AN INVALUABLE GUIDE TO HOMEOWNERS

ABOVE ALL YOU NEED A GREAT ROOF

Dave Yoho
and Jim Cory

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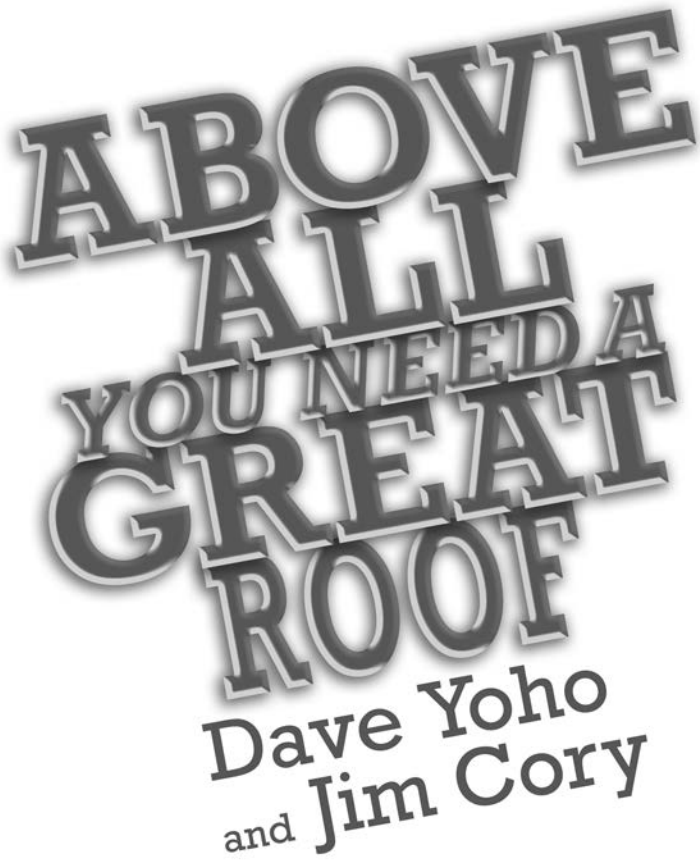

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Introduction

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Your home is probably your most expensive investment. You as a property owner face many challenges in deciding how to maintain that property. While some aspects of home repair do not seem to fall in the category of urgency, things such as a malfunctioning heating/air-conditioning or septic system, plumbing problems, and termites require immediate action. Include issues concerning your roof. The reroofing industry has a major connection to weather. If it rains or snows, water may penetrate the roofing "envelope" and cause interior damage, signaling property owners to take an action to satisfy that urgency.

In fact, as a roof ages, certain conditions do occur that create damage to the building while not being visibly apparent. As an example, most roofs are sloped, meaning they incline upward; since water runs downhill, if moisture were to penetrate the exterior roofing material and in turn penetrate the sheathing (the wood decking beneath it) that water might run down the inclined wood framing instead of dropping directly on the ceiling below. The water then gets to a point where the structure of the roof meets the structure of the exterior wall of the house. That point is called a *plate*. If the water goes no farther than this, over a period of time that wood will be damaged; issues such as mold, decay, and insect infestation (termites included) can find their way into that wood. Even if minute leakage is occurring, that water can get into the insulation in the attic or sidewall area. Once hitting that plate, the water may find its way into the exterior wall area, where there is also sheathing, and contaminate that surface and the exterior siding attached to it.

I encourage all property owners who have a home where the roof may be 15 to 20 years old—and sometimes as new as 10 years old—to have the roofing itself and the attic inside the house inspected.

I consider myself fortunate to have as a coauthor Jim Cory, former editor of *Replacement Contractor* magazine, whose vast experience in the field of replacement products being installed on homes gives him insights that are invaluable to property owners. He has spent much of his adult life researching and reporting on trends in remodeling, exterior contracting, and home improvement.

Jim Cory and our team did extensive research on issues of ventilation in the attic/crawl space and its effect on the deterioration of what might otherwise be considered a sound roof. It may come as a shock, but frequently the "leaking roof" stems from the process of improper or poor ventilation in that area. Our research revealed that many roofing manufacturers specify in their warranties that an unventilated or not properly ventilated attic area is sufficient cause to void a warranty claim on the product.

We are grateful to the many associations, government organizations, manufacturers, consultants, and contractors that aided us in our research and have provided invaluable information and insights for the information in *Above All You Need a Great Roof*.

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Need a New Roof?

You may need one now, or you may need one soon. Either way, there have never been more options when replacing a roof.

Most calls to a roofing company come right after it rains. A storm hits, and roofing company phones ring off the hook. Every call is an emergency.

Roofing companies love rain because it drives business. Most homeowners only call when they have a leak. And a leak is an emergency.

A leaking roof is every homeowner's nightmare, right up there with termites, a septic tank backing up into the house, or faulty electrical wiring. It's already a problem and destined to get worse.

Why would it get to that? Because many homeowners think about the roof as little as possible, and usually only when it becomes a problem.

Wouldn't you want to know when the roof might be getting ready to *become* a problem?

Anyone who's ever had a leak can tell you that the sight and sound of water coming in causes no small anxiety. One reason is that you usually don't know where on the roof the water's getting in. Water finds an opening and travels, going where gravity takes it, which is why it's difficult sometimes even for *roofers* to figure out the actual source of a leak.

A leak means you need to either repair your roof or, more likely, replace it with a new roof.

It's far wiser to replace the roof when it's in the last few good years of its life than when it's failing.

Roofers often use the analogy of a tire. When you're thinking about replacing the tires on your car, do you wait until the tread's worn to the point where the tires look like they might blow out at any minute? Or do you replace them well before that? Who would risk a blowout in freeway traffic?

Think about your roof the same way. The ideal time to consider a new roof is *before* a problem happens—that is, when the roof is still sound but shows evidence of the kind of wear that may indicate hidden damage.

DISASTER IN THE MAKING

Mold is one of the many problems that can develop when a roof leaks.

If you've got a roof leak and it reaches the point where water's coming into the house, that can be serious. Left unchecked, water can stain Sheetrock walls and ceilings, warp floors, and ruin furnishings. And then there's the very real possibility of mold, its own special headache.

The source of leaks is rarely obvious to the untrained eye. Water almost always enters through edges or openings, and is often wind-driven.

That's why a roof surface has to cover the building structure continuously to be effective. But that covering in fact has points where it's necessarily perforated or broken. The chimney, skylights, or a satellite dish fastened to the roof are examples. Attic fans if mounted to the roof surface, vents, fans, pipes—all of these features interrupt that surface. These interruptions in the roof surface are normally integrated with flashing and sealants to become part of the rest of the roof. A roofer looking for leaks starts here.

If you've got water dripping in, or evidence of water damage, a professional roofing contractor can advise you which course to take, but only after physically examining the roof, checking on the roof and underneath it (in the attic) for soft spots where water may have entered and caused the sheathing to rot (see chapter 6, "Open for Inspection").

WHERE'S THE WATER COMING FROM?

Snow melts and refreezes at the roofline, forming an ice dam. Ice dams can damage the roof as well as the roof structure and by clogging downspouts often leave water with nowhere to go but inside the house.

Leaks happen a lot of ways. For instance, a roof with at least a few more years of life left to it could very well leak if your gutters and downspouts are plugged by uncollected debris, because that leaves heavy rain no way to get off the roof. In cold climates, or even in temperate climates where winter storms are followed by radical temperature drops, ice damming—melted snow from the roof that refreezes at the roofline—often causes water to back up and enter the house. Damage can be extensive.

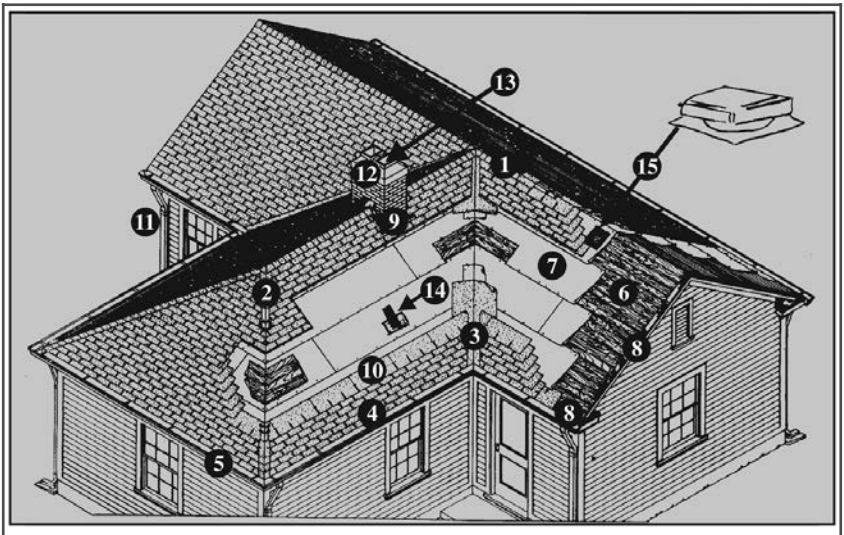
If you have water coming into the house and you go to look at your roof, chances are that no gaping hole in the middle of the roof would be visible. It's never that simple.

Roof vs. Roof System

The point of a roof is to protect your house from the elements. It's a key part of what engineers call the "building envelope," the skin of your house that covers its skeleton, the building structure or frame.

But a roof isn't just what you see on the surface. It's all the components beneath, laid on piece by piece, each piece essential, all working together.

There's the roof deck—that is, the sheets of wood, or *sheathing*—attached to the frame of the house to which the roofing is fastened. There's the underlayment, a secondary



1. Ridge	6. Sheathing	11. Leader or downspout
2. Hip	7. Underlay (material)	12. Chimney cap
3. Valley	8. Edging strips (metal or vinyl)	13. Flue liner
4. Eave	9. Metal chimney flashing	14. Plumbing vent & collar
5. Gutter	10. Roofing shingles	15. Roof vent

Under the roof surface is an integrated system of supporting parts. Parts and surface area function as a system to protect a building from the elements.

weatherproofing barrier between the roofing material and the sheathing. And there's what you see: the roofing material itself.

In addition, there are the numerous interruptions to the roof surface we just talked about—vents, pipes, fans, the chimney, and satellite dish. Not only do all these parts need to be integrated into a seamless whole, but ventilation and drainage play their part when putting it all together so that the roof functions as a system to keep out water effectively.

That's the difference between a *roof* and a *roof system*. The roof is what you see; the roof system is what you see plus all the components that support it.

"Anyone can go to a big-box home improvement store, purchase a few bundles of shingles, throw it on a problem area, and say they've fixed it," says Ken Kelly, president of Kelly Roofing in Naples, FL. "That's like putting a Band-Aid on a broken arm. If you don't properly replace specialty flashing, penetration flashing, valley metal, perimeter drip edge, you've done nothing to protect the building."

Kelly explains, "The roof is not just the roofing material we see but a system of flashing, sealants, fasteners, and roofing materials that's built to guard against direct water flow."

Your Living, Breathing Roof

It helps to think of the roof not as a static object but as something living and breathing, just like a house. A roof moves and changes as forces inside and outside act on it. They act on it constantly. That's why the roof needs to be monitored and maintained.

A consistent buildup of heat in the attic, for instance, will reduce the life of the roof, sometimes substan-

tially. That happens when baked air under the roof and infrared heat on the surface cause the shingles to "cook" from two directions and prematurely disintegrate. "For example, when the temperature outside is 90 degrees, the temperature inside the attic might be 120 degrees," says roofing specialist Joe Talmon. "And when it is, the shingles are baking."

ARMA, the Asphalt Roofing Manufacturers Association, recently produced a study on proper attic ventilation that states that in a building with poor ventilation the temperature in the attic may eventually reach 140 degrees Fahrenheit on a 90-degree day. An overheated attic combined with moisture can cause a number of problems, including damage to roof sheathing and roofing shingles.

NOWHERE TO RUN

A roof keeps the elements—water and sunlight—out of the house. A well-designed and efficiently functioning roof ensures that water gets off the building and away from its foundations (via guttering) as quickly as possible. Water trapped on a roof for any reason will do one of two things: evaporate or find its way down and inside through whatever perforations exist in the roof membrane. A poorly designed roof can result in dead spots where water has nowhere to go and sits there. Ice damming can create a similar problem by causing water to back up and pool, especially at times of the year when rain follows snow in short order.

Ever wonder why the gutters of an older roof are filled with what looks like tiny bits of mica? The asphalt in the shingles diminishes as the roof ages, releasing the granular matter on the surface and causing the shingles to crack and curl. Heat from below accelerates that process.

The attic has to breathe in order for the roof, and the house, to be healthy, since the combination of static air and moisture is the perfect combination for mold and decay (see chapter 6, "Open for Inspection").

A well-designed roof is constructed in such a way that water is constantly directed off of it. A poorly designed roof, on

WILL A NEW ROOF LEAK?

Just because the roof was recently installed doesn't mean it won't leak. Most leaks involving a new roof result from flawed installation.

If a brand-new roof leaks, it's for one of several reasons. Either the installation was flawed, the wrong type of product was used in the installation, or the roofing material itself is faulty. Yes, inadequate or flawed roofing material sometimes gets on the market. That it's fairly rare is the reason some roofing manufacturers are able to offer generous warranties. More often the newly installed roof that springs a leak is the fault of the installer. In many cases the roofing crew, in its haste, simply forgot to install key components, such as starter strip, drip edge, or ice-and-water shield. Most professional roofing companies offer what's called a workmanship warranty, which commits them to repairing or replacing what was defective in their roofing installation. Choose a good roofing product, and a good company to install it, and chances are you won't have to use either of those warranties.

When possible, choose an *undivided responsibility guarantee*, where both product and installation are covered.

the other hand, takes little account of how nature acts on it. It might, for instance, feature "blind" valleys—areas where downward-sloping planes meet at an angle in a way that leaves rainwater with nowhere to go, leading to water accumulation on the roof, called "ponding." It evaporates for a while, but sooner or later that water finds a way inside the house.

And even a well-designed roof requires regular attention. Ever see weeds sprouting from gutters on someone's home? Good home maintenance involves cleaning gutters seasonally. Let them go long enough and they'll jam with leaves, twigs, and dirt, blocking downspouts and impeding the flow of rainwater off the roof. Soon enough that water will back up and find a way inside, even if it comes down the inside walls.

Frequently Asked Questions

Question: *When is the best time to replace a roof?*

Answer: Prevailing wisdom states that the best time is well before the point where the roof is actually failing—that is, disintegrated to the point where it leaks—just like you'd replace the tires on your car well before they were completely bald.

Question: *What's the difference between a roof and a roof system?*

Answer: The roof is its surface. The roof system consists of all the components—wood, flashing, underlayments, sealants—that go to support that roof surface. A well-integrated system enables the roof to do what it's designed to do: Keep water out of the house.

Question: *Why is it so hard to find the leak when water's coming in?*

Answer: The actual point where water enters the house is rarely obvious. Even roofing professionals often have a hard time spotting leaks. Leaks most often happen at those places where the roof surface is interrupted by a chimney, pipes, a satellite dish, or skylights. Whatever has been used to fill the seam between these objects and the roof separates, allowing water entry.

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When to Replace

If you view replacing your roof as a costly chore—and most people do—why would you want to go through the process anytime soon?

Many contractors would offer advice about when to repair the roof vs. replacing it altogether, but here are some things to consider. If you have a shingle roof that's 15 years old or older it could be failing. (In certain environments some asphalt shingle roofs last less than 10 years. On the other hand, top-of-the-line shingles in the friendliest environment could last considerably longer.)

If other homeowners in your neighborhood or subdivision are replacing their roofs, and your house was built at the same time as part of a development, it would be a good idea to consider replacing it. A series of storms or severe weather events, a particularly hard winter, poor ventilation, or simple wear and tear could cause your roof to cease functioning properly.

Beginning, middle, end. Asphalt shingles serve as a temporary roofing solution. The life cycle of any roof depends on many factors, including the environment, the roofing material, and the quality of the installation.

Here's what you can do:

Have a roofing contractor look at the roof, identify the problem, and suggest possible solutions. A well-trained roofing company representative will conduct a systematic inspection of the roof and attic area, where accessible, to get a sense of the condition of the roof surface as well as all penetrations—chimneys, vents, pipes—where a roof should be sealed.

If your roof is approaching the end of its life, you can find yourself in a scenario where you're paying for repairs without actually solving the problem. Your roof probably requires replacement.

The Wise Don't Wait

How do you know it's time for a new roof? A professional roofing contractor, who performs a complete inspection, including the interior, can point you in the direction to go. The practiced eye, utilizing certain tools, can assess how many years of useful life remain for the roof.

If the roof needs replacing sometime soon—say within the next few years—it's smart not to put it off. If your roof has a

few years of life left to it, replacing it now puts you ahead of the curve. You don't run the risk of problems, particularly interior repairs, down the road.

If a roofing professional tells you the time to replace the roof is now, or near, why would you want to wait? If you're hoping the cost of replacing the roof will come down, it won't. As with almost any home improvement project, there will never be a more affordable time to do it than now. "In the last five years we've seen unprecedented increases in the cost of roofing materials," says New Jersey home improvement contractor Michael Damora (see his columns in *Remodeling* and *Replacement Contractor* magazines online). "It's not just the shingles and the nails, it's the ancillary items, too, like ice-and-water shield, caulk, sheathing, the underlayment and flashing, as well as freight costs."

"If a roofing professional tells you the time to replace the roof is now, or near, why would you want to wait? If you're hoping the cost of replacing the roof will come down, it won't."

The materials that go into next year's roof may cost 5 percent, 10 percent, or even 20 percent more than they do right now. Between 2008 and 2014, roofing contractors saw asphalt shingles prices rise 70.6 percent, according to *Xactware Industry Trends Bulletin*, published by a leading provider of estimating software.

How Do They Know?

Even if you're not experiencing a leak, you may suspect that your roof needs replacing at some point soon but you have no certain way of knowing when.

Experts know what to look for. Damora, for instance, inspects a roof using a 40-item checklist.

