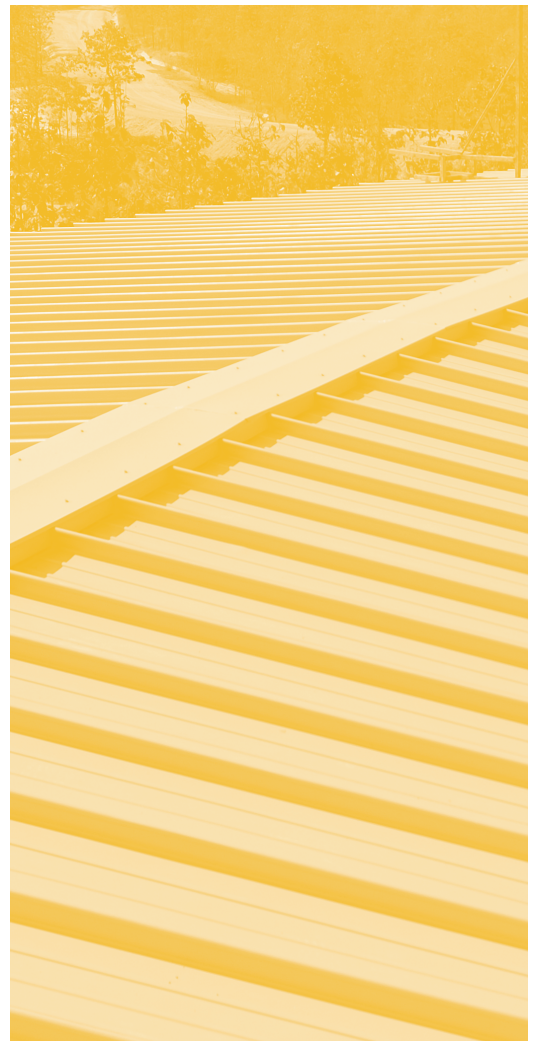




METAL ROOFING

BUYER'S GUIDE

FROM DECK TO FINISH



**Sheffield Metals
International**

A MAZZELLA COMPANY

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WELCOME



All of us at Sheffield Metals wanted to start by thanking you for downloading our **Metal Roofing Buyer's Guide: From Deck to Finish** e-book.

Are you a home or building owner looking to purchase a new roof or wanting to learn more about the best material to install on your structure? Or are you an architect or contractor wanting to supply information to your customers to educate them or assist during the roof buying process?

This e-book is packed with valuable information from industry experts and is designed to:

- Educate you on all of the different aspects and choices for metal roofing
- Provide honest comparisons between metal roofing and other roofing materials
- Discuss the most commonly asked questions from prospective buyers
- Assist you with choosing and buying the best roof specifically for you and your needs

Purchasing a new roof is truly an investment in the protection of your home or business and everything inside of it, which is why becoming a better educated consumer when buying roofing makes all the difference. So, as you make your way through our Metal Roofing Buyer's Guide e-book, we believe you'll learn new information, discover best practices and processes, and feel confident in your final purchasing decision.

As always, we thank you for your time! If you have additional questions or want to contact us about metal roofing, panel systems, or any other metal roofing solution, we're here to help. Feel free to call us at 1-800-283-5262 or [fill out the form on the contact page](#) of our website.



Adam Mazzella
Vice President of Business Development
Sheffield Metals International



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CHAPTER

1

WHAT IS A METAL ROOF?

USES, TYPES, AND DEFINITIONS

Stores. Homes. Offices. Barns. Hotels. Metal roofing is everywhere. And knowing what a metal roof is and its different uses, types, and definitions will assist during the buying process by making you a better informed consumer.

Introduction

Whether you notice them or not, metal roofs are everywhere. You probably wouldn't normally think to look at the roofing on a home, but if you take a drive down any road in any city, you're likely to find a house or building donning some kind of metal roof.

But how much do you know about metal roofing? Did you know that metal roofing often requires very little maintenance after it's installed? Or that you can choose from a variety of looks and styles, like standing seam or stamped metal roofing?

In this chapter, we are going to discuss:

- Reasons to consider or choose a metal roof
- Common metal roofing terms and definitions
- The different uses and applications of metal roofing
- Types and options available with metal roofing



Why choose a metal roof?

There are a number of reasons to choose metal roofing over other materials, like asphalt shingles, tiles, or concrete. While metal roofing might be the best choice for some home or building owners, we understand that it's not always the best material for every consumer. The best way to know if metal roofing is a good match for you is to consider some of the most common reasons people decide to buy.



Longevity

Metal roofing is specifically engineered to last decades longer than any other roofing material. Actually, many consumers ultimately decide to purchase a metal roof because it'll be the last roof that they ever have to put on their home or business. Depending upon the type of metal material used, most metal roofs last 60+ years without any signs of degradation or corrosion.



Durability

When comparing different materials, like wood, concrete, metal, plastic, or glass, metal easily stands out as the strongest and most durable.

If properly installed, metal roofing is designed to withstand:

- Strong winds
- Rain
- Hail
- Mildew
- Debris (leaves, sticks, etc.)
- Snow
- Mold
- Rodents and other animals

Not to mention, metal roof materials are often Class A fire-rated and noncombustible, meaning its fire resistance is the highest grade possible. This proven durability against common roofing threats is one of the fundamental reasons metal roofing is so popular.



Maintenance

The level of upkeep needed to maintain a metal roof is generally minimal, especially if the roof was correctly installed. General upkeep includes looking for leaves, branches, and other debris that could get stuck on the roof and in the gutters around twice a year and after strong storms. In the event that dirt or other stains do not come off with rain, there are methods to clean your metal roof. Also, a concealed fastener roof will generally have less upkeep than an exposed fastener metal roof.



Eco-friendly

There are a number of reasons that metal roofing is environmentally friendly. First, most metal roofing is highly recyclable, meaning that any tear-off metal, old panels, or even manufactured excess scraps can be recycled and used in future products.

These metal materials can either come as pre-consumer or post-consumer recycled content:

- Pre-consumer recycled materials – Scrap content during the manufacturing stage that has been recycled for future use.
- Post-consumer recycled materials – Excess materials that have already been in the possession of a consumer at one point in time and have been recycled for reuse.

Second, there are even some metal roofing materials, including aluminum, that are made of already-recycled metal. Third, many metals, like zinc and copper, are found in the environment or in the Earth's crust, which means they can be naturally replenished and sustained over time. Make sure to specify ahead of construction and installation that recycled content is important to you.



Warranties

One of the best parts of owning a metal roof is the variety of warranty options made available by the metal manufacturers or suppliers. Two of the most common are weather-tight warranties, which cover leaks in the roofing system, and paint warranties, which cover certain levels of degradation of the paint system that is applied to the metal substrate. Warranties can vary quite a bit depending on where you live, the climate the roof will be exposed to, the type of roofing material used, and the type of paint system used on the coil. Be sure to thoroughly read the warranty documents ahead of time and ask questions before you buy.

Note: Weather-tight warranties are typically a tool used for architects and building owners of non-residential structures to ensure longtime system integrity from the system manufacturer.



Cost savings

The table below represents a cost comparison between 60 years worth of both mid-range shingle roofing (three in total) and metal roofing (one in total). In this scenario, the mid-range cost for one architectural shingle roof is around \$8,700 and the cost for one Galvalume® Standing Seam with Kynar 500®, a high-end paint system, metal roof is about \$19,201.

Even if the shingle roof lasted 20 years, you would need to pay for the shingle roof three times and the metal roof one time in a 60-year span, making the metal roof a more economical choice.

Metal roof: \$19,201 x 1 (1, 60-year lifespan) = \$19,201

Shingle roof: \$8,737 x 3 (3, 20-year lifespans) = \$26,211

Mid-Range Roof Costs for 60 Years

Roofing material	Architectural Shingles	Galvalume Standing Seam
Roof length (eave side)	40 ft.	40 ft.
Roof width (gable side)	40 ft.	40 ft.
Roof Slope	5 (medium slope)	5 (medium slope)
Roof Difficulty	Simple roof	Simple roof
Roof Tear-off	Yes - 1 layer	Yes - 1 layer
Number of floors	Single-Story	Single-Story
Number of Skylights	0	0
Number of Chimneys	0	0
Ridge vent	0	0
Low-end cost	\$20,970	\$15,361
Mid-range cost	\$26,211	\$19,201
High-end cost	\$31,455	\$23,042

Metal roof components, accessories, and definitions

In order to better understand a metal roof and how it works, let's start with a quick A-Z glossary of some metal roofing components, common accessories, and other important roofing terms and definitions.





Butyl tape

Butyl tape is similar to sealant as it seals cracks and seams on metal roofing. It's also commonly used for trimming purposes. It differs from sealants because it's in the form of one or two-sided tape and seals by compression.

Clamps

Clamps are small metal parts that are tightened and attached to the top of the metal roof at its standing seam. These clamps have screws at the top used to attach extra roofing items such as a snow retention system, solar panels, satellite dishes, signs, AC units, etc.



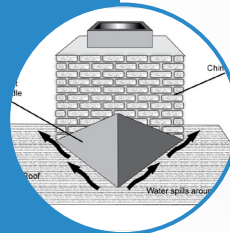
Clips

Clips are used to attach the metal roof panels to the roof deck. The clips are put on the standing seam portion of the bottom panel and are attached to the roof deck by fasteners. The top panel is placed over the clip and the two panels are snapped together or mechanically seamed into place.



Cricket

A peaked saddle construction installed between a chimney and the roof surface to prevent against the accumulation of snow and water.



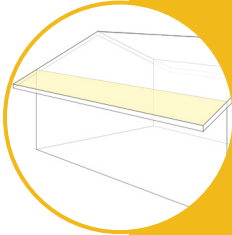
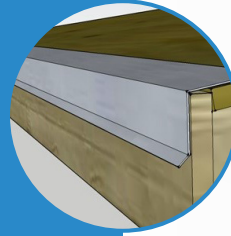
Curb

An accessory used to mount additions (AC units, fans, signs) and provide a level resting structure on a sloped roof.



Drip edge

A long piece of metal that is installed so water runs into the gutter and away from the fascia.



Eave

A portion of the roof that extends past the supporting wall.

Fascia

The trim right below the roof that runs the perimeter of a structure to help keep water from running into the structure.

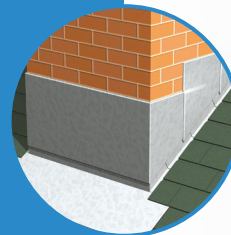


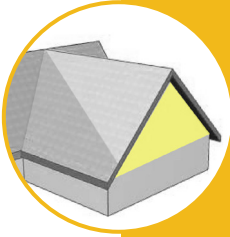
Fasteners

Fasteners are the screws used to attach the metal roof to the roof deck during installation.

Flashing

Sheet metal that is used to seal different portions of the roof, i.e. chimneys, valleys, etc., and provide extra weather-tightness.



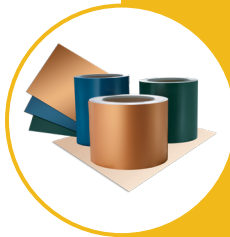
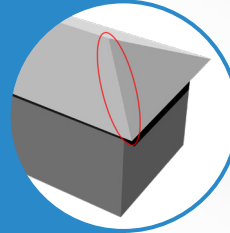


Gable

The triangular section of a wall between the edges of a sloping roof. The trim occupying this article is typically called “gable or rake trim”.

Hip

The external or jutting angle at which two sloping roof panels meet.

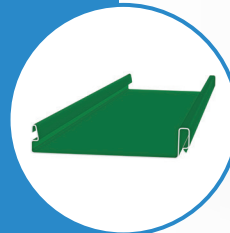


Metal coils/sheets

Metal coils are long, continuous metal rolls that have been treated or coated with paint. Metal roofing typically starts as metal coil or sheet metal, which is then rolled out, cut, and rollformed into panels.

Panels

Panels are the rollformed pieces of metal coil that have been shaped into the desired profile/ribbing structure and are ready to be seamed together to form a roof.

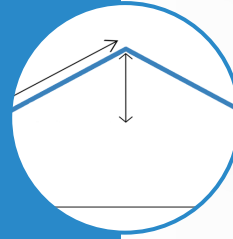


Pipe boot

A pipe boot is the cone-like fitting (made of EPDM rubber or silicone) installed around an exhaust pipe that exits through the roof. The pipe boot is cut to fit the diameter of the exhaust pipe and is then sealed to the pipe and the metal surface.

Pitch

The slope of a roof, which is measured using the roof's rise divided by its run.



Profile

The shape metal panels are formed into. The profiles are what determine how the panels fit and connect together.

Ridge

The highest portion of a roof where at least two roof panels come to a point (commonly a horizontal line).



Rivets

Rivets are similar to fasteners, but require a special rivet gun to install.

Metal fabrication equipment

The machinery, either stationary or portable equipment, that forms and shapes the coil into individual panels.





Roof decking

The base or foundation that the underlayment and roofing material are attached to. Common roof deck materials are metal, plywood, polyiso, and oriented strand board (OSB).

Sealant

Sealants are flexible sealing compounds used during installation to seal out water, dirt, wind, and other substances that can get into small spaces on a metal roof. Sealants are typically made of silicone or polyurethane.



Seam

The side rib at which two metal panels come together and are connected. Seams are formed using a rollformer and are then snapped together or mechanically seamed together.

Underlayment

Underlayment is the layer of material (felt, synthetic, or fully-adhered peel & stick) installed underneath the metal panels and provides protection from water and moisture, ice, temperatures, and vapors.



Valley

The internal angle at which two sloping roof planes meet.

Common uses for metal roofing

Metal roofing has the reputation of only being used on large industrial or commercial structures. While it's true that metal is a good option for these applications, metal roofing goes far beyond this with use on homes, architectural buildings, and agricultural structures. Let's discuss more common uses and structures to look for the next time you're out in your city or town.





Commercial

One of the biggest reasons metal roofing is commonly chosen in commercial applications is due to its superior weather resistance to wind and water, especially in areas where hurricanes or other tropical weather is a concern. Even when the structure isn't in a tropical location, metal roofing gives business and building owners the peace of mind that their roof is destined to last and not need constant upkeep.

Common uses:

- Hospitals
- Schools and universities
- Churches
- Government buildings
- Military structures
- Restaurants
- Stores
- Offices
- Hotels
- Transportation buildings



Commercial metal roofing project



Architectural

Since metal roofing begins as a metal coil or sheet, it has the ability to be formed and cut into many different shapes, sizes, and lengths. This variety, along with the durability, variety of colors, and eco-friendly qualities, gives architects many benefits to using metal roofing to create aesthetically pleasing structures.



Structural

Have you ever been inside of a warehouse, factory, or other industrial building where you look up and see the metal roof from inside? This is a good example of structural metal roofing, which is when metal panels are installed over open framing or on structures that span long lengths and are attached directly to the frame or purlins (additional support beams added to the roof frame).



Residential

The residential market is booming as homeowners begin to realize that metal roofing will actually save them money in the long run. A lot of homeowners don't think their roof is big enough to warrant a metal roof, but we are here to tell you that the size of your roof doesn't matter. Metal roofing systems can be used on something as small as a brick or stone mailbox.

There has also been an increase in metal roofing being used as an accent on an awning or as a part of the roof. Be sure to consult with the manufacturer before a contractor installs two different materials together, as they could potentially react and/or degrade one another.



Residential metal roofing project



Agricultural

Like structural applications, barns and other agricultural buildings are common uses for metal roofing. Agricultural structures traditionally use a lap seam profile, which is when the ends of the panels overlap each other and have sealant or exposed fasteners holding the two panels together.

Metal roofing types and options

The popularity of metal roofing is often due to its versatility, variety of options, and ability to be customized for each individual structure, which includes color, shape, style, and much more.



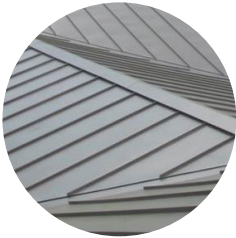
Metal roofing material types

Metal is a very broad term when it comes to roofing, especially because there are nearly 100 metals on the periodic table of elements.

Some of the most commonly used metal roofing materials used in the industry are:

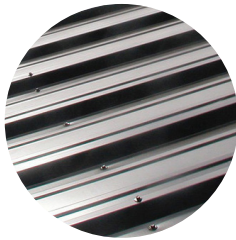
- Galvalume
- Aluminum
- Zinc
- Copper
- Stainless steel

Metal roofing panel styles



Standing seam

Standing seam metal roofing refers to metal panels interlocked together at the edges to form a seam, which stands vertically. A true standing seam system uses the concealed fastener method of installation, meaning the clips and fasteners are hidden beneath the surface and not visible to the naked eye. This is what sets it apart from all other metal roofing. Standing seam roofing is considered the superior and the better-protected choice when compared to exposed fastener metal roofing.



