  
@ContraCostaFire, @CCCCounty and @CoCoCWS

**Marin:** @AlertMarin, @MarinSheriff and @MarinCountyFire

**Alameda:** @AlamedaCoAlert, @AlamedaCoFire and @AlamedaCoSheriffs

**Napa:** @napacountyfire, @napasheriff and @CountyofNapa

**San Mateo:**  
@sanmateoco, @SMCSheriff and @SanMateoPD

**Santa Clara:** @SCCGov @sccfiredept and @SCC\_OES

**Solano:** @SolanoFire, @SolanoSheriff and @SolanoCountyEMS

**Sonoma:** @CountyofSonoma and @SonomaSheriff

**Cal Fire:** @CAL\_FIRE



## PLANNING

## Wireless Emergency Alerts

Federal agencies like the National Weather Service and local governments use a system called Wireless Emergency Alerts to communicate with most cellphones. The alerts are usually accompanied by a sound and vibration pattern so that users can identify their importance.

But in areas with poor or no cellphone service, the alerts may be critically delayed or not arrive. Some people have reported that they did not receive essential emergency alerts when they were supposed to. Other apps and messaging systems that rely on Wi-Fi and data plans may help fill in the gaps left by the wireless emergency alert system.

The federal Emergency Alert System is a separate system that uses broadcasters and satellite providers to broadcast emergency warnings to television and radio. If you cannot access cell service or the internet, turning on a radio or television during an emergency may help you get the critical information you need.

Both the WEA and the EAS are part of the Integrated Public Alert and Warning System, which also uses digital road signs and sirens as alternative alerting mechanisms.

## Key hardware

FEMA and the California Governor's Office of Emergency Services recommend that families have an emergency charging option for cellphones in case of a power outage. Be sure to keep at least one backup portable charger in your emergency preparedness kit.

Most state and local emergency preparedness lists recommend finding a battery-powered or hand-cranked radio so that you can get information if you cannot access the internet or any cell-based technologies. Some lists also recommend extra batteries and a portable drive or cloud-based storage to hold scans of important documents, like insurance information.

If cell and internet networks are knocked out during a natural disaster, satellite phones can be an option to stay in touch because they rely on a network of satellites unaffected by natural disasters.

Though expensive, there are a few satellite phones commonly recommended for emergency use, including the Inmarsat IsatPhone 2 and the Iridium 9555. Some retailers have offered the Inmarsat for free alongside a yearly plan, and it may be worth exploring if you're willing to spend somewhere between \$50 and \$100 a year to keep a satellite phone active for emergencies.

# What to pack in your earthquake 'go kit'

A key tool for making it through the next big disaster is an emergency survival kit — and you should have more than one. It's important not only to store one at home, but to keep one in your car, because that's where you might be when chaos erupts. Prepackaged kits are available from a variety of retailers, but if you want to assemble your own, here are the essential elements, according to the American Red Cross. For the car, the gear is best packed tightly into a small backpack, to save space. At home, a basic outdoor garbage can works best for storage.



Carlos Avila  
Gonzalez/  
The Chronicle

## For the car

- **Water:** A three-day supply amounting to 1 gallon per person per day. (For the car kit, you'll need to keep this outside the backpack in your vehicle's trunk or cargo area. Because 3 gallons of water can be bulky for the car, some people prefer to store as little as a quart a day, which is bare survival mode. Each quart can be stored in the backpack in small foil packets, available at disaster-supply sites or stores.)
- **Food:** A three-day supply, about 1,000 calories — something lightweight like energy bars
- **Water purification tablets,** or a water filter, in case you go beyond three days and need to find alternate sources of water
- **Portable radio**
- **Flashlight** and/or light stick
- **Charger for cellphones** and devices, powered by batteries, along with a

cellphone charger cord for the car

- **Batteries**
- **Blankets:** Emergency survival models are compact and light
- **Tube tent**
- **Sanitation and personal hygiene supplies,** including toilet paper
- **Duct tape**
- **Work gloves**
- **First-aid kit**
- **Sewing kit**
- **Whistle**
- **Smoke/dust mask**
- **Gas meter valve shut-off wrench**
- **Instant hand warmers**
- **Leatherman-style multitool** or pocketknife with can opener, screwdriver heads and knife blade.
- **Poncho** or other rain gear
- **Candles**
- **Waterproof matches**
- **50 feet of rope** (3/16 inch or bigger)

## For the home

All the previous items plus these:

- **Medications:** At least a seven-day supply
- **Cash:** Small-denomination bills and coins
- **Tools:** Foldable shovel, hatchet, Leatherman-style multitool, screwdriver, pliers, pocketknife and can opener
- **Extra clothes**
- **Battery-powered lamp**
- **Maps** of the area

## Other items to consider

- **Additional medical supplies** (hearing aids, glasses, contacts, syringes, etc.)
- **Baby supplies**
- **Games and toys** for children
- **Pet supplies**
- **Two-way radios**
- **Extra car and house keys**
- **Scissors**
- **Sleeping bags**
- **Plastic sheeting** (for emergency shelter)
- **Paper or plastic plates, bowls and cutlery**
  - **Small cooking pot**
  - **Soap and bath towels**
- **Copies of personal documents**
- **Emergency contact list**

