



The Christchurch earthquakes will have been a call to all New Zealanders to start preparing for an emergency.

In this issue we have information from Otago, Southland and Canterbury Civil Defence sites in addition to parts of the New Zealand Building Code and Smarter Homes.

The purpose of this booklet is to give basic information on how to be prepared, what stores you need and how to make your home safer in an earthquake situation, and importantly how to look after your health after an emergency.

Also in coming months, Council will be looking at cost effective designs for home owners to remove redundant masonry chimneys and keeping their dwellings weatherproof when the chimney is removed. Council will be encouraging home owners to have these types of chimneys removed by not requiring building consents (but certain conditions to be met).

Unreinforced masonry chimneys are potentially the single most dangerous items on people's homes if an earthquake of the size of the recent quakes in Christchurch strike Invercargill and Southland.

Water is essential for you and your family to survive. Your first option should be to have a ready supply of at least three litres per person per day for up to three days. The options available are:

- Fill your own containers
- Buy water
- Access water from your roof or hot water cylinder

Please refer to the relevant articles in this newsheet for specific details as water does not keep fresh for an indefinite time.

Remember, plan for the worst, but hope for the best.

It is up to individuals to ensure that they are prepared as the more prepared you are, the better off you will be and will then be able to assist others.

In this issue we have articles and fact sheets as follows:

- How to prepare for an emergency
- Your emergency survival kit
- Your emergency plan
- Your first aid kit
- Your getaway kit

Fact sheets on how to make your home safer

- Pictures and mirrors
- Tall furniture
- Hot water cylinders
- Televisions
- Appliances
- Header tanks
- Solid fuel burners
- Water supply
- Downpipe diverter
- Collecting roof water to a tank

General advice information

- Coping with snow
- Advice for farmers – snow
- Tsunami risk
- Protecting your health in an emergency
- Radio stations

General information sheets from Christchurch Earthquake Response

- Liquefaction – frequently asked questions
- Fault information
- Landslides and rockfalls



HOW TO PREPARE FOR AN EMERGENCY

WHAT IS YOUR ROLE IN AN EMERGENCY?

While many organisations will help in an emergency, individuals are ultimately responsible for protecting themselves and their property from the effects of disasters. In a catastrophic emergency where bridges and roads are destroyed you will have to rely on your own resources for some time.

Readiness is all about knowing what you need to know and having what you need to have to be better prepared for an emergency situation. Readiness also includes knowing about the hazards that you are faced with.

Research shows that over 75% of New Zealanders are aware of the impact that disasters can have and the need to be prepared. Yet only about 25% say they are prepared and can cope for three days or more in a disaster.

HOW CAN I GET THROUGH A CIVIL DEFENCE EMERGENCY?

You can gather together items that you will need to help yourself and your family survive a disaster before a disaster occurs. That way you can be better prepared to look after yourselves and your loved ones.

As a minimum, everyone needs:

- A getaway kit:
 - Family documents
 - Birth and marriage certificates
 - Insurance policies
 - Driver's licence
 - Personal hygiene items
 - Family photos

- An emergency survival kit:
 - Water for each person for at least three days 3 litres per person/day
 - First aid kit and medicines
 - Torch, batteries, radio
 - Change of clothes, blankets, toilet paper
 - A portable gas stove or barbeque to cook on
 - Canned food and can opener, plastic bags, pet supplies
 - Extra cash (ATM may not be working)
 - Supplies for babies or family members with disabilities

- Emergency clothing:
 - Windproof and rainproof clothing
 - Sun hats
 - Blankets or sleeping bags
 - Strong shoes for outdoors

- Be prepared:
 - Identify safe places very close to you at home, school or workplace, such as under a sturdy table or next to an interior wall. The safe place should be within a few steps or two metres to avoid injury from flying debris.

YOUR EMERGENCY PLAN

Develop a household emergency plan which includes:

- Where to shelter in an earthquake, flood or storm
- Who is responsible for checking essential items in your Emergency Survival Kit
- How to turn off gas, water and electricity at the mains
- How to maintain contact with each other during an emergency
- How to contact your Civil Defence organisation for assistance during an emergency

YOUR FIRST AID KIT

You should have a complete First Aid kit available in your home. If you can't get a complete one or would prefer to make one up yourself, the following list is recommended by The Order of St. John as a minimum guide suitable for families:

- Triangular bandages (2)
- Roller bandages - 50 mm (1 roll) and 75mm (2 rolls)
- Sterile gauze - 7.5cm x 7.5 cm (2)
- Adhesive wound dressing - 6cm wide x 1 metre long (1 strip)
- Plaster strip dressings (1 packet)
- Adhesive tape - 25 mm hypoallergenic (1 roll)
- Sterile non-adhesive pads - small (2) and large (3)
- Sterile eye pad (1)
- Eye wash container (1)
- Eye wash solution - saline steritube 30 ml (1)
- Antiseptic solution - chlorhexidine steritube 30 ml (4)
- Safety pins (1 card)
- Scissors (1 pair)
- Splinter forceps (1 pair)
- Disposable gloves (2 pair)
- Accident register and pencil
- First Aid manual
- Card listing local emergency numbers



YOUR GETAWAY KIT

Everyone should have a small bag for a Getaway Kit, ready for evacuation. Most of the items are part of your Emergency Survival Kit. Other items include:

- Family documents (birth / marriage certificates, drivers' licences, passports, family photos and insurance policies)
- Personal hygiene items (towels / soap and toothbrushes, and a change of clothes)

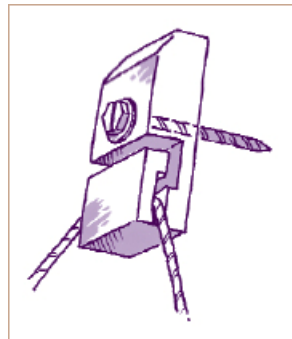
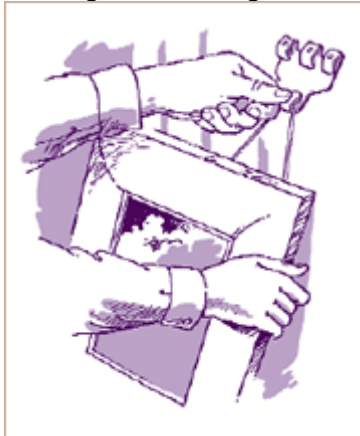
FACT SHEETS (HOW TO MAKE YOUR HOME SAFER)

PICTURES AND MIRRORS

Anything hanging on a conventional picture hook or nail is likely to come off in even a moderate earthquake. Securing these is one of the easiest things you can do. The glass on pictures and mirrors can shatter, creating a hazard.

Close Hooks

Push hooks closed after hanging pictures or mirrors. Single-nail conventional picture hooks are fine for light pictures as long as the nail has been hammered into something solid like a wall stud. Anything a little heavier will need a two- or three-nail picture hook, and very heavy pictures or mirrors may need something even stronger. Also, don't forget to use strong cord, not light string.



Once you have nailed the hook into place, hang the picture and then pull it out so you can get your hand behind it and push the hook closed. Alternative: If hook is hard to close, then filler material squeezed into the gap may work.

Alternative: You may be able to get special closed picture hooks from art stores or overseas suppliers.

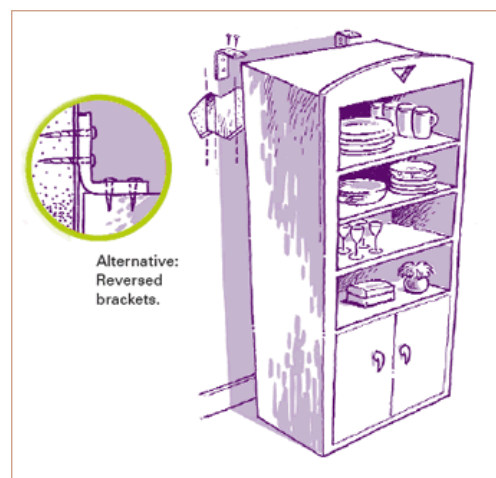
TALL FURNITURE

The taller something is the more easily it will start rocking and topple, particularly if it is top-heavy. Falling furniture can be dangerous and destructive. Securing it to the wall is usually straightforward.

