

making **MAINTENANCE** work

a **CONTRACTOR** explains the **BASICS** of a proper **MAINTENANCE PROGRAM**

by **Alex Hernandez**

"Out of sight, out of mind." "If it ain't broke, don't fix it." These phrases have become cliché but still are the pervasive attitudes among many building owners when it comes to their roof systems. As a result, roof system maintenance frequently is neglected.

When you discuss roof system maintenance with your customers, they may ask: "Which roof system elements require maintenance?" "What should be inspected?" "How often should inspections take place?" "Why do I need a maintenance program if I have a warranty?" "Why should I maintain my roof system?"

It is important to be able to provide good answers to these questions so your customers understand how they can benefit from preventive roof system maintenance programs. And by explaining how maintenance will maximize roof system service life and providing a proper maintenance program, you can cement longer-lasting relationships with your customers.

What is it?

Preventive maintenance and inspection differ from simple repairs of defects. Repairs are reactive in nature and typically are conducted only after water has made its way through a roof system and into a building. It may take several days or weeks for an owner to discover a leak has developed. As a result, wet insulation, corrosion, interior damage and mold can develop.

A proactive maintenance program has many facets. Documentation, inspection, housekeeping, predicting and reporting are the fundamentals. This does not mean a maintenance program cannot incorporate repair items; often, repairs are completed during maintenance inspections.

For example, some roof system components degrade more quickly than roof membranes. These components may require replacement at the time of an inspection or be reported to the owner as a future priority. The goal of a maintenance program should be to sustain a maintainable condition with the objective of maximizing a roof system's service life.

Establish a base line

Regardless of a roof system's age, conduct a complete, thorough survey of all roof system elements during an inspection. The survey should include the deck, vapor retarder (if applicable), insulation, layers and thicknesses. Document the roof system's layers, type and manufacturer (if known), and note on the roof plan all projections and their approximate locations.

Photos courtesy of Clark Roofing Co., Broadview, Ill.



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Several sources for satellite images are readily available to speed up the survey process, but be careful to note the date of the satellite image. Recent changes to a roof may not appear on an old satellite image. Taking photos of a roof during each inspection is beneficial; if possible, standardize orientation and photographic angles for each scheduled inspection. Photos then can easily be compared year to year.

Once an initial survey is complete, identify any repair items required to bring the roof to a maintainable condition. Then, repair all noted defects. Weigh the cost of the repairs as identified during the initial inspection against the cost to replace the roof. It is possible the cost of repairs will exceed the existing roof system's value. If that is the case, it is best to take a reactive position and merely respond to leaks until capital is available to replace the roof system.

Maintenance schedule

The most common recommendation for roof system maintenance inspections is twice per year, in the fall and spring. Also, conduct inspections after major weather events. Existing conditions will dictate adjustments to a maintenance schedule. Planning a maintenance program should be considered during a roof's life span.

A maintenance program's requirements will vary during a roof's life span. Keep in mind, a newer roof system usually requires less frequent maintenance inspections. As a roof ages, the maintenance frequency increases.

However, there are exceptions to this rule. For example, roofs that gather excessive accumulations of vegetation, contaminants and/or debris or experience high traffic will need more frequent maintenance.

A maintenance schedule also can be tailored to customer requirements. For instance, a maintenance inspection can be



Open mortar joints will allow water to enter a roof system.

conducted during a facility's shutdown periods.

Maintenance scope

To help you conduct maintenance inspections, NRCA has published its *Manual for Inspection and Maintenance of Steep-slope Architectural Metal Panel Roof Assemblies: A Guide for Building Owners* and *Manual for Inspection and Maintenance of Low-slope Structural Metal Panel Roof Assemblies: A Guide for Building Owners*. Each contains a clear guide and checklist identifying the roof system components to be included in a preventive maintenance program. Several manufacturers also publish maintenance requirements, as well.



Debris must be removed and damaged components replaced.

