

TRADITIONAL ROOFING

Dedicated to the preservation of the skills and knowledge of the traditional roofing trades

VOLUME 1:1

Fall 2001



EXCLUSIVE REPORT

EXCLUSIVE REPORT

WORLD SLATING AND TILING CHAMPIONSHIPS, 2000

UK TEAM TAKES THE GOLD MEDAL UNDER THE MENTORSHIP OF JOHN BALL

First Americans to Attend the International Federation of Roofing Trades Congress since 1968

A group of nine Pennsylvania slate roofing contractors, friends and wives traveled to Edinburgh, Scotland, last November, to attend the International Federation of Roofing Trades (IFD) Congress, and the IFD World Championship of Young Roofers, 2000, the first Americans to attend the Congress in 32 years.

The highlights of this excursion included a talk on Scottish Natural Slate, during which a mention was made of a slate roof dating to 1643 still in use today in Scotland. Many world class traditional roofers from various countries were in attendance, including the UK, Scotland, Ireland, Germany, South Africa, Luxembourg, Switzerland, Hungary, Austria, Slovenia and others. All of these countries competed in the 13th World Slating and Tiling Championships for Young Roofers.

A number of roofing schools exist in Europe, and the best of their roofing students and apprentices are chosen to represent their respective countries in this competition. Each of about 16 national teams, consisting of two young roofers (maximum age approximately 24) who do the actual roofing work, and one Mentor who advises them during the competition, compete against each other.

Each team had to install roofing materials on an indoor roof mock-up at Telford College in Edinburgh. The roof mock-up consists of an "L"-shaped roof divided into three sections: a hipped end section on which Redland clay plain ceramic tiles had to be installed on battens; a central section with a valley that could be



The UK team, Gold Medal winners at the 2000 World Slating and Tiling Championships, Edinburgh, Scotland.

done in any material or style chosen by the team (see photo, p.12); and a gabled end section that had to be slated with Burlington slates of random widths and diminishing courses, on battens. Over a three-day period, each team had one day to complete each section.

Although all of the teams exhibited exemplary craftsmanship, the UK team, under the mentorship of John Ball of Northern Ireland, took the Gold Medal.

This year's IFD Congress and World Championship for Young Roofers will take place in Vienna, Austria, on October 4-6, 2001. More information can be obtained by emailing dialog.life@aon.at, or by contacting the National Federation of Roofing Contractors, 24 Weymouth Street, London W1N4LX, United Kingdom (Phone: 020 7436 0387; fax: 020 7637 5215; www.nfrc.co.uk). Next year's IFD Congress and World Championship is scheduled to occur in Dublin, Ireland, in 2002, and is sure to have Americans attending. ☐

IN THIS ISSUE

World Slating & Tiling Championships	1
Top Ten Hints for Installing Half Round Gutter	2
Industry Spotlight: Penn Big Bed Slate Co	3
Adventures in Slate	5
Why Slate Roofs Don't Need	
Ice and Water Membrane	6
How to Build a 150-year Roof	9
What Homeowners Should Know	
about Roofing Contractors	10
How to Replace Ceramic Roof Tiles	12

TOP TEN HINTS FOR INSTALLING HALF ROUND GUTTER ON A SLATE ROOF

by Barry Smith

1. **Avoid using galvanized gutter and parts.** The little bit of money saved on materials won't off-set the extra maintenance costs down the road, and if it isn't painted regularly, it will have to be replaced much sooner than copper or painted aluminum gutter.

2. **Don't mix metals.** Use all the same material from the circles, to the nuts and bolts, to the gutter, to avoid problems with galvanic reaction.

3. **Install shanks and circles every 16 to 24 inches.** I usually install shanks every 20 inches.

4. **Attach shanks to the sheeting, under the starter slates, for the sturdiest result.** Often, the slate is beaten up along the drip-edge from old gutter straps and needs replaced anyway, so this isn't that much extra work. You

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TR is a free quarterly newsletter distributed to homeowners, architects, historical and preservation societies, and traditional roofing industry professionals across the United States and Canada. Letters and submissions are welcome. Please direct all correspondence to:

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World Slating and Tiling Gold Medal winner John Ball (c.) at the International Federation of Roofing Trades Congress with Barry Smith (l.) and Brent Ulisky (r.), both American slate roofing professionals.

might decide to attach the shanks to the fascia or rafter tails if they are sturdy, and the slates are in good shape. Use screws if you use this method.

