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Let's Get Prepared Disaster Preparedness Actions



What may protect you and your family in the event of the earthquake could be just one piece of knowledge, just one tool, or just some simple communication. Small preparations transform into enormous help. In this chapter, we have compiled things you can do now to prepare for a disaster. Don't regret not doing so after a major disaster hits. Let's start preparing now.



Four Preparations to Do Now

Stockpiling goods

What is most indispensable at the time of a disaster is a stockpile of food and daily essentials. Have a stockpile ready to continue living at home and to survive.

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Preparing inside the home

You need to take measures to prevent objects from falling or furniture from toppling over or sliding into you in order to avoid being trapped, and to prevent glass from shattering. It's also important to not have objects blocking passageways.

- Points to stabilizing furniture → p. 96
- Tools to prevent objects from falling, toppling over, or moving → p. 98
- Furniture stabilizing checklist → p. 100
- Protect yourself from the tremors through seismic retrofitting → p. 106
- Fire prevention measures to prevent the outbreak or spread of fire → p. 109



Preparing outside the home

In order to evacuate safely, you should know the situation around your house and your community's level of risk. It's also important to check the evacuation routes and walk through them.

- Know the area around your house → p. 114
- Confirm evacuation places → p. 115
- Know the topology → p. 116
- Know your community's earthquake risk → p. 118
- Know where you will be able to protect yourself → p. 120



Prepare through communication

Cooperation with your neighbors is indispensable in a disaster. Make it a point to exchange greetings with your neighbors and participate in disaster and fire drills held by your community association.

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- Community networking → p. 124
- Disaster preparedness in apartment buildings → p. 125
- Confirm safety and collect information → p. 128
- Participate in fire and disaster drills → p. 130



Stockpiling Goods



Importance of stockpiling at home

Once a major earthquake strikes, it is anticipated that lifelines such as electricity, gas, and water will be damaged, and the supply of goods will be interrupted. Given that following the earthquake, many Tokyo residents are expected to remain in homes that were spared collapse or serious damage for a period of time, it is important for everyone to prepare the items necessary to continue living at home ahead of time.



The “daily stockpile” concept

Until now, it was thought that stockpiling emergency supplies was special and involved preparing items not normally used such as ship biscuits and flashlight headbands. As such, there are probably many people who gave up, believing that managing and maintaining a stockpile was difficult. However, the “daily stockpile” method allows you to easily create an emergency stockpile just by buying a little more of the food and essentials that you normally use on a daily basis.





Essential Stockpile Items



The following lists are examples of the bare minimum of items you should stockpile. Because each household is different, you should consider what is best for each member of your household and create your stockpile.



Food and water

Food such as canned food can be consumed without being heated. Vegetable juice can help compensate for vitamin and mineral deficiencies.

- Water (for drinking, cooking, etc.)
- Staple foods (heat-and-eat rice, noodles, etc.)
- Side dishes (canned food, heat-and-eat dishes, frozen food)
- Canned food (fruit, azuki beans, etc.)
- Vegetable juice
- Food that can be consumed without being heated ("kamaboko" steamed fish paste, cheese, etc.)
- Snacks and sweets (chocolate, etc.)
- Nutritional supplements
- Seasonings (soy sauce, salt, etc.)

Items that disaster survivors found valuable

The following is a list of items that people who experienced evacuation life in a disaster-stricken area found particularly helpful. Households with infants or elderly family members should always keep an extra supply of items absolutely essential to their daily lives such as diapers and medications. The same can be said for household members who are ill, on a special diet, or have allergies.

- Water
- Portable gas cooking stove and canisters
- Everyday medications
- Emergency toilet
- Flashlight
- Batteries
- Radio (rechargeable type, etc.)
- Plastic bags
- Plastic wrap

Daily items

Large plastic bags can also be used to transport water from a water supply point or as emergency toilets. Select items according to your lifestyle.

- Water for domestic use
- Medications for a chronic disease/everyday medications
- First aid kit
- Tissue paper
- Toilet paper
- Wet wipes
- Sanitary napkins
- Disposable body warmers
- Lighter
- Garbage bags/large plastic bags
- Emergency toilets
- Radio (rechargeable type, etc.)
- Spare battery for your mobile phone
- Latex gloves
- Flashlight
- Batteries





Household Stockpile List



Items and amounts of the household stockpile



“Daily stockpiles” is based on the concept of stocking extra supplies of food and other daily items to prepare for an emergency. Because different households have different circumstances, it would be important for you to consider what items and how much of them are needed for your family to continue living at home after a disaster, and then prepare those items as your own “household stockpile.”

Model family: A family of four—husband, wife, infant and elderly woman

- Father** Kyotaro Azuma (40)
Teacher; likes curry
- Mother** Kyoka Azuma (36)
Works for an insurance company; currently on maternity leave; uses contact lenses
- Child** Kyonosuke Azuma (11 months)
Allergic to eggs
- Grandmother** Kyoko Azuma (70)
Has high blood pressure; wears dentures; has poor hearing



	Supplies for everyday use (to always be stocked)	Supplies for a disaster
Items that disaster survivors have found valuable	<input type="checkbox"/> Water (for drinking, cooking and other use): 12 2-liter bottles <input type="checkbox"/> Portable gas cooking stove: 1; canisters: 6 <input type="checkbox"/> Medicine, non-prescription drugs: 1 box each	<input type="checkbox"/> Emergency toilet: about 30 times worth (each to be used several times) <input type="checkbox"/> Flashlight: 2 <input type="checkbox"/> Batteries <input type="checkbox"/> Hand-rechargeable or other type of radio

	Supplies for everyday use (to always be stocked)	Supplies for a disaster
Food	<input type="checkbox"/> Staples Pre-washed rice: 5 kg; heat-and-eat rice: 6; dried noodles: 1; instant noodles: 3 <input type="checkbox"/> Main dish Canned food (e.g. miso-stewed mackerel, vegetables): 6 each <input type="checkbox"/> Heat-and-eat food: 9 <input type="checkbox"/> Canned food (fruit, etc.): 1 <input type="checkbox"/> Vegetable juice: 9 <input type="checkbox"/> Drinks: 6 500-ml bottles <input type="checkbox"/> Cheese, “kamaboko” steamed fish paste, etc.: 1 pack each <input type="checkbox"/> Snacks: 3 <input type="checkbox"/> Nutrition bars, etc.: 3 boxes; powdered health drink: 1 bag <input type="checkbox"/> Seasonings: 1 set	
Daily items	<input type="checkbox"/> Large plastic bag, garbage bag: 30 each <input type="checkbox"/> Plastic bag <input type="checkbox"/> First-aid kit <input type="checkbox"/> Plastic wrap: 1 <input type="checkbox"/> Tissue paper: 5 boxes <input type="checkbox"/> Toilet paper: 12 rolls <input type="checkbox"/> Disinfecting wet wipes: 1 box (about 100) <input type="checkbox"/> Disposable contact lenses: 1-month supply <input type="checkbox"/> Disposable body warmer: 10 <input type="checkbox"/> Ignition stick: 1	<input type="checkbox"/> Spare battery for mobile phone: 3 (the number of mobile phones) <input type="checkbox"/> Latex gloves: 1 box (about 100)
For women	<input type="checkbox"/> Sanitary napkins: about 60	
For infants	<input type="checkbox"/> Powdered infant formula: about 20 single packets (allergen-free) <input type="checkbox"/> Baby food: at least 1-week supply (allergen-free) <input type="checkbox"/> Baby wipes: 1 pack <input type="checkbox"/> Diapers: about 70	
For the elderly	<input type="checkbox"/> Rice gruel or other soft food, food for the elderly: at least 1 week supply <input type="checkbox"/> Medicine (prescription drugs): 1-month supply <input type="checkbox"/> Battery for hearing aid: 6 <input type="checkbox"/> Denture cleaner: about 30	

*Based on the above list, prepare your own set of items that meet the needs of your household.