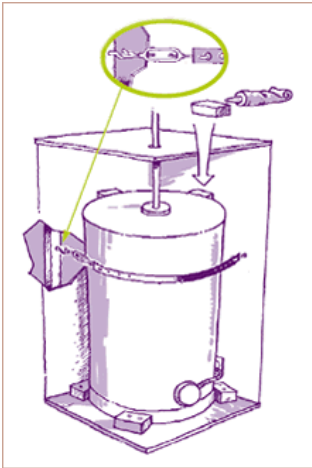
Brackets

Wall units, bookcases and other tall furniture should be secured to wall studs. The easiest way is to use metal brackets found in most hardware stores. Standard steel brackets (65mm) should be more than adequate.

If you would like the brackets hidden as much as possible, attach them as two upside down "Ls". Start by marking on the wall where the top of the furniture comes to and then move it away from the wall. Find where the studs are in the wall (by tapping lightly) and then use 10 gauge screws about 63mm long to screw the brackets into place before moving the furniture back. Screw the other arm of the brackets down onto the furniture with eight gauge screws of 15-25mm length.



HOT WATER CYLINDERS



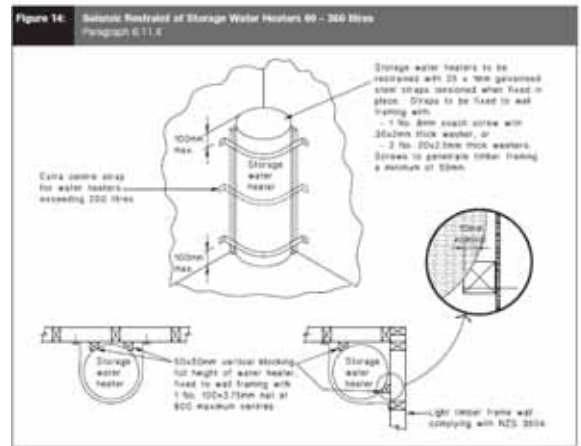
Even small shakes can cause hot water cylinders to rock enough to crack pipes, often causing expensive and messy water damage. In larger quakes the cylinder can tip over completely, with hot water becoming a hazard. Both can deprive you of your largest source of drinking water after a disaster. Securing a hot water cylinder is surprisingly easy.

The Strap Method

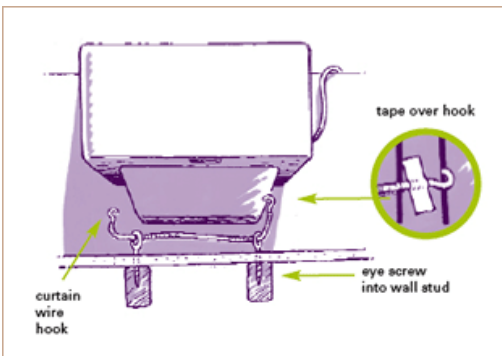
The best method of securing the cylinder is to use wooden blocks and a metal strap. The straps can be bought as part of a special kit from plumbing supply or hardware stores or you can buy a length of perforated strapping (approximately 25mm wide x 1mm thick).

Screw or nail timber blocks to the floor or shelving (make sure shelf is fastened). Cut timber blocks to size so they fit snugly between the top of the cylinder and walls and glue them into place. Ensure blocks are against wall framing. Screw two 8mm screw hooks into studs on either side and near the top of the cylinder. Attach a 6mm turnbuckle to one hook and the end of the strap. Cut the strap to the length required, connect it to the other hook and use turnbuckle to make it tight.

The New Zealand Building Code clause G12 / AS1 figure 14 also has seismic restraints of water cylinders.



TELEVISIONS

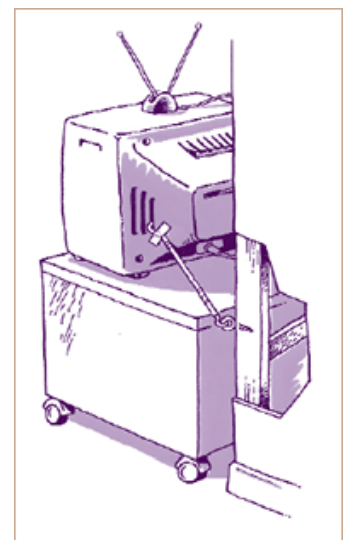


Television sets are front-heavy, and are prone to toppling forward. Curtain wire provides a quick and easy way of preventing this.

Screw one or two eye screws into a wall stud or other solid wood behind the TV. Screw a curtain wire hook into one end of a length of curtain wire and hook it into a vent. Thread the other end of the curtain wire

through the eye screws. Push the TV back against the wall and pull the wire tight. Cut to length, attach other curtain wire hook, and hook to vent. Tape hooks to TV to keep in place.

WARNING: Do not drill or otherwise make holes in appliances to attach hooks. You may need to slightly enlarge a vent with a hobby knife or small file to take the hook. If so, **UNPLUG TELEVISION FROM WALL.**



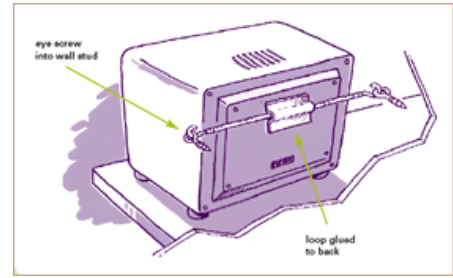
If your TV is very large you should use a separate length of curtain wire on each side attached back to eye screws in the wall studs. If the TV is on a trolley, angle the curtain wire downwards as much as you can to hold both in place.

APPLIANCES

Most homes have a wide range of appliances - from microwave ovens to television sets. These can slide off benches and topple from cabinets, becoming hazards both during and after an earthquake.

Small Appliances

Non-slip mats are good under smaller appliances like microwaves, videos and others where most of the weight is low down. Rubber "cups" that sit under the feet of an appliance or self-adhesive Velcro pads can be effective. Both are available from many appliance and hardware stores. Built-in appliances and items in wall units can be secured with wood battens or aluminium moulding or trim screwed to the edge of shelves to create a lip of at least 15mm in height.



Many appliances such as microwave ovens can be fastened with curtain wire passed through strong loops cut from leather or similar, and fixed with curtain wire hooks to eye screws in the wall studs. This will hold in strong shakes.

WARNING: Do not drill or otherwise make holes in appliances.

HEADER TANKS

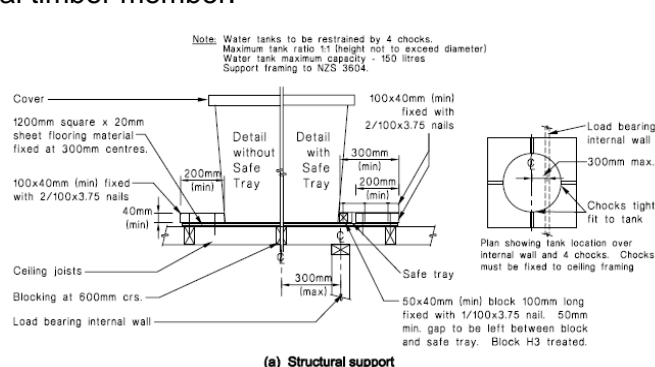
A lot of homes use low pressure hot water cylinders. The supply of water to the hot water cylinder comes from a header tank. A header tank is usually situated in the ceiling space but may also be situated (in very old homes) on the roof.

These header tanks are usually constructed of concrete (in older homes) or plastic.

A header tank holds usually between 150 litres to 300 litres of water. This is a lot of weight that could potentially crash through the ceiling.

A suggested method of restraining a header tank is noted below.

In addition it is suggested that either timber stays or wire straps are fitted to the top of the tank back down to a structural timber member.



