



SOME COMMON ROOF LEAKS & HOW TO FIX THEM

HOW TO FIND AND FIX A ROOF LEAK

There are two super important fundamentals to be successful in repairing leaks.

LOOK

Firstly, and most importantly is the ability to be able to "look". Sounds simple and it is but it takes some practice to really do this well.

What do I mean by "look"? Well, just that. Don't do anything else. Don't think. Don't move things. Don't throw water around, just look. Don't have a preconceived idea of what is causing the leak.

Take a few minutes and just observe the roof and the leak area. Look at where the leak is coming through and then look at the roof. 90% of roof leaks are within 1 square metre of where the leak shows up on the ceiling. If your ceiling is on a slope, the leak can often be higher up.

Something should suddenly occur to you as the most likely cause of the water leak.

If, after a few minutes of just looking (and you really have to discipline yourself here - no doing anything else!) you still have no idea where the water is coming from you need to get more information.

Find out how long this leak has been occurring, if it happens in light rain, heavy rain or long duration rain, or all rains? Or does it only happen when it is also windy - and if so, which direction of wind?

Now go back to the roof and "look" again. Just look.

If you still have no idea after a few more minutes, you are going to have to "look" a bit further. Here are some suggestions:

1. Put some water on the roof in different places and watch where it runs, or ponds. Imagine a torrent of water traveling on this same path.....
2. Lift up a roof sheet, or a few tiles and look for some water marks, or evidence of water inside the roof somewhere.

3. Get inside the roof (if possible) and using a bright torch "look" for evidence of where the water has been coming in.

Okay, by now you should have had a few ideas. What you should have is really a "Eureka, I've found it!" type idea. If there is a lot of doubt in your mind, you probably haven't found it yet. Keep looking. Go back to the roof and sit or stand in a different place and just look.

If you haven't found it by now, this is where you need a little more technical knowledge.

To be truly competent at finding leaks you also need to know what the ideal scene is, or what the roof should look like, or basically the Australian Standards regarding that type of roofing AND the Manufacturer's guidelines for their product.

If you know these things, then you know what looks out of place when you "look" at the roof. Knowing the Ideal Scene is really the second fundamental. This can only be taught with years of experience and proper training.

Often, however, you will find more than one, usually a few, violations of Australian Standards or Manufacturer's guidelines. So this doesn't always help, hence why "look" is the fundamental number one.

One other thing to watch out for is the roof leak that isn't a roof leak such as someone reports the roof must be leaking as there is a puddle on the floor – but no stain on the ceiling – be suspicious of this one!



Another thing that may look like a roof leak (but isn't), is condensation. Condensation can cause a spotty mould, and eventually a completely black ceiling.

I always suspect that when I see mould around a window, or over a largish area, there is a condensation problem, not a roof leak.

The most prone rooms to condensation are obviously bathrooms or laundries with a lot of steam, but also well used kitchens with inadequate ventilation can be bad. Rooms with lots of people in them or just one person who "lives in their room" or just rooms with heaters and poor ventilation can all have condensation problems. South-facing rooms or rooms that don't get any sun also have trouble drying out and are prone to mould.

The clue to condensation, is the pattern of the mould, or if mould has not yet formed, what is the pattern of the water marks (could be very faint). Usually a roof leak will only come down in one, maybe two places (unless it is really bad - but then it is obvious you have a roof leak!). Mould due to non-roof leak sources will form over a wider area, not necessarily the whole ceiling or wall though, although it can.

WHAT TO DO IF YOU STILL CAN'T FIND THE LEAK?

You have three choices: (besides buckets and towels)

1. CALL AN EXPERT:

Call a reputable company (there are a few dodgy operators in the roofing game so make your choice based on who you trust rather than who is cheapest. Ask for a guarantee. You may not get one – but it is certainly a good indicator if you do. Generally repair guarantees will be 1-2 years.

2. HIT AND MISS TECHNIQUE: (aka process of elimination)

Aptly named as this is often the result. Basically, if, when you are looking for the "eureka - I found it" cause of the water leak, you come up with a few possible causes but none you are sure about you can try fixing each one of them. See the section on quick fixes later for some methods. One of these possible causes just might be the right one!