Emergency Bag



An emergency bag is a bag that contains the minimum essentials needed for the time being after you evacuate. In preparing an emergency bag, it is important to think about what each of you would need, and select items to be put in the bag. Pack those items in bags such as knapsacks, and place them near the front entrance or in the bedroom, car, or shed so that you can carry them out even if your house has collapsed.



- | | | | |
|--|------------------------------------|--|--|
| <input type="checkbox"/> Flashlight | <input type="checkbox"/> Blanket | <input type="checkbox"/> Food | <input type="checkbox"/> Baby bottle |
| <input type="checkbox"/> Portable radio | <input type="checkbox"/> Batteries | <input type="checkbox"/> Instant noodles | <input type="checkbox"/> Cash |
| <input type="checkbox"/> Helmet | <input type="checkbox"/> Lighter | <input type="checkbox"/> Can opener | <input type="checkbox"/> First-aid kit |
| <input type="checkbox"/> Protective hood | <input type="checkbox"/> Candles | <input type="checkbox"/> Knife | <input type="checkbox"/> Bankbook |
| <input type="checkbox"/> Work gloves | <input type="checkbox"/> Water | <input type="checkbox"/> Clothing | <input type="checkbox"/> Seal |

Emergency bag that is always carried around

In case a disaster occurs while you are out, always carry the minimum requirements in your bag. Remove the batteries from the portable radio.

- | | | |
|--|---------------------------------------|--|
| <input type="checkbox"/> Portable radio | <input type="checkbox"/> Light | <input type="checkbox"/> Battery |
| <input type="checkbox"/> Mobile phone battery recharger for mobile phone | <input type="checkbox"/> Toothbrush | <input type="checkbox"/> Emergency toilet |
| <input type="checkbox"/> Whistle | <input type="checkbox"/> Coins | <input type="checkbox"/> Emergency set / blanket |
| <input type="checkbox"/> Map | <input type="checkbox"/> Water bottle | |

Emergency bag to be kept at workplace

Aside from what your employer has in stock, prepare your own emergency supplies by imagining what you would need if you have to stay overnight at your workplace or walk home.

- | | | |
|--|---|---|
| <input type="checkbox"/> Comfortable shoes | <input type="checkbox"/> Helmet | <input type="checkbox"/> Emergency food |
| <input type="checkbox"/> Light | <input type="checkbox"/> First-aid kit | <input type="checkbox"/> Work gloves |
| <input type="checkbox"/> Sleeping bag | <input type="checkbox"/> Emergency toilet | <input type="checkbox"/> Raincoat |
| <input type="checkbox"/> Water bottle | | |

Important items you should keep together

Keeping certificates or other important documents in a plastic case with a fastener can also protect them from water. It might be a good idea to carry a photograph of your family in case you need it.

- | | | |
|--|--|---|
| <input type="checkbox"/> Photograph of your family | <input type="checkbox"/> Driver's license | <input type="checkbox"/> Pension record |
| <input type="checkbox"/> Bankbook | <input type="checkbox"/> Health insurance card | <input type="checkbox"/> Seal |
| <input type="checkbox"/> Stock certificate | <input type="checkbox"/> Medication record | <input type="checkbox"/> Passport |





Anyone Can Prepare “Daily Stockpiles”

“Daily stockpiles” is keeping extra supplies of daily items

If a major disaster strikes and disrupts infrastructure, it would even be difficult for the authorities to respond quickly. **You should thus keep a stockpile of items that can allow you to live without relying on anyone for at least a week until relief arrives. This is the idea of emergency stockpiles.** Simply buy and stock the items you always need at home and use them in order of purchase. You don't need to buy something special for an emergency. This is the concept of daily stockpiles, and it is not difficult. Prepare by simply buying and keeping a little more food and daily items than usual.

If food in the refrigerator is taken into consideration, what you need to prepare becomes smaller (See “Five key points for stockpiling”). However, it is important for families with infants, the elderly, and/or people with an illness to prepare extra supplies of specifically necessary items that would not be available immediately after a disaster, such as powdered infant formula and daily medicine. Take the time to think about what you will need to survive and prepare a stockpile tailored to your lifestyle.

Difference between staying at home and staying elsewhere

After a disaster, some stay at home and others evacuate and stay elsewhere. People staying at home will live on their own stockpiles, and those who cannot continue living at home will stay at evacuation centers. Necessary supplies are totally different for people staying at home and those staying at evacuation centers.

If you have to evacuate from your home because it had collapsed or burned down, you will only be able to carry the minimum essentials because the top priority is protecting your life. In that case, it will be difficult to use your stockpiles. Therefore **what you need when you leave home is an emergency bag containing the minimum requirements, which is compact enough to be carried to the evacuation center.** The minimum requirements vary from person to person, so it is important that you think by yourself about what you need to survive and prepare those items, rather than simply buying items based on a prepared list.

Five key points for stockpiling

- 1 A refrigerator is a storage place for food**
It is said that a typical household has a one to two-week supply of food, including items in the refrigerator. If you start with food in the freezer, go on to items in the refrigerator, and then to the remaining food, you will be able to live on your regular stock of food for several days.
- 2 Importance of water for domestic use**
When water supply is cut off, a major difficulty you will face is not having water for domestic use. To prepare for this, always have the bath tub filled with water. If you live in an apartment, water in the receiving tank of the building will also be available, but rules on how this will be distributed to the residents must be decided in advance.
- 3 Must-haves for all-electric housing**
In all-electric houses, you cannot even boil water if the power supply is suspended. With boiled water, you can prepare instant noodles and many other kinds of food. So stock portable cookers and canisters. For houses that are not all-electric as well, portable cookers will be very helpful when the gas supply is suspended.
- 4 If you live alone**
If you live alone and often shop at convenience stores, you probably don't have a week's supply of food in your refrigerator. Try purchasing a little more of your favorite items such as instant noodles, heat-and-eat food, snacks and beer at the convenience store to build up your stock.
- 5 Be aware of the use-by date**
Just like food, items such as batteries, medicine and disposable warmers also have use-by dates. Regularly check the dates so you will not run into problems when they become necessary.