— Chronicle staff report



**PLANNING**

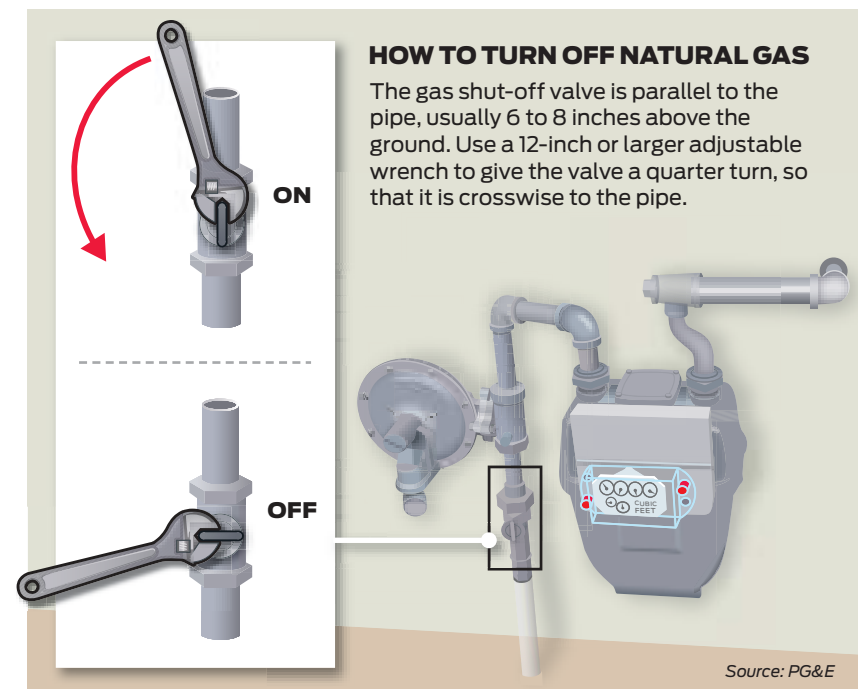
# Guard your home against quake-caused fire

From the second a fire ignites in your house, experts say you may have only two minutes to get out before being overwhelmed by smoke and flames — and just five minutes before the entire structure is engulfed in flames. The trick is to prevent the blaze from getting to that point. Here are things you can do to accomplish that:

- Double-paned windows can slow the fire's invasion, as can fire-resistant walls such as stucco.
- Check the batteries in your smoke alarms once a month, and replace them twice a year. A good rule of thumb is to replace them when you change the clocks in the spring and fall.
- Get rid of old paints and other flammable liquids you don't need anymore, and store those you do in well-ventilated areas.

- Cover all outside vents with tight mesh of one-eighth- to one-quarter-inch openings to prevent embers from floating inside and igniting furniture or inner walls.
- Keep a disaster kit within easy reach of the front door — see the survival kit section in this guide — and make sure valuable documents, such as deeds, passports and insurance policies, are in one handy place to grab quickly on the way out.

— *Chronicle staff report*



**HOW TO TURN OFF NATURAL GAS**

The gas shut-off valve is parallel to the pipe, usually 6 to 8 inches above the ground. Use a 12-inch or larger adjustable wrench to give the valve a quarter turn, so that it is crosswise to the pipe.

Source: PG&E

**CHIMNEY**

- Equip your chimney with a spark arrester, and have it inspected and cleaned annually.

**BEDROOM**

- Install a smoke detector in the bedroom, especially if you sleep with the door closed.
- Turn off electric blankets and other electrical appliances when not in use.
- Do not smoke in bed.
- If you have security bars on your windows or doors, be sure they have an approved quick-release mechanism so you and your family can get out if there is a fire.