Your roof could be failing either because the roofing material is worn away, because sealants or adhesives have reached the end of their effective life, or because of installation flaws. The most common mistakes noted on Damora's checklist, he says, are (1) the failure to nail properly (most shingles require six nails, not four), (2) lack of ice-and-water shield—an upgrade underlayment that provides a key second barrier to water intrusion—in the proper places, and (3) installers' failure to use a *starter strip*—a roll of asphalt roofing material attached to the roof with factory-applied adhesive strips.

A knowledgeable roofing contractor diagnoses your roof above and beyond the condition of the roofing materials. He examines not only the condition of the roofing material but the condition of the roof at connection points or seams—around chimneys and pipes, satellite dishes, skylights, and other places where the roof surface is interrupted, places that under the normal push-and-pull conditions of heat and cold combined with moisture are the roof's most vulnerable.

That roofing contractor can and should also assess how well your roof's ventilated, or whether it's even ventilated at all. This requires an inspection of the attic or crawl space. Ventilation is an essential element in maintaining a healthy roof and in getting the maximum longevity when it comes to roof life. Ventilation is also regulated by the building code, with its own code standards. You may also check the importance of attic ventilation to the roofing system by the Asphalt Roofing Manufacturers Association on its website at www .asphaltroofing.org under "moisture control and ventilation."

What Are Your Roofing Choices?

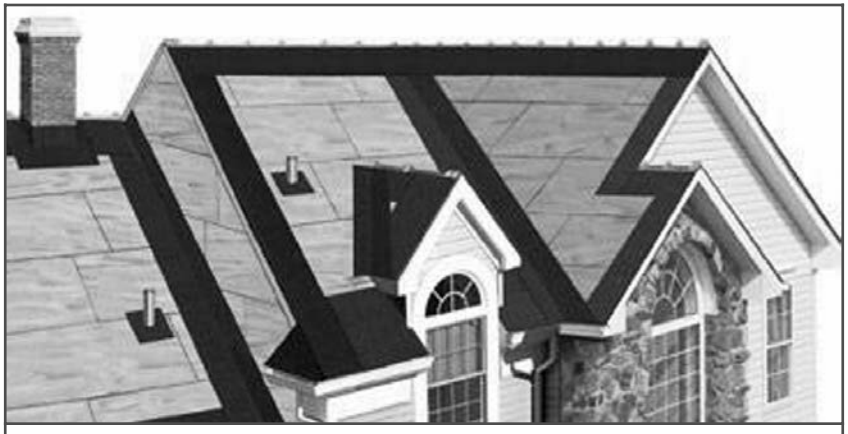
If your roofing professional suggests that it's time to replace the roof, you now have another decision to make. Replace it with what? A new roof can last a long time—40 or 50 years, even longer. It can also fail in less than 10 years. How durable it proves to be depends on three factors: the roofing

material, the quality of the installation, and local weather conditions. The first and second you can choose; the third is up to nature.

Every roof ages differently. But a low-quality roofing material that's poorly installed in an area prone to temperature extremes or frequent severe weather events like hailstorms or hurricanes will probably not last longer than a decade. In 10 years or less you could be looking at the need to replace it again. The alternative is to invest in a solution that will free you of the need to replace the roof periodically and all the stress and headaches that can go along with that.

Materials Selection

Selecting what to replace your roof with used to be fairly simple when options were limited to three-tab shingles—the simple asphalt shingles that were standard issue for decades—and a handful of high-end products like copper, slate, and clay tile. Today there are quite a few options, so making a decision requires a lot of information—the purpose of this book—and some forethought.



Sheathing, underlayment, and sealants work to support what's overhead: the roof.

As you'll see when you begin your online research, making a choice about what kind of roof to put on your home can be a little overwhelming. There are many good roofing products, certainly more now than ever. In the 1990s and after, building materials manufacturers introduced many new types of roofing products, in new colors, shapes, and sizes. Apart from the roofing material itself, manufacturers also introduced a number of supplementary products like synthetic underlayments and ice-and-water shield that work with the actual roofing material and other components as a system to prolong the life of the roof by enhancing its efficiency—that is, the ability to keep water out.

Doing some online research will give you a sense of the products available, sometimes with discussions of their physics. That's why it's wise to follow the recommendations of a trusted roofing professional who knows what product or material is suitable for your house, your neighborhood, and ultimately your budget. Many pros have this information in easy-to-understand form on a mobile device, laptop, or iPad.

WHAT ARE YOUR CHOICES?	
There are essentially six different roofing materials to choose from when replacing the roof on your home:	
•	Asphalt shingles, the most commonly used roofing material
•	Metal, in the form of vertical panels or in modern profiles that imitate the look and feel of slate, tile, or shingles
•	Wood shakes or shingles, usually cedar
•	Clay or concrete tile
•	Slate
•	Built-up roofing, a roof covering that consists of layers of tar, felt, and adhesives, primarily for low-slope or flat roofs

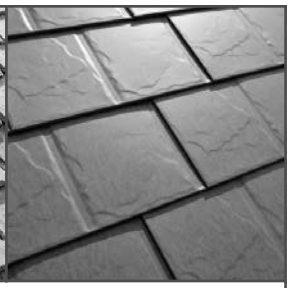
Asphalt Everywhere

Let's make it simple. Most residential roofs you'll see consist of one of six basic types of roofing materials: asphalt shingles, metal, clay (or concrete) tile, wood shingles or shakes, slate, and what's known as built-up roofing.

The majority of residential roofs in the United States are covered with asphalt shingles. Tradition is one reason. Add to that the fact that asphalt shingles are abundant and, until recently, were less expensive relative to other roofing materials.

Understanding Your Options

Asphalt shingles were invented in the United States and first used in 1901. By 1939, 11 million squares of shingles were produced. (Note: A "square" = 100 square feet of roof.) Builders routinely specify asphalt shingles, and homeowners replace their worn-out shingles with new shingles. "The phrase 'cheaper and replaceable' is frequently used by roofers," says roofing industry expert Joe Talmon.



Real slate and metal made to resemble it, available at a fraction of the cost.

Metal roofing manufactured to resemble asphalt shingles offers metal's durability but blends with the look of other houses on the street.

A study by McGraw-Hill Analytics states that asphalt shingles have an 80 percent share of the residential roofing market.

Metal roofing is now the fastest-growing roof replacement product in the United States. Once a product largely directed to rural markets—think of the corrugated metal roofs on barns—metal is now available in different product profiles such as shingles, shakes, slate, or tile, and can be visually indistinguishable from them.

Wood shakes or wood shingles remain popular in many areas, such as New England.

Clay or cement tile is a regional product mostly associated with states like California or Florida.

Slate, a roofing material typically found on the most expensive homes, is costly to replace when replaced with more slate. Less than 3 percent of reroofs in the United States involve slate, which can last anywhere from 60 years or more, depending on the grade and hardness.

Built-up roofing, typically used on flat or low-slope buildings, consists of layers or plies of roofing felts with asphalt or bitumen between.

What to Consider

Here's what to think about when choosing a new roof for your home:

- *Cost vs. investment.* Price is a huge consideration and unfortunately for many homeowners it will be the first. But if cost is your primary consideration when replacing your roof, you may be buying a temporary solution. And costs can vary greatly (see chapter 4, "The Price Is Right"). The costs of different roofing materials differ markedly, and then, as we discuss, every contractor's proposal for your roof presents a somewhat different plan. That's characteristic of residential reroofing. The building manager of a commercial building budgets for

roof replacement—say, every 20 years—and bids for doing that work will typically be remarkably similar because all bidding contractors are working from the same set of specifications.

"If you have a complicated roof—with many dormers, valleys, hips, skylights—you are paying for a lot of labor, whether it is for a 15-year roof or a 50-year roof," says Todd Miller, president of Classic Metal Roofing Systems in Piqua, OH.

In residential roofing, contractors can specify what they want, based on their assessment of the condition of the roof. One contractor might specify inexpensive pipe flanges, for instance, or the cheapest possible underlayment while another will specify top-of-the-line products. The cheapest roof usually consists of the cheapest products, installed as quickly as possible. Roofing estimates using the same roofing material could vary by as much as 50 percent or more and often do not meet the homeowner's needs. "If there's a difference in price there must be a difference in specifications," notes Jeffrey Fick, vice president of Fick Bros., a roofing company in Baltimore, MD. In other words, making a decision based purely on price might not be the best long-term roofing solution for your home.

- *Appearance.* The roof has never been thought of as glamorous. If you spent $80,000 having your kitchen remodeled, you'd take everyone you know on a tour. The roof seldom holds such allure—or at least it didn't until recently, when designers began to integrate the color and shape of the roof into the overall exterior of the home. After all, the roof is usually the largest exposed area of the house. At the very least its shape, color, and texture need to tie into the rest of the exterior to create a unified

appearance. What does a drab and colorless roof add to the appearance of a beautiful exterior with nice landscaping? Yet it is universally agreed that curb appeal helps to sell a home. Because metal can be painted, it is available in many more colors than other roofing materials. Many manufacturers offer online visualization tools that allow you to see what different roofing products look like on homes in different styles. Some allow consumers to download a photo of their house and match roofing material style and shape to the color and style of the house. Ask your roofing company representative if he can show you what the roof will look like once it's installed on the house.

- *Maintenance.* How much time are you prepared to spend maintaining the roof? One of the advantages of metal roofing is that it is relatively maintenance free. You will need to clear debris out of downspouts and gutters periodically if there are trees in the vicinity. Some roofing companies offer an inspection free as part of their workmanship warranty (see chapter 8, "What's in My Roofing Warranty?").
- *Quality of the installation.* Most roofing manufacturers offer warranties on their products. Those same manufacturers would be quick to point out that when a new or recently installed roof ("recently" being within a year or two of installation) fails, the failure is far more likely to result from improper installation than product deficiency. Your interests as a homeowner are best served by hiring a roofing company that installs to the highest quality level, has a track record (longevity and abundant positive customer reviews on review sites) to prove it, and will back up its claims with a workmanship warranty. That's a warranty from the installing contractor—usually

separate from the manufacturer's—in which the company offers the guarantee for a specific period of time that it will repair or replace whatever proves defective and is traceable to the company's own workmanship.

- *Performance.* Beyond appearance, you'll want to consider roof performance: durability and longevity. The primary function of a roof is to shed water—that is, keep rain out. It protects what's inside the house. So if you live in the central Midwest, an area prone to hailstorms and tornados, can the roof you're planning to install resist hail and wind-driven rain? In Arkansas and Oklahoma, for instance, a large majority of roofs are replaced because of storm damage, not because they wear out and the owner buys a new one. How strong will that roof prove to be when subject to powerful storms? If you're in Florida, is your roof built to withstand the 110-plus-mph winds of a hurricane?

WHAT IS A WORKMANSHIP WARRANTY?

Whoever actually manufactures the material used on your roof will almost certainly offer a manufacturer's warranty. Warranties vary in what they cover and for how long, but generally that manufacturer's warranty assures replacement in the event of manufacturing defect. The roofing company that installs that product will likely also offer a warranty, called a workmanship warranty. That warranty covers repair or even replacement of the roof in the event there are faults or flaws attributable to the company's installation.

Joe Talmon says, "If you're planning to live in the house a while, longevity should be a high priority to you. After all, do you want to be buying another roof in 15 years or have your roof perceived as needing replacement in 10 to 12 years?"

Frequently Asked Questions

Question: *If asphalt shingles are a temporary roofing solution, why is the product on so many roofs?*

Answer: Since the early 1950s, there have been more than a million homes built every year, and the largest percentage of them had asphalt shingles. Homeowners tend to replace what's there with more of the same, not realizing that alternatives such as metal can provide a durable, long-lasting roof at an affordable price.

Question: *Apart from the cost, what factors should I consider when thinking about replacing the roof?*

Answer: Durability is a big one if you're planning to be in your home for any length of time. How long do you expect the new roof to last? An investment-grade roof means you won't need to replace it a second time. In addition, you want to consider how well it performs under local climate conditions, how well it blends with the exterior of your home, its curb appeal, how much or little maintenance is involved, and the warranty on the product and installation.

Question: *If the roof has a few more years of life in it, why should I replace it now?*

Answer: How do you know, in fact, that it has a few more years? If you know that you have to replace it sooner or later, consider that roofing prices, or the cost of any home improvement, don't go down. The best time to buy is always now. In addition, waiting until something goes wrong with the roof usually causes problems that cost you more than you'd save by postponing the replacement.

3

Why Metal?

Metal roofing's been around for a lot longer than you think. So why is it suddenly so popular?

By now you may have done some online research and come to the conclusion that buying a new roof is more complicated than you thought it was going to be.

Many homeowners are surprised to find out that it's even possible to put a metal roof on their house. Metal seems like something way too heavy to put on a roof. Besides, won't it rust? Wouldn't it get dinged and dented in heavy hail?

And imagine all the noise it's going to make when rain's coming down.

These perceptions are myths.

Metal roofing has actually been around a long time. Architects know all about it and often specify it in new custom homes. Copper roof shingles covered Lowa Maha Paya Temple, a Buddhist place of worship built in Sri Lanka in the third century BC. In 27 BC Roman builders covered the domed roof of the Pantheon—142 feet in diameter, the same

Think metal roofing's new? In 27 BC the Romans roofed the Pantheon in 200 tons of copper sheathing. A thousand years later Pope Urban VIII had it all removed.

distance from the ground to the oculus in its center—with copper tiles and plates. Removed by Pope Urban VIII almost a thousand years later, the plates yielded 200 tons of copper and four tons of copper nails. Even in the 11th century, they were recycling.

Copper and copper alloys came into greater use during the Middle Ages, especially favored by church designers. St. Mary's Cathedral in Hildesheim, Germany, an outstanding example of early medieval Romanesque architecture, featured a copper roof installed in AD 1280. (The cathedral and original roof were leveled during World War II and later reconstructed.)

A copper roof with standing seams covered Christ Church in Philadelphia, built between 1727 and 1747 and located a few blocks away from the offices of Benjamin Franklin's print shop. Today the church is fully intact and in excellent

Located a few blocks down Market Street from Benjamin Franklin's print shop in Philadelphia, Christ Church was built between 1727 and 1747 and features a standing-seam copper roof.

condition, where it houses a functioning and active Episcopal parish . . . and its pale green metal roof speaks to the longevity and durability of metal roofing.

Before 1800, metal roofing was mostly copper or copper alloyed with metals such as zinc, lead, or tin. Builders typically used it to cover roof surfaces that were difficult to reach because of the shape or pitch of the roof structure.

Entering the 19th century, metal roofing material came into widespread use. Not only was metal roofing used in churches and commercial structures but as a residential building material as well.

It began when architect and engineer Henry Palmer invented corrugated roofing from wrought iron. The result proved a strong, lightweight building material that's corrosion-resistant and easily transported. (It's still used all over the world.) Not long after that, French chemists invented *terne*, an alloy of lead (later zinc) and tin that prevents corrosion when used to coat sheet steel. That led to the popularity of tinplate iron, or what was called "tin roofing," in the United States.

The application of coatings hot dipped onto sheet steel was a breakthrough. Now manufacturers could produce sheet metal roofing that didn't rust because water never got through the alloy coating to the steel core of the panel.

Before 1990: Metal Roofs a Rarity

Prior to the 1990s, metal roofs were rarely seen on residential properties. Builders and homeowners already had a cheap, effective, plentiful roofing material in the form of asphalt

RUST PROTECTION

Picture an old barn with a roof of metal panels rusting away. If that's your image of metal roofing, well, a lot's changed. Today metal is a premium residential roofing product, one that combines function, durability, and curb appeal. What you might see on a drive in the country are *ag panels*, corrugated sheets of galvanized steel. Galvanized means it was dipped in an alloy to prevent oxidation. But alloys are not the same. "The more zinc, the more protection," explains Tom Black, executive director of the Metal Roofing Alliance. Barn roofing, he says, has "a lower level of metallic coating."

All steel roofing is treated with a metallic coating layer to prevent rust. But in the case of galvanized steel, there are three different levels—G-40, G-60, and G-90—corresponding to the amount of zinc coating the metal panel. "Sheet steel used in agricultural buildings may have G-40 or G-60 used to protect against rust," says Black, "For residential usage, G-90 is the minimum metallic coating recommended by the Metal Construction Association." The metal roofing you see on suburban houses is likely to be made of Galvalume. Invented by Bethlehem Steel in 1972 Galvalume is steel treated in a continuous hot dip process with a galvanizing compound of 45 percent zinc and 55 percent aluminum. Depending upon the application, it can provide three or four times as much protection against oxidation as G-90. The alloy makes Galvalume sheet impervious to rust under most conditions. It's the primary product used for metal roofing all over the world. Lynn Noesser, vice president of manufacturer Fabral, notes that "Galvalume, combined with developments in coatings for metal roofs, has enabled roofing manufactures to create products that won't rust or even noticeably fade for many decades."

Aluminum is also used extensively in residential metal roofing. Aluminum roofs do not require the same metallic coating layer that steel roofs require since aluminum does not rust.

shingles. According to Tom Black, executive director of the Metal Roofing Alliance—an industry association of manufacturers, distributors, and roofing contractors specializing in metal roofing—even into the middle 1990s, only just a little more than 2 percent of homes in the United States had some kind of metal roof. And that roof would most probably be what's called a "standing-seam" roof—that is, vertical metal panels joined with a raised seam, either painted or not.

New metal roofing products engineered to resemble other types of roofing have broadened the popularity of metal as a roofing material.

If you saw a metal roof 20 years ago, it probably looked like this. It's called a "standing-seam" metal roof and consists of vertical panels arranged side by side and fastened at the seam.

Asphalt Shingle Prices

Several factors gave rise to a demand for metal roofing. As petroleum costs rose through the 1990s and thereafter, so did the cost of petroleum-related products, including asphalt shingles, which are typically made of a felt mat saturated with asphalt with rock granules added to one side.

A square is the amount of roofing material required to cover 100 square feet of roof surface. In 1990 the cost for asphalt shingles, not installed, ranged from $20 to $75 per square, depending on the quality of the shingle. In 2013 that cost, again for materials, was anywhere from $165 up to $300 per square, depending on product quality.

