

RECOMMENDING REPAIRS: ARE YOU UP TO THE CHALLENGE?

By David Velcheck, CCS

A meeting is set with a building owner who has been referred from a great client. The meeting goes well, and the proposal for the roof survey is returned with a signature. The fieldwork is started, and the property manager explains, "We have a few leaks, and the budget is tight; we need to stop the leaks." The fieldwork reveals a built-up roof that is fifteen years old, has several base flashing issues, masonry parapet prob-

"This roof can be repaired," or "We can stop the leaks," or does it tell the owner to get ready for a roof replacement and to take money out of the budget for buckets that match the carpet?

At times, recommending repairs and stopping leaks can be like walking a tightrope. There are numerous issues that can affect recommendations. What is the firm's liability in submitting the report? Will a lawsuit occur if the roof continues to leak?



Photo 1: Overview of repairs made to a built-up roof system. These repairs are functioning, however, as the roof nears the end of its service life, additional repair work may not be economical.

lems, evidence of previous repairs in the field of the roof, and a few blisters. Now it's time to solve the client's roof problems with that magic wand kept in a roof consultant's desk drawer — the one next to the RCI membership card. Does the report state,

How could severe climate changes affect the roof's performance? Is technical savvy or testing required for this type of roof or construction? Are there multiple problems that will need to be repaired (roof, walls, structural issues, etc.)? Are experienced repair contractors available? Will the budget support the report's recommendations? The list goes on and on. Let's take a look at a few of these issues.

Consultant Liability

Liability can have a significant impact on what is ultimately recommended to an owner. No consulting firms (that this writer is aware of) guarantee results. In these lawsuit-happy times, the roof consultant and the roofing contractor may be blamed for future leaks after recommended repairs are made. In many cases, the repairs were not made correctly, yet the contractor's price matched the owner's budget. The consultant may need to specify in the report that the repairs are to be inspected to ensure a quality application. However, the owner may feel this is a sales pitch.



Photo 2: This severely bridging EPDM base flashing is a result of a termination failure. Installing new flashings on this 12-year-old roof system will provide several additional years of roof service life.

Perhaps the roofing contractor should be asked to give a short-term warranty on his repair work regarding future leaks, essentially placing the liability in his hands. Most contractors would be reluctant to enter into such an agreement. Any additional costs for warranted repairs are typically passed on to the owner. In a perfect world, that would be the answer; however, those repairs may be more costly.

Climate Effects

The weather is a challenge when estimating the remaining service life of a roof. As a roof ages, deterioration often accelerates as the roof nears the end of its service life. Does the report include verbiage that this may occur?

Environmental conditions, such as harsh summers and winters, freeze/thaw cycles, and thermal shock can wreak havoc on the best-laid plans for leak repairs.

As an old, built-up roof begins to fail, splits occur. A split can be repaired in this type of roof, but how long until the next split, and where will it occur? These are difficult issues to address in any report, and it may be even more difficult to explain the risk involved with postponing a roof replacement.

Intense rainfalls or severe winters may also prove to be a challenge. The smallest of leaks may create large problems with long durations of rain or ponding water. The same holds true for wind-driven rain that causes atypical leaks. When field inspectors or a repair contractor are dispatched to investigate a leak, who pays for the cost to locate HVAC leaks, wall leaks, or the open roof hatch? In many cases, an invoice may help encourage