The drawing above comes from the New Zealand Building Code clause G13 / AS1, figure 4.

Note that this is the method for support for header tanks up to 150 litres. Council would recommend if you have a header tank without the above support that you fit supports as per the diagram plus additional support from the top of the to supporting framing on the four sides. Also if your header tank is redundant, Council recommend you remove it. This may mean breaking it apart if it is a concrete tank. It would be better if heavy objects such as concrete header tanks are taken away completely.

SOLID FUEL BURNERS (HEATERS)

Solid fuel burners are extremely heavy. Since 1993 all solid fuel burners had to be fixed down to prevent them moving in an earthquake situation.

But if you have an older solid fuel burner, you should fix the unit to the hearth at the rear.

Some units come with predrilled holes for you to bolt them down while others have adjustable feet if your model has adjustable feet fitted, a 4mm steel strap with a 12mm hole at each end. Fit one over the adjustable bolt on the unit and fit a bolt into the hearth through the other hole into the hearth.



Gas burners should also be fixed down and the above method could be used.

Portable gas burners and electric heaters may be impractical to be fixed down as they are moved to where you need the heat source but home owners are encouraged to secure them as best as possible without causing any fire issues..

WATER SUPPLY

Why do you need to save and store water?

An active adult needs to drink up to three litres of fluid each day. In very hot weather, our bodies need more. In a major emergency, drinking water supplies will almost certainly be disrupted.

How much water should you store?

You should prepare enough water to cover drinking, cooking and hygiene needs for up to five days, perhaps longer, and you must have enough for at least three days. If you have pets, they will need drinking water as well.

Preparing water

- Use large size plastic soft drink bottles. (As a rough guide, you will need 1-2 bottles per person per day).
- Do not use milk containers as it is practically impossible to remove milk residue. This residue will cause bacteria growth.
- Wash the bottles thoroughly in hot water.
- Fill each plastic bottle until it overflows with water that has been boiled for three minutes, then cooled.
- Make sure there are no air gaps, then place the lids on tightly. It is important that no air gets in as this could make the water go stale.
- Label each bottle with dates showing when the water was prepared and when it needs to be renewed.
- Water prepared in this way will still be drinkable after six months, probably longer.

Storing the water

- Storing the bottles away from direct sunlight will help to keep the water clear.
- Check the bottles every six months. It is likely that the water will still be drinkable but if it is not clear, throw the water out and start again.

Using the water

- A few drops of lemon juice will help to freshen the taste and so will exposing the water to fresh air for a while (try pouring it into a different container).
- Keep the plastic soft drink bottles and refill them when the emergency is over.
- Boiling water for three minutes will kill any micro-organisms that could cause vomiting and diarrhoea.

Not just for disasters

- Major supply pipes and your own plumbing can develop leaks that may leave you without water.
- Having water stored can help whenever your water supply is disrupted.

Getting the water out of your hot water cylinder

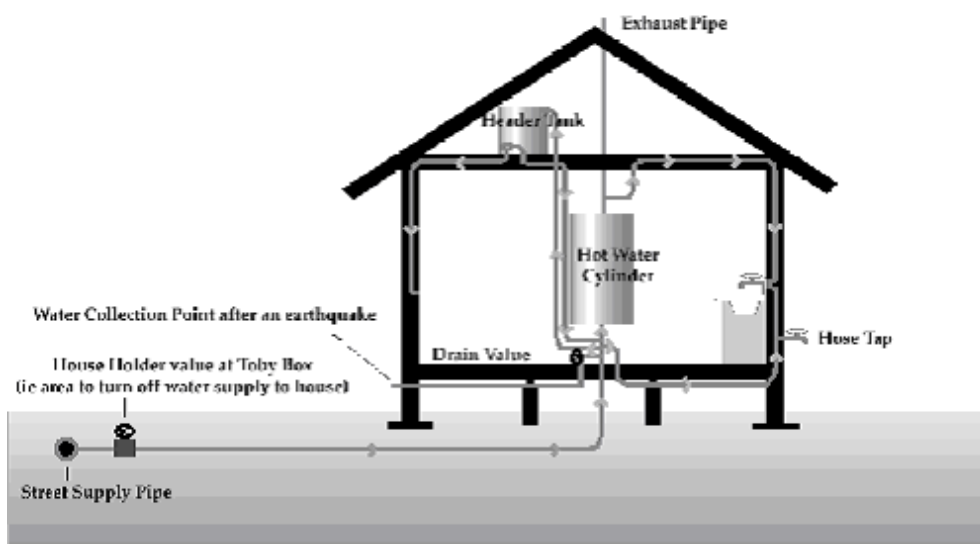
The water in your hot water tank is a valuable source of clean water. Providing the header tank in the ceiling is secure and the pipes have not been broken, you will get water out of the hot water-cylinder until the water has been used up.

There are two main types of hot water tank systems used in New Zealand houses, low mains pressure and low pressure systems.

For both systems, firstly:

- Shut your water supply off at the toby-box outside your home. This will prevent any contaminated water (from broken pipes on the street) from siphoning back up into your internal plumbing.
- If any pipeline is damaged between the toby-box and your internal plumbing system, you should clamp the pipe with a G-clamp or improvise with a set of vice-grips. Another option is to bend the pipe 180 degrees to stop the leak.

For both systems the water can be extracted by opening the drain valve at the bottom of the hot water cylinder and collecting from the external drainage point (as shown in this diagram).



Remember to turn off the electricity if you do drain the hot water-cylinder. This will prevent the element from burning out.

Priorities

Restrict unnecessary use of water or power. The response to any breakdown in continuity of services to Invercargill and Bluff residents will have the following priorities:

1. The safety of people.
2. The release of timely information and advice to the public.
3. The restoration of services as soon as possible.

The following series of photos shows how to access water from your hot water cylinder step by step.

Accessing water from your hot water cylinder may not be practical for you particular hot water cylinder due to location of hot water cylinder or possibly the drain.

Council would recommend that people trial obtaining water from their hot water cylinder just to determine if it is practicable for your situation.

Please be aware if you decide to trial this method of accessing water, the water in your cylinder will be hot, so take care.

Turn the water off at the water toby. The water toby should be situated at the front boundary of your property. If the water valve hasn't been accessed for a while, it may be very difficult to turn.

Council's Water Tower have details of the location of people's toby. Phone 211 1679 to inquire where the toby is.

A toby will either have a metal or plastic cover. Once the cover is removed, you will have access to the valve. You should be able to reach the valve by hand to turn it off. Occasionally the valves are too deep to reach and need a special extension key.

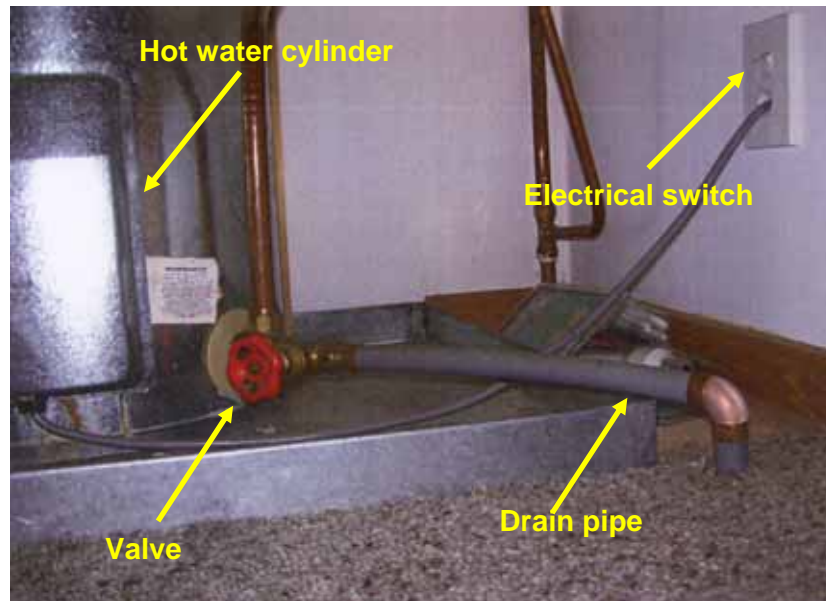
These can be purchased from the Water Tower for \$20.00 or can be borrowed.

