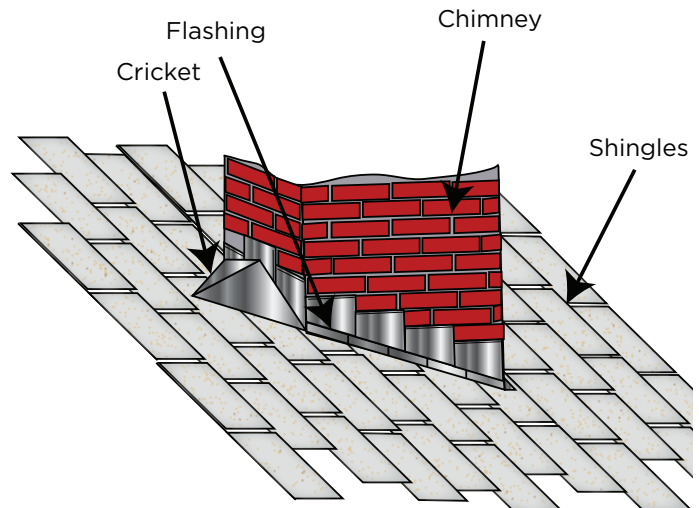


The Leaky Roof

As the roof surface ages, it wears and becomes less and less reliable. Eventually it may leak. But not only old roofs leak. One of the most common causes of roof failures is poor workmanship during installation. The reason this is not readily apparent is that it often takes a few years for a poor installation to manifest itself in a leak. By this time it is all too easy to point the finger at wear and tear.

A leaking roof can be disruptive and costly, causing damage to interior finishes. In some cases it is easy to determine the cause and in other cases it can be difficult to diagnose. In some cases a roof leak will only occur with specific weather conditions. Let's try to make some sense of this mystery.



Sloped Roofs Shed Water

Sloped roof systems are designed to shed water from one shingle to the next down to the roof edge. Sloped roof systems are not waterproof. Understanding this concept is the first step to understanding how a roof can leak. Flat roof systems, on the other hand, are designed to be waterproof.

It's All About the Flashing

Roofs don't normally leak in the middle of a field of shingles or tiles. They leak where there is a roof penetration such as a skylight, chimney, dormer or roof/wall intersection. These critical areas are kept from leaking with flashing. Flashing is usually made up of pieces of metal configured so water will shed across the gap between the roof penetration and the roof surface. In many cases, roof leaks can be traced to poorly installed or worn flashing. If you have a roof that leaks, the flashing is the most likely culprit.

Wind and Rain

Roof systems should be designed and installed to accommodate your local climate. On the other hand, it is possible for a perfectly installed and maintained roof to leak given the right combination of wind and rain. Recall that sloped roof surfaces are not waterproof but they shed water down the roof.

Ice

In cold climates, ice can cause a perfectly good roof surface to leak. Ice can block the flow of water to the edge of the roof or to the drain. Water can then back up under the shingles and leak into the house.

Maybe the Source Is Interior

In some cases what appears to be a roof surface leak is not a leak at all but rather an interior source of water. Here are some examples:

- **Air leakage from the house:** If household air can leak into the attic, the warm moist air will condense on surfaces in the attic during cold weather. This can cause damage to the roof decking and structural framing and in severe cases cause water to drip back into the house. Sealing the house from the attic in cold climates is very important. The usual air leakage paths are; bathroom exhaust vents, plumbing stacks, recessed lighting and attic hatch.
- **Leaking forced air ducting:** If heating and cooling ducting runs through the attic, it should be well sealed. A leaking duct is a big leak of air from the house into the attic and will cause condensation during cold weather.
- **Air conditioning ducting:** If air conditioning ducting runs through the attic, it should be well insulated and should have a good vapor barrier. Condensation can form on cold air ducts and can drip down into the ceiling.
- **Attic mounted heating and cooling:** High efficiency furnaces and air conditioning evaporators create condensation. If this equipment is located in the attic and there is a leak somewhere in the condensation path, it will leak into the house.

