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Issue #8 - Fall 2010

TRADITIONAL ROOFING

MAGAZINE

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From the Editor

READERS MAY WONDER HOW AND WHY WE PRINT AND DISTRIBUTE THE TRADITIONAL ROOFING MAGAZINE FREE OF CHARGE.

Well, for one, advertiser support covers our basic printing and distribution costs, so please review the ads and keep our advertisers in mind when you need what they have to offer. Secondly, the content is contributed voluntarily — no one is paid for writing Traditional Roofing articles or for taking photos. The content of this magazine is important and valuable to the traditional roofing trades, therefore, providing related information is one of our voluntary contributions to the industry.

Our overhead is low as well. TR is produced, edited and published by one person — me — under my business, Joseph Jenkins, Inc. I am not paid to do this; I do it when I have the time and the editorial material because I enjoy the process, the creative outlet, and the contribution it makes to the industry. That is the main reason why the magazine is not published on a regular schedule: there is no dedicated staff, and there is a limited budget (thank-you advertisers). I publish the issues only when I have content that is useful, interesting, important or valuable. When I have accumulated the content, I create the magazine as time allows.

As a slate roof consultant (SlateExperts.com), author (Slate Roof Bible) and purveyor of slate roofing tools, material and supplies, I am constantly barraged with questions about slate roofs. Often it's the same question over and over. There are not enough hours in the day for me to answer all the phone calls, letters, faxes and emails that I receive, so publishing these articles, then posting them on the internet at TraditionalRoofing.com allows me to make information and answers available to everyone by a simple click of a mouse. Want to know why you have a problem with "shedding slates?" So do a lot of other people. I'm tired of explaining it on the phone or via email. That's why I wrote the article about slipping slates in this issue. Installing a slate roof but don't understand headlap? Call my office and a secretary will direct you to the article in TR#6, so I won't have to try to explain it to you. Better yet, just Google "slate roof headlap" and go directly there.

Our illustrated "how-to" articles provide information on elements of slate roofing that you won't find anywhere else. TR also provides us with an opportunity to showcase the non-profit Slate Roofing Contractors Association of North America. It allows others in the roofing trades to publish information that is of interest to the general readership. It keeps readers updated on what's happening in the national slate roofing field. It includes information about tile roofs, copper roofs, asbestos roofs and other durable roof systems that have been around a long time, but are not widely understood.

My motives are not altogether altruistic, however. Traditional Roofing Magazine also allows me to promote our online stores. Looking for snow guards? We have the largest selection in the U. S. at SnowGuardWarehouse.com. Need soldering devices and materials? SolderWarehouse.com is the place to go. And for general traditional roofing tools and supplies, SlateRoofWarehouse.com has all the hard to find stuff right at your fingertips. Look for the ads in this issue.

We also provide a variety of free online video clips about aspects of slate roofing, including installation procedures, mistakes people make, and the use of tools, at SlateRoofCentral.com/videos.html. Traditional Roofing articles give us an opportunity to mention the instructional videos, so when you finish reading an article, you can take a look at the related video clips.

In short, TR is a labor of love in one sense, providing free articles and information to the general public, but it also stimulates business for the entire traditional building industry. When you're done with your issue and don't need it anymore, don't throw it out — recycle it by passing it on to someone else!

Joseph Jenkins — editor, publisher, author

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Contributors:

John Chan
Liam Tower
Lonnie Smith
Ward Hamilton
Joseph Jenkins

Special Thanks To:

Ray Kroeck
Peter Laughlin
Kevin McConnell

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Editor/Design/Layout: Joseph C. Jenkins; Editorial Assistance: Joseph J. Jenkins

All photos in this magazine can be attributed to Joseph Jenkins or Joseph Jenkins, Inc. unless otherwise indicated.

On the Cover: Liam Tower's Slate Moose (Photo by Liam Tower); Kevin McConnell of Marin Custom Metal Works (Photo by Joseph Jenkins).

V-Tile or European Hip and Ridge Tile

Lonnie Smith — Guarantee Sheet Metal Works


In New Orleans, ceramic V-tile are a widely used and commonly accepted form of installing hips and ridges on just about any shingle roof. New Orleans once was one of the largest ports in the United States. Many ships left England laden with ballast to cross the Atlantic Ocean and weather the seas. Once the ballast on the ships was off-loaded, much of it was used as the construction materials in the up-and-coming city.

One of the gifts the roofs of the city enjoyed were the V-shaped clay tiles that could be easily stacked on the ships during the sea voyages. These tiles were installed on New Orleans roofs after the Welsh slate shingles, also sent from overseas, were fastened onto the roofs. The V-tiles became a common sight on the hips and ridges of the old slate roofs. As the old slate disappeared over time, the tiles were re-used from one roof to the next. Many of the original tiles were stamped with the names of the yards of their origin in England. Today, much of New Orleans still enjoys the old tile, but hurricanes and plastic cement repairs have stolen the beauty of many of the original tiles.

The demand is still present for V-tile, but the plants of England are not flooding the market with product anymore. Demand without supply has sparked our American entrepreneurial spirit back into motion. There is a company out of New Orleans, Hecker-Atlas, that has made a concrete version of the tile in two pitches and three colors. There is a clay version available from The Roof, Tile and Slate Company that comes in a few different colors and pitches. The Ludowici Tile Company also has released a version of their own tile. These products have given new life and character to asphalt roofs, cement asbestos, and of course, slate roofs.

The tiles are approximately eighteen inches long and come in 90 degree and 105 degree pitches. They're installed by setting them in a bed of mortar. A heavy underlayment should be installed before the tile are set. Once the tile is placed in the mortar, it should be aligned into the row. The joint between the two tiles are raked with a finger joint spacing and the tile is then sponged clean. The process can be slow, but it can be much faster than installing a slate ridge.

A large spike or nail is recommended between tiles on steeper pitched roofs to help support the weight of the tile. In some cases an iron bracket is installed at the base of the hip

tile to support the row. The tiles are functional on a slate roof or can be used to jazz up an ordinary dimensional shingle roof. The V-tiles are not terribly expensive, but can range from ten to thirty dollars a piece without shipping. The V-tile market has spread from historic replacements to high end subdivisions and everywhere in-between. Why not install V-tile hips and/or ridges on your next roof? 

Hecker-Atlas, Inc., 4949 Mehurin Street, New Orleans, 70121 Louisiana; Ph: (504) 733-3431; heckeratlas.com

The Roof, Tile and Slate Company, 1209 Carroll Ave. Carrollton, TX 75006; Ph: (972) 446-0005 or 2647 Delaware Ave. Kenner, LA 70062; Ph: (504) 712-6859; claytile.com

Ludowici Roof Tile, 4757 Tile Plant Rd., PO Box 69, New Lexington, Ohio 43764; Ph: (800)-945-8453; ludowici.com

If you would like to know more about V-tile hips and ridges please e-mail Lonnie Smith at info@guarantysheetmetalworks.com or visit the website at **GuarantySheetMetalWorks.com**. 2649 Delaware Ave Kenner, LA 70062, Ph: 504-466-3749



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The Copper Cupola at the Historic Holmes Hotel

John Chan — The Durable Slate Company

The Durable Slate Company designed and installed a new cupola on the 1889 Hotel Holmes in Westerville, Ohio. After the wood structure was hoisted up, assembled, and secured into place, a new copper roof and copper finial was installed. It was finished off with a copper lightning rod.

Thomas Holmes built a three-story Queen Anne-style hotel at the corner of Main and State Streets in Westerville, Ohio in 1889. This became the city's "Landmark." Unfortunately, this historic landmark was struck by lightning in the 1950s and the fantastic bell shaped dome that once adorned the main intersection of Westerville was removed. Luckily, the current owner of the building located an old postcard showing the original structure. Upon presenting it to The Durable Slate Company, initial drawings were drafted. After these drawings were approved by the City of Westerville Planning and Zoning Commission's Review Board, work began.

Although the old postcard had no close-up details that would enable an exact duplication, it was very important to the owner that the general character, shape, and proportions were the same as the original. 2"x 12" wood studs were cut for the frame of the bell-shaped design. These wooden rafters had to have both concave and convex surfaces. Once cut, they were numbered, and partially assembled before being hoisted up on the roof top. Because of the location of the job, the city's two main streets, Main and State, would have to be blocked off if a crane was used. Therefore, all the pieces were hoisted up to the roof by a rope and pulley system.

A full scale drawing of the diameter of the roof was drafted on a workbench inside The Durable Slate Company's shop – then we went to work. To achieve the rounded surface, a 14-sided roof was constructed on top of a leveled surface. The skeleton of the cupola was separated into 3 different levels. After the entire frame was built, 1"x 4" T&G wood was cut and screwed into position for the decking material. Nearly 800 of these trapezoids were cut, installed, numbered and removed to be transported.

Once the wood was all on-site, it was lifted up and re-assembled in place. Ice and Water shield was in-

stalled as the underlayment to keep the wood dry prior to the copper roof installation.

Seventeen rows of copper panels were cut out of 20 ounce copper sheets. Each row had a different circumference; therefore, each row had a different size panel. There were 14 different sized panels in all. Each panel was 12" tall but with different widths. They started off at 24" wide at the bottom tapering to 3" wide at the top.


This diamond style panel system was all locked into place with copper cleats and has no solder on it except for the finial. The cleats coupled with the heavy 20 ounce copper allow the copper panels to move freely and yet be resilient against heavy winds.

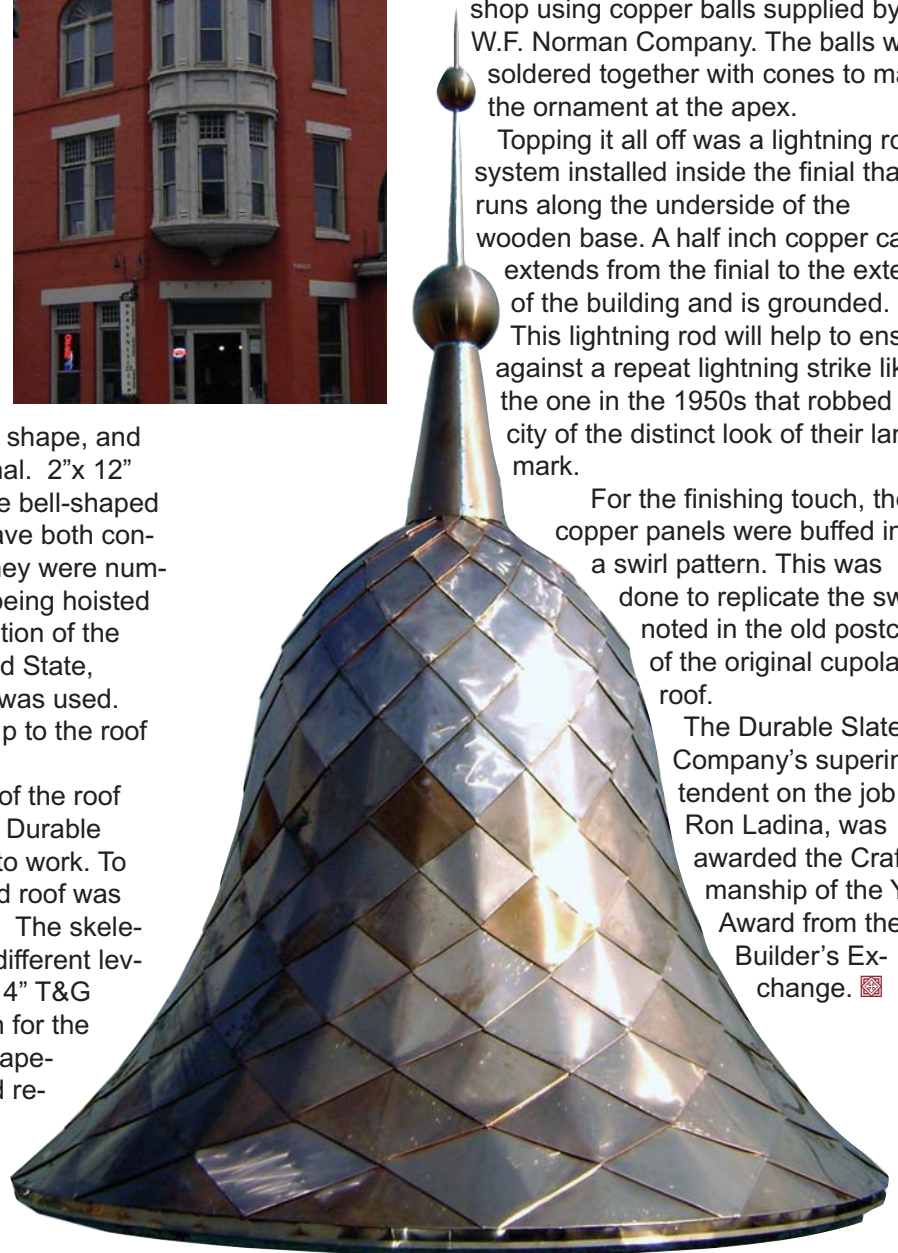
Adorning the top is a custom fabricated five foot tall finial. This was fabricated in the shop using copper balls supplied by W.F. Norman Company. The balls were soldered together with cones to make the ornament at the apex.

Topping it all off was a lightning rod system installed inside the finial that runs along the underside of the wooden base. A half inch copper cable extends from the finial to the exterior of the building and is grounded.

This lightning rod will help to ensure against a repeat lightning strike like the one in the 1950s that robbed the city of the distinct look of their landmark.

For the finishing touch, the copper panels were buffed into a swirl pattern. This was done to replicate the swirls noted in the old postcard of the original cupola roof.

The Durable Slate Company's superintendent on the job, Ron Ladina, was awarded the Craftsmanship of the Year Award from the Builder's Exchange. 

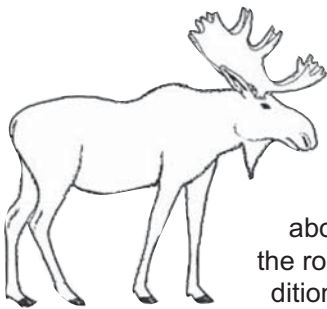


Gone to Moose Camp

Liam Tower, Slate Affair, Inc.

Watch out, "Moose Crossing!" No Adirondack style house is complete without a moose somewhere. In this project, the client wanted a roof that would go along with the sticks, twigs, bark, bear carvings, and all the other natural products in the home. Newton Wells of Peck Entertainment Inc. in Morrisville, Vermont, chose a slate roof with a one inch strapping sublayer, copper nails and copper details. He asked me to come up with a design to incorporate all the natural details in the house and to draw attention to it from the road.

I sourced clip art from an internet program to provide the outline of the moose, then printed the picture of the moose on transparency film. This allowed me to project the picture on a wall where I had hung pieces of cardboard big enough to project the size moose I needed for the roof. In laying out the moose, I also had to think about how big it was going to be on the roof, and how it would look with additional details. From the clip art picture above, I made a six foot tall cardboard cut-out. It was then taken to the job to trace the outline on the roof, as you can see in the picture below.