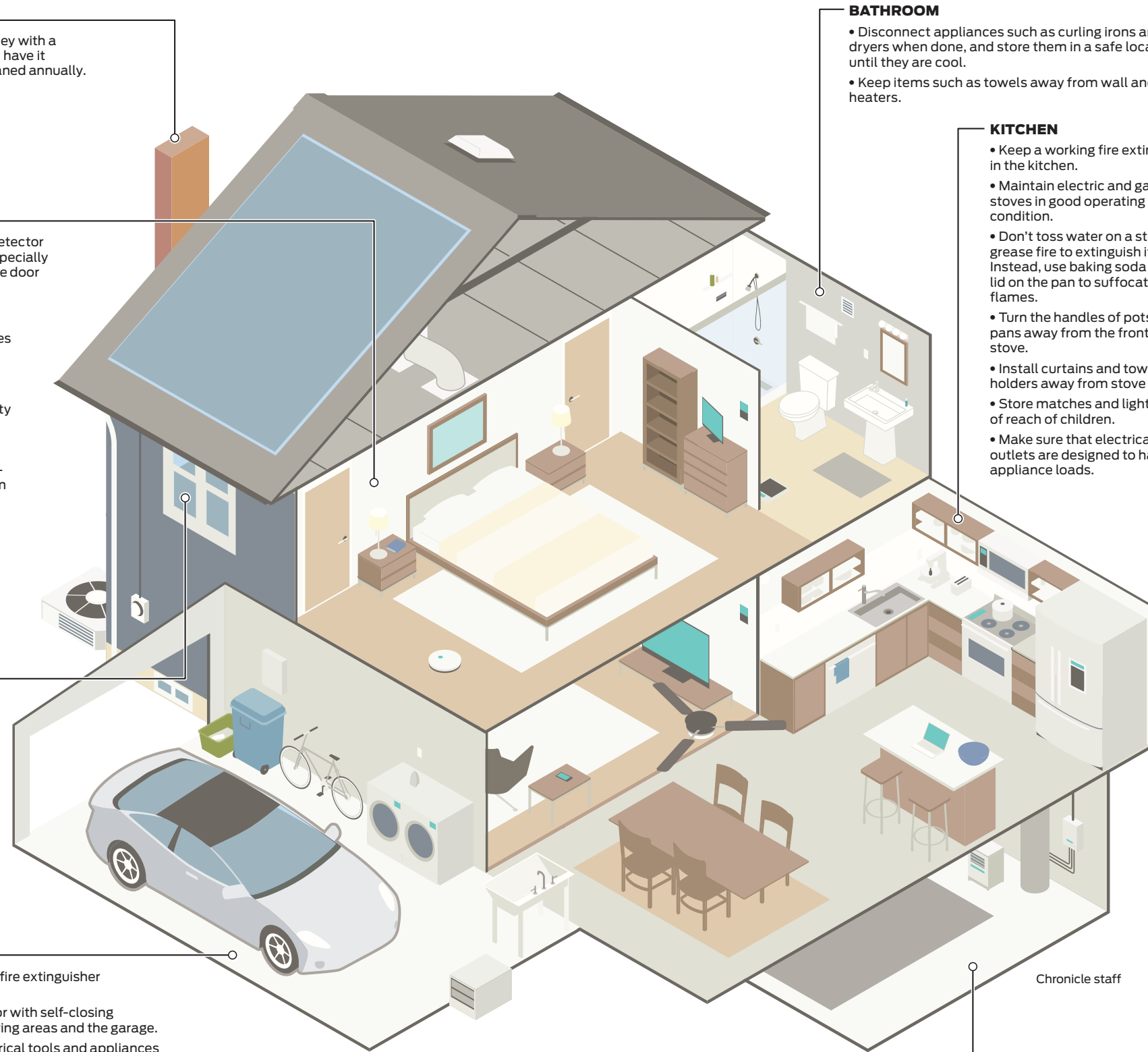
**HALLWAY**

- Install smoke detectors between living and sleeping areas.

**GARAGE**

- Mount a working fire extinguisher in the garage.
- Install a solid door with self-closing hinges between living areas and the garage.
- Disconnect electrical tools and appliances when not in use. Replace cords that do not work properly, have loose connections or are frayed.

Sources: California Department of Forestry and Fire Protection; Getty Images



**BATHROOM**

- Disconnect appliances such as curling irons and hair dryers when done, and store them in a safe location until they are cool.
- Keep items such as towels away from wall and floor heaters.

**KITCHEN**

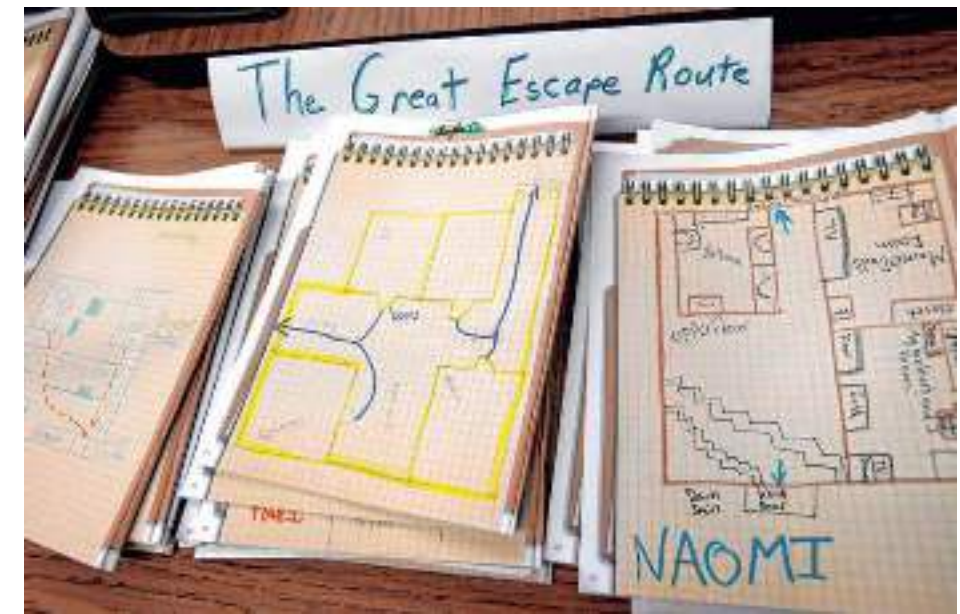
- Keep a working fire extinguisher in the kitchen.
- Maintain electric and gas stoves in good operating condition.
- Don't toss water on a stovetop grease fire to extinguish it. Instead, use baking soda or put a lid on the pan to suffocate the flames.
- Turn the handles of pots and pans away from the front of the stove.
- Install curtains and towel holders away from stove burners.
- Store matches and lighters out of reach of children.
- Make sure that electrical outlets are designed to handle appliance loads.