Exposed fastener metal roofing

Exposed fastener metal roofing, considered the less expensive and more economical choice, is installed with the heads of the fasteners visible on the top of the panels. When an exposed fastener roof is installed, the fastener goes directly through the metal and into the roof deck. Exposed fasteners have classically been used in agricultural or industrial applications.



Stamped profiles

If you like the look of shingles or more textured surfaces but still want the longevity, cost and durability metal offers, it's possible with metal stamped profiles.

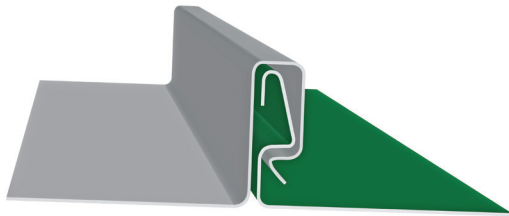
There are many different stamped options to choose from, including:

- Shake
- Shingles
- Tiles

Metal panel seam types

Snap-lock

Metal roofing panels that have been carefully rollformed with specific panel profile edges that snap together and require no hand or mechanical seaming during installation. Snap-lock seams tend to be a little more popular in the roofing industry because they are engineered to defend against the elements while making installation a little easier on the contractor.



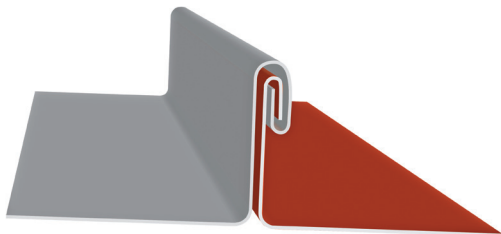
Tee panel

A type of standing seam where two panel edges come together and are connected at the top by a cap, which is then mechanically seamed in place to lock the panels together. Once the seaming is complete, the top of the standing seam is in the shape of a "T".



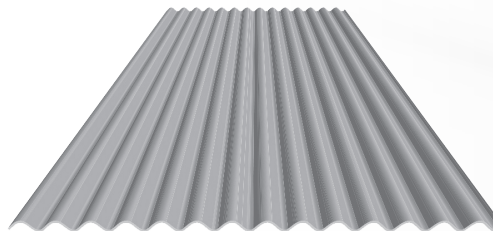
Mechanical seam

Mechanically seamed panels are also rollformed with specific edges that line up with each other on the roof. Once the two edges are put together, a hand or mechanical seamer is used to bend the edges and lock the panels together.



Exposed fastener lap seam

Exposed fastener lap seams are when the overlapping ends of the lap panels are fastened down to the deck from the top of the panel.



The locked seam resembles the shape of a paper clip. There are two kinds of mechanical seaming:

- Single Lock / 90-degree seam – One fold of the seam
- Double Lock / 180-degree seam – Two folds of the seam

Metal roofing panel rib rollers

Rib rollers are the “patterns” or striations rollformed into a metal roofing panel between the seams. These can be used to assist with the installation of a metal roof or just for curb appeal.

Common rib rollers include:

Ribbed

Some shape or indentation between seams

V-ribs

V-shaped panel indents



Flat

No indents between the seams

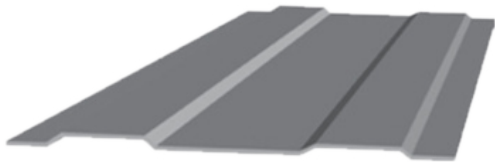
Corrugated

Larger, constant waving of the metal panel



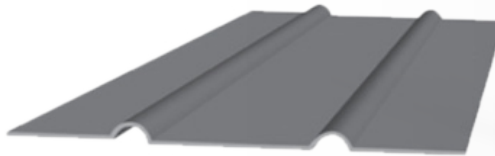
Bead ribs

Longer, rectangular panel indents



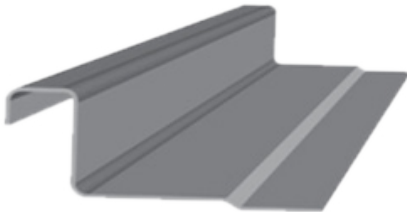
Pencil ribs

Circular panel indents



Clip relief

A stiffening rib adjacent to the seam that allows the space for a clip



Striated

Small consistent indentation lines in the panel (can help reduce oil canning)



Common metal thickness

The metal coil that is rollformed into panels for metal roofing comes in many different thicknesses. We will discuss the disadvantages and drawbacks of differing panel thicknesses in a future article. Standing seam metal roofing comes in a variety of thicknesses (typically between 22 and 26 gauge) with the most common steel thickness being 24 gauge and aluminum between .032 and .040 inches. For face-fastened systems, 26 or 29 gauge materials are usually used.

Metal roofing colors and finishes

Having control over the color and overall look to your structure is one of the most appealing parts of choosing metal roofing. Because of the overwhelming demand for both bright and earth tones on roofing systems, paint companies, like Sherwin-Williams or Valspar, created tested and proven paint systems that add style to a home's exterior while still reducing chalking, fading, chipping, and other color degradation.

In addition to every color in the rainbow being a metal roofing option, you can even special order the finish of your choosing. If you want a blue roof with a matte finish, it's possible. Or if you want a red roof with a glossy finish, that's possible too.



Wrapping it all up

If you're new to metal roofing or just beginning to do your research on the benefits of a metal roof system, it can be a complex topic. It's true, metal roofing might not be for everyone.

But more often than not, it's a good option for a homeowner or business owner if:

- You want your next roofing purchase to be the last one you have to make
- You don't want to pay more in the long-run to replace a shingle or tile roof every 15-20 years
- You want an eco-friendly, sustainable roof requiring little maintenance
- You want a roof that is recyclable
- You want a roof available in a variety of color, finish, or texture options



CHAPTER

2

7 REASONS A METAL ROOF IS THE BEST CHOICE

FOR YOUR HOME OR BUSINESS

Buying a new roof is important, but the type of roof that fits you and your building might not be as simple to determine. Let's go through some reasons a metal roof might be the best option for your specific structure.

Let's keep it simple. A roof is important.

But the type of roof that best fits you and your building might not be as simple to define. In this chapter we aren't going to get into comparisons between the different types of roofs, like shingles versus metal. Instead, we want to focus on the buyer and the individual characteristics or interests that might make them a good fit for a metal roof.

In fact, we'll focus heavily on these two parts:

- What you should know before you buy a metal roof
- Reasons that a metal roof might be the best choice for you



What to know before you buy a metal roof

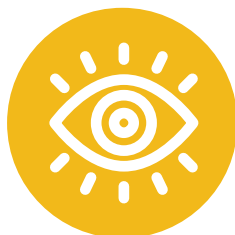
Before we get into some of the reasons a metal roof could be the best option, you should have a set idea of your personal likes, dislikes, home attributes, and specifications. Not only will this help you choose a material, but if you do end up choosing a metal roof, it'll also help you decide on the final panel style and design.



Know your budget

Here is our biggest recommendation regarding this sensitive topic: Be realistic. You want to get the most out of your money, but you also don't want to spend money that you don't have. Take a detailed look at your finances and how much money you are able and willing to spend on a roof. It's just that important.

If you are able to put down a larger sum of money at one time with the understanding that you won't have to replace the roof for at least 50+ years, a metal roof might be your best option. Or if you're strapped for cash and unable to put down a large amount of money at one time, you may not be in the market to purchase a metal roof right now.



Know your style/design interests

Have a good idea of what you want in the end product of the roof going on your building. If you had to visualize your ideal home, what would the roof look like? Would the roof be a bright color or have more of an earth tone? What would the texture be? How about the finish?

With metal roofing, there are dozens of different combinations to choose from, such as:

Panel Style	Standing Seam, Exposed Fastener, Stamped Metal
Paint Type	PVDF (best), SMP, FEVE, Plastisol
Color	Unpainted, standard, premium, metallic, weathered
Finish	Matte, specular gloss
Seam	Mechanical, Snap-lock, Tee, Exposed Fastener Lap
Rib Roller	Flat, ribbed, striated, corrugated, clip relief

There are even more parts of a metal roof available for buyers to choose from on top of the ones discussed above, which allows for even more customization and versatility.



Know your roof

Knowing the specific aspects of your existing roof structure before you buy a new one can help you determine the style, profile, or seam best fit for your application.

Be aware of:

Roof pitch (slope)

- For example, standing seam metal roofing is not “one size fits all”. If you have a low-slope application (3/12 or less is the industry standard), it is important that you choose a mechanical system that is double locked. If you have a steep-slope application (3/12 or greater is the industry standard), snap-lock systems with a clip should be used.
- It’s imperative to check the manufacturer’s minimum slope requirements before installation.

Square footage of the roof

Planes of the roof

- Valleys, hips, ridges, eaves, and gables
- Dead valleys and other points on your roof that may collect moisture or debris

Number of potential penetration points

- Chimneys, vent pipes, or skylights

Other potential problem areas

- Drainage issues
- Ice damming
- Existing leaks
- Snow retention over entryways



Know the environment the roof will be subjected to

There are environments where a metal roof will perform better than any other material, especially those subjected to extreme weather.

Extreme weather events can include:

- High wind
- High UV/sun exposure
- High moisture – rain, ice, or snow

But that doesn't mean metal roofing can't work in mild environments either. In fact, metal roofing works well in generally any area as long as the correct panel type is used for the application and the installation details are followed. Just be aware that there are places where a metal roof can be installed, but not qualify for one or more warranties. This especially applies to structures near the coast and subjected to brackish water, salt-water bays, and crashing surfs.

Here are a few more items to look for in your living environment before installing a new roof:

- Shaded areas
- Tree cover
- Potential pollutants in the air
- Other nearby bodies of water



Know how much maintenance you're willing to do

Any roofing material will require maintenance of some kind, but the frequency of such maintenance varies across the board. This is why knowing how often you want to or are willing to do regular maintenance on your roof is a key consideration to think about.



”

We want to focus on the buyer and the individual characteristics that might make them a good fit for a metal roof.”

7 reasons a metal roof is the best choice for you

1

You don't want to ever buy or replace another roof

It's one of the most common reasons we hear from buyers of metal roofing: They don't want to buy another roof in their lifetime. It's true that metal roofs are more expensive in the short-term as a one-time expense, but it actually becomes the more cost-effective solution in the long run because it won't require replacement for at least 50 years or more. So if you're planning to stay in the home or building you currently inhabit, buying a metal roof ensures that you won't be buying a new replacement roof every 10 to 15 years.

2

You want the best protection for your home and your loved ones

The people and the memories on the inside of your home are priceless and unable to be replaced. A leak or fire originating from the roof on a home can spell disaster in more ways than anyone could imagine. This is why it's so important to be cognizant of how different roofing materials perform and are tested to resist against potential hazards.

Bias aside, a metal roof is one of the most protective options to use as your roof because:

- Most metal roofing is Class A fire-rated and noncombustible, making it the most resistant to catching on fire (your installer should confirm this with local building codes prior to installation).
- Many metal roofing materials are given a Class 4 UL 2218 rating, which means it won't puncture or damage the metal during a hail storm consisting of at least 2-inch diameter hailstones.
- Reputable metal companies put their panels through additional testing to further measure its safety and performance, including wind uplift tests (UL 580), water penetration tests, and air infiltration tests.
- Metal roofing actually weighs less than traditional asphalt shingle roofing or concrete tiles and puts less stress on the structure of a home over time.

All of these tests and facts sum up to metal roofing doing one thing: Protecting everyone and everything on the inside.

3

You want to get the most out of your investment

As mentioned, a metal roof is an expensive investment that you want to benefit greatly from. Since metal roofing lasts longer and has a higher one-time cost in the short run, a building or home with a metal roof has an increased property value (typically anywhere from 1 to 6% higher). This can also contribute to how easy it is to resell a structure, especially if the roof is in good condition and wouldn't need to be replaced by new owners. This can come in handy if you plan to put your home or building on the market.

Additionally, metal roofing can lower home insurance premiums because metal is much less likely to fail from fire, high winds, and wind-driven rain damage than other types of roofing. On the contrary, insurance could also be more expensive because the roof itself is worth more and would make any replacements higher for the insurance company to cover. There are a lot of other factors that play into the cost of insurance, such as location and other problem-causing risks, which should be discussed with the insurance company.

4

You are worried about extreme weather events damaging your roof

Weather events are unpredictable, but the best you can do is prepare ahead of time by purchasing exterior products with designed and tested durability; one of which is a metal roof. If you know you live in a high wind zone, a place with high snow or rainfall patterns, or a region threatened by hurricanes or tornadoes, it might be the best choice to buy a metal roof that can withstand the elements far better than other materials.

5

You want your roof to be a brighter or more vivid color

Metal roofing is a very popular option because it's available in virtually any color. Metal coil manufacturers partner with reputable paint companies, such as Valspar (Sherwin-Williams) or PPG, that develop paint systems specifically designed for metal panels. In addition to the variety of color options, these paint systems are thoroughly tested in a real outdoor environment to ensure it can last decades, which is why trusted metal roofs are backed by paint warranties.

6

You want a sustainable, eco-friendly roof

There's no doubt that metal roofing is one of the most eco-friendly options in roofing.

This applies in a number of ways:

- Metal roofing materials are highly recyclable, meaning leftover pieces, tear-off panels, or damaged parts can be recycled for future use.
- Metal coils and sheets are often made of previously recycled or re-used metal.
- Metal roofing has the option for a highly reflective color/finish and therefore a higher Solar Reflectance Index (SRI). SRI refers to how reflective a surface is of the sun's rays, which allows the material, or metal panels in this case, to absorb less heat from the sun exposure. A higher SRI could lead to savings on energy bills.

7

You want more time between maintenance responsibilities on your roof

The level of upkeep needed to maintain a metal roof is generally limited. This is especially true if the roof was correctly installed to eliminate any of the common problems associated with metal roofing. General upkeep would include looking for leaves, branches, and other debris that could get stuck on the roof and in the gutters around once or twice a year and after strong storms.

Wrapping it all up

Knowing if a metal roof is the best choice for you can be easy for some and difficult for others. But doing your research and knowing what to look for can shorten the process and lead to important discussions that could help you decide what type of roof may be best for you.

To help determine if a metal roof is the best choice for your home or business, start by asking yourself these questions:

- What is the worst-case scenario weather event that could affect my home or building?
- What is the most amount of money I am comfortable spending on a metal roof?
- Does my roof have simple planes and minimal penetration points? Or is it more angular with potential dead valleys and numerous penetration spots?
- How does a metal roof change the cost of my homeowner's insurance?
- If I did choose a metal roof, what do I want the end-product to look like?
- How valuable or irreplaceable are the items inside my home or building?

From there, you should be able to get a good idea if a metal roof is the best material for your roofing project.

CHAPTER

3

METAL VS. ASPHALT SHINGLE ROOFING

WHICH SHOULD I CHOOSE?

Metal roofing and shingle roofing are both viable options to choose for your next roofing project, but there are distinct benefits, drawbacks, and differences to know of before you buy.

If you're in the market for a new roof, you might be questioning the type of roof that will work best for you and your home or building. And while it's great to have so many options, such as asphalt shingles, metal, wood, tile, or concrete, it can also be overwhelming to weigh all the advantages and disadvantages of each type of roofing material.