In our economic times, this project came with the need to cut cost to provide the client with an affordable price. How did we do this? Well, all the slate used was either slate my client had from other houses, or it was inventory that Slate Affair, Inc. had in its bone yard. This provided him with discounted slate prices. It also played a big role in the layout of the multiple colored slate bands, ornamental ridge bands, and different size slate. In the band bottom to

top, we used Vermont fading green, Welsh purple, and New York red. By using all the different color slates, this provided the client with a one-of-a-kind roof.

With the moose, I chose to use a Vermont unfading green cut to the "wild slate roof pattern." This made it stand out in the Vermont black slate background and be visible from the road. The slates were different in size as well: the black being 16 by 14 inches and the green being random widths and 12 inches long. This means that the green slate had to play catch up and would need two or more pieces to make the transition from course to course.

In making the outline stand out, I used my cardboard cutout, as you can see in the picture below, right. I needed to scribe lines on the slate course below the corresponding areas. I had to make additional cuts to the overlapping slates to the corresponding scribe line. I made the decision



to have the black slate surround the moose to help clarify the outline of the moose.

On the next page, you can see the detail in the head of the moose and the overlying black border. I gave the moose a red eye seeing that the owner is a DJ. In this part of the head, the slate will start to build up more because of many details in a small area. To counteract this, you can see that some of the black pieces overlap other black pieces. Some pieces of slate will be covered completely, but are needed to keep a consistent three inches or more of head-lap and side-lap. While installing designs of this nature, there does not seem to be a right way or a wrong way that I have come across. A lot of the slate goes together with trial and error. Some pieces are installed only to remove them later to trim a half inch off or punch a hole that might be needed.

As this project was bringing the 2009 year to an end, I decided to install the date on the backside, using the

Ornamental Slate Roofing



same methods explained above. All the black slate on this side is North Country black. I also used red, purple and green in the roof. Along with that, we designed and installed a different ornamental band with diamond shapes. At the bottom, I installed a simple octagonal pattern.

The ridge of this house consists of a "wild slate roof pattern" with one side green and the other black. We used one inch thick by six foot long slabs with hand chiseled edging. These are screwed into place and topped with a layer of lead coated copper. This is topped with a copper cap with a wave cut in it and topped with the moose crest.

Slate makes it easy to create high quality roofs with unlimited ornamental designs. This makes it simple to provide whatever you and your client decide. Now watch out for that moose! 🦌



Liam Tower, Slate Affair, Inc., P.O. Box 677, Enosburg Falls, VT 05450; Ph/Fax: 802-848-7676; Cell: 802-793-8349; liamtower@slateaffair.com; Web: slateaffair.com

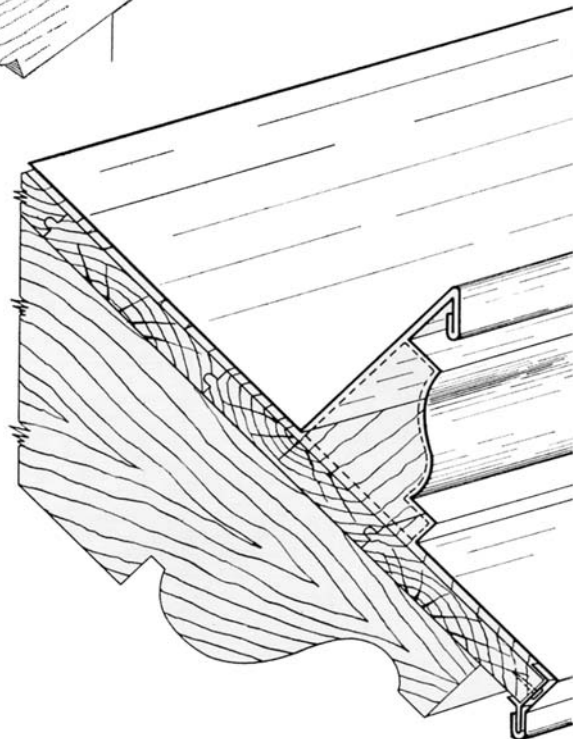
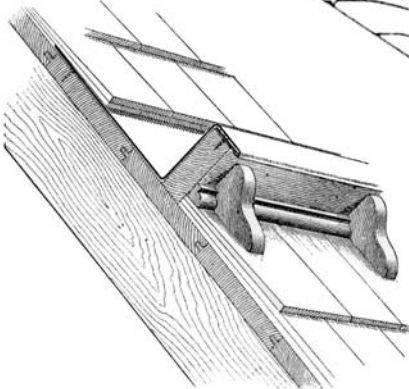
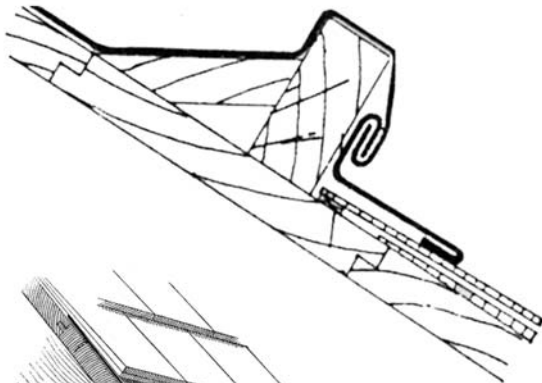
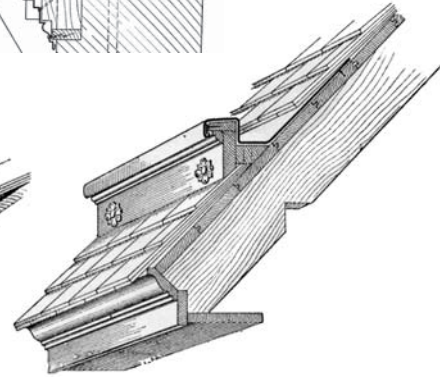
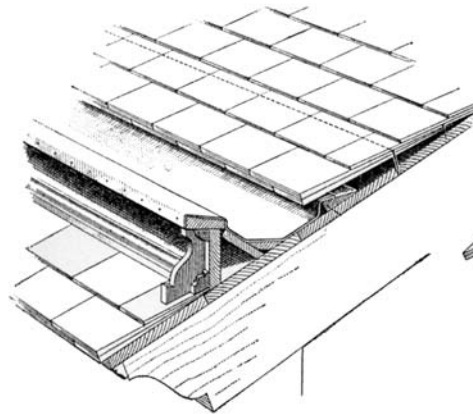
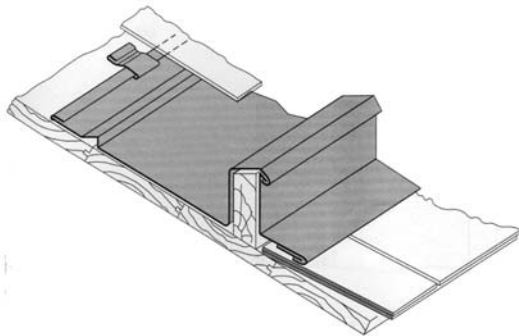
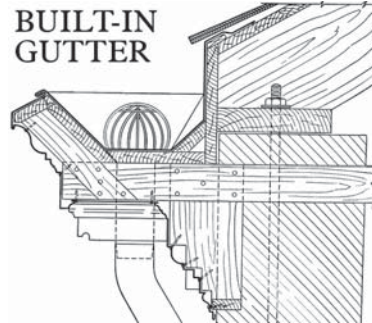
YANKEE GUTTERS

Also called Philadelphia Gutters, Pole Gutters, Flush Gutters and Standing Gutters, this gutter system is built on the plane of the roof, as opposed to Built-in or Box Gutters, which are recessed below the plane of the roof, usually at the eaves. Yankee gutters are common on older slate roofs.



Many home owners who have built-in or box gutters on their roofs, or Yankee gutters, don't know the difference between them. The illustrations below, gleaned from old texts, show what Yankee gutters look like. A box gutter (built-in gutter) is shown immediately below.

**BUILT-IN
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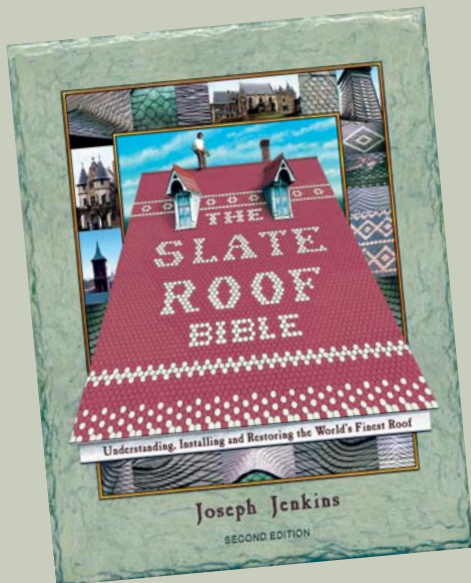
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WRITERS DIGEST: "The author's obvious love for the subject comes through in all aspects of the book, from the text's dense information to the scores of wonderful photos throughout the book. The craftsmanship of the book itself is very professional. All in all, a very good read."

MIDWEST BOOK REVIEW: "...a not-to-be-missed specialized reference. Packed with over three hundred color photos, the Slate Roof Bible is the core reference of the slate roof industry, covering everything to know about installing, restoring and maintaining a slate roof. Highly recommended."

WRITERS NOTES BOOK AWARDS: "The Slate Roof Bible was the first book to grab our attention and hold it. It's more than just a handbook. It's a great read and a thorough reference volume in one, a rare combination of fact and experience that creates learning and appreciation — a reference book that becomes literature."

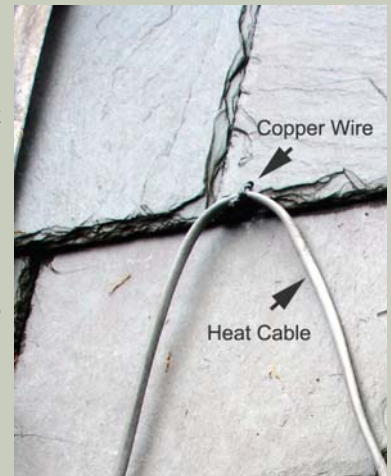
FINE HOMEBUILDING: "The *Slate Roof Bible* is a fine book, filled with fascinating information about slate: its history, the industry, and the way to work with it properly."

DOYLESTOWN INTELLIGENCER RECORD: "This book, potentially tedious reading, is instead a delight. Full of history, lore, and useful advice, Jenkins has written a fascinating book, spiced it with humor and warmed it with his own passion for the subject."

ROOF CONSULTANTS INSTITUTE INTERFACE JOURNAL: "Rarely does one read a book expressing such personal enthusiasm and technical knowledge as that written by Mr. Jenkins. Jenkins has provided the roofing community with a definitive, single-source manual for slate roofing."

HEAT CABLE INSTALLATION: As there is an ice buildup at the edge of my roof, I just installed a heating electrical wire running over the slate tiles and back in the gutter to prevent the backflow water dripping through the roof that happened last year. I wonder if you would have any recommendation on the matter, and especially if you think my installation might somewhat ruin the slates.

TR: When installing heat cable, we drill a 3/16" hole in the bottom corner of the slates, then run a copper or stainless wire through the hole to tie the heat cable to the roof (see photo at right). This enables you to attach heat cable without puncturing the roof and causing leakage. Otherwise, oversized bib flashings installed throughout the ice dam prone area will often solve the problem. Please read the article about ice dams in this issue.



AUSTRALIA: Just like to show some of our work in Perth Western Australia. 1st 3 of St. Georges Cathedral in the city and the other one is of a copper hip fixed with stainless stiffeners so no fixings are visible. Picture 3 is of me on the roof at the Cathedral. All slates are Burlington from the Lake District in England. Nigel Carter, Carter Roofing and Slating Pty Ltd, Australia; carterroofing.com.au



SCOTLAND: Your website and Traditional Roofing Magazine have been a tremendous source of information and inspiration. My house is the ONLY one in the street that retains its original features; slate roof, coronets, sash windows, chimney pots and stacks, wooden fascia... 90% of people in the town doing building work on old properties are having some or all of these removed. After reading your articles I realized that it was possible for me to do a restoration job in the traditional diminishing or graduated style and I will be starting ASAP. My father found an old book at a church sale "The Technical & Instructor" by William McQuhae published 1892. It has a short section on slating and is a genuine snapshot into a bygone age. It may be of interest to your readers? Alis-tair James, Argyll, Scotland



TR: See excerpt from "The Technical and Instructor" on the next page.

STAGING FOR STEP FLASHING: I will be helping on a new construction slate roof. One question I had was installing the copper step flashing. My problem is that the stucco or siding crews will have to go over the flashings against the wall. I know the slates can not be walked on. What is the best way to approach this situation? Should I install ladder hooks so the siders can come in after we are done?

TR: You can stage alongside dormer walls either by using hook ladders (easiest, if

there is a horizontal ridge above) or installing roof jacks and planks with ladders sitting on them. It depends on the configuration of your roof. There is a video clip showing the use of roof jacks at SlateRoofCentral.com/videos.html. Roof jacks (roof brackets) and ladder hooks are available at SlateRoofWarehouse.com.

SNOW APRONS AND PEEL-AND-STICK: I live in Vermont and have a slate roof. The house was built in the 1930s. We're having a roofer install a snow/ice belt along the edge of the roof where we've had leaking. He says he'll put "paper" under the slate, not the Ice Shield. Do you know whether the ice shield is better than paper? He says the slates stick to the ice shield and, if/when you have to replace the slates, they'll break because they stick to the ice shield.

TR: There is no reason to install ice and water underlayment under a metal snow apron, unless you're expecting the snow apron to leak. However, metal snow aprons benefit from red rosin paper installed underneath, as this makes it easier for the metal to expand and contract. We typically use 30 lb. felt underlayment, then rosin paper over that when installing a metal snow apron. Self-adhering ice shield is unnecessary and your roofer is correct — it makes long term maintenance of the roof more difficult. See the article about snow aprons on page 23.

CAN'T GET THE SOLDER IRON HOT ENOUGH: I can't get my solder iron hot enough to get a smooth joint. I switched propane tanks. I waited for a warmer day (sunny and 45 here) and I've cleaned everything I could. Help!!! I've got 4,000 square feet of roof in front of me!

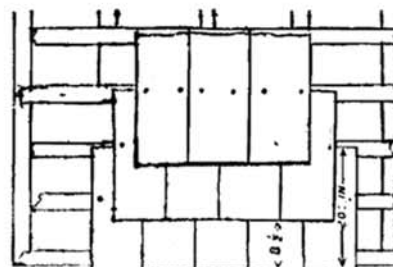
TR: Check to make sure the iron & regulator are running at full blast with no obstructions in the orifices or hoses. Use a tank that was filled when it's cold outside to avoid pressure discrepancies. Keep the tank & torch warm when not soldering (i.e. inside heated space at night). Slow way down and get a good molten solder puddle to allow the iron to conduct more heat. Make sure there is no water or moisture in the underlayment, and that the copper is isolated from stone and masonry as these conditions will rapidly wick heat away from the joint. Make sure to use 50/50 solder. If the above doesn't do the trick, get a Sievert torch, it just pumps out the heat and the tips have much greater mass. Above being said, even the Sievert propane soldering iron struggled to put out enough heat to do a lap seam when it was 25 degrees F on a 15 mph windy day, seven stories high.