How inspections are executed is crucial. Because visual inspection can be somewhat arbitrary and contain some level of bias, a clear definition of defects and descriptions of typically observed conditions will limit variation from year to year and among several inspectors. Photographs of typical maintenance defects should alleviate some of the subjective judgments that can occur when assessing a roof system.

A good rule of thumb is to inspect anything that contacts any part of a roof or can affect roof system performance. Routine activities during a maintenance service call include drain inspection (tightening of drain bolts or clamps), housekeeping, sealant repair or replacement, pitch pan fillers, and replacement of loose or missing fasteners. Make sure to inspect flashing details, also.

Reporting

I cannot overemphasize the importance of reporting and documentation. Although training service technicians to physically do the work properly and completely is a high priority for any contractor, from a building owner's perspective, completing the work to the industry standard essentially is assumed. If your technicians clean every scrap, tighten every bolt and fill every pitch pan but you can't produce an accurate, complete, consistent and timely report of what was done, you simply are providing a scheduled repair program.

The documentation is at least as important as the quality of the roofing work. I argue that maintenance reporting may be more important than actual roofing work because one of the major benefits of maintenance is the ability to predict future work.

Warranties

Contractors need to do a better job informing customers about the terms of manufacturers' warranties. Almost all manufacturer

warranties could be rendered null and void if a building owner fails to use reasonable care in maintaining his or her roof. Read the warranty documents—often, the maintenance requirement is on the first page. Even more surprising, the language is not in fine print. It's right there, out in the open for anyone to see.

Manufacturers' requirement for roof system maintenance is reasonable; this type of language should be included in your warranties, as well.

Because a roof system is one of the most costly and valuable components of a building envelope, we as contractors need to help our customers understand a warranty will not keep their buildings dry and functioning properly. That is what the roof system is for, and it must be maintained.



More frequent maintenance would have identified the split in the seam before vegetation could take root.

Sales

Major roofing problems typically do not develop overnight. Years of neglect can culminate in extensive roof system damage that could have been avoided had a preventive maintenance program been in place. It may be difficult for a customer to understand the cost benefit of a preventive roof maintenance program because most owners have limited experience with purchasing new roof systems. Often, a building owner has inherited the existing roof system from the previous owner and may not be aware of the value of the asset a roof provides.

Ask your customers: Discounting the value of the roof itself, what is a dry, safe and efficient environment worth? Business disruption, production downtime, loss of stock, loss of customers and potential lawsuits all are costs of a poorly maintained roof system. In that light, the costs of inspection and maintenance offer great value.

Because you can budget time in advance for preventive maintenance programs, they can help fill gaps in your service schedule. A word of caution, though: As this part of your business grows, it can overwhelm your service schedule and make responding to emergency calls more difficult. You should be prepared for a potential scheduling pinch and realize temporary adjustments to your staff may be necessary.

Report analysis

Reports can be compiled to obtain a roof rating or score. The rating then can be tracked in a database. Information about a roof system's relative degradation then can be used to project replacement time frames. Other repair techniques or maintenance products can be explored to gauge the cost benefit of additional repair. In addition, the rating can be used to rank multiple roofs in multibuilding complexes to maximize efficient use of limited budgets.

Administration

A healthy amount of administration is required to successfully operate a maintenance department. Alert or remind your customers to have their roof systems inspected after severe weather events. Schedule maintenance inspections with customers, and make sure to input field documents in your database. You should distribute the reports to your customers. If you get it right, you also will have numerous invoices to process and collect. I suggest you review your internal processes and weed out duplication or unnecessary bureaucracy.

An important consideration

A roof system's primary function is to keep water out of a building. And roof systems get more abuse from the elements than any other part of the building envelope. Preventive maintenance is key to saving money by providing a longer service life. Owners should consider roof life-cycle management to obtain the best value from their roof systems. And you should be ready to provide long-term maintenance services and solutions.

The process starts with selecting the best roof system for the existing conditions and then managing the asset through a preventive maintenance program to maximize the return on investment.

To read another article about roof system maintenance and see more maintenance photos, log on to www.professionalroofing.net.

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