ROOFING

Common myths and misconceptions about roofs

by erin a. kesegi

A building's roof is its first line of protection against the elements of rain, sun, and wind, but it is usually the last thing a building owner thinks about until there is a problem. But those problems can lead to major issues that affect the integrity of the structure and comfort of its occupants. It can be challenging for a building owner or facility manager to stay well-versed in the various types and configurations of roof materials and systems, but a little knowledge can go a long way in helping an owner or manager see through myths and misconceptions about roof systems. Separating fact from fiction is important to prevent future headaches and erroneous, and potentially costly, decisions.

- Don't take drains, gutters, and flashings for granted.
- Ignorance isn't bliss when it comes to your roof.
- When is recovering an option?

Here are some common myths and misconceptions about commercial and institutional roof systems.

Myth: All roof systems are created equal

Selecting a roof assembly for replacement isn't necessarily as simple as re-installing the same system, nor is it sufficient to select a promising product seen at a conference or used on the building next door. When selecting a roofing system for their buildings, most building owners and facility managers focus on cost, durability, construction schedule/logistics, and maintenance projections. Given the condition and composition of the existing roof, the climate and geographical location of the building, the configuration and style of the roof area, and the needs of the building occupants, some factors may weigh more heavily than others. The roofing design professional should provide building- and system-specific details and specifications, so that the design accounts for site and building conditions that may demand special treatment, such as unusual configurations, strong wind uplift, or numerous penetrations.

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Roof design detailing must account for building-specific needs, such as the presence of many penetrations.

Myth: 'Flat' roofs are prone to leaks

Flat roofs are not actually flat. This type of roof requires pitch to be built into the system to allow it to shed water. The minimum recommended pitch to provide adequate drainage is a quarter of an inch of rise per one foot of run. In order for flat or low-slope roofs to shed water, drains, scuppers, and gutters of sufficient size and number must be provided. A well-designed drainage system and properly pitched roof will prevent

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Regular inspections can prolong the life of a roof by identifying problems such as clogged gutters, which can lead to leaks below the roof and behind walls.

the possibility of leaks into a building. When designing a flat roof, an architect will often work with a structural engineer to design the roof in a manner to adequately support the weight of snow. Factors such as the building's location, exposure, and existing structure are all considered when determining the capacity of a roof system to support the additional weight of collecting and drifting snow.

Myth: There is no such thing as too much insulation

One would assume that the more insulation on a roof, the better it will perform. In fact, insulation beyond what is required can trap moisture under the roof and result in significant damage. Trapped moisture may cause a roof to warp or rot and can also allow for mold growth. It's important to review applicable building and energy codes to provide the proper amount of insulation.

Myth: Wet insulation can be re-used

Wet insulation is failed insulation. Once it becomes damp or saturated it is no longer performing its single function of providing thermal protection. Wet insulation can also cause deterioration in the roofing materials above and below, resulting in a total failure of the roof system. Wet insulation must always be removed and discarded prior to repairing, re-covering or replacing a roof.

Myth: Any contractor or handyman can install or repair a roof

As part of the roof selection process, manufacturers should be contacted to identify certified contractors and to determine the training requirements for contractors wishing to become certified installers. Specifying a product without hiring a contractor certified by the manufacturer may preclude issuance of a warranty. At best, an inexperienced contractor's efforts can incur additional expenses for time and materials; at worst, the roof system might be incorrectly installed, leading to premature failure.

The construction team also needs to be well versed in the basics of roof replacement procedures. Too often, "experienced" construction teams adopt practices they've used in the past in lieu of following design specifications, even when their methods are inappropriate for the situation or even unsafe. That's why a field representative, generally the roofing design professional, should be available to observe installation.

Myth: New roofing systems can always be installed over existing systems

The first decision to make in the reroofing process is whether to tear off the existing roof and start from scratch, or to leave the old system in place and lay the new one on top. The best results are gained from complete replacement, as this not only eliminates the possibility of trapping moisture in the old system, but it also allows for a thorough inspection of the roof deck. Before the new system is installed, any deterioration in the substrate, such as rusted steel or spalled concrete, can be remedied.

Recovering can be a viable option in some special circumstances. A recover project offers a lower cost and shorter project schedule than does a tear-off and replacement. As

there are fewer removed materials, disposal is simpler and therefore more economical. And in cases where the contents of the building are so critical that they cannot be exposed to possible water damage for even a short time while the existing roof is removed (as in a museum or rare book library), recovering makes it easier to maintain a water-tight structure during reroofing.