Based on information provided by Professor Kishie Shigekawa, Graduate School of Environment and Disaster Research, Tokoha University





Preparing Inside the Home



30-50 percent of earthquake-related injuries in recent years were caused by falling objects or furniture and other heavy items toppling over or sliding into people.

While the best protection against such injuries is to not to put anything in a room, this may not be realistic. The next best approach is to arrange furniture so that you won't be crushed by it. If you also install stabilizing devices to prevent objects from falling or furniture and other heavy items from toppling over or sliding, you can reduce the risk of injury.



Keep furnishings to a minimum

Through the use of closets and built-in storage spaces, try to keep furnishings to a minimum in living areas. By promptly moving to an area clear of objects when you hear an earthquake early warning, you can increase your level of safety.



Ensure escape routes are clear

Plan the layout of your furniture to ensure that your escape route and doorways are clear of obstructions. Use built-in shelves for storage rather than placing furnishings near the entrance to a room or in the hallway. Furthermore, be aware that drawers may slide out during an earthquake, and consider the direction a piece of furniture faces.



Prevent secondary disasters such as fires

If furnishings or other objects fall onto or slide into a gas heater, this could cause a secondary disaster such as a fire. In addition, it is essential that steps be taken to stabilize furniture or electrical appliances that could spark a fire in order to prevent them from falling, toppling over, or sliding.





Furniture Stabilization Measures



Securing furniture to the wall is the most basic way to prevent items from tipping over or sliding.

Once you have planned the layout of your furniture, it is now time to secure it in place through the use of various stabilizing devices. The surest way to achieve this is to use L-brackets and screws to secure a piece of furniture to the wall. If this is not an option, using tension rods in conjunction with tip-over prevention wedges or anti-slip pads will raise the level of effectiveness.



Stabilize furniture on casters

For furniture that you move on a daily basis, lock casters when you are not moving it around. If the piece has a fixed location, attach it to the wall or floor using a detachable safety strap or other means. For furnishings that you do not normally move, install devices such as caster cups or tension rods to stabilize them.



Prevent furniture legs from sliding

Even furnishings not set against a wall that are not tall require measures to prevent them from sliding, especially tables and chairs. Affix adhesive anti-slip pads to furniture legs, or on carpet, use slide prevention mats.

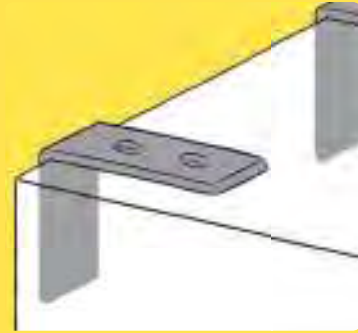


Measures to counter long-period ground motion

Strong, slow shaking that lasts for an extended period is characteristic of long-period ground motion (see page 240). To prepare for this type of shaking, you need to pay special attention to hanging lighting fixtures and items in the home that contain water such as aquariums and water dispensers. Take steps to stabilize these items using the appropriate safety devices.



Stabilizing Devices



L-brackets (installed facing downward)

Secure furniture to the wall using wood screws or bolts. L-brackets can be installed using the slide method, facing upward, or facing downward. Installing the brackets facing downward offers the strongest support.



Tension rods and pole devices

These devices are not secured using screws, but are installed in the space between the piece of furniture and the ceiling. By pairing these devices with anti-slip gel pads and tip-over prevention wedges, stability is increased.



Anti-slip sheets (pad type)

These sticky gel pads act to grip the underside of the piece of furniture, adhering it to the floor.



Detachable furniture safety straps

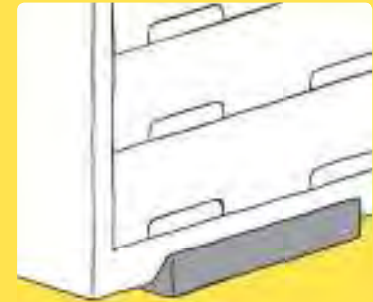
Attach furniture on casters to the wall with furniture safety straps to prevent movement.

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Chains

Use chains or wires to attach hanging lighting fixtures to the ceiling to provide extra stability.



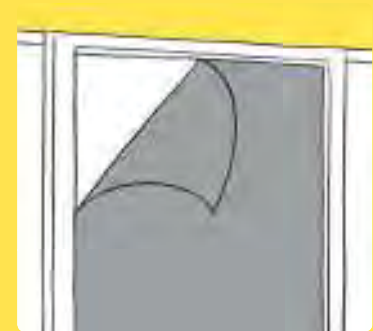
Tip-over prevention wedges

Insert the wedge beneath the front of the piece of furniture and lean it toward the wall.



Caster cups

Place the cups under caster wheels to prevent furniture from moving.