As oil prices rose in the last 25 years, the cost of asphalt shingles went up right along with it.

For more than a century, asphalt shingles have been the overwhelming roofing choice for builders and homeowners. Price increases and the multiplying number of alternative products, such as metal, that promise far greater longevity and curb appeal are making inroads in its popularity.

Weather's also a factor. In the last 10 years, the multiplying number of extreme weather events like hurricanes and tornados increased demand for the product. When hurricanes or hailstorms sweep through an area, damaging or destroying roofs, all those roofs have to be replaced and are usually replaced with the same type of product: asphalt shingles.

Coastal areas of the northeastern United States were devastated by Superstorm Sandy in the fall of 2012. Rising petroleum costs, combined with unusual levels of demand created by storm damage, have steadily driven up the cost of asphalt shingles, making metal roofing prices more competitive.

Metal's New Appeal

While asphalt shingle prices were steadily rising, manufacturers of metal roofing began introducing new types of modular products distinct from traditional agricultural or standing-seam panels.

Now there are metal shingles, metal shakes, and metal roofing engineered to look like slate or clay tile.

Metal shingles may seem like something new, but they're actually not. Their invention is credited by *Iron Age* magazine to Levi Montross, owner of Montross Metal Shingle Company, in Camden, NJ. In 1906 Montross produced no fewer than three lines of metal shingles (the "Gothic," the "Diamond," and the "Victor" shingle), advertising via postcard the advantages of its products ("Fire-Lightning-and-Storm Proof").

What's new now is metal roofs' appeal, an appeal to which roofing manufacturers are responding. For example, since 1929 Ideal Roofing in Ottawa, Canada, made a metal roofing panel of galvanized steel in different configurations—screwed down, corrugated, and standing seam—for the commercial, agricultural, and residential markets. In 2007 the company introduced a line of metal shingles for residential roofing. The product is made of new and recycled steel, prepainted, has four interlocking sides and a starter strip, and resembles asphalt shingles so closely that few can tell the difference.

Metal Roof Myths and Legends

The new products help overcome what Ideal Roofing's president, Rene Laplante, calls "a stigma": that metal roofing is impractical, vulnerable to the elements, and looks like something unsuitable for various reasons to residential construction. This stigma made the product suspect, if not unacceptable, to homeowners' associations.

The range of metal roofing products available today is a lot broader and conforms to the look and feel of contemporary suburban housing.

For example, stone-coated steel roofing, available as shingles, tiles, or slate, uses an acrylic film to bind stone chips to steel to create a more durable roof that maintains its aesthetic appeal.

"There are a lot more available products than there used to be," says Todd Miller, president of Classic Metal Roofing Systems, Piqua, OH. "Shingles, shakes, tile, slate. The homeowner in suburbia [can have a metal roof] and a roof that still looks like the other roofs in the neighborhood, yet is more durable and longer-lasting."

So what about the stigma of metal?

- *Heavy metal.* People hear "metal" and they think of anchors, anvils, or Sherman tanks. It weighs a lot, right? Why not just make a roof out of cement? (In fact, there is roofing made out of cement.) How could metal possibly be a practical roofing material? In fact, metal roofing—whether as panels or shingles, shakes, tile, or slate—is lighter than any other roofing material, including wood shakes. Aluminum roofing weighs 42 pounds per square. Depending on the thickness, steel roofing can weigh anywhere from 20 to 130 pounds per square. That compares with asphalt shingles, at 215 to 355 pounds per square, and clay tile, at approximately 1,000 pounds per square. Its light weight may permit metal roofing to be installed directly over the old roofing material, without having to tear it all off and truck it away, depending on local building codes. You can save yourself 10 percent to 15 percent on the cost of the job if your roof doesn't require a tear-off.

- *Rust is a must.* "Actually, it's not," says Dick Bus, president of the Metal Roofing Alliance as well as of ATAS, a metal roofing producer with five manufacturing plants, including his coil coating plant. "Alloys developed specifically to prevent rust have been part of metal roofing for more than a hundred years. Most metal roofing products consist of a steel core overlaid with a thin coat of alloyed metals, such as aluminum or zinc. Over and above that, many metal roofing products are prefinished at the factory using oven-baked paint systems, which not only enhance its look but provide the metal with decades of protection from deterioration." Aluminum roofing is often chosen for homes built in high-salt environments.
- *What's all that clatter?* No, a modern metal roof is not going to rattle when it rains. Properly fastened to the roof structure, and with the proper underlayments, your metal roof would make no more noise than an asphalt shingle, clay tile, or slate roof would.
- *The first serious hail will leave it pockmarked.* Again, depending on the thickness of the metal—a heavier gauge is recommended for regions prone to intense hail—metal roofing is highly resistant to hail. Metal roofing products are tested and rated for impact resistance, and they rate at the highest levels. (See below.)

Metal Roof's Advantages

Metal offers a number of advantages over other roofing materials, especially asphalt.

- *It's durable.*

"You can expect that roof in most cases to last longer than you live," says Ken Buchinger, manager of product development and installation at MBCI, a

leading manufacturer of metal roof and wall systems, headquartered in Houston, TX.

Unlike asphalt shingles, which begin to degrade immediately on installation, metal roofing—much of which is galvanized steel—remains intact for decades. Some metal roofing manufacturers offer extensive warranties on their product, with a separate warranty on the coating (see chapter 8, "What's in My Roofing Warranty"). Probably the most outstanding characteristic or advantage of metal roofing in relation to other materials—except possibly only slate—is its durability and longevity.

"People who buy metal roofs appreciate value when 15 to 20 years later their neighbors are reroofing and the metal roof owner still has 30 or 40 more years left on the warranty," says Todd Miller, president of Classic Metal Roofing Systems, Piqua, OH.

- *It won't catch fire.* Since steel—or copper or aluminum—doesn't burn, a metal roof is inherently noncombustible. That makes it an excellent choice for a roof covering, particularly in states such as California that are prone to wildfires. In a wildfire, flaming debris takes to the air and can ignite roof surfaces nearby or even at some distance. Underwriters Laboratories, the product testing organization, tests roofing products for fire, and metal roofing products achieve UL's highest ratings.
- *It's like installing armor over the house.* In 1996 the insurance industry, the Institute of Business and Home Safety, and Underwriters Laboratories developed the UL 2218 classification for roof impact resistance. The idea was to create a standard against which to test roofing materials for their ability to withstand damage from hail. While no roof is guaranteed to withstand hail altogether, metal roofing meets the highest Class 4 testing requirements established by UL. "Yes, if you have a big enough hailstone, it can dent it," Buchinger says.

> "But the odds of hail perforating the metal and causing water damage to your house are about zero."

- *It won't blow away in heavy wind.*

> Because of their ability to withstand hurricane-force winds and other storm damage, metal roofs have become increasingly popular in Florida, the state with the toughest building codes in the United States. Florida contains municipalities with even more stringent codes, such as Miami-Dade. "We started to see those changes in 1994," says Naples, FL, roofer Ken Kelly. Hurricane Andrew, he says, was "the awakening. People started to focus on how much destruction and devastation can occur from one storm if it hits the right area."

- *It's eye-catching.* Every year *Remodeling* magazine, a prestigious trade publication for remodeling professionals, and the National Association of Realtors, jointly conduct a study of what Realtors believe is the value, at resale, of home improvement projects. "Cost vs. Value" has been published by the magazine since the late 1980s and is used as an educational tool by contractors and homeowners considering a remodel. In 2014 the study indicated that *Realtors believe 63 percent of a homeowner's investment in a metal roof would be recouped at resale.*

  Longevity is a factor, but so is style. Manufacturers have added hundreds of colors and many different profiles in the last decade, offering far greater aesthetic variety and options than other roofing materials, so a metal roof can easily be a standout. (For a look at some different styles of metal roofing, see http://www.metalroofing.com/v2/content/photogallery/.)

- *It's green.* In replacing a roof, the asphalt shingles are typically removed before the new roof goes on. Except for a few states that require recycling, most of the debris from your old roof will end up in a landfill. Construction debris accounts for approximately one third of all waste landfilled in the United States, and of that, 5 percent consists of asphalt shingles. Roughly 10 million tons of asphalt shingles are removed from U.S. homes annually and dumped into landfills. Most metal roofing, on the other hand, is made from a combination of recycled and new steel. When it reaches the end of its natural life, a metal roof can be recycled.
- *It enhances the energy efficiency of your home.* Metal roofs are Energy Star rated. In 2009 and 2010, when the government was issuing tax credits for energy-efficient home improvements, metal was one of the few roofing materials that qualified. Because it reflects away ultraviolet light (reflectivity) and almost immediately releases whatever heat had gathered during the day once night comes (emissivity), metal roofing can reduce consump-

COOL METAL ROOFING

In 2009, in an effort to stimulate demand within the economy by providing incentives for product purchases, as well as to reduce carbon emissions, the federal government offered tax credits to homeowners who installed qualified energy-saving home improvements. The tax credits equaled as much as 30 percent of the cost of the materials up to $1,500 for installation of products proven by testing and standards to reduce the amount of energy consumed in the home. Products had to be Energy Star rated to qualify homeowners for the tax credits. Through the Federal Roofing Tax Credit, metal roofing was among the products most in demand as consumers invested to make their homes more energy efficient. These incentive tax credits have gone away due to budget considerations. However, the energy benefits to the homeowner are still there.

tion of electricity by as much as 40 percent in hot, sunny climates where air conditioning is in frequent use. It does that by reducing the load on the air conditioning system—lowering electric bills and making the building more comfortable.

Frequently Asked Questions

Question: *Why was metal roofing so seldom used and is not apparent in most neighborhoods today?*

Answer: First, asphalt shingles were the most popular and represented a wide price difference. After the 1990s this started to change. Second, unlike asphalt shingles, which were the product of choice by new home builders, residential metal roofing was confined to custom homes. But after 1990, manufacturers saw the wisdom of producing not only a strong product but one that combined the traditional needs of roofing with the most modern, architecturally appealing designs and patterns. In addition, many manufacturers have an incentive to create products that need to be replaced periodically, a familiar marketing concept known as *planned obsolescence*.

Question: *Why haven't more roofers specified metal roofing as an option?*

Answer: The metal roofing industry lags behind asphalt products in visibility and understanding. Many roofers today are concerned with being "the lowest priced" and therefore do not specify metal roofing. Since most homeowners did not have information resources that gave them understanding of the investment qualities and certain other superior facets, they were never given the opportunity to make the choice.

Question: *Are the installation techniques so different from that of asphalt roofing as to require specialists?*

Answer: The installation techniques are different and more closely resemble carpentry. The many color and design options are different. Certain elements of underlayment and specialized trims are different. Many roofers specializing in asphalt have never installed nor examined the potential for installing metal roofs.

4

The Price Is Right: Cost vs. Value

It may seem like a metal roof costs a lot . . . until you consider the value of what you're getting for what you spend.

Your home is probably your largest single investment. Replacing a roof has to be evaluated as a protection of that investment, not as a maintenance project using low-quality materials and lowest-price bidders.

If the roof on your house right now is asphalt shingles, and you've gotten quotes from contractors who will simply replace that material, you might be surprised at the range of prices offered for the same job. Depending on the size of your roof, the materials the contractor plans to use, and the scope of work—exactly what the contractor plans to do—the price could vary by 50 percent or more, even though all the bids involve asphalt shingles.

How is this possible?

The answer lies in the difference involved in putting a new roof on a house vs. reroofing a commercial building.

Managers of commercial buildings expect to replace the windows, the roof, the HVAC system, the parking lot, and sundry other components at regular intervals in the course of the building life. That's part of the building manager's job. They budget for it annually, and when that particular project needs to be performed, they send out for bids. The bids will generally all fall within 10 percent of each other because the specifications for the job are laid out in advance by the building manager.

If a church needed a new roof, for instance, it would be unusual to find one contractor bidding at $1.2 million and another at $650,000.

Your home is another matter.

Homeowners often don't have a budget for maintenance and repair. They count on having the money to pay for the job when the need for the job arises. So when the homeowner recognizes that the roof needs replacement at some point and starts to talk to contractors, he or she often sees wildly dissimilar pricing on project proposals.

The reason is that the residential roofer can specify whatever products he thinks appropriate or which are sufficiently inexpensive to guarantee that his price will be less than others. He may or may not provide options when it comes to those products. (For example, if wood sheathing needs to be replaced, would you prefer to use plywood or OSB (Oriented Strand Board) panels, a lesser-quality wood material? The price difference is significant. A roofing contractor may specify OSB without explaining that difference.) Most homeowners view the bid, estimate, or proposal as a take-it-or-leave-it proposition, a nonnegotiable, because in most cases

they don't know what to ask about the proposal or specification being proposed.

Exactly what needs to be done will vary with the values of the contractor who submits a bid. Some will build a tear-off—ripping off the old roof and carting the debris away—into their proposal while others may assume they can "lay over" or "roof over" the existing shingles, which under certain conditions is an option. Some may suggest a better grade of shingles. Some may specify "new flashing"; others will plan to get by with a new roof using the flashing that's already there. Some may have company crews while others subcontract the installation.

WHAT GOES INTO AN ESTIMATE?

When a contactor gives you a price, ideally he calculates the materials needed for the job—roofing material, flashing, drip edge, sealants, underlayments—and the amount of labor (man-hours) it takes to install the materials. He expects to make enough gross profit from the job to pay for his overhead—the fixed and variable costs of sustaining his business, such as vehicles, insurance, and office space—and to generate a net profit for the business. Overhead and profit become a part of the price, as they are in any retail price.

What should be included in your price? Here is an outline. These items are not necessarily itemized in the specification but listed here for a better understanding of how a price is developed:

•	The cost of materials, meaning shingles (or other roofing), flashings, underlayments (in rolls), sealants, fasteners, and other materials, based on the square footage of the roof. Square footage is determined by measuring the length and width of each plane on the roof, then multiplying length times width and adding the square footage of each section together to determine the number of "squares."
•	Cost of labor to install same, estimated in man-hours.
•	Subcontractor contracts, if applicable.
•	Equipment rental (scaffolding, for instance), if applicable.
•	Permits.
•	Special conditions that may require increased costs.

In effect, each contractor may propose to sell you a different job specification, and your job, as the buyer, is to decide which is the best job, or the best roof, to fit your needs.

You also need to figure out whether you want to work with this particular contractor or company. Do they communicate well? Do they explain the process clearly? Do they ask questions regarding your expectations and values?

Are they proposing the best job or, by being the low bidder, compromising some of your needs?

ESTIMATE VS. PROPOSAL

You'll hear various terms used synonymously with price. Those include *bid*, *quote*, *estimate*, and *proposal*.

An estimate is just that: an approximate or raw cost of replacing the roof. What you want from your roofing contractor is an accurate *proposal*, the final cost based on your contractor's estimate of what's involved in replacing the roof, a price that would include his business costs, taxes, and profits added, as well as the specific conditions involved in the job. A professional roofer will write out the entire specification and a price. This contract will also contain reference to insurance coverage and licensing (see chapter 7, "It's All in the Contract").

If your contractor uses the word "estimate," ask if he means that this is his proposal—final cost—for doing the work. Otherwise you could be in for a surprise if, for example, he suddenly informs you in the middle of the job that the estimate didn't include the cost of certain materials. Suddenly the price that seemed so reasonable compared to other bids turns out to cost more than the others when the job's done.

That's not to say that unforeseen circumstances can't develop in the course of doing the work, situations that weren't anticipated in the initial inspection process. For instance, your roofing crew could hit a patch of rotted sheathing or even framing. That would need to be replaced before the new roof goes on. It would also add an extra cost over and above the price of the job in your proposal.

In those instances, during the performance of the contract, a professional roofing company will alert you to the problem, often having explained in the contract how that problem would be dealt with and priced. The contractor most likely will ask you to pay for what's known as a *change order*.

A roofing job can be nerve-wracking for the homeowner if crews aren't well-managed. Picture six guys pounding away while a radio blares, discarding debris into your shrubbery, flicking cigarette butts into the flowerbed, and ringing your doorbell every half hour to use the bathroom.

Not fun.

Yet this doesn't need to be the case. A well-managed roofing project provides not only a great product—the roof—but a satisfying experience that responds to the homeowners' needs and values system.

Ask your roofing company representative what the company's policy is when it comes to unforeseen conditions and change orders. A good company will have spelled that out in their contract, and a well-trained representative will explain it when presenting the proposal.

What's with This Price?

Many times, homeowners think contractors are generating a price arbitrarily or that there is no formula or operant principle

WHAT'S A "SCOPE OF WORK"?

The proposal you get from your roofing company should include a scope of work, which the Business Dictionary defines as follows: "The division of work to be performed under a contract or subcontract in the completion of a project, typically broken into specific tasks."

In other words, it's a description of what the contractor plans to do on your roof. The scope of work should be included in the contract you sign. It may say, for example, "Remove and replace existing roofing" or "Install new metal flashing at roof/wall connection." The more detailed that written scope of work, the more complete the job will be. It reflects the level of attention given to your roof by the contractor. Have the representative go over the details of that scope of work in the course of contract signing. This is what you're paying for.

for arriving at the price for small-scale construction work over and above the contractor getting the most out of a homeowner that he can.

Actually contractors who wish to remain in business have to price their work with certain formulas, or methods, to maintain acceptable levels of profitability.

Or it could be that the roofer or roofing company's price is based on the cost of replacing what's on the roof surface now, and without a great deal of attention paid to valleys, vents, and other potential trouble spots.

It could be, as discussed, that that price doesn't include tearing off and disposing of the existing roof, and removing all job-connected debris, which can add 10 percent to 15 percent to any estimate.

SQUARING OFF

A roofer eager to win your business may tend to minimize the costs involved in the project in order to come in lower than other bids.

When a roofer uses the term "square," he's talking about a 10-foot-by-10-foot area, or 100 square feet of roof surface. Typically a reroof is priced by the square, which is what the roofer will charge to replace that much roof. A "square" of asphalt roofing might be $600 from one contractor, $400 from another.

