Westshore Roofing, Inc.

A step by step guide on how we construct an

Asphalt Composition Shingle Roof.

Two popular shingle designs

Step 1
Remove & dispose of the existing cedar wood shake roof.

In most cases wood shake is traditionally installed over ‘’skip sheathing’’ rather than a solid wood deck.

This allows shakes to breath, maximizing their lifespan.

We respect your property

Tarps are placed around property to protect landscaping

Step 2

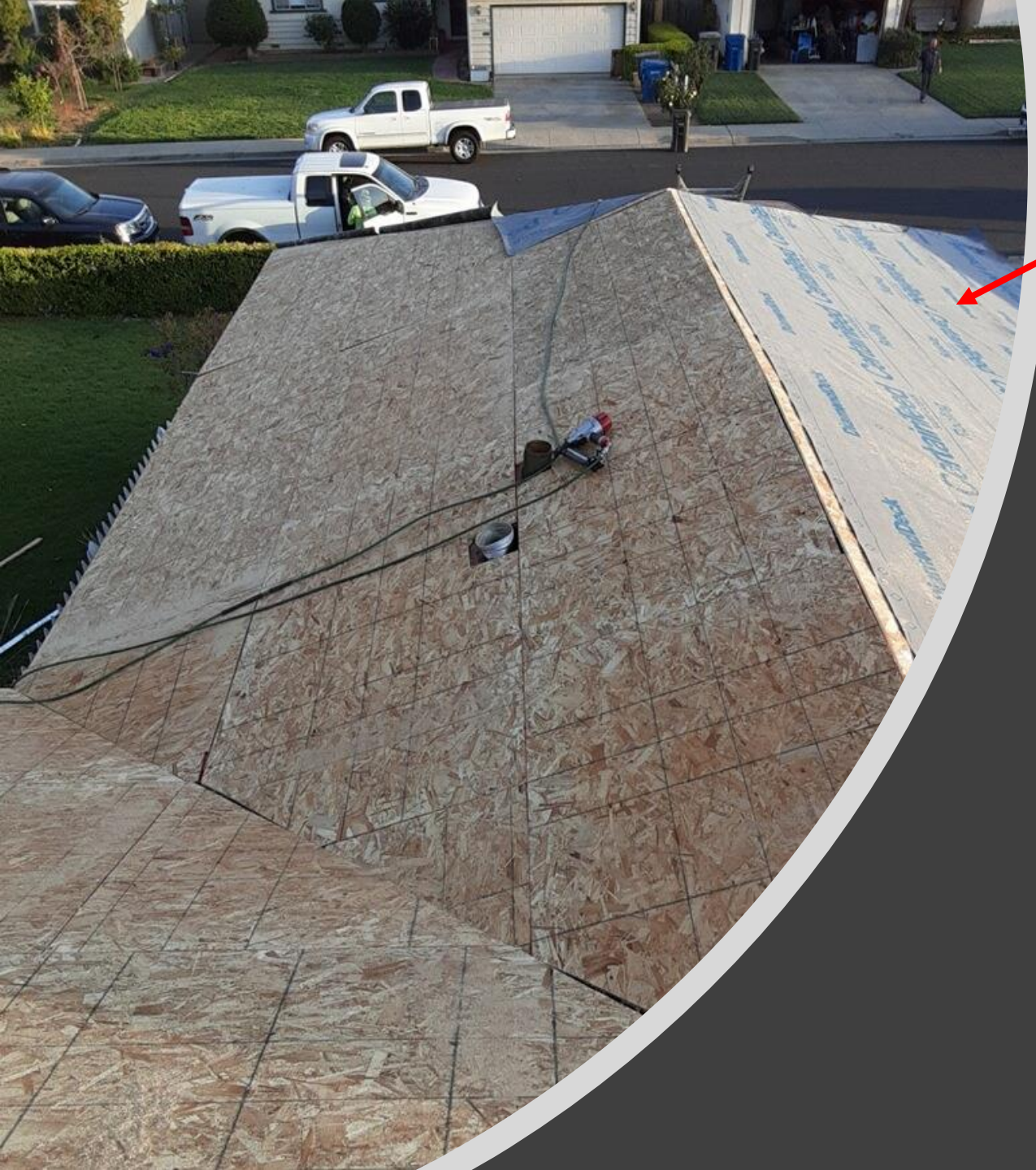
Inspect roof deck after roof removal for termite/dry rot damages.

Here, perimeter eave board decking has evidence of termite damage and will be replaced with new.

Step 3
Repair/replace damaged decking @ rafters.

Step 4

- Install new 1x4 lumber between existing as needed in preparation for supporting edges of new plywood decking.

