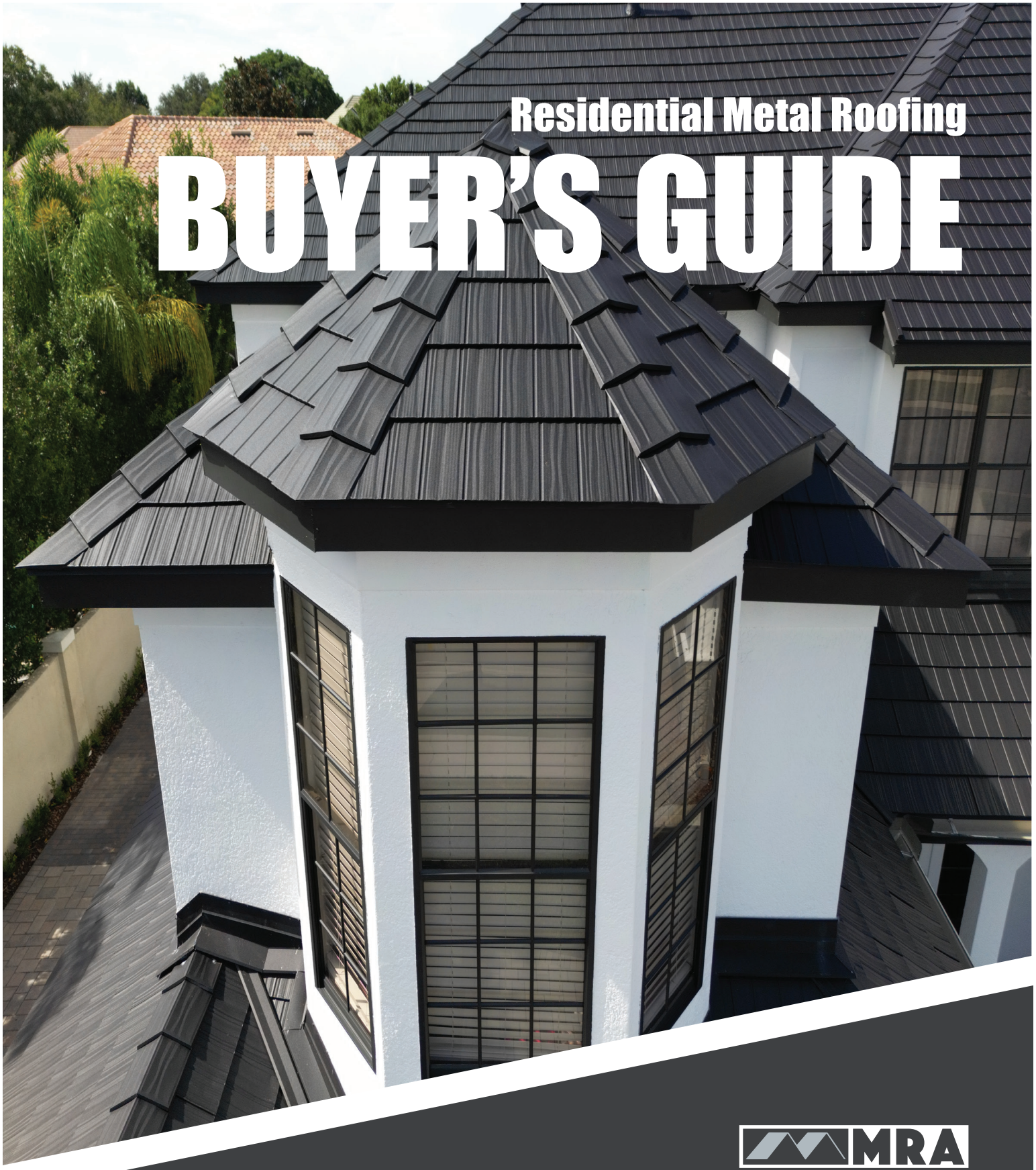


Residential Metal Roofing

BUYER'S GUIDE

MRA
METAL ROOFING ALLIANCE®
Your Metal Roofing Resource

For more information visit metalroofing.com

Introduction

RESIDENTIAL METAL ROOFING BUYER'S GUIDE

Your roof is one of the most critical components of your home, protecting both the exterior and interior. As such, it is vital that the roof is made from high quality product, installed by a quality professional, and comes from a reliable source. Metal Roofing Alliance (MRA) members including manufacturers, suppliers, supporting members, partner associations, contractors, distributors, and others within the residential metal roofing industry meet the highest standards for quality, safety and dependability. These products are subjected to rigorous industry standards and performance testing helping ensure your investment in a new metal roof will comply with building code requirements and perform reliably for years to come.

Don't be fooled by inexpensive, sub-standard roofing materials that have the potential to put not only your roof investment, but your home, at risk. While it's tempting to try and save a few dollars short-term, the higher cost of greater repairs, the potential for roofing failure and the lack of warranty protection that come with inferior products are no bargain, and can quickly wipe out any initial savings.

MRA manufacturer members stand behind quality products with solid warranties and stringent business practices, offering peace of mind that comes from knowing your home will be well-protected, now and into the future.
Here's what to know before you get started.

Section 1

IS IT TIME FOR A NEW ROOF?

Re-roofing your home can be a big decision, both financially and from a timing perspective. If you wait too long, you'll cause more harm than good. A failing roof can mean water leaks, mold and additional damage to the interior of your home. Financially, putting on a new roof typically means a large outlay of funds or a newly acquired loan…neither of which is very appealing to homeowners. So, it comes as no surprise that, for most people, re-roofing your home can be a stressful yet unavoidable aspect of home ownership.

So how do you know when it's time to put on a new roof? Here are a few signs that it may be time to consider re-roofing your home…

- Missing or loose roofing material…this includes either a large quantity of missing material or a re-occurring issue that has to be addressed frequently.
- Damaged roofing material which may include curling, cracking, blistering, staining, or breakage…anything that visually indicates the material is reaching the end of its life.
- A sagging roof…this could indicate your roof is weak and deteriorating, it was improperly installed, or that it might be supporting too much weight.
- With asphalt roofing, when there are large amounts of granules in your gutters, downspouts or anywhere there is water run-off from the roof. Shingles typically lose more and more granules as they age, leaving the shingle unprotected. Over time the shingles become brittle and fail, allowing water to enter your home.
- Exposed or loose nail heads which could mean increased susceptibility to water penetration and potential leaks in the roof.
- Any water damage inside your home or attic may indicate that your roof has deteriorated. This increases the chance of mold and mildew growth which can result from inadequate roof ventilation.
- Missing or damaged flashings, curbs or roof jacks increase the opportunity for water to leak into your home.
- If your heating or cooling bills have gotten noticeably higher. This may be a result of insufficient attic ventilation which may impact airflow and prevent moisture from leaving your attic. A damaged or leaking roof will also allow water into an attic. The Department of Energy states every 10% increase in moisture content within the insulation equals a 25% loss in the R-value, the ablity to insulate the home.
- Depending on your roof composition, the age of your roof alone may be a good indicator it's time to be replaced. Further, if the roof was installed over the top of the previous roof (example: shingles on top of shingles), then you may need to replace your roof even sooner.

Asphalt roofing will become dry, brittle and misshapen when aged.

Damaged or aged roof jacks may allow water leaks in your roof.

If your roof is showing any of these signs, it may be time to start planning for a new roof. This Buyer's Guide will walk you through various aspects of the re-roofing process… from things to consider when selecting a new roof to material comparisons and options to questions you should ask your roofing professional. It is our goal to assist you in your re-roofing journey and to help make your experience as seamless as possible.

Section 1

IS IT TIME FOR A NEW ROOF?

(Continued)