5. **The outer lip of the gutter must be below the plane of the roof or sliding snow and ice will damage it.** With the use of extension shanks the gutter can be installed low enough to be missed by sliding snow and ice, but still able to catch dripping water. To determine the position of the high end of the gutter, install a shank (and probably an extension shank) and then hold a circle with a short piece of gutter in place. Looking over the top of the gutter and up the plane of the roof, adjust the height of the circle until the outer lip of the gutter is below the roof plane. Now install a shank, extension and circle on the low end of the run. A drop of 1/4" per 10' of run is about right. Stretch a line between the two by tying the string around the shanks right at the top of the circles. Use a level to make sure you have an incline. Don't assume that the house is level. Now you can use the string to set the height of the circles in between.

6. **If you are replacing a previously snow-damaged gutter, contact the insurance company.** Even if the previous gutter wasn't half round, the insurance company will often pay for the cost of replacing it with half round gutter. Often, there has been a reoccurring problem with gutters tearing off because conventional gutter can't be

(CONTINUED ON PAGE 11)

Barry Smith Slate Roof Restoration

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Traditional Roofing Association of North America

There is a dire need in the United States to preserve and develop traditional roofing techniques, knowledge, wisdom, skills and information. Much of this has been lost under the trampling feet of "progress," which translates, in this country, into "chemical roofing." Consequently, there has been an interest expressed in establishing a Traditional Roofing Association for the north American continent. This message is just a feeler to see if any of you would be interested in joining or contributing to such an organization. If so, please drop a line to Jenkins Publishing, (TRANA), P.O. Box 607, Grove City, PA 16127 and give us your contact information, or email mail@jenkinspublishing.com. We'll get back to you and let you know what's happening.

IPTW

The 5th annual International Preservation Trades Workshops will be held on October 26-28 (Friday-Sunday), 2001, at the Floyd Bennet Field, Gateway National Recreation Area, Jamaica Bay, Brooklyn, NY. The focus will be on the pragmatic hands-on application of historic preservation. Slate and tile roof restoration presentations will be conducted by Joseph Jenkins. Last year there were also thatch roofing and copper roofing presentations by other craftsmen. For more information contact the Preservation Trades Network, Inc., 731 Hebron Avenue, Glastonbury, CT 06033; Tel: 860-633-2854; email: info@ptn.org; website: www.ptn.org.

TOP TEN HINTS

(CONTINUED FROM PAGE 2)

installed low enough to avoid getting hit by sliding snow and ice. If you make a compelling case to the insurance adjuster, you're in luck. Don't forget to include the slates that were damaged by the gutter straps being nailed on through them (unfortunately quite common).

7. Attach the circles to the shanks with two bolts. There is a little nubbin on the circle that is supposed to keep it from sliding down, but it isn't enough. Drill a 2nd 1/4" hole through the shank using the circle hole farthest from the first bolt as your guide and install the 2nd bolt.

8. Join two gutter sections together with a simple lap joint. Start piecing the gutter together from the lowest point and overlap the next piece on top of it with about a 2" lap. Use a pair of needle-nose pliers to wrap the rolled lip of the lower section a little bit tighter so that it can fit into the roll of the top piece. Install all of the spring clips before riveting the pieces. Attach the two sections together with 4 rivets, trying to keep the joint as tight as possible, especially as seen from the top, which is where it will be soldered.

9. After attaching the spring clips, bend the ends around the lip of the gutter with a pair of pliers. The clips will pop off easily otherwise.

10. Install strainers in each of the drops. This detail is the finishing touch that will go a long way toward keeping the gutters flowing freely. ☐



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THIS ISSUE'S INDUSTRY SPOTLIGHT:

PENN BIG BED SLATE COMPANY



*Penn Big Bed Slate Co.,
Inc. president, Pete Papay*

Four generations of slate quarrying have honed the craft of slate roofing production into a fine art at Penn Big Bed Slate Company, Inc., near Slatington, Pennsylvania. Here the quarry pits, as deep as 350 feet into the ground, glisten with blue water against a backdrop of rolling green hills in the heart of Pennsylvania farm country.