**STORAGE AREAS**

- Dispose of oily rags in metal containers.
- Store combustibles away from ignition sources such as water heaters.
- Store flammable liquids in approved containers and away from ignition sources such as pilot lights.

Chronicle staff

**PLANNING**



Brant Ward/The Chronicle

Students at Marina Middle School in San Francisco create escape routes for their homes in case of a major earthquake.

# Practice a post-quake fire drill at home

The majority of fire deaths — about 85% — happen in homes. And your home may be at greater risk of fire in the wake of an earthquake. Yet it's estimated that just 1 in 5 families has practiced getting out of their home when a fire happens. If you're not sure how you'd escape from each room if a fire breaks out, it's time to make a plan and practice.

- Walk through your home and identify exits and escape routes, making sure doors and windows can be easily opened.
- Install alarms in every room where someone sleeps.
- Keep hallways and stairs free of clutter.
- Choose a meeting place outside — say the nearest stop sign or light post.
- Assign someone to get any pets.
- Practice escape routes twice a year, making the drill as realistic as possible, the Red Cross advises. The idea is to practice, not scare, so it doesn't need to be a surprise drill. Drills should include making sure children know not to go back for toys, hide or go near the fire.
- Teach children to "get low and go."
- Have them practice escaping each room by crawling along the perimeter to an exit and to "stop, drop and roll" if their clothing catches fire.
- If children are fearful about fire, or fire drills at school or home make them anxious, try visiting a fire station or turning the drills into games, perhaps "Simon says, 'Get low and go.'"
- For those in multistory homes or buildings, practice setting up and using escape ladders from a first-floor window.
- Not everyone may be able to get out, so family members should be taught how to insulate themselves in a room by closing doors and using towels or duct tape to seal cracks. Those who are stranded should wave a flashlight or light-colored clothing at the window so firefighters know where they are.
- Turn on emergency alert notifications on your cellphones. This will allow you to get alerts when fire becomes a threat. Also, sign up for your county's emergency alert system if applicable.

— *Chronicle staff report*



## PLANNING

# Get your finances in order before a quake strikes

People who have lost homes in disasters such as earthquakes and the California wildfires have discovered too late that their insurance coverage has not kept up with the rising cost of lumber, labor and other rebuilding materials. And standard homeowners' insurance does not cover damage resulting from land movement or landslides, yet it is estimated that just 10% of California homeowners have quake insurance.

So talk to your insurer to make sure you have enough coverage but, for a quick reality check, ask a local contractor how much it costs to build per square foot and multiply that by your home's size.

One of the most painful post-disaster tasks is compiling an inventory of possessions so you can seek reimbursement. It's far easier to put the list together beforehand.

Here are other tips for shoring up your finances:

**Safeguard your documents:** Keep a copy of your will, trust, birth and marriage certificates, Social Security cards, insurance papers, medical information, most recent tax return, receipts for high-ticket items and other important documents in a safe deposit box. You can also scan and save them to a DVD or flash drive, which you can give to a trusted friend or family member outside the region. Another option is to save them in the cloud.

**Break out the camera:** Your insurer will pay for everything you lost — up to your policy limits — as a result of a covered “peril,” such as fire. To get reimbursed for your personal belongings, most companies require a detailed inventory of every item lost, although some will advance a portion of your contents coverage without this list. While your house is still standing, use an online inventory or app or print a blank one from the California Department of Insurance or consumer group United Policyholders. Store it away from your home or better yet, in the cloud. At the very least, take photos or videos of everything in your home and outbuildings, including the inside of drawers, cabinets and closets.

**Know your coverage:** Most policies will pay for losses from fire, smoke, wind, hail, water (excluding floods), vandalism and theft. They do not cover



Michael Macor/The Chronicle

**Before a disaster — be it quakes, fires or floods — it's important to take photos of your belongings for insurance claims.**

losses caused by earthquakes and floods. Those require separate policies.

Make sure you have replacement-cost coverage. This will pay to replace your building and contents — up to your policy limits — with new ones of similar kind and quality. Avoid actual cash value policies, which pay only the depreciated value of what you lost.

It's good to have extended replacement-cost coverage, which will pay a certain amount above your policy limits. This can help pay for the surge in local building costs that often follows a widespread disaster. Also opt for building code upgrades, which will pay an amount over your policy limit to comply with new code requirements. A guaranteed replacement-cost policy will pay to replace your house no matter the cost, but these are not common and very expensive.