INSPECTION CHECKLIST

Roof

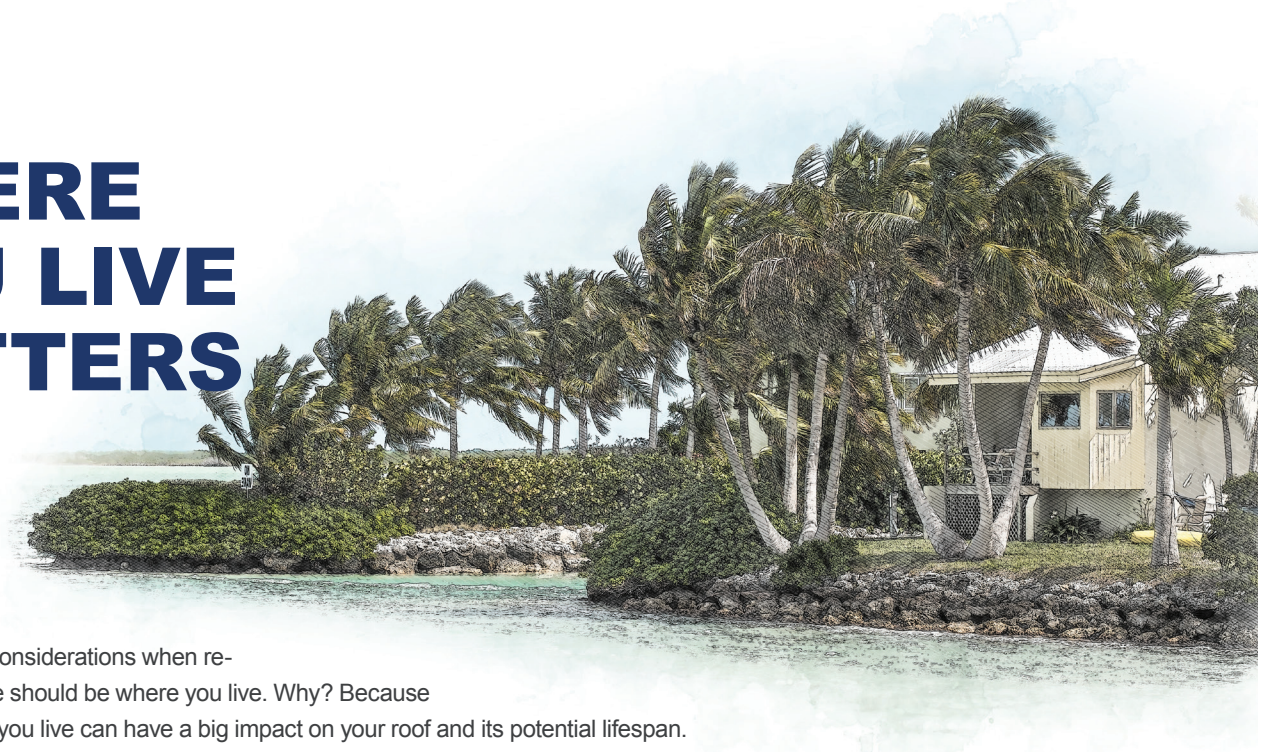
- ☐ Inspect from the ground, use binoculars if necessary. Walking on an aged asphalt shingle roof can be dangerous and can also further damage the roof.
- ☐ Look for cracked, curled, and missing shingles or ridge and hip caps.
- ☐ Watch for areas of missing granules including “bald” shingles.
- ☐ Look at flashings (including pipe flashings) for cracked or missing rubber or sealants as well as for rust and other deterioration.
- ☐ Look at roof protrusions and sidewall intersections for signs of water intrusion, rot, etc.
- ☐ Inspect skylights for signs of deterioration. Generally speaking, skylights over 10 years old should probably be replaced.
- ☐ Inspect eaves for signs of water backing up or rot.

Attic

- ☐ A great deal can be learned about your roof from an attic inspection.
- ☐ Professional roofing contractors should inspect your attic. Doing your own inspection is also wise.
- ☐ Inspect the underside of the roof deck for staining which indicates signs of water infiltration or rot. Also look for cracked decking and structural lumber or missing decking pieces.
- ☐ Look for mold, mildew, or other results of condensation and excessive moisture.
- ☐ Using a protimeter, check moisture levels in your attic’s insulation, structural lumber, and roof decking. Moisture levels over 10% are usually a concern.
- ☐ Observe and understand the ventilation in your attic. Most homes are constructed to require both intake vents, usually in the overhangs, and exhaust vents at or near the ridge of the roof. Make sure that the intake vents are not blocked by insulation or other things. Using a smoke pen or light piece of tissue paper, you should be able to detect air movement from the bottom of the attic to the peak. There are code requirements for ventilation and your contractor should be able to help determine if your home meets those.

Section 2

WHERE YOU LIVE MATTERS



One of your first considerations when re-roofing your home should be where you live. Why? Because the area in which you live can have a big impact on your roof and its potential lifespan. Understanding how your home's location could impact the roof will go a long way toward ensuring you select and install a roof that can exceed your performance expectations.

Here are some important regional considerations that should impact your roof selection process.

HURRICANES & HIGH WINDS

Consider the following if you live in an area that experiences hurricanes, tornadoes or high winds.

- Wind speeds – which roofing options (systems) are tested and proven to withstand high winds?
- Performance ratings – what roofing products are rated to withstand the winds that could befall my area? (NOTE: there is a formal, recognized rating system in place for high winds)
- Building codes – what do local building codes require as it relates to high winds?
- Insurance – which roofing materials are rated to meet/exceed insurance company policy requirements?

In hurricane prone areas, your roof system should be rated for its ability to withstand high winds and uplift.

WILDFIRES

Consider the following if you live in an area where wildfires are a possibility.

- Fire resistance – what roofing materials are tested and proven to be fire resistant?
- Performance ratings – which roofing materials are rated to withstand high heat such as from direct flame or embers? (NOTE: there is a formal, recognized rating system in place for fire resistance)
- Building codes – what building code requirements related to flames or embers exist in my area and what roofing materials can meet those codes?
- Insurance – which roofing materials are rated to meet/exceed insurance company policy requirements?

Your roof can be the first line of defense when living in fire prone regions.

Section 2

WHERE YOU LIVE MATTERS

(Continued)

SNOW & ICE

Consider the following if you live in an area that experiences snow & ice.

- Snow loads – what roofing options can support heavy snow loads (weight)?
- Snow shedding – what roofing materials might assist with shedding snow, making the process easier and/or safer?
- Snow guards – what snow guard options are available (and effective) for the roofing materials I'm considering?
- Ice damming – what roofing options will minimize or alleviate ice damming?

Heavy snow and ice damming can weigh down your roof potentially causing water leaks or worse.

HAIL

Consider the following if you live in an area that experiences large or frequent hail.

- Dent resistant – what roofing materials are tested and proven to be dent resistant?
- Roof substructure – In hail prone areas, MRA recommends installing metal roofing over sheeting and not over purlins or over existing roofing materials.
- Performance ratings – which roofing materials are rated to withstand hail, both larger in size and at higher rates of speed? (NOTE: there is a formal, recognized rating system in place for hail)

Large and fast-moving hail may compromise your roof structure's integrity.

- Building codes – what building code requirements related to hail exist in my area and what roofing materials can meet those codes?
- Insurance – which roofing materials are rated to meet/exceed insurance policy requirements? Be sure to clarify with your insurance company what types of hail damage would be covered and what would not, as well as specific installation requirements they may have for the roofing material.

OTHER REGIONAL CONSIDERATIONS

- Hot climates – what roofing products can repel heat and minimize cooling loads (the need for air conditioning)?
- Cold climates – what roofing products can hold heat and minimize heating loads?
- Solar – which roofing products work best with solar panels and attachments? What roofing products will last as long or longer than the solar panels themselves (so panel warranties are not voided by removal/replacement)?
- Difficult to Reach – what roofing products have the longest lifespan in order to avoid replacement in difficult locations (safety)?

WHERE YOU LIVE

KEY TAKEAWAYS

Performance Ratings

How your roof system performs in severe weather can be vital in protecting your home. Performance ratings for roofing products exist for that very reason… to help ensure your roof can withstand whatever Mother Nature throws its way. To learn more about the various performance ratings related to residential roofing, please contact the MRA at **support@metalroofing.com**.

Standards & Specifications

In addition, applicable building codes, standards and specifications may exist in your area.

Failure to follow these accepted procedures and methods can result in lawsuits, inspection failures, and added project costs. Most codes, standards, and specifications are designed to ensure quality and safety in the construction, and specific requirements in energy efficiency.

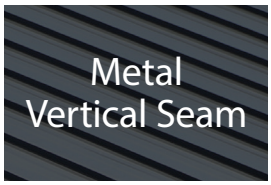
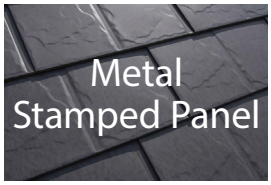
Knowing what is required and/or truly needed for your area PRIOR to selecting a roof system is a critical step toward ensuring the longevity and performance of your roof.

Section 3

COMPARING ROOF MATERIALS

When selecting a roofing material there are many factors to take into consideration beyond installation cost. Here's a side-by-side comparison of metal roofs and other common roofing materials.

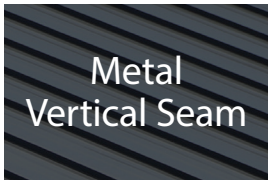
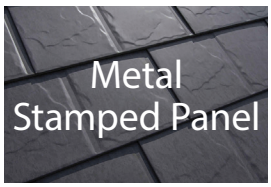
While the initial investment of a metal roof may be higher, rest assured **the overall cost of a metal roof over its lifetime will make metal roofing the most economical choice and add the greatest value to your home.**

ROOF TYPE	Maintenance/Inspection	Aesthetic	Environment
	• Easy to maintain and clean as needed • Repairs and replacements are rare • Fade and chalk resistant with both PVDF or SMP paint systems	• Vertical seam panels offer a distinctive, timeless look • Available in a wide range of colors, styles, and shapes • Appealing on most home styles... especially modern, craftsman, and farm style	• Energy efficient • Made of recycled material • 100% recyclable at end-of-life • Low weight — ships easily • Can often be installed over existing asphalt roof • Eco-friendly
	• Easy to maintain and clean as needed • Repairs and replacements are rare • Fade and chalk resistant with both PVDF or SMP paint systems or Stone Coated steel modular systems	• Metal stampted panel roofing can look like any roofing material... shake, tile, shingle and slate • Available in a wide range of colors, styles, and shapes • Appealing on any home style	• Energy efficient • Made of recycled material • 100% recyclable at end-of-life • Low weight — ships easily • Can often be installed over existing asphalt roof • Eco-friendly
	• Inspection every year at minimum • Shingle replacement common • Re-caulking and sealing as roof ages • Susceptible to mold and moss	• Standard asphalt shingle look • Variations in color shading • Limited color selection	• Made from crude oil and other chemicals • 11-13 million tons end up in landfills each year and can take 300-400 years to decompose • Not eco-friendly or energy efficient • Poor choice for solar
	• Inspection every year • Occasional repair of cracked and sliding tiles • Frequent tile repair/replacement • Minor upkeep needed	• Limited style / shape options • Limited color selection • Appealing only on certain types of homes	• Considered eco-friendly • Energy efficient • Recyclable • Natural venting may mean reduced heat transfer
	• Inspection every year • Maintenance required every 2-4 years • Susceptible to mold growth, pests, rot, staining, and leaks	• Rustic and tapered for a natural appearance • Appealing only on certain types of homes	• Considered an eco-friendly roofing material if sourced from a sustainable Forest Stewardship Council approved manufacturer • Recyclable
	• Inspection every year • Occasional repair of cracked, chipped, and sliding slates • Susceptible to color variations if replaced	• Limited style option • Limited color selection • Appealing on Colonial, European, and other more historical home styles	• Considered eco-friendly • Recyclable • Not an ideal platform for solar panels