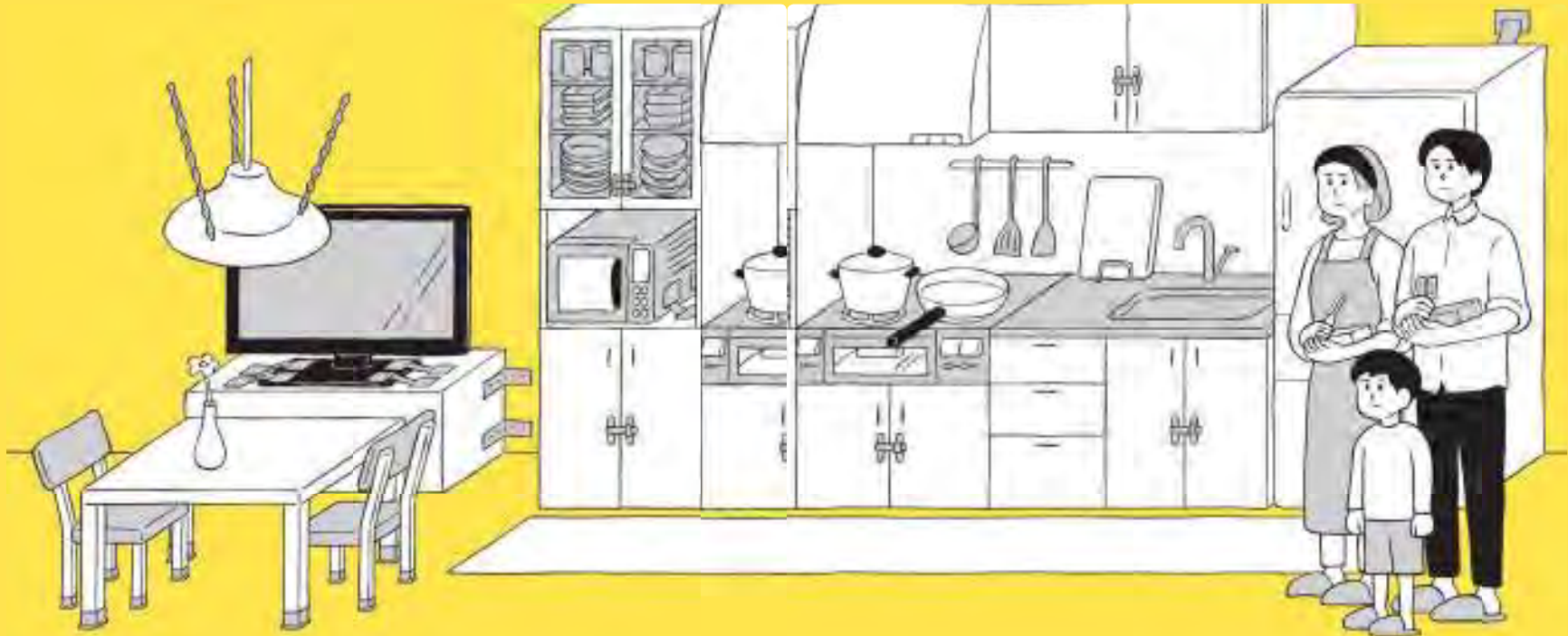
Anti-shatter glass film

Apply this film to glass doors and windows to protect against flying glass in the event a glass surface shatters.

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Furniture Stabilizing Checklist



Living room, kitchen

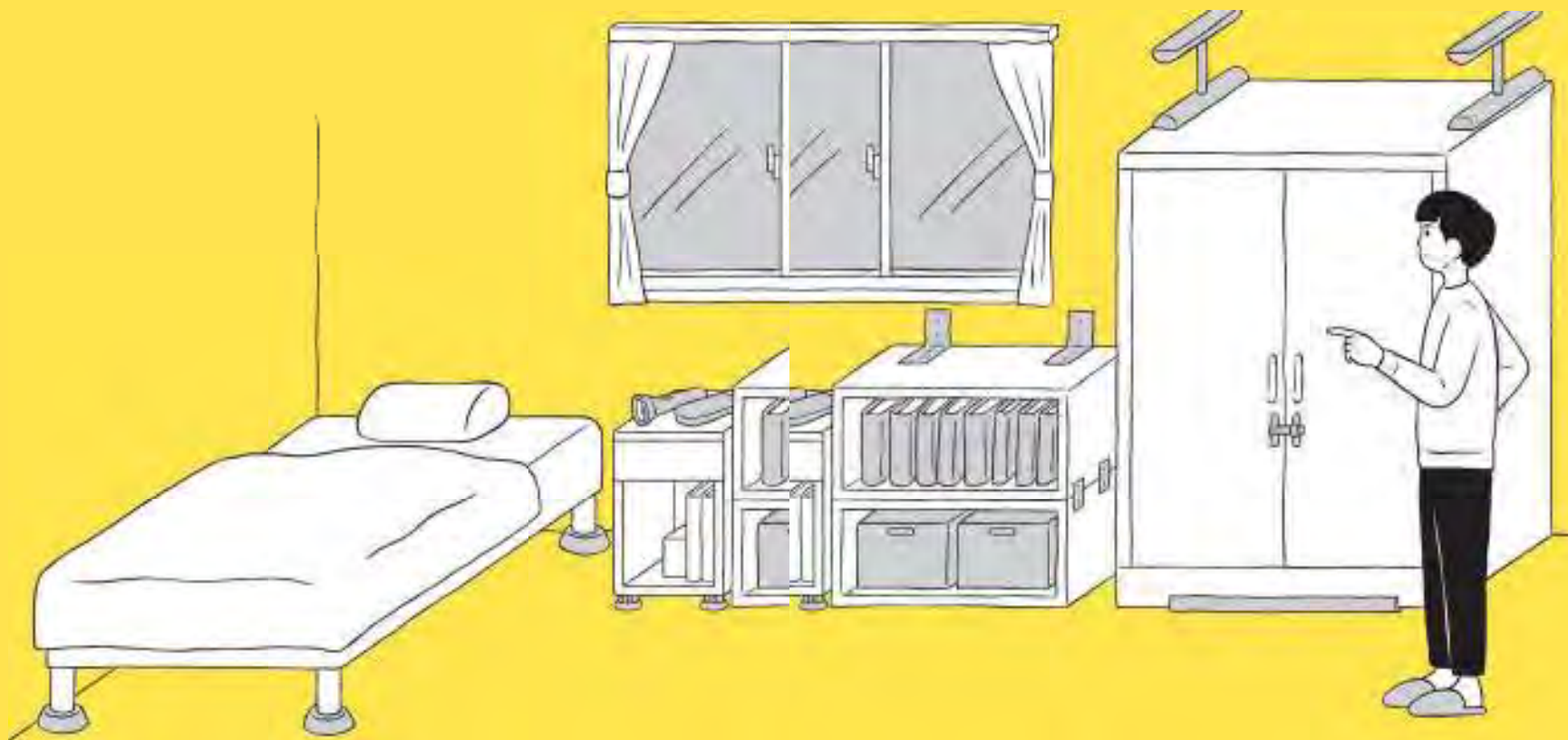
- Hanging lighting fixtures Use chains to prevent fixtures from swinging.
- Television Stabilize the TV on the TV stand using a detachable furniture safety strap or other method. Affix the stand to the wall using L-brackets, and prevent the TV from sliding through the use of anti-slip pads.
- Microwave oven Stabilize the microwave on the stand using anti-slip pads or safety strap devices, and secure the stand to the wall using L-brackets.
- Tables and chairs Affix anti-slip pads to the legs of tables and chairs to prevent sliding.

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- Cupboards, china cabinets Place cupboards where they won't obstruct escape from the house, even if they tip over, and secure them to the wall. Apply anti-shatter film to any glass.
- Drawers Install safety latches to prevent drawers from sliding out.
- Cabinets To prevent the items stored inside from flying out, install safety latches on cabinet doors.
- Refrigerator Place the refrigerator where it won't obstruct evacuation from the house, and secure it to the wall using a safety strap or other device. Don't put items on top of the refrigerator that could easily fall off during an earthquake.

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Bedrooms

- Bed
Prevent sliding by attaching anti-slip pads to the legs of the bed or other method. Don't hang framed pictures, wall clocks, or other items on the wall or ceiling near the bed.
- Window glass
Apply anti-shatter film to windows.
- Furniture on casters
When not moving furniture, lock casters, insert caster cups, and secure the unit to the wall with furniture safety straps.

- Stackable storage boxes, shelves
Join upper and lower units with connectors and secure units to the wall with L-brackets. Don't put items on top of the unit that could easily fall off during an earthquake.
- Chest of drawers, wardrobes
Place chests and wardrobes where they won't obstruct your escape route and doors. Secure the unit to the wall or ceiling using L-brackets or tension rods, and place a tip-over prevention wedge under the unit.





