Care & Maintenance Guide

SHEDEX

EXPERTS IN DESIGN & CONSTRUCT

SHEDEX CARE & MAINTENANCE GUIDE

Your Building

Fill this in on handover day and keep this guide with your contract and warranty documents. It's what we – or a door technician – will ask for first.

Site address	
ShedEx job number	
Handover date	
Building type and size	
Roof profile and colour	
Wall profile and colour	
Roller door(s) – make, model, colour	
Opener – make and model	
Access door – make and model	
Your site (tick one)	□ Rural / suburban □ Near the coast □ Beachfront / exposed
Additional Notes	
Additional Notes	

Questions about your building? Call us on (08) 8552 9092 and have your job number handy.

SHEDEX CARE & MAINTENANCE GUIDE

Congratulations on your new building! A little regular care keeps your COLORBOND® and ZINCALUME® steel looking good and lasting longer. Rain cleans the exposed roof for you, but walls, garage doors and sheltered spots like the undersides of gutters need an occasional wash with fresh water.

Colorbond®

Post-Installation Cleaning

Soon after handover, give the walls a thorough rinse to wash off any dirt, residue or swarf left behind from manufacturing and installation.

Understanding Swarf Staining

Swarf consists of tiny steel particles produced during cutting or drilling and may also include metal offcuts, screws or rivet fragments. Pay particular attention to areas around vermin flashing, where debris can accumulate.

Impact Of Swarf

If left on COLORBOND® or ZINCALUME® steel, swarf can corrode and cause unsightly red-brown rust stains. Although usually cosmetic, prolonged exposure can occasionally damage protective coatings and accelerate localised corrosion. Rinse it off early and the problem never starts.

Basic Maintenance Tips

Rain does most of the cleaning on your roof and exposed walls, so they need little more than an occasional hose down if you notice dirt building up. Horizontal cladding collects more dust and dirt, so we recommend checking it monthly.

Follow any local water restrictions when washing. And never use abrasive or solvent-based cleaners – turpentine, petrol, kerosene or paint thinners – on COLORBOND® or ZINCALUME® steel.

What to look for

Keep an eye out for dirt and salt building up on the walls, especially in spots the rain doesn't reach. Left there, they hold moisture against the steel and shorten its life – so wash them off.

A gentle rinse with the garden hose is usually all the wall sheeting needs. It's a five-minute job that makes a big difference to how long your shed looks good.

For dirt or stains that won't hose off, try this:

1. Mix pure soap or a mild, non-abrasive dishwashing liquid with warm water.
2. Apply it with a sponge, soft cloth or soft nylon brush. Go gently – hard scrubbing leaves shiny spots. Never use abrasive scourers or steel wool.
3. Rinse straight away with clean water so no detergent is left on the steel.

How Often Should You Wash Your Shed?

Recommended cleaning frequency for COLORBOND® and ZINCALUME® steel



Rural & suburban
Wash every 6 months.



Within a few kilometres of the coast
Wash every 3 months, as salt spray can travel well inland across the Fleurieu Peninsula.



Beachfront or highly exposed sites
May require monthly washing.



Horizontal cladding
Check monthly, as it tends to collect more dust and debris.

SHEDEX CARE & MAINTENANCE GUIDE

Walking on Roof

Roof access is for competent people only, using the right safety equipment. If that's you, follow these guidelines to avoid injury and damage:

- Slippery surfaces: Newly installed roofing sheets may have an oily residue, making them slippery. Take extra care until the residue has dissipated.
- Suitable footwear: Wear soft, light-coloured shoes with smooth soles to prevent scratches. Avoid ribbed soles that can trap stones or metal shavings.
- Walk carefully: Distribute your weight evenly and avoid concentrating pressure on your heels or toes. Only walk in areas approved by the roofing manufacturer, ensuring adequate support beneath the sheets.
- Fall prevention: Use appropriate fall-protection measures and comply with WHS regulations, particularly on pitched roofs. Never walk or stand on skylight sheets.
- Protect the surface: Always lift objects rather than dragging them across coated steel surfaces to prevent scratching or damage.