Section 3

COMPARING ROOF MATERIALS

(Continued)

ROOF TYPE	Cost *	Performance	Expected Lifespan
	• $500-$2,500 per square*^ • Improves home resale value • Potential savings on insurance • Light weight = less to ship, less framing requirements, and easier to handle	• Offer superior protection in severe weather events including hail, high winds and hurricanes, wild fires, and heavy snow and ice • Cool roofing paint options provide added emissivity and reflectivity which can = lower energy usage (heating and cooling)	• Average lifespan 50+ years • Typically a 30-50+ year warranty • Transferable warranty in most cases
	• $900-$2,500 per square* • Improves home resale value • Potential savings on insurance • Light weight = less to ship, less framing requirements, and easier to handle	• Offer superior protection in severe weather events including hail, high winds and hurricanes, wild fires, and heavy snow and ice • Cool roofing paint options provide added emissivity and reflectivity which can = lower energy usage (heating and cooling)	• Average lifespan 50+ years • Typically a 30-50+ year warranty • Transferable warranty in most cases
	• $400-$1,200 per square* • Frequent roof replacement (every 10-20 years) • Ongoing maintenance is required • Cleaning required frequently and often causes loss of granules	• Due to their composition, are highly combustible & not recommended in wildfire prone areas • Offer limited protection in severe weather events (ex: high winds or hail) • Not ideal in hot climates which can cause curling, cracking, & heat retention	• Average lifespan 10-20 years • Warranty length varies by shingle manufacturer and material • Warranties are often heavily pro-rated and have many limitations
	• $700-$2,000 per square* • Heavy weight = increased shipping and structural framing costs...may also need to have a structural inspection • Heavy weight = greater difficulty for installers	• Limited wind resistance • Tiles can be brittle / fragile and easily damaged • Roof tiles can become a safety hazard during extreme high winds	• Average lifespan 30+ years • Typically a 30-50+ year warranty • Warranties are often pro-rated and have limited transferability
	• $800-$1,500 per square* • Frequent cleaning needed to prevent mold, pests, staining, etc. • Requires protective treatments every 1-3 years by a professional	• High risk in wildfire prone areas • More prone to leaks in wet environments • May present additional issues in severe weather events	• Average lifespan 30+ years • Typically a 30-50+ year warranty • Warranties are often pro-rated and have limited transferability
	• $1,200-$3,000 per square* • Heavy weight = increased shipping expense • Heavy weight = potential need to have structural inspection prior to adding slate roof • Improves home resale value	• Slate is brittle so any impact event can result in cracked or broken tiles • Roof tiles can become a safety hazard during extreme high winds	• Average lifespan 75+ years • Typically a 30-50+ year warranty • Warranties are often pro-rated and have limited transferability

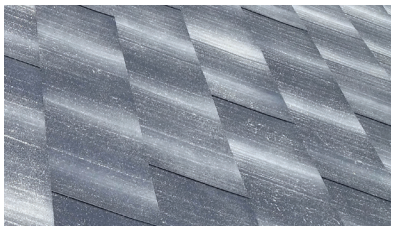
* Pricing may vary by region, product, geometry, complexity, and/or condition of the roof.
^ Vertical Seam price range includes agricultural panels (thru-fastened) as well as architectural standing seam.

Section 4

METAL ROOFING STYLES

No matter what kind of roofing style, color or finish you are after, there's a metal roof to match.

Looking for the charm of traditional cedar shake, or the simplicity of asphalt shingle? Or perhaps you are after the bold and distinctive look of clay tile or natural slate. Modern day metal roofs offer all of the style and beauty of these traditional roofing materials only stronger and more durable. There's certain to be a metal roof style to match your home and neighborhood.



METAL SHINGLE

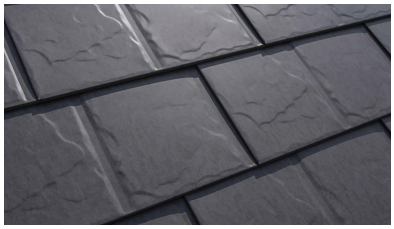
Pre-formed metal shingles are available for those who appreciate a classic asphalt appearance coupled with outstanding performance and 3-4 times the lifespan of standard asphalt shingles. Available in various finishes, painted or stone coated.

METAL SHAKE

Metal shake is premium alternative to traditional wooden shake. You'll love the authentic look of wood, while gaining a variety of color choices with longer lasting, more durable metal. Available in various finishes, painted or stone coated.

METAL TILE

Standard tile roofs can be heavy, yet fragile and costly to maintain. Metal tile, however, has the graceful curves of classic tile, but the lightness, strength and longevity of steel. Available in various finishes, painted or stone coated.



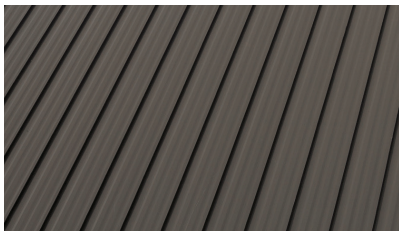
METAL SLATE

Metal pre-formed to mimic slate offers homeowners the distinctive look of smooth, uniform slate tiles without the cost, weight and fragility of true slate.

Section 4

METAL ROOFING STYLES

(Continued)



STANDING SEAM PANEL

Also referred to as vertical seam, this product features clean lines and is available in multiple profiles and colors offering a modern twist to the traditional look of metal roofing. Sleek, practical and economical, pre-painted standing seam panels are a beautiful option for any home.

THRU-FASTENED PANEL

While standing seam panel is the best vertical rib option, thru-fastened panels are still a better alternative to asphalt shingles.

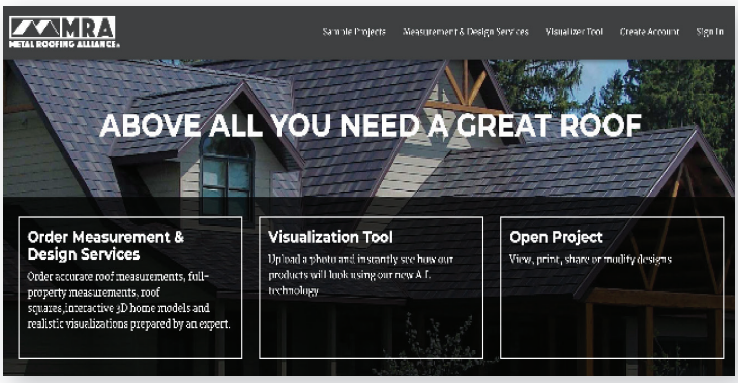
STONE COATED

Stone-coated steel roofing comes in a wide variety of colors, textures, and designs to complement almost any style of home.

Because of metal's ability to be transformed into any shape, homeowners can find a variety of custom-designed options utilizing metal roofing. Visit MRA's website and see what custom-fabricated options our manufacturers can create for you.

MRA METAL ROOFING VISUALIZER

To help you visualize color options and various metal roof styles on your home, go to MRA's Metal Roofing Visualizer mra.renoworks.com where you can upload a photo of your own home or use already provided stock images similar to your home to visually see the aesthetic impact, differing colors and styles will have on your home.



Section 5

METAL ROOFING MATERIALS

Your roof will only perform to the level of the products from which it is made. Using sub-par products that are not designed or manufactured to defined quality standards could mean a shorter life-span for your roof as well as unforeseen complications along the way.

The MRA requires all member companies meet defined material standards. These standards are based on verifiable testing protocol, well documented building codes and third-party research. The culmination of standards over years of testing, performance data and research are documented in the Metal Construction Association's Roofing Specifications which all MRA members agree to adhere to.

METAL DETAILS

Metal Substrate	Quality Specification	Coating Details	Gauge*
Aluminum	ASTM B209	Meet or exceed Alloy 3003	0.018" or thicker
Aluminum-Zinc Alloy Coated Steel**	ASTM A792 & ASTM A924	Painted must meet or exceed AZ50 Bare must meet or exceed AZ55	0.0142" or thicker
Copper	ASTM B370	NA	0.021" or thicker
Hot-Dipped Galvanized Steel	ASTM A653 & ASTM A924	Meet or exceed G-90	0.0142" or thicker
Zinc	ASTM B6-09	NA	0.024" or thicker
95% Zinc - 5% Aluminum Alloy-Coated^	ASTM A875	NA	0.0142" or thicker

*Gauge reflects total metal thickness and depends on roofing style.
**Aluminum-Zinc Alloy Coated Steel is known in the market by several brand names including, but not limited to, Galvalume.
^ 95% Zinc - 5% Aluminum Alloy-Coated is also known as Galfan, a trademarked product of SDI (the only producer of this product in the U.S.)