THANKS FROM A GRATEFUL READER: "I want to thank you a lot for instilling confidence in me, and other DIY roofers that want to learn the skills of quality roofing, by providing the abundance of slating information you have. I spent the weekend replacing some hideous green asphalt junk on a section of my 125 year old roof with some decorative fish-scale slate I got from a local salvage man. Not only did I cut the fish scales myself, but I installed them as well with the help of a friend who's had experience with modern roofing techniques, but never slate. I had to correct him on some things I learned from your website and book, such as decking material, nailing techniques and use of drip edges. I inadvertently learned how to properly remove and install shake siding too because I had to remove 3 layers to remove the rusty, pitted flashing. This winter will tell if we did a good job or not, but even if we messed up somewhere, I at least have the confidence to repair my own mistakes now. I wish there were more websites & books like yours..."

TR: Thank YOU for the feedback! 🍷

McQuhae's Practical Technical Instructor - A Useful Handbook And Guide 1892

Slating.—slate is the material most in use for the covering of roofs. In many parts of the country the slating is done by the bricklayer, for as a rule, there is not sufficient work in small towns to keep a slater exclusively for the business. The best slates are usually brought from Cumberland, Westmoreland, Wales, and Devonshire. Cumberland or Westmoreland green slates make the best and most durable roof. The Welsh slates are also well adapted in the form of slabs for making of rain-water cisterns, not only for the cleanliness of its surface, but its ability to resist corrosive action, and the ease with which it can be cleaned from adhering dirt. Welsh slate is also used for the making of chimney pieces polished in the usual way, or subject to the patented process by which its surface is enamelled. For roofing it is light, neat, and being easily obtained, plentiful and low in price, it is more in use than Cumberland or Westmoreland. It is usual to find some of the slates thicker than others, and these are sorted out and used for the bottom courses. The slates are dressed, the edges are trimmed, gauged, and the holes are made; the holes are made on a slate holing machine, with which a sharp boy is able to hold from 500 to 600 per hour.



Each slate to have two nails, and about one inch from each side. Sometimes the roof which is to be covered is wider at one end than the other, from eave to ridge, and when this is so, supposing it to be 4 inches in 10 feet, or 16 courses of slate, if 20 x 10 inch slates with 3 inches lap,—fix your laths 8½ inches at the wide end, and 8 inches at the narrow end. By doing it is this way you get over the difficulty, and the difference is never observed. The size of slat laths should be 2 x ½ inches, and nailed on to the rafters with 2 in galvanized nails.

Copper or zinc nails 1½ to 2 inches long, should be used in good work for the slates. Galvanized iron nails are used for cheap work. Common iron nails should be discarded, as they are liable to rust and so become of no use.

Slates are variously named according to size, as shown in the following table, in which the size and gauge of each kind is shown, (the lap or cover of slate being 3 inches), the number required to cover a square, which is 100 feet superficial, and the weight per 1,000, or in reality 1,110, for slates are always reckoned at 120 to the 100. English slates are sold by weight of 22 cwt. to the ton.



The blade of the slate rip is pushed under the slates, and the head of the nail caught in one of the notches, and then by giving the "rip" a sudden pull downwards the nail is pulled out; if the nail will not give way, a sharp tap or two on the handle will draw it; as you are unable to nail the new slate, a strip of lead or zinc ¾-inch broad is laid up over the joint, and nailed to the boarding or lath, allowing it long enough to turn over the bottom edge of new slate, the slate is then pushed into position, and the metal slip bent over the bottom edge of the slate.

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BIDDING GOVERNMENT JOBS

Q: I am going to bid on installing a new slate roof on a large state building. I have never been involved in a government job. How about a top ten list of things to know if you are bidding on a big government job?

A: You should be aware that the cost of scaffolding a building can be \$150,000.00 or more, plus you will have a lot of hoops to jump through and this will eat into your time — meetings, pre-meetings, submittals, change orders, not to mention the aggravation of dealing with architects and engineers. Don't forget per diem costs for your workers including hotel, food and travel expenses. And keep in mind the scheduling requirements, fixed deadlines, elevated insurance levels, performance bonds, and the warranty term.

How long will it be before they pay you? Are you going to need a credit line for this job? Is there retainage? When does the retainage get released? Some government jobs pay their first payment after 150 days. Your money may be held for nearly a year, because the retainage doesn't get paid until the whole project is complete. That means all the other trades are complete and inspected before you see the full payment.

Companies who bid these jobs often have employees who do nothing but bids, supervisors who don't even get on the roof, and bosses, partners, owners, etc., who are sitting in offices and who all get a piece of the pie. The small contractor doesn't bid these jobs so the government has little choice but to pay big bucks.

The bonds can be burdensome. The project may require a 10% bond paid in advance by cashier's check included with the bid. If you are awarded the bid, you do not get the money back until months after the job has been completed. The job is often awarded to the low bidder, which is crazy when you think about it, but it's why so many roofs are in litigation — the low bidder was the wrong contractor for the job.

There will be many meetings, submittals and other contingencies that will eat up someone's time. Make sure you have carefully covered all details in the bidding, add for profit, add for your time at meetings etc., add for any permits, insurances, and other unforeseen expenses, make sure you have calculated labor at "prevailing wage," make sure you have a detailed contract, etc.

If you get into this arena, you can make some pretty good money. This is where the money is that makes people rich in the contracting business. It's also where people go bankrupt, get sued, etc.

Traditional Roofing Magazine contributor John Chan of The Durable Slate Company suggests ten things to consider when bidding government work:

1) ALLOWABLE HOURS FOR WORK. Some Government buildings will only allow for work during certain hours and often times not on weekends. One courthouse only allowed work from 9-2:30 Monday-Friday with a one hour break between 11:00 and 12:00.

2) LIQUIDATED DAMAGES. Contracts that involve the exchange of money or the promise of performance may have a liquidated damages stipulation. The purpose of this stipulation is to establish a predetermined sum that must be paid if a party fails to perform as promised. For example, one job required a liquidated damages clause for \$500.00 per day. This can get extremely costly if you miss reading that in the construction documents. What do the construction documents say about situations out of your control regarding liquidated damages? On one project, a roofing company was asked to pay \$500/day liquidated damages for being 110 days over, because the particular slate that was requested for the job was unavailable. The quarry didn't deliver in the time they were told they would. The problem was compounded by pushing the job from fall into winter time.

3) OSHA. High profile jobs such as government buildings are a serious threat of OSHA inspections. This means scaffolding, harnesses, safety meetings, and safety monitors. You have to make sure you get accurate scaffolding prices, and enough money for what else may be necessary for that particular job. Some jobs may require a safety monitor. This is a person who does NO work, but only watches everyone for safety regulations. This is a lot of extra man hours on a job.

4) SUBMITTALS. Submittals are shop drawings, material data, and samples required primarily for the architect and engineer to verify that the correct products will be installed on the project. They also give the architect and sub-consultants the opportunity to select colors, patterns, and types of material that were not chosen prior to completion of the construction drawings. If submittals are required after the project starts, you have to assign some money to cover time to provide the submittals and also you have to set some money aside for time tied up with architects or consultants that may be difficult to deal with. Unfortunately, some of these professionals feel like they aren't serving their client if they aren't changing things. You may have something bid in one manner, and be asked to do it in a different manner that can cost much, much more.


5) BONDS. A performance bond is a surety bond issued by an insurance company or a bank to guarantee satisfactory completion of a project by a contractor. For example, a contractor may cause a performance bond to be issued in favor of a client for whom the contractor is installing a roof. If the contractor fails to install the roof according to the specifications laid out by the contract, the client is guaranteed compensation for any monetary loss up to the amount of the performance bond. Check with your bonding company what a bond will cost. Is it a bid bond, a performance bond, a warranty bond, etc? How much does this cost? What does your bonding company charge if there are change orders? Will your bonding company even write such a bond? You may be asked to bid on jobs that no bonding company will write. Once you bid, you're usually bound to that bid.

6) JOB MEETINGS. How many job meetings are there going to be? How long are they going to last? Who is required to be present at the job meetings? There are jobs where a meeting was every Monday for two hours. The job foreman and the salesman had to be present. That's two people on payroll four hours every week on top of the length of the job. Is your crew going to be self-sufficient without the foreman present? How much slower is the crew going to operate every Monday morning with no foreman?

7) UNUSUAL REQUESTS. One Government job had a clause for an off duty fireman to be present at all times when the workers were soldering or using anything heated, including electric soldering irons.

8) PER DIEM AND HOTEL. Make sure you have enough in for these items, because if you get bad weather and the job goes longer than expected, those costs can magnify very quickly.

9) LOG BOOK. Keep a detailed log book of every conversation, meeting minutes, safety meetings, etc. This can save your behind. For instance, you can have an architect say go ahead and change something verbally at a job meeting. Later on, he claims he never said it, but you have it documented in writing from him or in the meeting minutes with other people present to witness it.

10) CONSTRUCTION DOCUMENTS. After reading the construction documents and before bidding the project, have someone else look it over for anything that was missed. This little step could save you lots of money. The key is knowing *exactly* what the construction documents state. 

FINDING THE RIGHT CONTRACTOR

Finding and Screening the Right Contractor for Your Project

Ward Hamilton — Olde Mohawk Masonry & Historic Restoration

Pick up any home improvement magazine or journal and you can't help but find articles and stories on how to get three bids and verify a contractor's license and insurance. But these articles always fail to address a topic critical to the success of your next project: finding the right contractor for the project at hand. While it seems like an obvious statement and a simple enough obstacle to overcome, it is the single-most important element to the success of the project and ultimate satisfaction of you, the consumer.

No contractor is a master of all skill sets in a given trade. Let's look at roofing as an example. There are some roofing outfits that do nothing but install standing-seam metal roofs. Because it's all they do, they're set up for it: the tools, equipment and crews who are proficient in their work. This allows them to offer a quality product at a competitive price. Now consider the roofer whose company primarily installs asphalt shingle roofs for residential customers on a regular basis. He may be able to successfully complete a standing-seam metal roof project, but there's a lot more planning and set-up involved, and he may have less-skilled workers for that particular project. Hence, his price is likely to be higher and there'll be less examples of his work for you to consider. The contractor you hire must have the tools, equipment, craftsmen, and experience needed to successfully complete your project.

Consider this analogy as it applies to restoration work. The knowledge and skill sets required to successfully rebuild a copper-lined, Philadelphia-style gutter on an old Colonial with a slate roof bring three trades into action: metal work, carpentry, and slate roofing. There are many carpenters who would find the copper metal work and slate aspects of the job intimidating and outside of their skill set. And many slaters are not capable of replicating the ornate cornice, corbels and detail of a built-in gutter. It is critical that a contractor provide you with more than a fancy proposal and attractive price for your project. He needs to demonstrate and prove himself through pictures, documentation and references for similar projects that he has already successfully completed.

Being a successful restoration contractor requires knowledge of the tools, materials and practices of tradesmen from yesteryear. One cannot rely on the best practices of modern construction, alone, as a basis of knowledge. Constant research through hundred-year-old trade manuals, the internet, and hands-on experience are the foundation on which a preservation worker bases his decisions and guides his crew through a project. It is a constant learning process and one that requires a high degree of interest and commitment to professional development. Make sure your prospective contractor is genuinely interested in the work on your home or building.

While we're on topic, some words of caution are in order.

Make certain that he's licensed and insured, as your city and/or state may require. Some states, like Massachusetts and Rhode Island, require a construction supervisor's licensing or registration with the state contractor's board. Verification of this information is easily accessed through the internet, but don't stop there — make certain to call your town or city building department to confirm what you find. If a permit is required, the contractor must secure it. If you fall for the old, "You pull the permit and I'll give you a price break," watch out! If anybody is injured or property damaged during the job, it'll fall on your shoulders — you were the sneaky little devil who pulled the permit to save a few bucks. Most contractors who try this scam do not have the insurances

your town or city requires to grant the permit! You are making a significant investment in your home or building; don't cut corners when it comes to a permit.

It never ceases to amaze me how few clients ask for proof of the right insurance. Your contractor must have liability and workers compensation insurances. General liability insurance

for a minimum \$1 million personal injury and minimum \$1 million property damage are not cost prohibitive for a restoration worker proposing to do high end work. A common scam many contractors employ is to purport that they have liability insurance, and that's good enough. Of equal or possibly greater importance is workers' compensation insurance. This one costs the big bucks and is what drives a legitimate contractor's prices up. However, it is also his protection and yours if an employee gets hurt on the job. If an employee gets injured on your property and files a workers' comp claim where coverage was not in effect, he can sue his employer and you! Verify that your restoration contractor has workers' compensation insurance and provides you with a general liability certificate naming you and the property as "additionally insured parties."

Before you invest in the next project on your home or building, do your homework. Exercising proper due diligence when screening contractors is crucial to success. Following these guidelines will help you find the right outfit for the job and get things moving in a positive direction. ■

Being a successful restoration contractor requires knowledge of the tools, materials and practices of tradesmen from yesteryear.

Ward Hamilton is the owner of Olde Mohawk Masonry & Historic Restoration, a slate roofing, masonry and preservation firm with offices in Boston and New York. He is a 2012 candidate for the Masters of Science in Historic Preservation at the University of Massachusetts.





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BITS AND PIECES

UNITED KINGDOM DO-IT-YOURSELF — I am a roofer from Norfolk in the UK. I have a passion for slate roofing and traditional roofing techniques. I have a small barn at home and wanted to do something unusual in slate on it. After searching for inspiration on the internet I stumbled across "Slate Roof Central" and in particular the "how to" section. I

had never come across staggered butt slating before. I decided to have a go and to also round the tails of the slates first. I also used a copy of the diamond design shown in one of your pictures. I just thought you may be interested to know you inspired somebody so far away! I have included a couple of pics. The purple slates are reclaimed Penrhyn, also called heather blue, and the green diamond is made from reclaimed West

Morlands slates. The lengths are 16", 18", and 20". The roof is battened in at 6.5" and the West Morlands are all 16"x 8". Jim Pratt, UK



RUSSIA IS DOUBLE WORLD ROOFING CHAMPION — Russians used the home advantage to win the gold medals in the Pitched Roof and Waterproofing competitions at the World Championship for Young Roofers at the International Federation of Roofing Trades Congress in St. Petersburg, Russia, in September, 2009. The Russian roofers also received the IFD Presidents Prize in the Waterproofing category. Hungary won the Metal Roof competition followed by Latvia and France, and received the president's prize in this category as well. Hungary was second in the Pitched Roof category. The German team also won two awards. Twenty-four teams from thirteen countries participated in the World Roofing Championships, including Belgium, Switzerland, Germany, France, Great Britain, Hungary, Croatia, Latvia, Netherlands, Poland, Russia, Slovenia, and Slovakia. The winners were: Pitched Roof: 1. Russia, 2. Hungary, 3. Switzerland; Waterproofing: 1. Russia, 2. Poland, 3. Germany; Metal Roofing: 1. Hungary, 2. Latvia, 3. France; Optional Exercise: IFD President's Prize — Pitched Roof: Germany, Waterproofing: Russia, Metal Roofing: Hungary. The next IFD Congress took place November 16th to 20th, 2010, in Belfast, Northern Ireland and was attended by six Board members of the Slate Roofing Contractors Association of North America, Inc., plus seven additional American guests. See slateroofers.org.

