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No Margin for Error: What Associations Should Know About Roof Replacements

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As a result of failures of Fire Retardant Treated Plywood (FRTP) and severe ice damming occurrences, Association Boards have become increasingly familiar with roofing materials, repair/replacement projects, and related terminology, such as *Ice and Water Shield* and *Required Venting*, which describes these situations and their prevention. A roof replacement project is probably the most important reconstruction program undertaken by an Association during its first twenty (20) to thirty (30) years; more than a few Associations have spent hundreds of thousands-and in some cases-over a million-dollars on roofing improvements and/or replacements within the last few years. In light of these circumstances, it's hardly surprising that roof repair and replacement projects have become a frequent discussion topic of Community Associations. Accordingly, the purpose of this article is to offer guidance to Associations considering roof repair/replacement projects.

As with any reconstruction project, roof repairs/replacements should be carefully planned and conducted to produce the highest quality results, with minimal inconvenience and disruption to residents. Like many other common elements, each roof system has potentially unique components and design considerations requiring special attention. A generic or "boilerplate" roof design or repair/replacement specification does not exist

and is never appropriate; using such an overly simplified approach can, and invariably does, result in problems and increased costs, whether immediately, or in the future. And, although these problems may go undetected for years, this latency only delays what ultimately becomes a huge financial and capital project burden to an Association. For example, problems are now arising from deficient roof replacement projects of the early nineties. This is unfortunate; even more frustrating is the knowledge that such problems are avoidable.

It's OK to Seek Professional Help!

There are several very important aspects of a roof replacement project that must be followed to ensure that the project fulfills its objectives—and stays within its intended budget. Key to the process is effective project planning and management. Lapses in these crucial functions can manifest themselves by adding labor/ reconstruction expenses and more importantly, potentially compromising quality of the new roof system. Therefore:

- The Board should ensure that, as part of a comprehensive quality control effort, a qualified professional is retained, and made responsible for, preparing suitable, cost effective, Association-specific design and construction specifications for the proposed improvement, along with appropriate supporting project plans and documentation
- The professional used by the Association should possess project expertise with a range of services including preparation of contracts and specifications, construction management, quality control of workmanship and materials, and inspection expertise related specifically to multifamily roof systems.

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Additionally, Communities undertaking roof repair/replacement projects should confirm that the professional:

■ **Verifies that the specifications to be prepared are Community-specific.**

Each Community has unique requirements which should be reflected in the reconstruction project plan. It is important to ensure that a roof system will meet all of the warranties for the new materials installed. Flashing details, ice shielding and venting requirements will vary significantly by building type, so each Community should receive a plan tailored to its specific situation.

■ **Ensures that proper construction practices will be used for venting, flashing, or waterproofing.**

Improper practices/poor workmanship may void the shingle manufacturer's warranty, cause premature degradation of the shingles or sheathing and create future leaks, when the contractor and professional are no longer available to rectify them, significantly compounding the problem. These issues should be properly addressed at the time of the replacement to eliminate future problems.

■ **Justifies and documents material choices.**

There are dozens of material variations to be considered in preparing a specification. Material recommendations should be situation/condition-specific, rather than that which is simply "usually" specified. This applies for even apparently minute details; for example, the shingle manufacturer, shingle type, and installation procedures should be analyzed and evaluated on a project-specific basis. Shingles have a variety of characteristics that may make one product superior to another—depending upon the time of year applied, pitch of the roof, and other existing site and building conditions, as well as price. This attention to detail in the design phase will ensure optimum performance and help to maximize the useful life of the roof system.

■ **Confirms that qualified inspectors are being used at all times— and at roof level.**

Variations in original construction practices often require field decisions to be made, at roof level, by qualified personnel in coordination with the Community. For example, while Boards would logically desire the project plan that provides the lowest cost and fastest completion time, such assertions must be carefully evaluated:

- Although there are many very qualified roofing contractors, in large-scale construction efforts, choices can be made which introduce mistakes and thereby sacrifice "quantity for quality"; this often occurs when sub-contracting crews are hired and compensated by the main contractor based on the quantity (number of roof squares) completed each day. Therefore, it is essential to conduct proper inspections to eliminate shortcuts which seek to increase production quantities at the expense of quality. Absent such inspections,

potential workmanship deficiencies can go unnoticed because the roof system is closed (and "out of sight") so that the potential problem is literally covered up. Years later, should problems emerge, remediation is often costly and complex.