Be aware that the Council have these made and only have a limited number on hand (as demand has not been high for this device).



Turn off the electrical supply to the hot water cylinder. The switch should be located beside the hot water cylinder (or in the same cupboard).

Turn the valve on at the bottom of the hot water cylinder.



You will note the pipe runs or should run to or near a gully trap. The gully trap is situated on the outside of your house. Fill container. Turn valve off after you have obtained water. This is probably a two person job due to the distance between the hot water cylinder and the drain location.

With a mains pressure hot water cylinder, there is a valve on top of the hot water cylinder which has a lever. This level needs to be lifted to allow air into the hot water cylinder. Without the air displacing the water, the hot water cylinder will not drain.

It may be very difficult to obtain water from the hot water cylinder and probably should be your last resort.

Council do recommend that you trial obtaining water from your hot water cylinder or if you know how to do it now it will be no problem when an emergency comes.



Also remember to turn water back on at the toby valve and power back on to the hot water cylinder when it is electrically safe to do so.

If your dwelling uses a gas califont to heat water, you will not have a hot water cylinder so the following two articles on downpipe diverters and water tanks may be of interest to access water from your dwelling.

Alternatively you may simply fill bottles and store them in a dark, safe place but note the previous article on water supply.

DOWNPIPE DIVERTER

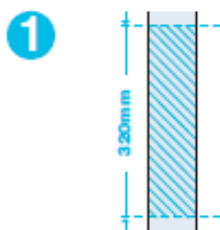
Your roof collects water and in most cases this water is run straight into the stormwater system. But you could fit a diverter to a tank for collecting water. Marley produces a downpipe diverter.

Downpipe Diverter

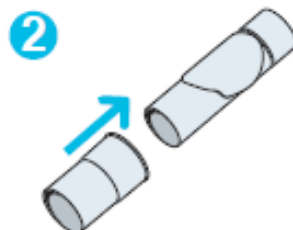
The Marley Downpipe Diverter can be installed easily to PVC downpipes allowing collection of rainwater for tank filling, garden watering, aquariums and many other uses. It can also be used to divert debris during the cleaning of spouting preventing it from entering the stormwater system.

Installation Instructions

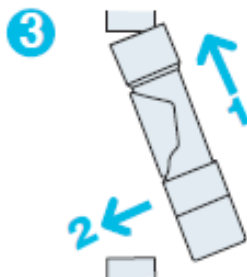
The Marley Downpipe Diverter can be installed in only a few minutes. It has an 80mm diameter, but can be easily adapted to fit all Marley downpipe profiles. You will need a measuring tape, pencil and a handsaw.



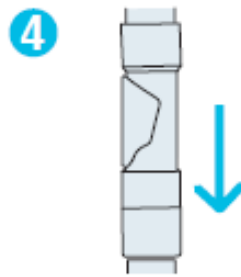
Decide where on your existing downpipe you want the diverter to be placed and cut a 320mm gap in the downpipe.



Join the downpipe diverter to the enclosed attachment.



To attach the diverter to the downpipe, start at the top with the diverter offset slightly, then push up and across.



Let the diverter then slide down into the downpipe and the downpipe diverter is ready to work.



To use, simply lower the side arm and ensure that it is clipped in and on a downwards slope.

The above details courtesy of Marley rainwater solutions. For further information go to www.marley.co.nz.

There are other manufacturers that make similar downpipe diverters and your local hardware store will be able to show you the range available.

COLLECTING ROOF WATER TO A TANK

How do you collect and use rainwater?

In principle, a rainwater collection system is simple: rainwater is collected from your roof and stored in a tank until you need it.

Exactly how you set the system up will depend on how much rainwater you need and what you want to use it for.

To collect rainwater for watering the garden, you might not need anything more complex than a 44-gallon drum with a tap or connection to a soak hose.

You can also collect rainwater for:

- flushing your toilet and doing your laundry
- other household uses such as drinking, bathing and using in the kitchen (but the water will have to be treated or purified).

Safety

Rainwater can contain:

- campylobacter, giardia, cryptosporidium, salmonella and E.coli
- bird, possum and other animal droppings
- heavy metals such as lead from your roof
- ash and chemical residues - for example, from agricultural spraying and vehicle emissions
- leaves, soil and other debris.

To protect your health, you'll need to ensure your rainwater system is properly set up and maintained.

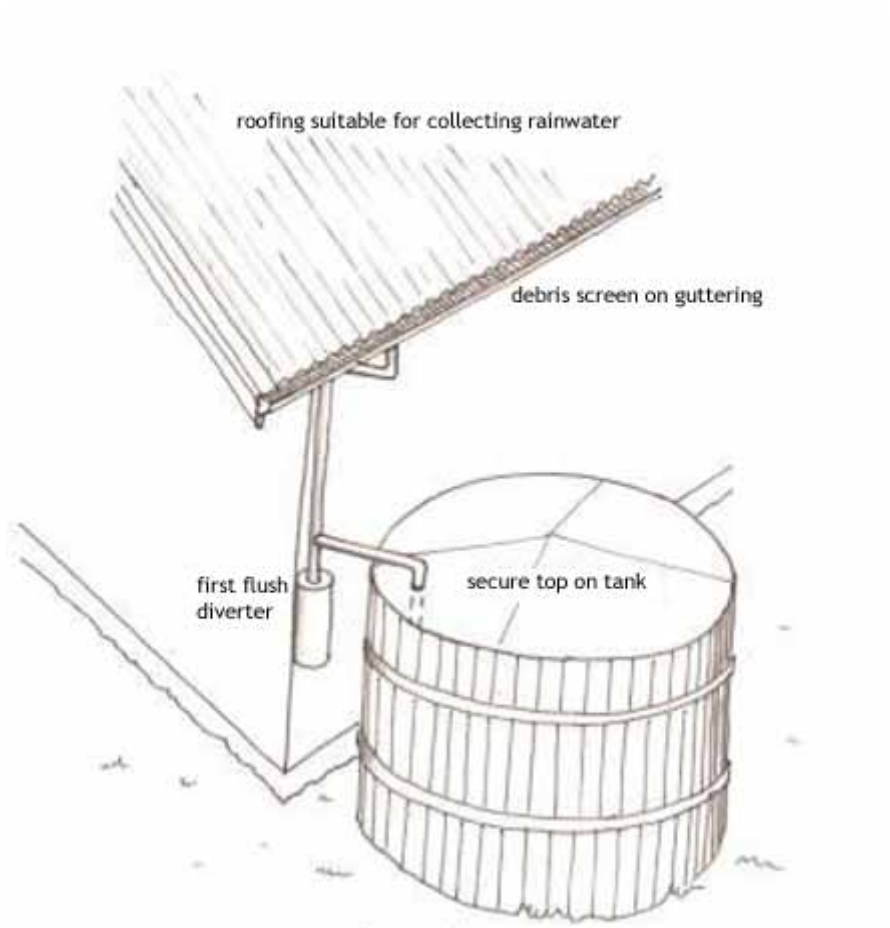
Roof materials and pipes

Some roofing materials aren't suitable for rainwater collection. Check with the manufacturer.

If there's lead, chromium or cadmium in the roof materials, soldering, flashings, paint or any other part of the roof, you shouldn't collect rainwater from the roof.

Rainwater can also react with uncoated metal roofs, so any metal roof should be painted (using a roof paint that is labeled 'suitable for potable water supply') before rainwater is collected.

Concern has also been expressed about the suitability of PVC, because of the possibility of chemicals leaching. There are alternatives.