FEMA RECOMMENDS SLATE FOR FIRE PROTECTION — Persistent drought conditions may well drive significant wildfire risk for some states, and recent near-record dry spells are boosting fire risks. FEMA Acting Regional Administrator Dennis Hunsinger encourages residents living on wooded lots and

wildland/urban interface areas to stay informed on local conditions and take steps now — clearing brush and creating defensible perimeters around their homes. "Wildfires are unpredictable, and can start and spread with incredible speed, so it's impor-

tant to go into this year's wildfire season with a solid plan," said Hunsinger. FEMA recommends that residents take specific actions long before an evacuation is necessary, including: **Construct roofs and exterior walls from non-combustible or fire resistant material such as slate.** For more information on protecting your family and your home from wildfires, go to www.fema.gov, or www.ready.gov.

FIREFIGHTERS FREE ABERDEEN MAN STRANDED ON ROOF

Handyman's foot trapped under ladder: Firefighters had to rescue a man after he was left stranded on a roof in Aberdeen, Scotland. The man, who refused to be named, became trapped on a roof while trying to fix a loose slate. Emergency crews were called to the house on Thomson Street, in Aberdeen's Rosemount area. Fire crews had to free the man's foot which had become caught under the rung of a ladder. Homeowner Douglas Knowles, 74, said the amateur handyman was an old friend who was doing him a favour. He said his pal had promised to replace a loose slate, adding: "He was up on the roof and the ladder jammed."

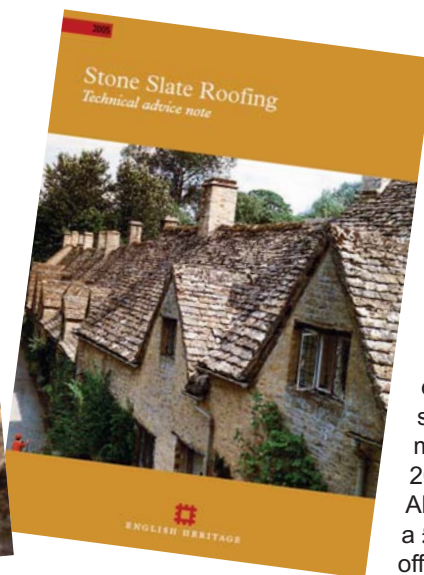
19-YEAR-OLD COLLEGE STUDENT DIES AFTER FALL OFF SLATE ROOF

— Providence, Rhode Island: A friend watched as Providence College sophomore John D. Langley slipped down a slick dormitory roof to his death on the pavement four stories below. Langley's father, John E. Langley Jr., of Walpole, Mass., has since been trying to piece together the circumstances surrounding the 19-year-old's demise through a wrongful-death suit filed in Providence County Superior Court. Langley's estate accuses the school of failing to take safety precautions to prevent the younger Langley, and other students, from climbing onto the slate roof at their peril. Around 3 a.m. Dec. 13, 2002, Langley and a friend climbed through a broken window onto the roof of St. Joseph's Hall to look at the city lights, the police said. Langley edged out onto the peak and quickly slid down the wet slate. A security officer responding to the friend's screams found Langley gravely injured on the paved driveway below. The sociology major underwent surgery for internal bleeding and a broken pelvis at Rhode Island Hospital, but was pronounced dead.

In the days immediately after, the college investigated Langley's fall. McGinn and Gail Dyer, the school's lawyers, interviewed witnesses, including students, parents, college officials and employees. The court learned that resident adviser Edmund St. John in November 2002 discovered students were getting into the attic, despite locks, and that St. John and locksmith Martin Toupin observed that the attic door had been tampered with about 12 hours before Langley's fall. St. John had, in fact, seen beer cans, cigarette butts, and graffiti in the attic that read "We got into the attic in '02" and "John was here." Langley lived on the fourth floor where the attic stairs are located. Court records show that he left campus hours earlier to drink at local bars and that he and a suitemate then headed to the rooftop of

St. Joseph's Hall to smoke. At 2:30 a.m., the two friends broke into the attic and walked on planks to reach the ladder leading to the cupola. They climbed through broken Plexiglas to access the roof. Langley slipped as he made his way across the icy slick slate roof and fell to the pavement below.

STONE SLATE ROOFING — 3.59 Mb download, 24 pages, English Heritage Publications, Authors: Terry Hughes, Chris Wood, Susan McDonald



February 2007 Alfred McAlpine's shares dropped by a fifth after it reported auditors had uncovered "a systematic misrepresentation of production volumes and sales for a number of years." Alfred McAlpine Slate was sold to Lagan, a Northern Ireland-based construction group, for £31 million in December 2007. Shortly afterwards, Alfred McAlpine agreed to a £572 million takeover offer from Carillion, the UK infrastructure and business services group.

http://www.helm.org.uk/upload/pdf/Stone_Slate.pdf?1261852308

PROTESTERS DEMAND SLATE ROOF, SPEND NIGHT ON CRANE — UK: Police have warned three people for trespass after they spent a night on a 100' crane protesting the design of a new water treatment plant. The three, including a 67-year-old man, began the protest at Glyntawe in the Brecon Beacons national park on Sunday, unveiling a giant banner containing the word "Disgrace." They claim the plant is "a monstrosity... like one of Hitler's bunkers." The three men — Jeremy Watts, Ashford Price and Steve Rose — were later arrested and given a caution for aggravated trespass. An action group has been formed in Glyntawe called "We Want Out." It is calling for the building, which campaigners say is 40 ft. high and 80 ft. long, to have a Welsh slate roof and stone cladding on its walls. Dwr Cymru Welsh Water plans to cover the building in multi-coloured tin sheets, which the group says is unacceptable for a national park. One of the scheme's opponents, 77-year-old retired farmer Elizabeth Tyler, said: "We all need clean fresh water but this building is a disgrace to the park."

MCALPINE MANAGERS JAILED FOR ACCOUNTS FRAUD — Times Newspapers (UK), September 18, 2009: Three former senior managers of Alfred McAlpine Slate, the Welsh business that quarried the slate used for the roof of Buckingham Palace, were jailed for their roles in an accounting fraud. Christopher Law, former managing director and the architect of the scam, was jailed for two and a half years. Geraint Roberts, former operations director, was jailed for 16 months and Paul Harvey, former sales director, was jailed for 10 months. All three pleaded guilty to fraudulent trading charges earlier this year in a prosecution brought by the Serious Fraud Office (SFO) and North Wales Police. The trio falsified sales figures and accounts for three years, convincing Alfred McAlpine that the subsidiary, which operates a quarry near Bangor, was performing strongly. According to the SFO, the managers employed forged invoices and delivery notes to boost sales figures and at one point submitted accounts claiming the unit had sold and delivered more slate than it had actually quarried. The fraud, which was worth at least £10 million, was discovered after Alfred McAlpine sent an internal audit team to examine the books in January 2007. In

SLATE ROOF REPAIR BILLS THROUGH THE ROOF — The Mercury (Australia), 11/2009: A repair bill of almost \$8,000.00 has hit taxpayers for damage caused by protesters climbing on the roof of State Parliament. House of Assembly Speaker Michael Polley has hit the roof over the bill for broken slate tiles on the historic 1830s building. Protestors have held two demonstrations this year that have involved activists scaling the roof of Parliament House and hanging banners protesting against logging in old-growth forests. After the bills for the repair of the roof arrived, Mr Polley issued a stern warning on Friday that future similar costs would not be tolerated. "People have to realise that this is an historic building, one of the oldest buildings of its kind still occupied in Australia, and it has to be repaired to ensure its heritage value is maintained." A Hobart slate roof repairer said installing the \$3 tiles was "a fine art" and when professionals worked on slate roofs they placed hook ladders across to distribute weight. He said to walk on slate any other way was "crazy."

SLATE COVERED ELEVATOR SHAFT — Slate tile was used to cover an elevator tower added to an existing school in San Francisco's Chinatown. The work (right) was done by Giampolini Group, San Francisco.



AIRPLANES SUCK ROOF SLATES — June, 2010: Local residents in east Belfast report that a plane flew very low over houses in Oval Court off Mersey St., sucking up more than 20 heavy slate roof tiles from two bungalows. This is the second such incident in just nine months in east Belfast. It raises serious questions about the safety of the current flight trajectories of aircraft flying into and out of the City Airport, and the current scale of operations at the airport.

Continued on next page...

MORE BITS AND PIECES

HOMEOWNER FINDS LEAK IN ROOF



*"Nestled in the heart of Ireland and forgotten for very many years, yes, the Neanderthals were busy here too. This is a tough job for me with my limited experience of slate roofing (zero, that is!). I would just like to thank you for your books, websites, videos and most of all, for your honesty (oh, how rare this is in my part of the world). I have bought (and read) a copy of your excellent book **The Slate Roof Bible**. Although I may never slate a roof, it still ranks as one of the best purchases I have ever made."* James from Ireland

NAKED WOMAN PLUNGES THROUGH SLATE ROOF — Aberdeen, Scotland, July, 2010: A naked couple who climbed to the top of a building caused horror after one of them plunged through the roof. Emergency crews rushed to the scene after reports that a woman fell through the roof of the city centre building in Aberdeen. The couple was "rolling around on the roof," totally naked, moments before the woman fell through the slates of the four-story building. The woman, believed to be in her 30s, was led out by paramedics with mud and cuts on her face, and taken to Aberdeen Royal Infirmary in an ambulance. A man, thought to be in his 20s, was led out by police thirty minutes later and driven away in the back of a police car. Both were fully dressed when they were taken from the scene.

TOP COPPER PROJECTS AWARDED FOR ARCHITECTURAL BRILLIANCE — The North American Copper in Architecture awards program showcases the top U.S. and Canadian projects. The Copper Development Association (CDA), in collaboration with the Canadian Copper & Brass Development Association (CCBDA), had the difficult job of narrowing down the top projects that showcase copper throughout North America. The projects were judged by a panel of architecture and copper industry experts, and the judging was based on overall building design, integration of copper systems, craft of copper installation and excellence in innovation or historic restoration. The projects were divided into two categories: Restoration/Renovation and New Con-

struction. The 2010 award recipients are:

Restoration/Renovation:

Milwaukee City Hall, Milwaukee, WI: Sheet Metal Contractor: Heather & Little Ltd., Markham, ON;

Old City Hall, Toronto, ON: Sheet Metal Contractor: Heather & Little Ltd., Markham, ON;

Historic Coweta County Courthouse, Newnan, GA: Sheet Metal Contractor: Steinrock Roofing & Sheet Metal, Inc., Louisville, KY;

Cathedral of St. John the Baptist, Copper Tower, Charleston, SC: Sheet Metal Contractor: Copper Exclusive, Midvale, UT.

New Construction:

Mark Olsen Project, Holladay, UT: Sheet Metal Contractor: Copper Exclusive, Midvale, UT;

Marcus Nanotechnology Research Center Building, Atlanta, GA: Sheet Metal Contractor: Luvata Buffalo, Inc., Buffalo, NY;

Benning Neighborhood Library, Washington, DC: Sheet Metal Contractor: CHU Contracting, Inc., Chantilly, VA;

Rose Theatre, Brampton, ON: Sheet Metal Contractor: Semple Gooder Roofing Corp., Toronto, ON;

Private Residence, Edwards, CO: Sheet Metal Contractor: Plath Construction, Eagle, CO;

4143 Buena Vista Townhomes, Dallas, TX: Sheet Metal Contractor: Beech Street Metal, Dallas, TX.

FIRE TESTING SLATE — The National Roofing Contractors Association (NRCA) and the National Slate Association (NSA) recently conducted fire testing of slate roof systems. In the International Building Code, 2009 Edition, newly installed slate roof systems on combustible roof decks need to be tested and have a listing of their fire classifications. NRCA retained Underwriters Laboratories (UL) Inc. to conduct fire testing of a representative slate roof system. NSA provided the slate and assembled the test specimens at UL's headquarters in Northbrook, Ill. The slate roof assembly tested consisted of standard thickness slate installed in random widths over a No. 30 felt underlayment (ASTM D226, Type II). The test roof deck consisted of 15/32" APA-rated plywood.

Fire testing was conducted according to UL 790, "Standard Test Methods for Fire Tests of Roof Coverings." The results of the test were that the slate roof assembly achieved a "Class A" designation. A "Class A" rating for the slate roof system should not be surprising because slate doesn't burn. However, previous fire testing of some slate roof systems resulted in Class B or lower designations because of the underlayment used. A UL-certified, ASTM No. 30 underlayment was used in NRCA's testing. A commodity-grade (non-spec.) underlayment was used in the other testing. The NRCA therefore concluded that the type of underlayment is important in determining a slate roof assembly's fire rating. A copy of the UL report from this testing is available to NRCA members from Mark S. Graham (NRCA's associate executive director of technical services) upon written request. NRCA members can e-mail their requests to mgraham@nrca.net; fax them to Mark at (847) 544-0813; or mail them to Mark at NRCA, 10255 W. Higgins Road, Suite 600, Rosemont, IL 60018.

WOMAN KNOCKED UNCONSCIOUS BY FALLING ROOF SLATE

— *Edinburgh, Scotland*: A woman was knocked unconscious by a falling roof slate as she walked to work. The 30-year-old was taken to the emergency room following the accident which took place as roof repairs were being carried out. She is understood to have escaped serious injury. Work was stopped shortly after the incident but was allowed to restart two days later after a safety investigation. The woman was struck on the head near the Edinburgh Souvenir Centre. The council had contracted the roofing and masonry repair firm, James Breck, to repair the roof of the block which also includes several apartments. Mark Singh, 19, a shop assistant at a nearby store, witnessed the accident. He said: "The woman was unconscious until the ambulance came. It was terrible." Standard procedure dictated that the work site be shut down to allow for an investigation. Work at the site has now resumed and the council was satisfied that there were no problems with the scaffolding or management of the site, and that this appeared to be a one time incident. A Health and Safety Executive spokesman said: "We will be making further inquiries."

RADIUS COPPER GUTTER, COPPERWORX, INC. —

National Infantry Museum, Columbus, Georgia: Peter Laughlin of Copperworx, Inc. installed two levels of built-in radius gutter on the National Infantry Museum.

He started with 3'x10' sheets of 16 ounce copper. Laughlin commented that, "I thought it should have been 20 ounce, but the architect is always right. I feel with the amount of expansion joints (eight) and the joint spacing (approximately 24 feet), it will be OK. He then cut them to the width he needed, with a bottom radius of 40".

Then he took the 36" x 40" blanks to his propane fired pretinning setup (a steel trough 5 feet long, 2" deep & 3" wide). He pretinned the two 40" sides of the blanks 2" deep, using 50:50 tin/lead solder, then took them to the brake & bent the gutter profile into the blanks.

Next, in the shop, he built a replica of the radius out of 3/4" plywood and 2x4s, then dropped four of the gutter sections into the radius jig and riveted them together with #42 copper/brass pop rivets on 2" centers. The rivets are 1/8" wide with a grip range from .063 -.125. Laughlin reported, "I like to use these when I need to solder over them because the rivet doesn't stick up so high and is much easier to solder over."

After that, he soldered the seam with an acetylene fired soldering iron. He would make one pass with real high heat and a ton of solder to get it to sweat together, then make a lower heat pass to put stitching over the seam, using about three or four pounds of solder per joint. All the other work was done on site.