Wall Sheets

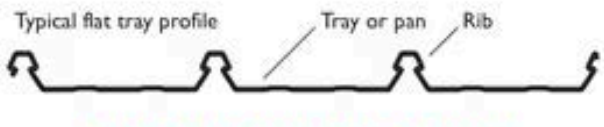
Just as with roofing, environmental factors play a crucial role in the upkeep of wall sheets. The key to maintaining their condition lies in managing cleanliness, particularly in areas that natural rainfall doesn't reach. These sheltered spots can harbour dust and debris, potentially leading to moisture retention and an increased risk of corrosion, especially if pollutants like marine salts are present.

Guidelines

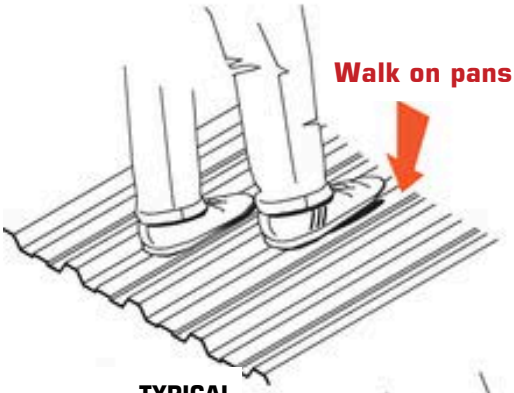
- Keep chemicals, sunscreen and fumes off the steel. Clean water is all it needs.
- Keep soil, mulch, ashes, fertilisers, wet concrete, mortar and bitumen away from cladding to prevent moisture-related corrosion.
- Prevent standing water from flooding or poor drainage. Maintain clearance beneath sheets for drainage.
- Avoid contact with green, wet or treated timber.
- Inspect fasteners during washing and replace any showing red rust before corrosion spreads.

Flat Tray Profiles

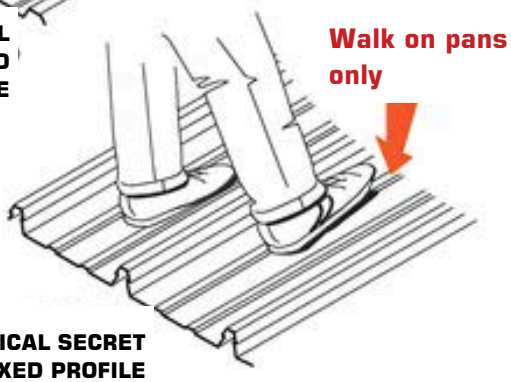
Walk only in the pans (the flat trays), whether the sheets are concealed fixed or through fixed.



WALK ONLY IN PANS



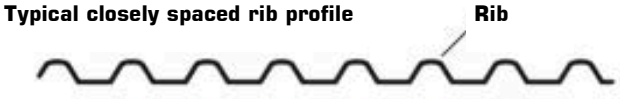
TYPICAL THROUGH FIXED PROFILE



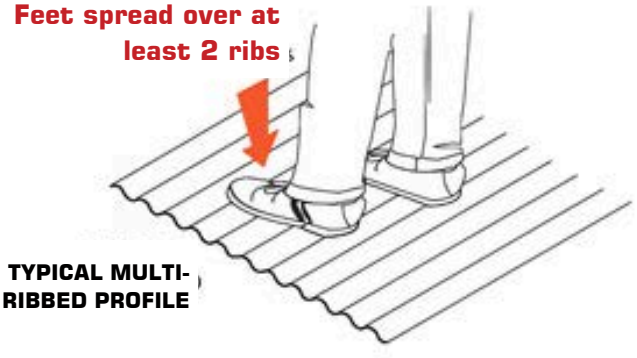
TYPICAL SECRET FIXED PROFILE

Multi-Ribbed Profiles

Multi-ribbed and corrugated sheeting: spread your weight over at least two ribs.



WALK ON TWO RIBS



TYPICAL MULTI-RIBBED PROFILE

SHEDEX CARE & MAINTENANCE GUIDE

Protecting Your Investment

COLORBOND® steel is renowned for its robustness and resilience. However, its long-term performance can be compromised by exposure to certain materials. Keep the materials listed under Guidelines on page 4 well away from the cladding.

When planning garden beds, keep soil, mulch and fertiliser off the wall cladding. Leave at least 75 mm between the bottom of the sheets and the soil (50 mm above paving or concrete), so moisture can't sit against the steel and cause corrosion.