Section 5

METAL ROOFING MATERIALS

(Continued)

SYSTEM DETAILS

Roof Substructure

The roof substructure is an integral part of the roof system. It lies beneath the metal roof panels and serves two primary functions. First, it acts as a base to which the metal roof material is attached. Secondly, the roof substructure serves as a structural member, transferring the load to the support structure. Live loads include wind, snow, rain, and foot traffic. Dead loads include the weight of the roof materials including the roof deck itself. Most decks must also act as diaphragms, transferring wind, and other lateral forces, such as seismic movement, to the building's structural frame.

While metal roofing does not inherently cause condensation, the lower temperature of metal roofing can be a contributing factor to condensation in a home's attic. The keys to avoiding condensation in an attic space can include the use of vapor barriers behind the living space, insulation, and proper ventilation per building code. Additionally, the MRA generally advises against residential metal roof installations where the backs of the metal panels are exposed in the attic. If exposed to a warm moist air, the cold back side of a metal roof is a perfect place for water vapor to condense.

Fasteners

The metal composition and style will dictate the type of fasteners used. Each metal roofing manufacturer has specifications regarding fasteners.

Selection and use of the correct fasteners can have a big impact on the roof's performance and longevity.

Ventilation

Proper ventilation is a critical factor affecting both a roof's efficiency and its longevity. Most homes are constructed to require both intake vents, usually in the overhangs, and exhaust vents at or near the ridge of the roof.

Curbing & Roof Jacks

Roof curbs are used to support roof penetrations such as skylights. Roof jacks are used to flash around pipes and other similar roof penetrations. Both curbs and roof jacks reduce the possibility of water leaks and provide additional protection against roof leaks.

Sealants

Sealants are designed to meet specific requirements. Thermal movement, expansion and contraction, and weathering requirements are the most common reasons for the use of substrate compatible sealants. There are specific instances where non-compatibility of substrates can lead to corrosion and leaks. Always determine if the sealant chosen will perform as required through reference to literature and field testing. Most metal roof manufacturers provide a list of approved sealants, and it is imperative to follow these recommendations. If a different sealant than what is recommended is planned for use, it is best to get approval from the metal roof manufacturer to avoid a compromise of the product warranty. Sealants are a small cost in relation to the overall roofing cost, however proper selection and application is critical to ensuring a long service life on any metal roof.

Ventilation helps balance air flow in your home, reducing the risk of mold and condensation.

Section 5

METAL ROOFING MATERIALS

(Continued)

ROOF UNDERLAYMENT

A roof underlayment is a membrane (or combination of membranes), installed directly on the roof deck and provides a water-resistant barrier from the elements, including rain, snow, and wind. A well designed and installed underlayment prevents moisture from seeping through the roof deck into the building interior.

A typical metal roofing system is often characterized as having a 'high-temperature environment'; the potential heat captured below the metal cladding can be much higher than other roofing assemblies. An underlayment system considered for metal roofing should be approved to perform in these situations and ensure continuous and long-term waterproofing protection.

In addition to primary waterproofing protection, specialty underlayments have been designed and tested to provide for significantly greater fire spread protection and ember resistance; in many cases this can contribute to a metal roof system achieving a Class A fire rating.

The most common types of underlayments currently in the market include:

Asphalt-Saturated Organic Felts

• One of the most traditional types of underlayment are asphalt-saturated felt paper. Organic felts became popular because they were cost effective and provided a moderate level of coverage from moisture infiltration to the deck below.

• Even though they are still used today in steep-slope (residential) applications, felts are slowly being replaced by improved product options, such as polymer modified self-adhered underlayments and synthetic underlayments.

• Felts are mechanically attached (nailed) into place and can be exposed for a short amount of time before the roof covering is applied.

• They are generally not available for use in high temp (HT) applications, a requirement typical under metal roofing.

Modified Bitumen Self-Adhered

• Self-adhered membranes comprised of asphalt modified with rubber or plastic polymers have been around for decades. Advancements in technology continue to make these a popular choice, particularly in regions with wind-driven rain &/or ice-damming.

• The polymers added to the asphaltic compound increase the durability of the underlayment against UV, heat, and thermal shock. The rubber-like qualities of SBS (styrene-butadiene-styrene) modified products are self-sealing, providing sealability around fasteners and other roof penetrations.

• The bottom surface of these underlayments is manufactured with a layer of modified bitumen composed of SBS,and tackifier resins giving it highly adhesive qualities. The compound is covered with a release film which is removed before

• A typical modified self-adhered underlayment is thicker than an organic felt or synthetic underlayment and generally has an internal reinforcement providing extra puncture and tear resistance, although there are "carrierless" varieties which enhance membrane flexibility.

• Manufacturers offer this category of underlayments in a variety of top surfacing options compatible to the roof covering being used, including film, granules, and fabrics. However, a synthetic film top surface is typically recommended for metal roofing because the smoother surface does not affect the metal finish and standing seam panels are able to slide freely back and forth during thermal cycles.

Modified bitumen self-adhered underlayment - Polyglass.

Section 5

METAL ROOFING MATERIALS

(Continued)

ROOF UNDERLAYMENT

Modified Bitumen Self-Adhered (continued)

• When selecting a modified self-adhered underlayment for metal roofing, it's important to choose one which is rated to sustain the high temperatures (HT) generated under metal panels. A temperature rating of 250°-265° F is suitable for most applications. Because underlayments may be exposed in metal roofing applications for weeks/months, the UV exposure rating must be considered. Polymer modified underlayments can typically sustain exposure for 90 to 180 days, depending on the quality of the compound and the top surface.

• Self-adhered products achieve their full bond strength by passing through 2-3 thermal cycles. It is recommended that these products be installed in conditions where the ambient and surface temperatures are at least 40 degrees and rising.

Synthetic

• Synthetics are the newest form of underlayments (around since the early 2000's). They are plastic sheets typically composed of polypropylene, polypropylene/polyethylene blends, and other polyolefin resins. The manufacturing processes can vary to produce thicker or thinner membranes, different degrees of UV resistance as well as a variety coated "textures" to enhance walkability.

• Some contractors prefer synthetic underlayments due to the ease of use/installation, larger rolls (greater coverage), and slip resistance.

• Synthetics repel moisture but may leak around nails/ fasteners. This is particularly sensitive in areas prone to wind-driven rain and ice damming.

• Due to the thin nature of the membrane, they generally do not have a high degree of puncture resistance, however, many synthetics have excellent tear strength and UV resistance which helps increase the exposure time and resist other factors on the rooftop.

Specialty Underlayments

The increase in wildfires, particularly in the western United States, has created a need for fire-rated underlayments which contribute to a metal roof achieving a Class A fire rating. This demand is driven by local building codes and/ or because homeowners want the peace of mind of having additional fire protection from wind driven embers blowing on the roof during a wildfire or other fire event.

A handful of underlayments fit this need, mostly in the form of a fire barrier or slip sheets. Although effective at increasing fire resistance of the roof assembly, they do not act effectively as a secondary water barrier. Recent innovations have led to the development of a modified bitumen self-adhered underlayment which is a waterproofing membrane and a fire barrier in a single product.

Underlayment is a critical step in the roofing process - DuPont.

Section 6

METAL ROOFING COLORS & COATINGS

Choosing a color for your home's roof can have a huge impact on your home's overall aesthetic. With metal roofing, the color choices are virtually limitless meaning you can select from a wide variety of options or work with your installer on a custom-designed look. Here are some dynamics to consider when selecting your roof color.

WHAT TO CONSIDER

Contrast

Selecting a roof color that contrasts with the color of your home's exterior walls will help your home to stand out and command attention. A great example here would be a bright red metal roof on a white exterior home.

Light Colored Roof

If you are trying to add visual height to your home, a lighter color roof may make your house appear taller. For example, homes with a low-slope roof or a shallow pitch would appear taller with a lighter colored metal roof.

Dark Colored Roof

Alternatively, a darker metal roof may give the appearance of a more modest height home.

Other considerations may include your environmental surroundings and the need to blend into those surroundings. A great example is with homes in mountainous regions where dark greens or browns help the home blend into the wooded terrain.

Architectural styles may also impact the type of roof and color selection. For some helpful tips from the MRA regarding architectural considerations when selecting a roof visit https://bit.ly/31HtSGH .

Section 6

METAL ROOFING COLORS & COATINGS

(Continued)

METAL ROOF COATINGS

Silicone-Modified Polyester (SMP)	Polyvinylidene Fluoride (PVD)	Stone Coated / Granular
• Siliconized polyester is composed of silicone additives in a base resin of polyester. The addition of silicone supplements the paint's performance by improving gloss retention and weather resistance. Some manufacturers also add ceramic pigments to reduce color fading. • Should be applied to metal at 0.2-0.3 mil thick prime coat and 0.7-1.2 mil thick topcoat. • SMP is considered a good paint system that offers lasting performance at a more economical price.	• PVDF paints use a resin of 70% fluoropolymer/30% Acrylic, and are considered the most durable paint in the industry. The formulation provides the ultimate protection for metal roofs. • Should be applied to metal at 0.2-0.3 mil thick prime coat and 0.7-1.2 mil thick topcoat, depending on the paint color. • PVDF is considered a higher-end paint system that offers industry-leading performance and a longer-lasting, more durable finish.	• Stone or granular coated panels, which have been formed and shaped to style, are coated with an acrylic polymer adhesive then the granule coating is applied bonding the stone chips to the specially primed steel panel. A clear coat sealer is applied over the top for extra protection during transit and installation. • Stone or granular coated panels are available in multiple profiles including low-profile tile, high-profile tile, shake, or shingle panels. • Stone coated steel panels are tested to insure no more than 1% stone loss per ASTM D4977.