In the bustling quarry office, Pete Papay, president of the corporation, and Erik Eitner, office manager, field calls and handle customers on a typically busy day. There is a demand for high quality roofing slate, and Penn Big Bed's customers know that Pete is one of the few people who understands the nuances of removing slate rock from the ground, grading it for shingles, and crafting it into the world's finest roofing material. Pete's expertise should come as no surprise — the man first entered the quarry pit at the age of three months!

Pete's grandfather launched his family into the slate business in 1934, when he acquired a 40-acre tract of land in a barter exchange for seven squares of roofing slates. He later added 60 more acres, drawing Pete's father and uncles into the business, which was once called the "Papay Brothers." During the heyday of the industry, there were 129 slate companies in eastern PA. Today's Penn Big Bed Slate Company is one of three remaining roof slate quarries in Pennsylvania. It produces more than just roofing slate, with a product line including structural slate, stepping stones, sills, treads, risers, fire place facings, floor tile, slabs, walks and even slate turkey calls. Also offered are slate tools such as hammers, rippers and cutters.

The term "big bed" is derived from a type of slate — the biggest bed and best quality slate in the quarry, the "big bed" being typically 28-30 feet in length and running miles deep. Penn Big Bed slate quarry has 70 beds; each are different from the other and about 30 of these are suitable for roofing slates, producing black roofing slates ranging from S2 to S1 in quality. Of the 70 beds, 40 are currently being quarried at Penn Big Bed.

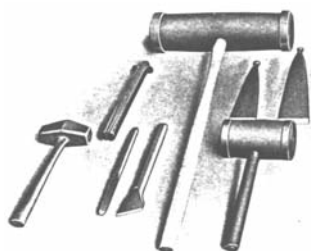
Pete Papay explained how, back in the old days, quarrymen didn't properly grade the slate used to produce roofing material from some Pennsylvania quarries and low-quality slates were produced which didn't last long on roofs. This has given Pennsylvania roofing slates a bad name in some circles, but you don't have to go far to see examples of high quality Pennsylvania roofing slate. The "old factory," a barn-like building adjacent to Penn Big Bed's office, dates back to the 1840s, according to Pete, and still has the original Penn Big Bed slates on the roof.

The quarry operators are the ones who choose which quarried slate goes into roofing production and which goes into structural slate — an art now practiced by Pete's 28 year old son, Pete Junior, and cousin, Steve Bandzi. Another cousin, Steven Papay, operates the diamond saw that cuts the slate blocks into manageable sizes.

Truly a family enterprise and a collection of rare artists in today's slate quarrying industry, Penn Big Bed Slate Company is one to contact when you want to talk with real experts. Their mailing address is PO Box 184, Slatington, PA 18080. Their office and quarries are at 8450 Brown Street, Slatington, PA 18080. Or give them a call at 610-767-4601. ☒



Pete Papay, president of the corporation at Penn Big Bed Slate Company, grades and marks a slate block in preparation for cutting with a diamond saw.



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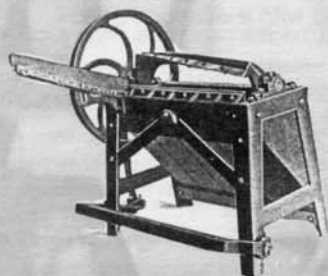
“A Rock In The Right Place”

For over 150 years slate roofs have been used on all types of architecture in the United States. The roof on any structure is the most important part of the practical aspect of the design. It protects the contents and the occupants, as well as the materials used, from rain, sleet, snow, wind, heat and cold. A slate roof is fire proof and repairable—repairable being the most important feature. In 50 to 70 years, when the next generation has to assume responsibility for maintenance, it is nice to hear a roofer say, “I can repair the storm damage from the fallen tree branch (or the fire damage or whatever the unforeseen catastrophe). We do not have to replace the whole roof. You can be glad someone chose a real slate roof.”