For homes that are not damaged or destroyed in a disaster, but are located in a ZIP code within or adjacent to

some disasters, an insurer cannot cancel or refuse to renew a residential property insurance policy for one year after the declaration of a state of emergency.

If you don't already have private insurance, getting it may be more of a challenge than in the past. State Farm, Allstate and Farmers have all announced they will no longer issue new home, business and casualty insurance policies in California, citing high construction costs, inflation and increasing risk of loss. Many existing customers have seen their premiums rise significantly.

Homeowners who can't get covered by a mainstream insurer may need to seek coverage from a “non-admitted” carrier, such as those affiliated with Lloyd's of London. Also called surplus lines, these insurers are far less regulated than admitted carriers and do not participate in the California Insurance Guarantee Association, which pays

claims if an admitted carrier fails.

If you can't get insurance elsewhere, contact the California Fair Plan, which provides insurance for the home or contents from fire or lightning, internal explosion and smoke. For an additional premium, you can add extended coverage (for windstorm, hail, explosions, riots, aircraft, vehicles and volcanic eruptions as well as vandalism/mischief). You can purchase a Fair Plan policy from a licensed agent or broker or contact the plan directly at 800-339-4099. The Fair Plan's maximum coverage limit for homes is \$3 million.

**Quake and flood coverage:** Your homeowners or renters insurance company can provide a National Flood Insurance Policy and a quake policy from the California Earthquake Authority. A few companies sell stand-alone earthquake insurance, and several offer private flood insurance in California.

— Chronicle staff report

## PLANNING

# Keep cash on hand in case of earthquake

By Chase DiFeliciano

When preparing for the Big One, most people think of ensuring they have essentials like food, water and batteries on hand. But there's another item that's just as essential: cash.

That's because a large earthquake has the potential to knock out parts of the power grid for long enough periods of time that ATMs may not work and credit cards and smartphone payment systems could be offline.

The Federal Emergency Management Agency advises people to always have enough cash on hand in a safe place in their home to cover a family's basic needs — including food, fuel and other day-to-day essentials — for a few days.

“Having cash on hand is always a good idea,” said Jose Lara, seismic hazards branch chief with the Governor's Office of Emergency Services. He said that with inflation taking a bite out of many Californian's budgets these days, stockpiling emergency funds is harder, but setting aside a few dollars in small bills each week or month for an emergency could make a big difference.

“We always encourage people to save what they feel comfortable with that aligns with their budget,” with the aim of being able to be self-sustaining for three to seven days, Lara said.

“After an earthquake, depending on the size, we may be in a situation



Maureen P. Sullivan/Getty Images

**Cash should be kept in the home for emergencies such as power failures, fire or earthquakes.**

*“Having cash on hand is always a good idea.”*

*Jose Lara of the Governor's Office of Emergency Services*

where, for a few days, people have to fend for themselves,” he said.

Lara pointed to California's earthquake warning site, the Earthquake Country Alliance and Listos California for disaster preparedness check-

lists and further reading.

Besides just stashing cash, it's a good idea to have travelers checks in a safe place at home, along with a disaster preparedness kit, according to the Red Cross Disasters and Financial Planning Guide.

“To determine how much money to set aside, estimate how much your family would need for at least three days,” the guide recommends. Beyond getting through the initial phases of a disaster like an earthquake, stashing enough money in a separate account for emergencies to cover bills for three to six months is also a good idea.

“Consider depositing some funds in a financial institution that is outside of your local area to decrease the chances of it being affected by the same disaster,” the Red Cross guide says.

FEMA also recommends knowing your FICO credit score, which lenders use to decide whether to extend a line of credit, in case you need to borrow money.

Lara of the state agency said having critical financial documents in a safe place is also essential. Having originals and copies of hard-to-replace documents like deeds to a home, passports and especially insurance papers is critical when internet and cellphone service may not be working.

Reach Chase DiFeliciano: [chase.difeliciano@sfgchronicle.com](mailto:chase.difeliciano@sfgchronicle.com); Twitter: [@ChaseDiFelice](https://twitter.com/ChaseDiFelice)

## How to ensure pets' safety before and after a quake

- All pets should be identified with tags and, preferably, microchips.

- In an emergency, dogs tend to bolt and cats tend to hide. Be prepared for unusual behavior.

- Keep on hand a pet first aid kit, with disinfectant, bandages, tweezers and antibiotic ointment.

- Store a week's worth of pet food, and periodically check its expiration date. Canned food will keep longer than dry. Make sure to have more water than you think you'll need. Pets (and people) drink more when under

stress.

- Have bowls, leash, can opener, medicine, pet toys and plenty of cat litter, plastic bags or other cleanup gear ready to use.

- Train your pets to ride in a car, perhaps in a pet carrier. Remember, if you must evacuate your home, not all hotels and motels allow pets. Make a list of those near your area that do.