Offices

- Entrances Don't place items near entrances in order to keep the escape route clear.
- Around desks Secure computers to desks using anti-slip pads or safety straps, and join desks together with connectors.
- Storage units along the wall Secure units to the wall using L-brackets. Install latches on drawers and cabinet doors. Join upper and lower units with connectors. Don't place items on top of storage units that could easily fall off during an earthquake.

- Copy machines Stabilize each unit by installing stabilizing adjusters under the machine, and secure it to the wall using safety straps.
- Partitions Lay out partitions in formations that will not easily fall over such as H or U-shaped formations and secure them to the floor.
- Bulletin boards Secure bulletin boards to the wall with L-brackets to ensure they don't fall down.
- Windows Apply anti-shatter film to the glass. Don't place items in front of windows that could easily fall over.





Seismic Retrofitting



Importance of seismic retrofitting to keep from being crushed to death

Some 80 percent of the people who were killed in the Great Hanshin-Awaji Earthquake were crushed to death by collapsed buildings. It is said that buildings that were constructed over 30 years ago, before the new building code for seismic resistance came into effect on June 1, 1981, have low safety against a major earthquake. These buildings should be inspected for seismic resistance.

Seismic resistance checklist

First, check your seismic resistance by yourself using the following list. If a lot of the check points apply for your house, have a professional conduct a seismic inspection.

- The house was built before June 1, 1981.
- New extensions were built two or more times. A section of the wall or column was removed for the extension.
- In the past the house suffered major damage such as flooding, fire, or earthquakes.
- The house is located on reclaimed land, swampy lowland, or developed land.
- The building foundation is made of something other than reinforced concrete.
- A window makes up a whole wall.
- Relatively heavy roofing materials such as Japanese tiles or western tiles are used, and the ground floor has few walls.
- The building is in an L-shape or T-shape, and has an uneven structure.
- There is a large atrium.
- It seems like the doors and windows are badly fitted, and the pillars and/or floor are tilted.
- There's a crack in the wall.
- The veranda or balcony is damaged.





Seismic retrofitting consultation desk

The Tokyo Metropolitan Government has a consultation desk for seismic retrofitting. Consultation is free (p. 269). Some municipalities have programs to subsidize part of the costs of seismic inspections and retrofitting.



Seismic retrofitting of apartment buildings

The owners association should gather information on seismic resistance, have the building undergo a seismic inspection, and based on this, discuss the issue of seismic retrofitting.

Details → p. 125



Tokyo Metropolitan Seismic Certification Mark

So that Tokyo residents can feel safe using buildings, this mark shows the safety of the building against earthquakes. Buildings with this mark have been confirmed to comply with seismic resistance standards.



Fire Prevention Measures



Importance of measures to prevent the outbreak and spread of fires

It is critical to prevent the outbreak of fires and stop their spread. To equip your house with fire extinguishers, household fire alarm systems, ground fault circuit interrupters, and earthquake-tripped circuit breakers is also said to be effective. When evacuating, close the main gas valve, and turn off the circuit breakers.





Fire extinguishers for home use

These are small and lightweight, and can be easily used, even by women and the elderly. There are two types of fire extinguisher agents—water and alkali salt, and powder. There is also an even more simple and compact aerosol spray type. The expiration period differs by type, so be sure to note the date and replace them accordingly. Considering situations in which the extinguishers might be used, keep them where you can easily get your hands on them, such as near the kitchen, in the hallway, or by the front door.

Fire alarm systems



Devices installed on the ceilings of the bedroom, kitchen, and other rooms, detect smoke and heat from fire, alert you through a noise or voice alarm, and help prevent delays in escaping. To ensure that this alarm system works properly in an emergency, be sure that the batteries haven't run out and periodically check their operation by pressing the test button.

Ground fault circuit interrupter



This device automatically shuts down the power in about 0.1 seconds after an abnormal current flow due to electrical current leaks or other problems. This is installed in the distribution switchboard and shuts down all the power if there is an electrical current leak anywhere in the house. Check to see if you already have ground fault circuit interrupter installed, and if not, it would be reassuring if you install one.

Earthquake-tripped circuit breaker



This device detects the strong shaking of an earthquake and shuts down the power. Along with fire extinguishers and ground fault circuit interrupters, the installation of this device is said to enhance prevention of the outbreak of electrical fires. There are different types such as socket types, distribution switchboard types, and simple types, with some giving consideration to matters such as securing lights during a power outage, and maintenance.

Fire prevention checklist

There are three main causes for the outbreak of fire at the time of an earthquake: fire from electrical current leaks or when power is restored, fire from gas leaks, and fire from oil stoves. Inspect your house for fire prevention and take measures to prevent fires from occurring.

Electricity	<input type="checkbox"/> Carpet or furniture is not covering the power cords. <input type="checkbox"/> Electrical appliances not in use are unplugged. <input type="checkbox"/> Fish tanks, flower vases or other containers of water are not located near electrical appliances. <input type="checkbox"/> You know where the circuit breaker panel is.
Gas	<input type="checkbox"/> Propane gas tanks are fixed with chains, etc., to prevent them from falling over. <input type="checkbox"/> In the case of city gas or propane gas, the micrometer (intelligent gas meter) is still within its period of validity. <input type="checkbox"/> The space around the kitchen range is not cluttered, and has no flammable objects. <input type="checkbox"/> The gas hose is not degraded.
Oil stove	<input type="checkbox"/> There are not flammable objects around the oil stove. <input type="checkbox"/> Measures are taken to prevent the stove from falling over.
Other	<input type="checkbox"/> No flammable objects are placed in locations that could be evacuation routes such as the hallways or stairs. <input type="checkbox"/> The sections of the house that are adjacent to the house next door have metal shutters or windows with wire glass.





Checking Electricity, Gas, and Water Supply



Confirming how to shut down and restore supply

In an earthquake, the supply of electricity, gas, and water may stop. The Tokyo Metropolitan Government aims to restore power in 7 days, water supply and sewerage in 30 days, and city gas in 60 days. When you evacuate, turn off your circuit breakers, close the gas valve, and close the main valve of the water meter. Confirm where these are in advance, and learn how to turn them off and turn them back on.



Protect lives through installation in existing houses

Earthquake-resistant shelters that can be installed at low costs



Earthquake-resistant shelter that protects the bedroom

Houses that are not sufficiently seismic resistant need to be retrofitted, but such construction would involve processes such as reinforcement by load bearing walls and cross-bracing, installation of dampers, reinforcement by joints, and foundation reinforcement, which would take time and be expensive. Those of you who feel the need to retrofit your house to withstand earthquakes, but hesitate to do so because of financial reasons, should consider the installation of this earthquake-resistant shelter. The bed type (photo above) protects the sleeping space only, and the room type (right photo) protects an entire room. Costs are from 200,000 yen.

