

MAINTAINING YOUR HOME

Common maintenance issues that can
be mistaken for natural disaster damage

JUNE 2021



CONTENTS

ROOF	6	JOINERY – WINDOWS AND DOORS	18
METAL ROOF COVERINGS	7	CRACKING TO DOOR JAMBS AND WINDOW REVEALS	19
ROOF MEMBRANE	7	SAGGING LINTELS	19
PAINTED OR STAINED ROOF COVERINGS	8	STICKING DOORS AND WINDOWS	20
RIPPLING ACROSS A ROOF	8	GLAZING CRACKS	20
CONCRETE TILES	9	TIMBER FLOORS	21
EXTERIOR – CLADDING	10	SQUEAKY FLOORS	22
EXTERIOR BRICKS	11	SPRINGY FLOORING	23
CRUMBLING MORTAR	12	CUPPING & PEAKING OF FLOORBOARDS	23
HAIRLINE CRACKING	12	GAPS IN TONGUE AND GROOVE FLOORING	23
WEATHERBOARD PAINT DETERIORATION	12	EXTERNAL HARD SURFACES	24
GUTTERS AND DOWNPIPES	13	CRACKED PAVING SLABS	24
INTERIOR – WALLS AND CEILING	14	CONCRETE CRACKING	24
POPPED FIXINGS	15	SLUMPING OF HARD SURFACES	25
FLAKING PAINT TO INTERNAL LININGS	15	GENERAL SURFACE DETERIORATION	25
ISOLATED CRACKING UNDER WALLPAPER	16	GLOSSARY	26
CRACKING AROUND WINDOW AND DOORS OPENINGS	16		
LOOSE PLASTERBOARD TO CEILINGS	16		
MOISTURE DAMAGE	17		
REMOVING EXISTING WALLPAPER	17		

Our home is often our most important asset, so it makes sense to regularly maintain your home and keep it in the best condition possible.

Home maintenance and defect issues can be found both inside and outside the home. Sometimes these issues can be mistaken for damage caused by a natural disaster (i.e. an earthquake). Many of these issues and defects can be due to a lack of ongoing maintenance. Regularly maintaining your home optimises its value, extends the life of the building materials and enhances its appearance.

In this brochure, you will also find some useful links to websites and organisations that have extensive material on common issues and defects which are often mistaken for natural disaster damage, along with information regarding their likely causes.

Links to websites should not be taken as endorsement of those sites or products offered by those organisations. When visiting websites, please refer to the conditions of use and copyright policies of those sites.

If you have any concerns regarding the structural integrity of your home, you should seek advice from an appropriate construction professional.

For more detailed information on each of the elements in this brochure and how you can maintain/repair these, visit [BRANZ – Maintenance schedule](#) as it sets out how often you may need to maintain various aspects of your home.

You may be able to carry out some maintenance and repair jobs yourself, like painting. For other more difficult maintenance and repair jobs, it may be better to hire an appropriate construction professional and get the job done properly the first time around than to make costly mistakes.

Additionally, certain building jobs will need to be supervised or carried out by a licensed building practitioner. If you're doing your own maintenance work, make sure you take the necessary safety precautions and read up on the latest guidance to ensure you protect and look after your asset as best you can.

ROOF



The roof of your home is one of the most essential elements in keeping your family warm, dry, and safe. Keeping all parts of your roof well maintained over time will help ensure it is secure and still able to do its job.

How a roof is maintained dramatically affects its lifespan. Adequate care and maintenance specific to your roof type is essential to ensure it remains an efficient insulator, safeguards against structural deterioration and maintains its tolerance and resistance to external influences.

Some common roofing issues are highlighted below.

METAL ROOF COVERINGS

Age related timber contraction and expansion can result in the buckling and twisting of roof coverings. Additionally, where fixings loosen over time and inadequate allowances for thermal movement exist, further timber contraction and expansion can occur. It is important to regularly maintain your roof coverings as any areas that are subject to the risk of potential water ingress can result in further damage, such as rot to framing timbers, water damage to interior linings or even corrosion of steel.

For more information, visit:

[BRANZ – Profiled metal roofing buckling or twisting](#)

ROOF MEMBRANE

Some roofs with rubber membranes are often reported to have ‘popped’ visible fixings. With older butyl roofs the ply substrate was nailed rather than screwed and glued as in modern techniques. Often, these ‘popped’ visible fixings occur because of heat shrinkage around the fixing. The heat causes the already loosened fixing to rise up above the surface of the roof.