- Reassure your pet, calmly and often. It's good for both of you. Pets take their cues from their humans. If you're panicked, they will be, too.



**Betty Grant and her dog Penny were displaced from her mobile home in the wake of the Napa earthquake in 2014. A simple checklist can help you care for your pet after a disaster.**

Scott Strazzante/  
The Chronicle file



## PLANNING

# An earthquake action plan can be a lifesaver



Alexandra Hootnick/Special to the Chronicle

**Steve and Sharon Wolff inspect their Rio Dell home on Dec. 22 for damage from the 6.4-magnitude earthquake that struck two days earlier.**

## By Jill Tucker

Unlike hurricanes or other more predictable natural disasters, earthquakes are sudden and scary. Sometimes there is a loud “boom” and then the house shakes like a monster has ahold of it.

As the experts like to say, “It’s not if a big earthquake will hit the Bay Area, but when.”

An action plan can save lives. The national Ready Campaign says families should be able to answer these questions:

How will I receive emergency alerts and warnings?

What is my shelter plan?

What is my evacuation route?

What is my family/household communication plan?

Here are practical tips on how to prepare for an earthquake:

- Gather the family and create a plan together.
- Pick safe places in each room to take cover when the shaking begins — under furniture or against an interior wall away from windows, bookcases or tall furniture that could fall. Stay away from kitchens and garages, which tend to be the most dangerous places in a home because

of the objects kept there. Also, doorways are not stronger than other parts of the house, so don’t rely on them for protection.

- Practice “Drop, cover and hold on” in each safe place — and schedule drills every six months.
- Conduct a “hazard hunt,” looking for objects that could fall or fly through the air.
- Put a working flashlight and shoes next to each bed.
- Teach everyone to knock on something three times repeatedly if trapped.
- Identify a safe place outside to meet

up after the shaking stops.

- Designate an out-of-state person for everyone to call to relay information.
- Assign someone to turn off the gas and to gather pets.
- Create an earthquake kit as a family, and include one comfort item per child, like a teddy bear or toy, as well as activities or children’s books.
- Talk about what to do if an earthquake happens while family members are at school or work — reassuring young children that they will be safe until picked up while also creating a meeting place for adults and older children.

## PLANNING

### REINFORCE CEILING

Screw plywood sheets to the attic ceiling, close to the chimney. Chimneys commonly collapse in a big quake, and this will help stop falling bricks from plunging through the roof and ceiling onto you.

### FASTEN PICTURES

Attach heavy hanging objects like big pictures or mirrors to walls with screws driven into studs, not wallboard. Consider relocating heavy objects that have been hung over beds and furniture.

### SECURE HEAVY FURNITURE

Attach bookcases, china cabinets and other heavy furniture to walls using L-shaped metal brackets screwed into the studs to prevent tipping.

### DOOR LATCHES

Fit the doors to all cupboards and cabinets with child-proofing latches so they don't pop open during a quake, flinging everything out and at you.

### GAS APPLIANCES

Ensure they have flexible connections.

### ELECTRONICS

Strap down computers and TV screens.

### SHUT OFF UTILITIES

Install earthquake-safety automatic shut-off valves on your gas lines. If you don't have an automatic valve, keep a shutoff wrench by the valve so you can turn off the gas right after a big quake.

### HANGING OBJECTS

Secure ceiling fans and hanging light fixtures.

### SECURE WATER HEATERS

Brace your water heater against the wall with metal straps screwed into studs, and ensure that gas models have flexible connections.



## RECOVERY

# Volunteering to help neighbors in need



Connor Radnovich/The Chronicle

A team of NERT volunteers carry a mannequin out of the room on a fabricated stretcher during citywide drill.

When disaster strikes, trained volunteers can make a big difference in helping communities respond. Two options for participating in these types of volunteer networks are:

**The Citizen Corps:** The organization brings together local government, business and community leaders to prepare for a disaster.

More information on local chapters can be found on X (formerly Twitter) @citizen\_corps or online at [www.ready.gov/citizen-corps](http://www.ready.gov/citizen-corps).

**Community Emergency Response Teams:** CERT offers training for individuals to respond to fires, earthquakes or other disasters. More than 6,000 individuals participate in their communities. In San Francisco, the Fire Department organizes the free training for the city's Neighbor-

hood Emergency Response Team, or NERT.

For more information: [www.ready.gov/community-emergency-response-team](http://www.ready.gov/community-emergency-response-team)

In San Francisco: <http://sf-fire.org/neighborhood-emergency-response-team-nert>

## Looking for missing loved ones after a quake

Even with the best-laid plans, family members separated after a quake might be unable to meet at prearranged points. Cellphones with contact information might be left behind in the rush to escape danger. Here are some tips for locating loved ones:

- Parents should ask child care providers or schools what their policy is for when a disaster hits and whom they'll need to call if children need to be moved.
- Persistence matters. There may be several roadblocks before one contact method pans out.
- Try calling the people you're searching for during off-peak hours, when the working lines are less clogged.
- Try texting if calls aren't going through.
- Check social media — Facebook, Twitter, Instagram — to see if they are online.
- Email. Even if a phone is gone, those who are missing might still be able to log on to a computer.
- Call people whom missing loved ones are close to who may know where they are.
- Check in with their neighbors, employer, school or church — anywhere they usually hang out or spend time.
- For those in distant locations, try sending a snail-mail letter that has a good chance of getting forwarded if the missing person has relocated.