SPECIAL PRODUCTS FOR CORROSIVE AND MARINE ENVIRONMENT

If you live in or near a corrosive or marine environment, metal roofing is the perfect choice for your home. For coastal applications, non-ferrous metals such as aluminum and copper may provide a better solution.

For projects near or within marine environments, the MRA recomends consulting the product manufacturer for details regarding warranty.

COOL METAL ROOF COATINGS

Metal roof coatings labeled as "cool" utilize special pigments in the paint which reflect infrared radiation and UV rays, allowing the color to appear the same while keeping the roof cooler. Stone-coated roofing panels can also be manufactured with granules that provide reflective protection. These cool coatings can help in alleviating heat build-up and reduce air conditioning requirements.

Section 7

METAL ROOFING PERFORMANCE

Metal roofing's ability to perform in even the most difficult locations and circumstances makes it the best roofing choice in truly every region. How? Here is quick, simple guide to metal roofing's performance in several important categories…

ENERGY EFFICIENCY

Metal roofing is available with "cool" coatings that can repel heat and minimize heating and cooling loads which equates to cost savings for the homeowner.

SOLAR

Because of the long lifespan of quality metal roofing products, metal roofs are the perfect platform for solar panels. In fact, most metal roofs will outlast the solar panels themselves which means the solar panel warranties will not be voided by replacement of the roof underneath. And, as an added benefit, solar panel mounts for metal roofing typically do not require any penetration of the roof itself which means less opportunity for water penetration.

Thanks to their longevity, strength and exceptional durability, there's no doubt that metal roofs are an excellent choice when it comes to residential rooftop solar systems.

NOISE

Despite the perception, metal roofing is not any louder with rain or adverse weather as compared to any other roofing material.

LIGHTNING

Again, despite the misperception, metal roofing does not attract lightning. In fact, if lightning strikes your metal roof, the electricity will be spread out across a larger area, which diminishes the immediate impact.

Research has shown that metal roofing does not in any way increase the risk of lightning striking the roof surface.

ENVIRONMENTALLY FRIENDLY

Metal is one of the most environmentally friendly roofing products on the market. Metal roofing is made of recycled material and is 100% recyclable at the end of its life. That means less in landfills and more reuse than with most other roofing products.

Section 7

METAL ROOFING PERFORMANCE

(Continued)

SNOW & ICE

Most metal roofing systems are designed to carry heavy weight loads, such as snow and ice. Further, several metal roofing styles encourage snow shed and minimize ice damming due to their smooth surface. Snow guards are readily available and easily fitted to every style of metal roof on the market.

HURRICANES & HIGH WINDS

Many metal roofing systems have been tested and proven to perform in winds in excess of 140 mph (equal to an F2 tornado) and provide protection against impact damage from debris.

WILDFIRES

Metal roofing, when combined with the correct roofing system components, meets the Class A fire rating. The Class A rating requires roofing systems to meet or exceed testing criteria as outlined by UL 790 (ASTM E 108) Standard Test Methods for Fire Tests of Roof Coverings.

HAIL

Most metal roofing manufacturers offer UL 2218 Class 4 compliant roofing products. This rating qualifies for the Severe Hail (SH) requirements as defined by most major insurance companies.

In summary, metal roofing out-performs most other roofing products on the market in every category. Long-lasting, durable, sustainable, low maintenance, and eco-friendly… what more could you ask for?

Section 7

METAL ROOFING PERFORMANCE

(Continued)

HOMEOWNER CHECKLIST

Establish What You Want to Accomplish with Your New Roof.

Investing in a new roof for your home is a major decision. This is not only because of its cost but because everyone wants to do what is right for them and for their home.

As you set out on the journey to choose a new roof for your home, we advise setting criteria as to what is important to you in your new roof. These criteria will help guide your search and the roofing choice you make.

- ☐ What are the main objectives you hope your new roof will satisfy?
- ☐ What type of weather does mother nature bring to your area?
- ☐ What is the budget?

When considering a new roof, become familiar with the project specifications. Review the construction details and ask questions such as:

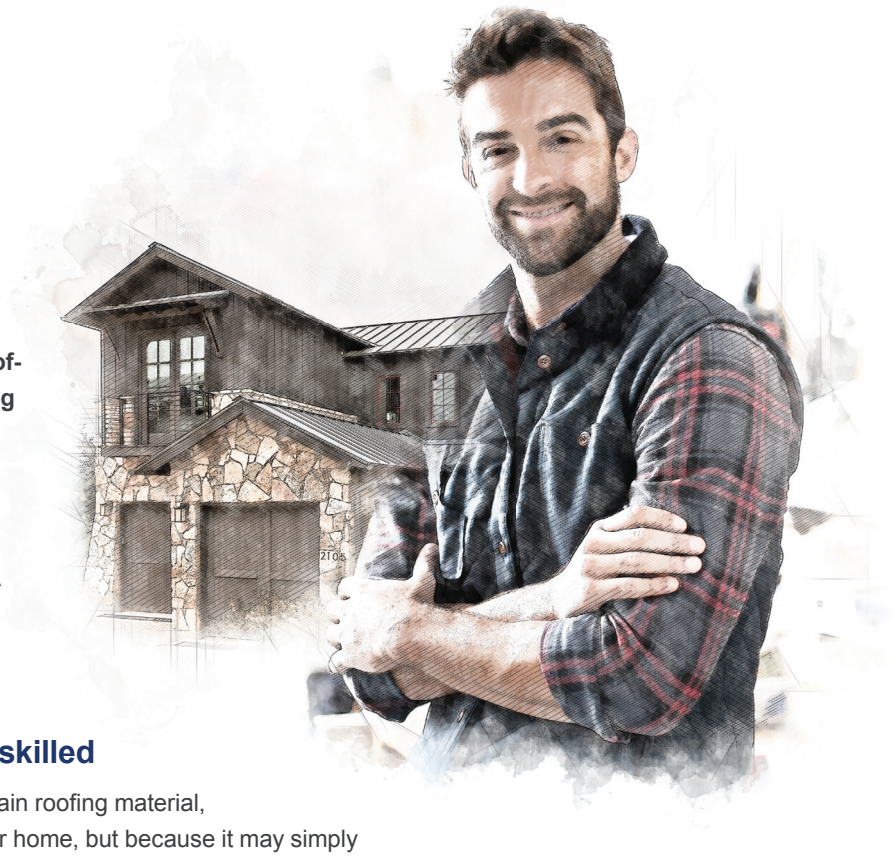
- ☐ What is the roof slope?
- ☐ What is the roof assembly (underlayment, plywood, open framing)?
- ☐ What thickness/gauge/spacing is being considered?

Here are some additional aspects to consider in your roof selection:

- Aesthetics and color
- Energy efficiency
- Fire safety and classification
- Wind resistance requirements
- Mildew resistance needs
- Recycled content
- Recyclability
- Walkability
- Hail resistance
- Life expectancy
- Required maintenance
- Weight including ability to be installed over existing roof
- With standing seam metal roofing, do you prefer exposed or concealed fasteners
- Importance of sustainability and environmental impact

Section 8

DO YOUR HOMEWORK



Now that you are ready to proceed with the re-roofing process, do your homework BEFORE reaching out to a roofing installer. It is important to note that, while the type of roof you install is critical to your decision process, just as critical is the selection of your roofing installer. For homeowners seeking a quality metal roofing installer, MRA offers these tips:

Don’t assume all roofers are equally skilled

Some contractors push homeowners towards a certain roofing material, not because it’s the best or most appropriate for their home, but because it may simply be the option the installer is most familiar with. Make sure your installer is properly trained, experienced and skilled in installing metal roofing.

Ideally, look for a roofer that has been in business for at least five years; roofers who don’t do quality work usually don’t last that long.

It is also important that your installer utilize OHSA approved fall protection measures throughout your re-roof project, a prudent practice followed by law-abiding roofing contractors.

Get referrals

Reputable installers are typically involved in the industry and are committed to keeping abreast of the latest trends and techniques. Check to see if the prospective installer is a member of MRA and other reputable trade alliances.

Be sure to ask for and contact recent references. When contacting references, ask if they were satisfied with the work, if the process went smoothly, if the installers were careful and courteous and they did what they promised, including sticking to the estimate and change orders.

Also, ask the installer to provide you with a few recent job locations so you can drive by and check out the work. While pictures may be helpful, there’s nothing like seeing how a roof looks first-hand.

Know what you want before you reach out

With metal roofing alone, there are hundreds of different options, material types, finishes and installation techniques.

Request the highest-rated, longest lasting material within your budget and always do your own research for whatever product recommendation your installer suggests, verifying it’s what you want for your home.