That term is simplistic and misleading in a sense. Other variables besides raw product are considered when putting together an actual cost to replace the roof.

Say, for instance, you get estimates from several different roofing companies. It wouldn't be unusual for the high bidder's price to be 30 percent or 40 percent more than the other low bidder for the same size roof.

One reason might be that the roofing company bidding low is planning to use a cheaper grade of shingle. And the grade of shingle has a lot to do with the longevity of the roof. *Note: Most roofing material manufacturers offer three or more grades of quality, and most homeowners are seldom given the understanding of how durability and longevity factor into the choice.*

Instead the roofer plans to "roof over" or "lay over" the existing roofing, which is acceptable under certain circumstances.

The only way you'll know what you are paying for—if the price is right—is by paying particularly close attention to what's in the details of the contract. If something is agreed to, be sure it is written in the contract. As the old Chinese proverb states, "The palest ink is better than the most remarkable memory."

How a roof is designed and put together will determine whether it leaks the first time it rains or never at all.

In a sense it's not different from the way objects in a retail store are priced. All the costs of bringing it to you are embedded in the price you see. But there's this difference: a roof doesn't come ready-made. A roofing job is labor-intensive, and every construction job is unique because it addresses and solves a particular problem in a specific house.

All pricing should be adapted from the written specifications for replacing the roof on your house. One roof may look like the next to you, but when you're faced with the job of tearing it off and installing a new one later, it's not.

Roofs vary not only in the square footage but the pitch (a numerical measure of the steepness) as well as the number of dormers, skylights, valleys, and other special situations and unique features that require individual attention.

Add to that the number of plumbing, venting, or other stacks or pipes that penetrate the roof surface and that similarly require special preparation and treatment in order for the roof system to work.

All these factor into the preparation that goes into replacing a roof. The more situations that require individual attention (dormers, skylights, etc.), the longer it will take to install. In developing a proposal, your contractor should be factoring all these situations into an estimate of the total man-hours involved in replacing the roof.

When combined with materials, that's what it will cost the roofing company to actually produce—build—the job.

If the price in the proposal was a guess, your contractor will not be in business very long. Beware of ballpark estimates or amounts jotted on the back of a business card. If his price takes no account of the roof's complexities, the price you pay will be more, maybe substantially more, than the figure scratched on a sheet off a pad or the back of an envelope.

What Kind of Roof Do I Go With?

Think about three key questions when deciding what kind of roof you're going to put on your house.

1. *How long you plan to live there?*
   If you're moving within the year it may not make a difference.

   But if you're planning to be in your house for five to 10 years or more, you have to decide what's worth paying for.
2. *What role does the roof play in the beauty, comfort, security, efficiency, maintenance, and value of your home?*
   A roof is not a glamour item, but it's far from being something to take for granted. It keeps water out, helps maintain levels of energy efficiency, and, properly designed, can contribute to your home's curb appeal.
3. *How many years does your current roof have before it wears out?*
   What should you do if your roof has maybe three to four years of life left to it and you're planning to move in that time? It may not seem practical for you to spend what it

takes to get a permanent roof—one you will not have to replace again. However, when selling your home, will a home inspector point out deficiencies that affect your asking price?

Consider two major reasons that it's worth your while to invest in a permanent roofing solution—a metal roof for your home: (1) It adds to the curb appeal of the home; (2) it's a selling point when you put the house on the market, since the new owner knows that the roof won't need replacement any time soon.

But what if you're planning on staying in the house into the foreseeable future and your roof is within a few years of deteriorating?

Many homeowners, faced with that kind of decision, see today's price as the key factor.

It is wise to base your decision about what kind of roof to replace it with on how long you can expect that roof to last.

And when considering cost, if you knew you wouldn't have to be bothered worrying about how long the roof would last, how much is that worth to you?

If you've ever had a problem roof, and you don't particularly relish the hassles of finding the right contractor to repair or replace it, that lack of worry may be worth a lot.

If you were to put a price on what it would take to escape the cycle of having to replace the roof every 15 or 20 years or less, how much would that be? How much more would it cost to find a more permanent solution to the problem of periodically replacing your roof?

Asphalt vs. Metal

In many cases your decision will come down to whether to reroof with asphalt shingles or consider a more durable roofing product that guarantees greater longevity, such as metal.

WIND MITIGATION

Miami-Dade County in Florida now has the most stringent building codes in the United States when it comes to how a roof is to be installed. So extensive have insurance company payments been that insurers offer homeowners discounts for "wind mitigation." Customers replacing their roofs can reduce their annual insurance bill by as much as half by making a few adjustments, such as strengthening the roof/wall connection with straps or clips, installing roofs with extra fasteners to prevent wind blow-off, or adding a secondary water barrier (such as synthetic underlayment vs. felt paper) under the roof system. A specially licensed certified contractor performs an inspection focusing on seven major areas of concern, and his Wind Mitigation Form (with photographs) is the only document insurance companies will accept.

Geography plays a role. Some regions of the country are particularly hard on the roof. In the Upper Midwest, for instance, snow loads in a severe winter can reduce roof lifespan considerably.

In the South Central states like Oklahoma, Texas, and Arkansas, hailstorms are frequent enough that when roofs are replaced it's more often the case that they were damaged by hail rather than that they simply wore out.

In the 21st century, a series of severe hurricane seasons in Florida wrought so much damage that roofing codes were substantially rewritten.

How Long Do Asphalt Shingles Last?

How often you'll have to replace that roof also depends on the quality of the product that's installed and the skill or competence of the company that installed it. Unlike a sofa or a new suit, a roof is not bought ready-made. It has to be assembled.

Asphalt shingles are manufactured at different quality levels. Some manufacturers market shingles that are guaranteed to last for 30 to 40 years, and in certain specifications, 50 years, although in residential reroofing these represent the

less frequently used products. Obviously the cost of a higher-quality asphalt shingle increases the overall cost of a new roof.

How long asphalt shingles last depends on the environment. It also depends on the quality of the installation. For instance, ventilation plays a significant role in prolonging the life of the roof by eliminating ovenlike conditions in an attic that subject a roof to intemperate heat from above and below, causing it to wear out prematurely.

According to roofhelp.com, "Studies have shown that the average lifespan for a 20-year asphalt shingle in Phoenix, Arizona, is around 14 years. . . . In Minneapolis, Minnesota, the lifespan was 19.5 years. And in Reading, Pennsylvania, the lifespan was 20.8 years. From this data it seems obvious that the hotter the environment, the shorter the service life of" the asphalt shingles.

Costs of Asphalt vs. Metal

If you ask 50 roofing contractors how much more it costs to cover a roof in metal rather than to replace the asphalt shingles with new asphalt shingles, you'll probably receive a number of different answers with varying prices.

The reason for this discrepancy is that usually no one's talking about the same roof, the same metal roofing, or the same asphalt shingles. There are many products of varying quality, often lessening or increasing the price difference.

Apples-to-Apples Comparison

Comparing the lowest-grade asphalt shingle with the most expensive metal product doesn't give a real sense of what you might pay for a metal roof relative to what you'd pay for an asphalt shingle roof.

An excellent apples-to-apples comparison is supplied by *Remodeling* magazine in its annual "Cost vs. Value" study. The study looks at the cost of a remodeling or home improvement project and surveys several thousand Realtors to ask

them what percent of the cost of the job would be recouped should the house be sold a year later.

So, for instance, if you spent $1,162 having a new steel entry door installed in your home, and you sold that home a year later, you could, according to Realtors surveyed, expect to realize an additional $1,122 in the price of the house, meaning that the cost of the door replacement recouped 96.6 percent of its value.

"Cost vs. Value" in 2014 offered cost and value figures on two different roofing projects, one in mid-grade asphalt shingles and one in standing-seam metal. Both projects involve reroofing an identical sized and shaped roof.

Here's a description of the asphalt shingle job:

> Remove existing roofing to bare wood sheathing and dispose of properly. Install 30 squares of 235-pound fiberglass asphalt shingles (min. 25-year warranty) with new felt underlayment, galvanized drip edge, and mill-finish aluminum flashing. Assume a 5-square hip roof; custom flashing at two average-sized skylights; and custom cap treatment at vented ridge.

The cost of that job is $18,913.

REMODELING MAGAZINE, "COST VS. VALUE"

More and more roofing contractors offer metal roofing as well as asphalt shingles, the industry staple. What does one cost relative to the other? There are a lot of opinions, especially among roofing professionals. But a good apples-to-apples comparison is provided by *Remodeling* magazine's annual "Cost vs. Value" survey. The survey obtains cost estimates from RemodelMAX, a publisher of estimating tools, using the remodeling estimating software Clear Estimates. The cost figures include materials, labor, and subtrade expenses, plus standard industry overhead and profit on a generic job.

In the 2014 study, published in the January issue of *Remodeling* and also online, costs for installing 30 squares (3,000 square feet of roof surface) of asphalt shingles totaled $18,913. Reroofing the same size area in standing-seam metal cost $34,495.

Here's a description of the standing-seam metal roof:

> Remove existing roofing to bare wood sheathing and dispose of properly. Install 30 squares of standing-seam metal, formed on site into 16-inch panels using factory-enameled roll steel; double-lock all seams. Use custom brake-bent flashing from same material for drip edge and all flashing at roof-wall intersections. Assume a 5-square hip roof; custom flashing at two average-sized skylights; and custom cap treatment at vented ridge. (Note: made of metal same as roofing material.) Apply over new felt underlayment; use ice-and-water membrane at eaves, valleys, and all penetrations.

Cost of that job? $34,495.

So, at first glance, the cost of installing metal—one kind of metal roof—on the same size roof surface is almost twice as much as mid-grade asphalt shingles.

The price difference is not as great as it appears.

What These Two Estimates Reveal

Let's look at the particulars. Note how these prices might be considered. The asphalt specified is a medium-to-better grade and offers a 25-year warranty. It does not include ice-and-water shield as specified in the standing-seam metal roof as well as certain other issues, which might be treated as an option in this case.

The standing-seam metal roof is formed "on site," with locking seams and factory-enameled rolled steel. (Note: The average warranty on a roof such as this is 50 years or more.) This process constitutes a tightly joined, sealed seam, making water penetration virtually impossible except at flashings or roof and wall joinings where potential areas of penetration are underlaid with ice-and-water shield, which was not specified in the asphalt roof. The valleys are also underlaid with ice-and-water shield, and covered and joined with roll steel.

These factors are estimated as constituting approximately 22.5 percent ($7,762) of the cost of this installation. Example: The $18,913 roof job, with extras as specified in the metal roof, would cost an additional $7,762 = $26,675. In addition, remember that the guarantee on asphalt shingles is 25 years, whereas warranties on metal roofing typically are in the 40- to 50-year range.

Frequently Asked Questions

Question: *What's the difference between an estimate, a bid, and a proposal*?

Answer: An "estimate" is the raw cost of producing the job. As such it is just that: an approximation of what the finished work will really cost. The terms "bid" and "proposal" are typically used synonymously. What you want from the roofing company is a proposal that includes all the costs and specifications. Ask for a proposal.

Question: *Why are no two roofing proposals exactly the same if the contractors are doing the same job on the same part of the house?*

Answer: Managers of commercial buildings budget for regular maintenance such as roof replacement. Roofers bid from the same set of specifications, so bids are remarkably similar. With a house, though, the roofing contractor formulates his own specifications based on the job he plans to do. So bids can vary by 50 percent or more.

Question: *How long will an asphalt shingle roof last compared with a metal roof?*

Answer: That depends on the quality of the asphalt shingles, the quality of the installation, and local climate conditions. It could last anywhere from three to seven times

longer. In very hot climates like the Southwest, asphalt shingles last less than 15 years. The highest-quality asphalt shingles, installed under optimal conditions in a temperate climate, can last 30 or 40 years. But product quality will be reflected in cost. Most metal roofs of galvanized steel, or Galvalume, come with 50-year warranties. The warranty on paint finishes now averages 40 years. A quality metal product installed to manufacturer specifications will last as long as the house.

5

Who Should Install Your Metal Roof?

Look for a company with the product you want, the technical expertise to install it properly, and the management systems to ensure a great roof with great warranties.

What kind of company would you want to install your roof?

Look for one that has experience installing metal roofs, understands the product it is installing, and has a roster of satisfied customers.

American Metal Roofs, in Flint, MI, has 35 on-staff installers and a 10-year-plus track record of installations. Its president, Frank Farmer, points out that the company had to do a few dozen metal roofs before mastering the installation process to the point that crews can solve any kind of design challenge or problem once the job is under way. He believes

metal roofing is the preferred option for homeowners. American Metal Roofs manufactures most of its own metal trims, flashings, and ridge vents, custom designed for each job. Not all roofers may offer self-manufactured components, but they should be in a position to offer similar support products provided by their manufacturer or vendor.

Farmer says that metal roofing's appeal owes to "a combination of getting to the roof before it has a major problem and having a roof designed so that it is a once-in-a-lifetime investment." His own company's success has much to do with its ability to deliver the finished roof via installers who have been trained for these specific products and also have the ability to see problems during the ongoing roofing process that the installation can and will correct. "Every roof brings its own set of challenges to installers," he says. "That's why experience matters."

A Hazardous Business

Professionalism counts for a lot when it comes to replacing a roof. The product could be just what you want, and the roofing company adequate to the task of installing. But a great product and competent installation won't mean anywhere near as much if you're dealing with an ill-managed crew and left with a messy job site.

There are other reasons to ensure close supervision. Roofing can be a dirty, dangerous job. It has the highest accident rate in construction. That's why a contractor has to have the proper insurance.

A 17-year study (1992–2009) by the Center for Construction Research and Training ("Falls from Roofs among U.S. Construction Workers") found that a third of 20,498 construction fatalities were roof falls.

OSHA studies have found a disproportionately high rate of roofing fatalities among smaller residential companies as

opposed to larger commercial roofing operations. These companies often have no safety measures in place, and many lack the required insurance.

When you're interviewing roofing companies, pay particular attention to whether the company is current with its workers' compensation insurance. If it's not, or if the representative says it is but that turns out to be false, an accident on your roof could make you party to a suit for hospitalization and more.

Professional Roofing Companies: A Must

Barriers to entry in roofing are low. Anyone with a truck, a ladder, and some elementary construction skills can set himself up as a roofer.

Yes, you could copy a number off the side of a truck and call. But wouldn't you feel more comfortable knowing the company has an actual place of business besides the owner's home?

If the roofing company can't afford office space, how can they afford the necessary insurance to protect homeowners, and how reliable would the company be in the event something happened requiring service—say a leak—and you needed work done on warranty?

Check the company out before you call rather than once you're in mid-process. Your local Better Business Bureau, for instance, can provide information on how long the company's been in business and how its customers rate it.

Roofing (and gutter) companies rank among the top-10 businesses when it comes to numbers of complaints filed with the BBB.

Complaints cited include (in this order) unsatisfactory workmanship, inability to contact the company, delay or failure to start or finish the work, delay or failure to make repairs, poor customer service, and missed appointments.

So if you're thinking about a company, or you saw a company's truck or heard about a company from a friend, find out how reputable the company is before you call.

Some manufacturers and industry associations recommend installers, particularly those who've been certified as having completed their training programs. On the Metal Roofing Alliance website, www.metalroofing.com, use the Find A Contractor function to locate one within 50, 75, or 100 miles of your home by typing in your contact information.

Interview the Roofer

In planning for your new roof, you may receive bids from more than one contractor. Some companies price the job after a casual observation of your roof.

Don't make the mistake of basing a decision entirely, or even mostly, on price. Price is only meaningful relative to value received. What if you got a great price for a lower-quality roof? There's a lot more to consider than price when selecting a company.

Interview a roofer like you would if you were hiring an employee. In effect, you are. You're employing the company to perform a service, and even the least costly job is expensive. You have a real interest in knowing it's done the right way.

Prepare questions and don't be afraid to ask them. Also, measure the number of questions you are asked about your values, your perceptions, and your preferences.

Compare the proposals closely.

For instance, if a roofing company approaches you with a bid that's substantially lower than other bids you've received for the same job, what's missing? How could one price be so much lower than another?

The answer is that either the company is not providing the same level of workmanship and materials, or the company

may be operating without licenses and insurance.

Consider workers' compensation insurance, which is required by law. This insurance provides medical coverages and wage replacement in the event of an employee injury on the job. Rates vary from state to state. In Wisconsin, for example, workers' compensation rates for roofers are 28 percent of gross wages. In many states these rates are higher. If the man-hours on a job totaled $5,000, the company that's not paying workers' comp saves itself $1,400.

There's also a need for other insurance to protect you and your home.

Evaluation Checklist

You have a lot to think about when selecting a roofing company, probably including things you hadn't considered.

Levels of professionalism vary widely, and the consequences of hiring the wrong contractor are many, all of them unpleasant.

Make sure you ask a lot of questions:

- *Does the company have the proper license?*
  Not just anyone can get a contractor's license. Years of experience and testing are usually required. But not every state demands a license.

  According to attorney Kevin Tierney of Berenson LLP, a DC-area law firm that specializes in home improvement, 34 states require some form of home improvement or contractor licensing or registration as home improvement contractors. Of the 34, all either separately license roofers or include roofing as one of the tasks mandating licensure. In those states, roofers are required to be licensed as such or under a home improvement contractor law.

The consequences of hiring the wrong contractor are many, all of them unpleasant.

Licensing laws in the states evolve steadily. Some states have none; some states have mandated contractor licensing only recently, such as Pennsylvania in 2009. You can easily check your state's contractor licensing requirements.

- *Does the company have the required insurance?* According to *Roofing Contractor* magazine, "Roofing contractors pay more for workers comp than nearly any other contractor."