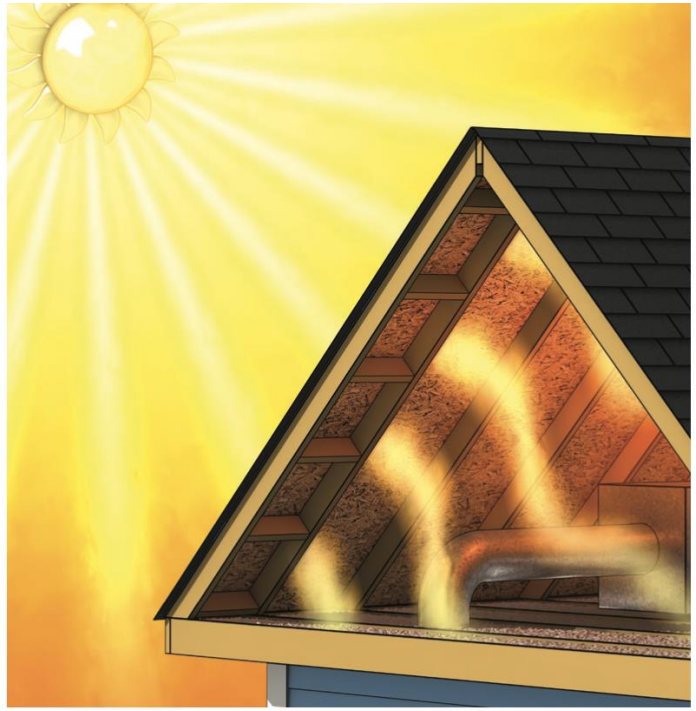


Synthetic Underlayment

Step 5

Install OSB decking over ‘’skip sheathing’’ to create a smooth solid surface for asphalt shingles.

Step 6
Install a layer of synthetic underlayment over OSB decking.



Without LP® TechShield® Radiant Barrier Sheathing

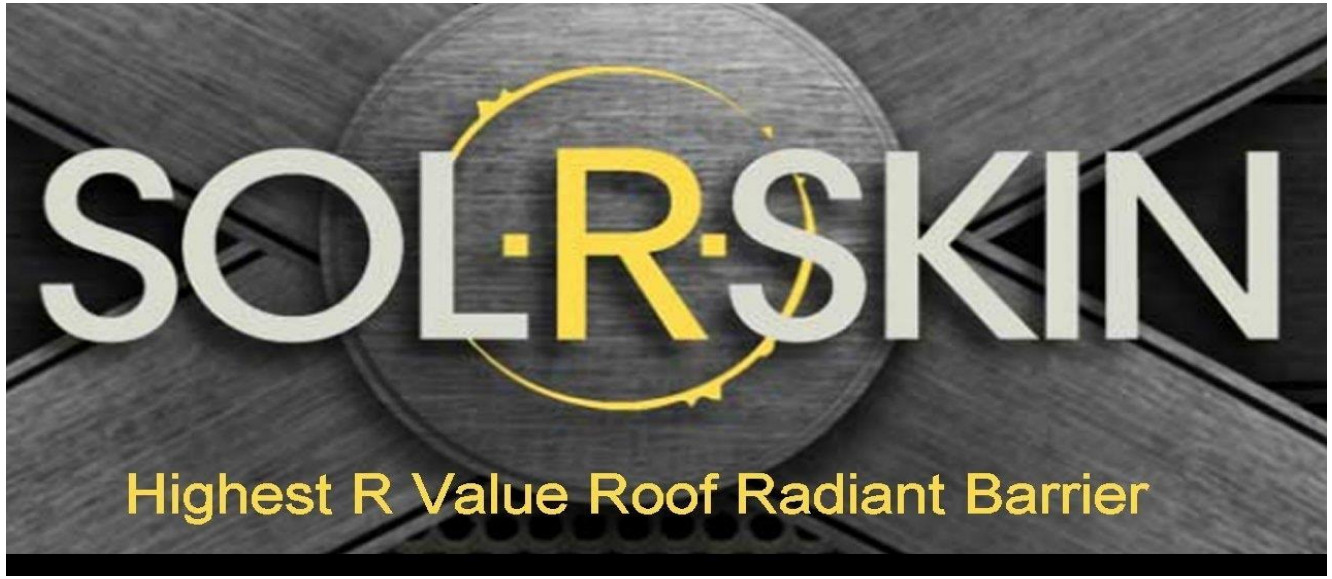
Radiant heat transferred through conventional roof sheathing panels.

With LP® TechShield® Radiant Barrier Sheathing

LP® TechShield® Radiant Barrier Sheathing blocks up to 97% of the radiant heat in the panel from radiating into the attic.

LOOKING TO LOWER THE HEAT INSIDE YOU HOME DURING THE SUMMER MONTHS ?

Consider installing osb Tech Shield Radian Barrier.

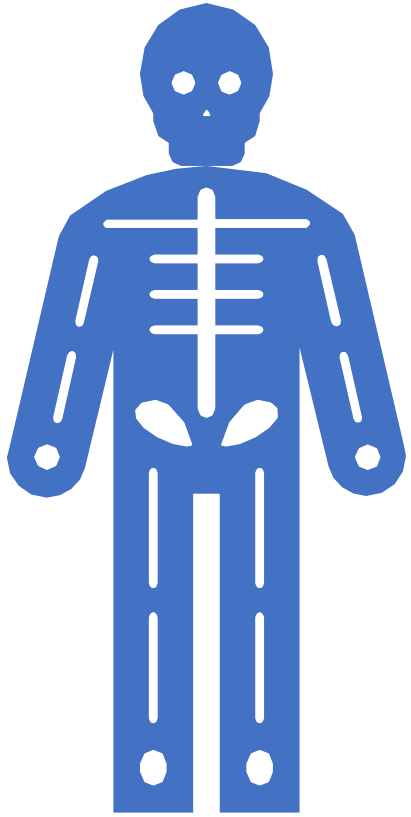


Energy Efficiency

- If your roof already has a solid wood deck, we recommend installing a layer Sol-R-Skin underlayment to reduce radiant heat trapped in shingles from entering the home.

Step 6

Install pre-painted metal drip edge on a
from weather exposure.



Many shingles have similar appearance, but the truth is they are not all the same when it comes to quality and lifespan

Let's take a closer look under the surface.

Here’s the difference.

