



MOISTURE MANAGEMENT™

Providing roofing and waterproofing solutions.

MOISTURE MANAGEMENT

JANUARY 2007

VOLUME 1, ISSUE 2

INSIDE THIS ISSUE:

CASE STUDY #1	2
THE TRUTHS AND MYTHS ABOUT ROOF WARRANTIES	2
UP THE LADDER: RUSSELL MINK	3
SUCCESSFUL SPECIFICATION DEVELOPMENT	3
THE VALUE OF THERMAL IMAGING TECHNOLOGY	3
CONTACT INFO	4
CLIENT CORNER	4

WATERPROOFING STRATEGIES FOR THE BUILDING ENVELOPE

Keeping a building watertight in a climate as diverse as Indiana presents special challenges to facility owners and managers. The constant cycle of hot and cold, freeze and thaw, can cause havoc on your building's vital waterproofing components.

How then, can an owner best prepare for these changes and prevent moisture intrusion into the building envelope? Moisture Management presents these proven waterproofing principles that may assist you when dealing with water intrusion issues.

1. The 90%/1% Principle:

The first rule of waterproofing

holds that **90%** of all water intrusion problems occur within **1%** of the building's total exterior skin. In essence, this is why leaks can be so difficult to find and solve, since such little surface area is involved.

2. The 99% Principle:

The second rule of waterproofing holds that **99%** of building leaks are attributable to something other than material or system failures. This means the leaks are almost *always* the result of either poor workmanship, poor design, or both. Incompatible materials, human installation error, inadequate preparatory procedures, and poor transitioning of different

components comprise the majority of these failures.

3. The weakest areas on your building are where different types of materials interface.

Due to differing rates of thermal expansion and contraction, these areas are always the most likely to leak. Regular inspections and maintenance is a key to success.

4. The better plan you have, preferably utilizing professional, pro-active maintenance, the greater your chances of success.

Planning ahead gives you a chance to address small issues before they become major ones.

OVERVIEW OF TPO ROOFING SYSTEMS

The roofing industry is always evolving and developing new technologies and products. TPO (Thermoplastic Polyolefin) roofing systems are rapidly gaining market share and acceptance in the U.S. today. Like any product, these TPO membranes have advantages and disadvantages that require careful consideration and evaluation before installing them on your facility.

Developed by the automobile industry in the early 1980's, TPO's began to emerge in the 90's as a viable alternative to the black, EPDM roofs popular

during this time. Advocates of TPO systems cite many benefits including greater seam strength, higher thresholds for punctures, ponding, and chemical damage, and energy savings from increased reflectivity. In addition, it is installed using very wide sheets, limiting the number of required field seams. Schools, hospitals, and retail centers prefer the less disruptive nature of TPO installation, since the harsh odors associated with traditional built up systems has been eliminated. Critics of TPO membranes point out the relative fragility of single ply roofs, the lack of historical performance data, and the fact the white membranes tend to gray quickly from airborne dirt and debris. While it remains to be seen if these TPO systems will supplant EPDM in popularity, it has the potential to become a major player in roofing today.



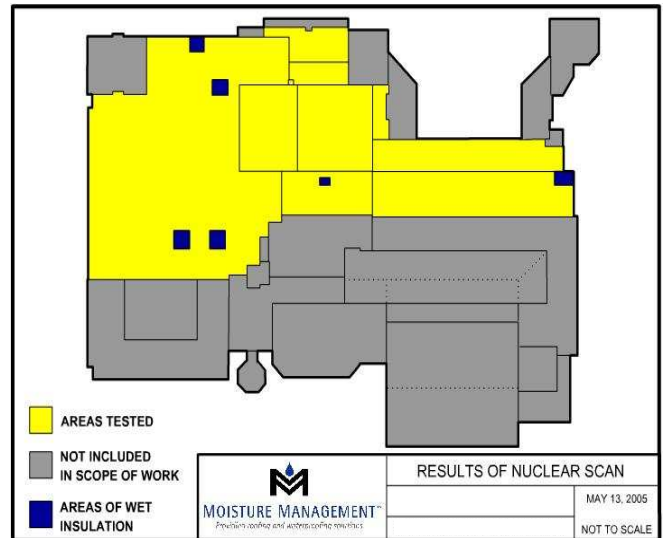
SPECIAL POINTS OF INTEREST:

- Think you are **100%** protected by your roof warranty? What you don't know may cost you! (pg. 2).
- If you have an upcoming capital project, you will need to develop a successful roof spec (pg. 3)
- Want to know more about the value of thermal imaging? (pg. 3)

CASE STUDY #1-THE SCIENCE OF SAVINGS

Later in this issue, we will discuss the value of scientific testing when evaluating the condition of a roofing system, particularly the use of thermal and nuclear imaging. In order to further illustrate this point, we offer this real life scenario where Moisture Management saved our client a large amount of money, utilizing scientific building forensics.