  The cost is reflected in the price of your new roof. If a company's proposal is suspiciously low, the owner may not be paying liability or workers' compensation insurance. All states require companies to carry these insur-

GUIDELINES FOR SELECTING A CONTRACTOR TO REROOF YOUR HOME	
•	All proposals (including pricing) should be in writing and contain specifics on what is included.
•	All proposals/contracts should contain a business phone number and license number (if licensing is required in your locale).
•	Ask to see the following: license, certificates of insurance (particularly workers' compensation insurance), and specifics of coverage.
•	Ask to see copies of the manufacturer's warranty for material and any additional warranty provided for labor (installation).
•	Be sure your attic area (if there is access) is inspected and checked for interior damage, signs of leaking, and proper ventilation (this normally requires special measurement tools).
•	Allow enough time to evaluate the contractor making the proposal. A thorough inspection—measuring, reviewing the inspection, presenting material options, and answering your questions—takes approximately 60 to 75 minutes.
•	Don't automatically choose the lowest bidder. Be sure special conditions are evaluated and included in the proposal.
•	Pay by check or credit card. Most contractors require a deposit. Be sure the contract indicates the deposit (amount).

YOUR RIGHT TO CANCEL

In order to be valid, the contract that the roofing company or home improvement contractor presents to you must contain a clause, prominently placed, stating your right to cancel that contract within 72 hours or three business days of signing. This right of rescission allows you to change your mind and rescind the contract within a time frame reasonable for both you and the contractor. Your right to cancel if you change your mind or something comes up is mandated by the Federal Trade Commission and is a requirement in every state.

ances, but that doesn't mean companies comply. Your homeowner's insurance policy will not cover accidents or injuries that could happen in the course of a roofing job.

You also want to make sure that the company carries property damage and general liability insurance. That policy covers anyone or anything injured or damaged in the course of the job.

- *Is the company OSHA compliant?*
  In the past, the Occupational Safety and Health Administration rarely bothered policing residential roofing job sites for safety violations. Today residential roofers are on OSHA's radar, and surprise visits by OSHA inspectors are becoming common. Ask your roofing contractor if the company has a written safety plan, as required, and what equipment will be used.
- *What is the company's business history?*
  Inquire about the company's business history online. How long has it been in business and under what names? Ask about bankruptcies or other legal action relating to the company.

References

Ask your contractor or company representative for the names of a few homeowners who live in the area whom the company has worked for, along with contact information. It's well

worth your while to contact them. Introduce yourself as a prospective customer and ask these questions:

- Were they satisfied with the job? More importantly, were they happy with the overall experience of working with the company?
- How did crews on the job site behave? Were crews considerate of the homeowner's privacy and of noise levels?
- Did the company regularly communicate? Were they kept informed about the particulars of the job—when materials were ordered, when the job would start, problems or unforeseen conditions encountered, and so on?
- Did the company clean up the job site on a daily basis? Did they do a final, thorough cleanup of the job site?

How about the work itself? Ask to see completed jobs if you have time for on-site visits. Most modern roofers have before and after photos on a website or stored in a tablet computer that will give you a clear idea of the quality of their work. The Metal Roofing Alliance website features before and after photos and pictures of different metal roofing profiles and products.

Read the Reviews

Homeowners seeking roof replacement used to talk with friends, relatives, and neighbors about companies they'd used and the experience that they'd had. Today, homeowners are more likely to consult with strangers via online sites such as Yelp, Google, Angie's List, and many others.

When you're reading those reviews, consider how many customers have reviewed the company. If you're looking at 50 or more, you don't need to read every review. The most important thing to find out is how that company handled a problem. That's the acid test for how well, or badly, a contracting company (or any company for that matter) performs.

If you're one of the more than 2 million homeowners who belong to Angie's List, you'll find there what most contractors would consider fair reviews by other Angie's List members.

Yelp is also a popular place for homeowners to weigh in on the contractors who worked on their homes.

Some contractor sites report reviews by third-party survey companies such as Guild Quality, a review site that contractors use to monitor their own customer service levels.

You may find your prospective roofer turning up on so-called complaint sites such as ripoffreport.com. If that's the case, be sure to ask. But be aware that complaint sites have less validity in predicting what it's like to do business with a particular company, as they only attract those with a reason to speak negatively and publicly about it. Outrage drives site traffic.

Job Particulars

Once you've determined that a business is reputable and financially stable, has some longevity, and does the kind of work you expect, you'll want to find out from the estimator or representative some other key pieces of information that tell you how professional the company is and what it might be like to do business with them.

- *How will the job be managed?* Use of subcontractors is standard in the building industry and does not necessarily detract from job quality. If the roofing contractor installs using subcontracted crews, does the company have a project manager to make sure the job is installed the way you expected? Find out who that is and get his contact information.
- *How are change orders managed?* Workers in the course of any home improvement project might come across "unforeseen conditions" (rotten wood, for example) that require a change in the work order. A professional company has a policy and addresses change orders in the

ALL THE EXTRAS

Other products go into installing the roof besides the actual roofing material, and because a metal roof is designed to last a long time, you want to be sure that those other products are quality materials. Critically important are underlayments, which provide a layer of protection between the roof and the wood sheathing on the frame. Today's professional roofer installs an underlayment between the metal roof and the wood subroof (sheathing) and also installs ice-and-water shield, which is a synthetic woven underlayment for extra protection against water intrusion in particularly vulnerable places on the roof. Some sealants are marketed specifically for use in metal roofing. Ask your roofing contractor what he plans to use. Since a metal roof is designed to last as long as the house, he should specify the best underlayments, flanges, sealants, and other ancillary products. You don't want them wearing out before the roof does.

contract. The company representative will most likely discuss this before contract signing.

- *What's in the scope of work?* The scope of work spells out exactly what will happen, in the order in which it will happen, with what materials. Less—"Tear off and replace roof"—is not more when it comes to the scope of work. Ask your representative for a rundown on what will happen at each stage.
- *How much deposit is required?* Most companies ask for an initial deposit at contract signing, which varies depending on the state and scope of work. One-third of the contract price at the time of signing is standard, except when the job is paid for with financing.

Frequently Asked Questions

Question: *How will I really know if the company is properly insured and that they will give me the warranty after the job is complete?*

Answer: In terms of the insurance, the contractor's insurance carrier can provide the company with a form citing its

insurance coverage and include renewal dates. Professional roofers often carry this with them in a presentation format so that you can see a copy. You could also make a part of your contract the requirement that they give you such notification from their carrier in writing prior to starting the job.

In terms of the warranty, if the contractor states that its warranty is for a specified number of years and contains certain protections, ask to see a copy of the warranty and have a specimen copy given to you at the signing of the contract or soon thereafter, at least prior to the job starting.

Question: *What distinguishes the professional roofing company from less stable companies?*

Answer: There are many come-and-go roofing companies. A professional company would have an established place of business that is clearly identified on the contract, along with a telephone number, street address, email address, and the number and date of its license. The company should also show proof that it is current with its workers' compensation insurance and has liability insurance, in case anything happens on the job site either to workers or to your property or in case anyone or anything is hurt or damaged by something that happens in the course of the job. A professional company has systems and procedures for ensuring the smooth delivery of its product: your roof.

Question: *Why does the contractor require a deposit?*

Answer: If you're paying cash for the job rather than financing it, the company will typically ask for a third of the contract price as a good-faith measure. Some companies ask for more, some less. Until that moment when you hand the company a deposit, there really hasn't been a transaction per se. A deposit shows your seriousness and commitment to doing the job. The deposit is the first in a series of what are called *progress payments*—payments required at various stages through completion of the job.

6

Open for Inspection

You need an accurate professional evaluation of your roof. Here's what's involved.

You've done your research, you know what to ask, and now the estimator is set to arrive.

He might give your roof a quick glance from the ground and calculate a price.

Or . . . he might spend the time to go over it thoroughly, examining the roof and inspecting what's underneath it from inside the house.

Levels of attention vary.

His purpose is to inspect the roof and to give you a price or proposal for replacing it. Your goal should be to receive complete information that enables you to make a qualified decision.

Some roofing companies buy a satellite image of your roof and estimate a job based on measurements yielded by the image.

Professional roofers come with inspection equipment, they know what to look for, and they'll show you what they've found.

What you want, says New Jersey roofing consultant Michael Damora, is "an accurate, professional evaluation of the condition of the roof and an education as to the next steps to doing the roof properly."

Obvious Problems

A competent roof inspection should be able to estimate how many years of life your current roof has left.

If your roof is asphalt shingles, here are some telltale signs that it's failing:

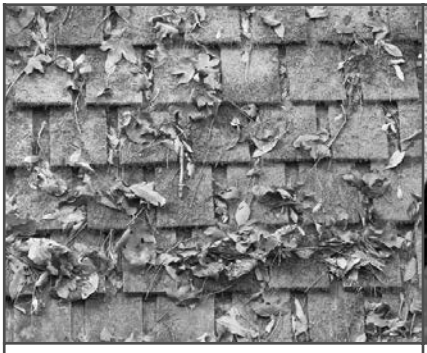
- *Missing shingles or bald spots.* Shingles are installed in rows, so missing shingles are a sure sign of trouble ahead since their absence affords easy water entry and makes surrounding shingles vulnerable.
- *Worn, faded, or curling shingles.* Over time, and in response to extreme temperature fluctuations—called *thermal shock*—shingles lose their asphalt content. As

If shingles are missing, your roof is already close to failing.

Granules in the gutter indicate shingle deterioration.

they do, they shed the granular matter that reflects away UV light, provides fire protection, and gives them their color. A gutter full of roofing granules is an indication that the shingles are worn out. Curling at the shingles' edges is a similar indicator.

- *Discolored shingles, stains, algae, moss.* Mildew, algae, and other growths create black stains. Staining is unsightly, though it doesn't mean that the roof has to be replaced. But stained shingles retain moisture, and algae can lead to deterioration and contamination.
- *Workmanship issues.* The original poor installation may include missed nailing, exposed nail heads, and a lack of flashing, sealants, or underlayments, including ice-and-water shield, drip edge, or starter strip. Many of these issues can lead to interior damage.
- *Structural problems.* The major portion of homes in America are wood-framed. Slow leaks or unusually humid attic conditions cause wood (framing or sheathing) to rot. A roofing professional will want to know the condition of the area under the roof as well as at those points where vents, pipes, and skylights penetrate the roof surface, since these are vulnerable to water entry.



Shingles stained by algae are unsightly and retain moisture that can lead to premature failure.

Roof cement loses its moisture content in time and cracks. Flashing, once installed, remains.

Close Up

Today aerial estimating services and smartphone apps can measure the roof from the ground. Equipped with either, and a good pair of binoculars, an estimator can get a fairly accurate idea of the condition of the roof surface.

Some estimators insist on walking the roof, or at least bringing a ladder to the roof edge. They may photograph potential problem areas, such as stained or curling shingles, nail pops (where nail heads pull away from the sheathing and through the roofing material), and rust or other problems in valleys. They want a clear idea of the roof's condition so that they know exactly what needs to be done. For some roofers, mounting the roof is standard procedure. Others use electronic imaging.

Attic Key to a Thorough Inspection

Professional roofing companies today require estimators to get in the attic. The attic plays a key role in the life of the roof and in the house as well.

What's going on under your roof is as telling as anything on its surface.

"Mainly we are looking for any existing problems," says Stefan Boyer, vice president of Weather Guard Metal Roofing in Birmingham, AL, where a roof inspection, inside and out, typically takes 45 minutes to an hour. "Many times people don't realize that there's damage inside the house. They think they may need a new roof. But they need to know if they have other issues."

Joe Talmon says, "If a roofer doesn't take at least 35 to 45 minutes to inspect your roof inside and

> out, he is not assessing your needs and will probably miss important issues that exist and can cause future problems for you and your home."

In addition, a flashlight, a camera, and a tape measure enable the estimator to look at a number of signs that say a lot about the health of the roof and provide key information in putting together a proposal. Generally, he's seeking the following:

- *Evidence of rot on wood sheathing.* White or dark staining on sheathing boards indicates water coming in somewhere. If these boards are soft, they'll need to be removed. It's pointless to install a new roof over rotten substrate. A moisture meter can test moisture levels in the sheathing as well as rafters. Estimators also check to see if clips are in place. Clips hold sheathing panels together. Wood expands and contracts with temperature

ATTIC INSPECTION TOOLS

Inside the attic, your roofing inspector uses these tools to get a reading on the roof:

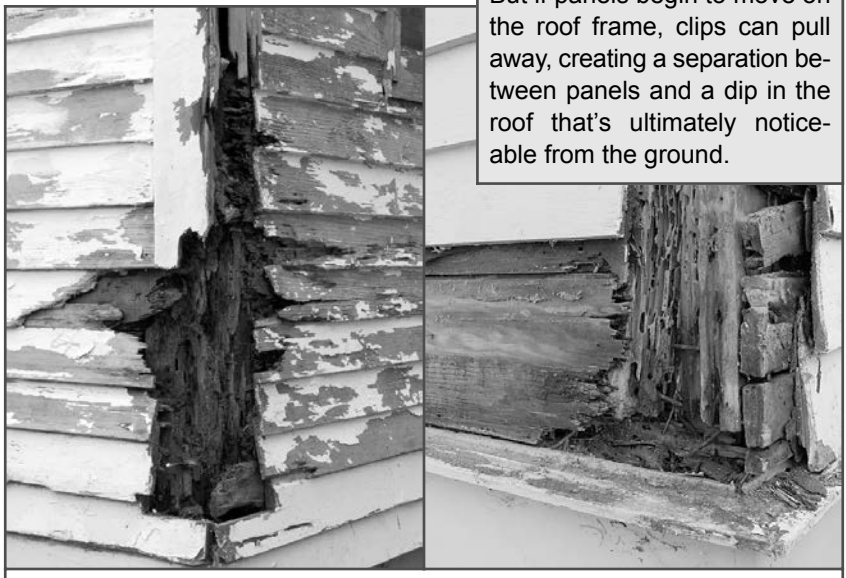
		
A moisture meter *checks wood for elevated moisture content.*	*A* smoke wand *can determine if air is moving and, if it is, in what direction. If air isn't moving, the attic lacks ventilation.*	*An* infrared heat gun *checks and records attic temperatures at the two points where air should be entering—through soffit vents—and exiting—through ridge vents.*

and moisture, and individual sheets of sheathing not fastened with clips can shift, creating a buckling effect and an opportunity for leaks. If water's entering, sheathing isn't the only thing that will rot. The roof frame—its rafters and joists—is vulnerable as well.

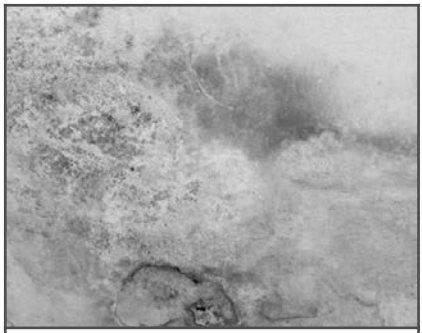
- *Unwanted exhaust.* Mechanical systems have to vent exhaust somewhere. That should be directly outdoors, but sometimes isn't. If bathroom fan or base-

ON THE MOVE

In the course of its life, a roof responds to moisture and temperature conditions by expanding and contracting. That could cause problems for your roof. For example, beneath the roofing material and underlayment are joined 4 × 8–foot sheets of plywood or Oriented Strand Board (OSB), nailed to the roof frame, known as sheathing. These sheathing panels are also fastened with galvanized clips, known as sheathing clips or H-clips. The clips help support the panel edge and stiffen the roof by linking or connecting panels between trusses. But if panels begin to move on the roof frame, clips can pull away, creating a separation between panels and a dip in the roof that's ultimately noticeable from the ground.



Over time, leaks cause both frame and sheathing to rot. If your roofing inspector finds rotten wood, it will need to be replaced.



The presence of mold in the attic is a sure sign that the space isn't properly vented. Mold can spread, causing health and other problems.

Good ventilation brings the temperature of the attic as close as possible to the temperature of the outdoors. In colder climates, an underinsulated and poorly vented attic is a natural for ice dam formation.

ment dryers are vented into your attic, they're emptying clouds of warm, moist air into that space. Your estimator will check to see if that's the case. If appliances are emptying exhaust into the attic, he'll recommend that they be rerouted out of the house. This is necessary but not complicated.

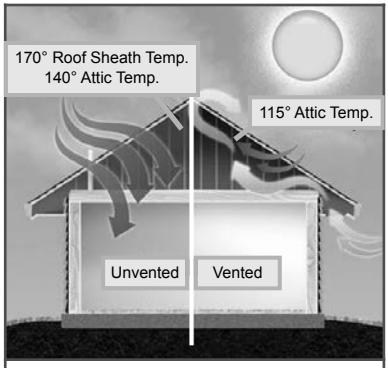
- *Mold and mildew.* Mold needs warmth, moisture, and in this case wood to flourish. Mold can spread inside the house and create health problems. Sources of mold growth need to be removed promptly. Left undetected or untreated, the problem increases.
- *Attic ventilation.* Proper attic ventilation is key to roof longevity. Air should flow up from soffit vents and exit through an opening at the ridge, or top, of the roof. A smoke wand can tell the estimator if air's moving and where. Codes require a minimum of 144 square inches of venting per 300 square feet of attic space. Air sealing—sealing all those points where air from the house enters the attic—and proper ventilation are the best ways to prevent ice damming, premature roof deterioration, and other problems.

Ventilation Solutions

A poorly ventilated attic can compromise roof function in the long and short run.

Roofers didn't used to pay much attention to attic ventilation. Even today it's the exception. On the other hand, roofing professionals regard the information that comes out of that trip to the attic as key to a successful reroof. They perform a ventilation analysis, measure air flow, and inspect venting to ensure that top (ridge) and bottom (soffit) vents are open.

Think of the roof not as something fixed and static but as a living entity that constantly responds to intense sunlight, rain, hail, high wind, and tree debris. Some parts of it, such as sheathing, expand and contract with moisture and temperature. Sudden swings between hot and cold weather, combined with moisture, increase stress on every part of the roof and cause it to progressively destabilize.



Proper ventilation ensures that the attic space doesn't become overheated, which can strain air-conditioning systems in summer and cause premature roof failure in the long run.