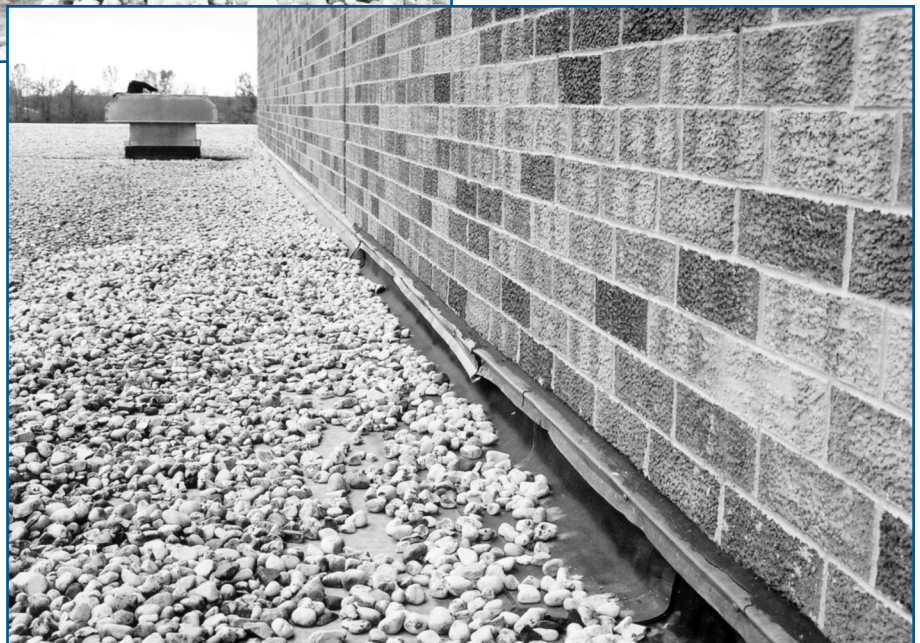


Photo 3: This EPDM base flashing repair has stopped the leaks, yet the owner was not pleased with the aesthetics of the repair.

The changes in blowing agents for polyisocyanurates may affect the performance of this type of roof insulation. Although manufacturers of this common insulation board say, "Not to worry, we did not change much," similar comments about phenolic roof insulation were made, and later, problems were seen with metal decks, cell collapse, and foam density.

With these new materials, we continue to see the same battery of tests from FM and UL. Yet, we find out how it truly performs only when it goes through many weather cycles on the roof. The shrinkage phenomenon with ballasted EPDM systems is a shining example of a well-tested membrane and not so well tested details. However, failures do not typically occur in the roof field.

Roofs fail at seams and details, especially at details incorporating sheet metal. Accessory metal not manufactured by or

the owner to use his own resources to check out the leak first before he picks up the phone. However, a goodwill gesture can often serve as an effective marketing tool.

Technical Expertise

With the advent of single ply technology, consultants are continually challenged by the new and "improved" roof systems. What are we going to see from the new generations of TPO membranes? The same questions holds true for changes in the width of membranes that are mechanically fastened. As much as one may try to stay current, consultants may find themselves lacking the information necessary to answer such questions.



Photo 4: Severely bridging EPDM flashing is tearing away from the wall termination. A flashing replacement will prevent leaks and avoid a premature roof replacement.

"through" a roof system manufacturer is rarely covered under the terms of a warranty. The best warranty in this case is the one given by the contractor who has faith and confidence in the materials he fabricates and the workmanship required to install it.

Beware of emotions playing into the recommendation equation. Biases may develop because of a sales rep's promise or poor customer service. A consultant must believe in what is observed on the rooftop, not heard in the office. Many roofs perform well but may not be new, glamorous, or state-of-the-art. In the mid to

(i.e., infrared surveys of ballasted roofs) or false positives may occur (excessive bitumen areas with nuclear or infrared), but it can be a useful tool in recommending repairs or replacement when used and interpreted correctly.

Evaluating a physical sample provides an empirical determination of the roof's composition. Be wary of only single samples and look out for repair areas or even partial replacements. A test cut can only tell what the roof construction is in that location.

Determining the presence of tapered insulation will take a minimum of two test cuts. Always be sure to check with the owner for warranties before removing the "core cutter" from the tool bag.

As a consultant, making recommendations for a roof depends on experience. Observing the long-term performance of a variety of roof systems gives the knowledge needed to assist the owner in predicting the future of one of the most costly assets on his building.

Multiple Problems

When the owner calls for roof leak assistance, is the water or leakage always coming from the roof? As discussed previously, water entry into a building may not be from the roof. Many roofs are replaced or extensively repaired because they appear to be leaking, only to have leakage continue after the new roof is in place. It is crucial to determine leak sources before making a blanket recommendation for replacement. Many leaks are caused by rooftop units, walls,

late 1980s, one developer stated that a roof consulting firm was old fashioned in recommending a built-up roof in lieu of a ballasted single ply. The developer would gladly retract that statement now.