Tokyo Earthquake Resistance Portal Site <http://www.taishin.metro.tokyo.jp/>

Have you ever heard of an earthquake-resistant shelter? **These are installed in an existing house, and can protect your life by securing a certain amount of safe space even if the house collapses due to an earthquake.** The major cause of death in a large earthquake is building collapse. Of the fatalities in the Great Hanshin-Awaji Earthquake, about 80 percent are said to have died by being crushed by buildings that collapsed.



When a wooden house that was installed with an earthquake-resistant shelter collapses due to an earthquake

Both can be installed while living in the house, and the installation can be done in a shorter period of time than seismic retrofitting work. For details, visit the following URL.





Learning about Your Neighborhood



2

Confirm evacuation places

When evacuation orders are given, or when the danger of fire approaches, you should evacuate to a temporary evacuation area (e.g. nearby elementary or junior high schools, parks). If that place becomes dangerous, move to an evacuation area (e.g. large park or open space). If your home has been damaged and it is difficult to continue living there, you can live at an evacuation center for a while. It is important to understand the difference between these three places.

Details → p. 274

Know the area around your house

Knowing the topology, geological features, cliffs and other dangerous areas around your house, as well as past disasters and measures that were taken are indispensable disaster measures. Make sure to also confirm the location of evacuation areas, evacuation routes, open spaces such as large parks, and facilities such as community halls and convenience stores. This will facilitate your early response in the event of a disaster, and make you able to evacuate to a safe place.

Evacuation Center



JIS Z8210

Evacuation Area



JIS Z8210

Temporary Evacuation Area

A place where people gather temporarily to grasp the situation before evacuating to the evacuation area (e.g. school playgrounds, neighborhood parks)



Know the topography



Lowlands

Lowlands in Tokyo are land along the Tama River and valley floors along the rivers flowing through the plateau, and the areas of Koto, Sumida, Edogawa, Katsushika, Arakawa, and Ota wards stretching from the old Shitamachi district of Tokyo to Tokyo Bay. Because lowlands are weak stratum called alluvium, the ground is susceptible to shaking, and areas on the coast and near rivers are also at risk of tsunamis.



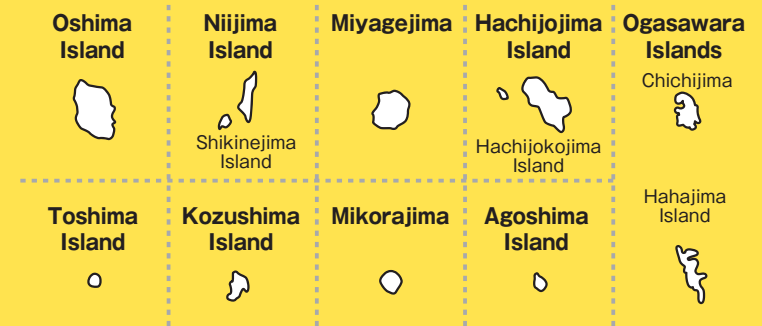
Tablelands

Tablelands in Tokyo are the area to the east side of Ome City, the region straddling the border between Hino City and Hachioji City, the Yodobashi Tableland centering on Shibuya ward and spreading to Shinjuku, Setagaya, Meguro, Shinagawa, Minato, and Chiyoda wards, and the Ebara Tableland to its south that spreads across Setagaya, Meguro, Shinagawa, and Ota wards. The ground is stable, but there are places where steep slopes are at risk of landslides.



Mountainous areas

The southeastern portion of the Kanto Mountains makes up Tokyo's mountainous area, which covers the Okuchichibu region (where Tokyo's highest summit, Mt. Kumotori, is located), all of Hinohara Village, and the western portions of Ome City, Hinode Town, Akiruno City, and Hachioji City in the Tama area. This area is at risk of sediment disasters.



Islands

Tokyo's islands are the Izu Islands and the Ogasawara Islands. In Nankai Trough earthquake estimates, the islands are at the risk of being hit by a high tsunami within minutes from the earthquakes. If roads and port facilities are damaged, it is estimated that logistics systems will cease for a few days to about a week.





Know Your Community's Earthquake Risk



Confirm your community's "combined risk"

In addition to a community's "fire risk" and "building collapse risk" levels, the Tokyo Metropolitan Government has released the "combined risk," which is an aggregation of these two risks, and the "combined risk in light of emergency response difficulty," which assesses the status of the existing road infrastructure that will support activities in the event of a disaster. Confirm your community's level of risk and use it to plan measures to take.

Details → p. 278



Building collapse risk

The risk of building collapse becomes higher with the age of the building and its low quake-resistance, and caution is also necessary for buildings located in alluvial lowlands and valley lowlands. Building collapse risk tends to be high in the "shitamachi" (downtown) area of Tokyo along the Arakawa and Sumida rivers, where old wooden or light-gauge steel frame buildings are concentrated.



Fire risk

When an earthquake occurs, there is the risk of wide-area damage from the spread of fires breaking out from the shaking. The degree of such risk is called "fire risk," and this is calculated from the risks of fire outbreak and spread. Many communities at high risk exist in areas where there is a high concentration of wooden houses, and are found in areas including those along Ring Road No. 7 and the JR Chuo line (ward area).



Check the hazard map

A hazard map contains information such as areas predicted to suffer damages, evacuation areas, and evacuation routes, for use in mitigating damages from a disaster and for disaster preparedness. Check the map for your community's risk of disasters from flood, landslide, liquefaction, and others.



Learn about your community's history of disasters

Disaster preparedness measures are formulated based on lessons learned from past disasters. Learning about your community's history of disasters, such as past floods or earthquakes, can enable you to make more practical preparations. Ask neighbors who have lived in the area for a long time, or look this information up at a library.





Places Safe from Fire



Fire-safe areas

The Tokyo Metropolitan Government has designated “fire-safe areas” where there is no fear of large-scale spread of fires and no need for area-wide evacuation. As of May 2013, 34 areas where fireproofing has progressed, a total of 100 sq. kilometers, have been designated. Specifically, this includes the total area of Chiyoda ward and the Ginza and Nihombashi areas in Chuo ward.



Evacuation Areas

Evacuation areas are mainly places where you can evacuate to safety from fire in the event of a large-scale spread of fire triggered by an earthquake. The Tokyo Metropolitan Government has designated open spaces such as large parks, green spaces, and areas with fire-resistant buildings as evacuation areas. Check your municipality’s website, etc., for more information.



With toilets that can be used in a disaster and benches that can be used for cooking

Disaster prevention parks as an evacuation area and operations center



Cooking stove bench (top); manhole toilets (bottom)

One of the most distressing things about an evacuation during a disaster is the toilet situation. Keep in mind that there are places called “disaster prevention parks.” **These parks have toilets that can be used even when infrastructure such as water supply and electricity has been cut off.** These are “manhole toilets,” in which manholes are installed along collecting sewers that lead to the sewage pipe. At the time of a disaster, the manhole cover is removed and replaced with a toilet, and a tent is erected around it to maintain privacy.