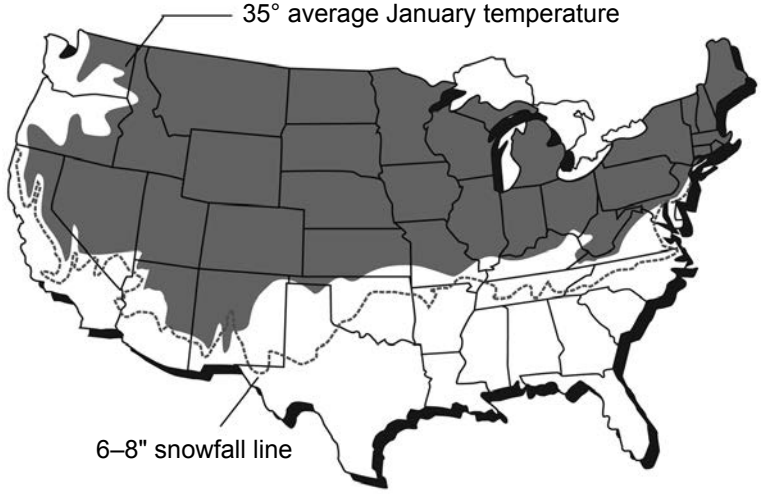
That's why proper ventilation is critical. Air needs to move continuously in and out of the attic space. If it doesn't or can't, the air trapped there is heated from below as well as from above, when radiant heat transfers through the roof surface. In the summer, ovenlike temperatures in the attic are not only uncomfortable, they also drive up your electric bill,

wear out your HVAC system, and contribute to causing the roof to fail prematurely. In the South and Southwest there can be as much as a 50- to 75-degree (or greater) temperature difference between the air-conditioned air in the house and the air in an unventilated attic above, putting a major strain on the system.

Ice Damming

In more temperate climates, inadequate attic ventilation has a different effect. With an unvented attic, it's much more likely for the right combination of snow and falling temperatures to result in ice damming.

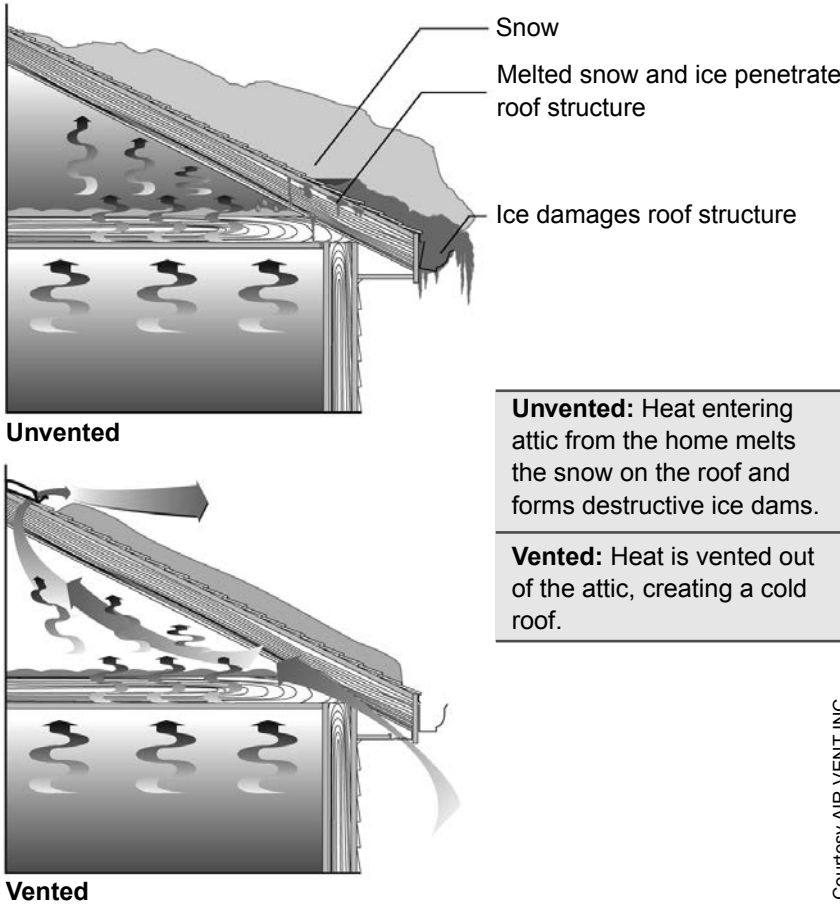
What happens is that after a heavy snowfall, warm air from the house passes through the roof and warms the roof surface. The snow melts, runs to the edge of the roof, and encountering



Courtesy AIR VENT INC.

Above the 6–8" snowline, concern should be given to the prevention of ice dams forming on the eave of the roof.

Regions with heavy snowfall are subject to ice damming, where ice forms at the roof edge, damaging the roof and causing leaks.



Without proper ventilation, overheated attic space can quickly cause ice damming.

a lower temperature, refreezes into masses of ice and icicles. Under the right conditions ice dams can form remarkably quickly.

Icicles hanging from the roof edge are dangerous. Meanwhile, the snow runoff that's entered your downspout also freezes, creating a column of solid ice from ground to roof. Sometimes the sheer weight will cause the downspout to tear away from the house. In either case, if the temperature sud-

denly rose and it rained, the rain would have no way to get off the roof. And if the ice damming at roof edge has dislodged shingles or underlayment, which it can, then that water backing up behind the ice dam will be coming into the house, infiltrating wall cavities and causing structural damage.

Proper attic ventilation prevents ice damming in most situations. Here's how: When air enters the attic through the bottom —soffit vents—and exits through the ridge vent or secondarily through gable vents, a constant air change takes place, with cold air from the outside effectively preventing the heat from the house from warming the roof and melting the snow. Keeping the attic cold in winter helps prevent ice damming.

Ventilation and insulation (as well as air sealing) work together to keep the roof healthy. The absence of one compromises the functionality of the other. For instance, a well-insulated but unventilated attic invites a buildup of moist air. That moisture then moves into the insulation, diminishing its R-value, which is a measure of insulation's ability to resist heat traveling through it. The higher the R-value, the better the thermal performance.

That's why a well-equipped estimator brings a smoke wand to determine air flow. What he'll want to know is whether that air is moving from the bottom of the attic up to the top and out.

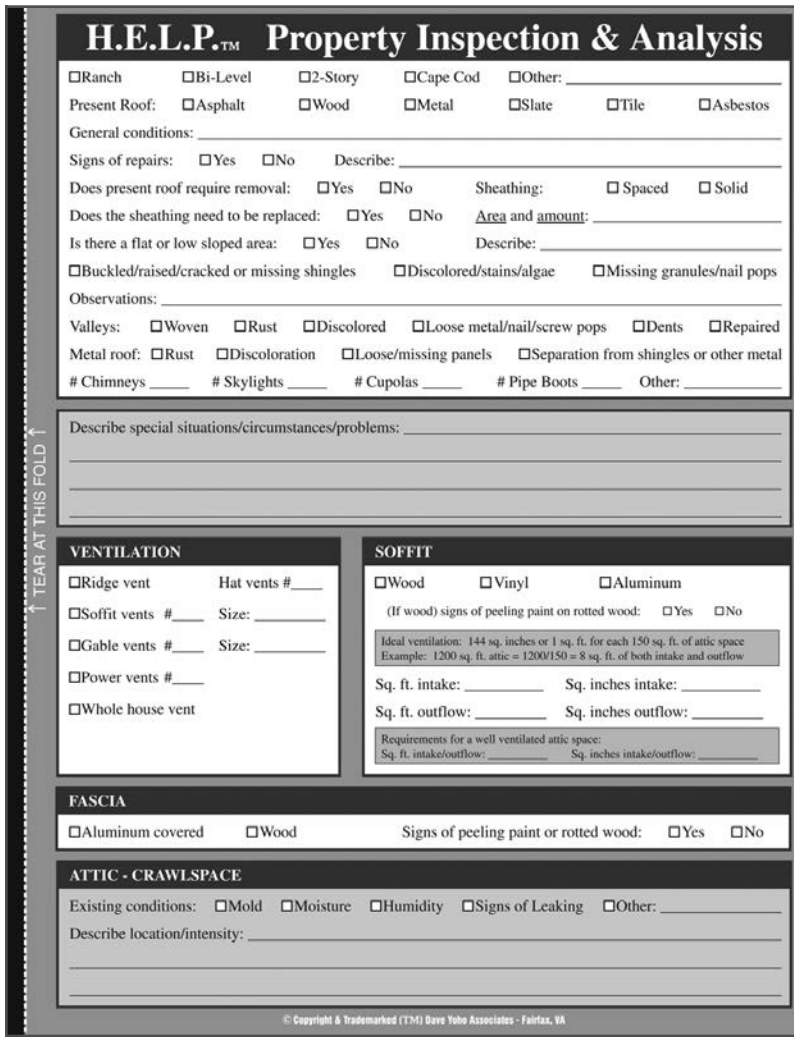
Building to Code

The practice of attic inspections is becoming ever more widespread because roofing manufacturers specify in their warranties that an unventilated or not properly ventilated attic is cause to void a warranty claim on product.

Moreover, required ventilation and insulation levels are established by local building codes. Federal Housing Administration guidelines specify ventilation standards for your attic calculated at a rate of one square foot of net free vent area per

300 square feet of attic area to be vented. So, for instance, if your attic is 900 square feet, you would need three square feet of open ventilating area to maintain healthy air change.

Ventilation is balanced between venting in the lower portion of the attic (eaves) and the upper portion (the ridge), and



H.E.L.P.™ Property Inspection & Analysis

☐Ranch ☐Bi-Level ☐2-Story ☐Cape Cod ☐Other: _____

Present Roof: ☐Asphalt ☐Wood ☐Metal ☐Slate ☐Tile ☐Asbestos

General conditions: _____

Signs of repairs: ☐Yes ☐No Describe: _____

Does present roof require removal: ☐Yes ☐No Sheathing: ☐Spaced ☐Solid

Does the sheathing need to be replaced: ☐Yes ☐No Area and amount: _____

Is there a flat or low sloped area: ☐Yes ☐No Describe: _____

☐Buckled/raised/cracked or missing shingles ☐Discolored/stains/algae ☐Missing granules/nail pops

Observations: _____

Valleys: ☐Woven ☐Rust ☐Discolored ☐Loose metal/nail/screw pops ☐Dents ☐Repaired

Metal roof: ☐Rust ☐Discoloration ☐Loose/missing panels ☐Separation from shingles or other metal

Chimneys _____ # Skylights _____ # Cupolas _____ # Pipe Boots _____ Other: _____

↑ TEAR AT THIS FOLD ↑

Describe special situations/circumstances/problems: _____

VENTILATION

☐Ridge vent Hat vents #____

☐Soffit vents #____ Size: _____

☐Gable vents #____ Size: _____

☐Power vents #____

☐Whole house vent

SOFFIT

☐Wood ☐Vinyl ☐Aluminum

(If wood) signs of peeling paint on rotted wood: ☐Yes ☐No

Ideal ventilation: 144 sq. inches or 1 sq. ft. for each 150 sq. ft. of attic space
Example: 1200 sq. ft. attic = 1200/150 = 8 sq. ft. of both intake and outflow

Sq. ft. intake: _____ Sq. inches intake: _____

Sq. ft. outflow: _____ Sq. inches outflow: _____

Requirements for a well ventilated attic space:
Sq. ft. intake/outflow: _____ Sq. inches intake/outflow: _____

FASCIA

☐Aluminum covered ☐Wood Signs of peeling paint or rotted wood: ☐Yes ☐No

ATTIC - CRAWLSPACE

Existing conditions: ☐Mold ☐Moisture ☐Humidity ☐Signs of Leaking ☐Other: _____

Describe location/intensity: _____

Here is an inspection format specifically developed for the Metal Roofing Alliance.

requirements call for a minimum of 40 percent and no more than 50 percent of venting in the upper portion, or ridge.

So if your roofing professional ends up spending more time in the attic than on top of the roof itself, you now know why.

Results of Inspection

If your estimator has done a thorough job, you should have a clear idea of what needs to be done to your roof. He should be able to tell you how many more years of life the roof has, if any, and what and where the trouble spots or vulnerable places on the roof are.

Frequently Asked Questions

Question: *How long will a roof inspection take?*

Answer: That depends on access to the roof and conditions in the attic. Expect your roofing contractor or his representative to spend at least 45 minutes examining the roof before preparing a report on the results of the inspection and a proposal. You want information that is complete and accurate. In essence: What did he find? What did he write down? What recommendations did he make to you?

Question: *Why is it necessary for the contractor to get in the attic?*

Answer: The attic gives access to the underside of the roof. In determining the state of the roof and in creating solutions for whatever problems might exist with it, a look at the actual roof surface provides only a limited amount of information. Under the roof—that is, in the attic—the estimator can gain a complete understanding of the state of the roof and roof performance and can uncover issues that, once detected, can often be corrected easily.

Question: *What would an attic inspection show?*

Answer: Several key pieces of information you'd need to have before proceeding with a reroof. First, the inspection would indicate the condition of the roof frame and the sheathing, the wood substrate placed on the frame to which roofing material is attached. If either are compromised, they need to be replaced before a new roof can go on. In addition, the inspection would indicate the extent of attic ventilation and insulation, both of which play a role in prolonging the life of the roof and keeping the house comfortable.

Question: *Our house has seen a number of ice damming situations this past winter. Will a new roof eliminate that?*

Answer: If the entire roof system is designed and installed properly, it likely will. Ice dams form when snow on the roof melts and the melt reaches the roof edge and refreezes. If your attic space is unventilated, it gathers the heat of the house and warms the roof, melting the snow. You want an attic as close to the temperature of the outdoors as possible, and that means a well-ventilated attic.

Question: *If the inspection detects mold, stained surfaces, or discolored wood, what do I do about it?*

Answer: There are sprays—highly intensified forms of bleach—that can remove the mold, but it will only stay away if you remove what allows the mold to flourish. If the mold is intense, you should bring in a mold remediator. The presence of moisture in wood can be detected by a moisture meter. Normally, if the wood has not rotted, the mold will also go away once the wood dries and there is sufficient ventilation to remove the cause.

Question: *What if the inspector can't get into my attic?*

Answer: It's hard to find an attic you can't get into unless

there's a flat roof. If there is no available access it would be well worth it to remove a few pieces of roofing and sheathing and probe inside the attic space with a light to gain an understanding of what's going on under the roof surface.

Question: *There is so much stress on attic ventilation. Is it necessary, or is it an option?*

Answer: Proper attic ventilation is code-mandated and plays a key role in maintaining the healthy life of the roof. For instance, some asphalt shingle roofing manufacturers may make warranty coverage conditional on meeting their minimum ventilation requirements.

7

It's All in the Contract

A proper contract will let you know what the roofing company plans to do on your house and how it will handle specific situations that may arise.

When the roofing representative has completed his inspection of the roof, he will prepare a contract proposal—usually reading it aloud—and then discuss its terms and present it for your signature.

Essentially, this contract is what the company proposes to do, and these are the contractual terms around that activity—the company's obligation to you, and yours to the company as the contracting party.

To be valid, the contract proposal must be in writing and legible. You are entitled to receive a legible copy after you've signed the contract.

If the roofing contractor states that the company will, for instance, be using a particular type of pipe flange and metal

flashing or specific underlay, that should be included in the specifications and stated in the contract.

The written contract supersedes all conversations, statements, and agreements, expressed or implied, between the parties. In addition to your signature, and that of any spouse or significant other who may share an interest in the property, it should contain the signature of the contractor or his representative.

Detail and Lack Thereof

The level of detail offered in proposals or bids by roofing companies varies widely. Some companies simply provide a price, sometimes even a price written on a business card or business envelope, slipped in your mailbox without further discussion. You agree and they proceed.

That invites all manner of mishap.

Some provide a multipage proposal that may even include photos and detailed descriptions of what will happen on your roof, starting with the tear-off.

You're best served with a detailed proposal spelling out what the company plans to do and what materials will be used.

If you're sitting on several proposals at different prices, these detail specifications can help you decide. Don't make the mistake of basing a decision wholly on price. Look at what the company proposes to do, in writing, for the price you'll be paying.

Beyond the details of the job, you'll want to know from your representative how the company will deal with particular situations that can and do arise.

What's Generally Included

A professional proposal from a roofer will include

- A description of the project, known as the scope of work.
- How it is to be performed.

- Cost for permits as well as for the cleanup or removal of any debris, such as from roof tear-off.
- Any specifics that the owner and the contractor agree to as a condition of the price.
- Proof that the company is licensed and is current with workers' compensation and liability insurance.
- A description or schedule of payments, called *progress payments*.
- Specifications on the roofing material, underlayments, and other materials used on the job.
- A description of the company's policy if unforeseen or hidden conditions are encountered and how change orders are managed if required.
- A reference to your right to rescind or cancel the agreement in the three-day period immediately after signing.
- A lien release, protecting you from liability if the roofing company fails to pay materials suppliers or subcontractors.

Many states have requirements when it comes to the structure of the contract. But whatever your state requires to be in it, that contract is structured in a way that protects you as well as the roofing company.

Room at the Top

The contract should include at the top of the first page two items:

- Your name and contact information (home phone number, cell phone number, work phone number, and email address).
- The roofing company's business address, phone number, email address, and registration or license numbers. (Note: A post office box is not considered a legitimate business address for these purposes.)

Below that is a section beginning *THIS AGREEMENT, made this* . . . which includes the names of the agreeing parties—

the homeowner or his agent, and the contractor or his representative—and the date that the agreement was entered into.

Below that is a description of the work to be performed.

TEAR-OFF VS. ROOF OVER

When a roof is replaced, the installing contractor recommends whether to remove the existing roofing material or leave it intact and "roof over"—that is, install the new roof on top of what's already there.

Many building codes require the removal of the entire roof down to the sheathing as a condition of replacement, while others permit installing a new roof over one or sometimes two existing layers of old roofing. This requirement differs depending on what state you live in. Your roofer should be aware of that code, or you can assure yourself by calling the building inspector in your community.

In any case, one of the main concerns is whether the sheathing beneath the roof is solid or whether certain portions of it require replacing to ensure that the final roof is structurally intact.