In years past, roofers started a proud tradition. Contractors who respect the natural, timeless beauty of slate and make the small extra effort to install it properly will take pride knowing they are operating at the top of their craft. They can be confident in saying the typical service life of a slate roof is in excess of 75 years, even a hundred years.

Choosing a slate roof is comparable to picking a luxury car that holds its value over an economy car that loses value fast. Slate adds a touch of class to any type of architecture. It is fire proof, low maintenance, impermeable to moisture, resistant to acid, environmentally friendly and lasts a lifetime.

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ADVENTURES IN SLATE

A YOUNG SLATER'S FIRST FORAY INTO THE SLATE ROOF
RESTORATION BUSINESS
by Stacy Moore



Stacy Moore replacing a valley with copper on the First Presbyterian Church in Greenville, SC.

Working with and getting to know a group of slate roofers in western Pennsylvania has been one of the greatest joys of my life, and I have treasured every moment. It was only a handful of years ago that I didn't know what a slate roofer was. That was because the "slaters" who worked in my hometown area of Greenville, South Carolina, were long gone—for that matter, almost forgotten.

But they were indeed there nearly a century earlier, as evidenced by their handicrafts that still hang with great longevity and beauty high above the bustling city streets on some of the older historic buildings and residences of character in my hometown.

Winter was upon me several years ago, and I was feeling a bit depressed. Perhaps it was because I was relatively new at enduring the long, cold, damp and grim winters in the shadow of Lake Erie. Maybe it was because I had spent several years working indoors and lacked the ambition and confidence to get out of my chair and do something about it. Nevertheless, I was uncertain about my course of direction and a stack of bills was literally growing from the surface my desk.

I needed to make some changes in my routine. I wanted nothing more than to be finished with my part-time indoor job at a local university, when the opportunity to get involved in the slate roofing trade arrived on my

doorstep like a mysterious little gift. I accepted the opportunity as a way to change my lifestyle, for the summer at leastthe supposed "therapy of manual labor," I imagined. Little did I know, slating was a much bigger concept than just hauling heavy rocks up a ladder to nail on the roof. My future was going to depend on my ability to salvage the clues, techniques and materials of many generations past.

I met Joe Jenkins through my research assistantship position at Slippery Rock University. Through Jenkins, I met Barry Smith of Union City, PA. Barry needed help for the summer working on an elaborate old house in Belfonte, PA, with lovely Peach Bottom slate. I accepted his offer. As his helper, I had to buy a few tools, among the most important of which were a slate cutter, a ripper, a slate hammer, a prybar and some other miscellaneous tools, such as sheet metal snips. Through his expert tutelage and never-ending patience, for which I am ever so grateful, I began to learn the trade.

My future was going to depend on my ability to salvage the clues, techniques and materials of many generations past.

The rare Peach Bottom slates we were using for replacements were already off the roof and were on a local farmer's property. It was my job to cut these larger recycled slates down to the small beveled style that we needed. One day as I was busy shuffling through the slate piles, I noticed someone had carved his initials on one of the pieces and the date "1882." It is not uncommon to find slate that old, but we saved that piece anyway. I knocked on the slate with my knuckles and it rang like a bell, well over a century later. I was learning how good a material it was that we were recycling.

I also imagined the great pleasure the slater who carved his initials must have felt when he left his mark on that particular slate, hoping that someone in the distant future would notice....and we did. Although the initialed slate was probably not worth much money, it felt to me like finding an important historical artifact.

The job was completed on schedule, and I was somewhat relieved, partly because I was sore, sunburned and bee-stung. I was also glad not to spend my days forty to fifty feet above the ground anymore. Barry had no more

(CONTINUED ON PAGE 8)

ADVENTURES IN SLATE

(CONTINUED FROM PAGE 5)

use for me, as he was going home to do other jobs.

I wandered back down south to my hometown with a few hundred dollars in my bank account and a few new skills. I gathered my cutter, ripper and some ladder hooks and tossed them in the garage, in case I might ever need them again.

I doubted I would at first, until I spent some time looking at the various ways roofers were doing "patch jobs" on the beautiful slate roofs in my town—with tar, roof sealants, face-nails and other techniques I had learned were unattractive and of poor workmanship.