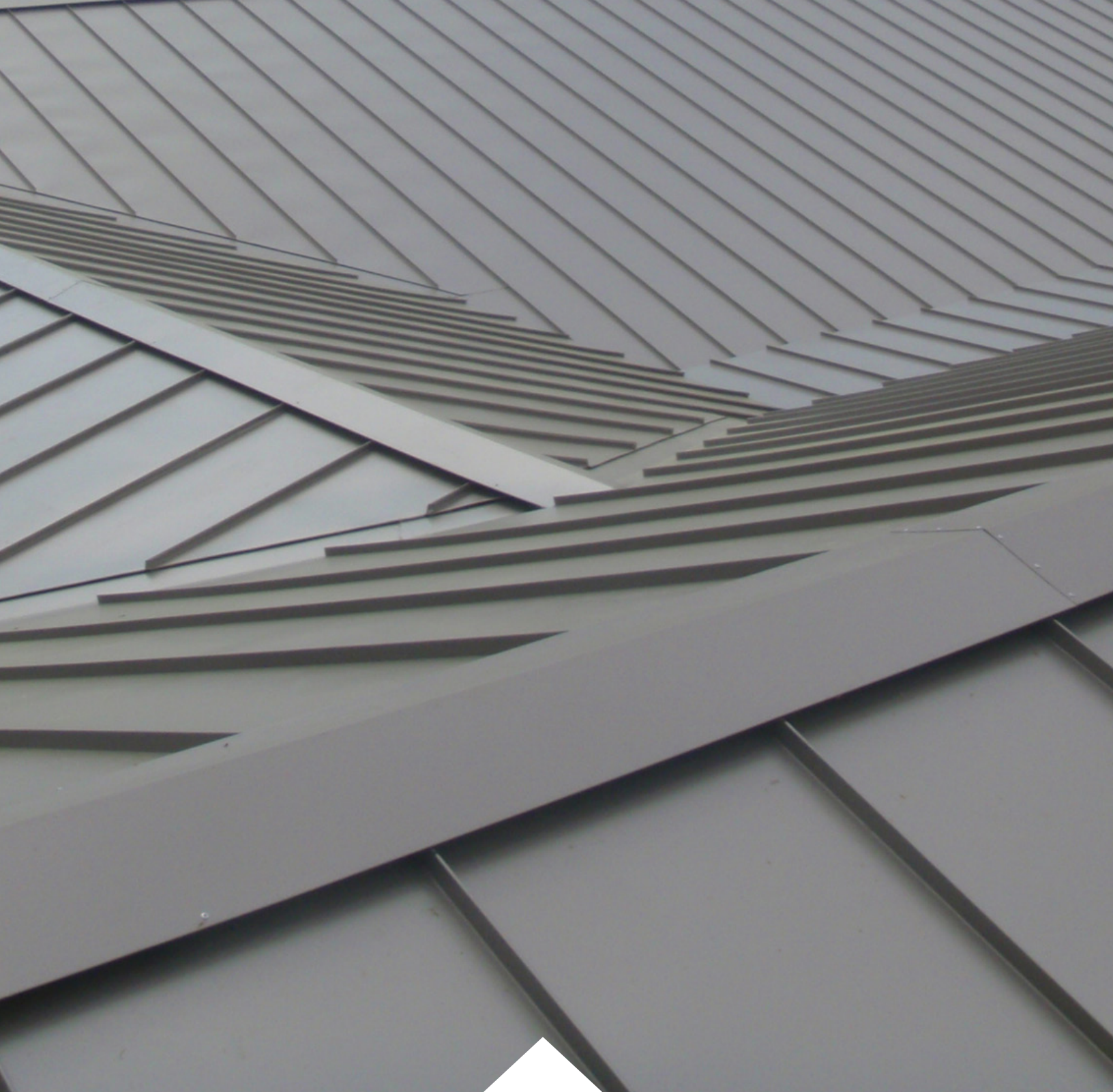
Luckily, there's not just one answer for every building, which gives you the freedom to discover the available options, ask any and all questions, and finally make a choice based on factual research.

We think it's important to give an honest comparison of everything you need to know about metal roofing systems and asphalt shingle roofing so the decision is easier for you.

In this chapter, expect to learn about:

- The advantages and disadvantages of metal roofing
- The advantages and disadvantages of asphalt shingles
- Important considerations to keep in mind before you choose





Metal roofing

When it comes to metal or shingle roofing, metal roofing is easily the more complex option requiring specific techniques, experienced installers, and more pieces and parts needed to make it succeed. That being said, metal roofing is actually more common than you may think or notice. In addition to lasting decades longer than asphalt shingles, metal roofing offers the versatility and variety of options that most other roofing materials lack. Let's dive deeper into the benefits and drawbacks associated with this roofing material.



Advantages of choosing metal roofing

Lightweight

One of the major benefits of metal roofing is that it's a very lightweight material. First, it's easier for the installers to handle and transport up on the roof during the rollforming and installation process. Second, it doesn't weigh down and put unnecessary stress on a structure, which reduces frame damage and preserves the integrity of the building.

Longevity

Perhaps one of the biggest differences between metal roofing and shingles is the length of its life. For metal roofing, it's expected that metal roofing should last at least 50 years until signs of degradation begin to show. Different metal materials, such as copper and zinc, have even been known to last 100 or more years in some instances.

Lower long-term cost

Metal roofing is more expensive as a one-time cost. That being said, metal roofing is typically less expensive in the long-term because one metal roof (one lasts 60+ years) can easily outlast at least three asphalt shingle roofs (one lasts 15-20 years).

Fire resistance

Metal roofing is typically Class A fire-rated and noncombustible, making it the most resistant to catching fire. This is especially important in areas prone to wildfires because if hot ashes or embers fall on a metal roof, it's much less likely to catch on fire than shingle roofing.

Weathering performance

When compared to different materials such as wood, concrete, metal, plastic, or glass, metal easily stands out as the strongest and most durable in regular and extreme weather conditions.



Environmentally friendly

There's no doubt that metal roofing is the more eco-friendly option to roofing, which applies in a number of ways:

- Metal roofing is highly recyclable, meaning leftover pieces, tear-off panels, or damaged parts can be recycled for future use.
- There are metal coils and sheets that are made up of previously recycled materials. This is especially true with aluminum, as nearly 95% of aluminum roofing is already recycled materials.
- If the underlayment, which is laid above the roof deck and underneath the metal panels to protect against moisture, ice, vapors, and high temperature, is 100% polypropylene, it can be recycled.

Energy efficiency

In addition to metal roofing's environmental benefits, it also has energy efficiency advantages. Many metal coil and sheet manufacturers now offer cool roofing, which are highly emissive metal panels that release absorbed heat in higher temperatures and retain heat in cooler temperatures. You can also choose from a variety of ENERGY STAR® rated colors and finishes for metal roofs. Additionally, you have the ability to easily mount energy-saving equipment, such as solar panels, on a metal roof using clamps.

Increased property value

Since metal roofing lasts longer and has a higher one-time cost in the short run, a building with a metal roof has a higher property value (typically 1-6% higher).



Low maintenance

The level of upkeep needed to maintain a metal roof is generally minimal, especially if the roof was correctly installed. The manufacturer's maintenance guide will provide instructions on how to care for your new roof. In the event that dirt or other stains do not come off with rain, there are ways to clean your metal roof too.

Roofing over or retrofitting over old roof

For a cost-effective solution, roofing over or retrofitting a metal roof over your existing roof is one way to save. Opting to install a metal roof over the one that is already on a structure eliminates tear-off costs and reduces the amount of waste potentially ending up in a landfill.

More color availability

One of the biggest advantages of metal roofing is that it can come in virtually any color, including bright/vivid colors and earth tones.

Insurance benefits

In some situations, a metal roof could lower home insurance premiums because metal is much less likely to fail from fire, damage, etc. than other types of roofing. That being said, there are a lot of other factors that play into the cost of insurance, such as location and other problem-causing risks.

Variety of looks

Metal roofs come in many shapes and sizes, ranging from panel systems such as standing seam metal roofing systems, to exposed fastener systems. These systems have long been the choice for a high-performance metal roofing system. Metal is also available in a variety of other looks that mimic shingle and tile systems.



Disadvantages of choosing metal roofing

Higher one-time cost

It's true, metal roofing is more expensive than shingle roofing as a one-time cost. In addition to the higher cost of materials, there also could be a higher price point for labor and the equipment needed to complete the job, though it's dependent on where the installers are getting the metal panels.

Less qualified contractors

Finding a qualified and experienced metal roofing contractor or installer will make or break an installation, especially since nearly all potential problems with metal roofing stem from some kind of installer error. When compared to shingle roofing installers, there are significantly fewer installers who are equipped and skilled at installing metal roofing.

More labor-intensive

Metal roofing is a precision installation that is much less forgiving than a shingle roof installation. There is virtually zero room to make errors, which is why metal roofing must be installed by a trained craftsman. This typically means it's a little more of a labor-intensive process that could take up more time.

Oil canning

One of the biggest disadvantages to metal roofing is oil canning, the visible waviness in the flat areas of metal roofing and wall panels. Oil canning is aesthetic and does not impact the performance of the roof as long as it was installed appropriately. Unfortunately, oil canning is an inherent characteristic of nearly all metal roof or wall installations, thus it is not normally a cause for rejection of a system. However, there are ways to avoid severe oil canning.



Municipality issues

There are some communities or Home Owners Associations (HOAs) that do not allow metal roofing to be installed on a new or existing home within its jurisdiction.



Metal roofing can go against the look of a neighborhood.

Insurance drawbacks

While metal roofing insurance benefits exist, there is the potential for drawbacks as well. It's true that some homeowners could get a break on premiums because metal roofing is less likely to damage, but it could also be more expensive because the roof itself is worth more and would make any replacements higher for the insurance company. Also, there are concerns with hail damage loss waivers, which are advertised as a way to save money on insurance. Ask the metal manufacturer for their recommendations before you sign anything with an insurance company. Again, this is very dependent on the specific situation and should be handled by on a case-by-case basis.



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There's not just one answer for every building, which gives you the freedom to discover the available options.”



Asphalt shingle roofing

Shingle roofs are everywhere, and there's no doubt that shingles are more common when compared to metal roofing. Most people automatically think of shingles when they think about roofing in general because it's been the traditional choice on many homes and businesses for the last century. There definitely are many benefits to having a shingle roof installed, most of which hinge on its low upfront cost and ease of installation and access to materials. Let's get into more of the advantages and disadvantages of a shingle roof.



Advantages of choosing shingle roofing

Economical in the short term

As mentioned before, shingles are cheaper than metal roofing as a one-time cost (normally less than half the price of a metal roof), which appeals to a lot of homeowners. This fact alone accounts for the vast majority of shingle installs.

Easier to install & replace

Shingles require less time and labor for both installation and replacement. Shingles come prepackaged and ready to be immediately nailed to the deck (unless cuts are required). With metal roofing, you have to handle finished panels that could be cumbersome, attach the metal panels to the decking using screws instead of a nail gun, connect the panels together, and finally install the flashing (usually consists of multiple metal pieces). All of this requires more time, labor, and skill on the part of the installer.

Less expensive repairs

Going along with the ease of installation and replacement, shingles are also much easier and cheaper to fix in the event a failure occurs. Most shingles can be removed one at a time near the source of an issue and require fewer materials to fix. Metal roofing is more complex because the full-length panels are all connected together and more difficult to replace one at a time.

More installers

Shingles are relatively simple and easy to install, which is why there are more contractors who are able to install shingles than metal roofing. While it's still important to find a qualified and experienced installer, it's generally easier for consumers to find contractors who can install a shingle roof.



Foot traffic

The ability to walk on or put weight on shingle roofing is another reason that shingles are easier for the installers. Once they have been secured to the structure, the shingles can be walked on or used as support for the installer while providing greater traction. With metal roofing, you want to minimize how much foot traffic the metal receives, as it could dent, scuff, or buckle under pressure.

Readily available

Depending on where you live, shingles are commonly sold at local distributors and retailers.

Coast-friendly

Metal roofing and shingles can both be installed in coastal regions, but a warranty on a steel metal roof is likely not offered on a structure within a certain distance from the coast. Most coastal applications require the use of aluminum in order to receive any kind of warranty from the manufacturer. Shingles, specifically asphalt or composite shingles, are heavier and easier to replace in the event they sustain wind damage, which is a good possibility along the coast if your project is in a high-wind zone or prone to hurricanes. That being said, it's important to know the area in which your project is located and the wind rating needed for your roof system based on that location.

More warranty coverage

Shingle roofing can come with a number of warranty offers from both the manufacturer and the contractor.

For example, popular problems covered by shingle warranties:

- Manufacturer error
- Material defect
- Algae growth
- Maximum wind-resistance limit (based on the type of shingle)
- Contractor error



Disadvantages to choosing shingle roofing

Short lifecycle

Depending on the shingle material (asphalt or fiberglass), style (3-tab or architectural), and coating you purchase, most shingle roofs last an absolute maximum of 25 years. Replacements, both tear-off and second-layer shingle additions, are very common with shingles.

Higher long-term cost

Shingle roofing is cheaper as a one-time cost, but it typically ends up costing more in the long-run when compared to metal roofing. As described earlier, one metal roof would outlast at least three shingle roofs, and those three shingle roofs would end up costing \$9,000 more than the one metal roof.

Intrusive install

Shingles are attached to the roof with nails that go through the surface of the shingle and into the roof deck underneath. This is a very intrusive process of creating holes in the material that could very easily compromise the structure if improperly installed.

Color limitations

If you've ever looked at a shingle roof, you'll notice that more often than not, they are very dark, dull colors. There's little opportunity for bright, vivid, or light-colored paints like those used on metal roofing because a shingle's base material is saturated with asphalt and then granules made of a dark granite material are added for color, UV protection, and fire resistance. It's harder for these granules to keep a lighter color, which is why shingle roofs are darker by nature.

Heavier

Though there have been advances in recent years to reduce the weight of shingles by using less of the base material, asphalt shingles are still heavier than metal panels. The additional weight can be stressful to the structure of the building and could cause problems over time.

Fire concerns

Shingles made today are typically Class A fire-rated but contain asphalt, a combustible material, which is a semi-solid form of petroleum. The granules added over the asphalt coating help bring the shingles to a Class A fire rating by making it fire-resistant on the surface, but if a flame or fire reaches the asphalt coating, it is more likely to combust and catch on fire.



Low recyclability

Believe it or not, asphalt shingles can actually be properly recycled. Despite this fact, 11 million tons of asphalt shingles still end up in landfills every year in the U.S. The problem is that many contractors and consumers are unaware of the fact that shingles can be responsibly disposed of.

Damages easier

Shingles, especially 3-tab shingles, are damaged far easier than metal roofing, especially during extreme weather conditions such as wind, hail, and snow. Also, if an adhesive is not applied correctly or becomes damaged, the shingles can lift or even rip off one at a time. This is why architectural shingles that provide numerous layers of protection are becoming more popular.

Holds heat

Heat rays from the sun are drawn to asphalt shingles because its dark colors absorb the warmth. This heat is held on to by the shingles and can be transferred as solar heat into the home or building. This can cause air conditioners and other cooling devices to work overtime to balance the indoor temperature, which could increase energy costs. Additionally, asphalt shingles can get damaged quicker if exposed to high heat for long periods of time.

Flaking granules

The granules added for shingle color and protection can actually flake off of the coating and get stuck in gutters, pipes, and other places where it could create a blockage problem.

Mildew, mold, and algae

Have you ever walked or driven by a building that had some unsightly green or dark coating on a part of the roof? You've seen one of the most common problems with shingle roofing. If there is excess moisture that is unable to dry because it lacks access to the sun, it could grow mold, mildew, or algae.

Oil-based product

The primary ingredient of asphalt shingles is oil (petroleum), and as a by-product, the cost for shingles can swing dramatically as the cost per barrel of crude oil changes. Not only this, but oil-based products are generally non-recyclable and are manufactured from non-renewable resources.



What to consider before you choose

Your roof not only protects your home and the items on the inside, it also keeps you and your loved ones safe, which is why choosing the right roof based on your individual needs is vital. Start the decision process by evaluating the following aspects.

Your budget

Between metal roofing and shingle roofing, the biggest factor to consider is how much money you have to spend and are willing to spend at one time. If you have a lower amount of money or small cash flow to spend at one time and don't mind the idea that you'll have to replace the roof in 15-20 years, a shingle roof is your better option. Or, if you have more money to put down at one time or want the peace of mind that your roof won't need to be replaced for at least 60 years, a metal roof is the best choice. Also, keep in mind, you will likely be spending thousands of dollars more in the long-run if you choose shingle roofing.

Your roof design

Every roof is different, which could really make a difference when choosing the best material for your roof. Get to know your roof by finding out:

- Roof pitch (slope)
- Square footage of the roof
- The complexity of the roof, including the number of dormers, valleys, hips, skylights, penetrations, flashing points, and vent pipes
- How much and what parts of the roof are in the shade and in the sunlight

The building's lifecycle

Knowing the predicted lifecycle and use of the building or home the roof will be going on is just as important as knowing your roof design. For example, is the building or home older and in need of extreme renovations or tear-down within the next 20 years? Go with a shingle roof. Or is the building or home newer and likely to last five decades or longer? Go with a metal roof.

Your environment

There are definitely environments where a metal roof or a shingle roof is the better choice. For example, if you live anywhere threatened with potentially high winds or extreme heat, metal roofing can help alleviate some of those concerns. Or if you live in a very mild environment where you are less concerned with extreme weather, a shingle roof will work just fine too.

Verify with your HOA or municipality

As mentioned before, there are HOAs and certain communities that do not allow metal roofing because it may or may not go against the consistency of the neighborhood. Make sure you check with the specific organization before you buy.