Frederic Larson/The Chronicle

It's easy to get separated during an earthquake, so have a plan in place.



## RECOVERY



Leah Millis/The Chronicle

Boback Emad climbs on one his destroyed cars to take photographs for his insurance company in Santa Rosa in 2017.

## Where to turn when seeking financial assistance

After a major disaster, you may qualify for tax relief, unemployment insurance, federal grants and low-interest loans, but it helps to act quickly. Here's what to do

**File a claim:** Contact your insurance agent as soon as possible to start a claim for covered losses. If you have to move out of your house, most policies will pay for living expenses up to a certain amount of money and time. You can usually get an advance to cover temporary housing, food and other immediate needs. Some firms will give a percentage of your content coverage before you submit an inventory. If you believe your insurance company is not treating you fairly, file a complaint with the California Department of Insurance and consider hiring a public adjuster to represent you. If the treatment is egregious, consider hiring an attorney.

**Federal assistance:** You could be eligible for individual assistance from the Federal Emergency Management

Agency if your loss is part of a federally declared disaster. FEMA can provide grants and low-interest loans to cover uninsured losses, up to certain limits. For more information: [www.fema.gov/individual-disaster-assistance](http://www.fema.gov/individual-disaster-assistance).

**Mortgage relief:** If you have a mortgage, contact your loan servicer. You can usually get at least a 90-day moratorium on payments and temporary relief from foreclosure activity.

**Tax relief:** If your home is damaged or destroyed, you may be eligible for property tax relief. File a claim with your county assessor's office within 12 months. The assessor can reappraise the property in its current condition and potentially refund some taxes. When you rebuild, the value of your property before it was damaged will be

restored. Also check with the IRS and California Franchise Tax Board to see if they have extended tax-filing deadlines for disaster victims.

If your loss was caused by a federally declared disaster, you may be eligible to deduct casualty losses that exceed 10% of your adjusted gross income on your federal return, if you itemize deductions.

**Unemployment benefits:** If you lose your job as a direct result of a federally declared disaster and are not eligible for regular state unemployment benefits, you could qualify for up to six months of unemployment benefits from a federally funded program called Disaster Unemployment Assistance. For more information: <https://www.benefits.gov/benefit/597>

— Chronicle staff report

## Tips for staying tuned in during an emergency

No power, no internet? A battery-powered radio may be your best way to get information about what's going on.

Tune in to AM radio. In the Bay Area, KCBS 740 carries regular news updates, and it is set up to run emergency information broadcasts from local authorities.

Listen for a warning siren. The city of San Francisco, for example, will blast its sirens during a major disaster, which is a cue to listen to an emergency radio broadcast. (The sirens are tested at noon every Tuesday.)

Consider buying an emergency radio. These radios include channels that regular AM-FM radios don't get, including essential weather and disaster broadcasts from the National Oceanic and Atmospheric Administration. To find your local NOAA station, go to [www.weather.gov/nwr/station\\_listing](http://www.weather.gov/nwr/station_listing).

If you haven't lost internet service, these websites can be helpful:

- News and information: [www.sfchronicle.com](http://www.sfchronicle.com) and [www.sfgate.com](http://www.sfgate.com)
- U.S. Geological Service for earthquakes: <https://earthquake.usgs.gov/earthquakes/map>
- Cal Fire for wildfires: [www.fire.ca.gov/incidents](http://www.fire.ca.gov/incidents)
- Nixle for local public safety details: [www.nixle.com](http://www.nixle.com)
- Your county government website
- Social media for information on friends and family



Stephen Lam/The Chronicle

If the power goes out, a hand-crank radio can be useful in an emergency.



## RECOVERY

# Next steps after disaster strikes

Surviving the impact of a major earthquake is just the first step. The danger and upset it creates is rarely over right away. Be prepared to push on for the next several hours, days, or even weeks.

Here's what experts advise:

- If your house is livable, stay in it even if the utilities are out because shelters might become overcrowded. This is where your survival kit (see Page W9) will prove its worth, with food, water, first aid and the rest. Be prepared to go it alone for as many as three days.

- You may have turned off your gas, but if you smell or suspect a leak, don't light a match or a candle or flip any light switch, which can cause a spark, until you're sure the gas danger is over.

- Never touch a downed power line.

- If your home is unlivable and staying in a hotel or with relatives is not an option, go to an emergency shelter. Do so quickly so you can get situated, reconnect with family or work, and apply for aid

and get in touch with your home insurance agent.