In late 2004, a large central Indiana school district began planning to re-roof several sections of their high school building, totaling over 135,000 sq. ft. The original plan was to remove all the existing roof components down to the deck and re-roof with new insulation and membrane. When Moisture Management was granted the opportunity to design the specification for the new roofing systems, we asked and gained permission to perform a nuclear scan for \$4,500. The results are shown in the diagram to the right. The test revealed that the roof's insulation was wet in only a few, small areas and could be reused instead of being replaced. This valuable test allowed the school to save over \$100,000 to be used in other phases of the project. In summary, the benefits of testing during the planning phase can be substantial!



THE TRUTHS AND MYTHS ABOUT ROOF WARRANTIES

When oil prices skyrocketed in the 1970's, a host of new manufacturers entered the roofing industry, bringing to market a variety of single ply roofing systems. Roofing membranes began to all look, feel, and behave alike, in essence, becoming a "commodity", an item you buy with little thought to differences in quality. For example, when you go to the produce department to buy fruit, you probably don't debate the value of Dole vs. Chiquita, you just buy a banana. When roofing materials and systems became a "commodity", manufacturers were forced to find new ways to entice clients to purchase their products. Thus the warranty arms race had just begun!

Nowadays, the roofing industry is offering the longest warranties ever seen, some as long as 30 years, while producing roofs that have an average life cycle that is the lowest seen since the introduction of modern day roofing materials in the 1930's. Based on these facts, you would assume roofing manufacturers are replacing a whole bunch of prematurely failing, warranted roofs. However, this couldn't be further from the truth.

Roofing warranties are written and enacted by the manufacturers to **limit** and **deflect** their liability away from them and to the customer. They contain numerous exceptions, limitations, and requirements, all of which are used to protect themselves from claims arising from leaking roof membranes. For example, according to the "fine print" found in almost all warranties, your warranty is null and void if you:

- Fail to report a roof leak to the manufacturer within 48-72 hours of the occurrence.
- Fail to have a certified professional contractor perform annual or bi-annual inspections of the roof.
- Use any material or roofing contractor that is not officially certified by that manufacturer.

These are just a few of the loopholes these firms use to wiggle out of responsibility for the failure of their roof to perform up to its advertised service life. If the manufacturer is unable to void the warranty due to one of these provisions, they typically blame the contractor, which starts the finger pointing, a process that the customer rarely ever benefits from. Roof warranties should be viewed as an insurance policy at best. Preventive maintenance programs offer the best protection against leaks and prematurely failing roofs. Investing **pennies** in these valuable programs can save you **dollars** later!



Moisture Management's proactive maintenance plan, Moisture Guard, allows you to begin enjoying savings and peace of mind for the modest investment of a few pennies a square foot. To learn more, schedule a free consultation with one of our maintenance specialists.

"Preventive maintenance programs offer the best protection against leaks and prematurely failing roofs"

UP THE LADDER: RUSSELL MINK



Moisture Management is proud to introduce the newest member of our Building Envelope Services Team, Russell Mink. Russell is a highly educated building envelope consultant with accreditations in waterproofing, fire and flood restoration, and thermography to name a few. Russell's main talent is his ability to look at a building as a puzzle and then finding the missing pieces that complete the waterproofing envelope. His main responsibility will be spearheading our leak investigation team, utilizing a mixture of experience, science, and technology to find and solve problematic building issues. With his unique and diverse set of skills and capabilities, Russell is a welcome addition to Moisture Management's professional team.



Russell Mink- WRT, AMRT, ASD

KEYS TO A SUCCESSFUL ROOFING SPEC FOR CAPITAL PROJECTS

When facility owners and managers begin to plan for a new roof on their building, often little time or effort goes into planning and designing the new roof system. The three most common ways roofing systems are selected are:

- 1). The roof is replaced by the same type of roof that was previously installed,
- 2). The roof is replaced with the system preferred by the owner's roofing contractor of choice,
- 3). The lowest price system is selected.