Next, he put a gutter liner consisting of .045 EPDM in the precast concrete trough where the gutter sits. Laughlin stated, "I don't think rosin paper is necessary because the gutter slides freely on the rubber liner." After that, he riveted and soldered endcaps to the sections to create expansion joints. He figured that each section will move a maximum of 1/2" at a 100 degree temperature differential.

After all gutter was installed in the precast trough, he

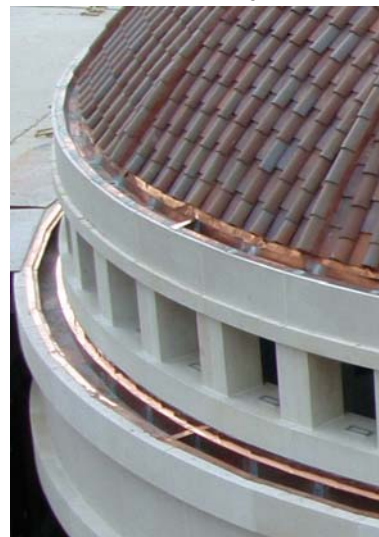
soldered in 3" custom copper drops to the bottom of the gutter, tying into the piping that runs inside the granite columns. He made the drops 3/8" smaller than the drain pipe to allow for expansion & contraction.

Next he installed all the expansion joint caps and then the fun started — he had to cut a reglet in the precast concrete around the entire rotunda. By the time he was done, he looked like a baker that fell in the flour barrel! He then made the copper counter flashing in straight 10' pieces. Because the rotunda is round, he had to use a hand operated stretcher to curve the counter flashing to the correct radius.

Lastly, he used Bronze Dow Corning 795 sealant to seal the reglet after installing the counter flashings. Then he took the manlift up 80' to get final photos. All and all, this was quite an undertaking. Peter takes pride knowing that he had a part in a project that will be a timeless monument to those who have sacrificed their time and lives for our freedoms.

"If I was to do it again, I think I would get one of the American beauty soldering irons for the field soldering, it was pretty windy at the site and it took a lot of time to make sure the joints got hot and sweated with the gas-fired iron. Aside from that everything went very smoothly. One thing that was a big help to me was a pneumatic rivet gun. This allowed me to hold the back of the gutter with one hand and push the seam together with the nose of the pneumatic riveter, than just pull the trigger to rivet it together. If you have to do a lot of riveting, I would highly recommend getting one. 

Peter Laughlin
Owner/Operator
CopperWorx Inc.
copperworx.org



18 STEPS TO A SUCCESSFUL SLATE ROOF INSTALLATION

Joseph Jenkins — Joseph Jenkins, Inc.

Slate roofs are arguably the finest roofs in the world — beautiful, natural, and long lasting. Like any facet of the construction industry, however, installations of slate roofs benefit from experience, knowledge and practice. Here are 18 things to keep in mind before tackling a slate roofing project:

1) CONSTRUCT THE ROOF PROPERLY. The roof must have a slope of 4:12 or above (4 inches of rise to 12 inches of run). If the slope is 6:12 or lower, then the headlap must be 4" minimum. The steeper the roof, the longer it will last. If the roof slope is shallow enough to walk on, someone *will* walk on it and damage the slates. So if you're going to design a long-lasting slate roof, make the slope too steep to walk on. Also, you should assume that all elements of the roof assembly will function successfully for at least 150 years. This means using roofing slates, fasteners and a roof deck material with known and proven longevities of a century and a half. Roof decking with the required longevity includes solid lumber at least 3/4" thick and other durable decking materials such as nailable concrete and gypsum. Avoid any laminated or glued roof decking products, despite the fact that plywood and OSB are the roof deck materials of choice for standard roofers and architects today. Slate roofs are not standard roofs — they're exceptional roofs which will grace the building they're on long after the installer is dead and even after his grandchildren have grown old. For this reason, fast and cheap roof decking materials should be avoided. For example, we recently reslated a roof on a house that was 170 years old. The first 40 years, the house had wood shakes on it. The next 130 years, it had Vermont "sea green" slates on it. The 130-year-old slates weren't even that bad, but bad workmanship and incorrect maintenance over that period of time had despoiled the roof to the extent that it had to be reslated. We nailed the new Vermont sea green slates to the original roof deck — 1" thick oak boards. I have seen slates re-nailed to a 215 year old original 1" pine roof deck in Scotland. If you're going to build your roof out of plywood or OSB, there is no way you will ever be able to reslate the roof over the original deck after the original slates wear out. In fact, the original slates will probably outlast the roof deck. Instead, you will have to replace the entire roof deck as well, an issue that can be avoided by having the foresight to use a long-lasting roof deck material in the first place.

2) SELECT THE CORRECT SLATES. This means you need to do your homework and understand the differences between roofing slates — they aren't all the same by any means. Price and color are *not* the only criteria to go by when selecting roof-

ing slates. You should also consider the size, thickness, type, and manufacturing quality. Some roofing slates will contain pyrites that will run red stains down the roof. Some imported slates can fade badly and even fall apart within a few years. Thick slates are harder to cut and may require more experience during installation. Small slates take longer to install because it takes more of them to cover a section of roof. Some manufacturer's quality control is lacking. Some drill the nail holes in the slates while some punch them, some cull out bad slates, some leave them in the mix for the contractor to sort out. Foreign slates can be a real gamble if you

don't know where they come from and what kind of track record they have. There is a lot to think about when selecting roofing slates. U.S. or Canadian slates from a reputable manufacturer are usually a good bet. There are a lot of good foreign slates too, but finding a reliable source of them can be difficult.

Source lists for new and salvaged roofing slates, domestic and foreign, are available at SlateRoofers.org.

3) BEFORE YOU START, DO YOUR HOMEWORK. There is a wealth

of information about installing slate roofs available in book form and on the internet. You *must* understand the concept of "headlap" (see below). Take the time to read about the common mistakes people make when installing slate roofs (TraditionalRoofing.com/TR4_mistakes.html). Read about how to install starter courses (TraditionalRoofing.com/TR5_starters.html). Take a look at common contractor errors (TraditionalRoofing.com/TR7_errors.html). Watch some video clips (SlateRoofCentral.com/videos.html). Read about drip edges and cant strips. If necessary, look at some of the nuances that may be pertinent to your installation such as cleats on apron flashings and ridges, and soldering flashing, to name a few. There is no excuse for anyone to install a slate roof today without knowing the basic information, which is readily available. Many informative articles about slate roof installation can be found at TraditionalRoofing.com as well as at SlateRoofCentral.com, including educational video clips. Spend a few hours perusing this information as it could save you a lot of money and headaches.

4) USE THE CORRECT TOOLS. You will need at least a slate cutter, slate ripper and slate hammer for each installer. You can buy these in a tool set with a



free Slate Roof Bible at SlateRoofWarehouse.com. Take a look at some tool demonstration video clips there as well. You will also need roof brackets, ladder hooks, scaffolding, and other tools and equipment.

5) DON'T RELY ON UNDERLAYMENT. The underlayment (typically felt paper) is temporary — *not* permanent. Over generations, it will wear out, disintegrate and crumble underneath the slates. If your slate roof depends on the underlayment to keep out the water, it is an incorrectly installed and faulty roof. Slate roofs, in fact, do not require underlayment at all — barns typically do not have underlayment. Use the underlayment to keep out the water until the roof is installed. A single layer of 30# felt is traditional, but a double layer (half-lap) may be preferential in some situations. The underlayment will keep out the water until the slates and flashings are installed and it makes a good surface on which to chalk lines. Underlayment should always be installed *underneath* the slates, *never* overlapping them or on top. If you're concerned about ice-damming, double the felt along the eaves and spread trowel grade roof cement in between, then increase the slate headlap along the eaves to 5". See the article in this issue about installing ice dam resistant eaves.

6) GET THE STARTER COURSE RIGHT. Read an article about the five most common mistakes made when installing starter courses at TraditionalRoofing.com/TR5_starters.html. Install a cant under the slate starter course — either a wooden one, a copper one, or use another method, but get it in there. It will tilt the starter course so it's at the same angle as the rest of the slates on the roof. Make sure your starter course slates have enough headlap and sidelap.

7) BLEND THE SLATES. If installing a new slate roof requiring several pallets of slate, blend the slates by taking some from all the pallets at once before sending them up onto the roof. Otherwise, the roof can look splotchy.

8) GET YOUR HEADLAPS AND SIDELAPS RIGHT. Headlap is the overlap each slate had over the slates two courses below. Lack of headlap can condemn an entire brand-new slate roof. Read an article about headlap at TraditionalRoofing.com/TR6_headlap.html

9) DO NOT WALK ON THE SLATES DURING INSTALLATION. Use roof jacks and planks. Stage the roof properly. Walking on slates during installation is the most common cause of "shedding slates," or slates that break and fall off after the roof has been installed. Shedding slates can be avoided by properly staging the roof during installation.

10) CHALK YOUR SLATE COURSES. Install every course of slates along a permanent (red) chalk line chalked on the surface of the roof, measured from the bottom of the roof to ensure accuracy and consistency. The lines mark the top edges of the slates. Do not chalk on the slates themselves and do not "eyeball" the courses by trying to lay the slates without chalk lines. You can easily lose your headlap and ruin the roof if you do not follow this important bit of advice.

11) LAY YOUR STARTER SLATES BACK SIDE UP. The starter course should be laid back side facing up to allow the edge bevel to merge flush with the edge bevel of the first course (which is laid back side facing down, as are all other slates on the roof, except the starter course).

12) DO NOT OVER-NAIL OR UNDER-NAIL THE SLATES. Slating nails shall not be driven in so far as to produce an excessive strain on the slates. If the nails are driven too hard, they can punch through the slates and leave the slates hanging on one nail. The nails should instead be driven to a depth such that the nail heads lie within the counter-sunk nail hole crater. This way, the nail heads will not rub excessively against the overlying slates, eventually wearing a hole in them. This is why a counter-sunk nail hole is important on standard thickness slates (3/16" - 1/4" thick), rather than a drilled nail hole. Thicker slates can get away with drilled holes because a) they can be too thick to punch, b) they are more immune to the rubbing of underlying nail heads, and c) they tend to be more irregular and have enough space between them to leave room for a nail head. Read more about nail holes at TraditionalRoofing.com/TR5_hole.html.


13) USE GOOD FLASHING MATERIAL. Copper flashings or stainless steel are best. Use minimum 20 ounce copper on valleys and built-in-gutters. You can use 16 ounce copper on ridges, step flashings and chimney flashings, although 20 ounce is better. Sheet lead is also a good flashing material.

14) USE A GOOD RIDGE AND HIP SYSTEM. Saddle ridges, Boston hips, mitered hips and copper or stainless steel hips or ridges, are all good. The worst ridge is when you just run your field slates to the top and leave them with exposed nail heads and sealant along the apex and nothing else. See slate saddle hip and ridge instructions at SlateRoofCentral.com/install_hips_ridges.htm, and copper ridge installation at SlateRoofCentral.com/videos.html#ridge.

15) USE GOOD NAILS. Do not use electro-galvanized nails except to nail felt paper. Use copper or stainless steel roofing nails for the slates. You can use hot-dipped galvanized roofing nails on slates too, especially when installing recycled salvaged slates. See SlateRoofCentral.com/videos.html#nails_eg.

16) HIRE THE RIGHT CONTRACTOR. If you're hiring a contractor — get a good one. I guarantee that if the contractor is not familiar with everything on this page, he should not be installing a slate roof. Read the article in this issue about this subject.

17) HAVE COMPLETE CONTRACT DOCUMENTS. If you're using a contract document, make sure it is thorough and detailed. Do not leave any details to guesswork. Spell out everything — headlap; type of slates including size, thickness, origin, color, and shape; gauge and length of nails; type and gauge of flashings; type of cant; etc., etc. There is a sample contract as a PDF and as a Word file at SlateRoofCentral.com/install_contract.htm.

18) KNOW HOW TO REPAIR THE ROOF. You will probably break some slates during the installation and you could lose a slate or two after the roof has been installed due to damage to the slates during installation. You should have a few slate hooks available to use for repairing the roof. See SlateRoofCentral.com/videos.html#repair. 

Cancer in the Workplace

There are three obvious sources of potential carcinogens (cancer causing agents) in the roofing workplace: 1) the sun, 2) the air, 3) the chemicals in the roofing materials.

We all know that too much solar exposure can cause skin cancer. The solution is to wear a hat when working on roofs and use sun block on exposed areas, particularly on the face.

We can also breathe carcinogenic materials while working. Over the past century, millions of people have unknowingly been exposed to asbestos, a class of fibrous minerals known to cause a variety of cancers. Mesothelioma is a rare form of cancer caused almost exclusively by asbestos exposure. Some old roof felts are known to contain asbestos, so when tearing apart old slate roofs, wear breathing protection. More about asbestos and cancer can be found at SlateRoofCentral.com/links.html.

We are unknowingly exposed to other carcinogenic chemicals because they're contained in the roofing materials that we handle. For example, according to a popular self-adhering underlayment manufacturer's Material Safety Data Sheets (excerpted below), the material contains 10-25% "heavy paraffinic distillate solvent extract," a substance rated as a Group 1 carcinogen (a known human carcinogen) by the International Agency for Research on Cancer (IARC). The IARC is part of the World Health Organization and its mission is to coordinate and conduct research on the causes of human cancer, the mechanisms of carcinogenesis, and to develop scientific strategies for cancer prevention and control.