Repairs: A Proactive Approach

COLORBOND® steel's colour is baked on at the factory, which is why it lasts. Touch-up paint from a can just air-dries, so it ages differently and the patch shows more every year. BlueScope's advice, and ours: don't paint over scratches.

Small scratches under 2mm wide are best left alone – the protective coating underneath is still doing its job. Anything bigger on a new shed is worth replacing the sheet, so talk to us before it starts to rust.



Optional Gutter Guard - ask us for details

Gutters & Downpipes

- Clear gutters as shown in Your Care Calendar (page 6) – more often under trees.
- Check downpipes discharge well clear of the slab and footings.
- Don't let gutters hold standing water – it corrodes the steel from the inside.

Graffiti Removal Precautions

There are numerous graffiti removers or anti-graffiti coatings available in the market that claim to address graffiti on COLORBOND® pre-painted steel. However, the impact of these chemicals on the performance of COLORBOND® steel cannot be guaranteed. Please note that using these chemicals will invalidate BlueScope Steel's warranties.

***WARNING**: Chemicals such as Acetone, Methyl Ethyl Ketone (MEK), Toluene, Thinners or commercial Paint Strippers used as graffiti removers must never be used on COLORBOND® steel.*

One Graffiti removal product which has been shown to be effective in removing graffiti from COLORBOND® steel is DuPont™ Graffiti Remover (EZ-3463™). Use of this product in accordance with the on-pack directions will not affect your warranty for COLORBOND® steel.

DuPont™ advises that its product is a nonhazardous, biodegradable water based product, which can be sprayed on affected surfaces with generally good results.

Warranty

Your BlueScope COLORBOND® warranty depends on this maintenance being done – especially washing the walls and eaves that rain never reaches.

Things that can put your warranty at risk: acids, solvents or harsh cleaners on the steel; soil, mulch or treated timber against the cladding; and skipping regular washing.

Record every wash and check in the Maintenance Log at the back of this guide – it's your evidence if you ever need to make a claim.



SHEDEX CARE & MAINTENANCE GUIDE

Your Care Calendar

How often: Which column are you in? See the calendar below.

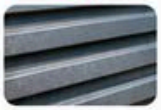
Every wash:

- Hose the walls, especially under eaves and anywhere rain doesn't reach.
- Wash the roller door curtain inside and out.
- Wipe the access door, lock and hinges.
- Sweep grit from the door line and the slab edge.
- Look for red rust on fasteners and swarf stains – deal with them now.

Keep a record:

Jot down each wash, check and service in the Maintenance Log at the back of this guide – it's your warranty evidence.

YOUR CARE CALENDAR

Task	Rural / suburban	Near the coast (within a few km)	Beachfront / exposed
 Wash walls, eaves and roller door curtain	6 months	3 months	Monthly
 Check horizontal cladding for dust build-up	Monthly	Monthly	Monthly
 Clear gutters, check downpipes run clear of slab	6 months	6 months	3 months
 Wipe access door, lock and hinges	6 months	3 months	Monthly
 Silicone roller door guides, check fasteners for red rust	6 months	6 months	3 months
 Roller door service (Taurean or door technician)	2 years	2 years	2 years

Not sure which column? If you can taste salt on the breeze, use the coastal one.

Keep a note of each wash – it's your evidence if a warranty claim ever comes up.



Personal Access Door

Cleaning Schedule:

- Rural or suburban: a gentle clean every 6 months.
- Within a few kilometres of the coast: every 3 months – salt gets into the lock and hinges.
- Beachfront or exposed sites: monthly.

How to Clean:

Choose a cool, shaded area for cleaning. Using a soft cloth, gently wipe down surfaces. It's important to avoid harsh chemicals or abrasive materials like turpentine, petrol, or scouring pads, as these can damage your door's finish.

Lock Maintenance:

- For smooth operation, maintenance of the lock mechanism is key. Follow the cleaning schedule, or attend to it if you notice any stiffness.
- Gently remove any dirt or salt from around the lock, then apply a small amount of powdered graphite to your key.
- Insert and remove the key 3-4 times, or until the motion feels smoother.
- Give the key a quick wipe and check that the lock functions smoothly.
- For any significant servicing, we recommend contacting a qualified locksmith.

