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JUNE 2011

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**Service and  
Maintenance Trends**

**The Value of Preventive Maintenance**



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John  
D'Annunzio



Dennis  
McNeil



Greg  
Hayne



Rick  
Cook



# Cons

## Stress the Value

**R**oof consultants typically work with both the building owner and the roofing contractor, giving them a unique perspective when it comes to examining roof maintenance. *Roofing Contractor* spoke with four consultants who work with building owners across the country and asked them to share their clients' key concerns and their goals in setting up roof asset management programs.

# Service and Maintenance Trends

■ Dennis McNeil gathers on-site field information at an auto plant in Louisville, Ky., in January 2011 in preparation for designing roof replacement documents. Photo courtesy of Building Technology Associates.

# Consultants

## of Preventive Maintenance by Chris King

The following consultants shared their observations for this article:

- John D'Annunzio of Paragon Roofing Technology ([www.paragonroofingtech.net](http://www.paragonroofingtech.net))
- Dennis McNeil of Building Technology Associates ([www.askbta.com](http://www.askbta.com))

- Greg Hayne of Roof Management ([www.managingroofs.com](http://www.managingroofs.com))
- Rick Cook of ADC Engineering ([www.adcengineering.com](http://www.adcengineering.com)), who is also the current president of RCI, Inc., formerly known as the Roof Consultants Institute ([www.rci-online.org](http://www.rci-online.org))

As these industry veterans commented on key trends in roof maintenance they kept returning to the same theme: the value of preventive maintenance in extending the life of the roof. They asserted that proper roof asset management is crucial, especially in to tough economy.



■ John D'Annunzio inspects a waterproofing project at Walter Reed Army Hospital in Silver Springs, Md. Photo courtesy of Paragon Roofing Technology.

### Extending Service Life

John D'Annunzio is president of Paragon Roofing Technology, headquartered in Southfield, Mich., which has its own lab for conducting material forensics testing and evaluating new materials. D'Annunzio asserts that his company's ability to conduct its own testing gives it an edge. "The biggest difference is our experience with material testing and forensics," he said. "Through that we've been able to determine what works and what doesn't work, and that helps us with design and also with life extension and maintenance."

He is the author of four books on roofing, including the *Roof Management Handbook*, which covers how to set up a maintenance program

and conduct roof inspections. He's seen some changes in the past few years, which he chalks up primarily to the lagging economy.

"Building owners are requiring more extension of life with roof systems rather than just routine maintenance and repairing leaks," he said. "We're finding that they just don't have the money to do roof replacement right now, so extending the life of the roof is the top priority."

Extending roof life has always been a key facet of maintenance, noted D'Annunzio, but in the past most contractors and building owners were mostly reactive, and attention centered on finding and fixing leaks. "Now owners and contractors are more proactive," he said. "Extending the life is the key focus. We're also seeing building owners that never had maintenance programs are starting to utilize them for just that purpose — to extend the service life."

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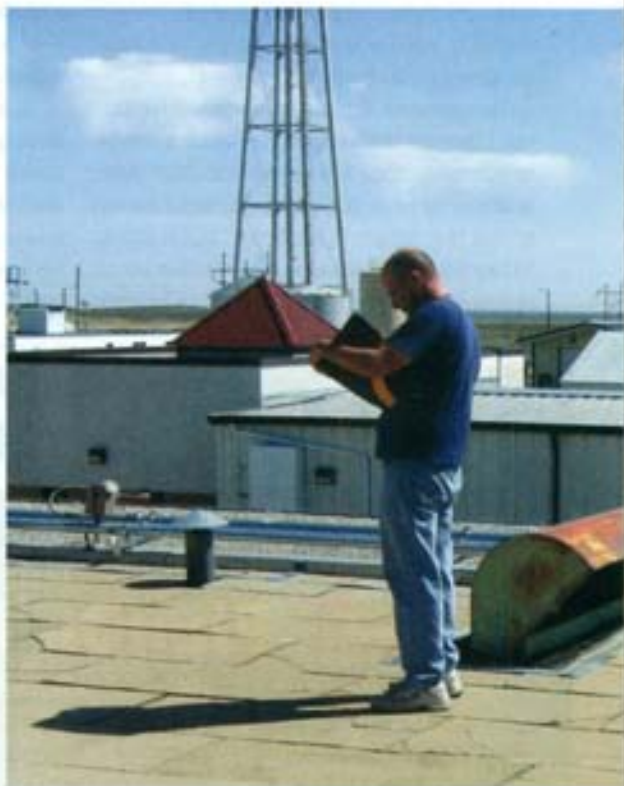
While owners are more aware of environmentally friendly products and systems, the high cost of vegetative roof systems and solar applications has been a major obstacle. "Major Fortune 500 companies have sustainability initiatives, and they're striving to become LEED compliant," D'Annunzio said. "With roofing, we're seeing more roof coatings — that type of thing. Garden roofs and solar are very expensive, and these are the types of projects that are being put off. Because the codes are starting to change, we're seeing an increase in insulation thickness — especially in new construction. Owners realize that it's a code requirement, that it's not that big of an initial cost increase, and it provides savings in the form of energy efficiency."