3. REPLACE THE WHOLE ROOF:

I would only recommend this option if the roof is in very poor condition and likely to leak from somewhere else within the next few years. Or, it has been designed or installed so poorly that it was really a write-off from the start, or it has had so many "hit and miss repairs" you really can't see what is going on anymore.

As a side note: If you are considering going with the hit and miss approach it would probably be wise to find out how much it might cost to replace the roof as it may be cheaper in the long run and a lot less stress. A new roof should also come with a minimum 7-year guarantee.

COMMON SOURCES OF LEAKS ON STEEL (COLORBOND ETC) ROOFS AND HOW TO FIX THEM

1. RUST



Usually surface rust is not too much of a problem but if the rust is blistering or pitted, this is bad. Zincolume and Colorbond sheets deteriorate very fast once they start to rust, but often they will just have isolated rusting such as in the lap of the sheet.

The best fix for this is to replace the sheet(s) or flashings completely. The next best thing is to cut the rust out and patch with the same kind of metal. Do not use Lead. Try to make the patch lap in correctly to the roof and try to avoid using tonnes of silicone if possible.

Never use silicone or waterproofing over rust holes as it will not last for long as the sealant will not bind properly to the metal.

The exception to this is if you have used a wire brush (the ones that fit on your drill or grinder are best) to remove ALL the rust, then rust-treat/prime the bare steel before putting sealants over it. Though most of the time you will need to patch holes if you use the wire wheel anyway.

2. SHEETS NOT TURNED UP AT THE TOP, OR NOT TURNED DOWN AT THE BOTTOM ON LOW PITCH.

All types of steel roof sheets should be turned up (weathered) at the top, no matter how steep the roof is.

The lower the pitch, the more likely water will get over the top during storms, but it can happen on 30 degree roofs too.

If the sheets are not turned up, lift off the flashing and use an appropriate folding tool (standard pliers work fine for corrugated sheets). Often though the sheets are against a wall or something else makes it very difficult to now turn the sheets up (it should have been done when being installed) In this situation you can make "turn-ups" or "stop-ends" for the sheets by sealing a dense foam onto the very top of the sheet. Roofing shops sell this foam cut to various sheet profiles. You could also just make a silicone stop end right at the top. On wide-pan profile sheets it is best to make some stop ends out of the same metal and seal and fix them into place, again, right at the top.

The exception to this is if you have some really long sheets that are fine except for they have rusted out at the stop end. Then you would make stop ends and seal them into position down the sheet a bit where you still have good metal.

Sheets not turned down at the gutter can also cause a problem on low pitch roofs (less than 5 degrees) Water will tend to hang on the underside of the sheet at the bottom and even move up in some cases.

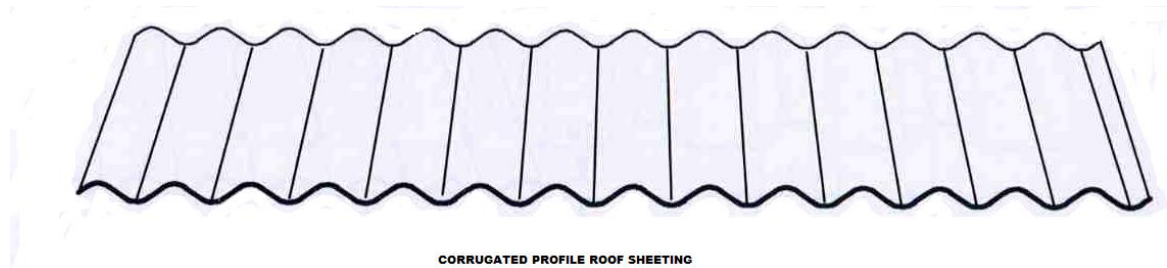
3. WRONG TYPE OF ROOF SHEETING FOR ROOF



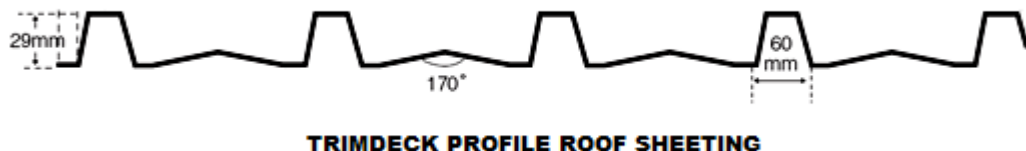
This is pretty simple and obvious to any roofer. Every type of roof sheeting has a minimum pitch that it can be installed at and still work.