Find a qualified contractor

Both metal and shingle roofs require a qualified contractor who can perform the install according to industry standards and recommended manufacturer details. Metal roofing tends to be more complex because it uses special techniques and equipment, such as rollforming equipment, which requires a more skilled installer than a shingle installation. Just keep that in mind when you make the decision and start to look for contractors.

Wrapping it all up

So now you ask, metal roofing or shingle roofing? It all just depends on your individual needs.

Ask yourself these questions as a good starting point:

- How much money am I comfortable spending on a roof?
- How important to me is using recycled or recyclable materials?
- Do I live in an environment that could face severe weather events?
- How much searching for roofing contractors am I willing to do?
- Do I want a bright, vibrant color? Or more of a gray tone?
- Does my HOA restrict different roofing types?

CHAPTER

4

HOW TO CHOOSE THE BEST MATERIAL

FOR YOUR NEXT METAL ROOFING PROJECT

Whether you're a contractor, installer, architect, distributor, or building owner, knowing the pros and cons of the most popular metal roofing materials can help you make the best choice for a structure's roofing project.

Whether you're in the market to purchase a new metal roof, a distributor trying to sell metal coils or sheets to customers, or a contractor dealing directly with a home or business owner, it's vital to know the pros and cons of different metal roofing materials.

Five of the most common materials used in metal roofing are Galvalume, aluminum, zinc, copper, and stainless steel. Luckily, there isn't just one solution for every single customer, so the advantages and disadvantages of each metal should be discussed in depth with the contractor, distributor, architect, or manufacturer before making a final decision.





Galvalume® roofing

Bethlehem Steel introduced the Galvalume coating to the construction industry in the early 1970s. Galvalume roofing material combines three of the most important metals used in roofing today—steel, aluminum, and zinc. Manufacturers begin with a carbon steel base sheet, which is then continuously hot-dipped with aluminum and zinc alloys until it reaches a coating consisting of 55% aluminum, 43.4% zinc, and 1.6% silicone over the base metal to protect it from the elements. This system allows for one material to have some of the best characteristics of each included metal—making it one of the fastest growing materials in today’s metal roofing market.



Pros of Galvalume roofing

Color options

One of the most appealing aspects of Galvalume roofing, especially for homeowners, is the fact that it can come in an array of different colors. These pre-painted options allow for more versatility when buyers are trying to match the roofing to their home or business.

Least expensive

Compared to other high-quality metal roofing materials, Galvalume costs the least amount of money. Depending upon the thickness, color, and quality of the desired Galvalume coil, pricing could range anywhere from \$75 to \$250 per roofing square (100 square feet).

Corrosion resistant

Galvalume is designed to combine the toughness and strength of zinc with the rust-resistance of aluminum. Testing in the field indicates that Galvalume roofing could last as long as 60 years without any extreme signs of corrosion.

Easy to form

Galvalume is an ideal material for rollforming and panel forming, making it easy for contractors to make any profile for any project.

Recyclable

Galvalume is 100% recyclable, meaning that any scrap metal left over from a job or old metal roofing that has been replaced can be easily recycled.

Installed over existing roof

One of the major benefits to choosing Galvalume is the fact that it can be retrofitted or re-roofed over an existing roof, meaning no tear-off cost is required. Good contractors are trained on this procedure, so make sure to find one who knows how to cover an old roof if desired. A homeowner can also elect for Galvalume to be used as a completely new roof as well.

Warranties

Many companies that sell Galvalume coils, sheet metal, or processed roofing panels offer warranties with their products. These warranties can be anything from paint warranties, Weather-tight warranties, and labor warranties. Always make a note to ask about warranties that are available when purchasing a metal roof.



Cons of Galvalume roofing

Oil canning

Oil canning is an inherent characteristic of light-gauge, cold-formed metal products, especially products with broad flat areas. It is a visual phenomenon seen as waviness or distortion in the flat surfaces of metal wall and roofing products. Oil canning is subjective and normally only an aesthetic concern that does not affect a product's strength or performance. This occurrence is a possibility for any kind of metal roofing or walls, including Galvalume.

But there are methods to minimize the appearance of oil canning, including:

- Hiring an experienced contractor who knows the best methods to reduce oil canning, including:
 - o Panel thickness
 - o Appropriate space between panels
 - o Underlayment
 - o Deck or other supporting structure is in alignment
- Buying trustworthy brands of coil
- Using striations or bead stiffeners in the flat area of the panel to minimize the appearance of oil canning

Fading/chalking

One drawback to painted Galvalume is the fact that the color will fade over time due to sun and UV exposure. There are ways to slow down this process, most of which depend on the resin or paint coating used on the metal. Kynar painted systems have the most fade-resistant coatings, followed by silicone-modified polyester (SMP) and polyester systems. Also, painted Galvalume could be susceptible to chalking, a whitish residue visible where the coating is present. Again, it's important to pick the coil with a tested and proven chalk rating.

Interaction with other materials

Galvalume performs best when not in contact with other materials, such as iron, copper, concrete, bricking, and treated lumber (decks). Contact with or galvanic reactions to these substances could result in quicker corrosion or complete failure of the Galvalume roof panels.



Aluminum roofing

Aluminum is one of the most predominant and popular metals in the world, mainly because of its use in the canned beverage industry. But aluminum, the third most abundant metal on Earth, spans way beyond this scope and makes a great material for the metal roofing industry, especially for projects in sea and saltwater environments. Not only does aluminum stand up to extremely harsh weather conditions, but it's one of the most sustainable metals in the world, which is why it's become such a popular roofing choice for structures.



Pros of aluminum roofing

Highly recyclable

Nearly all metal roofing is recyclable in one way or another. The best part about aluminum is the fact that about 95% of all aluminum roofing installed across the world is made from recycled aluminum materials. Sustainability in construction has become vitally important in the past 20 to 25 years, which is why the use of aluminum roofing is becoming more common.

Lightweight strength

Aluminum sheet metal is very lightweight and easy for a contractor to form and install. Even though aluminum is a thinner and lighter material, it's still very durable and can replicate the strength of much thicker metals.

No rusting/corroding

One of the biggest selling points of an aluminum roof is the fact that it doesn't have red rust and corrosion is generally minimal as it ages. Studies have even shown that aluminum can work great in coastal areas with high rainfall and seawater spray conditions. Aluminum performs better in coastal environments than Galvalume or other steel materials.

Medium price point

Aluminum is in the middle range when it comes to material cost, making it more affordable and realistic for some home and business owners. Aluminum is cheaper than both zinc and copper with a price point of about \$200 to \$575 per roofing square depending on thickness, finish, and panel type.

Readily available

As mentioned before, aluminum is the third most abundant element in the Earth's crust, making it an ideal material for structural applications. Unlike a more restricted material such as copper, it's not difficult to come by aluminum roofing and contractors who know how to install it.



Cons of aluminum roofing

Natural color

Using aluminum roofing in its natural color (silver/gray) isn't recommended by too many architects and installers. As the metal ages and undergoes weathering, it doesn't hold its original color and often becomes washed out and spotty. The best way to overcome this issue is to buy resin coated roofing coils or panels, which will age much cleaner over time.

Using aluminum roofing in its natural color (silver/gray) isn't recommended by too many architects and installers.

Denting

Since aluminum roofing is frequently a lightweight and more malleable material, it has been known to dent easier than other metals. If a structure is underneath trees or any other object with something that could fall on the roof, another type of metal material may be a better option.

Thermal movement

Aluminum expands and contracts roughly twice as much as a steel roof. This generally means you do not want to "double pin" the panels if they are in lengths greater than 20'. This expanding and contracting can also cause oil canning, increased noise, and more required maintenance on exposed fasteners.



Zinc roofing

For residential homeowners and business owners looking for a metal roofing material made to stand the test of time, zinc is always a great option. Among contractors and architects, zinc's popularity in metal roofing projects has experienced a steady increase in the United States because of its ease of use, immunity to corrosion, and other sustainable features.

As the 23rd most abundant element in the Earth's crust, zinc paneling and coils are easy to come by in the metal roofing industry. In fact, natural zinc production within the Earth is on the rise, which means there is more of the metal available for extraction and use in the industry.



Pros of zinc roofing

Longevity

Zinc roofs have been known to last anywhere from 60 to 100 years. Studies have shown that in some cases zinc roofing could last up to 150 years depending upon the quality of installation, building properties, and climate.

Eco-friendly

Since zinc is a natural metal extracted from the ground, zinc's toxicity levels are very low, even after fabrication. Homeowners and business owners do not have to worry about any toxic run-off or ground pollution surrounding their zinc roofing. Additionally, zinc is a non-ferrous metal, meaning it does not contain iron, and therefore requires less energy to manufacture.

Energy savings

Metal roofing in general cuts down on the cost of heating and cooling because it reflects the sun's heat that is normally absorbed by asphalt shingles, tiles, etc. Using coated or uncoated zinc roofing material helps reduce the amount of energy absorbed into a home or building.

Self-healing

Zinc actually possesses its own outer protective layer, which prevents against corrosion, scratching, and panel markings. If wind or another element were to scratch the surface of the zinc roof, the metal's protective layer would actually fix and correct itself over time.

Easy maintenance

Zinc's self-healing properties often means the building owner doesn't have to perform any routine maintenance to the roof. It's often said that zinc roofing is the "install and forget about it" option to metal roofing.

Easy to form

Architects and contractors often use zinc in their projects because it's a softer metal and can be easily shaped into different profiles for rollforming, gutter forming, and seam creation.



Cons of zinc roofing

Expensive

The most prominent drawback to zinc roofing is the price. While there are many variables that factor into determining the price, zinc roofing can cost anywhere from \$600 to \$900 per roofing square. When selecting the best roofing, keep in mind that metal roofing lasts decades longer than asphalt roofing and requires less maintenance and replacement.

Oil canning

Like any metal roofing, zinc metal roofing could be subject to oil canning.

Underside corrosion

If the zinc roofing is improperly coated on the underside of the panel, corrosion could take place. This occurs when water molecules get trapped underneath between the panel and the insulation or underlayment, which can cause the metal to weaken if not coated.

Ventilation

All zinc applications require adequate ventilation to help the system from failing from the inside (or underside) out. Above deck ventilation products, such as Sharkskin Ventilated Mat or Enkamat, combined with using the appropriate details will contribute to the longevity of a zinc system. The correct ventilation process for zinc roofing is more of a precaution than a disadvantage.



Copper roofing

The use of copper roofing has been around for hundreds, if not thousands, of years. Historical data shows that the Romans actually used copper covering on the roof of the Pantheon in 27 B.C. To this day, many large architectural structures, commercial buildings, and even residential homes have roofing made from or accented with copper panels and coils.



Pros of copper roofing

Lightweight

Compared to different metal substances and other roofing materials such as shingles, concrete, or tiles, copper is extremely lightweight. Not only does this make it easier for installers and contractors to work with, but it also puts less stress on the structure of a home over time.

Energy-efficient

All metal roofing is energy efficient and can help cut down the cost of energy bills.

Durable

Copper is a durable element and can withstand numerous decades as a roof. If properly installed, copper roofing can last 100+ years in some instances. Copper also works well in locations with heavy snow, frequent rainfall, and strong winds.

Aesthetically pleasing

Copper is often referred to as a premium roofing material, as it enriches the outside of a building and adds a metallic reddish-brown focal point to a structure. As the copper ages over time, it develops a blue-green covering called patina, which happens because of oxidation and sun exposure. Many building owners specifically buy copper because of the way it ages and adds to the curb appeal of a structure over time.

Recyclable

Though not as recyclable as zinc, copper can also be recycled and reused if still in good condition. Copper is also a naturally sourced metal and can be used in its original mined metallic form.

Solderable

Copper can be soldered, unlike other roofing materials. This means that roof and wall flashings, as well as gutter joints, will be weather-tight with a soldered connection.



Cons of copper roofing

Expensive

Copper is one of the most expensive metal roof materials, as copper is not as abundant in the Earth. It can be anywhere from 4 to 15 times the cost of an asphalt roof but could last 100+ years with the proper installation and care. Currently, copper roofing costs about \$500 to \$1,000 per roofing square.

Expansion/contraction

In climates with striking differences in temperatures, copper roofing often expands and contracts during heating and cooling just like other metal systems. Care should be taken to ensure that your system will accommodate this thermal movement.

Unpredictability of patina

Some people are drawn to the look of the patina that will develop on a copper roof, but there are those who might not want this greenish blue covering on their home or structure. There is currently not an exact science to the color or time frame patina will occur with copper. Also, in some climates the patina will turn a rich green and in other climates it will maintain a dark bronze look for decades.

Run-off staining

Copper roof rain run-off has been known to stain siding, brick, concrete, other metals, wood, etc. It's important for home or business owners to be aware of this factor and make sure the roof is installed in a way that the water can safely run off of it without coming into contact with other stainable materials. If this does happen, there are many different methods to help remove copper run-off staining as well.



Stainless steel roofing

Another metal that is popular as a metal roofing solution is stainless steel, a steel alloy made up of at least 10.5% chromium. When people think of stainless steel, they often think of large architectural structures such as elevators, bridges, building columns, handrails, etc. Above all, stainless steel is most notably known for its strength, making it a high-end metal that could be the right material choice for many home and business owners.



Pros of stainless steel roofing

Durable

As mentioned before, stainless steel is used in some of the most powerful and sturdy metal products in the world. Because stainless steel can withstand corrosion and degradation for 60+ years, it makes a great choice for metal roofing.

Weathers elements

Stainless steel is specifically designed to withstand extreme weather and temperature climates. In addition to efficiently reflecting thermal temperatures away from a home, stainless steel also doesn't become brittle or crack during cold temperatures and keeps the warm air from escaping a structure. Some stainless steel items can even be installed in coastal environments.

Expansion/contraction

Another reason stainless steel is a great option for locations with extreme climates is because of its low thermal expansion properties, meaning the metal won't expand or contract due to temperature fluctuations.

Warranty

Many companies offer warranties for stainless steel metal roofing because it's expected to last for long periods of time. Always be sure to check with the manufacturer if warranties are available. Also, warranties often come in differing lengths and prices, making it easier for consumers to choose the best fit for them.

Finish options

Stainless steel comes in a variety of different finishes, which makes it easier to match a multitude of other building materials. It can range anywhere from a dull, subtle gray similar to zinc roofing, to a highly reflective, polished finish resembling a mirror.



Cons of stainless steel roofing

Expensive

The cost of stainless steel is in line with the price of zinc and copper, making it a high-end metal roofing choice. Currently, stainless steel roofing can cost anywhere from \$400 to \$1,200 per roofing square depending on the finish, panel type, and thickness.

Standing water

Roofing made with stainless steel, especially if it's in contact with other non-stainless steel metals, requires adequate draining methods in order to remain durable and functional. Too much standing water on stainless steel can act as an electrolyte and cause galvanic corrosion of the metal.

Wrapping it all up

Galvalume, aluminum, zinc, copper, and stainless steel are all great solutions for metal roofing needs. Knowing the common and unique aspects of a structure, residential or commercial, is the best place to start when choosing the best metal roofing material.

Then, determine what factors are important to you, including:

- Cost
- Material strength (consider the structure's climate, UV/weathering exposure, snow, rainfall, etc.)
- Weight your structure can withstand
- Sustainability
- Energy-efficient/recyclable
- Maintenance
- Other materials your roof or water run-off will come in contact with
- Availability of materials

CHAPTER

5

LIGHTNING, HAIL, RUST, & DENTING

THE MOST COMMON METAL ROOFING MYTHS

Myths are easy to come by these days, and metal roofing is no different. Stay ahead of the curve by distinguishing the myths of metal roofing from the actual facts.

“Bulls dislike the color red.”

“Goldfish have three-second memory spans.”