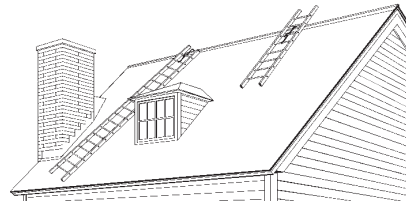
Suddenly I had a revelation: "I have \$300.00, a cutter, a ripper, a hammer and about 150 recycled sea green slates. I am the luckiest man in town!" I exclaimed to myself. Within a few weeks, I landed my first job. I have made a living recycling roof slates for restoration jobs ever since.

Recently, I traveled to Scotland with a group of Pennsylvania slate roofers. We had the opportunity to observe a culture that generally places a high value on its roofs, both functionally and artistically. Due to its population density and limited resources, Europe has traditionally taken a more environmentally sensitive approach than the United States in its selection of building materi-

als, in an attempt to reduce waste and save energy. And they do this with style and pizzazz, using some of the best materials and techniques I've seen anywhere. I was inspired by what I saw on the other side of the Atlantic.

Among the various folks I was able to meet in Scotland in the traditional roofing trades and slate industry, the Honorable Master Slater John Ball of Northern Ireland undoubtedly left the greatest impression on me. Not only is he the most artistic and creative roofer I have ever witnessed, he is a warm and friendly fellow who did not hesitate to take a few hours out of his busy day to share his knowledge and skills with us. I was truly lucky to see such a heavyweight in action. His ability to pass the trade on to his apprentices so gracefully is quite admirable.

Belonging to a younger generation of slate roofers, I am truly grateful for the efforts made by all those before me who have so generously shared their experience and vision. We'll try our best to do the same...Can you please hand me my ripper? Thank you. ☒



THE SLATE ROOF BIBLE

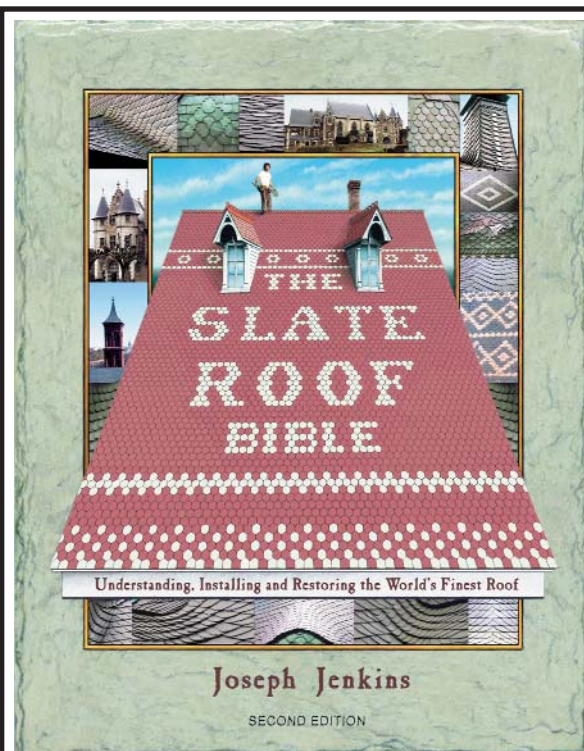
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978-0964425828; Hardcover, Full Color, 374 PAGES, Nearly 800
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WHY SLATE ROOFS DON'T NEED ICE AND WATER MEMBRANE

by Joseph Jenkins

Traditional roofing techniques have almost become extinct in the United States, fading away with the passing generations of roofing craftsmen over the decades. The generation gap between the traditional roofers of the past and the "modern" roofers of today has created a knowledge gap that at times seems almost unbridgeable. This is starkly evident when the issue of "ice and water membrane" is raised.

At the International Preservation Trades Workshops near Washington DC a couple of years ago, during one of my "Slate Roof Restoration" presentations, a roofing contractor in the audience raised his hand to ask a question. "When do you use ice and water shield on a slate roof?" he asked.

"Read my lips," I replied. "N-E-V-E-R."

The contractor stood staring at me in silence, jaw agape, dumfounded.