According to D'Annunzio, the manufacturer's warranty can be a great tool for educating owners. "A big issue is the warranty," he said.

■ A serviceability estimate is used to forecast the life expectancy of a roof with and without repairs. Photo courtesy of Building Technology Associates.

"With all manufacturers' warranties, maintenance is required. And, with the life-extending services a proper maintenance program can provide, it really does add to the life of the roof."

Some owners have a dedicated roof budget, while others need help determining how much to allocate for roof repair and replacement. In either case, D'Annunzio is there to help. "We do a roof evaluation, and that tells us how much remaining service life is left in that roof system. We then ask the building owner what type of extension they are looking for — is it one to two years, or four to seven years? We then determine the budget for them. We typically budget for a one to two year extension and a seven to ten year extension. Once we determine when we are replacing the



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roof, we figure out what type of materials, etc., will be installed, and that's how we determine the budget."

He pointed to an auto manufacturing plant in Indianapolis as a case study in effective roof management. "An auto manufacturer in Indianapolis had a facility that was 40-plus years old," he recalled. "They were going to be closing that plant in two years. The roof system was in very

bad shape and had to be replaced, but the roof replacement cost was more than the value of the building."

The existing coal tar roof was installed over a metal deck. "The problem was that it had more than 100 leaks and areas with extensive deck damage, and it was still an operating manufacturing facility," he said. "So we devised a plan to fix the leaks, replace the deteriorated decking,

and extend the service life of the roof system up to three years. We conducted the repairs without affecting plant operations."

### A Growing Segment of the Market

Dennis McNeil, RRC, CCS, RRO, is Senior Design Consultant in the Homewood, Ill., office of Oak Park, Mich.-based Building Technology Associates (BTA), which specializes in roof asset management and consulting.

McNeil defines a consultant as "a knowledgeable professional offering non-proprietary advice." He should know — he's been doing it for more than 40 years.

"Most of my work is pure consulting — design work for new construction, on existing buildings, and getting involved in maintenance work, service work and testing on existing buildings," he said.

He started in the field in 1963 while attending college at the University of Detroit, where he conducted roofing inspections for BTA. After serving in the U.S. Army Corps of Engineers, he moved back to Detroit to continue work with BTA. "BTA was the first to market with a holistic approach to managing roof assets," he said. "In 1969 we established a branch office in Chicago, and I've been there ever since."

He also points to the economy as a driving force that's expanding the maintenance segment of the market. "Things have changed over the past couple of years in response to the economy," he said. "Owners and financial managers don't have the financial tools they had previously to fund repair and replacement projects. Building maintenance people have more to do with fewer resources. They often need more work from roofing contractors. As a result, most roofing contractors have expanded service and maintenance departments — or if they haven't had them before, they've branched out into that part of the business."

According to McNeil, owners have two top-level priorities: preserve capital and extend the life of the roof. "Some clients are becoming more sophisticated in their financial management," he said. "Extending the life of the roof with

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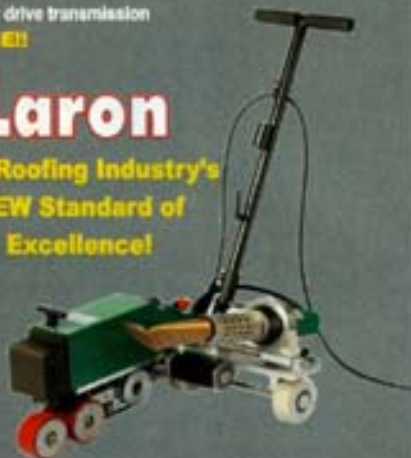
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judicious maintenance can postpone a major capital expenditure for tear-off and replacement."

McNeil finds owners are receptive to his message about the financial benefits of preventive maintenance. "Cost effectiveness is closely allied to good management, and previously building managers centered on problems with the roof — like leaks — without really appreciating how a planned approach to roof management can save them money over the long haul," he noted. "There is always some technical education that goes hand in hand with explaining this to owners, as new systems come on the market and others fade out."