Typical rainwater system set up to minimise contamination

Preventing Contamination



A leaf filter helps keep your rainwater tank free from contamination

To prevent leaves, droppings and other organic matter from contaminating your rainwater:

- Use a 'first flush diverter'. This is a simple, inexpensive device that fits to your tank inlet. It prevents the initial flow of contaminant-laden water from the roof entering the tank when it rains. Contaminants drain off to a suitably planted part of the garden or soakage area.
- Ensure the tank is tightly covered - this also prevents evaporation.
- Use a screen over the tank's inlet pipe to keep out insects, birds and animals.
- Install covered rainwater-collecting gutters to prevent debris from entering your water tank.

Treating and purifying water for drinking

If you want to drink your rainwater or use it for any household use other than flushing the toilet and washing clothes, you'll need to treat it or purify it. Options include:

- adding chlorine
- using a filter or purifier
- boiling the water for one minute
- ultraviolet light treatment.

Maintenance

Regular maintenance is vital if you use rainwater for household use. Maintenance should include:

- desludging your tank yearly, using the sediment removal tap at the base of the tank, if there is one - this takes about 20 minutes
- checking the roof and guttering for debris
- keeping the roof clear of overhanging vegetation
- regularly checking and maintaining screens and filters
- washing out the first flush diverter every six months or so, depending on your rainfall (this only takes 10 minutes)
- checking the condition of the tank's pipes, fittings and structural supports.

It's also a good idea to drain and clean your tank every so often. How often depends on what gets into your tank, and on how often you remove sludge and sediment. Every five years is recommended.

BUYING YOUR RAINWATER SYSTEM

Costs

A basic rainwater collection tank is easy to install and can be relatively inexpensive. Costs vary depending on the tank material, and installation and delivery requirements.

Other costs may include the pipes, filters or treatment, any plumbing requirements, building consent fees, and annual inspection fees.

How big?

The size of tank you'll need depends on your rainfall, on what you intend to use the water for, and whether you have access to mains water supply.

Other factors that might influence the size of your tank include:

- how big your property is - a large garden will need more water
- how big your roof is (if you're collecting the rainwater off your roof)
- how much security of supply you require.

If you live in the city and are short of space, you could install a 'slimline' tank that attaches to a wall on the side of your house. Water is heavy, so even slimline tanks need to be well supported.

Tank materials

The most common tank materials include plastic (polyethylene), concrete, fibreglass and galvanised steel. The type of material you select depends on your budget, the size of tank, water use and whether the tank will be sited above or below ground.

Galvanised steel is relatively inexpensive, but its lifespan is limited by corrosion. Rainwater stored in galvanised tanks may have higher than normal concentrations of zinc, which may be a problem if you drink your rainwater.

Concrete and fibre tanks are strong and long-lasting. Plastic is tough, durable and relatively lightweight; choose a tank that's algae-resistant.

If you live in an earthquake zone, plastic or fibreglass tanks are good options.

Overflow

There is a risk of overflow from rainwater tanks that are poorly installed or aren't big enough to cope with runoff from the roof. Overflow needs to be contained on your property or diverted to the stormwater system. Otherwise, overflow from your tank could damage your property and neighbouring properties ? especially in built-up areas. If damage occurs, you could be liable.

Garden water

To collect rainwater for your garden, any large, watertight container will do. Set it up so the downpipe from your roof feeds into it, and cover it with a strong insect screen to stop mosquitoes invading and animals from getting trapped. In periods of high rainfall you may need to reconnect your downpipes to the stormwater system to prevent overflowing.

You can fit a tap to the container, or fit a soak hose or 'dripper' irrigation system to it. If you use a tap, install it high up or put a lock on it so children can't drink the water. A warning sign is also a good idea.

This article was from SmarterHomes.org.nz : Collecting and using rainwater

General advice for coping with snow

Southland Civil Defence Emergency Management Group



FACTSHEET

In heavy snow, it's best to stay indoors. But if you must be outside, wear several layers of loose fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent.

- Wear mittens, which are warmer than gloves.
- Wear a hat
- Cover your mouth with a scarf to protect your lungs

Cold weather puts a strain on your heart, even without exercise. Be careful when shovelling snow, pushing a car, or performing other tasks. Regardless of your age or physical condition, avoid over-exertion.

Avoid non-essential travel.

If you are driving in the country and are unable to continue because of snow:

- Stay in your vehicle. Disorientation occurs quickly in wind-driven snow.
- If you have a cell phone, call 111.
- Run the engine and heater about 10 minutes each hour to keep warm.
- Open the window a little for fresh air to avoid carbon monoxide poisoning.
- Make sure the exhaust pipe is not blocked.
- Make yourself visible to rescuers:
 - > Tie a coloured cloth (preferably red) to your radio aerial or door.
 - > Raise the vehicle hood indicating trouble after snow stops falling.
 - > If stranded in a remote area, stomp large block letters in an open area spelling out HELP or SOS and line with rocks or branches to attract the attention of aircraft.
- Exercise from time to time by vigorously moving arms, legs, fingers, and toes to keep blood circulating and to keep warm.
- In extreme cold, use road maps, seat covers, and floor mats for insulation. Huddle with passengers.
- Drink fluids to avoid dehydration.
- Be careful not to waste battery power. Balance electrical energy needs – the use of lights, heat, and radio – with supply.
- Turn on the inside light at night so work crews or rescuers can see you.

General advice for coping with snow

Southland Civil Defence Emergency Management Group



FACTSHEET

If your home or business property has been damaged by snow, ring your insurer as soon as possible.

Ask the insurance company:

- How long it will be before an insurance assessor visits.
- If you are to clean your property or if they will get a company to do it for you.
- Always make your own record of your damaged property using photographs or video.
- List the damage to your property and belongings.

Things to help with your insurance claim:

- Confirm the insurance company will pay for any service or equipment you need.
- Make a note of all telephone calls. Record the date, name and what was agreed.
- Keep copies of all letters, emails and faxes you send and receive.
- Keep receipts.
- Don't throw anything away until told (except ruined food).
- If you rent your property, contact your landlord and your contents insurance company as soon as possible.

There is more advice about being prepared for emergencies on:

- www.civildefence.co.nz
- www.getthru.govt.nz

and also in the inside back page of the telephone book

Advice for farmers - snow

Southland Civil Defence Emergency Management Group



FACTSHEET

Check on your animals and ensure that drifted snow, ice or other obstacles haven't blocked their access to food and water.

Move stock to sheltered areas. Shelter belts, properly laid out and oriented, are better protection for cattle than confining shelters, such as sheds.

Clear driveways and tracks for service vehicles.

Have a water supply available. Most animal deaths in winter storms are from dehydration.

Make sure your livestock are secure if there is no power to your electric fences

Working in the snow:

Cold weather puts a strain on your heart, even without exercise. Be careful when shovelling snow, pushing a car, or performing other tasks. Regardless of your age or physical condition, avoid overexertion in the winter.

- Wear several layers of loose fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent.
- Wear mittens, which are warmer than gloves.
- Wear a hat
- Cover your mouth with a scarf to protect your lungs

If your property has been damaged, ring your insurer as soon as possible. In almost all cases the insurance company will send an insurance assessor to look at your property. They will confirm what repairs and replacements are needed and covered by your policy.

Ask the insurance company:

- How long it will be before an insurance assessor visits.
- If you are to clean your property or if they will get a company to do it for you.
- Always make your own record of your damaged property using photographs or video.
- List the damage to your property and belongings.

If you are driving and are unable to continue because of snow:

- Stay in your vehicle. Disorientation occurs quickly in wind-driven snow.
- Run the engine and heater about 10 minutes each hour to keep warm.
- Open the window a little for fresh air to avoid carbon monoxide poisoning.
- Make sure the exhaust pipe is not blocked.
- Make yourself visible to rescuers:
 - Tie a coloured cloth (preferably red) to your radio aerial or door.
 - Raise the vehicle hood indicating trouble after snow stops falling.

Tsunami Risk

Southland Civil Defence Emergency Management Group



FACTSHEET

What are our **TSUNAMI** risks?

New Zealand's entire coast is at risk of tsunami.

The biggest tsunami in New Zealand are likely to be caused by major earthquakes or underwater landslides close to our shore and can arrive within just a few minutes. Once they travel over land, tsunami pick up debris, boats and large rocks. They can knock down buildings, kill or injure people. They have enormous destructive force.