Oxidized Asphalt shingles

- The majority of roofing shingles are manufactured with oxidized asphalt. Oxidized asphalt is produced by blowing air through it at elevated temperatures to firm up the material and increase its viscosity so it can be used to manufacture the roofing shingle.
- However, oxidization of the raw asphalt diminishes its natural rubber -like characteristics. With prolonged exposure to sunlight and heat, the asphalt becomes brittle and hard.
- The surface of asphalt shingles is composed of a layer of granules. These granules not only provide color to the roof but also prevent harmful UV sunlight from reaching the top surface of the asphalt.
- Once the asphalt becomes hard and brittle, granule retention is lost, along with the shingles ability to shed water from the roof.

Polymer Modified Asphalt Shingles

- The asphalt is modified to make it more flexible, provide the shingles with greater flexibility and crack resistance. The rubber-like characteristics of the asphalt allow the shingle to contract and expand with seasonal temperature changes resulting in longer granule retention, increase life span, impact resistance and tear resistance.
- Polymer Modified Asphalt starts with a high grade asphalt.
- Synthetic rubber polymer is added to provide strength & Durability.
- Upcycled rubber polymers, (used car tires) are incorporated to provide elasticity, resilience.
- Upcycled plastic polymers from milk jugs, shampoo bottles to provide strength, durability.

Let’s explain in more detail……

As the surface of the roof heats up during the day, heat is transferred into the attic. If this heat is unable to exhaust out of the attic, the shingle temperature will increase as if being cooked on a griddle.

When outside temperatures subsided at the end of the day, the attic remains warm and the shingles do not get a chance to cool down.

This retention of heat accelerates the evaporation of important oils in the asphalt causing them to become brittle and crack.

This creates premature granule loss exposing the underlying asphalt to harmful UV sunlight.

Malarkey Roofing Products®

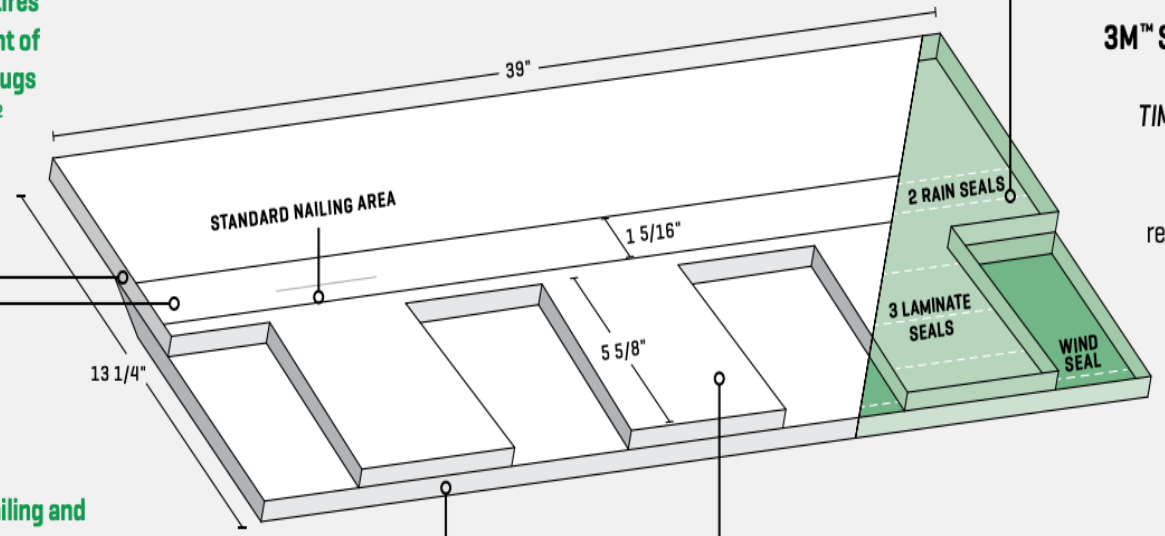
6 Reasons to purchase the Malarkey PMA Shingle.

- Fiberglass Mat.
- The Zone Nailing System.
- 3-M smog-reducing Granules.
- Polymer Modified Adhesive
- Upcycled Tires & Plastics.
- 50% more rubber adhesive bonds and twice the number of rain seal than standard shingles

UPCYCLED TIRES & PLASTICS
Polymers from recycled rubber tires and plastic bottles improve shingle durability while reducing landfill waste. **Each roof diverts 5 rubber tires and the equivalent of 350 plastic milk jugs from the landfill.[2]**

NEX® POLYMER MODIFIED ASPHALT
Asphalt core of shingle is rubberized with virgin synthetic rubber polymers (SBS) to enhance shingle strength, flexibility, and resilience. **Wind warranties from 110-130 mph and up to Class 4 impact resistance. Insurance discounts may apply.**

POLYMER MODIFIED ADHESION
Proprietary synthetic rubber adhesive (SEBS) resists dry-out and delivers extreme protection from high winds, wind-driven rain, and delamination. **Up to 50% more adhesion bonds and twice the number of rain seals than standard shingles.**



3M™ SMOG-REDUCING GRANULES
TIME **Top 50 Invention of 2018**
Clean the air by reducing air pollution. **Each roof has the smog-fighting potential of 2 or more trees.[1]**

THE ZONE® NAILING AREA
Up to 2x wider nailing and common bond area, with a tapered shim, helps ensure shingle is properly fastened (nails penetrate both shingle layers), lays flat, and effectively sheds water to help prevent troughing.

