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Roofing

Managing the Roof As an Asset

By James Piper
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One of the most difficult problems facility executives face is getting the most out of their facility's roofs. Litigation between building owners and developers involving the roof is common. And the problems are not necessarily solved once the original construction flaws are corrected. Despite those repairs, many roofs have to be replaced before they reach their rated service live.

Why all the trouble with roofs? Part of it is attributable to the environment in which roofs must function. They are exposed to wind, rain, snow, hail, sunshine, and birds and other animals. They must withstand temperature swings from well below freezing to in excess of 120 degrees. They serve as a platform for building mechanical systems that can vibrate, inducing stress failures in roofing components. And they must survive foot traffic from maintenance personnel and building occupants.

With the strain that roofs are routinely exposed to, combined with the expense of roof replacement, it is logical to think that roofs would be a focus of attention for facility executives. In some facilities they are. Executives at these facilities have found that by following a comprehensive program for managing roof assets, they can lower life-cycle costs for roofs while reducing the frequency of leaks and emergency repairs.

But not all roofs are managed. Less than half of building owners ever file a claim against their roof's warranty even though most roofs experience some problems during the warranty period. And many of those who do file a claim have it voided because they have not been doing the tasks necessary to maintain the warranty.

The difference between these two groups is how they view the roof. The group of facility executives that is successful in lowering roof costs views the roof as an asset to be managed. The others view the roof as a maintenance expense, focusing on replacing rather than managing.

Roof asset management is a process. It begins with a thorough understanding of the roof inventory that is installed in the facility. The condition of each roof in the inventory is then assessed. Data from the inventory and the assessment is collected and stored in a central location where it can be accessed easily. Evaluation of that data along with data from subsequent inspections is used to develop a schedule and budget for major roof repairs and replacements.

The Benefits

One of the most significant benefits of managing roofs as an asset is that doing so will extend the life of the roof. While it will take money to perform the tasks required, asset management programs will result in roofs that typically last 25 to 50 percent longer. In some cases, they can even double the service life of a roof. The cost of setting up and operating the roof asset management program is typically recovered if the roof life is extended by only one year. Extended service lives beyond that first year will greatly reduce the life-cycle cost of the facility's roof inventory.

Roof asset management also reduces roof maintenance costs. One of the reasons why maintenance costs for roofs are so high is that they often are performed on an emergency basis. When a leak or other problem with the roof occurs, it typically happens when the weather is less than ideal. Roof maintenance personnel are called in, sometimes on an emergency basis, and temporary repairs are made. Later, when conditions allow, they return and make the permanent repairs. Not only have there been two service calls, but damage to the roof and possibly the building's interior has taken place.

A roof asset management program will not eliminate all emergency repairs, but it will reduce their frequency. And by identifying problems and taking action to correct them before they develop into leaks, the program will

reduce damage to the roof and the building.

Another benefit of the program is better allocation of funds for roof repair and replacement. Many roofs are replaced before it is necessary to do so. Recurring leaks, surface deterioration, storm and wind damage combine to make facility executives think that it is necessary to replace a roof when routine maintenance and repair will extend the life of the roof. By implementing an asset management program, facility executives will have the information to determine if relatively minor repairs will correct the problem or if the roof is approaching the end of its life and requires replacement.

Realistic Budgets

Roof asset management programs allow managers to budget for roof replacement on a basis of need. Most other roof replacement budgets are established by crisis; replacement funds are used on the roof that is believed to be in the worst condition at the moment. By establishing the condition of all roofs in all facilities, facility executives can set priorities based on real — not perceived — needs.

A major complaint from facility executives is that roof warranties are complicated and sometimes misleading. To some facility executives, it may seem that whenever a claim is filed against the installer, it is denied and repair of the roof problem is put back on the building owner. While it is true that it is difficult to process warranty claims with some installers, many denials of warranty claims are a result of the owner failing to conduct inspections and perform routine maintenance tasks required by the warranty.

Valuing A Roof

A roof asset management program will help facility executives keep their roof warranties in effect by spelling out the terms of the warranties and identifying what tasks must be performed when. By combining all roofing information in the program, the owner will be able to demonstrate exactly what activities have been performed and when, what problems were found and when, when the installer was notified, and what actions the installer took. The result is an enforceable warranty.