Tsunami may also be generated by very large earthquakes far away. Some tsunami can travel thousands of kilometres and still be big enough to cause loss of life and damage when they arrive here.

TSUNAMI KEY FACTS

- Tsunami are large ocean waves generated by major earthquakes beneath the ocean floor or by major underwater landslides
- A tsunami can occur during any time of the year
- A tsunami is a series of waves. The first wave may not be the largest
- Tsunami waves can travel up streams and rivers with damaging waves extending further inland than the immediate coast
- The tsunami danger period can continue for many hours

How will I know?

NATURAL WARNING

IF you are at the coast and you experience any of the following:

- you feel a strong earthquake (it's hard to stand up)

Tsunami Risk

Southland Civil Defence Emergency Management Group



FACTSHEET

- you feel a weak earthquake that lasts for a minute or more
- you see strange sea behaviour, such as the sea level suddenly rising or falling
- you hear the sea making loud and unusual noises or roaring like a jet engine

THEN get to high ground or go inland.

DO NOT WAIT for an official warning. Instead, let the natural signs be your warning. First, protect yourself from falling objects then immediately get to high ground or go inland. Wait for official all clear.

OFFICIAL WARNING

An official warning from civil defence emergency management may be issued through radio or television broadcasts. Warning may also be through siren, telephone, txt, loud hailer, or other local arrangements.

You may receive warning from one, or several sources. Respond to the first warning, do not wait for more messages before you act. Listen to your radio and follow any official instructions. Evacuate from the areas or zone(s) stated in the warning.

INFORMAL WARNING

Warnings from friends, other members of the public, international media, etc may be correct.

If you feel the threat is imminent, quickly get to high ground or, if the surrounding area is flat, go as far inland as possible.

Verify the warning only if you can do so quickly via radio, television, internet, or by contacting your nearest civil defence emergency management office.

Tsunami Risk

Southland Civil Defence Emergency Management Group



FACTSHEET

KEY FACTS SPECIFIC TO SOUTHLAND

- The latest scientific research indicates that the maximum credible risk to the Southland coastline is a 4 metre high tsunami wave.
- The tsunami wave height will be on top of the tide height at the time.
- This size wave will have destructive force for those living at or near low lying coastal areas of Southland.
- The Southland coastline could be subject to a tsunami resulting in earthquake from the Pacific rim region especially South America, the Subantarctic region or the sea floor near Fiordland.

OFFICIAL TSUNAMI SIGNAGE

At this point in time there is no tsunami signage on the coast of Southland.

NATURAL WARNING

Our key message is:

"If you live or are at a coastal area and you experience a substantial earthquake then once the earthquake has finished you should move inland or to higher ground."

Listen to your local radio stations and you will be advised further of what actions to take.

Official warnings **will** be issued for tsunamis resulting from the Pacific rim region.

Official warnings **may** be issued for all other tsunamis if time allows however you may only receive an **informal** warning or a **natural** warning.

For more information including the most at risk areas of Southland speak with the staff at the Emergency Management Southland office. Phone 03 211 5411

Protecting Your Health in an Emergency

Southland Civil Defence Emergency Management Group



FACTSHEET

Disruption to power supplies, water and sewerage reticulation for any length of time can result in unhealthy environments and an increased risk of communicable diseases such as gastroenteritis and respiratory illness. Young children, the elderly and those with chronic illness are most at risk.

Respiratory viruses are passed on by droplets when people cough and sneeze. These viruses can survive for 48hrs on surfaces and may be picked up on hands and transferred to the face and mouth. Gastro enteric diseases can be spread via the faecal oral route in contaminated food or water and via aerosol spread following projectile vomiting. These organisms can also survive on surfaces for extended periods and may be picked up on hands and transferred to the mouth.

KEY MESSAGES

Hand hygiene is the most important way of preventing the spread of disease Wash hands for 20 seconds with soap and if possible, warm water and dry thoroughly before -

- preparing food and eating, after coughing and sneezing, blowing your nose, wiping children's noses, going to the toilet, looking after sick people and after undertaking environmental cleaning

Social Distancing

- Stay home if you are sick
- Don't share utensils, cutlery, water bottles with sick people
- Where possible keep at arms length from sick people

Environmental Cleaning

- Always clean before you disinfect
- Disinfection solutions need to be made up fresh each day

Food and Water

- Food in a fridge or freezer will spoil with power failure. Have reserves of drinking water and non-perishable foods.

Disposal of Waste

- Place general rubbish in heavy duty plastic bags to protect from flies and vermin
- Store sewage waste in strong leak proof plastic bags buried underground.

Protecting Your Health in an Emergency

Southland Civil Defence Emergency Management Group



FACTSHEET

1. General Hygiene

- A. **Hand Hygiene** is the most important way of preventing the spread of disease
- Wash and dry hands before preparing food and eating, after coughing and sneezing, blowing your nose, wiping children's noses, going to the toilet and looking after sick people and after undertaking environmental cleaning.
 - Wash hands for 20 seconds with soap and where possible warm water then dry them thoroughly for at least 20 seconds.
 - Alcohol gels (60% or more alcohol) can be used on visibly clean hands.
- B. **Cough Etiquette**
- Cough/sneeze into the crook of your elbow not into your hand
 - Use tissues or toilet paper for coughs/sneezes and dispose of immediately either down the toilet or into a rubbish bin
- C. **Social Distancing**
- Stay home if you are sick
 - Don't share utensils, drink bottles with sick people
 - If possible, stay at arms length (one meter) from others in particular sick people to reduce the chance of catching illnesses

2. Environmental Cleaning

- A. **Identify High Risk Areas**
- These include food preparation areas, high use equipment such as door and tap handles, toilets, nappy changing areas, toys and play equipment, areas visibly contaminated with vomit / faeces.
- B. **Have a Regular Cleaning Regime**
- High risk areas need more frequent cleaning and should be cleaned last to avoid contamination

Protecting Your Health in an Emergency

Southland Civil Defence Emergency Management Group



FACTSHEET

C. How to Clean

- First clean with hot water and detergent to remove dirt.
- Then wearing gloves, use a disinfectant such as bleach (eg Janola, White Magic, Domestos) to kill the micro-organisms that cause respiratory and gastro enteric illness
- Supermarket bleaches are sold in different strengths, usually 2–5% sodium hypochlorite solution. Make up fresh disinfection solution each day as per the instructions on the label and discard any leftovers after 24 hours
- Wipe the disinfection solution onto previously cleaned hard surfaces and leave to air dry for at least 10 minutes.
- If items are being placed into a disinfection solution they should be soaked for 30 minutes and allowed to air dry
- Alcohol wipes (60% or more alcohol) are recommended for surfaces e.g. keyboards and telephones, that cannot be wiped with disinfection solutions.
- Disposable cloths, used only the once, are recommended for cleaning high risk areas. If reusable cloths are used, different coloured cloths should be used for and restricted to specific areas. Reusable cloths should be soaked in disinfection solution before drying.
- Reusable mops should be soaked overnight in bleach solution
- In the case of respiratory illnesses carpets or soft furnishings can be cleaned with domestic household carpet cleaning and fabric cleaning products

3. Disposal of Waste

A. General Waste

- Dispose of used paper towels, tissues, disposable cleaning cloths, gloves, aprons etc by placing into a heavy duty plastic bag sealed or tied and then into the general rubbish bin.
- Use plastic bin liners to avoid leakage
- Change bin liners daily rather than empty contents to avoid double handling
- If you do not have refuse collection bury the bag in your backyard for collection when services resume or burn it

Protecting Your Health in an Emergency

Southland Civil Defence Emergency Management Group



FACTSHEET

B. Disposing of Sewage

- Human waste can spread disease. Use a sturdy bucket or rubbish bin lined with a strong, leak proof plastic liner as a makeshift toilet. Put half a cup of liquid bleach or some kitty litter into the plastic liner.
- Keep the bin completely covered when not in use and when full tie the top firmly, place it within another bag.
- Store the bag/s by burying underground away from your vegetable garden and downstream from any water source
- When normal systems/services are operational uplift bags and dispose of contents through a toilet system.