Weeks later I received a call from a roof restoration professional and consultant in New England. She wanted

to know why I had included no ice and water membrane in the specs on a 52 square re-roof with slate on a residential job in Connecticut. During the process of answering her question, she became so flabbergasted that she hung up on me. She did not like hearing what I had to say. So hang on to your seat — if you're an ice and water membrane junkie, as so many modern roofers and architects today are, you're in for a surprise.

There is a photo of a 150-year-old roof in this newsletter. This is a roof still in good functioning condition. Does it have ice and water membrane on it? No. There are millions of very old roofs in the United States and around the world, roofs 100 years old and some much older, still in good working order. Did they need or ever use ice and water membrane? No. These are traditional roofs constructed with traditional roofing methods. They do not, nor did they ever need ice and water membrane.

Furthermore, these roofs can be duplicated today in the same style and perform with the same longevity *without* a square inch of ice and water membrane. So why do modern roofers and architects now think that ice and water membrane should be an essential part of every roof, as many seem to believe?

Well, aside from the roofing industry's heavy ice and water membrane *advertising* pressure, we need to look

(CONTINUED ON NEXT PAGE)

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ICE AND WATER MEMBRANE

(CONTINUED)

at the evolution of roof design to get to the bottom of this. A generation or two ago, homeowners, architects and roofers looking for cheaper, faster roofing methods began to use *plywood* for roof decks covered with *asphalt* shingles. About 15 years into this modern development, roofers were shocked to discover that the plywood decking was delaminating along the bottom three feet of the roof, near the eaves. This was due to several reasons: low-slope roofs with slow water and snow run-off enabled ice and moisture to collect along the eaves; the plywood was susceptible to glue failure under hot, damp and freeze-thaw conditions; and the roofs were afflicted with poor roof ventilation or a lack of "breathing" due to the plywood/asphalt combination smothering the roof and preventing airflow.

And what came to save the day? You guessed it — ice and water membrane became employed to *prevent delamination of the plywood roof decks* — a band-aid

solution to an inferior roof design. Inferior, that is, to traditional roofs.

Today's modern roofers have become so steeped in the plywood/asphalt roofing systems that they have also become addicted to ice and water membrane, afraid to even *think* about installing a roof without it. However, *traditional* roofers who use *traditional* roofing methods avoid the use of laminated roof decking materials, and instead use natural wood boards or lath. They also avoid non-breathing roof coverings and instead use natural slate or tile.

Natural slate or ceramic tile combined with a natural wood board deck is a breathable roof. It is also a roof that does not need any ice and water membrane nor does it benefit from it. This may not be the sort of information that ice and water membrane manufacturers want you to hear, but it's information that many roofers and architects need to know and understand. If you want to air your opinion on this matter, visit the message board at slateroofcentral.com and let's hear what you have to say. ☒

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SIX STEPS TO BUILDING A 150-YEAR ROOF

by Joseph Jenkins

Roofs can and should be routinely built to last at least a century. In fact, 150 years is a reasonable expectation of a roof's longevity if the roof is properly constructed. How do you build a roof to last that long? You can begin by examining roofs that are currently a century or more old and then either copy or improve on the traditional materials and techniques used in the creation of these roofs.

As a professional slate and tile roof restoration contractor, I have had the unusual opportunity to inspect, repair, restore, disassemble and reassemble many hundreds of century-old, or older, roofs over the past 30 years. This is what I've learned about roof longevity:


1. Use a long-lasting roofing material such as slate or tile. Make sure the slate is top quality S1 grade. Never use fake substitutes.
2. Use a long-lasting roof decking material such as natural rough-sawn lumber or planed boards at least 3/4" thick. Avoid toxic CCA treated lumber and any laminated materials such as plywood, particle board or OSB.
3. Use copper or stainless steel nails to fasten the slate or tile to the roof. A good grade of hot-dipped galvanized nail will last 100 years or more, but not as

long as copper or stainless steel nails, which will last indefinitely. Don't use electro-galvanized or aluminum nails.