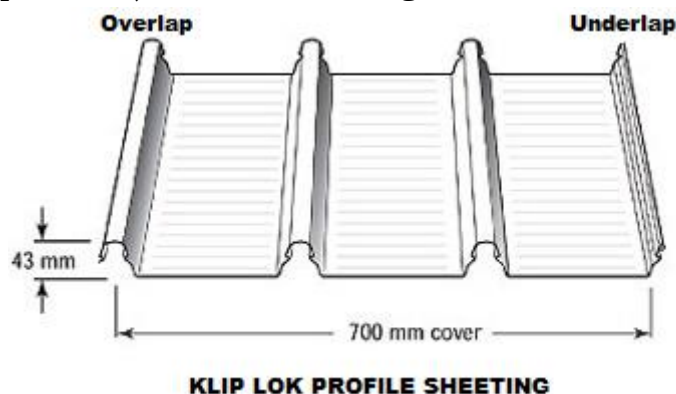
Corrugated Sheets must be at 5 degrees or more



Trimdeck (or equivalent) must be at 2 degrees or more



Klip Lok (or equivalent) must be at 1 degree or more



Use on the wrong pitch will leak – simple as that.

Roof sheeting should not be end lapped either, as moisture will tend to build up and not dry out causing premature rusting of sheets. However, on a fairly steep pitch roof, an end lap will not leak (providing there is sufficient lap). On a low pitch roof, an end lap can easily leak though as water will be driven back up the sheets in strong wind. Full length sheets should always be used where possible.



If an end lap must be done, it should lap at least 300-400mm and 2 complete lines of silicone are needed. If there is not enough lap, or gaps in the seal, it will leak.

The lap should be on a purlin or batten so it can be secured and not move with trafficking. Also, all metal expands and contracts with temperature changes. The

longer the roof, the more expansion and contraction and in my experience, if the length of the sheeting or flashings is more than 20 meters, no matter how much silicone or fixings is used, the expansion and contraction will either tear holes in the sheets, or snap off screws and pop rivets and destroy seals.

Klip Lok roofing has been designed to allow expansion and contraction on the concealed fixing clips. The other solution to long runs in a roof is to put a step in the roof and make it two roofs.

In a box gutter of more than 20 meters, an expansion joint is needed.

4. PENETRATIONS IN METAL ROOFS

This is the most common cause of roof leaks.



Skylights are first on the list. They leak for all manner of reasons but usually because of incorrect installation. Skylights are generally quite wide and therefore a lot of water will run into the back and need to be channelled around. The flashing work must be perfect.

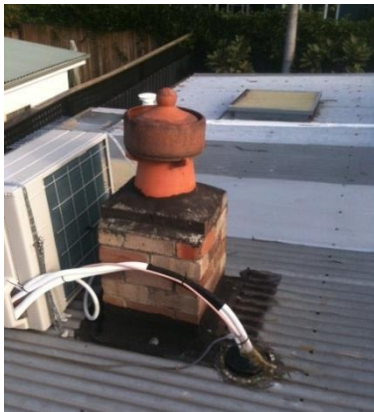
A common mistake with skylights is to put screws through the soaker pan (back section of flashing). Another common mistake is to seal the lap of the

sheets together preventing water from getting out from the underlapping pan. This is also a common cause for pipe penetration leaks that have had a rubber boot (Dektite) type flashing around them too.

Sometimes a skylight is installed at the wrong pitch. Velux skylights need to be at a minimum of 15 degrees pitch or the skylight seal itself will leak (Velux FCM Model is the exception).



To correctly repair a skylight leak or other type of penetration leak such as air-conditioning ducting, you first need to know what is actually leaking. Refer back to the beginning of this manual.