One tool in assessing a roof system is the use of non-destructive testing (NDT — infrared, nuclear, capacitance, etc.). Although these methods are typically used for moisture detection, they provide a starting point for analyzing large roofs with numerous sections and can help determine where leakage may not be relevant, such as recovers or where a vapor retarder is used. Keep in mind NDT may not always work

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windows, interior piping, drains, condensation, etc., and not the roof. Although this may seem foolish at first, a leak test or temporary repairs to leaks before the replacement may be money well spent. Budget constraints are always important, but avoiding a costly roof replacement is money well spent. Temporary repairs may allow the owner time for budgeting, project scheduling, and proper roof replacement construction documents to be prepared.

Be conscious of technical strengths and weaknesses. If walls are involved, should that be the roof consultant's issue to address? The same goes with rooftop units, windows, vapor drive issues, etc. When additional expertise is needed, set pride aside and retain the services of others as part of the team.

Repair Contractor

The repair contractor can be an ally or an enemy. The contractor's capability and experience are critical in repair work. To repair the roof without causing further damage and to make required tie-ins will test the ability of the contractor's field personnel. Nothing is more embarrassing than having a roof leak worse than it did before the repair contractor started (or so I have been told). A meeting and references may be in order with a new or unfamiliar contractor. The references should be repair projects, not reroofs or new construction work.

The repair contractor may bring along his own biases and salesman to the repair project. He may be more interested in selling a new roof than making the repair. His understanding and confidence in what has been recommended are also necessary. If the repair contractor does not embrace the role of a roof consultant or the consultant's technical ability, this will serve as his introduction to the owner. In addition, the contractor may not want to take the chance of "inheriting" future leaks for which he may or may not be paid. This is a risk for both parties. The repair contractor in many ways becomes a partner in the repair adventure.

Latent conditions are another consideration in the repair process, especially for the contractor. If spudding is required, can the original felts withstand this work, have they been resaturated, and will the tie-in be watertight? How large is the area of wet insulation? Where is the water entry point? For the contrac-



Photo 5: The repair to this roof system included removal of the loose aggregate surfacing. With the surface exposed, advanced deterioration of the organic felt is evident.

tor, these unexpected additions can be costly. If there is a sense of trouble in the repair work or if the consultant appears unsure, the prices will skyrocket for the owner, or significant change orders may occur.

For effective repairs, make sure all of the roof conditions are understood. A repair specification may seem unnecessary; however, it will contain the costs, and the project will be more clearly understood for all parties involved.

The Budget

"Is there money in the budget?" is a common question as roof issues are discussed with the owner. Fortunately, there's almost always money in the budget. But is it in the right place? Years of budget cuts have left many roofs in poor condition, usually ignored, and not maintained until they leak. Unfortunately, the magic wand in the consultant's desk does not make budget problems disappear.

Be careful of quick fixes and ineffective repairs just to get by. Making leak repairs until the roof can be replaced may be reasonable, but for how long? Play it safe by placing limitations on temporary repairs and their effectiveness.

Also, does the budget impact the recommendations? In the effort to look good to a client, beware of recommending an inexpensive roof to an owner in order to "fit" the budget. This is a dangerous line to follow. A short-term victory may cost the consultant and the owner in the long run. What are the long-term plans for the owner and the building? Some timely questions, before submitting the report, may save time and embarrassment.