4. Use stainless steel flashing, such as terne-coated stainless. Copper and lead flashings will last indefinitely if kept painted, but will develop pitted holes in 60-70 years if unpainted, especially in exposed areas like valleys. No one yet knows how long terne-coated stainless will last, but it will presumably outlast both copper and lead. Alternatively, build rounded (slate) valleys and eliminate the valley flashing, which is subject to the greatest wear on the roof.

5. Design the roof properly. Use adequate slope — the more the better (the roof should be too steep to walk on). The lower the slope, the shorter the life of the roof. Build the roof sturdy enough to prevent sag over the years.

6. Make sure the roof is installed by properly trained personnel who understand the nuances of traditional roofing and who possess the proper tools and equipment. For example, slate roofs should never be walked on during installation.

In addition, traditional, long-lasting roofs have never required the use of ice and water membrane. This material can be completely avoided (see related article this issue). Felt paper, coincidentally, is not necessary for a slate roof to function properly, although 30-pound roofing felt is recommended as a temporary covering over the roof sheathing prior to slate installation. Tile roofs are more dependent on a heavy felt underlayment. 



This 150-year-old roof was built of Vermont slate on wood decking and probably nailed with hot-dipped galvanized nails.

WHAT ROOF OWNERS SHOULD KNOW ABOUT CONTRACTORS

by Joseph Jenkins

As a professional slate and tile roof restoration contractor with many years of experience, I am sorry to have to report that probably 50% of our workload involves the removal and replacement of faulty repair work on old slate and tile roofs.

Unfortunately, many contractors who have no business being on slate or tile roofs manage to convince property owners that they know what they're doing — when they don't. Even professional full-time roofing contractors may have little or no experience with slate and tile and simply view such roofs as modified asphalt shingle roofs, which they are not.

To make matters worse, competent slate and tile roofing professionals can be hard to find in some areas. The **slateroofcentral.com** website maintains a free Directory of Contractors who claim to be slate professionals. Although we offer no endorsements of any contractors, our Directory is a good place to begin looking for slate roofing professionals (if you're a slate professional and want your name listed—it's free, just go to the site and email the info).

There is also a page on the site titled, "*How to Tell if Your Contractor is a Neanderthal*." This page is linked to a page of photos showing some examples of Neanderthal work, and is worth a look. To avoid paying Neanderthals to deface your roof, make sure they have the correct tools (slate ripper, slate cutter, slate hammer, ladder hooks); make sure they do not walk on the roof routinely (they must use hook ladders), and make sure they know something about types of slate (they should be able to identify the slate on your roof).

This is fundamental stuff for any slate roofing professional. The **slateroofcentral.com** website also displays information on the repair of both slate and tile roofs, and offers slate tools for sale as well as *The Slate Roof Bible*, a "must have" book for any slate professional or slate roof owner. JenkinsSlate.com also lists sources of new and used slates and tiles (if you're a supplier and not

already on this free listing, please get on the site and send an email!).

If you're having a new slate roof installed, *beware*. As a slate roofing consultant offering services nationwide, I receive a lot of calls from people with *new* slate roofs who are having major problems *within the first ten years of installation*.

Here's an example: Recently, a fellow called me from South Carolina. His family had scrimped and saved their money for years in order to re-roof their house with the world's finest roofing material — slate.

The roof was only seven years old and already dozens of slates were falling out. He was disappointed and frustrated, to say the least. There were a few reasons for the problems the roof was having: he had purchased an imported slate that had *drilled* nail holes *without a counter-sunk hole* for the nail head to sit into. This caused the slates to be "under-nailed," which forced the nail heads to rub against the overlying slates.

This problem was compounded by the main reason new slate roofs fail prematurely: *the roofers who installed the slate walked all over it during installation*. Acting as if the slates were asphalt shingles, the "Bigfoot" roofers tramped all over the roof, breaking and cracking the slates everywhere. Months or even years later the cracked slates fell out. Also, a variety of incorrect nails were used on this roof, which was also nailed onto a plywood roof deck (which is suitable for asphalt, but not for slate).

The man summed up his experience by saying that contractors who don't know what they're doing are giving slate roofs a bad name. He's right — the best roofs in the world are only as good as the installation.