Hinge Care:

- Wipe down visible hinge surfaces with warm soapy water and a soft rag. Rinse with clean water and dry thoroughly.
- Annually inspect the hinges for loose fasteners, tightening or replacing as necessary.

Additional Tips:

- Regularly check the door sill and frame edges to remove any debris that might obstruct the door's movement, preventing scratches and ensuring seamless operation.
- To avoid any potential damage, ensure your door doesn't swing back and hit the wall or other objects.

Follow these care practices and your door will serve you well for decades. Your personal access door is usually supplied by LARNEC.

LARNEC

SHEDEX CARE & MAINTENANCE GUIDE

Roller Doors

Why it matters: The roller door is the hardest-working part of your shed. A few minutes of care each season keeps it running quietly and protects the door manufacturer's warranty.

Routine care

- Wash the curtain inside and out when you wash the walls – salt builds up on the inside face too.
- Check the bottom-rail weather seal and the guide felts for wear; replace them when they split or go hard.
- Spray a light dry silicone on the side guides and axle bearings as shown in Your Care Calendar (page 6). No oil, no grease – they attract grit.
- Keep the floor at the door line clear so the curtain closes square and seals.
- A door that starts rattling, grinding or jerking needs a look before something lets go – call us.

Safety

- Adults only. Children should never operate the door, and should be supervised while it's moving.
- Only operate the door when it's in full view and clear of people, pets, cars, bikes and toys.
- Make sure the door is fully open before driving in or out. If the door is automated, follow the opener manufacturer's safety recommendations too.

Warranty & servicing

Your door is covered by the manufacturer's warranty, not ShedEx's – and it depends on the care above. Have the door serviced every two years by a qualified door technician, or sooner if it gets noisy or jerky. Never adjust the spring tension yourself – the springs are under high load.



Motorised Doors – Power Failure

Before you start:

- Make sure nobody is standing under the door.
- Don't haul on the red cord to lift the door – it can snap under load. Use it only to release and re-engage.
- If you leave the door in manual mode, lock it or secure the shed – anyone can lift it.

Switching to manual (power out):

1. Find the red release cord hanging from the motor.
2. Pull it down firmly until you hear a click – the curtain is now free of the motor.
3. Lift the door by hand to get in or out, then lower it gently.
4. Leave it released until power returns.

Re-engaging the motor (power back):

- Bring the door all the way down by hand.
- Pull the red cord firmly until it clicks to re-engage the motor with the drive.
- Test with the wall button or remote and watch a full open-and-close cycle.
- If the door stalls, sits crooked or runs noisily, stop and call us – don't force it.

Battery back-up:

- If your opener has a battery back-up, replace the battery every 2–3 years, or when the opener beeps or flashes a low-battery warning.
- A back-up gives a limited number of cycles only – don't rely on it for days at a time.

Remotes & wall button:

- Keep remotes away from children and out of unlocked parked cars.
- If the door reverses on its own, something is in the beam or the safety sensors need a wipe.
- If the door only responds up close, replace the remote battery.

Need a hand with your door? Our details are on the back page – we'll point you in the right direction.

Taurean DOOR SYSTEMS

SHEDEX CARE & MAINTENANCE GUIDE

Slab Care

Oil & grease spills: For large spills of oil or fuel, cover the area straight away with sawdust or cat litter to absorb the liquid without spreading it. Don't wipe it up immediately – that smears the stain and makes it harder to remove.

Cleaning the slab

- Start with a simple solution of soap and water and a stiff brush.
- If the stain persists, apply a paste of baking soda and water. Leave it on for a few hours before scrubbing it off.
- Steer clear of harsh chemicals that could damage the concrete surface.
- Never use hydrochloric (brick) acid or other strong acids near the shed. The fumes and splashes attack COLORBOND® and ZINCALUME® steel and void the BlueScope warranty.
- Keep any cleaner well clear of the wall sheeting and rinse the area thoroughly with clean water.

Efflorescence

What is efflorescence?

- A white, chalky or crusty bloom on the slab surface.
- Water moving through the concrete dissolves natural mineral salts, carries them to the surface and leaves them behind when it evaporates.
- It's normal and isn't a defect or a warranty matter – but where the water comes from tells you whether to act.

