

Ask Jon Eakes

# OVERVIEW: Built-up Felt/Asphalt/Gravel v.s. Torch Sealed Elastomeric for a flat residential roof -- which one is best?

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"Have listened to you for years. I HAVE AN IMPORTANT QUESTION. A membrane roof has a longer guarantee 20 years, the material looks unimpressive, what is it's longevity beyond that? An asphalt roof has a 10 year guarantee but with good maintenance can last 3 times longer. My old roof is at least 43 years old or more but I have always maintained it myself. The flashing is steel, I paint it. It is still perfect. I have also heard that a membrane roof is negatively affected by cold weather. The CMHC website only mentions Membrane in British Columbia. So is a membrane roof bad in a cold climate like Quebec as one roofer would like me to believe? Unfortunately I must make this very expensive decision that I can't afford very soon and every one is full of opinions but is there enough years to back it up. It is a newer product to Canadians. Malls seem to like it but do they ever think beyond the 20 year plan. I happen to have an estimate that is like \$900.00 more for a membrane than asphalt 10 vs. 20 year guarantee, hard to argue one from the other except the longevity thing and I think it really impresses people to think of a membrane roof but is that just hype. AND is it bad to do it when the weather is too cold and how cold is that? So far my choice of a company has been in business for 30 years. They do both types of work. 1300 sq ft app \$6500 or \$7400 BUT HOW DO I KNOW WHAT TO DO? Sorry to ask so much. BUT WOULD BE GREATLY APPRECIATIVE OF ANY INFO ON THE SUBJECT? Thank You Diane"

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Both of the roofs you are referring to are technically "membrane" roofs, in that neither is a shingle roof. So we are really comparing a felt/asphalt built up membrane v.s. a rubberized membrane. The reality is that both, installed properly, will give you years of good service -- even in our climate. The asphalt built-up membrane (5 plies of felt paper and hot applied asphalt topped by gravel to hold it down and protect it all from the sun) is the most common in Canada on flat or very low sloped roofs because it is less expensive and gives a good cost per year of service ratio.

The elastomeric or rubberized membranes have been around for a long time as the standard for commercial buildings which have very large surfaces and concrete roof decks. Only in the last 10 years or so have they begun to be used on residential non-concrete construction. Since these are actually sheets of rubber or sometimes "Modified Bitumen" known as SBS, sealed together with an open torch, when they were first applied on wooden roofs (very old very dry wooden decks), a few houses were burned down. For a while insurance companies refused to provide liability insurance to roofers who applied these membranes to wooden roofs. Since then special techniques have been developed to allow the application of this material on wooden decks, but at a higher cost. Before torching a membrane system in place the roofer must install a Fire Resistant fibreboard (Securpan) or another type of substrate that is fire resistant (Protectoboard, Structodeck, etc...). In addition all openings, called "details" must be secured to be fire resistant as well. The idea is that the open flame of the torch must not reach any flammable wood while sealing the joints. It is very important that your roofer prove to you that he has liability insurance specifically for the installation of torch sealed membranes on wooden roofs -- most of them do not as that insurance is very expensive. In Quebec only one insurance company offers this insurance at the moment I am writing this and they require that the insured company be a member of the QMRA -- and not all roofers are members of that professional association. Because of this, some residential roofers simply refuse to apply torch sealed membranes. Others do it without insurance. A few do it legitimately and with competence.

The felt/asphalt membrane roof is a series of sheets, preferably 5 ply, of roofing felt with hot asphalt

poured and spread out between each coat, followed by a protective gravel covering. The elastomeric torch applied roof is usually a fire protective layer of fiberboard like sheets first, then the waterproof membrane with torch sealed joints (absolute and permanent fusion of the joint when done right) followed by a torch sealed top-coat that is less for the waterproofing but more for the UV protection as this coat looks much like an asphalt shingle with a built-in layer of granules to protect the rubber below. If a poor contractor does not use both coats, it will either be prone to leaking because the waterproof layer is missing, or prone to cracking because the UV protection layer is not there. Which one should you choose? Actually although prices change with time and place, they seem to come out about equal on a price per year of existence basis, with the elastomeric being slightly better in the long run but more expensive initially. Maintenance is very minimal and gouges, holes or other accidents are more easily repaired in the elastomeric roof than in the built up asphalt roof. My roofing consultant has pointed out to me that there are two other formats of rubberized membrane roofs, that he is not too excited about in a cold climate.

Self-Adhered membranes are often used as flashing, particularly on the eaves of the roof -- so some people are taking this type of membrane and using it to cover the entire roof. The big advantage is that there are no torches to cause a fire. First realize that if a product is designed to go under shingles, as are most of these easily available self-adhered membranes, they are not designed to resist the UV of the sun! But there are a number of SBS or TPO self-adhered membranes available in the market place that are good quality products and very performant. The problem is to find a good reliable roofer who has the know how and expertise to apply them properly. There are not too many out there that meet those requirements. There is also the temperature factor that has to be taken into consideration. 40 F (4C) should be the minimum acceptable installation temperature. In the fall, nothing beats good old hot asphalt (BUR) or torch on SBS membranes.

Cold Process roofing assemblies, with various adhesives, are not that popular in Canada. You will see them mainly in the Southern states simply because of the climate.

As you have already found out, the most important part of roof maintenance is to maintain the flashings, as they will usually present problems of leakage before any quality installed roofing material. I know very well that that does not give you a clear answer to your question as to which one should you purchase, but at least it does give you the straight story.

I hope this helps,

Jon

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