Punctures, impacts or tearing in roof coverings can often be attributed to aged related timber movement. However, these can also result from persons walking across the roof as some substrates are not suitable for foot traffic, whilst others are inherently brittle in nature (aged concrete tiles for example).

For more information, visit:

[BRANZ – Sheet membrane roofing – deterioration along substrate joints](#)

[BRANZ – Sheet membrane roofing – lifting of sheet joints](#)

[BRANZ – Sheet membrane roofing – impact or puncture damage](#)

PAINTED OR STAINED ROOF COVERINGS

Paint damage can occur from high exposure to the New Zealand sun and our various and everchanging seasonal temperatures. Paint cracking will often initially appear on bends and folds in roof sheeting while run off from lead flashings can cause staining to roof coverings as can soot and particulate emissions from nearby flues or chimneys.

For more information, visit:

[Resene – Painting roofs – a how to guide](#)

[BRANZ – Painted profiled, steel roofing – paint damage](#)

RIPPLING ACROSS A ROOF

A rippling effect (also known as undulation) across roof surfaces can often occur because of inadequately sized rafters and strutting supports for the span and weight of roofing material in place. It can also occur where roof framing has been previously damaged or cut (i.e. to fit a flue for example) and not adequately re-framed or where load-bearing walls below have been removed without adequate lintel and framing supports being installed.

For more information, visit:

[BRANZ – Concrete or clay tiles – roof sagging](#)

CONCRETE TILES

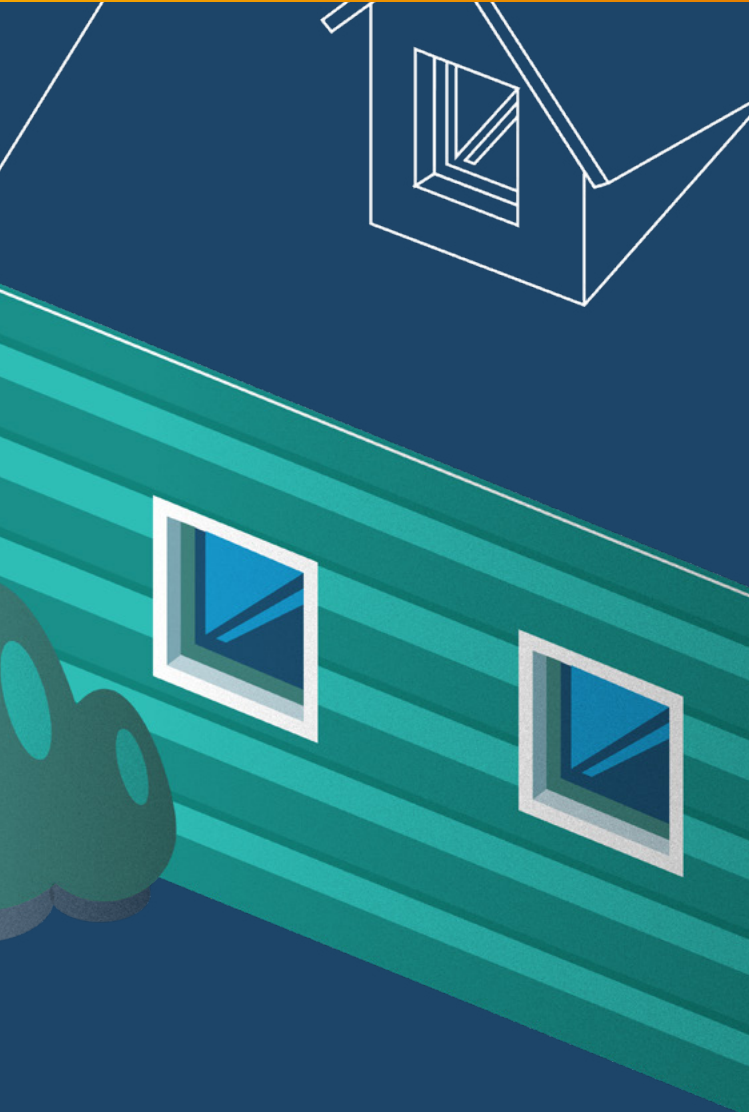
In older rimu ‘framed’ roofs, undulations often occurred soon after construction due to frames being loaded up with heavy concrete tiles while still wet and thus sagging under the weight. This effect was often worsened due to insufficient propping being in place whilst the timber dried out. Rimu is incredibly strong once dry but quite prone to deformity when wet.