4. Water

To make water safe for drinking, food preparation and hygiene:

- boil for 1 minute or
- add five drops of household bleach (e.g. Janola) per litre and stand for 30 minutes
- Bottled water and cans of drink will leave more water for cooking and hygiene

5. Food

Food will spoil if electricity fails for any length of time. Use food supplies in the following order

- Fresh foods and food from the fridge (open as few times as possible)
- Food from a cabinet freezer
- Food from a chest freezer
- Canned and packaged foods should be used last

Use treated water (boil for 1 minute) when preparing food

For more details on "Protecting your health in an emergency" refer to

<http://www.moh.govt.nz/moh.nsf/pagesmh/977>

RADIO STATIONS



Radio Stations

If you live become aware of a Civil Defence Emergency then tune in to your local radio station and await any Civil Defence Emergency Management broadcasts.

The following are a list of your local radio stations in Southland.

Station	Frequency
Classic Hits	98.8 FM
Hokonui Gold	94.8 FM
More FM	89.2 FM or 1224 AM
Newstalk ZB	864 AM
Radio Southland	96.4 FM

Local Television

Alternatively CUE TV may be operating through the Sky digital network on Channel 110.

FACTSHEET

Christchurch

EARTHQUAKE RESPONSE

March 2011

Liquefaction

Frequently asked questions

How does liquefaction work?

Liquefaction happens in loose silt and sand that is below the water table.

- It does not happen in clay soil.
- It does not happen in peat because it is made of plant materials. There may be sand or silt layers above or below the peat that can liquefy.
- It is uncommon in gravelly soils.
- Dry soil does not liquefy.
- The severity of liquefaction depends on the strength of ground shaking and the length of time the ground shook.

How does liquefaction happen?

1. Sand and silt grains try to compact during an earthquake.
2. This compresses spaces which are filled with water.
3. The water pushes back and pressure builds up in the water until the silt and sand grains "float" in the water.

4. When that happens the soil behaves like a liquid. The soil can't support the weight of what is above the ground (e.g. a building, or car).
5. Pressurised water is forced up to the ground surface through the easiest way it can find e.g. cracks or crevasses in the ground or concrete.

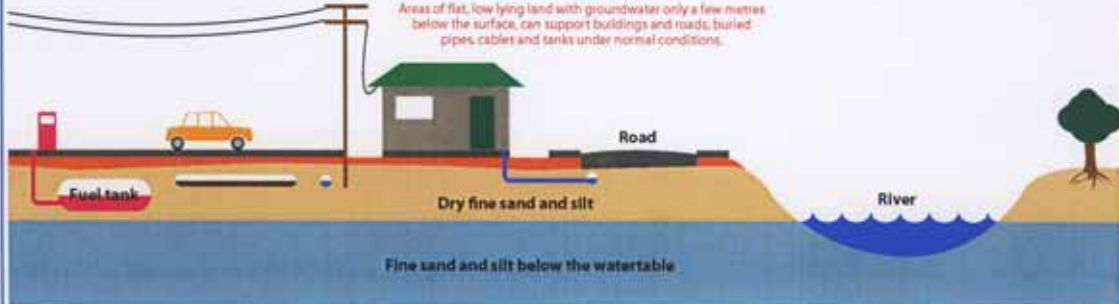
Are all cracks in the ground, beside streams or estuaries, earthquake faults?

No. During an earthquake liquefied soil can move sideways towards streams or estuaries creating cracks in the ground beside streams or estuaries. The cracks only go down a few metres. This is called lateral spreading.

Liquefaction and its effects

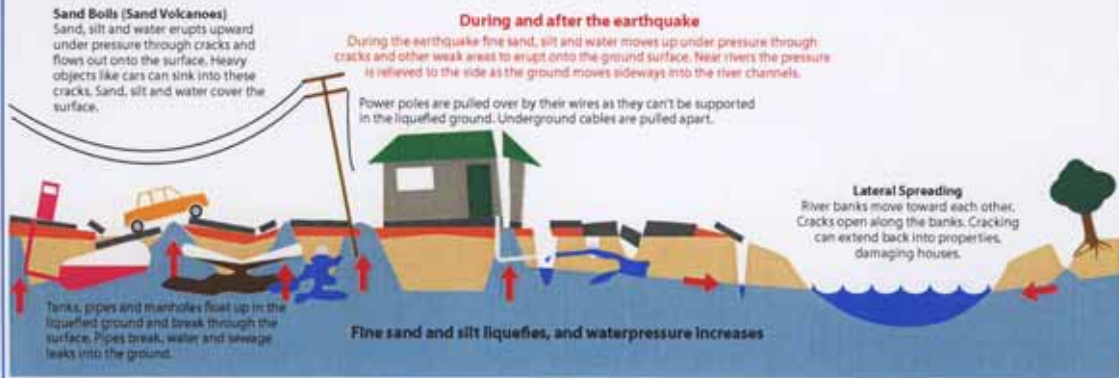
Before the earthquake

Areas of flat, low lying land with groundwater only a few metres below the surface, can support buildings and roads, buried pipes, cables and tanks under normal conditions.



During and after the earthquake

During the earthquake fine sand, silt and water moves up under pressure through cracks and other weak areas to erupt onto the ground surface. Near rivers the pressure is relieved to the side as the ground moves sideways into the river channels.



Credit: The Institution of Professional Engineers of New Zealand

Christchurch

EARTHQUAKE RESPONSE

March 2011

Why was there so much liquefaction in Christchurch with this earthquake, but very little in Kaiapoi and Selwyn?

The difference is because:

- The magnitude of this earthquake was smaller than the 4 September earthquake, so the strongest ground shaking happened across a smaller area.
- The epicentre was much closer to Christchurch, so the ground shaking in Christchurch was much greater than in September.
- By the time the earthquake waves got to Kaiapoi and rural Selwyn district in this earthquake, there wasn't enough energy left in the waves for major liquefaction to happen again.

A comparison:

After the September Earthquake: Christchurch City Council removed 54,000 tonnes of silt from areas affected by liquefaction.

As a result of the 22 February 2011 earthquake: Christchurch City Council has removed 322,000 tonnes of silt as of Thursday 10 March.

How much has the ground sunk?

After the September earthquake ground levels in most places affected by liquefaction appeared to have sunk by up to 10 centimetres.

Because so much more silt and sand has come to the ground surface in the 22 February earthquake, the ground in some places is likely to have sunk by more than that. Surveying work is being done to determine how much it has sunk by.

Does liquefaction leave big holes underneath the ground?

Generally, no. The ground surface sinks to fill in the spaces left by the silt and sand that has come to the ground surface.

But there may be holes that you can't see where high pressure water pipes have burst and scoured out sand and silt under the ground, or where lateral spreading has happened under asphalt or lawn.

There may be hollows in the ground surface after liquefaction that you can see.

In areas affected by severe liquefaction you should be careful for the first 2-3 weeks after the earthquake until the soil is fully stable again.

How stable is the soil now?

After 2-3 weeks the soil is almost back to the same condition or strength as before the earthquake. A small amount of subsidence may happen over the next couple of months.

Liquefaction can happen in the same place more than once if the soil is not treated.

Should I fill in holes left in my backyard after liquefaction?

Yes and inspect your property for any hollows or dips in the ground to make sure you don't step into them by accident.

Take photos of your property before you fill in any holes to show the Earthquake Commission engineer when they come to visit.

Will the Earthquake Commission come to inspect the damage to the land?

Yes, but it will take many months to get to everyone's property. Please be patient.

Please take photos of any major land damage, before you tidy it up, to show the EQC engineer. Also remember to tell the engineer if you have had silt or sand on your property after the earthquake that has since been removed.

Damage to houses will be looked at as a separate process.