- It is essential that contractor productivity not overwhelm the inspector(s). The inspector can only thoroughly and properly observe a limited amount of daily construction output. Rapid work production—greater than fifty (50) or even seventy-five (75) squares per day per inspector—is an unacceptable construction practice, and invites significant potential problems. It is impossible for the inspector to ensure that all work is being performed in accordance with the specifications for production quantities greater than those indicated here. To address this issue, either limited daily production quantities must be specified (and adhered to), or an increased number of qualified inspectors must be retained to ensure the roofs are reconstructed according to specifications—**for all buildings/units.**
- **Considers professional/contractor accessibility and ensures satisfactory response time standards.** Problems or leaks should not, but may, occur both during and after the roof project. Both twenty-four (24) hour availability and immediate response to these problems by the professional and contractor should be expected. No roof should be opened if rain is imminent and absolutely no roof should be left open overnight. The site should be cleaned and 100% secure at the end of each day to ensure resident safety and minimize inconvenience; again, these are essential considerations for reconstruction projects.

Although beyond the scope of this article, substantially similar considerations apply for Communities which were constructed without using FRTP, and may be preparing to replace or re-cover roofs approaching the end of their useful lives. The above issues are just as important in these situations.

Our readers must be thinking that "the attention to detail described in this article appears to be much greater than for single-family residential construction. Is all of this extra effort (and expense) really necessary?" The answer is an emphatic "Yes!" A repair or retrofit of a single home can be more easily and inexpensively completed given the relative simplicity of the project. However, there are fewer contractors with the ability, inclination and resources to provide workmanship warranties or assumption of responsibility if a mistake or problem is replicated 500 times.

Roof replacement is one of the most important reconstruction projects for which an Association is responsible. Therefore, precise attention to each and every aspect and phase of the project is essential in ensuring the delivery/reconstruction of a roof system that will be completely effective for its full useful life. Please feel free to contact me, or your Falcon representative for additional information. ■

Drainage Deficiencies: Analysis and Repairs

Andrew Amorosi, PE, RS

Many Community Association properties were originally designed with drainage plans allowing water to collect in a stormwater retention or detention facility, rather than in locations that can cause ponding or marshy conditions. These designs generally envisioned site grading and drainage that would be pitched away from buildings, and in the direction of roadways, rear lawn area swales or sheet flow drainage areas. Unfortunately, either as a result of construction cost reduction efforts, poor design, deficient surface grading, limited drainage structures and/or poor soils, many Associations now find that they have drainage issues—visible as either deficient marshy or ponding water conditions.

In addition to the resulting unsightly conditions, there can be real economic cost, and potential health risks associated with poor drainage/saturated land areas. Therefore, proper identification and repair of these areas should be a goal of both new (transitioning) and existing Communities. Since there are distinct issues affecting new, versus existing, Communities, both are addressed separately in this article.

Transitioning Communities: Beware of the Visual Inspection!

Newly constructed Communities have the luxury and opportunity provided by the transition process to help repair and rectify some or (hopefully) all of their drainage deficiencies, and alleviate potential future drainage-related problems and expenses. Usually, all areas of a new site, especially newly sodded areas, will appear to be properly draining. Often the deficient drainage areas only become visible (through marshiness and unmaintainable conditions) years after the Community is complete. Therefore, it is essential for the transition engineer to conduct a thorough critical analysis of deficient conditions in order to effectively advocate for the Association.

Existing marshiness, especially in new construction, is one of a variety of deficient drainage warning indicators, including:

- Contributing drainage area size (amount of runoff entering an area)
- Soils types and conditions
- Grade slopes and swale definition.

Each of these conditions should be thoroughly inspected and analyzed to ensure they are part of an effective drainage system.

Effective site drainage (and detention facilities) design and construction allows for accumulating water to drain gradually. This approach helps to minimize potential saturation problems. Logical

“water collection points” that are subject to large contributing drainage typically are either low or flat areas, and/or have poor soils (slow, or no, permeability). These conditions create a virtual certainty for constantly saturated land areas after storm events. Over time, these areas will become unmaintainable and unsightly.

Ironically, during the transition, even stormwater detention facilities are often misdiagnosed for drainage adequacy. An initial visual inspection of potential problem areas, especially by an untrained eye, will generally provide insufficient evidence to document deficiencies. This “casual” approach often creates a future financial burden to the Association (and residents!) as repairs become necessary.

“In addition to the resulting unsightly conditions, there can be real economic cost, and potential health risks associated with poor drainage...”