This is why a thorough inspection of both the interior and the exterior is critical.

With the proper inspection tools, rotted wood can be detected from the interior as well as from the exterior. If a leak has been present for a long time, the wood may be "burned" or discolored, but not necessarily rotted.

A professional roofer will specify in the contract: *Remove existing roof and install over existing solid sheathing. . . .*

In the event that rotted wood is detected, the contractor will notify the homeowner of the amount of sheathing that requires replacing in the event this has to take place. The replacement will be based on the cost of labor and material plus maybe 10 or 15 percent as an administrative charge. This, in terms of the contract, is referred to as a *change order*.

Some roofing contractors believe the best possible metal roofing installation starts from scratch. They tear off not only the old shingles but also all the components of the old roof—flashings, vents, and boots—and replace everything, before any metal goes on. In many cases, though, a tear-off is unnecessary.

Roofing over is "a very acceptable practice," says Jerry Iselin of Metal Roof Specialties, a Tacoma, WA, roofing distributor. However, he says, "Many municipalities don't allow you to put a metal roof over two layers of asphalt shingles. Much depends on the condition of the roof, which will be determined by a thorough interior and exterior inspection. If you're confident you have a good deck underneath [the shingles], it's an acceptable and wise choice."

Right to Cancel

The average contract negotiated between a roofing contractor and a homeowner in one's home is subject to a federal statute, which is often supplemented by a state law, that provides a 72-hour period or three business days—commencing immediately on signing the contract negotiated—in which the homeowner can cancel the contract with full refund.

If you're unfamiliar with this law, it's easy to locate online. The contract will have in it a stipulation similar to this:

> YOU MAY CANCEL THIS CONTRACT AT ANY TIME BEFORE MIDNIGHT OF THE THIRD BUSINESS DAY AFTER RECEIVING A COPY OF THIS CONTRACT.

The law says that has to be in the contract and also has to be recited orally to the homeowner by the contractor.

The contract should spell that out and indicate how you would go about canceling—for instance, by registered or certified mail or by personally delivering the canceled contract, signed and dated, to the company, together with a printed form that the contractor is required to give you (two copies for each signer of the contract). That enables you to simply sign the notice of rescission and deliver it as specified above.

Generally a roofing company will not order the materials for your job until those three business days have passed.

All states have different requirements when it comes to listing the right-to-cancel provision in the contract. Some require that it be visible on the first page, or in a typeface and type size that set it apart from the rest of the contract. Some require that it be included twice. Some require a separate signature from the homeowner, to ensure that the homeowner has read and understands it.

Payment Schedule

In a later chapter we'll talk about ways to pay for your new roof. But your contract will list the "Contract Price"—the cost of the job to you—and indicate how much of that has been collected on signing ("Paid with order"), along with a list of future dates and the amount to be paid on each.

The section detailing payment terms will also indicate how much of the job is financed.

Change Orders / Additional Work

If unforeseen conditions force a halt to the job, then the contractor or his representative will contact you and suggest a solution so that the job can proceed. This is called a *change order*. You and the roofing company will come to an agreement about what the change costs. Most home improvement companies require that change orders be paid for before the work continues. An unforeseen situation isn't your fault or the roofing company's fault, but if the situation arises, you should be made aware in advance of how the situation will be handled.

Workmanship Warranty

Metal roofing products include the most generous warranties in the roofing industry. But these warranties cover the prod-

WHAT HAPPENS WHEN THINGS HAPPEN

In the course of installation, workers on the job often encounter situations that need to be addressed before the work can proceed. But whether it's unforeseen conditions or additional areas to be covered, a professional company has a policy for accommodating any change to the work order, called a *change order*. That typically requires notification of the homeowner, a separate contract or document detailing the change and its cost, and payment for the change.

uct. They exclude flaws attributable to workmanship—the manner in which the product was installed. So your warranty should include a guarantee by the roofing company that the work will be free from defects for a specified period. More on that in the next chapter.

Who Signs the Contract?

Typically a contract contains a section (in small type) called Standard Terms and Conditions. Included in the Terms and Conditions is a section called Owner Representations, which specifies that whoever is signing the document is the "owner of record of the real property and structures subject to the Work." In many cases, particularly if the payments are financed, it will require the signature of a spouse or someone else contributing to the household income.

That's why, when the appointment to inspect the roof was made, it's likely that whoever called from the roofing company indicated that all owners of the property be present for the conversation, as well as the explanation of what the inspection discloses, or the presentation of the proposal.

Whoever that includes should be present when the contract proposal is signed.

Your signature makes that document legally binding. So it's important for you to know what's in it.

Frequently Asked Questions

Question: *What's the difference between a proposal and a contract?*

Answer: Some people consider this purely semantic, but a proposal lays out what the contractor plans to do on or in your house, and for how much. It is formalized as a contract, or agreement, when you and the contractor sign it.

Question: *What is the "right of rescission"?*

Answer: That is your right, guaranteed by law, to change your mind about the contract you've signed within three business days or 72 hours of signing it. If your contract contains no cancellation clause, or you are not provided with separate notification that you and the contractor or his representative sign, the contract is invalid.

Question: *Suppose in the middle of the job the roofing company discovers some problem with my roof that I wasn't aware of?*

Answer: The company's policy regarding what are called *unforeseen conditions* should be clearly spelled out in the contract. Language should indicate what the company is responsible for and how it will manage situations where unforeseen conditions arise. Typically these result in a change order, and the company will identify the problem, suggest a solution, and after collecting your signature and payment from you, take care of the situation.

8

What's in My Roofing Warranty?

A professional roofing company usually guarantees the quality of its work with a warranty. Manufacturers warranty their materials.

In contract law, a warranty is a guarantee or promise by one party to another that products or services provided will meet certain standards. In the specific case of roofing, the warranty will provide coverage for the use of the product, subject to specific conditions defined in the warranty. Warranties, on any product, aren't required by law. But most roofing product purchases come with written warranties.

Warranties are a valuable asset. They come in handy after the fact when and if you have a problem with your roof. When the contractor explains the warranty, insist on seeing a copy at that time. And after the roof is installed, keep that warranty with a copy of your contract for future use.

Manufacturer Warranties

Roofing warranties from manufacturers are often more complicated than the warranty you get from your contractor. It's worth your time to review what's covered by the manufacturer warranty and to know what's not. Know the time limitations—the term of the warranty, whether it's prorated, and when the prorating period actually begins in the course of the warranty—misuse constraints, and manufacturer recommendations for getting the longest life and best use from your roof.

Typically manufacturers of roofing products offer warranties that commit them to repair or replace the product at their cost if it fails. In most cases, that's for a specified period of time, and with metal roofing manufacturers the time on the actual product is somewhere between 30 and 50 years.

The warranty will likely specify conditions under which product failure would not be considered the manufacturers' fault. These could include damage from defects; movement or subsidence in the structure on which the roof is installed; abusive foot traffic; damage to the product caused by application of cleaning solutions, paints, coatings, or modifications of any kind; damage cause by misuse, neglect, or improper

DOES THE WARRANTY TRANSFER?

If your warranty is transferable, that means it is in effect for the subsequent owner of your property. That would be a valuable asset when you go to sell. But pay particular attention to the transfer terms. Some transferable warranties transfer only from the purchaser (you) to the next owner of the home. That may include a specific restriction, for instance, that the warranty is only transferable during the first 10 years after product installation. Also, if the warranty is transferable it will specify how this transfer takes place. Some warranties "automatically transfer to any new owner of the above listed structure." With most, however, it's your responsibility to contact the company and provide the transfer information (property address, original owner, new owner) within a specified period of time after the property changes ownership. That can be as few as 30 days.

handling during or after the installation; and most important, *damage caused by failure to follow the manufacturer's installation instructions.*

Note that some of those conditions are within your control as the purchaser, once the roof has been installed. Some—mishandling the product—could be the responsibility of the distributor or the contractor.

Ask for Certification

The last item—failure to install to manufacturers' specifications—is up to the company you hire to install the roof. The only way you can control it is by hiring a professional roofing company with a track record of successful installations—better still, one that uses certified installers.

Because metal roofing installation is more technical and detailed, a number of metal roofing manufacturers offer training programs. These programs require a specific number of hours of hands-on installation training, either on-site or at the factory. Once completed, the company often issues a certificate of completion for training in installations of specific products.

The manufacturer's warranty will likely include the provision that certain approved products be used as part of the installation—underlayments, drip extension, premium-grade fasteners—so as to guarantee that the roofing material itself works effectively as part of a system.

What Warranties Actually Mean

Warranties are, in the simplest sense, about who is responsible in the event that the product fails: the manufacturer, the installer, or you, the homeowner.

They aren't invented out of thin air. They are the result of engineers' calculations and written in language vetted by

attorneys. They can be confusing or unclear. Ask your contractor or his representative to explain the warranty terms in detail:

- What specifically does the warranty cover, and what is the remedy for defects?
- How long does the manufacturer's warranty cover the product?
- Is the warranty prorated? When does the prorating period kick in?
- Is the warranty transferable when you sell your home? Does it transfer automatically, or does the transfer require paperwork?
- What specific circumstances or conditions would prevent the manufacturer from repairing or replacing the product under the terms of the warranty? Your representative should spell out these exclusions in detail. Remember to ask to see a copy of the actual warranty.

NON PRO-RATA

Roofing warranties are either prorated or non-prorated. A non-prorated warranty means that in the event of a manufacturing defect or other flaw in the product, the manufacturer will replace the *full value* of the product at any point in the life of the warranty.

"Pro-rata" means "in proportion to." A prorated warranty, normally for a longer period of time, means warranty coverage decreases as the roof ages. Put another way, the warranty doesn't cover the cost of replacing or repairing the product throughout the warranty term.

Some warranties are structured so that the first, say, 10 years offer full coverage, then defaults to prorated for the remainder of the warranty term.

A non-prorated warranty is what you want, if available. Let's say, for instance, that you purchased a roof, and the roofing product came with a 30-year non-prorated warranty. Twenty-five years later, your roof fails for reasons that are clearly the product's fault. Under the terms of the warranty the manufacturer would be responsible for replacing the product at no cost to you. The manufacturer's obligation is the same at 29 years as it would be under year one of your warranty.

- Who should you contact in event of a product failure covered under warranty?
- Does a claim on warranty cover only product replacement, or does it cover installation as well?

Plain English

Manufacturers will void warranty claims on a variety of grounds, all of which come down to this essential principle: The reason the product failed is not because of the way we made it but because of the way the installer installed it.

D. S. Berenson, a Washington, DC, attorney who specializes in home improvement law, suggests that three out of four warranty complaints on roofing jobs are installation related.

His suggestion: Look for a warranty that's clear, meaning written in plain English. Language that obfuscates or obscures meaning is often a way for the warranty writer to conceal exclusions. Those exclusions will typically be in small—sometimes very small—type. Remember that the large print giveth, and the small print taketh away.

"If I were a consumer, I would be especially unhappy with a warranty that's not written in plain English," Berenson says.

Manufacturers' websites often include warranty information. It's on the website for you to read and understand, so consult that before you meet with your representative and ask about any warranty terms that are unclear.

Wrong Assumptions

Many homeowners assume that a "30-year warranty" means that the warranty covers anything and everything having to do with their new roof in that time frame, and that the manufacturer will replace the roof if it fails for any reason.

Don't make that assumption.

Roofing warranties vary greatly from manufacturer to manufacturer. They vary by term and by types of restrictions.

Every warranty takes effect on the "substantial completion date," which is generally when the purchase and installation contract has been paid in full, without withholding.

Typically, warranties must be registered with the manufacturer. It will be up to you, not the contractor, to register the warranty.

Most roofing warranties cover materials costs only, not labor. If the product fails, unless the warranty reads otherwise, you're obligated to pay for replacement installation.

Terms to Discuss (What You Want to Know)

What you want to know is the length of the warranty, what it covers, and what it doesn't.

Many warranties specify product performance up to a certain level of wind. If gale-force winds tore your roof off in the middle of a hurricane, or your home got hit by a tornado, chances are good that that would void the terms of the warranty. Replacing the roof then would be a matter between you and the company that provides your homeowners' insurance policy.

Ask, for instance, how often the manufacturer whose product you're considering has had to replace a roof for product failure.

Ohio manufacturer Classic Metal Roofing, for instance, offers homeowners a lifetime limited warranty on its different metal roofing products. "In 30 years we've had fewer than 15 product failures on warranty," president Todd Miller says. In every case the company was able to track those limited failures back to "something in the paint process that went wrong."

The company can do that because all panels have a stamp on the back so that any product can be traced to a particular paint and metal run at the plant, "which helps us with our quality control and tracking."

Workmanship Warranty

In addition to the warranty offered by the maker of your roofing product, the company that sold you the roof will almost certainly offer a workmanship warranty.

The warranty will probably be simpler and more straightforward. If you have a problem with the roof, it's likely going to be an issue handled by the installing contractor, so you should be very clear about what the company's workmanship warranty covers.

- *Term of warranty.* Almost any professional roofer offers at least a one-year workmanship warranty. Some companies offer five- or 10-year warranties on their work, and some now offer warranties equal to those on the manufacturers' products they're installing. In other words, if the product warranty is for 50 years, the installing contractor offers a 50-year warranty on workmanship. Some include free inspections. Stan's Roofing, in the Chicago area, offers customers a 15-year warranty, with inspections in the first, third, seventh, 10th, and 15th years.
- *Tear-off or no.* A company may offer different terms on its workmanship warranty, depending on whether the new roof was a tear-off. The term may also vary depending on the materials.
- *What's covered.* Coverage is limited to faulty workmanship and involves repairing leaks. Typically a workmanship warranty would contain exclusions for damage resulting from lightning, hurricanes, hailstorms, and extreme winds. Damage caused by any of those would be a homeowners' insurance issue. Depending on the region, some workmanship warranties would also exclude damage resulting from ice damming (another reason to bring your attic ventilation up to code). Workmanship warranties also cite settlement of the building as a situation that might invalidate potential claims. Included as

WHO ARE THIRD PARTIES?

The "third parties" cited in your warranty as a reason to void a claim refers to other contractors who might be doing work on or near your roof and inadvertently create a situation where leaks can happen. Say, for instance, you had solar panels installed on your roof, and the installers attached the panel racking to your roof deck and created a leak situation. That would be excluded under the terms of most workmanship warranties. The roofing company doesn't want to be responsible for repairing your new roof if someone else caused the problem up there. If you, as the owner, attempted emergency repairs on your roof in a leak situation, that makes you a third party and would void many workmanship warranties.

well are acts of third parties or any damage caused by acts beyond the company's control.

- *What's provided.* Some workmanship warranties cover "any defect of materials and workmanship." Some carefully spell out the fact that problems with the roofing material itself are covered under the terms of the manufacturer's warranty. If a problem occurs within the term of the warranty period, don't expect the roofing company to provide you with a new roof. Their obligation is to fix whatever went wrong, and that means repair it.
- *Claim in writing?* Some workmanship warranties specify that the roofing company must be notified in writing of the problem, and that if they send a technician who determines that the problem is not the company's responsibility or doesn't fall within the terms of the warranty for any reason, they will charge you for a service call.
- *Maintenance required.* Some roofing company workmanship warranties specify that the homeowner is required to maintain the roof in order for the warranty to be valid. Mostly that means keeping the roof and gutters free of debris.

WHAT IS A LIFETIME WARRANTY?

Some workmanship warranties require certain minimal maintenance from customers. Mostly that means keep the roof and gutters free of debris.

Some roofing companies offer a lifetime warranty or a limited lifetime warranty. Lifetime warranty makes it sound as if you're free from all obligation to pay for replacing a defective roof for as long as you live. What does it actually mean?

In fact there is no set definition for the term "lifetime warranty" as it applies to products or services. It can mean whatever the manufacturer intends it to mean. But usually it doesn't mean the lifetime of the person who bought the product, the length of time she owns the product, or the length of time she lives in the house. When it comes to roofing, what it probably means is the expected lifetime of the product itself.

According to the Colorado attorney general's office, "A seller is free to limit a lifetime warranty or guarantee as long as he conspicuously discloses what 'lifetime' means," says a spokesman.

If the roof you're buying has a "lifetime warranty" from the manufacturer, be sure you understand how the manufacturer defines it.

Additional Warranties

Typically, the paint or coating on your metal roof comes with its own warranties, which include the following:

- *Performance warranty.* A guarantee that the paint film will not crack, check, or peel for a specified period of time. Forty years is now the industry standard.
- *Chalk and fade resistance warranty.* Chalking is the formation of fine powder on the surface of the paint film

Chalking is a natural response of the paint coating to interaction with the elements. Coatings on metal roofing come with warranties against it.

due to weathering, specifically its exposure due to UV light, acid rain, and pollution, causing the resin component in the paint to degrade. Thirty years is now the industry standard.

These warranties assure purchasers that the product will not chalk or fade for a period of 30 years in excess of certain standards measured in accordance with standard procedures as defined by "Standard Methods of Evaluating Degree of Chalking of Exterior Paints." The manufacturer is assuring you, the purchaser, that while some chalking and fading of the coating on your metal roof are inevitable, they'll be slight enough to be barely noticeable.

- *Warranty on wind uplift.* If you live in an area where extreme weather events such as hurricanes are common, be sure to find out whether your metal roof has a warranty in the event of heavy wind. The National Weather Service issues a hurricane-force wind warning when winds reach or are predicted to reach 74 mph (118 km/h). Several metal roof manufacturers offer systems with warranties that guarantee the product in weather events with winds up to 120 mph. At least one manufacturer makes a system with a warranty covering the product for performance in winds up to 160 mph.

Frequently Asked Questions

Question: *If the contractor says I have a 25-year warranty, how will I know that's true?*

Answer: Ask to see a copy of the warranty and make it a condition of the contract.

Question: *If warranties are not required by law, why do manufacturers give them?*

Answer: Manufacturers, in order to support their brand and their credibility, give warranties as a good-faith promise that they intend to stand behind their product while it is being used.