Wind can also have an impact on tiled roofs, especially where the materials are reaching the end of their functional life. Dislodged tiles from high wind, capillary action and water tracking can also result in leaks. This wind driven water ingress is worsened by poor flashing mechanisms, aged, fatigued or poorly aligned tiles.

For more information, visit:

[BRANZ – Concrete or clay tiles broken or cracked](#)

EXTERIOR – CLADDING



Exterior wall claddings are a high-performance component of the home. They serve as a protective skin for the building and its interior. Whatever your cladding type may be (brick, weatherboard, plaster, etc), it is the first layer of defence in shielding your wall framing and interior environments from the elements, temperature extremes, moisture ingress, noise, intruders and even pests and pollutants.

How a cladding is maintained dramatically affects its lifespan. Adequate care and maintenance specific to your cladding type is essential to ensure it remains an efficient insulator, safeguards against structural deterioration and maintains its tolerance and resistance to external influences.

Some common issues associated with external claddings are highlighted below.

If you have any concerns regarding the structural integrity of your exterior cladding, you should contact an appropriate construction professional for advice.

EXTERIOR BRICKS

During manufacturing, hairline cracks can appear in clay bricks. This occurs during the drying process when excess moisture is removed from the clay prior to it entering the kiln. Brick veneer cladding with random minor hairline cracks would not compromise the structural integrity or weather tightness of the cladding and causes little to no impact from an aesthetic standpoint. Bricks will often be transported several times before arriving onsite. This can occasionally lead to minor chipping occurring prior to the bricks being laid.

For more information, visit:

[Brick and Block Layers – Brick tolerances and aesthetic appearance](#)

CRUMBLING MORTAR

Crumbling or sections of missing mortar can be due to a poor-quality mortar mix, weathering, foliage interruption (i.e. creepers, ivy, vines) or improper technique when cleaning walls via water blasting.

For more information, visit:

[BRANZ – Cavity brick or concrete block veneer – crumbling mortar](#)

HAIRLINE CRACKING

Minor hairline cracking is quite common to homes with plaster covered wall claddings. Shrinkage can occur due to incorrect plaster mix and/or inadequate curing, excessive trowelling during application or a lack of movement control joints. Cracking also occurs to stucco houses if the substrate is unstable (i.e. triple S impregnated soft board, weatherboard, or older cement sheet products).

For more information, visit:

[BRANZ – Stucco – random hairline cracking](#)

[BRANZ – Stucco wall cladding](#)

WEATHERBOARD PAINT DETERIORATION

Mitre separation and paint deterioration to weatherboard homes can occur from weathering and thermal related movement (i.e. northern sun exposure and southerly rain/winds). Exposure to the elements without adequate on-going maintenance can result in warped weatherboards, paint cracking, mitre gaps and loosening of boards. Close contact with vegetation (i.e. branch water run off) can also lead to aesthetic issues and damage to the board joins (i.e. ivy ingress).

For more information, visit:

[BRANZ – Painted timber weatherboards](#)

GUTTERS AND DOWNPIPES

Gutters and downpipes are integral to your home's wellbeing. They perform the critical task of diverting rainwater away from your roof, walls, and surrounding landscape.

Gutters that become clogged with leaves, twigs or other debris can result in leaky roofs and potentially damage the interior linings of your home.

Clogged gutters also create comfortable environments for pests and rodents which in turn can lead to issues within your ceiling space (i.e. damage to electrical wiring).

Downpipes should direct rainwater into a gully trap. When downpipes or gully traps are blocked rainwater can pond in the surrounding area. This can result in stale and dirty water pooling under your home or soaking into your subsoils potentially undermining your foundations. Internal gutters can be particularly problematic if not maintained.

Regular cleaning of your gutters and downpipes is recommended as is the installation, if possible, of gutter guards (which can help reduce the quantity of debris build up).

Cleaning gutters can be dangerous, always seek advice before working at heights and near electrical cables.