As part of the budgeting process, McNeil conducts a serviceability estimate — "a snapshot of the roof at that time" — from which he forecasts life expectancy with and without repairs. "Assessment of the building allows owners to be proactive in scheduling service and maintenance, rather than reactive — just scheduling work when a problem occurs. For the typical client with a large inventory of sites — lots of buildings or a lot of different roof areas — the key is prioritizing the sequence of repairs until they are no longer cost effective and it makes economic sense to replace the roof."

McNeil pointed to three common mistakes that can lead to roof problems:

1. Not servicing roof drains. "Most obvious is simply keeping the drains clean — both the interior roof drains and the gutters. It's certainly not rocket science to get someone up there to clean the drains, but you'd be amazed how often that's a problem, even in companies with sophisticated management."

2. Not keeping the roof surface clean of debris. "Problems can vary depending on the site — the amount of trees, for example, or industrial parks with pollutants."

3. Unwarranted roof traffic. This includes workers and staff members who use the roof for recreational purposes, such as setting up tables and chairs for lunches or breaks. "These are not things that roofs are typically built to withstand."

## Understanding the Owner

Greg Hayne is the founder and owner of Roof Management in Fairfield, Iowa. Hayne grew up working in his father's general construction business, opened a branch to do commercial roofing work and then started Roof Management in 1998 to do consulting.

While he agrees that the economy weighs heavily on the minds of building

owners, he's not sure all of them understand the importance of service and maintenance. "I've seen some companies who should be spending more on preventive maintenance, but they are re-roofing," he said. "There's more interest in preventive maintenance, but I'm not sure I'm seeing more of it in the field. The reality is when that roof dies, it dies. It doesn't matter what the economy is doing. They find the

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money and replace it."

Hayne believes understanding building owners is an essential part of the consultant's job — and so is educating them. "We try and help them understand the value of preventive maintenance," he said. "The typical building owner doesn't pay any attention to the roof, and he misses the opportunity to spend a small amount of money now to save a lot of

money later."

"The second thing we educate building owners on is that they have to get appropriate documents back from roofing contractors — photos and some sort of marked drawing showing where the repair was made," he continued. "A roof will talk to you, and it will tell you what it needs. And it does that through properly documented repair invoices. If all you get



■ Greg Hayne has developed a training program for building owners that includes photos of common problems. He also has a course geared toward roofing contractors.

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is a bill, there's no communication going on. You don't really know what repairs were made and where."

Hayne also advises owners to make sure specified repairs are necessary and proposals are properly detailed. "Proposals often aren't accepted because contractors have done such an incredibly poor job presenting them," he said.

He even developed a training program for building owners. "We put pictures up to show them the most common deficiencies and how to take care of them," he said. Hayne also recommends taking the owner up on the roof. "The typical owner often has no idea what needs to be maintained and what can safely be left unrepaired. We give owners examples of things they can look for to help identify where preventative maintenance is worth the investment."

Understanding the owner's priorities is an essential part of the consulting process. "There are two things that determine when a roof will get replaced," he said. "One centers on the technical issues on the roof. What's wrong with it? What can you do about it? The second piece is what we call the 'other issues.' Is the building about

to be expanded? Is the building about to be closed? Are major renovations scheduled below the roof? If it's a retail space, is the space vacant or only dark? These other issues usually determine how a building owner will handle the technical problems."

Hayne illustrated his point with an example. "A client sent me to look at two buildings. Both were older roofs, the same age, and both were empty. One roof was not leaking at all. The other building had two 55-gallon drums in a corner that filled up with water every time it rained. The owner put a new roof on the building that was not leaking and let the other roof continue to leak — and he was a smart man. He was planning to put \$10 million into the building where the roof wasn't leaking to house expensive computer equipment, and the second building was vacant and he had no immediate plans for it."

Hayne tipped his cap to some of the excellent contractors he works with:

"I've got a contractor I work with in a region of the country, and I typically call him at 10 or 11 in the morning and say, 'Hey, I have a situation at this plant — can you go and look at it?' And he always replies, 'I'll go look at it right now.' Once I asked him, 'How come you can always do that — how come you're never working on a bid that's due at noon?' He said, 'If I am working on a bid the day it is due, I'm in trouble.'"

He pointed to another example of a contractor who never fails to impress. After getting a call from a property manager who was upset about a recurring leak, Hayne suspected it was not a roof leak at all but rather an HVAC leak — but he wasn't sure. He called the roofing contractor, who asked, "Would you like to see the complete service log for that roof? I'll have it in your in box in 10 minutes."