For more information go to <http://www.ipenz.org.nz/ipenz/forms/pdfs/ChChFactSheets-Liquefaction.pdf>

This factsheet incorporates information from the Liquefaction factsheet compiled by the Institute of Professional Engineers of New Zealand.

More information:

www.canterburyearthquake.org.nz

<http://twitter.com/ChristchurchCC>

Christchurch City Council: (03) 941 8999

Canterbury Business Recovery Group 0800 505 096

Earthquake Government Helpline: 0800 779 997

Earthquake Commission (EQC): 0800 326 243

Orion (electricity): (03) 363 9898

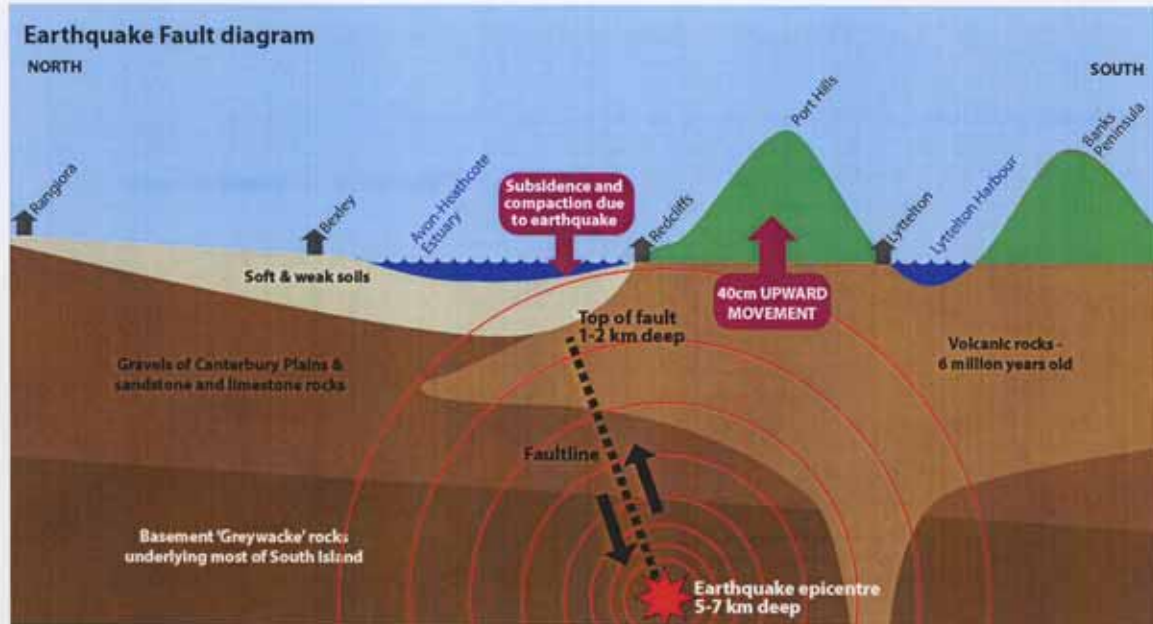
Housing NZ Emergency Assistance: 0800 435 700

Christchurch EARTHQUAKE RESPONSE

March 2011

Scientists have been working since the earthquake occurred to understand how it happened and what its effects are. Our understanding will continue to improve as we analyse more information over the coming weeks.

Fault information



- The 22 February 2011 earthquake fault runs beneath the north side of the Port Hills. There is no evidence that the fault broke through to the surface like the Greendale Fault that caused the 4 September 2010 earthquake.
 - The fault itself is not vertical. It slices through the ground on a 65 degree angle, back under the Port Hills, with the highest part of the fault lying approximately one-two kilometres beneath the Avon/Heathcote Estuary.
 - The two sides of the fault have moved past each other ("slipped") by about 1.5 metres. The direction of slip has caused the Port Hills to rise by about 40 centimetres.
 - This earthquake has been followed by its own set of aftershocks. These are becoming less frequent, but will continue for at least several weeks before dropping to pre-22 February levels. This is normal and expected.
 - There was no tsunami associated with the earthquake because it happened on land, and involved no displacement of the sea floor. If a further earthquake, even up to the size of the 4 September 2010 earthquake, was to happen offshore any resulting tsunami would be much smaller than the recent Japanese tsunami. It would likely only affect beaches and estuaries in Pegasus Bay and Banks Peninsula and create currents that could affect boats.
- As for anywhere in New Zealand, if you are on the beach and feel strong shaking for more than 20 seconds, you should move off the beach and away from low-lying areas.
- The likelihood of another large earthquake in the Christchurch area now, and perhaps for the next few years, is similar to that in the West Coast, Marlborough, Wellington and Hawkes Bay.
 - The earthquakes that have occurred in other parts of the country and in Japan over the last weeks have not been triggered by this earthquake or its aftershocks. The recent huge earthquake in Japan or other large events elsewhere in the Pacific region will not trigger earthquakes in New Zealand.
 - Cracks seen in the ground are not faults. They are where the ground has cracked, often because of liquefaction or landsliding, during the earthquakes. These cracks only go down to a depth of several metres at most.
 - Banks Peninsula is an extinct volcano and the earthquake activity is not related to it. Volcanic earthquakes are very different in style to the 4 September 2010 and 22 February 2011 earthquakes. More water than usual has been measured flowing from the warm springs in the Port Hills area since the 22 February earthquake, but the temperature of the springs has not changed much. Similar changes to warm and hot springs have been observed throughout the South Island, as they were after the 4 September 2010 and previous large earthquakes.

Christchurch

EARTHQUAKE RESPONSE

Landslides and rockfalls

- The 22 February 2011 earthquake caused many rockfalls across the Port Hills and created cracks in the soil and rock, particularly between Cashmere/Governors Bay and Godley Head. Geotechnical engineers have been mapping and assessing landslides and rockfalls across the Port Hills, and are monitoring the areas of greatest concern.
 - A number of houses in areas where there is a risk to life from rockfalls or landslides have been red placarded. If your house has been red placarded for geotechnical reasons you cannot live in the house for the time being, even if it is structurally sound. You can return to the house for a short amount of time to retrieve important items but you must be accompanied by a chartered professional engineer who has geotechnical expertise. It is likely that you will not be able to return to live in your house for at least one month, possibly longer.
 - For more information on landslides and rockfalls, and what to do if your house is red carded for geotechnical reasons, we have also produced a landslide and rockfall factsheet for hill suburb residents. It is available at www.canterburyearthquake.org.nz under "FAQ" or at your nearest Recovery Assistance Centre.
 - If you have concerns about landslides or rockfalls affecting your house or your neighbours' houses, please contact Christchurch City Council on 03 941 8999. If the situation appears to be life threatening, please call emergency services on 111.
- The Halswell river and drainage system only suffered a small amount of damage compared to the 4 September 2010 earthquake. Some of the side drains of the river have silted up and these will be dug out relatively quickly. Other minor repair work can be incorporated into the existing repair work programme from the 4 September 2010 earthquake.

Flooding risk

- Parts of the Waimakariri River stopbanks downstream of State Highway 1 were further damaged in the 22 February earthquake, mainly through shaking and cracking damage rather than liquefaction damage. At present there is approximately one in 15 year protection for this area (enough to carry about 2500 cumecs of water). The repairs from the 4 September 2010 earthquake have been reprioritised and the worst affected areas are being repaired to improve the level of flood protection again as quickly as possible. Flood protection upstream of State Highway 1 has not been affected and remains at one in 500 years.
- Stopbanks on the Styx, Avon and Heathcote rivers are all being surveyed for damage. There is some damage to parts of the lower Avon stopbanks, and evidence of sinking of the ground due to liquefaction in this area. The lower Avon stopbanks are being built up with earthworks and sandbagging where necessary.

More information:

www.canterburyearthquake.org.nz
<http://twitter.com/ChristchurchCC>
Christchurch City Council: (03) 941 8999
Canterbury Business Recovery Group 0800 505 096

Earthquake Government Helpline: 0800 779 997
Earthquake Commission (EQC): 0800 326 243
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