For more information, visit:

[BRANZ – Gutters and Downpipes](#)

INTERIOR – WALLS AND CEILING

Interior linings (most often plasterboard) are the finishing surface material applied to internal wall and ceiling framing. They serve to enhance appearance and visual interest as well as improve acoustic and thermal performance and provide bracing for the building frame. Alteration, renovation, general wear and tear or damage caused to internal linings by inhabitants (either directly or indirectly, i.e. lack of general maintenance) over the years can result in a wide range of imperfections and defects occurring which can be mistaken for natural disaster damage.

Some common issues associated with interior walls and ceiling are highlighted below.

POPPED FIXINGS

Fixing 'pops' are common in older homes especially in rooms where there is a direct heat source and often where poor lining installation has taken place. If fixings are installed incorrectly and applied through an adhesive, you may see a 'pop' or a fixing come through your plasterboard.

As well as the above causes, there may be a link to the construction technique used such as ceiling joist spans that are too great for the timber size or joists which have been overloaded.

For more information, visit:

[BRANZ – Plasterboard – nail popping](#)

FLAKING PAINT TO INTERNAL LININGS

Poor preparation of the existing substrate during re-painting can result in poor adhesion of the new paint or the appearance of a bubbling effect during drying.

Other common causes of defects are painting over joint stopping which has not satisfactorily dried, and applying oil-based paint over acrylic based paint.

For more information, visit:

[Master Painters NZ](#)

ISOLATED CRACKING UNDER WALLPAPER

The absence of taped joints (i.e. where two sheets of plasterboard join) before a stopping compound is applied, can result in the sheet lines appearing after time (joint taping was rarely done before 1975). If this occurs to plasterboard linings which have had a decorative paper applied, the result can be a visible joint line through the paper.

For more information, visit:

[BRANZ – Plasterboard linings – cracking](#)

[Resene – Guide to wallcovering insulation](#)

CRACKING AROUND WINDOW AND DOORS OPENINGS

Incorrect jointing (of plasterboard) results in cracking around openings. Modern practice calls for plasterboard lining sheets to be cut and jointed into the opening, and not to be joined at the edge of the opening. The latter practice results in the most common form of cracking visible to interior wall linings. This occurs due to natural thermal movement around the opening.

For more information, visit:

[BRANZ – Plasterboard linings – cracking](#)

LOOSE PLASTERBOARD TO CEILINGS

Timber shrinkage and general movement due to expansion and contraction can cause aesthetic imperfections to ceiling linings.

This is especially evident where plasterboard is not tightly fitted to the framing and when there are an insufficient number of plasterboard sheet fixings in place.

Ceiling linings can have weight applied (such as a person standing on the lining instead of joists) in the roof space which can also create aesthetic issues to the visible surface. Bent, twisted, or buckled framing members due to natural drying or installation of linings before frames were sufficiently dry can also affect aesthetics.

For more information, visit:

[BRANZ – Plasterboard linings – cracking](#)

MOISTURE DAMAGE

Watertight issues such as leaking roofs can cause damage to internal linings. This can result in rotting joists, saturated insulation, or a high moisture content in the roof space, all which can be detrimental to the ceiling and wall linings below.

For more information, visit:

[BRANZ – Ceilings – flaking paint \(particularly on fibrous plaster ceilings\)](#)

REMOVING EXISTING WALLPAPER

Wallpaper in most instances can be cut approx. 100mm from the square stop down the wall allowing the existing paper to be stripped effectively. If wallpaper is removed and the backing paper is left on, this can be easily removed by soaking the backing paper with warm water until soft and easy to remove. Therefore, removal of lining paper or wallpaper from internal wall linings can be done without compromising the ceiling aesthetics.

Regular prep (i.e. sanding and plastering of the cut edge) would then follow.

For more information, visit:

[Resene – Guide to wallcovering installation](#)

[Masterpainters – Factsheet](#)

JOINERY – WINDOWS AND DOORS



Doors serve as a connecting link between internal rooms in the home as well as with the outside world, whilst windows allow for the entry of natural light and also serve to cross ventilate the home. Due to the high frequency of use associated with doors and the exposure of windows to outdoor elements as well as condensation, both these building components (especially timber units) can suffer from a variety of consequential damage when they are not adequately maintained and cared for over prolonged periods of time.

Some common issues associated with window and door joinery are highlighted below.

CRACKING TO DOOR JAMBS AND WINDOW REVEALS

Much of the mitre separation and cracking to jambs and reveals observed in the home can be explained by natural timber movement over time (via thermal expansion and contraction). The effect of this movement can also lead to sealant failure around the joints. This can result in possible moisture damage to the surrounding areas if seals are not regularly maintained.