For example, typical detention basin design standards indicate a minimum bottom slope of two (2) percent, which should be specified on design plans to ensure proper drainage and to prevent ponding or lawn area saturation. Similar to site grading, visual inspections made solely to detect ponding may appear to indicate a well-drained basin. However, over time, the recharge capability (permeability of the basin bottoms) degrades due to siltation and oil deposits; unless the grades are positive and effective, the basin becomes saturated and unmaintainable, often with ponding lawn areas that become overgrown and unsightly. Ponding water can also be a haven for insects and/or rodents, of even greater importance with the local onset of insect-borne diseases such as the West Nile virus. Therefore, it is crucial that grading be checked by survey during the transition analysis and appropriate repairs be made in timely fashion.

Existing Communities—No Quick Fix!

If not corrected during transition, existing Communities or those with aging infrastructure are frequently saddled with the responsibility of correcting the drainage deficiencies discussed previously in this article. Correcting these deficiencies may seem straightforward, but are potentially quite complex. Since the need for proper design and representation is paramount, Associations are urged to seek the assistance of a qualified professional and contractor. It seems that all too often, Communities make hasty or ill-advised decisions regarding drainage projects, which do not properly address the problem. This frequently results in unacceptable conditions, requiring additional, and potentially expensive, remedial action.

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Drainage continued...

Drainage Remediation Considerations

Any drainage remediation project can achieve the appropriate result, while limiting inconvenience to the Community. The process should begin by preparing a plan, which consists of several components:

Proper drainage facility inspection—Determining the cause(s) of drainage problems is a must. A professional analysis defining the source of the problem is the most effective means of producing this information. Investigations should include the:

- Analysis of the existing soils
- Contributing drainage areas (amount of runoff entering the area), and existing drainage structure locations
- Existing underground utility locations/grades and limits of the deficient condition.

Appropriate, cost-effective design, construction and material specifications

Boards should be cautioned that there is no “off the shelf” solution or generic design template which can be readily adapted to the Community’s needs. Each Community has unique common elements requiring specialized attention. Proper materials (inlet type, pipe types and sizes, underdrains, etc.) and construction methods are needed to complete the repairs. Additionally, Boards would be well-advised to avoid “bandage” repairs, despite their apparent “less costly” design or materials specifications. Associations that mistakenly try to use such an approach will invariably discover that not surprisingly, in these situations, the drainage deficiencies remain (and can worsen), or new problems created by an inappropriate design or materials will likely emerge. The best “ounce of prevention” in these situations is for an Association to seek efficient, customized design plans, and proper construction and materials specifications. This approach will **always** provide the best solution.

*Frequently, drainage repair includes the use of small plastic drains and shallow piping. These yard drain and small diameter piping systems are typically intended for small landscaped beds and **are not** effective in addressing larger drainage deficiencies for a variety of reasons:*

- *Small diameter discharge pipes have limited capacity and are subject to siltation, clogging, and damage (from landscaping equipment and the elements), due to lack of cover and pipe slope*
- *If the contributing drainage area is large, the system will fail due to “system overload.”*

Any repair should always include a detailed analysis, an exact and effective plan and specification of the repair to ensure a positive result for the Community.

A realistic project financial plan—Projects of this scope require a financial evaluation to determine the appropriate source of project funds, as well as, the impact on the Association’s budget. This plan should be developed in conjunction with the Association’s Accountant and Management.

We appreciate Boards’ responsibilities to balance quality of life issues with careful financial discipline. It is precisely for these reasons that we recommend “doing the job right the first time.” The expense incurred for a proper, permanent drainage solution should be viewed as “money well spent,” especially when compared with the cost of potentially repeated, ineffective repairs, possible property damage and even health risks. Additionally, fixing drainage problems can enhance a Community’s overall aesthetics and maintainability, which in turn can help keep residents satisfied while preserving unit market values. Experienced professionals, effective design and qualified contractors are all essential to the process of achieving the desired drainage solution. Please feel free to contact me, or your Falcon representative for more information. ■

What's New?

Chris Miller has received NJ Certified Fire Protection Inspector’s license #008642. Chris is responsible for the firm’s fire protection inspections, flat roof, high-rise building facade, waterproofing, and restoration departments.

David Chesky has received his NJ Building Inspector license. David is responsible for construction inspection of the firm’s site design projects and plays a key role in the preparation of the firm’s capital reserve and transition analysis studies.

William Pynzar, Principal, was recently appointed as Vice President of the Community Associations Institute-NJ. Bill has been active in the organization for 12 years.

Leanne Walters was recently married. Leanne is part of the firm’s outstanding administration department.