FIBERGLASS MAT
Provides structural reinforcement, and combined with polymer modified asphalt, **10-35% greater tear strength than standard shingles as measured per the ASTM standard (D3462).**

3M™ ROOFING GRANULES
Deeply embedded, ceramic-coated granules protect shingle from aging effects of weather and UV sunlight. **Up to 65% greater granules adhesion than the ASTM standard (D3462).**

3M™ COPPER GRANULES
Reduce black streaks caused by algae growth. **Up to Limited Lifetime algae warranty.**

Solar Reflective Shingles

- Reducing energy bills by decreasing air conditioning needs
- Improving indoor comfort for spaces that are not air conditioned, such as garages or covered patios
- Decreasing roof temperature, which may extend roof service life.

Shingles Fights Smog Pollution.

- Smog is a silent killer across the globe. The pollutant, which comes largely from automotive emissions and industrial facilities, leads to thousands of premature deaths worldwide from illnesses like respiratory disease. Minnesota-based manufacturer 3M has created a material for roofing shingles that, when exposed to the sun's UV rays, breaks down smog particles so they can be washed away by rainfall, thereby reducing pollution.

What is the nailing zone ?

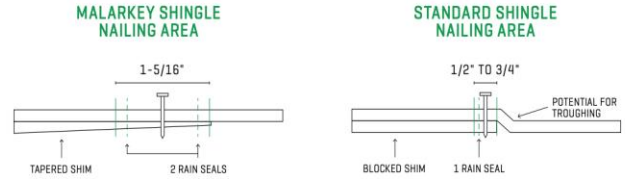
- Malarkey shingles are designed with up to 2x wider nailing zone and tapered shim.
- This ensures the nail penetrates both the upper and lower layers of the shingle preventing ‘blow-offs’ during severe windstorms.
- The tapered shim ensures the shingle lays flat on the roof surface with no air pocketing where the upper and lower shingle overlap.
- This assist in the nail head sitting flush to the surface of the shingles. It is less likely to be overdriven as is the common case with nails mistakenly driven high, outside of the standard nailing zone and thru the air pocket.

Malarkey Roofing Products®

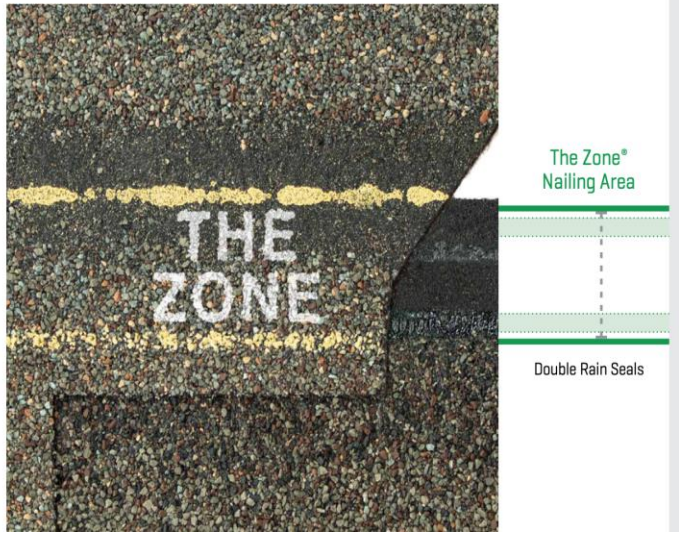
THE ZONE® NAILING AREA

An average roof requires thousands of properly placed nails. The Zone®, Malarkey's patented wider nailing area and common bond overlap on architectural shingles, helps ensure that every nail hits and penetrates both shingle layers for maximum protection from nail pull-out and shingle uplift, while double rain seals add extra protection from wind-driven rain.

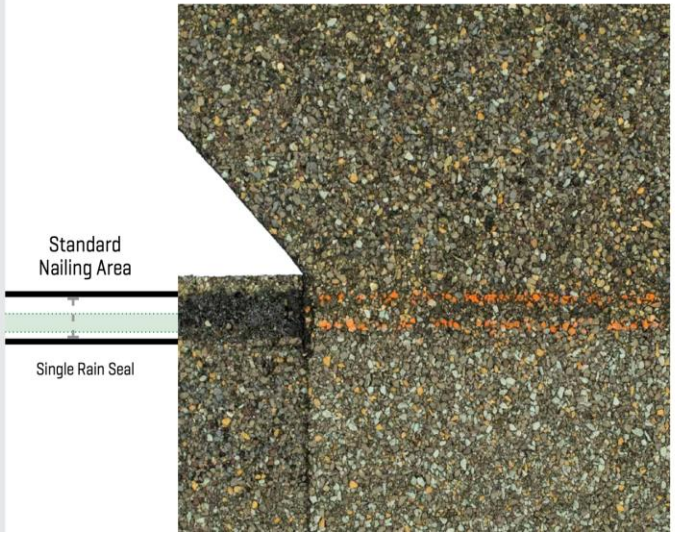
Our tapered shim (backing layer) helps the shingle lay flat and shed water without interruption. Standard shingles leave a ridge that can create *troughing*, allowing water to run sideways under shingles and then down a misplaced nail, resulting in leaks.



Malarkey Shingle Nailing Area - (1-5/16" wide, 2 rain seals)



Standard Shingle Nailing Area - (1/2" to 3/4" wide, 1 rain seal)



Step 7

Install starter shingle around perimeter of roof. (Eaves and Rakes).

Specifically designed to increase protection against moisture intrusion and blow-off.

Starter Shingle

Where do most leaks occur on a roof ?