For more information, visit:

[BRANZ – Windows](#)

SAGGING LINTELS

Sagging of lintels can sometimes be caused by the lintel being the incorrect size for the window or door.

A good start for investigating this issue would be to check with your local council and see if the opening in question is consented and has an appropriate design in place to suit the existing span. Wet timber lintels will sag under loading unless they are propped until dry.

For more information, visit:

[BRANZ – Windows – sagging lintel](#)

STICKING DOORS AND WINDOWS

Sticking doors and windows are one of the most common issues to affect homes, especially older homes. The causes can be many; with some of the most likely being issues with the hinges (i.e. lubrication or replacement may be required, or adjustments needed to suit heavier units which have been fitted). Glue or joint failure of the timber door frame and wall framing can also result in poor operation. Sticking is often caused by natural ground settlement resulting in pile movement and loss of support around door/window openings. The door/window frames then settle and cause the units to bind or stick when opened. This is a quite common occurrence throughout New Zealand, particularly in pre-1960's homes.

For more information, visit:

[BRANZ – Door is difficult to open or close](#)

GLAZING CRACKS

Stresses caused to glazing by swelling of timber joinery members can lead to glass cracking.

The effect of temperature variables (hot to cold) on glass surfaces can often result in cracking. Glass can expand in the heat and shrink in the cold resulting in a crack.

Different glass products have different tolerances, and some products are far more likely to crack due to temperature stresses than others. It's important to assess the likelihood of temperature stress when selecting glass types for use in the home.

For more information, visit:

[BRANZ – Moisture in sealed insulating glass units](#)

TIMBER FLOORS



Timber floors are generally easy to maintain and can last for many years when cared for properly and in line with manufacturer recommendations. There is a wide variety of flooring types in circulation and it is important to consider your material's variable characteristics when any flooring work (new or remedial) is being undertaken.

A crucial factor in ensuring the longevity of your timber flooring is to understand the environment above and below the floor in your home. For example, in many cases the span of sub-floor joists and bearers can be too great for the size or type of flooring material being used, issues can arise when borer infestation has weakened the sub-floor framing; while a hot and dry environment above the floor, can also impact your floors performance and lead to defects.

Some common issues associated with timber floors are highlighted below.

SQUEAKY FLOORS

Timber flooring will be subject to natural contraction and expansion over the seasons and when heat sources are used within the home. The effect of this natural thermal movement can often result in squeaky boards and gaps between flooring (amongst other issues). Squeaking is due to minute thermal shrinkage of the timber flooring around the fixing (normally nailed), the timber then moves marginally on the nail causing the floor to squeak.

For more information, visit:

[BRANZ – Timber floorboards, particleboard or plywood squeaking](#)

SPRINGY FLOORING

Moisture and wood do not mix well. The structural integrity of flooring can be compromised without any warning signs. Springy boards can be due to water damage where timbers have become damp, dried or shrunk over time.

Moisture damage can be from a variety of sources (i.e. external water ingress, a high moisture content in poorly ventilated subfloors, absence of a ground moisture barrier or from leaking appliances and plumbing).

For more information, visit:

[BRANZ – Timber floorboards, particleboard or plywood springy](#)

CUPPING & PEAKING OF FLOORBOARDS

Cupping and peaking can also become evident due to moisture related issues, but can also be due to extreme heat or a very dry environment above the floor. It is essential humidity and moisture control are managed to avoid such issues. Laminate click board type flooring will often suffer from cupping/peaking when there has not been an adequate expansion gap left around the perimeter of the room.

For more information, visit:

[BRANZ – Timber floorboards cupping](#)

GAPS IN TONGUE AND GROOVE FLOORING

As well as natural thermal movement as discussed earlier, larger than expected gaps between floorboards can be due to excessive sanding over the life of the flooring. This can be especially evident in tongue and groove type floorboards.

For more information, visit:

[BRANZ – Timber floorboards joints opening](#)

EXTERNAL HARD SURFACES

The external hard surfaces around your home (i.e. paths, patios, driveways) are constantly exposed to the effects of not only the weather (i.e. freeze/thaw cycles) but also the wear and tear of everyday foot and vehicle traffic. As a result, colour fading, staining and minor to moderate damage over extended periods can and should be expected.

Some common issues associated with external hard surfaces are highlighted below.