There are also benches in the park that can be used for cooking purposes during a disaster. Cooking stoves appear when the seating portion is removed. A fire can be started here for cooking (shapes vary by park). Other installations in the park include park lights that operate on solar power so that they light up even during a power failure, water pumps to manually pump up water (not drinking water) when water supply is cut off, water tanks for firefighting, and emergency water supply tanks. Open spaces in the city will serve various roles during an earthquake. Fifty-three metropolitan parks have been built up as disaster prevention parks that can be used by anyone as an evacuation area and operations center during a disaster. As these can be useful if you are forced to walk home due to an earthquake or have to evacuate, go to the following URL to check the locations of these disaster prevention parks.

Tokoy Metropolitan Park Association <https://www.tokyo-park.or.jp/special/bousai/basyo.html>



Prepare through Communication



Hold a family meeting

Divide responsibilities between family members prior to an earthquake striking, such as who will be in charge of preventing a fire and who will secure an exit path. You should also designate a meeting place and a method to confirm each other's safety in case your family is not together at the time. Family members may be away from home—on their way to school or stranded due to disrupted transportation services. Also, don't forget to confirm your evacuation area and evacuation route, and the location of the circuit breaker and gas shutoff valve for your home, as well as how to operate these devices.



Use Disaster Preparedness Tokyo

Use this manual as a tool, not only at family meetings, but also when discussing disaster preparedness measures with your child's school or neighbors. Talking about disaster preparedness raises awareness, enabling people to take steps to better protect themselves in a disaster. You can also use the pages of this manual set aside for notes to enter important information and checklists for you and your family.

Notes → pp. 292-307





Community Networking



Exchange greetings with neighbors regularly

Cooperation with neighbors is necessary when a disaster strikes. Expand your network within the community through activities such as exchanging greetings with neighbors on a regular basis and participating in disaster preparedness drills put on by the community association, so that your life at home or in an evacuation center following a disaster will go smoothly as well.

Details → p. 130



People who need special care

People in need of special care such as expectant mothers, children, the elderly, foreign nationals, and those with serious illnesses or disabilities may not be in a position to promptly ascertain information or evacuate. In addition to always being aware of the members of your community who need special care, cooperate with commissioned welfare volunteers and others to support them when a disaster occurs.

Details → p. 66



Disaster Preparedness in Apartment Buildings



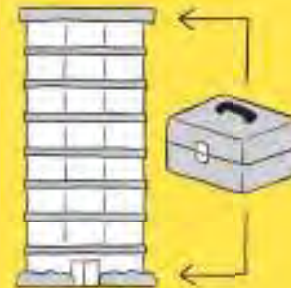
Create a disaster preparedness manual

Create a disaster preparedness manual within the framework of the condominium association, distribute the manual to all residents, and hold disaster preparedness drills.



Secure an indoor evacuation area

Secure space to serve as an evacuation area such as a meeting room, elevator hall, or an apartment. Common spaces within a complex such as the entrance hall, children's playroom, and guest room also come to mind. However, areas where there is the danger of shattered glass or falling objects should be avoided.



Storage of rescue kits

In a high-rise building, it is very difficult to carry rescue kits to higher floors when elevators shut down. As such, it would be better to distribute kits throughout the complex, placing kits in common areas on higher floors as well.





Disaster Preparedness Measures at Work



Create a manual and rules

At your company, decide on a person to be in charge of disaster preparedness, hold a disaster preparedness meeting, and make rules such as how to evacuate, where to evacuate to, and how the emergency call-down list or phone tree should work. Since the general rule on returning home following a major earthquake or disaster is to wait until after 72 hours have passed, it is necessary for you to stockpile supplies in case employees or visitors to your office become stranded there. When conditions at your workplace change such as changes in personnel, be sure to review the manual again.



Hold fire and disaster drills

Even if you create protocol for your call-down list, a manual, etc., these efforts will prove meaningless if the materials do not serve their purpose in an emergency. As such, it is necessary to regularly conduct drills according to the manual, and review trouble points so that these materials are truly functional. Consult with local fire authorities for more information.

Details → p. 130

Prepare to stay at the office

Prepare for the possibility that all employees may not be able to return home immediately following a disaster by stockpiling the supplies needed for everyone to remain at the office for three days.



- Drinking water, food
- Blankets, thermal blankets
- Plastic sheets
- Sanitary goods
- Portable radio
- Flashlights
- Batteries
- First aid kit/emergency medical supplies
- Emergency toilets





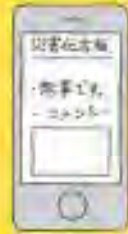
Confirm Safety and Collect Information



NTT's Disaster Emergency Message Dial 171 service

A message service that allows a person in the area affected by a disaster to record a message confirming their safety. This message can then be played back by others trying to reach that person.

Details → p. 226



Disaster message board services

This service, provided by cell phone carriers, enables people to register information concerning their safety using their cell phone or smartphone. These messages can then be confirmed by others.

Details → p. 227



Tokyo Metropolitan Government Disaster Prevention Website

As the TMG provides information on preparing for a disaster in normal times, as well as information on the situation when a disaster strikes, checking this site regularly is helpful.

Details → p. 270



Tokyo Metropolitan Government Disaster Prevention Map

Using the disaster prevention map provided on the TMG disaster prevention website, you can find the location of disaster prevention facilities, support stations for people returning home following a disaster, and other relevant facilities.

TMG Disaster Prevention Official Twitter Account @tokyo_bousai

Using this Twitter account, the TMG will issue alerts when a disaster occurs, including urgent information. When there is no crisis, the TMG also periodically distributes information and knowledge useful in a disaster through this account.



TMG Disaster Prevention Twitter account

By activating Twitter Alerts, important Tweets issued by public agencies and emergency response organizations will appear on your home timeline.

Details → p. 271



J-anpi

The All-Japan Safety Confirmation Portal enables users to attempt to confirm a person's safety by entering the person's name and telephone number to search information provided by disaster message boards, the media, and companies all at once.

Details → p. 272



Smartphone apps

A wide range of smartphone apps useful in times of disaster, including internet radio, disaster alert, and earthquake information apps, are available.



Public telephones

When a disaster occurs, it becomes difficult to successfully place a call using a regular phone. However, it is said that calls go through relatively easily on public telephones.





Fire and Disaster Drills



Participate in drills to be prepared

In order to minimize damage in the event of a disaster, it would be important for you to routinely participate in local fire and disaster drills. Fire and disaster drills are mainly made up of community disaster drills held by the citizens disaster response team, disaster preparedness education at schools, and drills held in collaboration with local residents.



Disaster drills held by the Tokyo Metropolitan Government

The Tokyo Metropolitan Government and the municipalities jointly hold a comprehensive disaster drill with resident participation four times a year.



Disaster drills held by the municipalities

Several thousand people participate in disaster drills held by the municipal government by school district or evacuation center. They are mainly held at public schools.