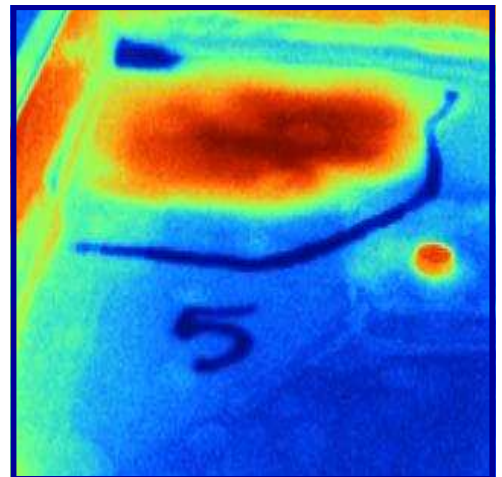


None of these options will deliver the best roofing system and value proposition to your project! The design and specification of a roofing system is critically important to long term service life. Factors such as past performance, building design, traffic patterns, climate, environmental factors, and expected service life all need to be carefully considered and evaluated. With over 2,500 roofing systems in America today, no one type of system is ideal for all situations and conditions. Moisture Management has the experience and expertise to give you roofing options that best fit your building, provide long term quality, while keeping budgetary concerns in mind. In short, the design of your roof, good or bad, can make all the difference.



TECHNICAL DATA—THE VALUE OF THERMAL IMAGING SCANS

The rise in the availability and use of thermal imaging cameras in the roofing industry has proven to be one of the most exciting new emerging technologies. Once priced out of range for most roofing professionals, these invaluable devices are becoming a standard piece of equipment. Users of these cameras are able to produce graphic images of "heat" radiating from under the surface of the roof. When water is present in the underlying insulation, the molecules retain heat longer than dry insulation does. After a sunny day, the roof is scanned, usually at or just after dusk. Wet areas will stand out red, as in the picture to the right. Scans such as these can have monumental benefits. For example, Moisture Management was able to save one of our clients over \$200,000 dollars by reusing dry insulation they were planning to discard, assuming it was wet. In other cases, the use of these scans has solved problematic leaks, prevented future problems by finding defects in a newly installed roof, and it can even spot problems with mechanical units and electrical devices. As the price of these valuable tools continue to drop, thermal imaging will soon become a standard, universal practice.





MOISTURE MANAGEMENT™

MOISTURE MANAGEMENT

10142 Brook's School Road
Suite 204
Fishers, IN 46037
www.moisturemanagementllc.com

Phone: 317-577-0910
Fax: 317-577-0912
Email: jbush@moisturemanagementllc.com

In our next issue:

- Spring Maintenance Tips
- Moisture Management's Moisture Guard PC Plus Roof Inventory Program
- When is an Indoor Air Quality Test Required?
- Technical Corner—Drain Maintenance and Repair
- Warning Signs Your Roof May Be Failing

Offering a full range of services including:

- Complete building envelope moisture solutions
- Scientific roof analysis and surveys
- Pro-active roof maintenance programs
- Specification and Design Development
- Capital Project Management and Oversight



Call today to receive your free copy of our interactive, multi-media informational CD-ROM!

CLIENT CORNER

The "Client Corner" provides an opportunity for our valued clients to share some of their experience and knowledge on topics that affect facility managers and owners. We welcome any submissions or suggestions from any qualified facility personnel.

Presenter: Rick Hunter, Supervisor of Buildings and Grounds for Franklin Township Community School Corporation

"We have found that the first step in successfully managing our roofing assets is gaining access to accurate, reliable information. Once we ascertained the basic roof information, including size, type, general condition, and the defects that need to be fixed, we began to create a strategic plan to maximize the effectiveness of our roof budgets.

Moisture Management has greatly assisted our district by helping us establish the condition of our roofs, developing budgets and specifications for remediation, and presenting this information in a professional, easy to understand format.

In all our dealings with Moisture Management, whether it concerns a small leak or a major capital project, we have received professional service, good communication, and detailed reports and submittals. I strongly recommend Moisture Management to any organization in need of a reliable, professional company you can count on".



Rick Hunter

Supervisor of Buildings and Grounds