Question: *How about the contractor's warranty?*

Answer: This is also a matter of a promise. If the contractor has been in business for three years and will give you a five-year warranty on his work, how much faith do you have in the credibility of the contractor staying in business? Here is where substance, experience, and investment in the community are important. Does the contractor have a place of business? Has he been established long enough? Is he licensed? Does he carry all the proper insurances? These are some of the measurements of stability.

Question: *The attorney quoted in your reference suggests that three out of four warranty claims are installation related. How do I guard against being part of that equation?*

Answer: Here is where it is important to select a contractor that appears stable, has roots in the community, has a place of business, and checks out as having financial responsibility to back up the warranty. In short, will they be here and in business if repairs and service become necessary?

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Ways to Pay

Financing is an easy option if you don't have the cash on hand to pay for your new roof.

Most homeowners don't budget for home improvements. They count on finding the money when the need arises.

If you are planning to pay cash, be prepared to write the contractor a deposit at signing; one-third of the selling price is fairly standard.

A number of states regulate the amount or percentage a contractor can ask you for as a deposit when a contract is signed.

You may choose, like some homeowners, to pay for the deposit portion of the job with a credit card, if the roofing contractor provides such service.

Your representative will list remaining payments, and their due dates, on the contract.

Home Improvement Lending

If you don't have the cash on hand, there are plenty of ways to finance your purchase. Some contractors offer advice and

opinion on finance. They also offer availability to a preferred lender as a customer service.

Many roofing companies make it easy because they can usually provide financing through programs that banks and other lenders market directly through contractors to their customers.

"Most professional roofing contractors will have a relationship with some kind of lender, either a finance company or a bank," Bill Simone, vice president, HomePlus Finance Corp. in California says. "Providing they have a good relationship [with the lender] and a track record, they should be the homeowner's first recourse in looking for financing. And it's a whole lot less paperwork for the homeowner."

Mark E. Berch, president of ServiceFinance Company, a Boca Raton, FL, lender providing financial services to contractors, says homeowners in search of the funds to pay for a metal roof "have numerous options. The contractor may know these and the lender will implement what the contractor says by direct contact with the homeowner. Done correctly, you can transact all of this at the kitchen table in 10 minutes."

EXTRA CREDIT

When you apply for financing from an institution associated with your contractor, the finance company or bank will request a *credit report* (also called a *credit file* or a *credit history*) from one of the three major credit bureaus (usually Equifax, Experian, and TransUnion).

Your credit report contains a credit history based on monthly reports by creditors, such as companies issuing credit cards, department stores, utility companies, and any other creditors that receive monthly payments, as well as when those accounts were opened and your payment history.

Your credit score is compiled from information contained in your credit report. It is an actual number. The number most often used is the FICO score. FICO scores credit in a range from 300 to 850. Your FICO score is only one of several criteria a lender will look at, but it's often the most telling.

Note: Federal law allows you to receive one free copy of your credit report annually from each of the three major credit bureaus.

NO INTEREST / NO PAYMENT LOANS

No interest, no payment loans are another form of lending to those who don't have cash on hand at the moment. At this writing, many companies offer such a plan. Consider it purely an option that these companies are offering to some select customers. It represents an opportunity to have the work completed and not to have to pay for it for 12 months. If the customer pays on time, they have the roofing job while the contractor is subsidizing that loan. Therefore it's an extra bonus to the homeowner.

Frequently Asked Questions

Question: *What are the options when it comes to paying for my new roof?*

Answer: Obviously if you have cash that's the easiest. With a major home improvement project such as a roof, it is not uncommon to find ways to stretch out the payments, thereby paying for the roof as you use it. Many contractors use their relationship with a financial institution to enable the homeowner to arrange for financing rapidly and with much of the paperwork provided in minutes at the time of the sale, as opposed to going to their personal bank, which usually elongates the process.

Question: *How does that offer of free financing or same-as-cash work?*

Answer: In essence, the roofing contractor makes the funds available through the lender relationship, and the contractor—as opposed to the homeowner—is paying the interest on the loan for the agreed-to period. Not all contractors offer this service, and many who do offer it only to select customers. It is usually offered as a bonus or a premium and really represents a savings to the homeowner.

Question: *How frequently is financing used as a means for paying for the roof?*

Answer: A high percentage of the time. Most homeowners

do not have a reserve budget for such emergencies as roof replacement. In most cases, since delay in reroofing might cause additional problems, it is wise to examine the many options of financing. In all cases a homeowner should be clear as to what the monthly payment will be and at what interest rate.

Question: *If I needed to borrow money to pay for my new roof, what is the loan limit?*

Answer: Currently finance companies are making available as much as $50,000 on unsecured loans, that is, loans extended on the basis of the borrower's credit standing. Lenders can offer terms of up to 20 years, making for easy, affordable payments. The finance company will need to see a credit report and a credit score.

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The Most Common Questions We Receive from Homeowners Regarding Reroofing

Question 1: *How do I know what kind of roof to put on my house?*

Answer: After a thorough inspection of the premises, a professional roofing company will be able to walk you through product choices and select a material or color that coordinates with the exterior of your home and which is appropriate to the style of your neighborhood. Much depends on what an inspection reveals. During the inspection, the roofing company rep should also be assessing your values and your perception (how you would like your house to look). This will help dictate which roof to buy by style, design, and color. Many homeowners decide that they would like to have their house blend in with the style and color of

their neighbors while others are looking for something distinctive or different. As an aftermath of the inspection and viewing a presentation (today many of these are on an iPad or similar device), you will likely have formed specific opinions. At that point the rep can help you make your final decision.

Question 2: *Can you install metal on a roof designed for asphalt shingles?*

Answer: A skilled installation crew would have no difficulty. You're simply putting a metal covering over the sheathing rather than an asphalt covering. In fact, a metal roof weighs less than an asphalt shingle roof. If your asphalt shingle roof was the original and the code allows for a metal roof over the original asphalt, that combination would weigh less than two layers of asphalt.

Question 3: *Won't a metal roof be dented and dinged by hail?*

Answer: Actually, a metal roof is more resistant to hailstorms than most other roofing materials you could buy. Thicker gauges of metal are available, if you live in a region prone to frequent hailstorms. More heavily textured metal roofs can also be more hail resistant or even mask minor indentations.

Question 4: *How long will a metal roof last?*

Answer: Assuming a quality installation and quality roofing materials—because there are lesser grades of metal roofing materials—the roof would last, by various estimates, upward of 35 years. Many metal roofs are guaranteed for 50 years. Some metal roofs have been up for 100 years. Prevailing wisdom says that a quality metal roof will last as long as the home. Of roofing materials, only slate—the most expensive—has a potentially longer lifespan, although slate is subject to impact damage as well.

Question 5: *What kind of metal would they put on my roof?*

Answer: Metal roofing is manufactured in vertical panels —called standing-seam roofing—as well as in metal profiles that resemble traditional roofing products. Metal roofing today is manufactured in both steel and aluminum. The steel is coated with a galvanizing compound to prevent rusting. Copper and zinc are also used as roofing products, but they're boutique materials, expensive and used less frequently. Steel and aluminum metal roofs today are manufactured to resemble slate, tile, shakes, or shingles. While it's largely a matter of taste, certain profiles work better with certain architectural styles. The rep will usually have many pictures and sometimes through electronic imaging can show you what a roof of your selection would look like on your house.

Question 6: *Won't it rust?*

Answer: That seldom happens. You might see rusting metal roofs on barns in the country, but they're made of steel with a thinner metallic coating (less than G-90 or in the case of Galvalume, A2-50) that is far less resistant to rust than the kind of metal that would be installed on your home. In all likelihood, the metal roofing installed on your home is steel dipped in a galvanizing compound—either pure zinc (galvanized) or a mixture of zinc and aluminum (Galvalume) that is intended to prevent rust.

Question 7: *If metal roofing is so great, why are almost all the roofs I see made of asphalt shingles?*

Answer: Shingles made of asphalt, a product generated by petroleum processing, have been the leading roofing product in the United States for more than a century. For most of that time they were cheap and plentiful. But product life is limited, and as their cost has risen, more and more homeowners are considering roofs of more durable material

such as metal, which will require a slightly higher investment. However, while it costs somewhat more, metal will often last as long as the house, obviating the need to periodically replace the roof. In a given year, about 5 million roofs are replaced on U.S. homes, and metal roofing is now the choice of one out of 10 homeowners replacing a roof.

Question 8: *How does a metal roof save on my energy costs?*
Answer: In two ways: reflectivity and emissivity. A metal roof is actually the most energy-efficient kind. When the federal government set up a program in 2009–2010 to reimburse homeowners via tax credits for energy-saving improvements to their dwellings, metal roofing was a preferred product that qualified for those tax credits. Metal roof coatings reflect away ultraviolet light, so the roof surface doesn't gather and retain great heat. At night, when the air cools, a metal roof quickly loses whatever heat was there, a principle called *emissivity* that's absent from other roofing materials.

Question 9: *Won't the roof paint fade in a few years?*
Answer: All materials chemically interact with weather, and fading color is one expression of that process. But metal roofs use advanced coatings such as PVDF (Kynar500 or Hylar5000) that are chemically formulated to resist fading and chalking—the powdering of the pigment. Chalking and fading are so slight over such a long period of time that coatings manufacturers provide a separate 30- or 40-year warranty on their product.

Question 10: *Will I have to remove my existing roof to install a metal roof?*
Answer: That depends on several circumstances. If an inspection inside and outside the home indicates that your roof structure is in good condition, it's perfectly acceptable to place a metal roof over your existing roof. If the framing

or sheathing is compromised, the roofer will need to remove what's there to replace it before installing the metal roof. In any case only a thorough inspection will tell you whether it's necessary to tear off the roof or if your roofer can roof over what's there.

Question 11: *Can any roofer install a metal roof?*

Answer: Look for a roofing company that specializes in metal. Because it involves cutting, shaping, and fitting joined pieces of metal, the installation of a metal roof more closely resembles carpentry than traditional asphalt roofing installation, where installers nail on row after row of shingles. Manufacturers of metal roofing have created installation manuals that specify how their products should be installed as part of a roof system. They also offer training and certification in the product's proper installation. Unless installers have followed those specifications, the quality of the installation is anyone's guess and warranty claims could be voided.

Question 12: *What kind of maintenance is involved in caring for a metal roof?*

Answer: To ensure its best functioning, you'll need to keep the roof as well as gutters and downspouts free from debris, such as leaves, twigs, and pine needles. Other than that, your metal roof requires no maintenance. Some metal roofing companies offer an annual roof inspection—some free, some for a nominal fee—in which a technician from the company will periodically look over your roof and prepare a report on its condition.

Question 13: *Can I afford a metal roof?*

Answer: Lending institutions offering loans for home improvement work are numerous. You're probably already familiar with some of them. Many professional roofing companies have agreements with these institutions and

participate in lending programs that make it possible to set up a monthly payment program based on financing a job up to $50,000 at competitive rates, and the term of the loan can be extended for as long as 20 years.

Question 14: *How long would it take to install a new roof?*

Answer: Several important factors make for additional install time. These include the roof's pitch—the steepness of the slope—and complexity. A roof with numerous areas requiring special attention—dormers, skylights, and penetrations such as pipes and fans—takes more time. Some companies can get a modular roofing system—metal in a shingle profile—on the roof in a few days. Standing-seam roofs can take longer, as pieces are measured, cut, and fit, then sealed in place.

Question 15: *Will a metal roof cost me significantly more than a roof using other materials?*

Answer: This question is not easily answered. Most roofing experts today believe that homeowners should be seeking longevity and advanced durability when reroofing. There are asphalt shingles of a higher quality than you see on most houses. They are easier to install, and unfortunately specifications can be minimized to reduce price. As an example, you will frequently see that black felt paper is used as an underlayment. Some roofers even use it under metal roofing. Compared with the more sophisticated underlayments today, black felt paper is often looked upon as a pennywise and pound-foolish solution. The more modern underlayment virtually seals the roof base (sheathing) on its own. When items like ice-and-water shield are added on drip edges, around joinings, in valleys, and as an underlayment, it adds to the investment and extends the life of the roof.

In many cases, if the higher-quality asphalt shingle were specified using the same underlayment as described above, the metal roof might only constitute a 20 or 25 percent

price difference. Metal roofing may not be for everyone, but it is for those individuals who believe that the roof is part of that envelope that seals the house against the vagaries of the weather and should be considered as a longtime investment.

One final example: One of the most expensive roofing materials on the market today is slate, which is often (depending on the thickness and grade) two or more times the cost of a metal roof; also, because of its weight, slate frequently requires reinforcing the base to which it is fixed (the sheathing). In today's market the metal roof offers numerous options, and no one has to pick the most expensive. It should be a selection of the investment that pays the best return. Manufacturers of metal roofing believe their product is today's answer to the long-range future of the roof.

Question 16: *How important is the paint on my metal roof?*

Answer: Paints are a key part of choosing your metal roof. For one thing, because metal roofing can be painted, you have many more color options than with other roofing materials. Your architect or designer can choose a shade that coordinates with the walls and windows. In addition, paint enhances the energy-saving qualities of the roofing material by reflecting away solar radiation. Metal roofing products use paint systems that vary in quality. Low-quality systems, less resistant to chalking and fading, tend to be used in agricultural applications and are not recommended for your home. SMS—Silicone Modified Systems—provide excellent chalk and fade performance, and most meet requirements for the two designations—Standard or Superior—used by the Metal Construction Association and recommended for residential metal roofing. Paints are tested under adverse field conditions, with Florida being favored as it exposes materials to heat, salt, and ultraviolet light.

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Numbers in *italics* indicate figures and images.

About the Authors

Jim Cory has a long history of research and writing about the home remodeling / home improvement industry. He is an award-winning magazine writer who in the course of almost four decades has made his focus issues having to do with retailing and home renovation.

He began his career at *Hardware Age* in 1979 and in 1994 became the magazine's editor-in-chief. The magazine covered retail business practices as well as building materials and hardware products. As senior editor and later editor-in-chief of *Hardware Age* he won numerous awards, including, on a half-dozen occasions, the Jesse Neal Award, given by the American Business Media Association to recognize "the best in business-to-business editorial."

In 1999 he became senior editor for *Remodeling*, a publication for residential remodeling and home improvement contractors published by HanleyWood Inc., the premier publisher and trade show sponsor for the U.S. construction industry. As senior editor of *Remodeling*, he oversaw the annual "Cost vs. Value" issue, which surveys Realtors on the value of different home renovation projects as they correlate with the sale of the home. This lengthy project assignment allowed him to become familiar with and offer opinions on the many issues and questions that occupy residential homeowners seeking solutions for repair and replacement home improvement projects.

In 2002, as its editor, he was instrumental in creating *Replacement Contractor*, a spin-off magazine from *Remodeling* oriented toward roofing, siding, window, and other types of contractors whose focus is exterior renovation or short-cycle construction projects. Under his direction *Replacement Con-*

tractor established a website, a newsletter, and a successful annual conference.

Now Jim has been selected to coauthor this book, *Above All You Need a Great Roof.*

He lives in Philadelphia and can be reached at coryjim@earthlink.net.

Dave Yoho presides over one of the oldest, largest, and most successful consulting groups representing the remodeling / home improvement industry. He has been on the board of public companies, has appeared in over 100 video training series, and has made over 5,000 speeches in 50 states and 18 foreign countries.

His first job after graduating from Temple University was as a trainee in a company that soon became a division of Reynolds Aluminum. Here was the ignition that lit Dave's interest in building materials and home improvement products. By age 25, he was a part of the company's executive management team, and he left before his 30th birthday to found his own business.

He eventually became president of a conglomerate that included among its holdings one of the largest residential reroofing companies in the United States.

The majority of Dave's adult life has been devoted to understanding the needs of others and how to convey messages that would benefit readers and listeners. He has authored numerous articles on the benefits of various products and services offered to improve homes. He has been a consultant to many Fortune 500 companies and management groups that are developing or improving products and services for the building materials industry.

Dave Yoho has designed communication systems used by Fortune 500 companies as well as small entrepreneurial

organizations. In 1991 he wrote his first best-selling book, *How to Have a Good Year Every Year* (Berkeley Press), which was circulated internationally in five languages. In 2005 his sequel, *Have a Great Year Every Year*, was published and again became a best seller.

During his career Dave Yoho has long been a champion of and platformer for consumer protection regulations. He has testified before state and federal legislative groups, and his advice has been solicited in numerous cases for contractor licensing regulations.

Now he has been selected to research, develop, and write this book: *Above All You Need a Great Roof.* It is hoped that you, the reader, benefit from his research.

Additional biographical information is available via his website, www.daveyoho.com.

$12.95

ABOVE ALL YOU NEED A GREAT ROOF

The point of a roof is to protect your house from the elements. It's a key part of what engineers call the "building envelope". The skin of your house that covers its skeleton, the building structure or frame. But a roof isn't just what you see on the surface. It's all the components beneath laid on piece by piece, each essential, all working together.

A LEAKING ROOF IS EVERY HOMEOWNER'S NIGHTMARE. Right up there with termites, a septic tank backing up into the house, or faulty electrical wiring. It's a problem destined to get worse.

Most homeowners seldom think about the roof. When they do, it's usually when their roof becomes a problem. Anyone who has ever had a leaking roof can tell you that the sight and sound of water gaining entry causes anxiety. It isn't that easy to detect on what part of the roof the water is gaining entry. Water finds an opening and travels, going where gravity takes it, which is why it's difficult (sometimes even for roofers) to figure out the actual source of the leak. The ideal time to consider replacing a roof is before a problem occurs, while the roof is still sound but shows evidence of the kind of wear that may indicate hidden damage.

Above All You Need A Great Roof defines the dynamics of dealing with roofing issues, selecting the proper product, and discovering the best services to install the product. Co-authors Jim Cory and Dave Yoho have spent the majority of their adult life researching the means and methods by which solutions to roof replacement and similar exterior products are minimized. It is hoped that their experience will aid you in avoiding the errors many people make when dealing with roof replacement.

With appreciation to the associations, government agencies, roofing contractors and information sources such as the Better Business Bureau, and the numerous manufacturers of roofing and roofing support products. We say thank you.

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