Roofs have many obstacles preventing water flowing directly in a straight line.

Such as chimneys, skylights, pipe penetrations.

Anytime water has to flow around an obstacle, the probability of water intrusion to the interior of the property significantly increases.

THE SOLUTION ?

Apply a layer of protective SBS modified shingle underlayment around all such objects before the installation of shingles.

Install crickets to chimney and skylights saddle flashings promoting water flow.

Let's see some examples…….

Step 8

Applying a layer of self-adhering SBS polymer modified asphalt underlayment around all skylights, chimney, low slope roofs and pipe penetrations is the solution for winning the battle against water penetration.
The self adhered membrane is a composite material of asphalt polymers, formed into a rolled sheet.
The asphalt makes it vapor-tight, and the polymers make the asphalt elastic and sticky.
This protective barrier is able to stretch and seal around nails driven through it.

Low Slope Roofs.

Low slopes make your roof prone to water collection, which will result in leaks and rotting if the proper materials are not used.

Low slopes make your roof prone to water collection, which will result in leaks and rotting if the proper materials are not used.

SOLUTION_

Install a layer self-adhering, SBS polymer modified asphalt underlayment

Pipe Flashings.
Apply and interlace two layers of self-adhering, SBS polymer modified asphalt underlayment to all pipe penetrations to ensure a watertight seal

Chimney Saddle Flashing.

Remove and replace metal saddle flashing behind all chimney/skylights.
* Building code stipulates all chimney, skylights wider than 30’’ should be fabricated with a cricket to promote drainage of water.

New Chimney Saddle with cricket and metal counter flashing recessed into brick.

SBS Modified high profile hip and ridge trim

FEATURES & BENEFITS

SBS-Modified Asphalt: Provides flexibility; pre-formed shingles are less susceptible to cracking on cold install days, which increases productivity.

Sealing Adhesive: A continuous adhesive strip forms a strong bond to protect against rain and wind damage.

Blended Color: Creates a unified look with field shingles, instead of a "striped" look.

Rounded Edge: Gives a substantial, finished look.

Release Tape: Keeps shingles from sticking together to save time and prevent damage. Increased safety and no messy slip sheets on site.

Patent Pending Five Layer Design: Up to 10% heavier than the competition, keeping Mountain Ridge® securely attached and improving wind resistance.

Tri-Laminate Base: Creates a high-profile look and prevents sagging over time.

This product has a limited warranty against manufacturing defects concurrent with the warranty of the field shingle with which it is installed. See CertainTeed's Asphalt Shingle Products Limited Warranty for specific details.

Open Valley vs. Closed Valley: Which Should You Choose?

The valley is the area on the roof where two different roof planes meet. This area is one of the most critical and important sections of the roof as it handles a tremendous amount of water run-off.

Metal valley flashing with baked enamel painted finish

Open Metal Valley

Available in widths of 18’’ and 24’.’

More durable and longer lasting. Metal has a protective, painted baked enamel finish.

Closed Valley

Closed valleys are formed where shingles on one or both sides of the roof extend across the valley onto the adjacent roof slope.

We don’t recommend this type of valley for the following reasons

They tend to wear out sooner due to the high volume of water flow washing away the protective layer of stone granules embedded into the surface of the shingle.

Closed valleys are very vulnerable to damage caused by foot traffic and are difficult to repair once damaged.

Thicker, heavier shingles do not bend well across the valley and can fail prematurely by cracking.

Much weaker in structure compared to an open metal valley. During the summer, warmer months the shingles are more pliable and softer and can be punctured due to foot traffic. Winter months with colder temperatures, the shingles become hard and brittle and again are prone to cracking with pressure from foot traffic.

Once damaged, woven valleys are more difficult to repair.

