

# Complete Roof Performance

## It is about more than just shingles

*By Neil Robinson, TAMKO Building Products, Inc.*

The roof acts as an umbrella for a house. It is the first line of defense in protecting a home, its inhabitants and its contents against the elements. The roof sheds water, provides shade, acts as a wind-break and is part of the overall weather barrier of a home.

Roofing professionals generally agree that an effective roof system requires proper design, quality materials and quality application to perform effectively. Just like a car, a roof system is built from various parts all working harmoniously together to provide comfort, save money and extend the life of a roof. How well does your car work with a flat tire? Similarly, a roof system is only as strong as its weakest component. Missing underlayments, poor quality shingles, inadequate ventilation and other similar problems can lead to serious issues.

Complete roof system performance is achieved by each part providing an important and specific attribute to the overall roof. There are at least seven different parts to creating and maintaining every roof system.

### **Rain Protective Underlayments**

The primary design of a roof system includes features that match the weather conditions in the area. In hurricane-prone areas, wind-driven rain is a common cause of roof leaks. Using products such as self-adhering SBS (styrene-butadiene-styrene) modified underlayment along rakes and eaves, as well as in valleys, creates a durable barrier to help prevent water from penetrating the wood roof deck and entering the home.

It is important that this layer provide as much strength as possible. Fiberglass re-enforced SBS modified products used in many rain protective underlayments, are stronger and provide better tear resistance than standard saturated felt. There are certain types of fiberglass re-enforced underlayments that self-adhere directly to the plywood deck for fast and easy installation.

Some fiberglass re-enforced SBS underlayments also have a high temperature resistance up to 250°F. This helps protect the integrity of the product and ensures that the underlayment will do its job in environments that are prone to heat.

### **Underlayments**

One of the attributes of an umbrella is water protection. However, umbrellas are not 100 percent waterproof. In the same way, shingles are also not 100 percent waterproof. Although they are designed to shed the water off the roof, there is still a level of moisture that can manage to get underneath the shingles. The underlayment layer of a roofing system acts as the moisture barrier against the water that gets under the shingles.

Underlayments are either organic or synthetic based material that is placed on top of the plywood decking before the shingles or other roofing materials are installed. For environments that are not as prone to wind-driven rain, a standard saturated felt underlayment may be sufficient. Many underlayment products are self-adhered to add speed and convenience in application.

This layer is an essential part of the primary protection system. Without underlayments, the moisture that gets underneath the shingles can cause the wood deck to mildew or rot.

### **Shingle Starter**

One of the quickest and most convenient ways to install shingles is to begin with a shingle starter. Shingle starters are a pre-cut shingle installed at the eaves and rake edge of a roof below the first row of asphalt shingles. They provide a precise start to the shingle installation as well as added protection by sealing and securing the first course of the visible roofing shingles at all the roof's edges.

### **Quality Shingles**

Shingles are the primary layer of protection in a complete roofing system. Relatively easy to install and widely available, asphalt shingles are today's most popular roofing material. They are appropriate for any climate, are wind-resistant and easy to maintain.

Asphalt shingles are available in many styles and price points and cover approximately 75 percent of all residential homes in the United States. Due to technological advancement, asphalt shingles have an aesthetic design and can add architectural curb appeal and value to a home.

The basic asphalt shingle is a three-tab shingle. It is available in many colors, but offers limited textural interest. Architectural shingles are laminated asphalt shingles, which bring depth of color and texture for a more natural appearance. Many homeowners choose an architectural shingle for the look and minimal cost difference compared to three-tab shingles.

Regardless of the type, style or color that is selected, every asphalt shingle purchase should include an evaluation of limited warranties. Warranties mainly cover manufacturing defects; for example, granule loss and thermal splitting. Manufacturers offer a wide range of warranty coverage. Make sure that the cost of labor for shingle repair or replacement is considered. It will pay off in the long run to compare warranty coverage before making a purchase decision.

### **Hip and Ridge Shingles**

A car would not be complete without the seal around the doors and windows. Although it is a small detail, the seal becomes an essential component in regulating the moisture intake and temperature of the car. In the same way, to reinforce the protection already provided by the roofing system, hip and ridge shingles are often added in critical areas.

Although every roof design is different, the hip of a roof is defined by the external angle formed by the intersection of two sloping roof planes. The ridge is the highest point of the roof that runs the length of the roof. These particular areas form the seams of the roof where moisture can accumulate or seep through a crack. It is important to add extra reinforcement to ensure the proper seal to the roofing system.

Adding hip and ridge shingles in a complementary color will also cap off the beauty of a roof. Since the investment has already been made on quality shingles, it is essential to finish off the look in a uniform manner that will accentuate the roof. Hip and ridge shingles are also pre-cut for quick and easy installation.

### **Ventilation**

The air conditioner and heater help maintain a comfortable temperature for the driver and passengers. Proper ventilation of a roof serves a similar purpose and is crucial to the life and effectiveness of every roofing system.

Ventilation of a roof must have an equal balance of intake and exhaust for it to work properly. Similar to your need to inhale and exhale, the attic space needs to breathe in and breathe out to provide proper ventilation.

The intake comes from the overhang through soffit venting, with the exhaust or outflow being through roof exhaust vents located near the top of the roof or at the ridge. Lack of proper ventilation is one of the most common reasons for premature roof failure.

With proper, unobstructed ventilation during the warmer months, attic spaces are kept cooler. This can have a positive impact on energy bills, potentially reducing a home's cooling load. It can also extend the life of roofing materials, because excess heat in the attic can cause shingles to warp or breakdown prematurely.

During the colder months the airflow helps keep moisture levels down. In the winter, moisture can make its way into the attic space from sources such as the laundry, shower or humidifier. In the absence of adequate ventilation the moisture can lead to rot, mold, or mildew.

Options for ventilation include both sectional ridge vents and continuous ridge vent offerings. Some ventilation products feature a compression-resistant design for easier nailing and nail lines for convenient and accurate installation.

### **Cements and Sealants**

Just like a car must receive regular maintenance to ensure that all of the parts continue working properly, it is important that a roof system receives the same attention. When inspecting a roof, there may be need for

cements or sealants to help prevent, seal or stop leaks in critical areas on the roof. Cements and sealants are most commonly used in flashing details, finishing or maintenance/repair needs. Although this component may seem small in the big picture of the roof, it can be important in the longevity of the overall roofing system.

### **Finish the Job right**

Although parts of a car can be purchased separately, it is important to remember that they must all work together in order for the car to function properly. The best way to ensure proper functionality is to purchase the parts together. The same is true with an umbrella. You wouldn't buy an umbrella in pieces.

The same can be said for a complete roofing system. A roof is more than just shingles. Therefore before installing a roof, be sure to consider the other six components that will guarantee the roof will provide complete roofing protection.

The best way to find what roofing system is best for a specific region is to obtain consultation from a licensed, bonded and insured roofing contractor. Once careful consideration has been given to the proper roofing materials, it is important that a professional complete the installation to ensure that the roofing system will perform to its maximum ability. Roofing professionals will be able to offer the expertise on building codes that must be followed during the installation of a roof.

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*Neil Robinson is currently the creative director of marketing at TAMKO Building Products, Inc. He holds a bachelor's degree from Ozark Christian College in Joplin, Missouri and has worked for TAMKO for more than 26 years as a Technical Services Administrator and in various positions in TAMKO's Marketing department.*