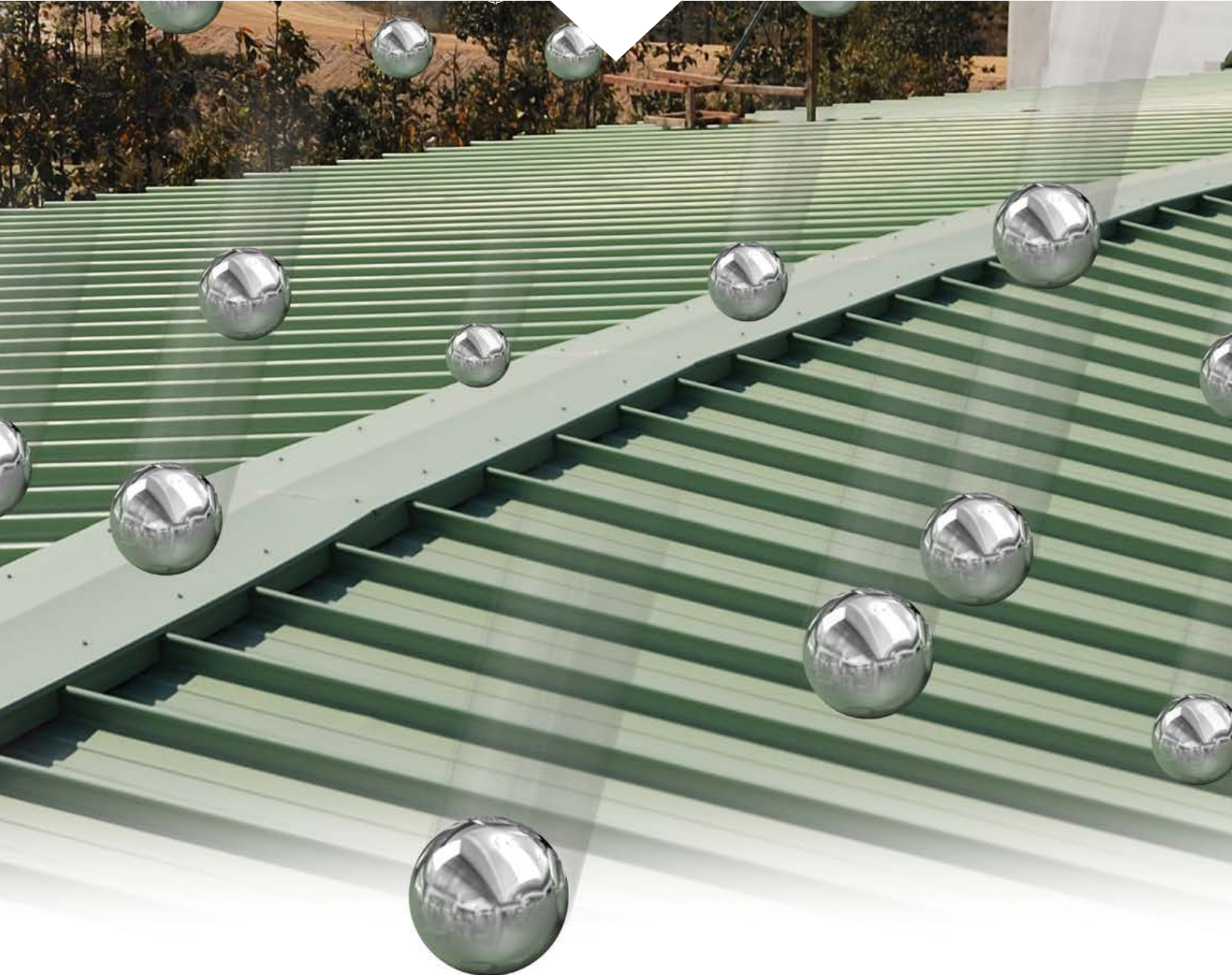
“It takes seven years for humans to digest one piece of swallowed gum.”

What do all of these statements have in common? They're all myths we've heard at some point in our lives.

You can find myths relating to anything nowadays, and believe it or not, there are numerous myths out there related to metal roofing. Most of the time, we don't know where or why a myth was started, but we think it's important to set the record straight and lay out the metal roofing myths heard all the time.

In this chapter, you can expect to learn:

- Common metal roofing myths
- Why these myths are untrue
- What to actually expect



Reviewing metal roofing myths



Metal roofing attracts lightning

We are taught at a young age to never hold anything made up of metal during a thunderstorm because “metal objects attract lightning.” But did you know this is actually another myth?

The idea that metal attracts lightning is partly because most lightning rods put on top of buildings are made of metal. But these rods don’t actually attract lightning strikes; instead, the metal rod acts as a conductor of electricity and channels the electricity safely to the ground so it doesn’t damage the building.

So what does this mean? Metal roofing does not increase the risk or likelihood of lightning strikes. It has the same possibility of any other material to be struck by lightning.

According to the Metal Construction Association, the probability of a lightning strike is determined by a number of other factors, such as the topography of the land, size of the building, location of a structure among other buildings, and thunderstorm frequency.

Topography of the land

Lightning is very unpredictable and difficult to measure, but scientists have been able to determine that lightning’s electric current takes the path of least resistance. Based on this fact alone, lightning is more likely to strike at higher ground, such as a mountain or hilltop.

Size of the building

The likelihood of lightning striking is higher if a building is large because it covers more area.

Location of a structure among other buildings

If a smaller building is next to a larger or taller building, the smaller building is less likely to be struck by lightning.

Thunderstorm frequency

Weather patterns and frequency of thunderstorms varies depending on where you live. For example, a home in Arizona would have to worry less about lightning than a home in Kansas.

In actuality, metal is one of the most preferred roofing materials when concerned with lightning safety. Metal is noncombustible (unlike shingles or wood), meaning it's incapable of igniting or burning. This is a huge advantage if a metal roof were to ever be struck by lightning because it wouldn't explode or catch on fire and could actually protect a structure from damage.

Additionally, if you want to help eliminate the threat of lightning striking your home or building, there are lightning protection systems that can be installed on a home for further safety.



Metal roofs are noisy

There is a common misconception that all types of metal roofs make a lot of noise during rain or hail storms. While it is true that some systems and profiles of metal roofing can experience noise in certain circumstances, most metal roofs are designed and installed to be no louder than any other roof type. Some can even be quieter.

That being said, there are home or building owners who want to hear the noises from rain or hail. Luckily, you can have metal roofing installed in a way that makes noise as loud or as quiet as you prefer.

Luckily, you can have metal roofing installed in a way that makes noise as loud or as quiet as you prefer.

Structure/roof deck

If a structural metal roof, like a corrugated exposed fastener roof (common with barns and other agricultural structures), is installed directly over open framing or spans long lengths by attaching to the frame or purlins, noises from rain or hail will be more noticeable. This happens because there isn't a buffer between the panels and the inside of a structure, such as a roof deck, sheathing, or insulation, to muffle the noise.

Restricting thermal movement

When you restrict the expansion and contraction needed for proper thermal movement of a metal panel, you can run into a noise issue, as well as additional other potential problems (such as oil canning).

Insulation

Insulation is another element that can be added to a roofing structure to reduce noise. Insulation comes in many different forms and can be installed above or below the roof deck and between the beams or purlins of an open frame for noise reduction and temperature control. During installation, make a point to ask the installer to ensure the insulation allows for adequate thermal movement.

Installer knowledge

The best way to ensure a roof doesn't generate extra noise is to hire a qualified and experienced contractor who is knowledgeable about the methods of properly installing metal roofing. If you are unsure of where to start to look for an installer, ask for referrals from family, friends, and neighbors, or visit a third-party referral website like HomeAdvisor.



All metal roofs develop red rust over time

It's true that most metals rust or develop a patina over time when in contact with oxygen and water, also called oxidation. However, not all metals rust with the reddish-brown color that we typically associate it with. While rusting is an inherent characteristic of most metals, the metal coils and sheets that become metal panels are engineered, coated, and tested to prevent rust formation for as long as possible.

To easily understand why this is, let's go through each popular material individually.

Galvalume

The core substrate of Galvalume is steel, a rust-prone material, but it is continuously hot-dipped with 55% aluminum, 43.4% zinc, and 1.6% silicone. This coating combines the strength and cost-effectiveness of steel with the rust-resistance of aluminum.

- Many of the old rusty roofs that people see out there are traditionally an older galvanized roof (cold-rolled) or COR-TEN®, which are materials designed to rust. Galvalume is created to have self-healing characteristics that regular galvanized roofing does not.
- Any steel roof, including Galvalume, can rust quickly if it's scratched, perforated, or not properly maintained, especially where there are cut edges without proper hems.

Aluminum

One of the biggest selling points of an aluminum roof is the fact that it doesn't have red rust and corrosion is generally minimal as it ages. Aluminum actually develops a white rust that blends well with the color of the metal.

Copper

Copper doesn't rust, but it will develop a protective covering called patina, which develops due to oxidation and sun exposure. There's not an exact science to when patina will show up or what color it becomes; it can range anywhere from a dark bronze to a blueish-green covering.

Zinc

Zinc is another material that doesn't develop red rust. In fact, when zinc is exposed to carbon dioxide and moisture (present in our atmosphere), it forms its own protective patina layer called zinc carbonate, which helps further resist corrosion.

Stainless steel

This steel alloy is made up of at least 10.5% chromium, which makes stainless steel rust-resistant. That being said, there are architectural stainless steels specifically formulated to develop a patina similar to zinc.

In addition to metals used for coils and sheets, the paint systems applied on top of the metal are designed to further help prevent rusting and corroding. Plus, if any of these paint systems or metals do rust or fail before promised, most reputable manufacturers offer some type of paint warranty or substrate warranty to buyers.

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Metal roofs dent easily

Contrary to popular belief, metal roofing is actually very difficult to dent and even more difficult to puncture. There is always a concern among consumers that the first time a wave of hail rolls through, there will be dents all over a metal roof. In actuality, the average hail storm is very unlikely to cause damage or dent a metal roof. The possibility for denting increases as the size and quantity of the hailstones increase, but it would take a huge storm with extremely large pieces of hail to create any significant denting or penetration points.

Luckily, an industry guideline called the Standard for Impact Resistance of Prepared Roof Covering Materials (or UL 2218), exists to test a metal panel's resistance to hail and other items it could come into contact with. The products tested are rated on a scale from Class 1 to 4, with Class 4 being the toughest and least likely to dent and/or fail when in contact with items such as hail.

If you live in an area where hail storms occur, consider a metal roof with a rib roller or striation in the flat part of the panel because it could help hide any denting that could show up after a large hailstorm.

It's important to note that many home insurance companies offer "hail damage waivers," which lower premium prices but waives the insurance company from covering a claim for repairs or replacements caused by hail. Just be aware that these kinds of waivers exist and make sure to do your research ahead of time before signing.



Metal roofs hold heat in the summer

This is another myth that we attribute to what we learn when we are young: Metal in the sun holds heat for a long time. While this is a true statement, it doesn't always apply to panels used in metal roofing anymore.

Advancements in metal roofing technology and sustainability have contributed to the creation of cool metal roofing, which are highly emissive metal panels that have a high Solar Reflective Index (SRI).

Emissivity

How quickly the surface (or metal in this case) releases its absorbed heat and returns to its regular temperature.

SRI

Refers to how reflective of the sun's rays a surface is (cool metal roofing has a higher SRI), which allows the panels to absorb less heat from the sun's rays.

In addition to a longer life-cycle and other metal roofing benefits, this cool roofing is energy-efficient and eco-friendly. The best part for consumers is that these cool metal roofs come in a variety of colors, finishes, profiles, and slope-applications.

So no, not all metal roofing holds onto heat during hotter months.

If you ever have questions or concerns about the temperatures associated with the metal used on your roof, have a conversation with the coil or sheet manufacturer to determine the best choice for your building application.

Wrapping it all up

Myths will always exist with metal roofing, but becoming an educated and informed consumer helps you determine fact from fiction.

Keep in mind:

- Metal roofing won't attract lightning more than any other material
- Rain or hail is not any louder on metal roofing, especially if insulation, sheathing, or a solid roof deck is present
- Your metal roof is designed to resist against red rust formation, and some metals used in roofing are naturally more rust-resistant than others
 - To further ensure rust doesn't creep in, keep an eye out for exposed cut edges and deep scratches or scrapes on steel panels
- A typical hailstorm will not dent a metal roof; only abnormally large hailstones can significantly dent or penetrate a roof
- Cool metal roofing was invented to emit heat and reflect the sun's rays during the summer, which helps stabilize a structure's temperature

Now that you know the facts, you're one step closer to being fully equipped to make the best decision for you.



CHAPTER

6

7 COMMON PROBLEMS

THAT COULD AFFECT YOUR METAL ROOF

Knowing about the problems that could occur on a metal roof system will help prevent issues from the very start, resulting in less time and money necessary for repairs.

No product in the world is perfect, no matter how much money it's worth or how well it's cared for. You could be in a lucky situation where nothing ever goes wrong with something you've purchased or you could experience one or more problems at any given time. It all just depends.

Metal roofing is no different.

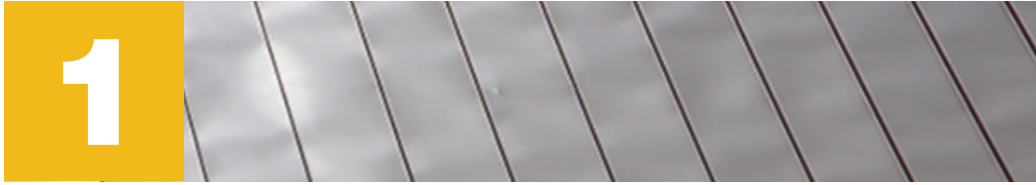
While there are variables affecting the problems that could occur with metal roofing, sometimes things just happen that are beyond human control. This might not be the answer you're looking for, but just know that there tend to be fewer long-term problems associated with metal roofing than asphalt shingles or concrete tiles.

In this chapter, we will discuss:

- The top seven common problems that could occur with a metal roof
- Potential ways and methods to remedy or avoid the problem
- Important considerations to keep in mind to that'll help bypass some problems



Top 7 common problems with metal roofing



Oil canning

According to the Metal Construction Association (MCA), oil canning is defined as:

“Visible waviness in the flat areas of metal roofing and metal wall panels. In technical terms, oil canning is referred to as elastic buckling (more commonly known as “stress wrinkling”). It can occur in any type of metal panel: steel, aluminum, zinc, or copper.”

To be clear, oil canning is an inherent characteristic of nearly all metal roof or wall installations. Think of oil canning as the metal on a standing seam metal system being over-stressed and unable to hold a flat form, which causes the metal to give in and create visible waves. Oil canning is easily one of the hottest topics in metal roofing because it can be difficult to define and measure.

There are a number of reasons that oil canning can occur, including:

- Over-production—such as extreme pressure during the coiling of the metal
- Frequent stress from coil slitting (cutting) and rollforming panels
- Inadequate space allotted for thermal expanding and contracting of the panels
- Changes to the structure’s original form that puts tension on or moves the panels
- Improper usage, handling, and storage by installers
 - For example, if a panel is not installed according to the specified dimensions of the structure, it could generate oil canning. Contractors should always follow industry standard installation details.

Luckily there are ways to minimize the look of oil canning, some of which include:

- Purchasing a thicker metal
- Using a rib roller profile to break up the amount of flat space on a panel
- Choosing a low-gloss or matte finish to reduce reflectivity, which can decrease the visibility of oil canning
- Buying tension-leveled (stretched) metal, as this coil is already stretched beyond the point where it cannot return to its original state
- Install the roof over a flat “in-place” roof deck
- Most importantly: Choose a skilled and experienced installer who is knowledgeable about the ways to avoid oil canning



Leaking

Let's be honest: No one wants a leaky roof. In addition to having to pay extra for the roof to be fixed in most cases, a leak can also ruin other valuable items in your home or building. Metal roof leaks are a possibility; some of which are unfortunately out of our control and some of which are due to human error.

Common uncontrollable triggering events or causes that could lead to a leaking roof are:

- Driving rain
- Heavy or melting snow
- Ice damming (consistent freezing and thawing)
- Wind
- Structural damage
- Other weather occurrences

Unfortunately, there are also some situations where a leak could be due to installer error.

Failed fasteners

The screws are either too tight, too loose, or off-center and allows water to enter at open spots.

Failed seam

The seam, or side rib where two panels are connected, could be formed incorrectly or seamed improperly by the installer.

Failed flashing

Flashing is the material, typically metal, added to prevent moisture from entering at joints or additions on a roof, like pipes, chimneys, or valleys. Since they are add-ons requiring sealants and precise installation, flashing points could easily be the source of a leak. Actually, when a standing seam metal roof has a leak, it is commonly at some type of flashing area.

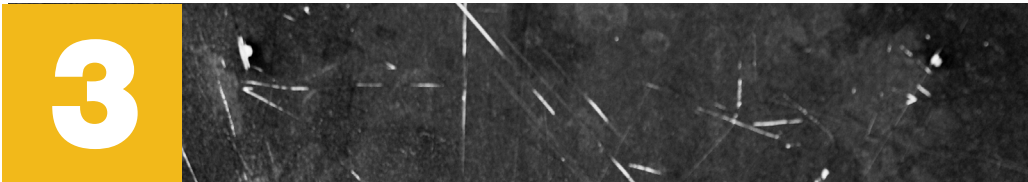
Failed sealant or butyl tape

Sealants and butyl tape are used to seal out water, dirt, and other debris that could compromise a metal roof. If these are damaged, missing, or applied incorrectly, leaks could occur.