Section 8

DO YOUR HOMEWORK

(Continued)

Protect yourself

Make sure that installers are licensed, insured and carry workers' compensation coverage. Don't be afraid to ask for proof-of-insurance certificates and the insurance agent's name. A reputable installer won't hesitate to provide you with that information. Don't pay the full amount of a job upfront; ideally, pay one-third upfront for materials, and the remainder when roofing and clean up are completed to your satisfaction. It goes without saying that evaluating warranties is essential: make sure it covers not only materials and finishes, but leaks, flashing failures and other labor-related defects.

Be thorough

Putting on a new roof is only part of the equation. Replacing flashing, curbs and roof jacks is less complicated when re-roofing, so consider having it done at the same time if needed. Be sure to have your contractor or HVAC provider verify proper attic ventilation. Poor ventilation can cause significant damage, high utility bills and worse case, can lead to serious safety issues.

Remember… metal roofs are one of the best and most reliable ways to protect your home for the long run. Invest some time and effort upfront before your re-roofing project begins - it will pay off with many years of loving your home's roof.

Demand Qualilty Products

As happens with many consumer products, there may be industry suppliers who attempt to secure lower priced products through offshore raw materials or production. It is not uncommon for these low-priced products to be made from low-quality materials.

All Metal Roofing Alliance manufacturer members have been vetted as producing products that meet the Premium Quality Certification requirements put forth by the Metal Construction Association. These products represent the highest quality metal roofing options on the market based on materials used throughout the manufacturing process and meet rigorous industry standards for residential metal roofing. Using MRA manufacturer members products can help you rest easy knowing the products are quality and made to perform.

In all cases, MRA recommends you ask questions and be certain you understand the metal roof you're purchasing. Who produced it, where, and from what raw materials? What industry standards does the roofing meet or exceed? What is the product warranty you will receive and who backs up that warranty? What has been their experience with warranty claims?

- **Select the type of roofing you desire before reaching out to a local installer, including the type of roof material and color.**
- **Make sure the installer you choose is a qualified, trained installer of the roof choice you select.**
- **Referrals are important and should be easy for good installers to provide… just ask.**
- **Require proof of the installer's coverages (licenses, insurance, etc.) upfront. Don't be afraid to verify as needed.**
- **Do not pay 100% of the roof estimate up-front. Work with the installer on determining payment amounts based on targeted points in the project. A quality, trustworthy installer will understand that full payment is dependent on a job well-done.**
- **Make sure you inspect the workmanship and finished product before making final payment. Don't be afraid to question the installer about specific aspects of the final results for clarity and confirmation.**
- **Make sure you record the important details about your roof — the manufacturer of the product, installer information, warranty details — for future reference. Also get signed, final versions of all pertinent warranties for the project.**

Section 8

DO YOUR HOMEWORK

(Continued)

Contractor Checklist

Be sure to talk with your contractor and understand the following before signing a contract for your metal roof investment:

• What is the product being installed?

• Who manufactured it and where are they located?

• What is the quality and origin of the raw materials used in my roof?

• What grade and type of metal is on my metal roof?

• Will my old roof be removed?

• Are there other things I should address on my roof before you start such as dormer or masonry maintenance?

• Should my skylights be replaced along with the roof?

• Does my attic have adequate ventilation? What exhaust vents will you use on the roof?

• Will the gutters on my home need to be re-positioned for the metal roof?

• Are the valleys being installed with my roof open and self-cleaning?

• Will my roof have concealed or exposed fasteners?

Section 8

DO YOUR HOMEWORK

(Continued)

• Do the panels used in my metal roof lock together or overlap?

• What underlayment will be used with my new roof?

• What warranties will come with the product and labor for my roof?

• Is the roof approved by its manufacturer for the pitch and geometry of my roof?

• If there are open ribs at the bottom edge of my roof panels, will those be closed in some way or left open?

• How will you flash against any walls that connect to my roof? How about chimneys and skylights? Pipes?

• How much experience do you have with this roof system?

• How have your crews been trained to install this product?

• How will you access my roof and property?

• How / where will things be stored?

• Will you have a portable toilet on the jobsite?

• How can I identify your company's workers?

• Who should I go to if I have questions?

• What will your timeline for the project look like?

• What are the payment terms?

Section 9

FINANCING

The decision to re-roof your home is truly a long-term investment. Luckily, there are many financing options available to homeowners that allow you to spread the investment over time.

Investing in the future of your home has never been more accessible and more affordable with attractive payment plans that do not heavily impact your cash flow. Many lenders have a considerable interest in working with homeowners who chose to install a quality metal roof due to the longevity, durability, and added value metal roofing can bring to your home. This interest translates into some of the best promotional offers and lowest rates ever seen.

In addition, today's technology enables homeowners to apply and view pre-qualified financing offers instantaneously at no risk to your credit. So why not take advantage of the financing opportunities available on the market today?

BENEFITS OF FINANCING YOUR NEW ROOF INCLUDE:

- The wide variety of installment plans with varying payment options are now available to homeowners
- Easy, hassle-free prequalification - allowing homeowners to view pre-qualified offers at no risk to their credit
- Instant online approvals can be given immediately – no waiting required
- Borrow only the amount you need when you receive your metal roof estimate
- Reduces financial stress - use installment plans to secure a payment schedule that works for your budget without the undue stress of having to pay all costs upfront
- Online payments – many lenders offer access to view your account balance and pay online with a secure web-based system

FINANCING IS OFTEN BETTER THAN OTHER PAYMENT METHODS AVAILABLE TO HOMEOWNERS. HERE'S WHY:

- Credit card interest rates are typically higher than financing options and may require use of several cards (due to card limits) and requirements on payback.
- Home equity lines of credit involve a lot of paperwork, time going to the bank, and significant documentation. Typically, you also must put up collateral for this type of loan (such as your home).

A metal roof is a wise investment compared to asphalt shingles. In fact, according to national averages, homeowners typically recoup 50-75% of their metal roof's cost, depending on the region. In addition, studies show that homes with a quality metal roof save on heating/cooling costs, maintenance expenses, and replacement costs which all mean greater resale value compared to homes with asphalt. And, in many states, a metal roofing can even lower your homeowners's insurance by up to 35%. *That's a significant return on your investment!*

Section 10

WARRANTIES

WHAT YOU NEED TO KNOW

Product warranties can be tricky, especially when it comes to roofing. Knowing what to look for in a product warranty could mean the difference between a long-lasting roofing product and one that appears to be quality but, when failure occurs, ends up being worthless.

Quality metal roofing products, such as those offered by MRA manufacturer members, typically come with a 40+ year warranty on painted and stone-coated products. And the warranties that back these quality metal roofing products are solid, offering homeowners the assurance that the metal roof they have installed will be a “life time roof”. Odds are high that, with other roofing materials, your warranty will not be as robust or provide the true coverage that a quality metal roof warranty can provide.

Quality metal roofing products, such as those offered by MRA manufacturer members, typically come with a 40+ year warranty on painted and stone-coat- ed products. Odds are high that, with other roofing materials, your warranty will not be as robust or provide the true coverage that a quality metal roof warranty can provide.

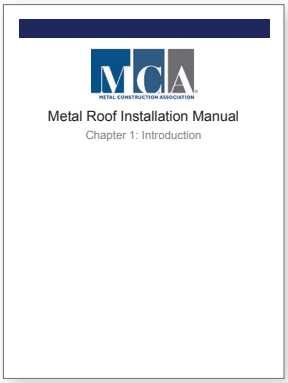
Also, homeowners should receive both a product warranty from the manufacturer and a workmanship warranty from the installer. It is important to know who is providing the warranties as well, Including the responsible company and contact information should a problem arise.

MCA ROOFING SPECIFICATION SHEET

This installation training manual addresses the installation of metal roofing material and related accessories. It includes information pertaining to both new construction reroofing and retrofit projects.

Important Note: Different roof types require specific installation techniques. The information provided in this manual does not supersede installation instructions provided by the manufacturer. Always consult the manufacturer’s instructions.

To view the specification sheet visit
https://bit.ly/2WK6WHI.



Section 10

WARRANTIES

(Continued)

It is important to fully understand the warranty(s) that you will receive with your new roof. Ask for copies of all warranties that will cover your new roof.

As you analyze the warranty(s), here are things to consider:

- What warranties will you receive?

- What do they cover (product and/or installation workmanship)?

- Who provides the warranties?

- What is the history and experience of those companies?

- What are the durations, coverages, and limitations of the warranties?

- Are the warranties transferable to a future owner?

- Can they be transferred multiple times over their duration or just once?

- Are the warranties prorated over time (i.e., the warranty lessens over time either in coverage or amount reimbursed)?

- If so, what are the proration schedules?

- If there is a product failure, does the product warranty cover labor to repair or replace the roof or just replacement materials?

- What are the warranty exceptions?

- Will these exceptions pertain or negatively impact you?

- Do you understand the range of acceptable performance per the warranty (i.e., what is the aesthetic variance that is allowed)?

- What roof maintenance is required under the warranty terms?

- How do you register the warranties?

- How do you make claims under the warranties?

- Who are the primary contacts for the warranties (location, division, person, phone, email, etc.)?

Section 11

UNDERSTANDING THE ROOFING PROCESS

Understanding the roofing process is a vital part of your roof replacement project. The ability to make an educated decision when hiring a roofing professional will save you time, money and frustration throughout the process.

A moderately-sized, professionally-installed roof will follow a process similar to these steps...