Download a full copy of the Grace IWS MSDS at:
http://www.na.graceconstruction.com/underlayments/download/Waterproofing%20Membrane%20M-85804%20_q__2.pdf

W. R. GRACE MATERIAL SAFETY DATA SHEET		
Product Name: Waterproofing Membrane MSDS ID Number: M-85804 MSDS Date: 04/18/2008		
SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION		
Product Name:	Waterproofing Membrane	
MSDS Number:	M-85804	
Cancelled MSDS Number:	M-85787	
MSDS Date:	04/18/2008	
Chemical Family Name:	Rubberized Asphalt Adhesive Sheet with Film and/or Mesh Comprising Various Components.	
Product Use:	Waterproofing Membrane.	
Manufactured by:	W.R. Grace & Co.-Conn. 62 Whittemore Avenue Cambridge, MA 02140	
	Grace Canada, Inc. 294 Clements Road West Ajax, Ontario L1S 3C6	
In Case of Emergency Call: In USA: (617) 876-1400 In Canada: (905) 683-8561		
SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS		
Ingredient	CAS#	Percent (max)
Heavy Paraffinic Distillate Solvent Extract	064742-04-7	10-25
Petroleum Asphalt	008062-42-4	50-100
Styrene-Butadiene block copolymer	009003-55-8	10-25
SECTION 3 - HAZARDS IDENTIFICATION		
Emergency Overview:		
Warning!		
Eye contact with rubberized asphalt residue on hands can cause irritation.		
Skin contact with rubberized asphalt can cause irritation.		
May be harmful if ingested.		
May be harmful if absorbed through skin.		
May cause teratogenic effects.		
May produce local skin tumors.		
Removal of release liner may generate a static electrical discharge (spark).		
Release liners are slippery. Remove from work area immediately.		
State Regulatory Information:		
California Proposition 65: This product contains substances known to the state of California to cause cancer, birth defects or other reproductive harm.		
Chemical Name	CAS#	Wt %
Heavy Paraffinic Distillate Solvent Extract	064742-04-7	21
SECTION 16 - OTHER INFORMATION		
BITUTHENE® LOW TEMPERATURE WATERPROOFING MEMBRANE, MEMBRANE STRIPS		
BITUTHENE® SYSTEM 4000 WATERPROOFING MEMBRANE, MEMBRANE STRIPS		
PERM-A-BARRIER® WALL FLASHING, PERM-A-BARRIER® WALL MEMBRANE,		
PERM-A-BARRIER® LOW TEMPERATURE MEMBRANE, PERM-A-BARRIER		
DETAIL MEMBRANE, GRACE ICE & WATER SHIELD®		
GRACE ROOF DETAIL MEMBRANE, PITTWRAP CW, GRACE® SELECT, VYCOR® V40 WEATHER		
BARRIER STRIPS, GRACE VYCOR® PLUS TAPES, GRACE® BASK™, GRACE VYCOR DECK PROTECT		
GRACE VYCOR ALL PURPOSE FLASHING, GRACE VYCOR ALUMINUM FLASHING,		
PREPRUF SCS DETAIL TAPE		

Chris E. Drialo, Deceased

DRIALO, Chris E. On April 10, 2010 of Marlton, NJ after a five year courageous battle with cancer. Age 50 years. Beloved husband of Stacy (nee Clouser). Devoted son of Joseph "Skip" and Janet (nee Pforr) of Atco. Loving son-in-law of Maria Clouser of Sicklerville and the late Thomas. Dear brother of Janet McArdle (Michael), Judi Orem (John), Jon Drialo (Donna), and Skip Drialo. Brother-in-law of Sean Clouser (Katrina). Chris will be sadly missed by "The Girls." Also survived by many loving nieces and nephews. Chris and Stacy had been married for ten years; **he was a self employed roofing contractor and Charter Member of the Slate Roofing Contractors Association of North America, Inc.** The family received relatives and friends at the St. Anthony R. C Church, 436 Pennington Ave., Waterford, NJ 08089. Memorial Mass was celebrated at 10:00 AM. Cremation and interment were held privately. In lieu of flowers, donations may be made in Chris' memory to the American Cancer Society, 1851 Old Cuthbert Rd., Cherry Hill, NJ 08034. Arrangements under the direction of the Costantino Funeral Home 231 W. White Horse Pike, Berlin, NJ 08009. For information or to email lasting condolences please use our web site: CostantinoFH.com.

BUYING AND MAINTAINING A HOME WITH A SLATE ROOF —

A Guide to Inspections, Contractors and Repairs for Homeowners and Property Managers, by David Robinson

2007, ISBN 978-1438246208

Perhaps the most recent book about slate roofing to be published in the United States, David Robinson's new 6"x9" handbook for property owners and managers includes 95 pages of

information, along with a selection of

black and white photos and drawings. Contents include: Introduction, 1) Background, 2) Quarrying, 3) Buying a Home with a Slate Roof, 4) Looking for Trouble, 5) Two Important Roof Components, 6) Repairs, 7) Slate and Flashing Repairs, 8) When to Replace?, and Appendices, including an inspection checklist, a glossary, list of books and periodicals, internet resources, "where to find specifications," history, and quarriers and brokers.

Excerpt: "So you spot your dream home and it is for sale. Whether it is an old farmhouse in the country, or a painted lady situated in a quiet neighborhood, it looks like a great old house, but the roof is slate and you have heard that slate roofs last forever. Are you about to buy a house with a slate roof that is going to last a hundred years or five years?" Contact: slaterepair@gmail.com

FROM THE ARCHIVES

WHAT THE HECK!?



*HAULING UP
the 'MAKINGS'
of an ENTIRE
ROOF or TWO*

This block weighing about five (5) tons, contains enough slate to roof an entire house. It is one of the reasons for the good quality and low price of "Pennsylvania Slate Institute Standard" slate (see back cover). Few quarries, aside from those members of the Pennsylvania Slate Institute, have the quality of rock or cleavage to make possible the handling of such enormous blocks.



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THE SLATE ROOFING CONTRACTORS ASSOCIATION OF NORTH AMERICA, INC. (SlateRoofers.org), installed this

Buckingham slate roof on a picnic pavilion in a city park last year (2009) in Frankfort, KY. We told them that the water was supposed to flow on TOP of the roof, but they wouldn't listen to us and you can now see the unfortunate results. We knew the fine Buckingham slates, donated by the Buckingham Slate Company in Arvon, VA (BVSLate.com) would hold up for more than a century if the water was coming from above, but we didn't know what would happen if the water was coming from below. Last we heard, the building was still standing and trying to keep what's under it dry... Photo by Patrick Kennedy



HERE'S SOMETHING YOU DON'T SEE EVERY DAY — A standard thickness slate roof with each course bedded in cement to create a thick, textured look. This 80-year-old roof in New Haven, Connecticut, is being referred to as a "Cotswold" roof by the owner. No doubt the folks in the Cotswolds in England would dispute this claim. Cotswold stone is a yellow limestone quarried throughout the Cotswold in the UK. The stone is one of the most beautiful and durable roofing materials to be found anywhere in the world. Photo by Barney Thomas

Greenstone Slate: 21st Century Solutions in Roofing and Siding

When **Rhodes College** decided to build a new library at the center of campus, genuine Greenstone® Vermont Roofing Slate was selected for its beauty and longevity. They also wanted the roof to be visually consistent with historic buildings close by. We provided a blend of colors plus a variety of slate thicknesses for a match.



Color and texture match, the new Barret Library, Rhodes College, Memphis

The **University of Alaska** found a cost effective, sustainable building cladding solution for their new science building. Greenstone Slate®, using the Nu-Lok™ installation system offered the longevity, aesthetic appeal, low environmental impact, excellent building serviceability, thermal protection—and, with Miami-Dade County acceptance, the necessary tolerance to wind and earthquakes.



Cost effective stone cladding using the Nu-Lok™ installation system—University of Alaska

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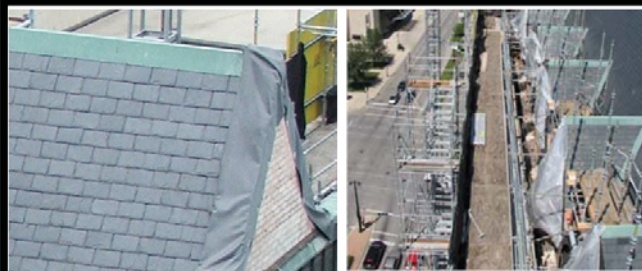


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Marin Custom Metal Works and the EZ-POT PRO

Most of the manufacturers that produce goods, services and tools for slate roofing and other traditional roofing trades are located on the eastern seaboard. Not Marin Custom Metal Works (MCMW), which is nestled amid the rolling hills of northern California just north of San Francisco. MCMW is the home of the popular EZ-Pot Pro, a portable “bench furnace” type soldering iron heater that can be carried up on the roof and kept at one’s fingertips.



Inventor Kevin McConnell (above) has been in the custom metal trades for 36 years. He opened his own shop in 1996 and works by himself. He says, “I never thought twice about the clunky old firepots used for heating our soldering coppers. At present, nearly all residential and most commercial sheet metal workers who do quality work solder their work. Nearly all are still using the old propane firepots to heat their soldering coppers, just like the journeymen that they served their apprenticeship under, and, just as those journeymen, in turn, learned from the guys they had learned from, and so on, back about 50 years.”

The old propane firepots, according to Kevin, “were not designed to heat soldering coppers, but were intended for plumbers to melt lead with which to seal the joints of cast iron waste lines. They are highly inefficient, sending about 90% of the produced heat into the air, and sending out a lot of pollutants in the process. In addition, they are highly affected by even the slightest breezes, causing the workers to cease their soldering when the wind comes up. The EZ-Pot Pro addresses and solves all of these problems while heating faster and more efficiently.”

An old propane firepot is a




real handful to carry up ladders, weighing around 32 pounds with a full tank. The EZ-Pot Pro weighs in at almost exactly five pounds. “Why drag an old fire pot with a five gallon propane tank on a roof? Because you need your soldering irons nearby, hot, and enough gas for the job, right? That’s why I invented the Ez-Pot Pro System,” Kevin tells us, “a lightweight portable fire pot made to be used on a roof. No more jury-rigged five gallon propane bottle bracing, just a 14 ounce bottle will last 8 hours.”

Setup is quick and the device can be adjusted to any pitch from zero to 12/12 (45 degrees) in about 2 seconds. A 5 gallon propane tank is round and cumbersome, very difficult to wrestle around, and especially difficult to stabilize on pitched roofs, which is not good for something with an open flame on a bare wood roof sheeting, and typically with several piles of construction debris as a landing site when it rolls off the roof. The EZ-Pot Pro is stable and has an anchor cable system that can be nailed to the roof. It is also small enough to fit in a large shoebox. It can be easily stored and locked in a toolbox, making it unnecessary to chain and lock it in the back of a pickup truck or bring it into the shop at night, as is the common practice with the old firepots.

The device, enclosed on five sides for wind protection and made in the USA, is made from 1/8” aluminum 4”X4” square tubing cut to length on a chop saw. It has an insulated stainless steel inner liner and an aluminum adjustable base. Marin Custom Metal Works, in business since 1972, makes everything except the quick release fittings and the torches. The EZPot Pro is five inches high, seven inches wide, thirteen inches deep, and has the capacity to hold two 3 LB soldering irons. It has a continuous runtime of usually more than eight hours using a fully charged 14 ounce propane bottle. It comes equipped with a Goss GP-360L torch that has a swivel igniter tip and a brass regulator. It produces 6,000 BTUs @ 40 psi. The torch attaches to one pound disposable propane containers.

A video showing this tool in use is available at SlateRoofWarehouse.com where the tool can be bought for only \$295.00 (call 814-786-9085 9-5, M-F, eastern time).

Marin Custom Metal Works, 35 Mill Street, San Rafael, CA 94901; (415) 456-3602; EZPotPro.com 



NO MORE ICE DAM PROBLEMS — HOW TO BUILD A SNOW APRON

Step-by-Step by Joseph Jenkins



1. At left we see eaves on a 4:12 slope slate roof that has suffered chronic leakage from ice damming. Although heat cable had been installed, it had been nailed through the slates with 16 penny nails, doing more harm than good.



2. Pull off all the slates and expose the rotted mess that you're sure to find underneath.

3. Repair the rafters by scabbing new wood where needed.

4. Install new roof decking material. This is 1" rough-sawn hemlock lumber, similar to the material used on the original roof.

5. Install 30 lb. felt over the repaired roof deck to weather it in.



6. Install red rosin paper over the felt. This "slip sheet" is to allow the copper to expand and contract.

7. Install a copper drip edge. This is 16 ounce copper.

8. Prepare your copper flat-lock pans. These are 20 ounce half-hard copper pans made from 18"X24" stock. Read more about flat-lock soldered copper in TR #6 online at TraditionalRoofing.com.



9. Prepare 20 ounce copper cleats.

10. Cleat the pans to the roof.





11

11. Hook the joints together, cleat the pans down, pound the seams flat with a dead-blow hammer, then solder the pans together. We're using 50/50 tin/lead solder and an Express soldering iron here. We also use American Beauty electric soldering irons, Aero acetylene, and Sievert propane soldering irons for this work. All are available at Solder-Warehouse.com.

12. Continue to install and solder the copper snow apron pans until all the pans are installed.

13. Hang a 1/2"x1" cant strip (cut from the hemlock roof deck lumber) on copper or stainless steel wires so that the slates will overlap the copper approximately 6" and overlap the cant strip approximately 2". Use chalk lines to keep things straight.