Use of inadequate details

Ask about the details a contractor intends to use during the install of your metal roof. Do they match the manufacturer's recommended details? If their installation details are not acceptable for a manufacturer's weather-tight warranty, it's also not adequate for your home or building. Involve yourself early on in the process and ensure your installer uses the manufacturer's details.

Make sure you choose and partner with a reputable contractor with a good track record of quality installs, which will help reduce the likelihood of leaks springing up.



Scuffing and scratching

Like anything that has a paint system applied to it, metal roofing could be subjected to scratching or scuffing at any point during its lifecycle. Most manufacturers of metal coil take extra precaution to ensure the coil is not scratched during the slitting process, recoiling, or when it's being transported to the buyer.

Additionally, most contractors and installers typically handle coils and panels with care during the rollforming and installation process. But there is always the possibility that one or more of these parties improperly handles the metal, leading to some kind of surface-level damage.

This could happen when:

- The metal is improperly coiled or recoiled, which could cause the metal to rub together and strip the coating
- Edge guards are not used to protect the sheet edges in shipping
- Carriers do not handle the coil with proper lifting devices
- The coil goes through a rollforming machine and one of the components has malfunctioned or the coil inadvertently scraped up against a part of the machine
- Tools or other items have been rubbed against or dropped on a panel
- Panels are walked on, by contractors or otherwise, once installed and scuffed at heavy traffic spots, such as at flashing points or ladder entries (this is a common problem with acrylic-coated Galvalume, which requires special handling and care)

If you notice a scratch or scuff on a metal panel, especially one going all the way down to the metal substrate, bring it to the attention of the manufacturer or contractor. The majority of scratches can easily be fixed with a paint or touch-up pen designed to match the color of the roof. But if there is a gouge that goes down to the core of the steel, that piece of metal panel or flashing should be replaced immediately.



Corrosion

Many people choose metal roofing because it defends against corrosion and degradation for decades, which makes it the last roof they ever have to purchase. Manufacturers and contractors are able to effectively help you choose a metal material that will best stand up to corrosion in the environment your home or building is in.

Most metal roofing has protective paint systems or coatings specifically engineered to resist corrosion, but there are special circumstances that could occur, outlined on the next page.

Underside corrosion

If the metal is improperly coated on the underside of the panel, corrosion could take place. This occurs when water molecules get trapped underneath between the panel and the insulation or underlayment, which can cause the metal to weaken if not coated. Also, underside corrosion could occur if you use a granulated underlayment or install right over a shingle roof because it could scratch the protective backside coating and cause the metal roof system to fail from the inside out.

Saltwater corrosion

Homes or buildings close to the coast often don't qualify for substrate or paint warranties because of saltwater's effect on metal. There are types of metals that work better in coastal environments, including aluminum and zinc, but there is no guarantee it will last as long as a roof where there is no threat of saltwater. Make sure to read and analyze the warranty or product specs thoroughly to determine if you're in a location that could be subject to premature corrosion.

Dissimilar metals

When certain metals are put together, there could be a negative interaction that causes early corrosion that would not occur otherwise. We will talk more about dissimilar metals in the next common problem.

Cut edges

Cut edges on a steel roof will experience edge creep, which is minimal rusting occurring at the cut edge. Many details in a standing seam metal roof have folds or hemmed edges that conceal the cut edge of the metal. A contractor can minimize the appearance of edge creep by using lap flashing, hemming exposed edges when possible, or using a paint pen on visible cut edges.

Corrosion will happen at some point in the lifetime of the roof. Whether it happens early on, or in 60 years, is dependent on being educated about the different metal types, paint systems, and the environments these work best in.

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Dissimilar metals and materials

Combining different metals on a metal roof system can actually lead to interactions that could result in early degradation, staining, and potential failure of a system altogether. As mentioned earlier, Galvalume roofing performs best when not in contact with copper, bricks, treated lumber, iron, or concrete. If Galvalume is in contact with one of these and is then introduced to an electrolyte, such as water, it'll lead to galvanic corrosion of the anode (the more active material that has its electrons taken away by the less active material and ultimately leads to corrosion).

Have a discussion with the contractor regarding the products that will be in contact with your metal roof and ask if the metal roof material you chose will react well to it. Or, read up on metals that are more likely to corrode due to galvanic reactions.

Keep an eye out for the following potential products and their materials that could result in poor interactions:

- Panels
- Gutters
- Fasteners
- Rivets
- Flashing materials and lead pipe boots
- Trim
- Chimneys
- Fascia
- Drip edges
- Siding/wall materials
- Roof-mounted air conditioners or swamp coolers using copper drain pipes
- Other roofing systems, such as cedar shake shingles

6



Chalking and fading

Whether you're familiar with chalking and fading or not, it's another one of those hot topics that could be a potential problem.

Chalking is the whitish residue that can become visible on a painted or coated metal surface over time. As a panel is exposed to sunlight and UV rays, the resin begins to break down and degrade. Once the resin starts to break down and continues to be exposed to the sun, oxygen, and other pollutants, it loses its adhesion to the surface and those degraded particles begin to turn white. These particles will eventually become visible to the naked eye on the metal's surface. Often times, the difference can be subtle; however, if you swipe the panel with your finger, you can notice the chalky residue on your skin.

The degree of metal roof chalking is dependent on the paint system, especially the quality of the resin, used to cover the metal substrate.

The rate of chalking based on resin type is usually in the following order (assuming the same environmental conditions apply to all):



One of the most frequently asked questions in the metal roofing industry is: Will my metal roof fade? The answer is yes.

Fading on painted metal roofing or walls occurs when substances like water, pollution, and chemicals in the atmosphere and specific environments react with the pigment of the paint. In other words, the pigment begins to break down, which causes the color change. This change usually lightens the color, but it has been known to darken or completely change specific colors. Also, it's important to note that panels on the same structure may not even fade uniformly, as every portion is not always subject to the same elements.

No matter what type of pigment or resin that a manufacturer uses on a coil, nothing will preserve the color forever when the panels are in an outdoor environment. The best way to imagine what fading on metal will look like is to compare it to how a piece of clothing might fade its color over time. Even though the color fades because of regular wearing and washing, it doesn't take away from how well it wears, or in a metal panel's case, it doesn't take away from how well it protects your structure.

Polyvinylidene fluoride (PVDF)

This resin is made up of about 70% PVDF and 30% acrylic. Commonly referred to as Kynar 500® or Hylar 5000®, PVDF resins are the best protective coatings available to stand up to extreme temperatures, sun exposure, oxygen, humidity, and even pollution particles in the atmosphere. Coils made with this resin are most likely to have the longest chalk and fade warranties—typically up to 40 years, but are slightly more expensive due to superior durability.

Silicone-modified polyester (SMP)

SMP coatings are a step below PVDF in terms of quality and warranty options. These consist of a combination mixture of polyester and silicone materials. SMPs have been known to be a great option to defend against extreme weather conditions, while still carrying up to 35 years of paint warranty options.

Fluoroethylene vinyl ether (FEVE)

FEVE resins are made up of various vinyl ether and fluoro-olefin units, which act as good protectants against oxygen, water, and chloride, but can degrade quicker in environments with high UV exposure. FEVE resins are popular because of their strong bonding properties to different types of metal roof materials.

Plastisol

Plastisol resin is made up of plasticized vinyl and is generally applied to a metal coil that will be used in a very corrosive or intense environment. Plastisol will protect against degradation from the weather, but be aware that this resin has been known to change the pigment of bright and vibrant colors.

There are ways to prolong the life of the color of your metal roof, and it starts with being educated and informed about the types of resins and how well they stand up to the elements.

Polyester

While polyester, a synthetic polymer, is not the top performing resin to use on a metal roof or wall panel to protect against fading, it does come at a lower price point. There are still warranties offered on polyester coated coils, but chalk and fade are typically only covered for a maximum of 10 years.

Chalking and fading will happen no matter where you live. But the degree of chalk and fade truly depends on the environment and substances the roof is subjected to. Luckily, most reputable manufacturers offer paint warranties that cover chalking and fading exceeding a specified measurement over a period of time, which should be clearly defined in the warranty.



Other installation error

Miscellaneous problems that stem from installation errors, such as missing parts or accessories, loose screws, or poorly attached flashing, are sensitive subjects because it can be completely unpredictable. In the next section, we will offer ways to make sure you avoid the problems we've outlined, including choosing the right installer to deflect these miscellaneous install errors.



”

**Knowing about
problems that
could potentially
occur with a metal
roof system puts
you one step
ahead.”**

Important considerations to keep in mind

Now that you are aware of the seven most common and potential problems that could affect a metal roof, there are a number of considerations to keep in mind before and after you buy.

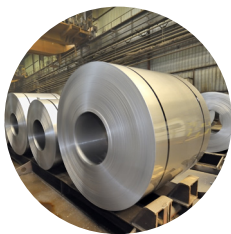


Choose the right metal roofing contractor or installer

Unfortunately, there are some contractors and installers who are inexperienced or unqualified to install metal roofing, which is why finding and ultimately choosing the right one is so vitally important.

To know if a contractor can perform to the highest standards possible, verify the following:

- They are licensed, insured, and in good standing with the building department
- They have proven experience installing metal roofing
- They are helpful, responsive, and able to answer your questions
- They provide detailed explanations of available products and install processes
- They have been recommended by family, friends, or neighbors who have used them as their installer
 - If you don't know anyone who has a metal roof, look for reviews and recommendations on referral sites such as HomeAdvisor or Angie's List
 - You can also contact the metal manufacturer to ask if they have any referrals in your area



Know manufacturers that make quality metal coil products

One of the best ways to cut down on metal roofing problems is to buy the materials from a reputable company that thoroughly tests its products and stands behind them with warranties. You also want to make sure the manufacturer's products meet the standards set by the government and the industry's governing bodies.



Know your roof and its environment

You never know how much goes into purchasing a new roof until you actually go through it.

Before you buy, know the following aspects, as they could affect the panel profile you need or the material that will work best in your environment:

- Roof pitch (slope)
 - It's imperative to check the manufacturer's minimum slope requirements before installation.
- Square footage of the roof
- The number of flashing points there might be, such as valleys, chimneys, vent pipes, skylights, etc.
- Points on your roof that may collect water, moisture, or debris
- Parts of your roof that are in constant shade or exposure to the sun
- Already existing leaks or other issues that may or may not be fixed by a roof replacement



Do your research on all things metal roofing

Everything discussed so far relates back to doing research.

Research is key, both before you buy and even after you buy a metal roof. Know as much information as possible about issues that could arise, who you should contact in case it does, and always make the most educated decision from what you've learned.

Wrapping it all up

No one can predict the future, but knowing about problems that could potentially occur with a metal roof system puts you one step ahead during the buying process. Be prepared, but also understand that some of the problems we outlined above might never even spring up.

Remember:

- Ask for referrals when choosing a roofing contractor/installer
- Do not try to fix the problem yourself or without professional assistance
- Check your warranty and understand when something could be a legitimate claim
- Do routine checks to ensure there isn't a compromise in the roofing structure
- Ask questions and remain educated on potential problems

CHAPTER

7

WHAT IS THE COST OF A METAL ROOF?

FACTORS, CONSIDERATIONS, AND EXAMPLES

Understanding where your money goes when making a large purchase is important, which is why knowing how the price of a metal roof can fluctuate and what the price depends on will help with your decision.

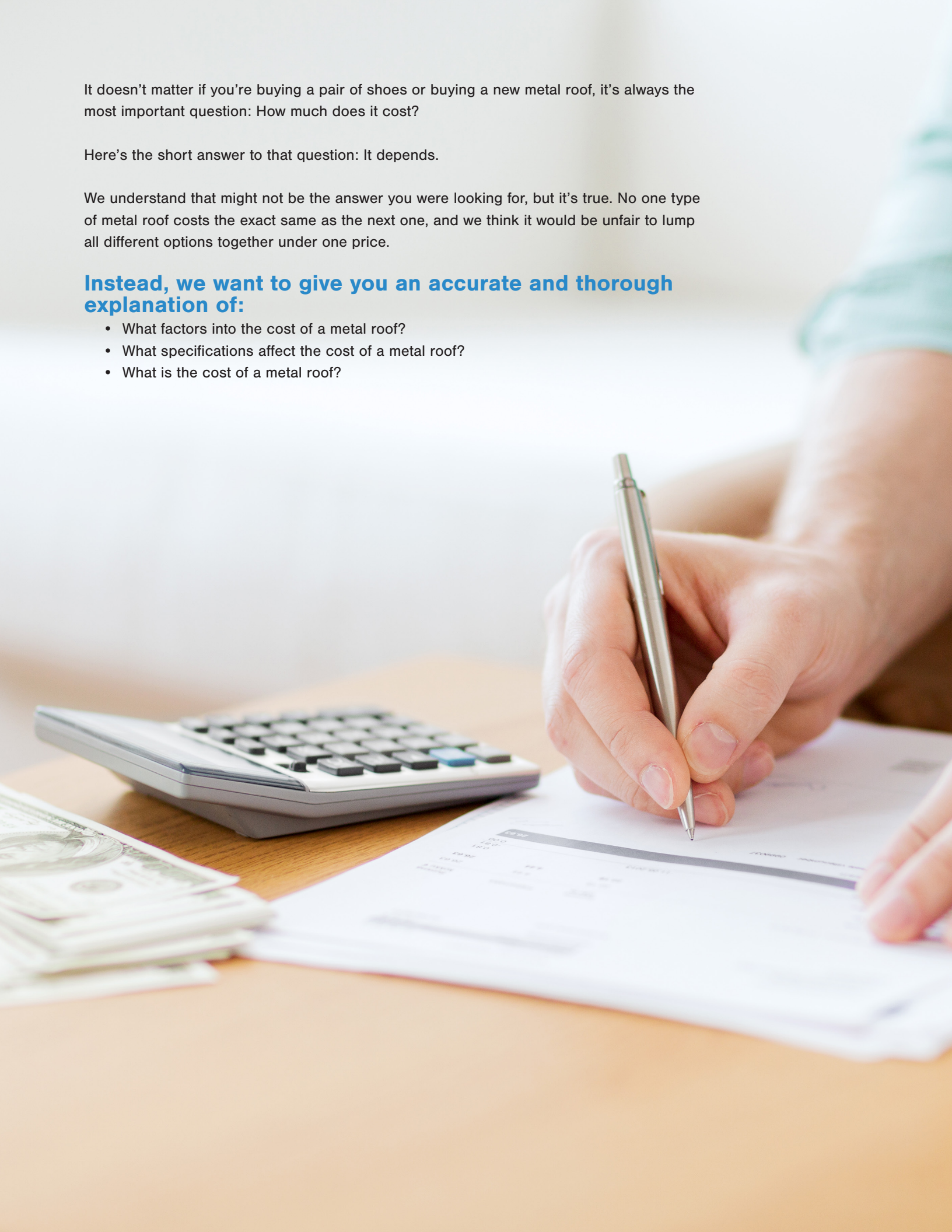
It doesn't matter if you're buying a pair of shoes or buying a new metal roof, it's always the most important question: How much does it cost?

Here's the short answer to that question: It depends.

We understand that might not be the answer you were looking for, but it's true. No one type of metal roof costs the exact same as the next one, and we think it would be unfair to lump all different options together under one price.

Instead, we want to give you an accurate and thorough explanation of:

- What factors into the cost of a metal roof?
- What specifications affect the cost of a metal roof?
- What is the cost of a metal roof?



What factors into the cost of a metal roof?

Understanding the different variables that factor into the cost of a metal roof will help you better determine what type or style of metal roof is the best choice for you or one of your clients.

To better understand where or what your money goes to when you purchase a metal roof, we've broken it down into three separate costs:

- Cost of materials
- Cost of labor
- Operating costs





Cost of materials

The cost of materials required for a project accounts for roughly 1/3 of the total price to install a metal roof.

This part of the overall cost accounts for:

- Metal panels
- Flashings
- Underlayment
- Accessories (such as clips, fasteners, rivets, and sealant)
- Other miscellaneous materials that might be needed to complete an install

Understanding the different variables that factor into the cost of a metal roof will help you better determine what type or style of metal roof is the best choice for you or one of your clients.