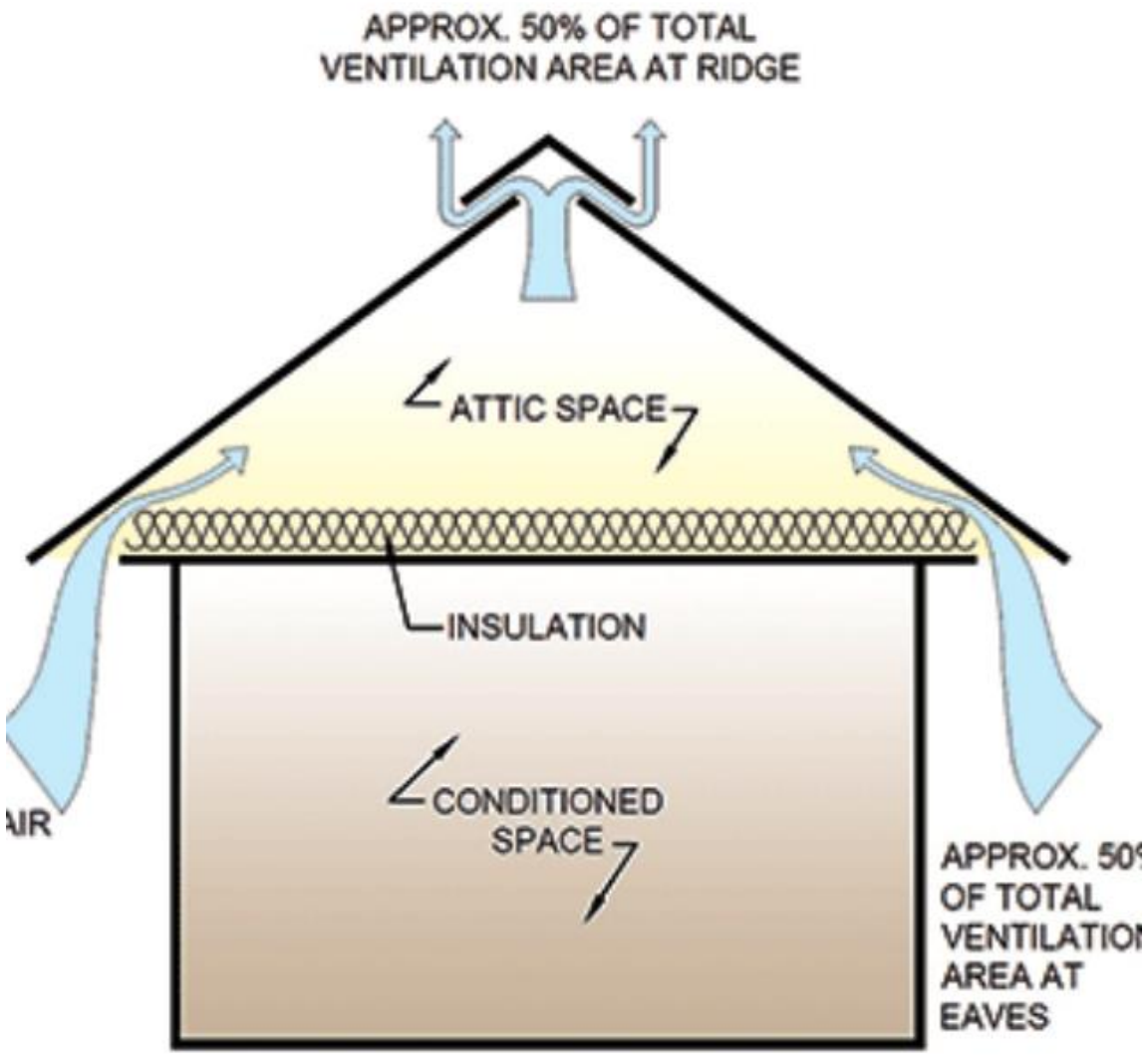
Woven valleys tend to accumulate more debris as the water flow is slower than an open metal valley.

The Importance of

Attic Ventilation

Why Ventilate?

- Ventilation of attic spaces is required to comply with building codes and roofing material manufacturers.
- Building codes require a ratio of 1/300 ventilation space to attic floor space.
- Ventilation is important to many different aspects of the home. The comfort of the homeowner, the life expectancy of the roof and the performance of the heating and air conditioning systems can all be affected by the lack of ventilation throughout the structure.