14. Install the starter course of slates, back side up.

15. Install the field slates with nails and bibs or slate hooks.

16. You now have an eave assembly that is waterproof!



14

STARTER COURSE



15

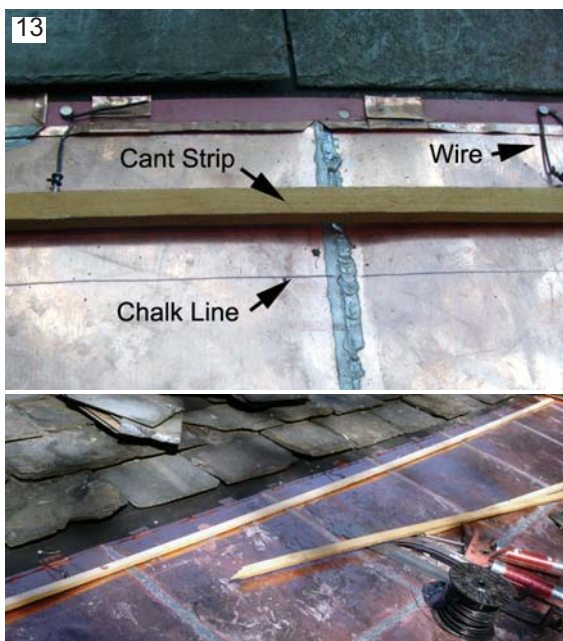
STARTER COURSE

FIELD SLATES

A video of this process is available at SlateRoofWarehouse.com



12

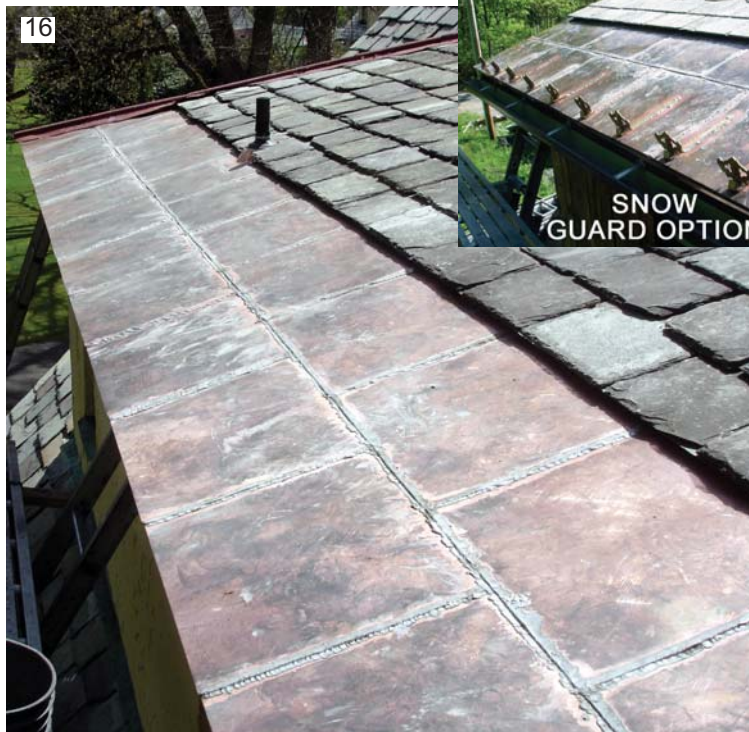


13

Cant Strip

Wire

Chalk Line



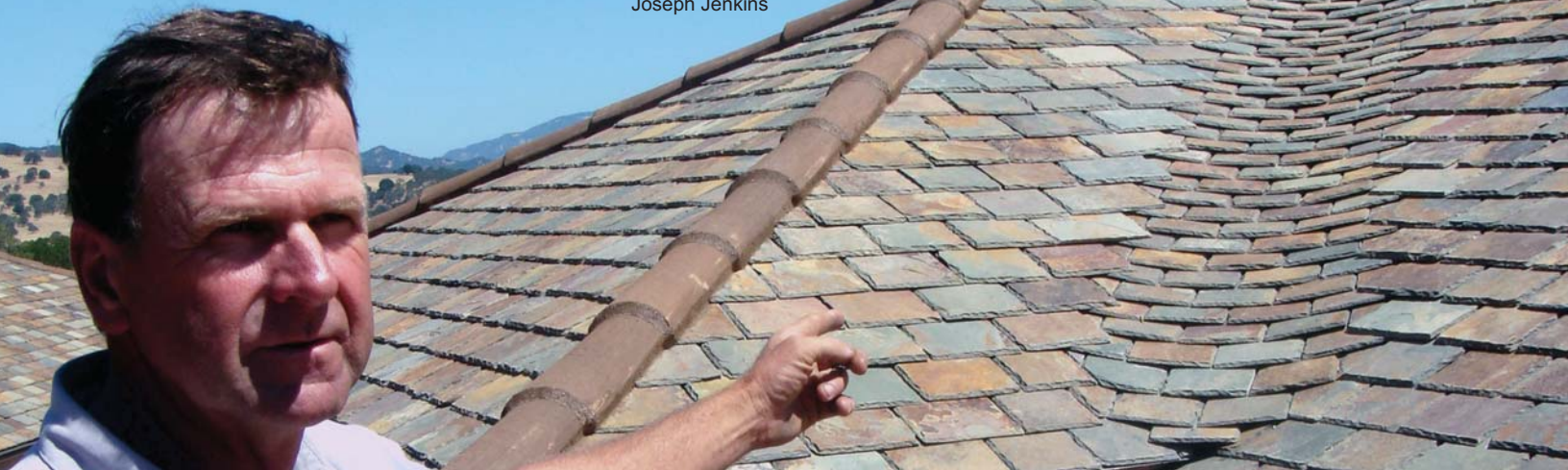
16



SNOW
GUARD OPTION

Installing Ceramic Ridge Tile on a Slate Roof Using Flexim

Joseph Jenkins



IF THERE'S ONE THING MASTER SLATER RAY KROECK CAN DO, IT'S A FANTASTIC SLATE VALLEY.

A perfectionist at heart, Kroeck (above) comes from a lineage of German master roofers. His father Karl Kroeck (left) received his professional roofing papers in Germany in 1938 at the age of 19. Now Ray, of Kroeck and Sons in Sacramento, installs slate roofs in northern California.

On one relentlessly sunny California day, Ray demonstrated how he was installing clay tile hips and ridges on a Chinese multi-color slate roof using Flexim, a product from Holland. Flexim is a permanently flexible, waterproof tile adhesive. It is non-toxic and not corrosive, made of linseed oil, polystyrene, fibers and pigments and available in several colors.

The advantage of Flexim is that it replaces the need for traditional cement mortar. Although mortar has been in use for centuries and is an excellent material, it does have its drawbacks.

For example, if new mortar gets rained on, it can leach mortar stains down the roof, and if the stains dry out, they can be permanent (Figure 1). Mortar can also be difficult to work with when the ambi-



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

ent temperature is very hot or very cold. Mortar also requires water, is heavy, and has to be mixed. Flexim comes in a box, requires no water or mixing, is lightweight, can be worked in a wide range of ambient temperatures and is not affected by rain or water. Therefore, there may be times when a traditional tile hip or ridge installation can benefit from the use of this material.

First, Ray made some walking platforms out of 1/2" plywood and foam (Figure 2). The foam

was attached to the plywood with a spray adhesive. The platforms enabled Ray to walk on the 6:12 sloped roof without damaging the slate. They were small and portable enough to lay out like stepping stones, and they could be easily moved.

He then installed a 2X2 wooden nailer on the apex of the hip. The nailer was grooved on the underside in order to nestle snugly on the roof (Figure 3). A second wooden nailer may be added on top of the first to achieve the correct height for the particular tile being used.

The roof is chalked to ensure that the tiles follow a straight line and the hip tiles are then laid dry and spaced uniformly to avoid having a short tile at one end or the other. The tiles are nailed to the nailer with a copper roofing nail (Figure 4).

The Flexim is removed from the box, taken out of the plastic wrap and sliced down the middle lengthwise (Figure 5). In some cases, it may be used in one piece without slicing. It is now ready to

apply to the roof.

The strips of Flexim are firmly pressed into the roof along the chalk lines where the tiles will be laid (Figure 6), then the tile is firmly pressed into the Flexim and nailed (Figures 7 and 8). The excess Flexim is then cut away using a pointed trowel (Figure 9). The extra pieces that are cut off are used to fill in the space where the two tiles

overlap as well as at the downward end of the tile.

This process is repeated until the entire hip or ridge has been installed. The end result is an attractive ridge or hip installation that is impermeable to rain and weather and resistant to bats, insects and rodents (Figure 10).

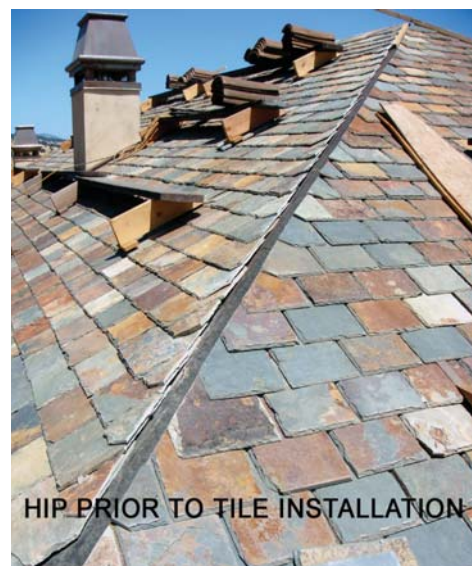
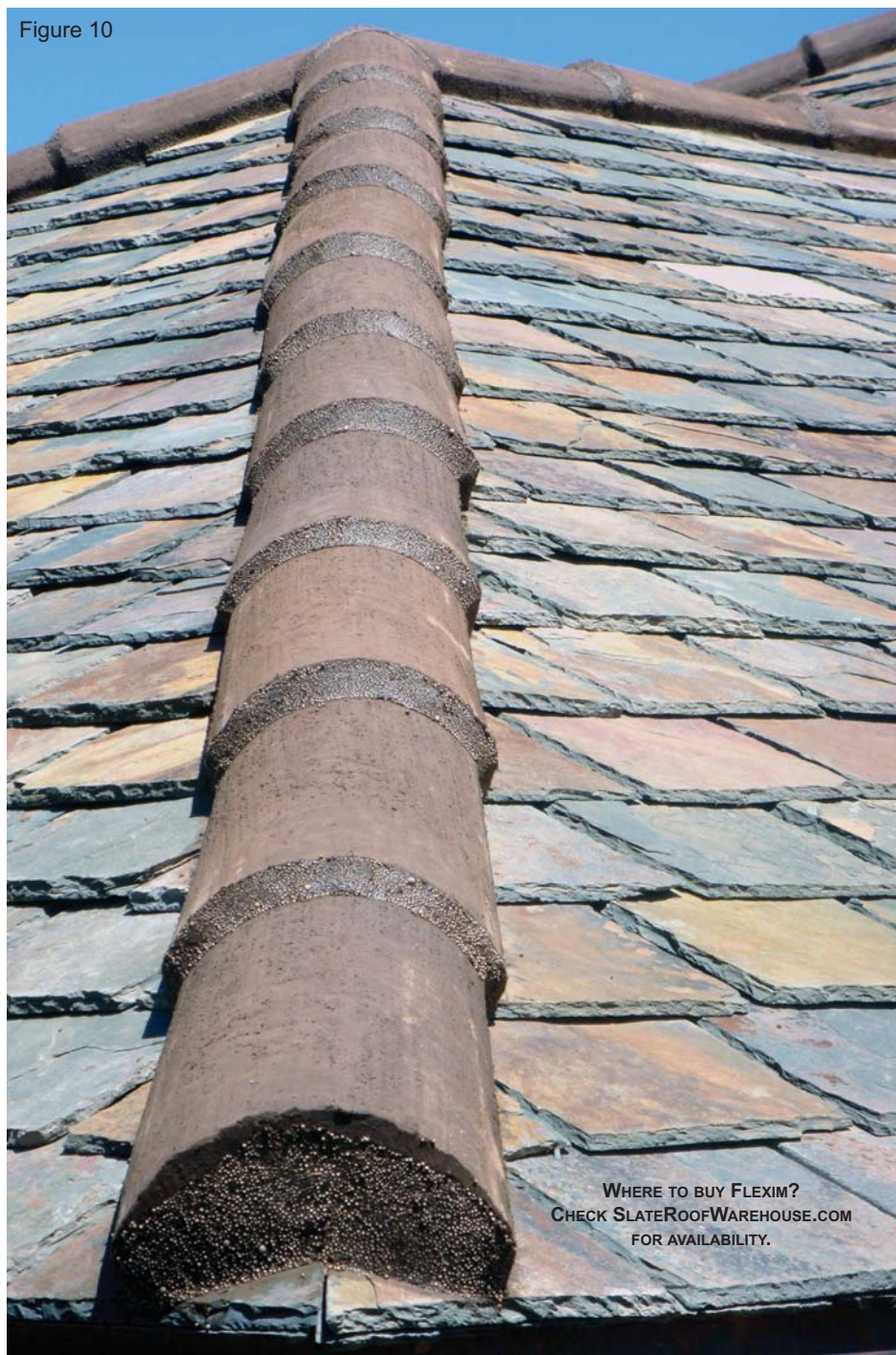


Figure 10



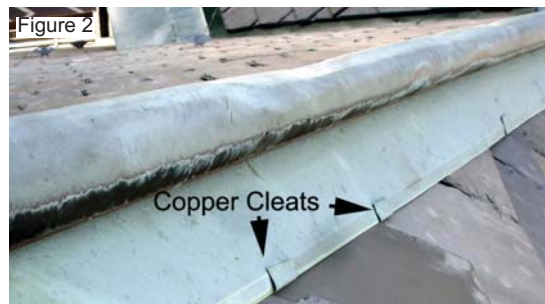
CLEATING RIDGE COPPER ON SLATE ROOFS

Joseph Jenkins

THERE ARE MANY WAYS TO FINISH HIPS AND RIDGES ON SLATE ROOFS, including using ceramic tiles (see Flexim article this issue), slate ridges and hips, and metal ridge rolls. Perhaps the most common traditionally used ridge and hip covering in the United States is metal. "Tin" ridge roll was popular in its day — it was inexpensive and could simply be nailed to the roof. It had to be painted on a regular basis however, or it rusted, and in the process, ran permanent rust stains down the roof. Many an older slate roof can be seen stained in this way as no one wanted to climb up onto the peak of the roof with a bucket of paint to paint the ridge (although this is a common task for slate roof restoration professionals even today).

A better alternative to tin ridge is copper or stainless steel as neither will rust and therefore neither need to be painted. Copper is by far the more popular of the two because the metal is easier to work than stainless steel and copper seems to be more readily available to the consumer. Copper can also be "lead coated," giving it a look similar to "terne coated stainless steel," a dull gray shade that appeals to the architectural preferences of some. Otherwise, uncoated copper starts out shiny and richly golden, but soon turns dark brown and eventually green.

Ridge copper is generally available in two weights: 16 ounce and 20 ounce. Copper is rated according to ounces per square foot rather than gauge. A good quality, durable copper ridge will be made from half-hard 20 ounce copper. One issue with ridges is that people who work on slate roofs tend to access the ridges in order to maneuver around the roof, either by hooking ladders over the ridge or even standing up and walking on them. Walking on ridges is the easiest and fastest way to get around on a roof, especially when carrying a hook lad-



der. It takes some time to get the hang of it, but once the practice is mastered, slate roof work is faster and easier (don't try this at home unless you're a professional). Soft 16 ounce copper ridge can take a beating from foot traffic and ladder hooks, but half-hard 20 ounce copper is a lot more resistant to wear and tear.

The easiest and fastest way to install the ridge is simply to nail it to the roof using copper nails. The nail heads can leak, however, so they have to be caulked or gasketed. An alternative is to use screws. In any case, the fasteners have to be metallically compatible with copper, meaning they have to be copper, brass or stainless steel, *not* steel, iron or galvanized metal.

Faster and easier is often not the best way to do things because it can create work later down the road that no one wants to do, such as re-caulking nail heads along metal ridges. The solution is to install the ridges with no exposed fasteners, and one way to do this is to use cleats. A cleated ridge takes a bit longer to install than a nailed or screwed ridge, but there is no maintenance required once the ridge has been installed. Therefore, it takes less time in the long run. So here is some information about how to cleat copper ridges.

One of the oldest and simplest cleated ridges I have closely examined was on a courthouse in eastern Pennsylvania. Each cleat was composed of a single layer copper strip approximately 1.5" X 3" nailed to the roof deck with a single iron nail (Figure 1). The cleats were on about two foot centers and were simply folded around the ridge with no solder and no rivets — nothing attaching the cleat to the ridge metal (Figure 2). What struck me as interesting about this system is that it

Figure 5



Figure 6



Figure 7

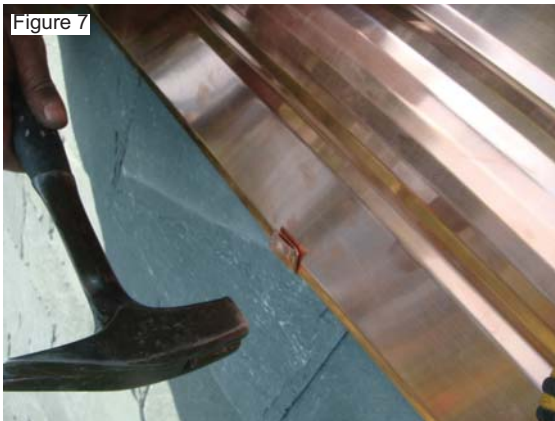


Figure 8



was still intact even though it had been installed in 1894 and iron nails had been used on the copper cleats.

Perhaps the most conscientiously installed cleat system I have been able to examine was on a slate roof at Yale in New Haven, Connecticut. Here, the lead-coated copper ridge was installed in a similar manner to the courthouse ridge, but the cleats were fully soldered to the ridge (Figure 3). There is no way this ridge was going to go anywhere.

A local, recent, residential installation in western Pennsylvania utilized 20 ounce half-hard copper ridge that had been shop fabricated by the roofing crew. The ridge was made of 12" copper stock and the roll made by hand on a hand brake (Figure 4). Here the copper ridge roll was cleated to the roof using 20 ounce half-hard copper cleats made from 2" X 16" strips, folded lengthwise to create a 1" X 16" strip of 20 ounce copper, double thickness. The strip was then bent to the angle of the roof ridge and nailed in place every two feet, using 2.5" 10 gauge copper roofing nails (Figure 5).