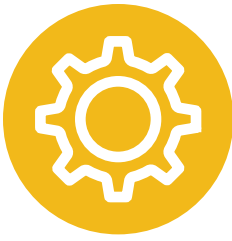
Cost of labor

Accounting for another 1/3 of the price of a metal roof is how much the contractor and/or installer charges for the actual installation portion of the project.

Here's a list of the breakdown to better understand what the cost of labor covers:

- Number of hours required to complete the project
- Wages and salaries of contractor's employees
- Benefits and insurance for employees
- Payroll taxes paid by the contracting company

These factors are not always concrete and can vary based on the structure of a business, how long the project will take, and the complexity of the installation.



Operating costs

Finally, the last 1/3 of the cost is comprised of the operating costs that help keep the company in business and functioning in the market.

No two businesses operate the same or require the same amount of money to function, which means there could be dramatic differences in operating costs from contractor to contractor.

For a metal roof install, this part of the cost could help cover:

- Rent or utilities of a building or office space used
 - Office supplies, internet, phones, and furniture
- Advertising and promotion
- Vehicles and trailers needed to haul employees and materials
 - Plus fuel and vehicle insurance costs
- Equipment or machinery used to rollform, cut, and seam panels
- Licensing and training required by industry or government
- Insurance
 - Plus coverage for potential damages not covered by insurance
- Taxes
- Other day-to-day miscellaneous tools and items

No two businesses operate the same or require the same amount of money to function, which means there could be dramatic differences in operating costs from contractor to contractor.



What specifications affect the cost of a metal roof?

Just as important as what factors into the cost of a metal roof is what could affect, both positively and negatively, the end cost of a metal roof, including:

- Size of the roof
- Residential vs commercial
- Type of metal material
- Width
- Gauge
- Color
- Paint type
- Seam type
- Accessories
- Flashings
- Location or where you live
- Customizations

What is the size of the roof?

As you could probably already guess, the cost to complete a roofing job varies depending on the size of the roof (measured in square feet).

If you need help calculating the square footage of your pitched roof, which is different from the flat base area of a home, follow these instructions:

- Find out what the house base area, or the area of land, the house covers.
 - If you have a home that is made up of numerous complex shapes, determine the area of the individual shapes and then add all of the parts together.
 - Also, if you know you have a two-story home at 2,400 square feet, you would only use the square feet of one level (1,200 square feet).

- Determine your roof pitch, or how much the roof rises over 12 inches. For example, if your roof rises 8 inches for every 12 inches, the roof pitch is 8/12.

- From there, you will multiply the area by the typical slope correction values. These may vary slightly between manufacturers, but offers an approximate square foot value.

Pitch	Angle	Multiplier	Pitch	Angle	Multiplier
1/12	4.8°	1.003	10/12	39.8°	1.302
2/12	9.5°	1.014	11/12	42.5°	1.357
3/12	14.0°	1.031	12/12	45.0°	1.414
4/12	18.4°	1.054	13/12	47.3°	1.474
5/12	22.6°	1.083	14/12	49.4°	1.537
6/12	26.6°	1.118	15/12	51.3°	1.601
7/12	30.3°	1.158	16/12	53.1°	1.667
8/12	33.7°	1.202	17/12	54.8°	1.734
9/12	36.9°	1.250	18/12	56.3°	1.803

- For example: If you have a 8/12 roof pitch on your home and a 1,200 square foot house base area, you would reference the multiplier in the chart for that pitch, or 1.202, and use this formula:

Square foot base area	X	Roof pitch multiplier	=	Roofing square feet
1,200	X	1.202	=	1,442.4

Commercial or residential project?

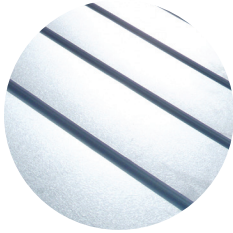
Typically, commercial metal roofing projects tend to cost more than residential metal roofing projects due to the fact that more materials, time, technique, and labor are required on commercial buildings.

What metal material is used?

The type of metal material makes a difference in the final price, as some metals come at a higher cost and some cost significantly less. For the purposes of this topic, we'll focus on the five most common metal materials: Galvalume, aluminum, copper, zinc, and stainless steel.

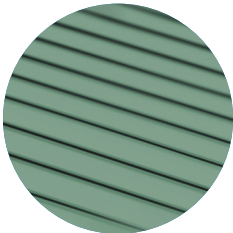
As far as pricing goes for metal coil and sheet raw materials, it can vary quite a bit.

Here are average price ranges for just the coil and does not account for installation, other thicknesses, finishes, colors, locations, or special orders:



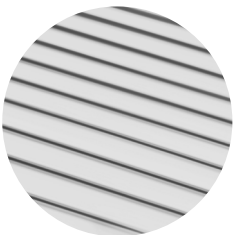
Bare and painted Galvalume (24-gauge)

\$0.75 to \$1.40 per square foot



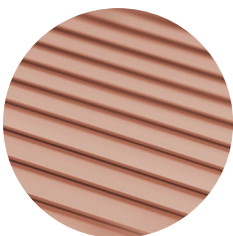
Painted aluminum (0.032" to 0.040")

\$1.05 to \$1.60 per square foot



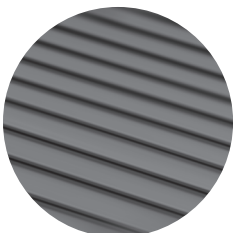
Stainless steel (0.015" to 0.024")

\$3.00 to \$8.00 per square foot



Copper (16-oz to 24-oz)

\$4.00 to \$8.00 per pound



Zinc (0.7mm to 1.5mm)

\$3.00 to \$6.00 per pound

The cost ranges differ from one another for a number of reasons, such as:

Premium materials

All metals used in metal roofing are viable options for home or building owners, but some are stronger than others or carry specialized qualities that put them at a higher price. For example, copper and zinc both develop a protective covering called patina over time that further resists against corrosion, which is one reason why both of these cost more.

Market price

All of these metals are commodities, meaning they go up and down according to the selling price in a given market. Recently, there has been a spike in the price of copper (follows Comex) and a spike in the price of zinc (follows LME), which is reflected in metal roofing prices.

Additionally, there could be changes to the price of steel and aluminum, with the decision to impose tariffs on both metals based on Section 232 investigations.

Availability

For example, steel is a common alloy produced and used in infrastructure and construction, so it's easy and readily available for companies to purchase from domestic or foreign steel manufacturers. The same goes for aluminum, which is the 3rd most abundant metal in the earth's crust by making up about 8.1% of it.

On the other hand, copper makes up less than 0.0007% of the earth's crust, so it makes sense that it comes at a much higher price when compared to other materials.

Quantity

Going along with the availability in the industry or in the earth's crust, the less availability means the less amount produced by manufacturers. In other words, some manufacturers might not even carry zinc or copper options, which is another factor that affects the price.

What are the order specifics?

An attractive feature of metal roofing is the number of options available for buyers to choose from. At the same time, a number of these options on a quote or order can cause the price to fluctuate in either direction.

Width

Metal coil and sheets typically come in many different standard widths (anywhere from 48” to 16”) that manufacturers will cut to with no extra charge. If a customer or buyer needs the coil or sheets in a non-standard or customized width, it could lead to a higher price.

Gauge

The gauge, or thickness of the metal, definitely factors into the cost as well. The thicker the metal is, the higher the price will be. (For reference: The higher the gauge number, the thinner the metal is and vice versa.)

Color

Have you ever been to a car dealership and noticed that some cars are more expensive just because of the color? This same concept applies to metal roofing. Some colors are harder for paint companies to develop, some require extra materials to be added, and some might need one or more layers; all of which can increase the price.

For example, at Sheffield Metals, we have five different price levels that apply to our standard 24-gauge Kynar products:



Paint type

Going right along with the paint color is the type of paint system used to coat the coil, which can swing the price in both directions:

- Polyvinylidene fluoride (PVDF) – This resin is made up of about 70% PVDF and 30% acrylic. Commonly referred to as Kynar 500® or Hylar 5000®, PVDF resins are the best protective coatings available and therefore cost more.
- Silicone-modified polyester (SMP) – SMP coatings, a combination mixture of polyester and silicone materials, are a step below PVDF. SMPs offer great protection, though not as well as PVDF, and come at a lower price.
- Fluoroethylene vinyl ether (FEVE) – Below SMP paint systems on the price and protection scale are FEVE resins, which are made up of various vinyl ether and fluoroolefin units.
- Polyester – While polyester, a synthetic polymer, is not the top performing resin to use on a metal roof or wall panel to protect against chalking or fading, it does come at the lowest price point.

Seam type

There are essentially four general seam types used to connect panels in metal roofing: snap-lock, mechanical, tee, and lap.

Of the four, snap-lock and lap seams are the easiest to install. With a snap-lock system, the panel edges are rollformed to snap together without any mechanical seaming needed, which cuts down on labor and keeps costs lower. With lap seams, the ends of the panels aren't truly ever connected together, as the edges overlap and are then fastened to the deck through the top of the panel.

The more labor-intensive, and therefore more expensive, seam options are mechanical or tee seams. Both of these require a hand or mechanical seamer that bend the edges to lock the panels together.

Accessories

Accessories are the pieces and parts needed to ensure the metal roof performs to the best of its ability. There are numerous different options for most accessories, which can make the cost go up or down depending on the type.

Here's a quick run-down of the different types and if one option is more expensive:

- Clips
 - Engineered clips (more expensive)
 - Non-engineered clips
- Rivets (requires a rivet gun)
- Fasteners
- Clamps
- Sealant & butyl tape
- Paint pens
- Underlayment
 - Mechanically attached synthetic underlayment
 - Fully-adhered peel and stick
 - Ice and water shield (most expensive)

Flashings/penetration zones

Another factor that can affect cost is the number of flashing zones and/or penetration points on a roof.

To distinguish between the two, just know that all penetration points are flashing zones, but not all flashing zones are penetration points:

- Flashing zone – A spot on the roof where extra materials, whether it's a sheet metal, rubber, or otherwise, are added to provide extra weather-tightness. This often happens with valleys, chimneys, skylights, and other cuts in the roof. The type of flashing could cause variations in price.
- Penetration points – A point on the roof where something is coming through the metal. This includes vents, pipes, or chimneys. For weather-tight warranty applications, many manufacturers often require non-round penetrations to use pre-welded curbs. For bidding purposes, this can drive the material cost up significantly on a metal roof.

These scenarios require installers to make extra precision cuts in the materials or install extra materials, such as a pipe boot or sheet metal, or both. These will likely increase the cost of a metal roof.



Where do you live?

You might be asking yourself: Why would the cost of a metal roof change by location? Just like the cost of a home changes depending on the city, state, or even the country, not every product costs the same everywhere you go.

That being said, here are a few factors that weigh into why a metal roof might be higher or lower depending on your location:

- The overall cost of living
 - For example, products and services cost more in New York City or Los Angeles because the cost of living is higher
- The cost of labor
 - Union labor: More expensive, but typically have a higher emphasis on training
 - Non-union labor: Less expensive, potentially less-trained workers
 - There is no concrete evidence that union or non-union contractors are better than the other, so just do your research and ask for referrals ahead of time in order to avoid any potential metal roof problems
- The prominent regional manufacturers in the area
- Quantity of portable rollformers in the region
- Where the materials are coming from
 - For example, the majority of steel mills are located on or near the east coast of the U.S. If you live on the west coast, it could cost more because the coils/sheets require additional shipping

Will anything need customization?

Like most products, customization typically comes at a cost. This includes:

Custom color

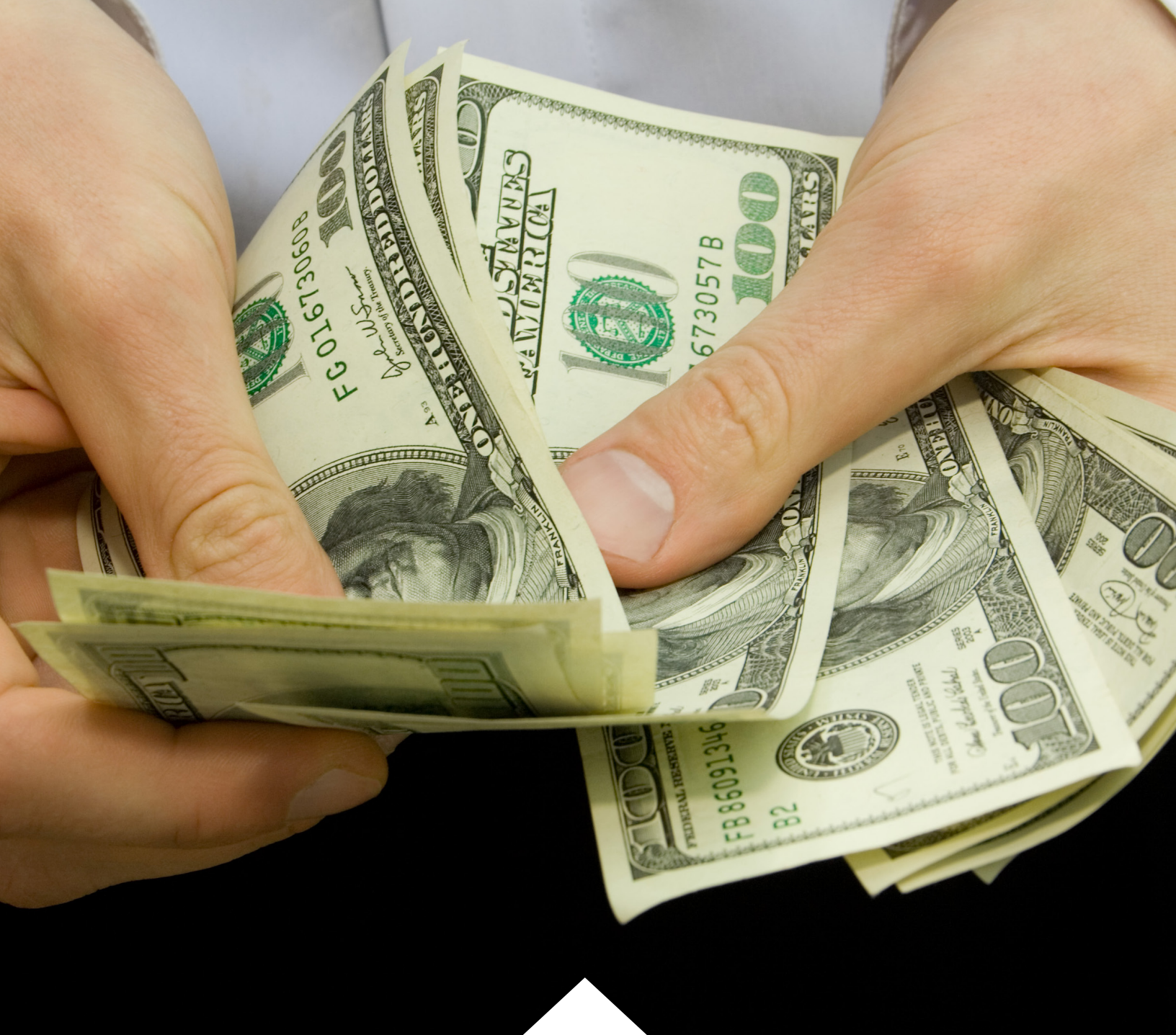
This is one that truly varies by the color choice and the quantity. For example, a custom earth-tone color is a small increase because it's easier for the paint company to develop. A non-standard or vivid custom color will experience the highest price jump, especially if only a small quantity is needed.

Keep in mind: Some manufacturers limit their paint warranties with customized colors. Make sure to ask before you buy.

Custom flashings

If specialized flashing materials, like customized pipe boots or valley flashings, need to be made and installed, an additional fee could be charged.





What is the cost of metal roof?

The best way for us to explain how much a real metal roof will cost is to give the quoted prices of actual metal roofing projects that have been completed. Keep in mind, these prices capture one project based on its individual specifications.