A qualified roofing design professional can determine whether recovering is feasible by examining both the existing structure and relevant building codes. In general, the basic conditions to be met are as follows:

- The structure is able to safely support the added load of the new roof.
- There is no trapped moisture in the existing roof covering and insulation.
- There are no more than one or two (varies by local code) existing coverings on the structure.
- The roof deck is structurally sound.
- There is a means of positive attachment of the new roofing system to the building structure.
- Existing flashings are replaced when the new roof is installed.
- Fire resistance and wind uplift requirements are maintained.

Once the go-ahead for a recover project has been given, options for the new roofing system must be evaluated in terms of system compatibility. Manufacturers provide recover specifications which indicate how to prepare the existing system and how to attach the base of the new system to the structure.

- Flashing doesn't require attention until a new roof is installed.

As the adage goes, a system is only as strong as its weakest part. This is especially true when it comes to roof flashings. It is often assumed that, since most roof counter flashings are made of metal, they are strong enough to last for a significant amount of time before requiring replacement or repair. Many times, the flashings are only addressed when an entirely new roof is being installed. In fact, flashings can deteriorate quite quickly if not installed or maintained properly. Loose, cracked, or broken flashings can allow water to penetrate behind a wall surface or below a roof membrane. Periodic inspection of the flashings will allow for identification of potential issues before they become larger problems and result in leaks.

Myth: A warranty is the best protection

Warranties have an enticing allure, and they seem simple enough: You pay extra, and your roof is guaranteed not to leak. But what if it does? It might not be as easy as you would think to goad a manufacturer into sending an inspection team to look at the roof, much less fix it. And all too often, legal battles ensue while installation procedures are scrutinized to determine if all materials and methods fit the terms of the warranty agreement. Even if the manufacturer does perform warranty repairs, it's possible that the same roofing system defect could fail again — and this time, it could do so outside the warranty coverage period.

The best guaranty of roofing durability is not an expensive warranty, but rather a roof system that is well designed, manufactured, and installed. Warranties are largely

reactive, rather than proactive, and shouldn't distract from proper specifications and application. Looking into the requirements for a long-term warranty, however, can bring to light potential weaknesses in a product or technology. For example, if the warranty requires extra provisions in installation procedures or details for certain areas, it would be prudent to pay special attention to those weak spots.

Myth: Gutters and drains are separate from the roofing system

Roofs must be designed to divert water from the structure. Drains prevent the ponding of water on the surface of the roof to avoid overloading the structure. Gutters and downspouts are similar, in that they transport water from the roof and away from the building's facades and foundations. A roof's drainage system must be properly designed and installed to prevent the damage and deterioration of the roof system and structure. In addition, it is vitally important that drains, gutters, and downspouts be cleaned regularly to prevent the back-up of debris and sediment. Clogged drains and gutters can result in leaks below the roof and behind walls.

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A comprehensive survey of roof conditions at Fairfield, Conn., public schools evaluated roof assemblies and provided condition summary reports and a roof preventive maintenance manual for the town's sixteen schools.

Myth: New roofs do not require maintenance

The National Roofing Contractors Association (NRCA) recommends maintenance and repair be performed at least twice a year as well as before and after severe weather seasons and events. Typical maintenance includes removing debris from the roof, drains, and gutters, and repairing any damage to roof coverings and flashings. Failure to regularly inspect and maintain a roof can result in leaks, which may in turn void a warranty. Many warranties require yearly inspection and the regular performance of repairs to remain in effect.

Myth: Roof inspections are not required unless there are signs of damage or leaks

While that's not an unreasonable approach, most building owners and facility managers will find that planning ahead for roof maintenance and replacement, and responding promptly to signs of deterioration, actually saves money and reduces downtime. By the time a leak is detected at the building interior, water has likely saturated insulation and damaged structural elements, framing, and drywall, to the point that repairing water damage can be more expensive than fixing the leak.

The best way to keep roofing costs under control is to inspect the structure frequently over the life of the roof. By catching little problems early and repairing them, building owners and facility managers can usually add many years of useful life to the structure.

Myth: There is no need to consider replacing a roof before it fails

Replacing an aging roof assembly before problems arise might seem an extravagance, but it can be fiscally responsible. Advance planning allows the prudent building owner or facility manager time to evaluate the available options, in order to make the best choice for the budget and the building's needs. Emergency reroofing rarely affords that luxury.

With so much misinformation circulated about roofs, it can be a challenge to tell good advice from bad. Knowing when the time and effort spent on routine inspections, roof system evaluation, flashing and drainage maintenance, and other roof management tasks is worthwhile, or whether resources are better spent on other, more visible parts of the building, can be tough to assess. By taking a few minutes to consider roofing assumptions, building owners and facility managers will likely save resources in the long run, as many closely held notions about roofing are as wrong as they are damaging.

The straight talk on roofs is that there are no easy answers: The best way to prolong roof lifespan is to design appropriately, install correctly, and maintain diligently. And that's no myth. ■

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