- If you rent or decide not to replace your house, prepare to make relocation arrangements — signing a new lease, getting new furniture or other belongings, applying for insurance payments or governmental emergency assistance. If you are moving back into an apartment that was only damaged, the landlord is responsible for making your unit fit to live in again — but not for the loss of your personal property.

- Take care of yourself. Consider counseling, stay healthy through exercise and good diet, stay current with your friends — in other words, recognize you've gone through an emotional wringer and let yourself process the shock and discomfort.

— *Chronicle staff report*



Residents look out the window of their damaged home in the Marina district after the Loma Prieta earthquake Oct. 21, 1989.

Eric Luse/  
The Chronicle

## Where to find supplemental disaster information

For those who want to dig further, here's where to find supplemental disaster preparation and safety information:

### Living in earthquake country

<https://pubs.usgs.gov/gip/2005/15/gip-15.pdf>

### Survival kits

[www.sf72.org/supplies](http://www.sf72.org/supplies)  
[www.ready.gov/build-a-kit](http://www.ready.gov/build-a-kit)  
<http://bit.ly/2lYtjxJ>

### Preparing your home

[abag.ca.gov/tools-resources/data-tools/resilience-open-data-portal](http://abag.ca.gov/tools-resources/data-tools/resilience-open-data-portal)  
[www.earthquakebracebolt.com/homeownerregistration](http://www.earthquakebracebolt.com/homeownerregistration)

### Family resources

“Trinka and Sam: The Day the Earth Shook,” a children's book:  
[piploproductions.com/stories/trinka-and-sam-earthquake](http://piploproductions.com/stories/trinka-and-sam-earthquake)  
Sesame Street Emergency Preparedness Toolkit:  
[www.sesamestreet.org/toolkits/ready](http://www.sesamestreet.org/toolkits/ready)  
Family Emergency Preparedness Checklist:  
[uclahealth.org/patient-resources/patient-education/emergency-preparedness](http://uclahealth.org/patient-resources/patient-education/emergency-preparedness)

### Pet safety

[www.aspc.org/pet-care/general-pet-care/disaster-preparedness](http://www.aspc.org/pet-care/general-pet-care/disaster-preparedness)

### During and after a quake or other disaster

[www.earthquakecountry.org/dropcoverholdon](http://www.earthquakecountry.org/dropcoverholdon)  
[www.ready.gov/earthquakes](http://www.ready.gov/earthquakes)  
[www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/earthquake#Before](http://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/earthquake#Before)  
<https://www.conservation.ca.gov/cgs/earthquakes>

### Regrouping

Search for a family member via the Red Cross:  
[redcross.org/safeandwell](http://redcross.org/safeandwell)  
Family finder phone apps:  
[www.life360.com/family-locator](http://www.life360.com/family-locator)  
<http://mamabearapp.com>

### Other useful technology

[www.tesla.com/powerwall](http://www.tesla.com/powerwall)  
[www.tesla.com/solarpanels](http://www.tesla.com/solarpanels)  
<http://powerequipment.honda.com/generators/wattage-calculator>  
<http://powerequipment.honda.com/generators/wattage-calculator>  
[www.bluecosmo.com](http://www.bluecosmo.com)

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**PLANNING**

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# Checklist: Preparing for a disaster

**Before**

- Download this guide as a PDF (see page 2 for instructions).
- Download apps that will be useful during an emergency.
- Compile a list of where to get emergency information, including radio stations, social networks, websites and public safety alerts. Keep the list in your car and in your home.
- Microchip your pets.
- Take photos of your belongings.
- Review and update your insurance coverage.
- Make copies of your important documents and store them in a safe place or on the cloud.
- Replace the batteries in your smoke detectors at least twice a year.
- Replace your smoke detectors at least once every 10 years.
- Check your fire extinguishers and make sure they and other firefighting tools are easily accessible.
- Pack emergency survival kits for your home and car — don't forget items for your pets.
- Plan and practice family escape routes from your home and establish a meeting place.
- Have family discussions about safe places in the home when an earthquake hits.
- Assign family members' responsibilities during an emergency, such as contacting other family members, turning off the gas and gathering pets.
- Know where your gas shutoff valve is and have necessary tools easily accessible.
- Maintain a defensible zone around your home.
- Notify PG&E if you notice unsafe power lines.
- Identify combustible building materials and replace them if possible.
- Prepare your home to survive a massive quake.
- Consider buying alternate power and communication devices.

**After**

- Seek federal assistance, mortgage relief, tax relief and unemployment benefits.
- Contact your insurance provider and start a claim as soon as possible.
- Consider counseling as you rebuild your life.
- Reach out to family — for your sake and theirs.



# Get prepared. Worry less.



## PROTECT YOUR HOUSE AGAINST EARTHQUAKE DAMAGE TODAY.

- Earthquakes in California are inevitable, but the damage they cause is preventable.
- Houses built before 1980 carry the most risk of sustaining damage from a major earthquake.
- If you own an older home, there are steps you can take to help prevent damage from earthquakes.



**Strengthen your  
house today.**

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**[STRENGTHENMYHOUSE.COM](https://www.strengthenmyhouse.com)**