1 INSPECTION / REMOVAL

Often a metal roof may be installed over the existing roof, eliminating the need for tear-off and disposal. If you choose to install a metal roof, MRA recommends inquiring with your installer as to if the old roof must be removed prior to install. Should you need to remove the existing roof, this will require depositing the old roofing material into a dumpster or truck for removal, including old or damaged flashings and drip edge. A good roofing crew will protect your foundation, siding and landscaping during tear-off and will use magnetic tools to pick-up nails and metal objects from your lawn and surrounding areas.

2 ROOF SUBSTRUCTURE / REPAIR

If the roof deck is in good condition, only minor repairs will be required. If not, replacement of bad wood with new plywood sheathing, OSB or boards, whichever is applicable to your type of roof, will be required.

3 UNDERLAYMENT / WATER PROTECTION

Install underlayment over the roof sheathing. The layer of underlayment creates an inner barrier against water penetrating into the house. Rows of underlayment are overlapped as they progress upward toward the peak and are normally nailed in place with sealing nails.

4 DRIP EDGE

Apply metal drip edge round the edge of the roof, both the eave sides and gable sides. The metal drip edge is nailed in place over the underlayment.

5 FLASHING / CURBS & ROOF JACKS

Where necessary, apply new valley flashing along areas where two roof planes meet. The valley flashing is typically fastened to the roofing deck.

6 VENTILATION / RIDGE VENTS

Install the ridge vent. This continuous vent along the peak of the roof will help air circulation in the attic space and can be integral in exhausting hot air and preventing winter ice dams. Ridge vents may not be included on older roofs but installing them can be a good idea whenever a house is re-roofed.

7 INSTALLATION

Installation of the roofing panel should be performed by a licensed metal roofing professional with experience installing the roof style you chose.

8 CLEAN-UP & INSPECT

Complete the final cleanup and haul debris away. Have the installation inspected and approved by an approved building inspector.

Section 12

METAL ROOF CARE & MAINTENANCE

With a quality metal roof, the level of maintenance needed to maintain the roof is generally minimal, especially if the roof was correctly installed. However, performing regular maintenance and inspections of your metal roof will help ensure its longevity and aesthetic appeal.

CLEANING

During your regular roof inspections, look for warning signs such as corrosion, scratching/scuffing, leaks or debris build-up. As with any other roofing product, keeping your gutters clean and debris off your roof will help prolong the roof life.

If you need to clean your metal roof, beyond normal rain wash, a mild solution of pure soap or non-abrasive dish washing detergent in warm water should do the trick. Washing should be conducted with a sponge, soft cloth or soft bristle nylon brush (no abrasive scourers or steel wool). A low-pressure spray may also help with removing dirt or debris.

If more rigorous cleaning is needed, other cleaning options are available. Check with your metal roofing manufacturer or installer for additional cleaning suggestions.

REPAIR

Should your metal roof need more serious repairs, such as touch-up painting or replacement, the MRA recommends reaching out to your installer. Touch-up paint is typically available for metal roofing products and the process of doing so is well defined.

BEST METAL ROOF CLEANING PRODUCTS

Plain Water

Dirt, dust, and other low-grade elements might wash off a roof with something as simple as water from a hose. Feel free to use as much water as necessary until the surface is clean.

Detergents

This is the cleaning solution that most people need to use when cleaning their metal roof because it's non-invasive and easy to do. This category includes mild laundry detergents, car washing soap, mild dish soap, and cold or hot commercial/industrial detergents.

1. **Mix: 1/4 cup detergent (5% detergent solution) per gallon of water**
2. **Apply solution to surface using a sponge or a washcloth**
3. **Let stand for 5 to 10 minutes**
4. **Thoroughly rinse surface with plain water**

Section 13

METAL ROOFING CHECKLIST

Is it time for a new roof? Do any of these signs exist?

- ☐ Missing or loose roofing material
- ☐ Damaged roofing material
- ☐ Sagging roof
- ☐ Large amounts of granules in your gutters or downspouts
- ☐ Exposed nail heads or loose nails
- ☐ Water damage inside your home or attic
- ☐ Missing or damaged flashings, curbs or roof jacks
- ☐ Noticeably higher heating or cooling bills

Where you live matters. Is your region prone to...

- ☐ Heavy snow and/or ice
- ☐ Hail
- ☐ Extreme heat or cold
- ☐ Wildfires
- ☐ Hurricanes, tornadoes or high winds

Comparing roof materials. What factors do you value in a roof...

- ☐ Low maintenance
- ☐ Style options
- ☐ Environmental impact
- ☐ Cost
- ☐ Warranty
- ☐ Expected lifespan
- ☐ Other

Metal roofing styles. Which metal roof options appeal to you...

- ☐ Shingles
- ☐ Shake
- ☐ Tile
- ☐ Slate
- ☐ Stone-coated
- ☐ Vertical panel (aka standing seam)

Custom look such as _____

_____

_____

_____

Metal roofing colors and coatings. Things to consider...

- ☐ Do you want to add the appearance of height to your home?
- ☐ Do you want to stand out or blend in?
- ☐ Do you live near a corrosive or marine environment?
- ☐ Are you interested in cool coatings to reduce heating/cooling costs?

Section 13

METAL ROOFING CHECKLIST

(Continued)

Metal roofing materials are often dictated by the style you choose. Do you have a preference in the type of metal used on your home?

_____

_____

_____

Do your homework. In regards to your installer, have you...

- ☐ Received referrals and/or seen previous roofing jobs?
- ☐ Verified their documentation (licenses, insurance, etc.)?
- ☐ Finalized the metal roof style and color you want? Can they install this roof? Do they have experience/ training to do so?
- ☐ Are you clear on the warranty(s) being offered/provided?

Other concerns? _____

_____

_____

Understanding the roofing process. Does the installer follow a similar process and did they include in their estimate...

- ☐ Inspection and roof removal (if needed)
- ☐ Roof substrate repair and/or replacement
- ☐ Underlayment and water protection
- ☐ Drip edge protection
- ☐ Flashing, curbing and roof jack replacements
- ☐ Knowledge of ventilation requirements and installation of vents
- ☐ Roof installation using appropriate fasteners
- ☐ Clean-up and final inspection

Warranties. You should know the following... What warranties are being offered?

Product: _____

_____

_____

Workmanship: _____

_____

_____

Who is providing (supporting) the warranties?

Company: _____

_____

_____

Contact Information: _____

_____

_____

Notes

_____

_____

_____

_____

_____

_____

_____

Section 13

METAL ROOFING CHECKLIST

(Continued)

Notes

Section 14

APPENDIX - GLOSSARY OF TERMS

We hope that our Metal Roof Glossary will help you understand the terms used when talking with a roofing contractor. If you have any additional questions, please do not hesitate to contact us or call us.

30 lb felt – was the standard underlayment for quality metal roofing systems and is still used but has been replaced in many areas by newer synthetic underlayments. It is typically made of a polyester fleece and infused with tar.

Architectural Roofing – is metal roofing systems that are non-weight load bearing and must be installed over solid decking rather than battens or purlins. Also called “Non-Structural Systems”.

Class A, B and C Fire Ratings – Fire-resistance ratings were established for roofing per ASTM and UL tests. These indicate the resistance of a roofing system to fires originating from sources outside the building.

Clip – is a small metal component used to secure two pieces of metal to each other or to secure metal shingles or standing seam to solid decking.

Closed Valley – is valley that has an integral cover over the area where the shingles meet at the miter from adjoining roof planes. This valley carries water in hidden channels beneath the roof covering. In many cases, this cover creates a trap for debris such as leaves, ice, and snow to gather and clog the valley system, causing water to overflow underneath the roofing system

Coatings – Below are descriptions of the available metal coatings used in the metal roofing industry.

Kynar 500 and Hylar 5000 – are trade names for polyvinylidene (PVDF) paint finishes that provide very strong longevity and durability including fade and chalk resistance that leads the coatings industry. Kynar 500 is produced by Arkema Chemicals, and Hylar 5000 is produced by Solvay Solexis.

Stone Coated – is metal roofing made from zinc or aluminum coated steel that is then coated with the same granules as composition shingles. It is attractive but faces similar problems of streaking, granule loss, and organic growth as traditional composition shingles.

Siliconized Polyester – is a solvent-based system with polyester resin. Silicone additives are used to increase resin stability and coating flexibility. Standard polyester finishes are commonly used on agricultural metal roofs where price is of greater concern than performance.

Super Polyester – is siliconized polyester with fade resistant pigmentation. The pigments enhance the performance of traditional polyesters, but the coatings are still prone to chalking as the resin breaks down over time.

Plastisol – is a coating traditionally used in the siding industry. It is composed of PVC particles embedded in a plasticizer that provides some flexibility and durability. It is not recommended as a roofing application in the United States.

Coil Coating – is the continuous process in which paint is applied to both sides of a moving strip of metal. The process usually includes cleaning, chemical pre-treatment, primer, and topcoat.

Cold Roof – is a roof incorporating “above sheathing ventilation” to help prevent hot spots on the roof and subsequent wintertime ice dams.

Cool Roofing – are roofs that have high reflectivity achieved either through light colors or reflective pigments. Cool roofing can also refer to roof systems which have integral ventilation to help carry heat away from the structure and reduce cooling loads.

Condensation – occurs when warm moist air hits a cool surface. This can occur in or on poorly designed roof assemblies. Ventilation, insulation, and vapor barriers are the keys to avoiding condensation in roof systems.