Primary efflorescence – normal, and it stops by itself

New concrete holds a lot of water from the mix. As the slab cures over its first year, that water evaporates out through the surface and brings the salts in the cement with it. You'll see it most after rain and in winter, when drying is slow. It fades as the slab dries out and won't come back once the mix water is gone.



Secondary Efflorescence

If white deposits keep returning after the first year, particularly along slab edges or corners, moisture may be entering from the surrounding ground. Water wicks through the concrete, carrying salts from soil, sand and cement to the surface as it evaporates.

Common causes include:

- Downpipes discharging onto the ground rather than stormwater or a rainwater tank.
- Garden beds, mulch or soil built up against the slab.
- Sprinklers or irrigation wetting the slab edges.
- Poor drainage or ground sloping towards the shed.

Fix the water first, then clean

Cleaning without addressing the moisture source will only allow efflorescence to return.

1. Manage drainage: Connect downpipes to stormwater or a tank, keep gutters clear and ensure the ground slopes away from the slab.
2. Maintain clearance: Keep soil, garden beds, mulch and irrigation away from slab edges, maintaining at least 50 mm clearance beneath wall cladding.
3. Clean when dry: Remove deposits using a stiff dry broom or nylon brush. Avoid hosing or pressure-washing initially, as moisture can draw salts back into the concrete.
4. Treat stubborn deposits: Try a solution of 1 part white vinegar to 5 parts water (keep it off the cladding and rinse well), or a suitable efflorescence cleaner. Follow the product instructions for neutralising and rinsing.

About the orange plastic around your slab

Every ShedEx slab is poured over Fortecon, a heavy-duty orange polyethylene vapour barrier and damp-proof membrane.

You may notice this plastic extending beyond the slab edges. This is intentional and helps prevent ground moisture entering through the concrete edges.
Please leave it in place. If preferred, you can fold it up against the concrete slab, and conceal it with gravel or paving while maintaining appropriate drainage and cladding clearances.

Foundation maintenance & footing performance

The following pages are CSIRO's homeowner guide to foundation and footing care. It's written for houses, but the sections on drainage, garden watering and trees apply just as much to your slab.

FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE

Preventing soil-related building movement

This Building Technology Resource is designed as a homeowner's guide on the causes of soil-related building movement, and suggested methods to prevent resultant cracking.

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the home owner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement. Generally soil classification is provided by a geotechnical report.

SOIL TYPES

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. Table 1 below is a reproduction of Table 2.1 from Australian Standard AS 2870-2011, Residential slabs and footings.

CAUSES OF MOVEMENT

SETTLEMENT DUE TO CONSTRUCTION

There are two types of settlement that occur as a result of construction: Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.

Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction but has been known to take many years in exceptional cases.

These problems may be the province of the builder and should be taken into consideration as part of the preparation of the site for construction.

EROSION

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

SATURATION

This is particularly a problem in clay soils. Saturation creates a bog- like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume, particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

SEASONAL SWELLING AND SHRINKAGE OF SOIL

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below, from AS 2870). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

SHEAR FAILURE

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.

In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

TREE ROOT GROWTH

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.

TABLE 1. GENERAL DEFINITIONS OF SITE CLASSES.

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

Source: Reproduced with the permission of Standards Australia Limited © 2011. Copyright in AS 2870-2011 Residential slabs and footings vests in Standards Australia Limited.

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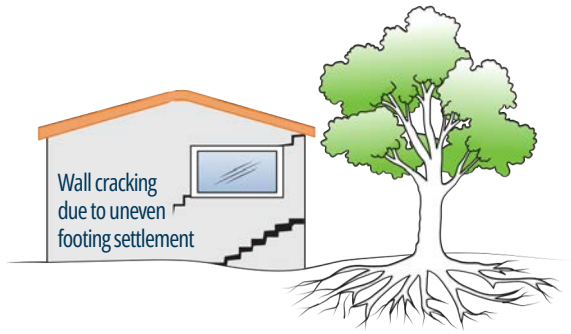


FIGURE 1 Trees can cause shrinkage and damage.

Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

UNEVENNESS OF MOVEMENT

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

Differing compaction of foundation soil prior to construction. Differing moisture content of foundation soil prior to construction. Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior through absorption. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Shrinkage usually begins on the side of the building where the sun's heat is greatest.

EFFECTS OF UNEVEN SOIL MOVEMENT ON STRUCTURES

EROSION AND SATURATION

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.

Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

SEASONAL SWELLING/SHRINKAGE IN CLAY

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring. As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated, and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry, and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

MOVEMENT CAUSED BY TREE ROOTS

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

COMPLICATIONS CAUSED BY THE STRUCTURE ITSELF

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

EFFECTS ON FULL MASONRY STRUCTURES

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased. With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent. With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously. Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also

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exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

EFFECTS ON FRAMED STRUCTURES

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation causes a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

EFFECTS ON BRICK VENEER STRUCTURES

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

WATER SERVICE AND DRAINAGE

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.

Corroded guttering or downpipes can spill water to ground. Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large- scale problems such as erosion, saturation and migration of water under the building.

SERIOUSNESS OF CRACKING

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. Table 2 below is a reproduction of Table C1 of AS 2870-2011.

AS 2870-2011 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

PREVENTION AND CURE

PLUMBING

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

GROUND DRAINAGE

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject may be regarded as an area for an expert consultant.

PROTECTION OF THE BUILDING PERIMETER

It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems. For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill.

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

CONDENSATION

In buildings with a subfloor void, such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

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TABLE 2. CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS.

Description of typical damage and required repair	Approximate crack width limit	Damage category
Hairline cracks	<0.1 mm	0 – Negligible
Fine cracks which do not need repair	<1 mm	1 – Very Slight
Cracks noticeable but easily filled. Doors and windows stick slightly.	<5 mm	2 – Slight
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired.	5–15 mm (or a number of cracks 3 mm or more in one group)	3 – Moderate
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 mm but also depends on number of cracks	4 – Severe

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Warning: Although this Building Technology Resource deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

Water that istransmitted into masonry, metalor timber building elements causes damage and/or decay to those elements.

High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders, and mould.

Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

THE GARDEN

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

EXISTING TREES

Existing trees may cause problems with the upheaval of footings by their roots, or shrinkage from soil drying. If the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. Soil drying is a more complex issue and professional advice may be required before considering the removal or relocation of the tree.

INFORMATION ON TREES, PLANTS AND SHRUBS

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information.

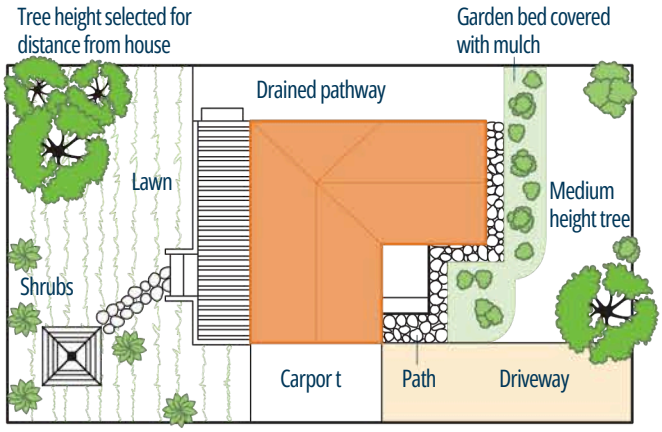


FIGURE 2 Gardens for a reactive site.

EXCAVATION

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

REMEDIATION

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the home owner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

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Maintenance Log

Jot down each wash, check and service. If you ever need to make a warranty claim, this record is your evidence. Not sure how often? See Your Care Calendar on page 6.

Date	Task (e.g. washed walls)	Done by	Notes / issues found

Maintenance Log (continued)

Keep going – a full record makes any future warranty claim simple.

Date	Task (e.g. washed walls)	Done by	Notes / issues found

Notes

Paint colours, contacts, things to keep an eye on, questions for us.

SHEDEX

EXPERTS IN DESIGN & CONSTRUCT

ShedEx Fleurieu
(08) 8552 9092
admin.fleurieu@shedex.com.au
www.ShedExFleurieu.com.au
Builder's Licence BLD 236453

Important: This guide offers general care and maintenance information for ShedEx Fleurieu buildings. It is not a substitute for the installation, care and warranty documents issued by the product manufacturers (including BlueScope Steel and Taurean Door Systems), which take precedence if anything differs.

Roof access, electrical work and roller door spring or motor repairs should only be carried out by suitably qualified people.

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