



## LOCATING A ROOF LEAK

When a roof leaks, water is getting under or through two possible areas:

- The roofing material (asphalt or wood shingles, roll roofing, etc.);
- The flashing and gaskets that protect valleys, edges, and penetrations such as chimneys, vent pipes, and skylights.

Warning signs include visible dampness or mold on interior walls or ceilings, peeling paint or wallpaper, or simply damp odors, especially in confined spaces such as hallways.

The source of the roof leak is not always obvious. A leak may not be directly above the water stain on the ceiling or the wet spot on the attic floor; it may travel horizontally under the shingles and then down the roof sheathing before penetrating at a seam. Some apparent “leaks” may in fact be condensation on the underside of the roof caused by inadequate attic ventilation.

It helps to know the most common leak locations. The most obvious ones are wherever the roofing is visibly missing or damaged, but more often leaks occur at flashing points (valleys and roof penetrations). In northern climates, where roofs are exposed to snow and ice, roofs that are otherwise in perfect condition may leak in the lower foot or two of the roof when snow and ice build up, forming a dam that collects water from melting snow. If leaks occur only at these locations and under these conditions, the solution lies in preventing the dams (a matter of proper ceiling insulation and eave ventilation).



**1. Inspect Attic Floor:** Pick a rainy day to go up to the attic and look for dripping water or signs of water, such as water stains, wet or moldy insulation, or mold on the attic floor. (If the ceiling is attached directly to the roof rafters, such as with a cathedral ceiling or flat roof, skip to Step 4).

- **Caution:** Use caution in an unfloored attic. Lay down catwalks, making sure the ends of the boards fall over framing members. This will make getting around safer; and by distributing the weight more evenly you are less likely to cause “nail pops” in drywall ceilings (especially in truss ceilings or older homes with undersized ceiling joists).

**2. Inspect Roof Sheathing:** Examine the underside of the roof. Follow any water trail to its highest point. Pay particular attention to areas around plumbing vent pipes, chimneys, and wherever changes in roof structure occur (valleys, dormers). Localized water, black mold, or damp wood at these points probably mean the flashing either has holes in it or was not properly installed. If the leak seems to occur in the middle of the roof, you have a shingle problem somewhere above that point.

- **Tip:** To minimize any damage, tack a piece of string into the stream of water and extending straight down into a bucket. The water will tend to follow the string rather than run down the underside of the sheathing or rafter.

**3. Take Measurements:** Mark the spot with a marker or crayon and, if necessary, take some measurements from points such as the ridge or sidewall that will help you locate the leak from the outside.



#### 4. Inspect Roofing:

- **A. Asphalt shingles.** If your leak is midroof at the ridge (rare), and is, therefore, shingle related, look for damaged or missing shingles.
- **B. Roll roofing.** Inspect for damaged roofing on flat or nearly flat roofs covered with roll roofing.
- **C. Wood shingles and shakes.** Look for cracked shingles or shakes. In a wood roof, leaks may also occur if the shingles were not properly installed with a minimum sidelap of at least 1-1/2 inches between joints of shingles in adjacent courses. (Water falling in a gap between two shingles would therefore need to travel horizontally at least 1-1/2 inches before getting to a joint in a course below).
- **Caution:** To avoid damaging a roof and to avoid unnecessary risk, stay off it unless absolutely necessary, especially in hot weather and when roofing is old and dried out. Never walk on a wet roof. At minimum, make your observations from a ladder.

**5. Inspect Flashings:** Look for leaves and other debris that may be slowing the downward movement of water. Look carefully for corrosion in metal flashings or open joints where they connect to a chimney or other roof penetration. Look for dried out rubber gaskets at plumbing vents. (Most are replaceable).

**6. Inspect Attachments:** If you have an antenna, satellite dish, or other object attached to the roof with screws or nails, make sure that flashing cement was used over the fasteners (or that it has not dried out).

**7. Inspect Cement Repairs:** If there are any areas covered with black flashing cement, examine the cement carefully for pinholes or cracks. The presence of such cement usually indicates a stopgap repair of a past leak, and such repairs are never permanent.