Buyer beware. ☒



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HOW TO REPLACE CERAMIC TILES ON A ROOF

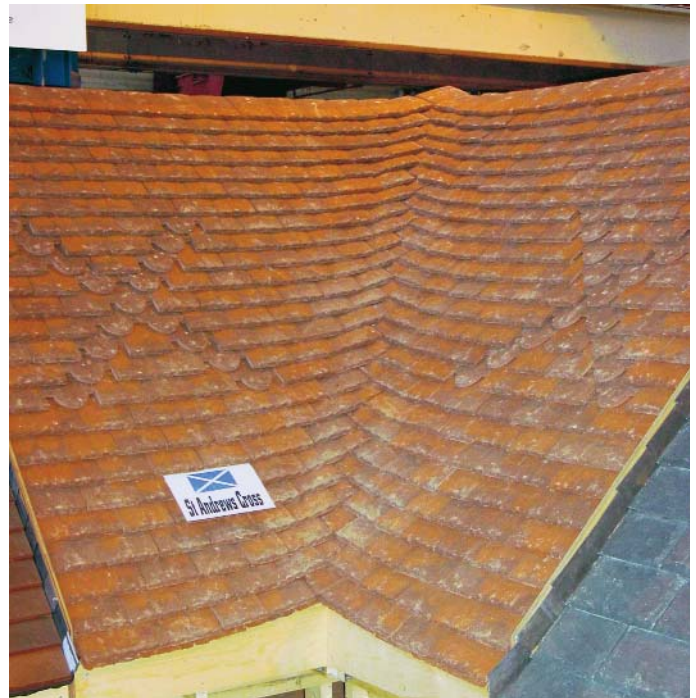
(from *The Slate Roof Bible*, second printing, page 278)

Replacement ceramic tiles must be rehung with copper or stainless hangers wired to the back of the tile with copper wire. Do not use exposed strap hangers to replace tiles — properly done repairs should not be visible.

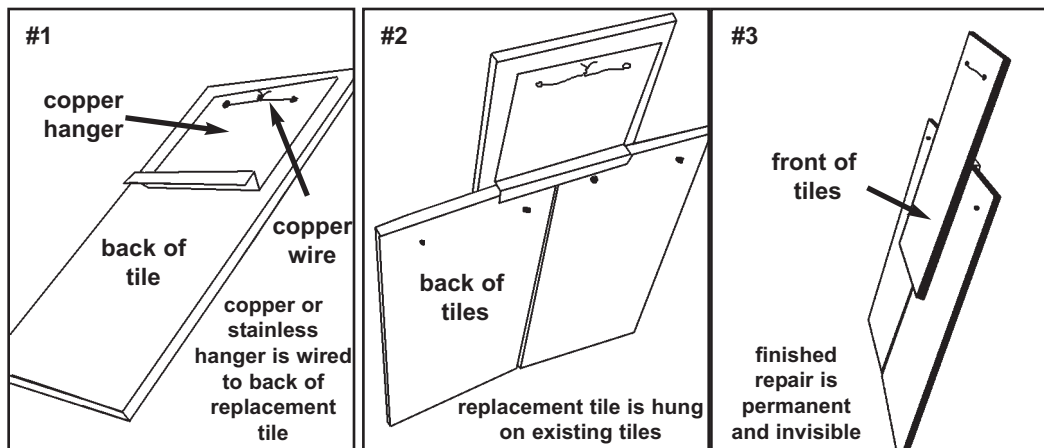
The copper hanger shown in #1 (below) can be modified to fit almost any type of ceramic tile, including Spanish tiles. It's a good idea to put a dab of lifetime silicon caulk between the copper hanger and the tile to glue it in place.

#2 shows the back side of the tiles and how the tile hanger holds the tile in place. Tiles are usually loose enough on the roof that you can slide the tile and hanger in place without any problem. The replacement tile hooks on the existing tiles.

When the job is done (#3), there is nothing visible on the surface of the roof that shows a repair was made. For sources of replacement tiles that will match an old roof, visit www.slateroofcentral.com. 



The UK team's laced valley at the World Slating and Tiling Championships, Edinburgh, Scotland (see article, p. 1).



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