

Ask Jon Eakes

Why do shingles cup and curl long before their warranty date? And what is CSA certification?

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Asphalt shingles should be able to take a lot of heat and cold, over and over again. So why do some suddenly curl up, asks Craig from Point-Claire, Quebec?

Cold climate shingles

Probably the first thing to understand in Canada is that our shingles live in a different climate than those in most of the US. The US is dealing with excessive heat, we are dealing with extreme cold. That is important to realize because our building standards are not the same, so the CSA (Canadian Standards Association) requirements for shingles are much more stringent than those in the US. However contractors are only required to use CSA certified shingles in new construction. There is no shingle certification requirement for renovation! Hence we get a lot of "legal" shingles installed that cannot possibly last as long as their claimed warranties. Always write into your roofing contract that they will install CSA certified shingles and insist on seeing the logo on the packages. This will solve a lot of Canadian shingle problems. In fact I recommend that Americans living in very cold regions demand CSA certified shingles as well -- and some US companies do certify some of their shingles to the Canadian cold climate standard.

Assuming you have shingles designed and certified for a cold climate, you need to know that the shingle is made of a base mat, then asphalt is impregnated into that to make it waterproof, and then coloured granules are put over the asphalt to look good but primarily to keep the UV rays of the sun from reaching the asphalt. If you walk a lot on the shingles, or scrape off a lot of ice regularly, you will scrape off the granules and expose the asphalt. Then the sun will wear it rapidly.

Excessive heat

Also excessive heat can cause a problem. Interestingly enough, it is not a roof that is normally hot or even very hot, that ages. It is when you hit a one hour peak at 2:00 p.m. on a very hot August day with no wind and something is wrong below the shingle, that the temperature can get hot enough to bubble the asphalt up around the protective granules -- the critical point on the shingle itself is 60 C (140 F). (I replicated this on the show with a heat gun.) Then the sun attacks the asphalt directly, the granules get loose and it is on its way to aging prematurely.

Attic ventilation

So just what can cause that extremely high temperature? Usually a lack of ventilation below the shingle, especially in spots where the attic insulation actually touches the roof. In that spot where the insulation touches, the heat beating down on the shingle can't pass into the attic to allow the shingle to cool off. This can explain why it is not uncommon to see the row of shingles over the lowest part of the attic aging first. Shingles above have some attic ventilation, shingles below are over the open soffets but one or two row of shingles have insulation in contact with the roof. Normal continuous air flow in an attic can easily keep the shingles away from those damaging short term peak temperatures. Lack of ventilation or spot contact with the insulation, together with a very hot windless day, can cause irreparable damage. When an attic reaches 40C (104F) you should begin to worry. If it reaches 50C (122F) you should be improving the ventilation as 50C in the attic and the sun on the shingles above can already push the asphalt to 60C, the damage point.

If shingles are curling up on the edges just in one spot -- you probably have a heat source below this spot, like a recessed light. A point blister is probably too much plastic cement under the shingle and the solvent is boiling up, something that happens often over a flashing that will not allow solvent to disperse downward. Spot gluing of shingle tabs should never be larger than the size of a quarter, to minimize the solvent problem.

Starter strip

If only the bottom row of shingles are curling up before any others right on the edge of the roof, then the roofer put on the first layer incorrectly -- under those first visible tabs. He should either use a special starting strip as the first shingle on the roof, or cut all the tabs off of shingles - as if they were overhanging the roof, leaving just the solid part of the shingle and the glue dabs that are designed to hold down the corners of the shingle that will go over this layer. You will notice as you work your way up the roof, there is always a glue line just under the edge of the shingle tabs -- but your roofer didn't arrange to have that on the first row. For details click [here](#) to see how to be sure to have that adhesive on that bottom tab. This entry shows how to do it when double shingling but the same rule applies to the first row when simply applying shingles to a bare roof.

If you already have this problem, on a hot day when the shingles are very flexible, put a dab of roofing plastic cement under the corner of every shingle on that bottom row and push the curled corners down flat.

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