

Weathering the Storm

Proactive Building Envelope Management in a Tough Economy

By Dave Hasse, RRC

In today's tough economic times, the effects on every part of our lives, individually and within our organizations, has been swift and direct. As budgets are being cut, the practical needs of our roofs, walls, and windows will continue. Simply deferring maintenance can have a catastrophic effect that includes an overall reduction in the predictable performance as well as an impact on building system life expectancy.

It is a simple and practical truth that building envelope components that are not maintained will experience more direct problems that affect the building occupants and will have a shorter useful life. As my grandfather used to say to me in my youth, "Waste not, want not." More than ever our focus will need to be on maximizing the useful life of our existing building envelope systems.

An important aspect of maximizing useful life in a building envelope system is how a problem is addressed upon discovery. When a need arises to address an issue with a building envelope, whether it is because of reported water entry into a building interior or a condition discovered during an inspection, it is important to consider the different elements to proactive and effective building envelope remediation.

It may seem overly simple and lack eloquence, but *know what you are fixing!* Always avoid the temptation to invest in premature remediation attempts. There have been multiple occasions when a building owner or facilities manager says, "We had this leak, so we replaced the roof, and it still leaks in the same location. Why is this happening?" Further investigation of the water entry shows

that the leak may be from an adjacent through-wall flashing, window, or cladding system. An investment was made in the replacement of a building envelope system that may have been performing just fine. The lesson of this story is that it is important to properly investigate and establish the cause of problems before remediation is undertaken.

One of the great tools that Mother Nature provides for us is the ability to replicate the condition in many cases through the use of targeted and methodical water application. In the previous example, had the cause of the water entry been verified with a proper replication effort, it would have established the cause of the problem and prevented the unnecessary replacement of the roof system. Whether a standardized effort using the appropriate ASTM or AAMA standard is engaged

Figure 1.

Example of a Single-Ply Roof System Renovation Value Comparison

Current Age:	18 Years Old
Current Useful Life:	2 Years
Replacement Value:	\$250,000
New System Life Expectancy:	20 Years
Proposed Renovation:	Complete Base Flashing
	Replacement will extend the useful life to 5 years at a cost of \$12,000.
Value Comparison:	
Renovation Cost/Extension of Useful Life	= \$12,000/3 years = \$4,000/year
Replacement Cost/System Life Expectancy	= \$250,000/20 years = \$12,500/year

or a more informal approach simply utilizing a single spray application or the distributed application of a multi-nozzle spray bar, water application can be a powerful tool in many efforts to investigate building envelope problems. Once the root cause of the issue is established, the appropriate range of options for remediation can be evaluated.

When considering building envelope remediation, the different courses of action can be classified into one of three distinct possibilities: repair, renovation, or replacement. A definition and discussion regarding each follows.

Repair. Repair is an investment in remediation related to an existing building envelope component that addresses a specific discontinuity in performance but does not extend the useful life of the building envelope component beyond its current condition. An example of this would be a simple repair to a field split in a built-up roof system. This would repair a definite isolated discontinuity in the roof membrane, but the overall condition of the roof system has not been enhanced. When investing in this type of remediation, it is important to limit the investment in the repair to the current expected life cycle in the building envelope component. Simply put, you should do a five-year repair if you estimate the current useful life of the system as a whole is three to five years, not a repair that will last for 10 to 15 years. That could be described as good money after bad.

This guideline compares the cost of the renovation and the anticipated extension of useful life with the system replacement value and the anticipated life-cycle of a new system. If the cost per year of the life cycle extension related to the renovation is less than the cost per year of a new building envelope system, the renovation is a good value. An example of a guideline analysis of a single-ply roof system base flashing replacement can be seen in Figure 1.

Replacement. Replacement is quite obviously an investment in remediation that consists of replacing an existing building envelope component with a new building envelope component. This option is typically recommended when investment in

repair or renovation no longer makes economic sense or will not assure predictable performance. ☹

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