While these price ranges are good representations of the cost of a metal roof installation, prices will still vary depending on:

- Coil/metal type
- Size/specifications
- Roof geometries
- Seam or profile type
- Geographic location (cost of living)
- Residential vs. commercial
- Accessories
- Colors and finishes
- Engineering requirements

Standing seam metal roofing prices

Example #1: Residential Project

Coil	24-gauge Galvalume
Profile	1.5" FF Snaplock Standing Seam
Color	Standard (Medium Bronze)
Structure	2,500 square feet
Location	Midwest (non-union contractor)
Price	\$5.00 to \$8.00 per square foot

Example #2: Residential Project

Coil	24-gauge Galvalume
Profile	Snaplock Standing Seam
Color	Standard
Structure	5,000 square feet
Location	Los Angeles, California (non-union contractor)
Price	\$7.50 to \$10.00 per square foot

Example #3: Commercial Project

Coil	24-gauge Galvalume
Profile	1.5" Snaplock Standing Seam
Color	Premium (Regal Blue)
Structure	3,000 square feet
Location	Cleveland, Ohio (non-union contractor)
Price	\$7.00 to \$9.00 per square foot

Example #4: Commercial Project

Coil	24-gauge Galvalume
Profile	Snaplock Standing Seam
Color	Standard
Structure	5,000 square feet
Location	Palm Springs, California (non-union contractor)
Price	\$9.00 to \$16.00 per square foot

Exposed fastener metal roofing prices

Example #1: Residential Project	
Coil	29-gauge SMP
Profile	Exposed Fastener
Color	Standard (Evergreen)
Structure	4,000 square feet
Location	Midwest (non-union contractor)
Price	\$2.50 to \$3.50 per square foot

Example #2: Agricultural Project	
Coil	26 to 29-gauge SMP
Profile	7/8" Corrugated Panel
Color	Standard
Structure	7,500 square feet
Location	California (non-union contractor)
Price	\$5.00 to \$8.00 per square foot

Example #3: Commercial Project	
Coil	29-gauge SMP
Profile	Exposed Fastener
Color	Standard (Evergreen)
Structure	2,000 square feet
Location	Central Ohio (non-union contractor)
Price	\$2.50 to \$3.50 per square foot

Wrapping it all up

There are a lot of factors that affect the cost of a metal roof, so we understand that it can be overwhelming at times. The best advice we can give you is this: Be realistic and keep your budget in mind. You always want to get the most out of your money, but you also don't want to spend money that you don't have, so set a price and try to stick to it.

Remember, if you ever want to know more about what goes into the cost of a metal roof, talk to the manufacturer you're purchasing from. They will be able to shed light on why one or more options could change the cost.

CHAPTER

8

8 THINGS TO CONSIDER WHEN BUYING & INSTALLING

A METAL ROOFING SYSTEM

Once you know you want to purchase a metal roof, being educated about the buying process and choosing the best metal roofing contractor is critical for success.

So you've done all your research and officially decided that you want to buy a metal roof for your home or business. Congratulations!

But now what?

The next step in the process is to find, and ultimately choose, the right metal roofing contractor to complete the project. But before you come to that decision, there are some key considerations to keep in mind prior to purchasing a new roof.

In this chapter, expect to discover:

- The top eight things to remember and consider when buying a new metal roof
- Why these considerations make a difference
- Recommendations to help you along throughout the buying process



8 things to consider when buying and installing a metal roofing system



Don't go over your budget

It's easily the most important aspect when you go to buy the new metal roof: Your budget.

Luckily, it's pretty easy to discover if you have budgeted enough to cover the cost of a metal roof, as it's typically two to three times more than a shingle roof as a one-time cost. So once you know you can afford a metal roof, let's get into some budget specifics.

Know how much you can and will spend on a new roof

There's a pretty big difference between how much money have to spend on a metal roof versus how much you are willing to spend on one. Here's our piece of advice: Be realistic with how much you are willing to spend.

You want to get the most out of your money, but you also don't want to spend money you don't have or don't feel comfortable spending. When determining an amount:

- Take a detailed look at what you're already paying in bills or other regular costs and how adding the cost of a metal roof will impact your available funds.
- Determine how much money you are able and willing to spend (at most).
- Prioritize the core necessities of the project, such as the metal panels and the underlayment, that are required for a functional metal roof and can't be cut from the budget.
- Make a "good, better, best" list of additional items that you want.
- Pick the option/amount you feel most comfortable paying.

Know what makes a roof cost more

When you're making the list of core essentials, which should be specific to your needs and wants, knowing what could affect the cost will help you decide.

Factors potentially affecting the cost of an install:

- Width, color, paint type, application, seam, or panel profile
- Accessories
- Size of roof
- Type of metal material used
- Where you live
- Customized items
- Engineered components, engineer review, stamps, or calculations

Potential after-the-fact costs:**Repairs**

There are ways to avoid potential problems with metal roofing, most of which revolves around choosing the right installer.

Going slightly above or below your budget is normal, but once you start adding pieces, parts, and customizations to the roof, don't be too surprised when the price increases beyond what you were expecting to pay.

Additions

This includes adding solar panels, swamp coolers, skylights, or other additions requiring additional flashing materials or even cuts in the metal.

Home/building insurance cost fluctuation

While metal roofing insurance benefits exist, there is also the potential for drawbacks. It's true that some homeowners could get a break on premiums because metal roofing is less likely to damage, but it could also be more expensive because the roof itself is worth more and would increase replacement costs for the insurance company.

Before you buy, consult with your insurance company to ensure they will be giving you the true value of a replacement roof if a claim must be made. If you don't feel comfortable doing this on your own, there are roofing contractors who will deal with insurance companies on behalf of the homeowner.

If you come to a point where you are too far over your budget, call a meeting with your contractor to discuss ways to cut back on costs.

Going slightly above or below your budget is normal, but once you start adding pieces, parts, and customizations to the roof, don't be too surprised when the price increases beyond what you were expecting to pay. If you come to a point where you are too far over your budget, call a meeting with your contractor to discuss ways to cut back on costs.

2

Determine what you can do with your old roof

If you're doing a total roof replacement, there are a couple different options of what you can do with your old roof. You might be able to choose what happens with your old roof, or it could be up to the contractor, as they are often well-versed in building codes and what can or can't be roofed over.

Tear-off & replacement

Tear-off is pretty self-explanatory: You take (or tear) off the old roof, whether it be shingles, metal, or otherwise, and completely replace it with the new metal roof. This option could potentially add to the cost of installation because it's labor intensive and takes more time to do.

Sub-purlin retrofitting

Sub-purlin retrofitting involves putting a new metal roof over an existing roof system. This practice, which doesn't open the building up to the elements, is typical in structural metal roof systems because it involves open framing (no roof deck). New purlins are designed to install over the existing roof and into the structural purlins of the building, often giving the roof structure additional strength, which the new metal roof will be attached to.

Stick-framing retrofitting

This is typical when a building owner or architect wants an overall design change, so they go from a flat roof design to a pitched roof. Often times, they can achieve this without moving the structure's HVAC or mechanical or plumbing while achieving their aesthetic architectural goals.

Roofing over old roof

Some contractors and municipalities will allow you to keep your existing roof, typically a metal or shingle roof, and will put the new metal roof over it. There are regions where you can have more than one or two roof layers, but there are also regions where you can only have one, so check with your contractor or local building codes administrator. Also, since many contractors offer workmanship warranties on their installation job, ensure that roofing over an existing roof won't void or limit this warranty.

3

Check with your municipality/HOA before you buy

Before you start getting quotes on a new metal roof, check with your municipality and/or your Home Owners Association (HOA) before you put down any money. There are some community organizations that don't allow metal roofing to be installed on a new or existing home within its jurisdiction.



Metal roofing can look inconsistent with a neighborhood.

Common reasons include:

- Metal is often thought of as looking “industrial”
- Metal can look inconsistent or go against the look or aesthetics of a neighborhood
- Some municipalities consider some paint finishes to have a high glare
 - o SpecularGloss – Defined as "...an optical property which indicates how well a surface reflects light in a specular (mirror-like) direction."



The eight considerations we laid out will make a difference when you go to buy your new metal roof.”

4

Choose the right contractor for you

Before you get quotes and bids from contractors, you'll need to narrow down the contractors you feel comfortable choosing from. There's no point in wasting time on getting a bid from a contractor that you wouldn't feel comfortable hiring to do the job, no matter how low the price is.

How to find the right roofing contractor

There are contractors and installers who do great work installing metal roofing, and reputable manufacturers would be happy to point you in the right direction. At the same time, there are some contractors and installers who are inexperienced or unqualified to install metal roofing, which is why finding and ultimately choosing the right one is so vitally important.

To know if a contractor can perform to the highest standards possible, verify the following:

- They are licensed, insured, and in good standing with the building department
- They have proven experience installing metal roofing
- They are helpful, responsive, and able to answer your questions
- They provide detailed explanations of available products and install processes
- They don't require all costs to be paid 100% upfront
 - We recommend around 20% to 30% should be left to pay at time of completion
- They have been recommended by family, friends, or neighbors who have used them as their installer
 - If you don't know anyone who has a metal roof, look for reviews and recommendations on referral sites such as HomeAdvisor or Angie's List
- You can also contact the metal manufacturer to ask if they have any referrals in your area

Questions to ask the roofing contractor



During your consultation, ask who will be doing the installation.

For a little bit of assistance in choosing the right roofing contractor, make sure to ask these questions during your consultation:

- Are you a licensed roofing contractor?
- Do you have photos or examples of jobs you've completed?
- Do you have proof of workman's compensation insurance?
- Do you have proof of liability insurance?
- How long does a typical project take to complete?
- How will you protect my house, gutters, yard, and other items near my roof from damage?
- Who will actually be doing the installation? Your workers or sub-contractors?
- Will you need access to my home throughout the install?
- What kind of warranties are available?
- Who is my contact during the installation?
- Does your bid/quote entail using the manufacturer's standard details? If not, why?
- Why are you recommending this roof system? How will it work with my roof characteristics?
- What are the potential problem areas with my installation?
 - How do you plan to address these? What are my options and how will it affect the price?
 - Will the manufacturer offer assistance and troubleshooting?
- Oil canning is a part of metal roofing, however what can you do to minimize it on my installation?

5

Get a variety of bids

Any time you're shopping around for a high-price item with many different add-ons and options, you should always get more than one quote or bid on an item. So after you've met with the contractors, been given information, and asked a lot of questions, pick out a few contractors that you would feel comfortable getting quotes/bids from.

We understand that the process of shopping around for contractors and getting a variety of quotes can seem long, but it's worth the effort to ensure your new roof performs to the best of its ability.



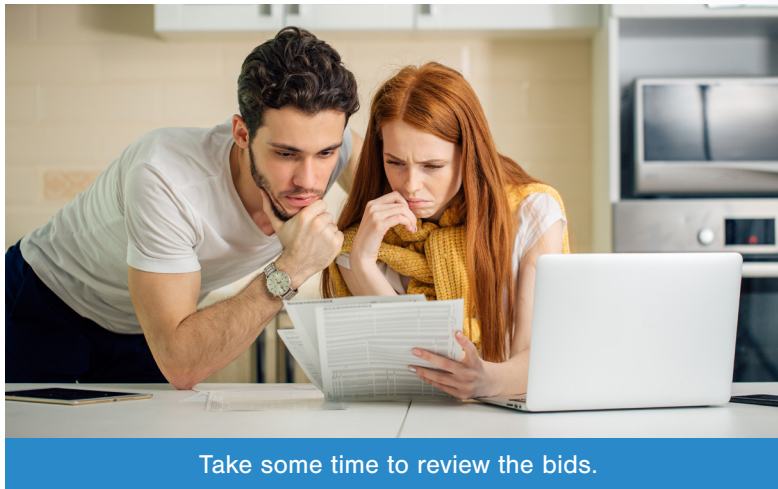
You should always get more than one quote or bid on an item.

What to look for in a bid or quote

The next step is analyzing the quotes you received from the narrowed pool of contractors. This is arguably one of the most important pieces of the metal roofing buying process. First and foremost, make sure everything about the project is spelled out in the quote.

Then, take some time to review the bids and make sure the following pieces/parts are included:

- A full scope of the work to be completed
- Roof specs:
 - o Pitch/slope
 - o Square footage
 - o Layers
 - o Number of flashings/penetrations
- Material costs:
 - o Cost of metal + quantity/size
 - o Cost of underlayment + quantity/size
 - o Cost of fasteners, rivets, or screws + quantity
 - o Cost of clips or clamps + quantity
 - o Cost of plywood or other roof deck materials + quantity/size
 - o Cost of flashings or pipe boots + quantity/size
 - o Cost of sealants or butyl tape + quantity
 - o Any other material required (drip edge, gutters, etc.)
- Labor costs:
 - o Tear-off cost per hour + number of hours to complete tear-off
 - o Installation cost per hour + number of hours to complete installation. Includes panel install, roof deck install, accessory install, drip edge install, and other added materials that require time to install. Always make sure the contractor is using manufacturer details, which are industry approved installation methods
- Available warranties



Take some time to review the bids.

Be wary if a bid/quote is missing one or more of these parts. If you feel like the quote is missing pieces or is difficult to understand, contact the contractor and have a conversation about it.

6

Don't always take the lowest bid

You might be drawn to a bid because it's the lowest one you've received. Sometimes taking the lowest bid is perfectly fine, but there are times where it may spell trouble and lead to unnecessary problems.

Why a metal roofing bid might be low

Let's discuss good and bad reasons of why a bid might have come in at such a lower price than the others.

OK reasons for a bid to be low:

- It's a smaller business with less overhead costs to compensate for
- The job or project isn't complex
- No tear-off of the old roof is needed

NOT OK reasons for a bid to be low:

- They're not using quality materials
- They forgot something
 - A roof section, penetrations, materials, any number of things
- They're using low-wage or less-qualified workers
- They're inexperienced and/or a newer business
- If you require specific engineering for a system and they can't validate they are providing one
- A roofer recommends a different type of panel for the back of the house or building

Like we mentioned, sometimes a lower bid turns out to be a fine option that results in a well-performing metal roof. We recommend doing your research if someone does come in at a low bid by checking with references, referrals, customer reviews, and the contractor.

Which metal roofing bid should I take?

There's not a right answer for everyone on the best bid to take. Just remember to choose the contractor who:

- Gave you a precise bid with the full scope of work to be done
- Uses manufacturer provided installation details
- Answered all your questions to your liking
- Provided proof of metal roofing installation experience and knowledge
- Most importantly: Choose a contractor who you trust to complete the job

7

The price of a metal roof can quickly change

Once you have accepted a bid on the project, know that the price can quickly change at no fault to anyone. There are often unforeseen problems or additions, such as added plywood needed for a roof deck or another few feet of drip edge material needed, not covered in the quote and might need to be paid out of pocket. Discuss how these situations will be handled by your contractor before this occurs.

Also, if you're purchasing a new metal roof because of an existing issue such as a leak, expect the price of a metal roof quote to be higher than usual. These problems will need additional work to be performed to remedy the problem before any new roof can be put on.

There are often unforeseen problems or additions, such as added plywood needed for a roof deck or another few feet of drip edge material needed, not covered in the quote and might need to be paid out of pocket.

8

Know what is or isn't covered by a warranty

Warranties are a huge selling point of metal roofing and can offer peace of mind for many consumers that their new metal roof will perform as well as promised. It's important to understand the different elements a warranty consists of, including how to apply, who or what company is offering the warranty, the duration of the warranty, inclusions or exclusions, and who to contact if a claim needs to be filed.

Types of metal roof warranties

All warranties should come with a detailed outline of what is or isn't covered, which you should keep and reference should you ever have questions.



Substrate

This type of warranty applies to the metal making up the core of the coil or sheet and often states that the substrate will not rust or degrade through the material for a specific duration of time. These are typically offered by the manufacturer.



Paint

A metal roof paint warranty covers certain levels degradation of the paint system applied to the substrate.

This warranty is typically offered by the manufacturer on behalf of the paint company, such as Valspar or Sherwin-Williams:

- Often covered: Paint system chalking and fading, peeling, chipping, cracking, or peeling.
- Often NOT covered: Fire damage, weather damage, improper handling, pollution, added materials, liquid submersion, not using manufacturer details, deliberate damage, animal exposure, etc.



Weather-tight

Weather-tight warranties cover leaks in a roofing system for a specific time period. Weather-tight warranties typically come from the manufacturer and are used for architects and building owners of non-residential structures to ensure longtime system integrity.



Workmanship

Workmanship warranties are offered (often included) by the roofing contractor and covers installation errors that could lead to problems or failures of the system. Having this warranty ensures that the contractor will come back and fix the issue at no additional charge. If a contractor is not willing to offer a workmanship warranty for at least two years, you might want to think twice about choosing them.

All warranties should come with a detailed outline of what is or isn't covered, which you should keep and reference should you ever have questions.

Wrapping it all up

It sounds like a lot of information to keep in mind, but the eight considerations we laid out will make a difference when you go to buy your new metal roof.

Remember:

- Try your best to stay on budget, but know that the price of a metal roof can change quickly
- Make sure your municipality or HOA allows metal roofs
- Know the important questions to ask during contractor consultations
- Get a variety of bids from contractors you feel comfortable choosing, but don't always take the lowest bid
- Know your warranty options and what is or isn't covered by each one