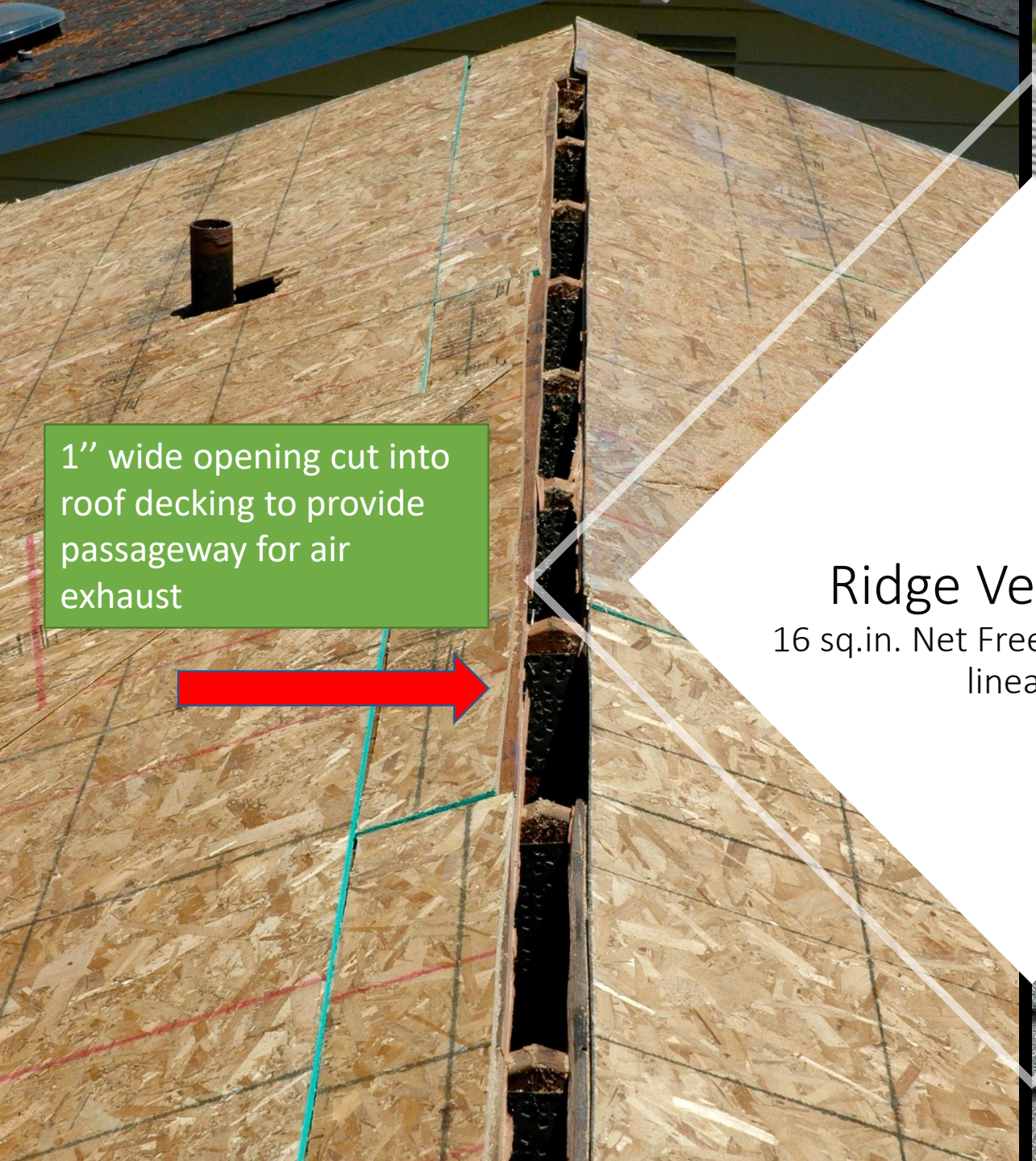
How do I ventilate a roof

- There are two methods used to ventilate attics: static and mechanical. The most common method is the static method. This method relies on convection, which is a mode of heat transfer that is caused by the tendency of warmer air to rise. In other words, air flows through the attic space naturally, without the use of mechanical means.
- Outside air enters the attic space through soffit or eave vents, rises through the attic space as it warms, and exits through vents that are positioned at or near the top. For this method to be most effective, approximately equal amounts of ventilation should be placed at the soffits or eave level, and at or near the top of the attic space. This is referred to as a “balanced system.”

We will calculate and design a ventilation system for your roof.

- Attic floor area = 20 ft. x 50 ft. = 1,000 $ft.^2$
  Required NFVA = attic floor area x 1/300
  =1,000 $ft.^2$/300
  =3.33 $ft.^2$
- Convert sq. ft. into sq. in.: 3.33 $ft.^2$ x 144 $in.^2/ft.^2$ = 480 $in.^2$
- Exhaust ventilation NFVA (50%) = 480 $in.^2$ x 0.5 = 240 $in.^2$
- Intake ventilation NFVA (50%) = 480 $in.^2$ x 0.5 = 240 $in.^2$
- Therefore, there should be 240 sq. in. of NFVA located at the ridge and 240 sq. in. of NFVA located at each soffit.

Examples of **Exhaust Ventilation**



Ridge Ventilation

16 sq.in. Net Free Ventilation per linear ft.

O’Hagen Vent.

72 sq. In Net Free Ventilation

Examples of **Intake Ventilation**

Soffit Screen

Lomonco continuous Deck-Air strip

What other hidden cost could occur ?

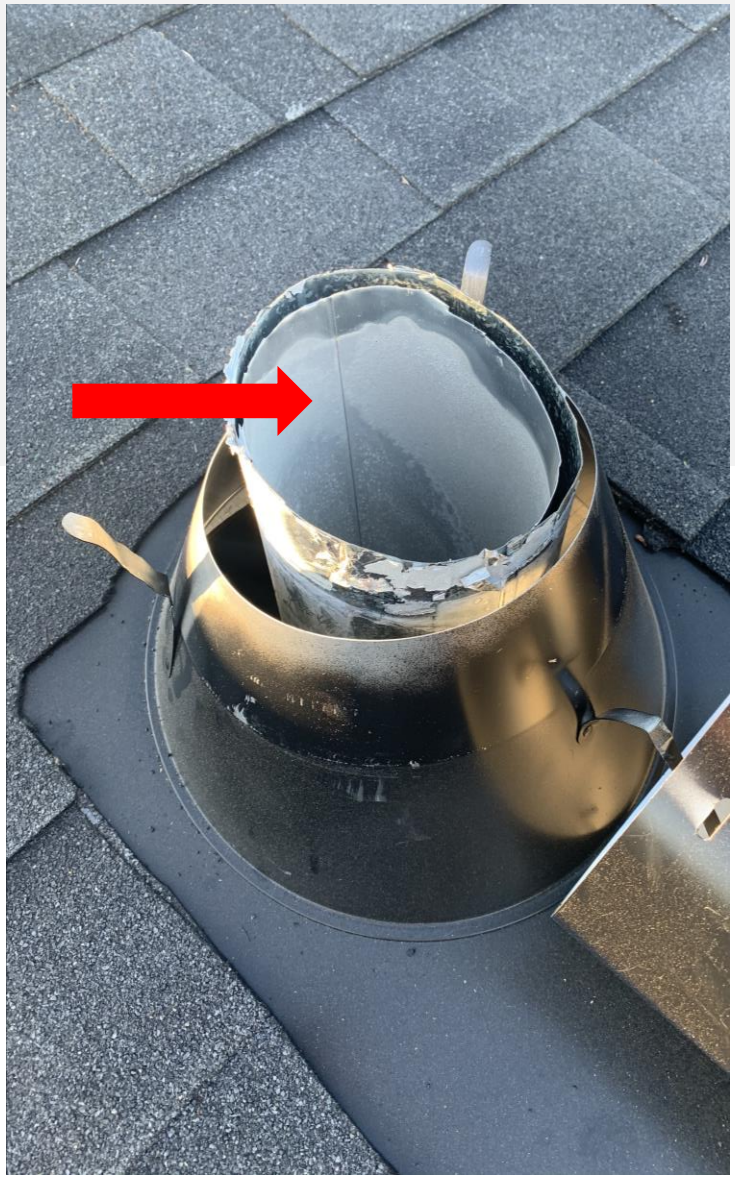
Other than dry rot/termite damage to the roof deck structure, another repair often needed is the replacement of the B Vent duct.

