

12. ROOFING CONTINUED

With all the options available for roofing materials how do you make a wise decision on which to use. To be able to make this decision you must first know the pros and cons of the various roofing systems available. The two kinds of roof types can be described as those that slope from 1/4" per 12" to 1" per 12" and those that slope from 1" per 12" to 12" per 12". Roofs that slope between 1/4" and 1" per foot are typically roofed with sheet or roll materials. Roofs that slope from 1" to 12" per foot are typically roofed with tiles, metal roofing or shingles.

Sheet or roll materials include the standard built up roof, single ply flexible roofing and single ply EPDM roofing. Standard built-up roofing is what is used typically in Santa Fe. It is typically a base sheet (either organic or felt) with 2, 3 or 4 layers of felt sheets and a cap sheet which may have gravel applied on top or a mineral surface applied by the roofing material manufacturer. The base sheet is nailed to the roof deck with the subsequent layers of felt sheets applied with either hot asphalt mopped on or a mastic glue to fasten the layers to themselves and the base sheet, the cap sheet is applied in a similar manner. This roof system is typically warranted from 3 to 7 years but it's life may extend up to 20 years without replacement. It's extensive use can most probably be attributed to it's lower cost and ease of maintenance due to widespread knowledge of this system and the ability of the homeowner to work on this type of roof.

Single ply flexible roofing is typically made of polyvinyl chlorides that are altered chemically to form a flexible membrane. It is applied over a roof deck or insulation by either welding the seams with heat or using glues or mechanically fastening it to the deck. Gravel is typically place on the welded type installation to literally keep the roofing from blowing off. This roofing material was developed initially for large commercial roofs where large square footage's of area require some flexibility to cope with the stresses of expansion and contraction due to temperature changes and the minor but inherent movement in structural materials. This system in the last 15 years has also been used in residential applications because of it's low maintenance and long life, but because of it's special installation requirements only certified applicators can be used.

EPDM roofing is also a single ply flexible roofing but instead of being PVC based it is elastomeric in nature. Elastomeric means flexible and is made of ethylene and propylene. This

roof is applied similar to the other single ply roofing previously discussed and has the same advantages. Some disadvantages are that methods of application vary greatly among the different manufacturers and close supervision is needed during the installation. If not installed correctly this roof system will not function correctly.

Another single ply roofing product is TPO. TPO offers a combination between EPDM rubber roofs and PVC roofs. Like EPDM, it is made of ethylene propylene rubber except it has different chemical fillers added to reinforce its strength and durability. Unlike PVC, TPO does not contain chlorine, an environmentally dangerous chemical, nor is it used in the production process. TPO is a new roofing material, however, and is not created the same by different manufacturers. It is important to use a manufacturer who has been working with TPO for at least 20 years and offers a clear warranty.

In summary, of these three systems the built-up roof because of it's universality and availability is what is usually used in single family construction. If a multi-ply roof is sloped and installed properly you will get many years of life with out the initial high cost of the single systems.

Those systems available for roofs with slopes over 1" per 12" are quite numerous. Metal roofing is commonly used in New Mexico and many different types of metal roofing are available from the prefinished propanel to solid zinc panels that are custom rolled and installed. When installing metal roofs there are a few things that I've found need to be watched. First where different slopes of roofs meet much care must be taken in the detailing to insure that such things as the overhangs align and that the valleys are properly flashed. Secondly that any dissimilar metals not be in contact with themselves. Dissimilar metals in contact with each other can lead to electrolysis which can corrode a metal roof. Thirdly, that all required venting be provided for the roofing area. Fourthly and probably most important is that the metal roofing be applied per manufacturers recommendations. On an aesthetic note please use low reflective metals or finishes so your house is not visible from a hundred miles away. A correctly installed metal roof should last a lifetime.

Clay tile though not used much in New Mexico is also a product when installed correctly can last 100's of years. This is evidenced by the many historic structures in Europe that still have their original clay tile roofs after centuries. Asphalt and slate or stone shingles are another roofing system not used much in this

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region, but that will last many years.

The key to choosing and using a roofing system lies in economy, proper installation and maintenance. Economy in the sense that there is no reason to pay more for a roofing system that is not necessary for a normal or standard installation. Proper installation by a certified installer insures the full life of the material specified will be realized. Maintenance is also important in any roofing installation and this is as simple as doing a yearly visual inspection and assuring such things as canals, drains and gutters are clear of debris. A roof doesn't have to be a continual source of problems.