Another problem that roof asset management programs help solve for owners is insurance claims. When the roof is damaged and a claim is filed, one of the things that insurance companies look closely at is the condition of the roof prior to the damage. Without a complete history and database of the roof, the value of the roof can be underrated, resulting in additional expenses for the owner. By tracking all roof information, the owners will get a more realistic valuation of the roof.

How do these benefits stack up against the cost of operating the program? The actual savings will vary with the age, type and condition of the roofs when the program was implemented. If the roof is new when the program is implemented, owners can expect that over the life of the roof, they will save $5 in roof repair and replacement costs for every $1 that they spend on roof asset management. Roof asset management provides one of the highest rates of return of maintenance investments.

The effectiveness of a roof asset management program depends on the completeness and accuracy of information gathered and entered into the program. To start, complete an inventory of all roofs. Identify the building where the roof is installed, the square footage of the roof, the type of roof and its age. Most facility executives simply underestimate their roof inventory, compounding the problem of inadequate funding for roof repairs and replacement.

The roof inventory should also include details on who the manufacturer is and who installed it. If the warranty is in effect, a copy of the warranty should be included in the database. Review the warranty and identify what actions the owner is required to take to keep the warranty in effect. If any claims against the warranty have been filed, all information related to those claims must also be included.

Go back through maintenance records and identify where leaks have occurred and what corrective action was taken. Identify all other repairs and maintenance activities that have been performed on that roof.

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Taking Stock

Identifying the type of roof installed is only the beginning. The inventory must also include information on the type of membrane, insulation, roof deck and flashing. Including this data allows for a review of data for all roofs over time to see how well the roof types and components perform.

When the inventory has been completed, an assessment of the condition of each roof should be performed. The assessment can be performed in-house or by an outside contractor. In most cases, the initial condition assessment will be non-destructive. The entire roof system is surveyed and any deficiencies are noted on a roof plan as to their location and extent. If it is suspected that moisture has penetrated the membrane and entered the insulation, additional non-destructive testing may be required, including the use of an infrared imager, a nuclear backscatter meter, or an electrical capacitance meter. These tests will help determine the extent that water has penetrated the insulation.

When the assessment is completed, all deficiencies are documented. Photographs can be used to identify these deficiencies and to document their repair or to track their development over time.

Staying On Top

The initial condition assessment provides a baseline for the condition of the roof. With time and exposure to the elements, the condition will change, so it is necessary to repeat the condition assessment on a regular basis. By tracking the condition over time, the rate of deterioration can be determined and a projected replacement date determined.

In most cases, the condition assessment should be performed twice each year. The ideal times for the assessments are in the fall before harsh winter weather and in the spring before the heat of summer. A full condition assessment should be completed before the warranty expires to identify items that should be corrected by the installer.

At least once each month, a quick visual inspection should be conducted to look for leaves and other debris that could damage the roof's membrane or clog the drains. Additional visual inspections should be conducted after severe weather or other unusual conditions that may have resulted in damage to the roof, such as the installation or replacement of an HVAC system. Depending on the condition of the roof and its rate of deterioration, moisture surveys should be repeated every three to five years.

A roof inventory and condition assessments provide information to develop roof repair and replacement budgets and an action schedule. By following the program, facility executives can get the most out of roofing expenditures. Roof defects will be repaired while they are relatively minor and before the damage turns a roof repair into a replacement.

The value of the program, however, goes beyond budgets and schedules. By reviewing roof performance over time, facility executives can determine which roof types perform better in particular applications. Different roofing options can be evaluated on life cycle costs, allowing facility executives to determine the most cost-effective type of roof for a facility. The data can even be used to evaluate the performance of different roofing contractors to determine which ones are most likely to provide a high quality installation.

Treating roofs as assets will provide financial and performance returns for those willing to make the investment. But roof asset management is not a collect-and-forget system. It is a process. To be effective, keep up with the collecting, assessing and updating of data. The time and effort are well worth it.

James Piper, PhD, PE, is a writer and consultant who has more than 25 years of experience in facilities management. He is a contributing editor to Building Operating Management.