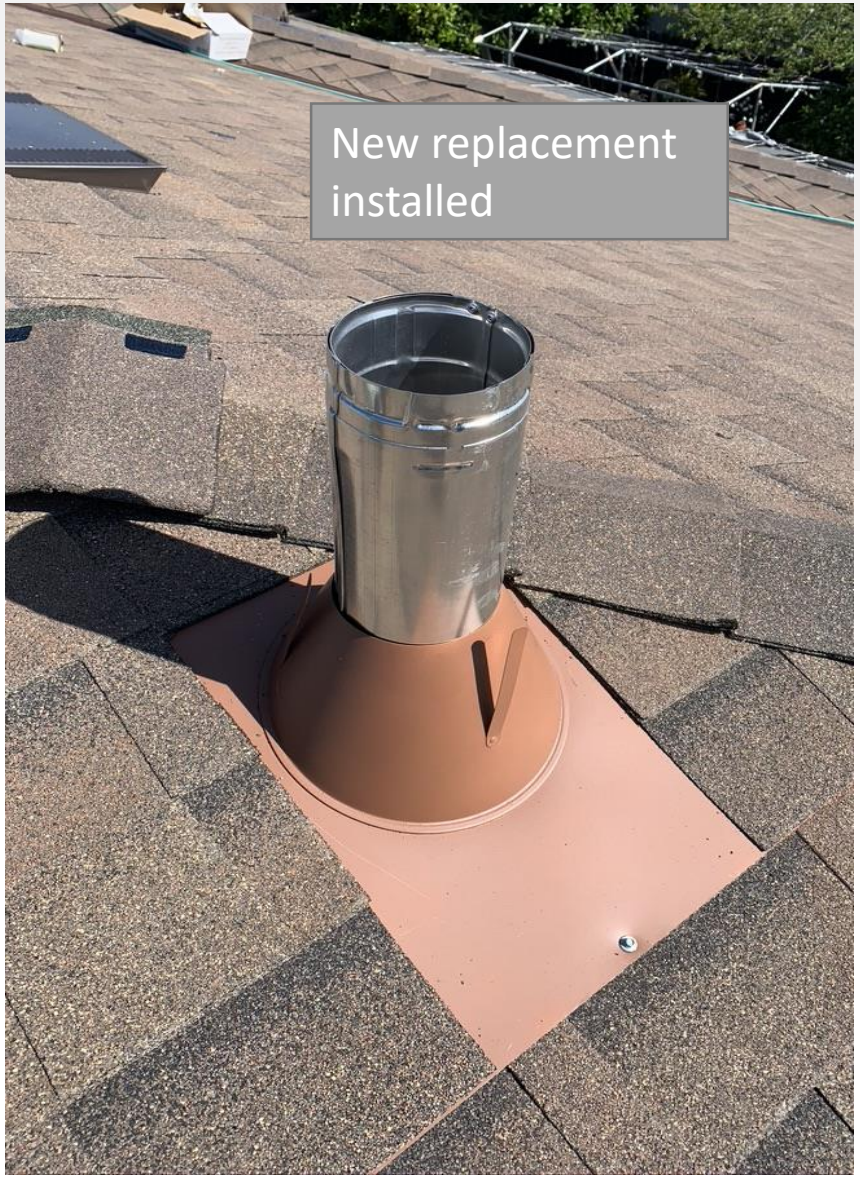
This duct, (for venting gas systems) such as water, wall and space heaters has to extend a minimum of 12’’ above the roof decking.

We often discover this pipe does not meet the minimum height OR it has been previously cut, most likely when the last roof was replaced.

Example of a cut B Vent

- A double wall vent duct ,also know as a B vent





View from inside attic

A minimum 1’’ clearance around all combustible wood decking is required per building code.

- **View from roof.**
- Cap flashing is installed over pipe vent to seal against water intrusion.

Malarkey Roofing Products®

Highlander Shingle

Malarkey Roofing Products®

Ecoasis Shingle

Malarkey Roofing Products®

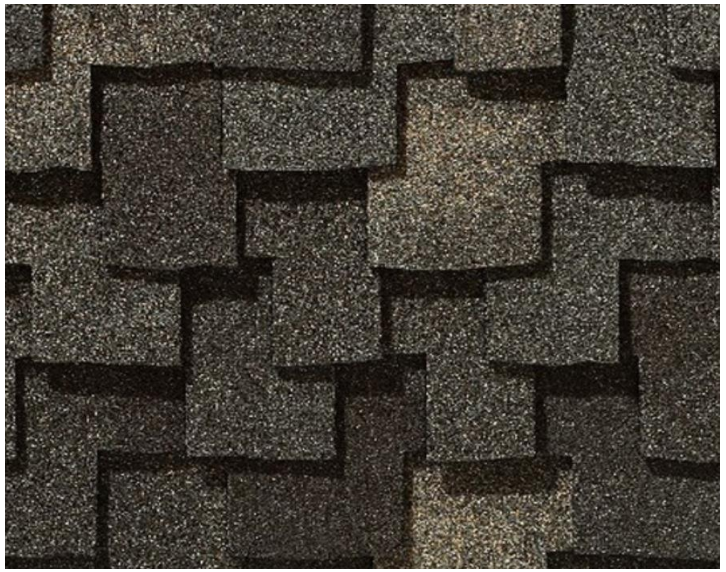
Windsor Shingle








Landmark Shingle



CertainTeed

Presidential Shake