CRACKED PAVING SLABS

Pavers are a popular choice for patios and walkways. Laid across a bed of sand for stability, they offer a flat, solid surface in a variety of colours and textures. However inadequate base preparation coupled with pavers which are too thin for loads often results in cracking to the paving slabs while drainage issues or poor water run off can compromise the sand layer (or soil underneath) resulting in uneven settlement of the material laid above.

For more information, visit:

[BRANZ – Paving slabs cracked](#)

CONCRETE CRACKING

The proper use of control joints, correct site preparation and quality concrete placing will significantly reduce the risk of any cracking. However cracks can still occur for a variety of reasons. Shrinkage cracking is quite common and expected. As concrete hardens, excess water evaporates which causes the concrete to shrink.

For more information, visit:

[BRANZ – Paths and paving – concrete cracks](#)

SLUMPING OF HARD SURFACES

Soil settlement under concrete or asphalt can result in cracking of the above surfaces, while crumbling may be evidence of poor-quality finishing techniques. Soil settlement can occur for a variety of reasons such as overloading of the above surface, inadequate basecourse compaction and even leaking pipes or drains.

For more information, visit:

[BRANZ – Asphalt path/driveway slumping](#)

GENERAL SURFACE DETERIORATION

Poorly performed high-pressure water blasting can also lead to deterioration of hard surfaces and in some cases, expose reinforcing causing the steel to corrode which can affect the concrete integrity in surrounding areas.

For more information, visit:

[BRANZ – Concrete patios – surface deterioration](#)

[BRANZ – Path/driveway – concrete surface deterioration](#)



GLOSSARY

TERM	DEFINITION
Building Act 2004	The legislation governing building work in New Zealand.
Building Code	Regulations to the Building Act that prescribe the minimum performance objectives that building work must meet. Compliance with the Building Code is mandatory to the extent required by the Building Act.
Cladding	A covering or coating on a structure or material.
Cupping	When the edges of the floorboard are higher than the centre/curvature across the width of a plank or board.
DPM	Damp proof membrane.
Flashing	Galvanised steel or other impervious material used in parts of a building to prevent penetration of moisture where different components meet.
Galvanised	A thin layer of zinc on an iron sheet or element to help protect the iron from corrosion.
Shrinkage cracks	Cracking which occurs in concrete due to moisture changes.
Hairline cracks	Very thin or fine cracks.
Bracing	Bracing is required to withstand the wind pressure on the timber framed structure. The wind produces a lateral load, which must be transferred through the structure to the foundation.
Jamb	Vertical side member of a door frame, door lining or window frame.
Thermal movement	Thermal movement is basically movement caused by the expansion and contraction of the fabric of the building due to hot and cold weather.

TERM	DEFINITION
Borer	The common Borer (also known as 'Furniture beetle') lay their eggs on timber surface or in cracks or holes. The larvae bore into the timber, sometimes for up to three years. As adults, they bore their way back to the surface. Minute 'exit' holes and track marks will be visible where this has occurred.
Cross ventilation	Cross ventilation is a natural or planned process where cold air displaces warmer air in a given structure.
Capillary action	A phenomenon associated with surface tension, where liquids can travel – horizontally or vertically (against the force of gravity) in small spaces within materials.
Jointing	The process of covering and reinforcing the join between sheets to give a smooth, seamless appearance.
Kiln	A furnace or kiln for baking or firing bricks.
Lintel	A horizontal member spanning an opening in a wall.
Mitre separation	The intersection of two pieces meeting together at an angle.
Peaking	A similar appearance to cupping but not so severe.
Plaster	A render or mixture for spreading onto walls to form a smooth surface. It may be cement.
Reveal	Sides of a door or window opening between the frame and the face of the wall.
Sagging	When an otherwise flat or straight material experiences a downward bowing type of effect.
Substrates	Refers to an underlying layer that supports the primary layer.
Square stopping	Square stopping is when a wall-to-ceiling junction is stopped in the same way as an internal wall corner junction.
Undulation	Appearance of a depression in or slumping of an otherwise level surface.

FOR MORE INFORMATION

- Visit www.eqc.govt.nz
- Call 0800 DAMAGE (**0800 326 243**)
- Write to EQC, PO Box 311,
Wellington 6140

If English is not your first language you can ask for an interpreter, at no cost to you, by calling EQC on 0800 DAMAGE (**0800 326 243**).