Course – is a row of metal shingles running the length of the roof.

Cricket – is a peaked “saddle” constructed at the back of a chimney to prevent accumulation of snow and ice and to deflect water around the chimney.

Decking – is the surface installed over the supporting framing members to which the roofing is applied.

Dormer – is a framed window unit projecting through the sloping plane of a roof.

Section 14

APPENDIX - GLOSSARY OF TERMS

(Continued)

Drip Edge – is a piece of metal placed on the eave of a roof to protect the underlayment and eave of the roof and direct water in the proper direction, often into the gutter or eaves trough. In some instances, a Drip Edge and starter strip can be incorporated in the same component.

Eave – is the very edge of the roof at the bottom (downhill) of a roof plane.

Fascia – caps the perimeter of the gables and eaves of the roof, can then be used to hang gutters along the eaves.

Flashings – are components used to help waterproof the perimeters and protrusions in a roofing system.

Gable – is the edge of the roof that runs from the eave to the ridge; some within the industry also refer to this as the Rake.

Galvalume steel – is carbon steel with a protective alloy consisting primarily of aluminum on both sides of the steel. AZ50 grade is suggested for painted product while AZ55 is suggested for product with clear acrylic coating.

Galvanized steel – is carbon steel with a protective alloy consisting primarily of zinc on both sides of the steel. Various grades are available based upon the thickness of the coating. G90 is suggested for residential applications.

Heat Tape – is an electric cable used to help melt snow near the eaves of the roof. This is used to help alleviate ice damning.

Hip – is the inclined external angle formed by the intersection of two sloping roof planes. Runs from the ridge to the eaves.

Hip Roof – is a type of roof containing sloping planes on each side.

Hot Roof – is a completely sealed, not vented attic, the entire interior of which is often sprayed with closed cell urethane foam insulation. This can also be a conditioned space.

Ice and Water Shield – is a self-adhering membrane, specifically designed to be used in heavy rain and snow areas where leaks can be a problem. In most cases you would install ice and water shield on the first three feet of the roof in addition to underlayment. Building codes will require this in certain areas.

Ice Dam – is when snow melts on an upper section of a roof surface and then refreezes at the eaves where the roof surface is colder. This causes water to back up, causing leaks into the roofing system. Ice damming is controlled through attic insulation and ventilation.

Open Valley – is a valley design used to transition water and debris off of a roof slope, carrying the water on top of the roofing systems. These valley systems are designed to not clog with debris such as tree leaves and needles, ice, or snow.

Pitch – is the slope of the roof plane, referred to as the height of rise over length of run, ie: 3:12. Steep slope refers to any pitch great than 3:12 and very low slope refers to any pitch less than 1.5:12. Most metal roofs can be installed on roof pitches of 4:12 or greater though many systems can be installed on shallower roofs.

Pipe Jacks – are also called “pipe flashings” and refer to metal and/or neoprene flashings used to seal around plumbing pipes, round vents, conduits, and other roof penetrations.

Ridge – is the very top section of the roof running the length of the roof, where the two roof slopes come together.

Ridge or Hip Caps – are accessories used to cover the inclined external angle formed by the intersection of two sloping roof planes, either at the ridge or hip.

Ridge Vent – is an outtake vent for air integrated into the ridge flashing. A ridge vent’s proper performance requires intake adequate intake vents, usually in the eave soffits of the home. For most homes this is the most effective method for siphoning air out of the attic or other air space.

Roof Framing Styles – Gable, hip, and barn style roofs are only a few of the possible shapes and designs a roof can take. For more information and examples please visit: http://www.oneprojectcloser.com

Sealant – commonly used to act as a sealant of joints or cracks to help prevent leaks. The higher-grade sealants are usually butyl or polyether chemistry. Sealants should be used for aesthetic reasons as well as for redundant lines of defense against water intrusion. They should never be the sole line of defense. Also, sealants are not designed to be adhesives.

Section 14

APPENDIX - GLOSSARY OF TERMS

(Continued)

Snow Guards – are used in snow country to help break apart snow so it does not leave the roof surface in large pieces and harm people or property. An enhanced variation of these consists of Snow Fences. On standing seam roofs, these items need to be installed in a way that does not impede movement of the roofing system with thermal expansion and contraction.

Square – refers to enough product to cover approximately 100 square feet of the roof.

Starter Strip – is used to begin the attachment of many metal roofing systems. It is used at the eave (bottom) of the roof on many metal shingle systems and on the left-hand edge of the roof on many standing seam systems.

Step Flashing – is a method of flashing commonly used with standard roofing shingles and some other materials. Step flashing is generally not advised with metal roofing which usually uses continuous lineal flashings for greater life and watertightness.

Structural Roofing – refers to metal roofing that provides structural integrity to the building and does not require decking for installation. Generally, these systems are not advised for residential application because a lack of decking can be a contributing factor to condensation issues.

UL-2218 Impact Resistance Rating – is a test criteria for measuring the impact resistance of roofing materials, rating roofing materials on a scale from I to IV with IV being products that best withstand the impact test. Insurance discounts are available to homeowners in some areas who choose Class IV roofs. Homeowners are advised to investigate any future limitations which accepting the discount may place on their insurance coverage.

Underlayment – is 30 lb felt or synthetic sheet installed on the roof deck below the roofing material. This is required by code beneath all metal roofs, even if the old shingles are left in place.

Valley – is the internal angle formed by the intersection of two sloping roof planes to provide water runoff. Refer to the glossary terms for Closed and Open Valley.

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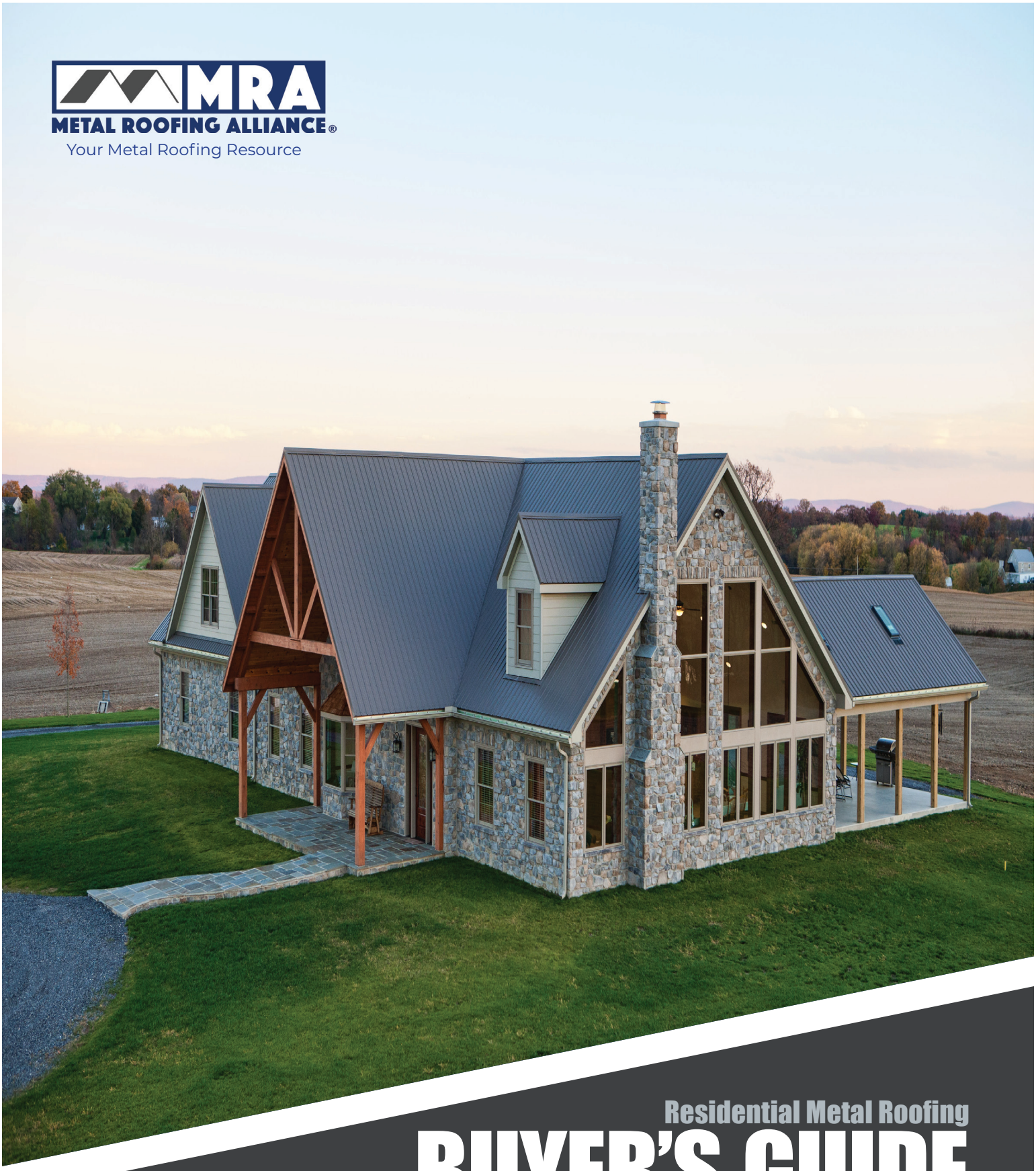

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