"And he did it," Hayne recalled. "The question I ask roofers is, 'Can you do that?'"

## Pushing the Envelope

Rick Cook is a partner in ADC Engineering in Charleston, S.C., and the current president of RCI, Inc. He's been a consultant since 1984, when he took a civil service job with the U.S. Navy after graduating from the Citadel with a degree in civil engineering. He worked as the Navy's roofing and waterproofing consultant until 1991, when he teamed up with two of his college roommates to form ADC Engineering, a consulting firm which now employs 50 people.

"We're probably more oriented to design side of facilities — the design and implementation of roofing and waterproofing projects," he said. "We do the design for roof replacements, exterior renovations and waterproofing projects for existing facilities, and for new construction projects we work on the design team with the architect as the lead."

It's true that the tough economy is bringing increased attention to mainte-

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■ Joe Baker of ADC Engineering checks for roof damage during an inspection. Photo courtesy of ADC Engineering.

nance, said Cook, who has seen these economic swings before. "Any time the economy goes down, our workload picks up," he said. "Owners are not just putting a new roof on. They are looking to maintain the roof, and contractors are more willing to do maintenance work."

However, Cook notes that extending the life of roof systems has a built-in benefit for everyone: it helps the environment. "I teach a course which I titled 'Saving our Facilities and Saving the World' — a title that's a bit tongue-in-cheek," he said. "The point is the key word in our industry is 'sustainability.' With roofing and waterproofing, what is the one thing we can do to sustain our environment? It's to save the roof. A typical roof should last 20 years — let's use that as a benchmark. If the majority of roofs last 15 years, we've lost 25 percent of the life of those roofs.

If we get into maintenance and extend the life, you see the value in it. There is a lot of talk about sustainability in new construction. With roofing and exterior walls of existing facilities, the focus is really on maintenance. In my Power-Point presentation, I include the motto, "To sustain, you must endure, and to endure, you must maintain."

Cook uses an analogy everyone can understand by comparing the roof to the family car, which needs oil changes, tire rotation and other routine maintenance to run smoothly and last longer. In a way, increased attention to roof maintenance is a bit of a silver lining in tough economic times. "As the economy gets worse, we gain ground," he said. "We're getting closer to the life we should get out of our roofs."

Cook sees another major trend in the roofing industry: more and more contractors and consultants are going beyond the roof to handle things like exterior walls and below-grade water-

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proofing projects. "It's not just roofing — it's the entire building envelope," he said. "It's evolved in that sense in individual projects, with specific clients, and the industry as a whole."

It's part of a natural progression from fixing roof leaks to fixing problems that might look like roof leaks at first but actually involve some other part of the building envelope.


"Typically, ninety percent of leaks are at penetrations and terminations," Cook said. "We started out providing predominately roof consulting services and in the evolution of the last 20 years we've performed just as much with exterior walls. It's that way throughout the industry. If you look at the major manufacturers, they don't just have roofing products. Contractors are handling more building envelope issues. The industry is evolving. With consultants, it's the same way — often the word 'roofing' was part of a company's name, and now it's becoming 'building envelope.'"

"It's the same thing with RCI, Inc.," he continued. "We used to be known as the Roof Consultants Institute, but on our website we now refer to ourselves as 'an international association of professional consultants, architects, and engineers who specialize in the specification and design of roofing, waterproofing and exterior wall systems.' Our cornerstone, our backbone, is still roofing. At RCI, that's the way it is with most of our members, but we do see the evolution — the change — occurring."

The expansion into other parts of the building envelope is evident in RCI's registration programs, which now designate professionals not only as a Registered Roof Consultant (RRC), but a Registered Waterproofing Consultant (RWC), and a Registered Exterior Wall Consultant (REWC) as well. "For individuals who achieve all three of those, you become a Registered Building Envelope Consultant (RBEC) — that's the pinnacle," said Cook.

As president of RCI, Cook sees the association's mission as two-fold: to help its members and to bolster the industry as a whole. "RCI's focus is on our members," he said. "We're trying to provide better education for them and better exposure for the industry."

There are a number of excellent educational opportunities offered by RCI, noted Cook, especially at the association's annual convention and its Building Envelope Symposium, which will be held this year in Charlotte, N.C., Oct 10-11.

"We support our membership — that's why we exist," he said. "In the industry, there are a lot of great contractors and great manufacturers, and together we can do great things. That's what we're trying to do." 

*Chris King is editor of Roofing Contractor. He can be reached at [kingc@bnpmedia.com](mailto:kingc@bnpmedia.com) or 248-244-6497.*

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