Disaster drills held by community associations

Centering on first response fire fighting and first-aid training, these drills include rescue and relief drills, communication drills, evacuation drills, and drills to protect yourself using an earthquake simulator.



Overnight stays at schools

Drills simulating evacuation life (drills for sleeping and preparing food) when a disaster strikes are held at all 186 metropolitan high schools (as of April 1, 2015).

*If you wish to hold a fire and disaster drill, consult with your nearby fire department.





First response firefighting

Damage could be minimized if a fire is extinguished in its initial stages. For this, learn how to use firefighting tools and equipment ranging from your simple household fire extinguisher to standpipes and portable fire pumps.



Portable fire pump

By supplying and pressurizing water using a small pump, this allows large volumes of water to be sprayed to further distances. If you learn how to use this pump, it can be operated by a small number of people to effectively extinguish fires.

Details → p. 191



Standpipe

If there is a fire hydrant, etc. available, these light and easy-to-use standpipes can be used to spray water even in narrow roads that fire trucks cannot access.

Details → p. 190



Physical protection drills

When an earthquake strikes, priority should be given to protecting your own safety. In an earthquake simulator you can experience the shaking and learn how to protect yourself from falling objects, etc. You can also learn how to protect yourself after being alerted by an earthquake early warning.



Drills to prevent fire outbreaks

Damage can be prevented if you can prevent fire from breaking out. In these drills, you learn what actions to take to prevent fire from breaking out, such as calmly turning off the flame after the shaking has subsided, and turning off the main electricity and gas sources when you evacuate.



Communications drills

This is a drill to properly communicate information on fires, rescue and relief, and earthquake damage to the fire fighting authorities. You learn how to call 119, and the important points for communications depending upon the type of phone used.





Rescue and relief drills

In these drills you learn how to use everyday tools to rescue people who were unable to escape in time due to building collapse, etc. You also learn how to give first-aid to people who were rescued.



Disaster preparedness education

In manners that suit their stage of growth, children are taught to first protect themselves, to then help people nearby, and furthermore, to contribute to their community during disasters such as an earthquake or fire. In addition to evacuation drills at school, the whole family should make it a point to participate in fire and disaster drills.



Evacuation drills

These are drills for safe evacuation from disasters such as fires and earthquakes. You learn about the essential preparations and methods for evacuation and also learn about the properties of smoke by experiencing a smoke simulator.



First-aid drills

In order to give proper first-aid treatment in an emergency situation, these drills will teach you about first-aid treatment so that you can gain the necessary knowhow and skills.



Hands-on training for disaster response

The Tokyo Metropolitan Government has three Life Safety Learning Centers where you can have fun learning about disasters and participating in hands-on training and various drills. Visit the centers located in Ikebukuro, Honjo, and Tachikawa as the first step to experiencing disaster response.

Details → p. 273





Citizens Disaster Response Team



Protect your community yourselves

This organization aims for effective community response to disasters under the principle of neighbors cooperating with each other to protect their community. This collaborative organization is based on the unit of community or neighborhood associations. The person in charge of disaster response in the community association, etc., takes a central role in calling for the formation of this team, which is formed to conduct activities in line with local circumstances. Your participation will lead to the enhancement of your community's strength and disaster preparedness.

Example of disaster response goods and equipment

Stocking goods and equipment for disaster response team activities is essential. Studies on what is necessary are made based on local circumstances. Storage and management should be done in a manner that will ensure that they can be used flexibly and promptly in an emergency.



- Helmet
- Blanket
- Work gloves
- Towel
- Fire extinguisher
- Emergency food
- Rope
- Stretcher
- Hammer
- Crowbar
- Shovel
- Ladder
- Waterproof sheet
- Megaphone
- Jack





Neighborhood disaster response groups

Groups that are working actively so people can protect themselves and neighbors can help each other as preparation for an earthquake are designated by the Tokyo Metropolitan Government as Tokyo Neighborhood Disaster Response Groups. Efforts are taken to raise community disaster preparedness by holding study meetings with disaster response specialists and seminars for citizen disaster response team leaders.

Community disaster response study meetings

Disaster response experts visit your community to give lectures that will be helpful in disaster preparation or hold discussions. By holding such meetings during your regular community association meeting or regular drills, etc., you can easily learn about disaster response.



Volunteer Fire Corps



What is a volunteer fire corps?

This is a group that undertakes firefighting activities in the community, just like the fire department does, but unlike the fire department, this is a non-regular group made up of members who have other occupations, e.g. self-employed, company employees, homemakers, and students. When a fire, flood, earthquake, or other kind of emergency arises, they initiate fire-fighting activities. Inquire at your local volunteer fire corps about qualifications needed to become a member.





Have fun learning about disaster preparedness

Let's try "Disaster Map Exercises"



It can be fun learning about disaster preparedness. One such way is the "disaster map exercises." This is disaster drill that anyone can participate in called DIG ("Disaster" "Imagination" "Game"). **Specifically, this is a disaster-training program based on the scenario a major disaster occurs in the area where the participants live, and everyone, from children to adults, works together to seriously think about how to respond to this disaster while also having fun.** Features of the drill include its use of a large map and the ability of each participant to actively play a leading role.

By discussing matters using the map and writing on it, participants can confirm what kind of disasters could occur in their community, their community's weaknesses to that kind of disaster, and the community's disaster response level. **In addition, participants will also realize the importance of organized activity by the community to respond to disaster.** Prepare for disasters by heightening your awareness of disaster response through participation in DIG with your family and neighbors.

Basic level DIG

- 1 Fill in built up areas and natural conditions such as mountains, level ground, and rivers on the map.
- 2 Confirm the local structure and write in railways, roads, parks, buildings that can prevent the spread of fire, etc., by using different colors.
- 3 Mark facilities and equipment that can have a positive or negative effect on disaster response.
- 4 Conduct a discussion on community disaster preparedness using the completed map.

Disaster Preparedness Quiz

- Q 1** | What does "daily stockpile" mean? Answer → p. 85
- Q 2** | Where should you keep your emergency bag? Answer → p. 90
- Q 3** | What secondary disasters can occur when furniture and other heavy items fall over in an earthquake? Answer → p. 95
- Q 4** | In order to prevent injuries in the house, what types of checks are needed and what steps should be taken? Answer → p. 96
- Q 5** | What kind of buildings have the possibility of collapsing from the tremors of an earthquake? Answer → p. 106
- Q 6** | What kind of things should be prepared to prevent the outbreak or spread of fire after an earthquake, and what cautions should be taken? Answer → p. 109
- Q 7** | What is the difference between an evacuation center and an evacuation area? Answer → p. 115
- Q 8** | What should be prepared for when family members are separated? Answer → p. 122
- Q 9** | What are the following telephone numbers?
(1) 171 (2) 110 (3) 119 Answer → p. 128
- Q10** | Name more than three types of fire and disaster drills. Answer → pp. 132-134

