The objective of a roof maintenance program is to extend the expected useful life (EUL) of a roof system. The elements comprising a successful program are periodic inspections, routine maintenance and repair, and correct application of quality roofing products.

**EXPECTED USEFUL LIFE**

Many maintenance programs have been developed to monitor the conditions of roofing systems and schedule repairs. Regardless of the age of the roof, regular inspection and maintenance is vital to ensure that a roof reaches or exceeds its expected useful life. As a roof approaches the end of its life cycle, maintenance decisions become especially critical. A moderately experienced facility manager can check the roof membrane, flashings, and drains for obvious problems. If defects are spotted then it is time to call in an independent roof consultant for an objective evaluation of roof condition. In this manner, serious problems can be averted without concern that unnecessary roof work is recommended.

**MEMBRANE DEFECTS**

Membrane defects vary according to roof type. For a 3- or 4-ply built-up roofing system, be on the lookout for exposed felts, wind scour, blisters, asphalt migration (down slope), ply slippage (down slope), exposed embedded metal, inadequately filled pitch pockets, splits, or tears. Common defects in a 2-ply modified bitumen system include open seams, inadequate bleedout, exposed bleedout, blisters, fishmouths, wrinkles, exposed reinforcing scrim, loss of granules, inadequately filled pitch pockets, punctures, tears, or splits. Single-ply roofs can have problems with open-lap seams, short-lap seams, fishmouths, wrinkles, inadequately filled pitch pockets, punctures, tears, or splits. A standing-seam metal roof can have open seams at standing seams, missing or backed-out fasteners, buckling of pans, scratches, dents, or corrosion.

**FLASHINGS**

Flashings are frequently found to be a problem source. In general, the assessment of flashings is similar to the assessment of the membrane insofar as the type and extent of defects. Two important concerns not associated with membranes are the vertical attachment and the counterflashing. When counterflashings appear damaged or flashings do not appear to be watertight and performing well then plans should be made to get them repaired.

**SLOPE AND DRAINAGE**

The slope of the roof and drainage are other important factors. Roof drainage and roof deck slope are two distinctly different parameters. An adequately sloped roof deck can have inadequate drainage, and a flat roof deck can have adequate drainage.

**ABOUT the AUTHOR**

Walter Rossiter is the technical services director at RCI, an international nonprofit association of professionals who specialize in roofing, waterproofing, and exterior wall specification and design. RCI provides an archive of past articles from the RCI Interface journal at www.RCI-online.org, including the article “Roof Management Program for Multiple Systems” by Stephen P. Bentz and Walter J. Rossiter, Jr. (November 2008), which describes in detail various factors to observe during roof inspections.
An obviously clogged drain is a very common problem in the spring and is easily noticed and fixed by the building maintenance staff. Just remove the debris from around the roof drain and then from the roof. An independent roof consultant can also assess the proper functioning of the drainage system by noting the roof slope to the drains and general roof slope; and the size or amount of drains, gutters and scuppers.

Drainage refers to the ability of the system to carry water away from the roof and the building. The building code usually dictates the minimum level of drainage required for a roof. Conventional design calls for at least four drains for larger roofs, a minimum of two drains for roofs under 10,000 square feet, and a maximum spacing of 75 feet in any direction for drains.

OTHER FACTORS
Other factors that are important to note in a roof maintenance program are the relative costs of repairs compared to the cost of replacing the roof; the leak history of the building; the durability and toughness of existing membrane; the type of attachment of the membrane; the susceptibility to roof traffic; and the importance factor, meaning what is the use of the building under the roof area.

A typical roof maintenance program will score these various factors on a relative scale of 1 to 10 based on the knowledge and experience of the roof consultant. The conditions of roofing sections can then be ranked and prioritized for maintenance or repair.

According to David Hawn, immediate past president of RCI, Inc., most modern roof membranes are rugged enough to withstand the forces associated with winter weather. Aside from actual structural damage to the building from excessive loads, snow and ice on the roof is not usually the cause of damage to the roofing membrane. However, severe winter weather does contribute to the wear and tear on the roof. “Water tends to remain on the roof longer when there is snow and ice on the roof because the water does not drain. So a small defect that may not leak during a typical rain event could leak when snow and ice is on the roof,” he says.

“Nonetheless, a regular maintenance and inspection should be in place this year the same as any year. If the building owner is having a problem and does not have an in-house expert then the best move is to call a roof consultant, who can provide an objective and independent assessment,” says Hawn. “A registered roof consultant is not going to recommend roof repairs or roof replacements that are not needed.”

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