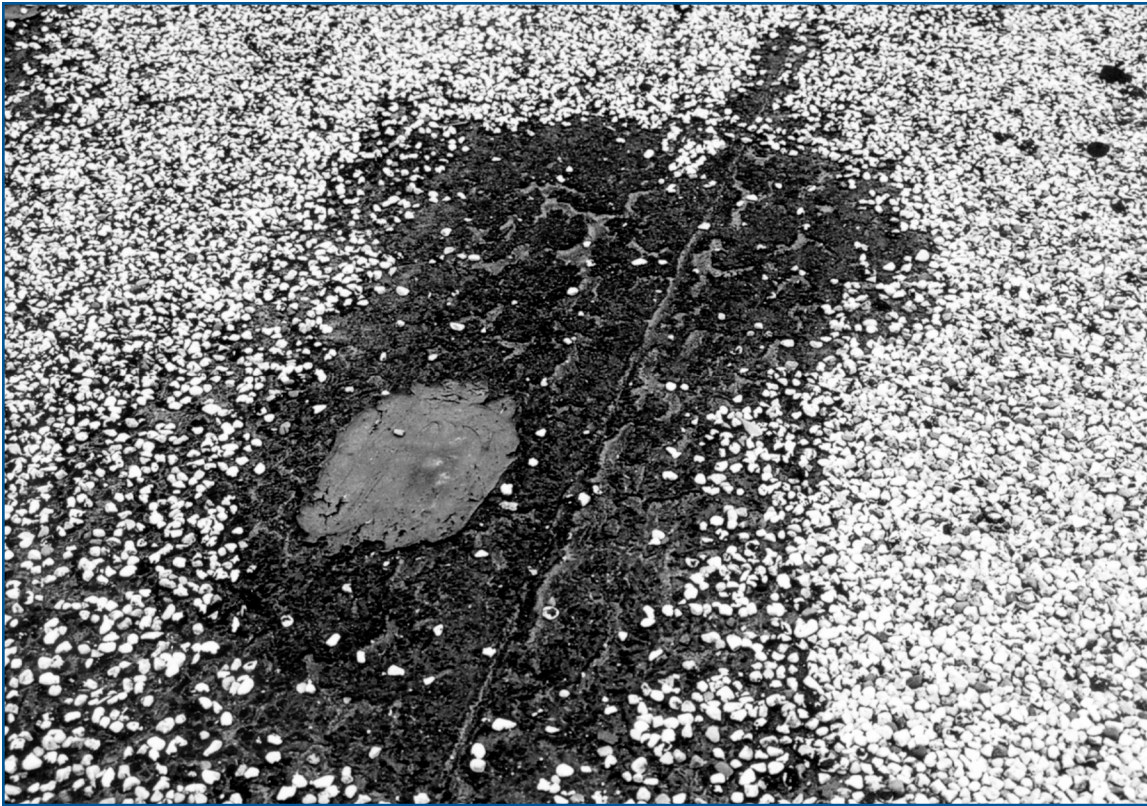


Photo 6: This improper repair may prove to be costly to this aging built-up roof system. With the aggregate removed for a roof cement repair, the area now becomes the roof's weak point.

The owner's occupancy may also be a key component to consider. Will employees or tenants leave due to intolerable odor and noise from repairs or reroofing? It is difficult to support the budget when a shutdown occurs due to roofing issues? In many cases, simple notification to the employees or tenants may reduce the complaints during the roof project.

The budget will always be an issue. But keep in mind why a roof consultant is hired. The owner needs unbiased facts by a professional, well versed in his industry. Present the facts to the owner, brutal as they may be, to preserve your

integrity and your business.

Summary

Repairs to roofs can certainly be a challenge. Consultants are faced with managing liability and technical requirements, while predicting climate effects, repair work, durability, and performance. Remain true to the task that a consultant is hired to assist the owner by providing the facts in an objective fashion. Know the technical and logistical issues at hand and address them in a professional manner. Then, recommending effective repairs will no longer be a challenge. ■

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David Velcheck, CCS, is the Director of Marketing for INSPEC, Inc., in Milwaukee, Wisconsin. David is a 1989 graduate of the University of Wisconsin, Platteville, with a BS in Building Construction Management and a minor in Business Administration. His Certified Construction Specifier (CCS) status was achieved in 1992. Mr. Velcheck has been employed in the roofing industry for over 12 years. His background includes roof consulting, technical sales, and roofing contracting. INSPEC is a professional engineering/architectural firm specializing in roofs, walls, pavements, and waterproofing with offices in Milwaukee, Wisconsin, and Minneapolis, Minnesota.



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