Most of the time the way to fix these leaks is to replace the flashings or install a “Backtray (Drypan) type flashing behind to ensure the lap in the sheets is completely sealed to the top so no water can get into the underlapping pan.

Penetration flashing work is really best left to specialist roof plumbers though.

5. BOX GUTTERS

Box gutters are gutters that are “boxed” in by either a wall or another roof running into the gutter (called a Butterfly Roof).

If a box gutter blocks up, it overflows and will cause a significant leak. It will usually be a sudden, big leak during a storm or heavy rainfall and you will probably find something blocking the top of the downpipe.

Sometimes, the leak seems to be coming from the box gutter but the leak is only quite minor i.e. you



don't need several buckets! In this case, the box gutter may have a defect such as not sealed at the join properly, or there is too much gap between the sheets and the top edge of the gutter.

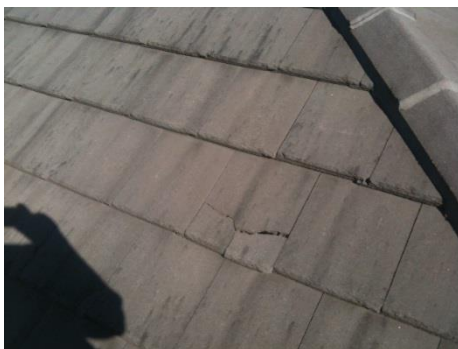
A box gutter join should have a double row of pop rivets and two complete lines of sealant inside the lap. Lots of sealant on top of the join will break down and leak if the underseals are not good.

If water is splashing or blowing in the gap between the sheets and the top of the box gutter, you can install a gutter flashing which covers that gap, usually a custom-folded flashing best done by a Qualified Roofing Contractor.

One other thing to watch out for on Trimdeck Roof Profiles in particular, is when the underlapping bit of the sheet protrudes, even 1 mm past the overlapping sheet, water gets drawn up the sheet, up to 2 metres back, particularly if the roof sheeting levels out. Firstly, ensure all the sheets are turned down, then cut the corner off the underlapping sheet, so that it is well back of the overlapping section of sheet.

COMMON TILE ROOF LEAKS

1. BROKEN OR CRACKED TILES



First thing to look for is always a broken tile. Even if the roof is not particularly old, a tile can crack. A tile can have a hairline crack in it that expands with temperature change, or a bird can drop a stone, or an aerial guy could have just been up there and broken one or two tiles. A broken tile will generally be a pretty noticeable leak!

If you need a temporary fix until you source a replacement tile to fit your roof, you can silicone the cracked tile back together. Just make sure you run some silicone down each side of the tile as well, or you can cover it with some lead, or move it to the eave where it will do very minimal damage if it rains again and move the good tile from the eave to where the broken one was.

2. RIDGE CAPPING



If the mortar around the ridge capping is in poor condition (called pointing), that can leak. Particularly on the ridge if it is coming away and water is getting between the cap and the pointing. The solution here is to re-point (and re-bed if needed) the ridge capping.

3. FLASHINGS

Lead lasts a very long time but it can split. Particularly if it is installed in lengths greater than 1.2m or the lead is too lightweight. It should be 20kgm² in thickness. Silicone works as a temporary solution, but really a lead flashing that has splits will need to be replaced.

4. FLAT PROFILE TILE ROOFS

These are quite prone to leaking if the manufacturer's guidelines are not followed. They need to be on a roof with sufficient pitch and have enough overlap. Every type of tile has its own installation guidelines but when I see a flat tile roof that appears to have nothing wrong with it – check the pitch and overlap. Also, if the underlapping piece of the tile, called the water course, is broken, this tile will leak and it is hard to spot sometimes looking at the roof. Best way to find these tiles, put your head close to these tiles and look up the roof. If you see gaps – check these tiles.

5. VALLEYS



If a valley is rusted through it will leak. If it is blocked with leaves or a tiles has slipped in causing it to be partially blocked, it can leak. You can get clips that hold the little cut tiles in a valley in place to stop them from sliding out, or again, for a temporary fix, use a dab of silicone to hold it there.

SUMMARY

This is by far not all of the different leaks or remedies there are. If you have a leak or something you would like more information on, then please email me at info@allroofingservices.com.au.

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