The ridge is then laid over the cleats and held into place as the cleats are snipped to the correct length (Figure 6), bent around the edges of the ridge, and pounded down gently with a hammer (Figure 7).

The exposed cleat tab is then drilled with a 1/8" metal drill bit (Figure 8), then riveted with a 1/8" copper/brass pop rivet with a grip length of .188" to .250" (Figure 9).

It's a two-man job (Figure 10), and a bit tedious, but when finished, the ridge has no exposed fasteners, nothing to leak, is very sturdy, and perhaps best of all, is maintenance free. 🏠

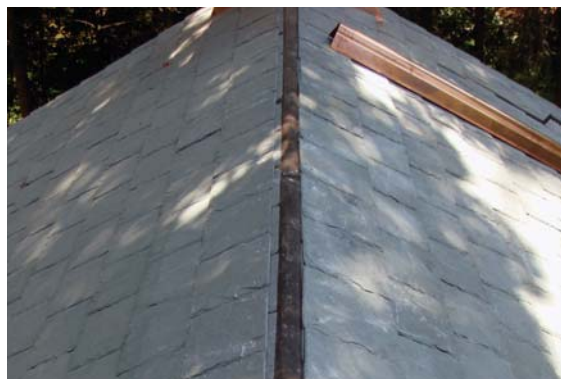
A video of this process can be viewed at SlateRoofCentral.com/videos.html.

20 ounce copper ridge and straps
can be bought at
SlateRoofWarehouse.com
Ph: 814-786-9085

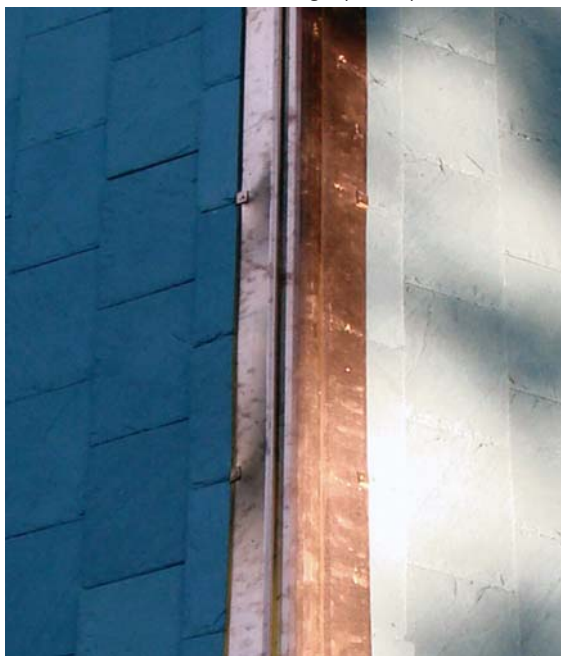
Figure 9



Figure 10



The ridge before the copper is installed (above).
The finished ridge (below).



THE INCREDIBLE SLIPPING SLATES

Joseph Jenkins

PEOPLE ARE ALARMED ABOUT THE “SLIPPING SLATES” THEY’RE SEEING ON NEW SLATE ROOF INSTALLATIONS.

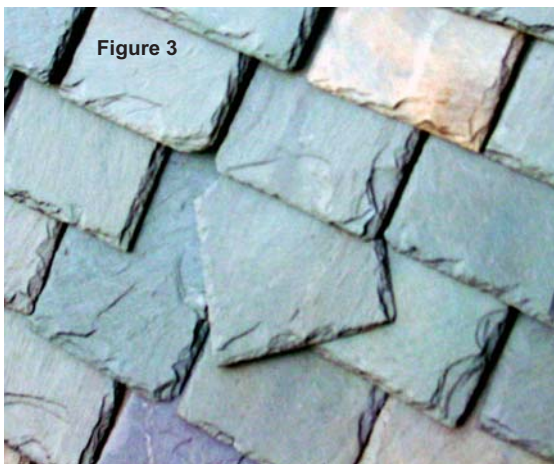
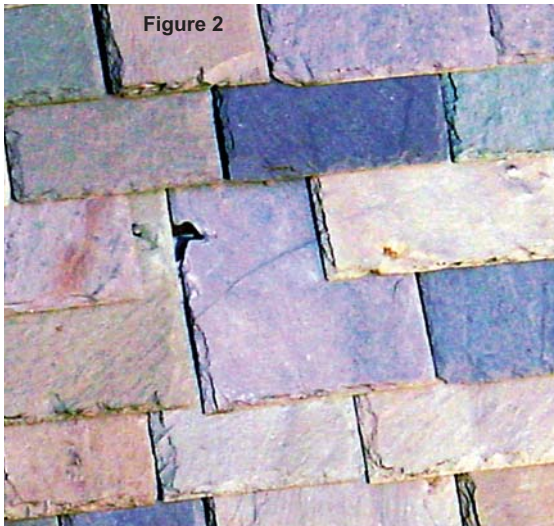
Being as invested in the slate roofing trade as I am, people are always contacting me with questions about slate roofs. When the same question is asked enough times, I make a note to write an article about the subject in the next TR. That is the genesis of this article — which can now be found online to be read by anyone at any time without me having to repeat myself over the phone to another stranger.

“Slipping slates” or “shedding slates” are slates that appear to be sliding out of place on a roof, or are missing (Figure 1). There may be a few, there may be hundreds, but in most cases, the defect is associated with new slate roofs. The slates may slide out days or weeks after the roof has been installed, or years later — usually within ten years, but most often within the first five. The questions most often asked are, “Are some slates supposed to fall out after installation?” “What is an acceptable number of slipping slates per square?” “What causes the slates to shed?”

Brief answers to these questions are this: no slates are supposed to fall out after installation and there is no acceptable number of slates that can fall out. A new slate roof installation should be 100% intact — nothing slipping, sliding, shedding or breaking. If there is a slate or two that looks like it’s broken or sliding out, the installer should be back there pronto to repair it. This is a good reason, by the way, to not settle for a one year warranty on a new slate roof. Get a five year warranty at least. A good installation contractor will stand behind his work and repair any defect at no charge no matter how much time has elapsed since the installation.

But what causes slates to break and fall out? There are three main reasons:

1) The slates themselves. Of all the slate roofs I have looked at with shedding slates, this is the least likely cause of the problem. However, not all slate is the same. Slate is a natural stone that is hand-split into roofing shingles. Some stone types are more brittle and more irregular than others. For example, we installed two slate roofs, each having about 30 squares of standard-thickness (3/16” - 1/4”) slate shingles. One was Vermont “sea green” slates produced by a conscientious manufacturer. Of these 30 squares, only about 3 slates had to be culled out because they were broken or defective. We never had to go back to this job and repair a single slate. On the other roof, we installed Vermont mottled green and purple slates from a



less-than-conscientious manufacturer. We had to cull out nearly a full pallet of defective slates. Five years later, we still have to go back to the purple roof every year and repair some broken slates that seem to be falling apart on their own.

The installation procedures were exactly the same on both roofs. The only difference was the type of slates and the manufacturing quality. This is not to suggest that Vermont mottled green and purple slates should be avoided — they should not, as they’re some of the best slates in the world. What matters, however, is manufacturing quality. The sea green slates had been individually hand punched for nail holes. Each slate was handled by various people in the manufacturing process several times — splitting, trimming, punching and palleting, with plenty of opportunity to cull out defective slates. The purple slates, on the other hand, had been hand drilled in stacks, like pancakes. That meant that stacks of slates were being rushed through the manufacturing process without the needed scrutiny that would have eliminated a lot of cracked or defective slates. Also, the nail holes must be in the thinner end of a roofing slate. When the slates are individually hand-punched, the worker can make sure the holes are being punched on the thinner end (if there is one). When slates are being stacked and drilled, a number of them will be drilled on the wrong end. These will not lay well on a roof and must be culled out as rejects.

2) Another reason slates slide out is because they’re “over-nailed.” Properly manufactured standard thickness roofing slates have nail holes that are cratered to allow the nail head to sit down into the slate. If the nail is driven too hard, the head will punch completely through the slate (Figure 2), leaving one side of the slate hanging on nothing and the slate may look like it’s dangling crookedly on the roof (Figure 3). If both nails are driven too hard, the entire slate will slide out. This may not happen immediately; it could take months or years for the defective slates to show themselves. The solution is simple enough: have the roof installed by experienced slaters who

know how to nail roofing slates. It's the lack of experience that causes the installers to over-nail or under-nail the slates. I have seen photos of roofing contractors installing slates with pneumatic nail guns (see TR#7). This is a mistake and a sure way to break out the nail holes.

3) And now for the main cause of slipping slates (drum roll please): walking on the slates during installation! I have seen literally hundreds of slates that appear to be sliding out of place on new roofs — that's hundreds on a single roof! On closer examination, it's clear that Bigfoot had been there, tromping all over the slates, probably with leather construction boots, especially when the slope is low enough to walk on.

Foot traffic damages roofing slates once they have been installed. If you lay a slate flat on a concrete floor, you can do a tap dance on it and not hurt it, which is one reason why slate is so popular for flooring. But once it's installed on a roof, it's no longer lying flat on anything. Every slate on a roof overlaps other slates and is therefore angled and fragile (Figure 7). When walked on, there is a good chance that the slate will crack and the bottom part of the slate will fall out (Figures 4 and 5). Again, this may not show itself immediately. The slate can be cracked and damaged but not break apart until a couple freeze/thaw cycles come and go. Figure 6 shows a cracked slate that was likely broken by foot traffic, although the defect is not visible without close inspection.

Unfortunately, if the installers are walking all over the slates, there's a really good chance they've made a host of other installation mistakes as well, such as over-nailing slates and then walking on them. There is really no excuse for this problem. Slate roofs should be installed by skilled and experienced craftsmen. If the installers do not have sufficient experience, they should do their homework before they dive into a slate roofing project. The roof must be properly staged so the workers are working on scaffold planks. Roof brackets, planks, roof ladders and hook ladders all provide means for working on slate roofs without walking on the slates. And guys, get the leather construction boots off and put on soft-soled shoes. Canvas or leather footwear *with rubber soles* is ideal for slate roofing. You can feel the roof under your feet, you can notice if you're breaking a shingle, and traction is ideal with rubber soled shoes.

Figure 8 shows all the mistakes rolled into one photo. Note the construction boots. Note that there is no roof scaffolding whatsoever on this job and the entire roof was installed by walking all over it, including carrying the slates up the roof.

Some slates may still break during installation, but it's up to the installer to thoroughly examine the roof when the scaffolding is being taken down to make sure any defective slate is found and repaired. When properly installed, the roof should be 100% intact. If any defect shows itself, the roofer should stand behind his work and fix it without delay. As a slate roof consultant (SlateExperts.com), what I have been running into are large slate roofs, such as churches and hospitals, installed by inexperienced workers, that have hundreds of slates sliding out. The one-year warranty has expired so the original installer won't repair the roof. It is this sort of scenario that is hurting the slate roofing industry in the U.S. today.

So what do you do when you run into the incredible slipping slate? You simply repair it. You replace it with matching slate and you install the replacement slate with either a copper or stainless steel slate hook or use the "nail and bib" method (Google "nail and bib slate repair"). If you have hundreds of slipping slates on the roof, you resign yourself to repairing hundreds of slates. A good slate roof repair contractor can replace hundreds of slates in a surprisingly short time and the repairs will be invisible. Make sure that whoever does the repairs is not stomping all over the roof in construction boots and doing more harm than good. Also, when installing a new roof, make sure you keep a supply of extra slates at the construction site to be used for repairs should they be needed in the future. This will ensure that matching slates will be available.

I hope this clears up the mystery of the incredible slipping slates and now, when the phone rings, I expect it to be people telling me about the beautiful, flawless slate roofs they have installed. 🏠

Watch a video about Basic Slate Roof Repair at
SlateRoofCentral.com/videos.html.

Buy slate hooks and bib flashings at
SlateRoofWarehouse.com.

Figure 5



Figure 6

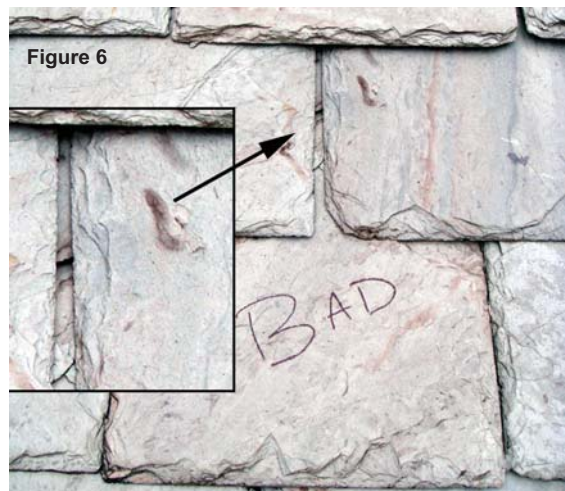


Figure 7



Roofing slates are all angled on the roof. None lies flat. Slate roofs are not supposed to be walked upon as it will damage, crack or break the slates. The shedding of slates is most frequently due to damage by foot traffic that occurred during the original installation.

Figure 8



Protect Your Eaves From Ice Dams

Joseph Jenkins

THERE'S AN ADVANTAGE TO HAVING LEARNED THE SLATE ROOFING TRADE IN NORTH WESTERN PENNSYLVANIA.

We get five inches more annual precipitation that either Seattle, Washington or Portland, Oregon, both famous for rainy weather. Our annual precipitation of 42.78 inches is slightly more than Boston, but unlike coastal Boston, our weather is more extreme and a lot of our precipitation is ice and snow. It's not unusual to have snow here six months of the year. In fact, our outdoor temperatures during my roofing career have ranged from a low of -30F to a high of 103F. This is hell on roofs.

Slate roofs have historically performed well under these conditions. One problem that occasionally rears its ugly head, however, is "ice damming." Ice dams occur when snow and rain collect and freeze along the eaves of the roof, building up ice — obviously a winter condition. This is exacerbated by poorly insulated roofs that allow warm inner air to melt the snow off the roof from inside. The water runs down the roof only to hit the cold eaves, where it then freezes. If the weather conditions are just so, the ice build-up along the eaves can be extreme — perhaps 12" thick or more. Then, there can be a sudden thaw and perhaps some rain comes along and the ice-clogged eaves of the roof prevent drainage off the roof and become essentially under water. It's almost impossible to prevent roof leakage under these conditions...or is it?

The past two years have been extreme ice-damming years here in western Pennsylvania. We can go decades without ice dam problems, then get a bad year, but two years in a row? Time to spring into action and find a solution.

The standard approach among roofers today, it seems, is to remove the slates along the eaves, apply a peel-and-stick underlayment and then reinstall the slates. This is a poor solution for several reasons. For one, it's temporary

and will be effective only as long as the underlayment lasts. Underlayment should always be seen as a temporary part of a slate roof and is not to be relied on for permanent water prevention. The peel and stick will eventually crack and leak. Pulling the slates up and nailing them back down again is also expensive — too expensive for a temporary repair. Also, peel and stick underlayments can contain high levels of cancer-causing chemicals (see the "Cancer in the Workplace" article in this issue). For this reason alone, they should be avoided. So what are we to do?

First, make sure your roof is well-insulated. This may not completely solve the problem in years of extreme weather (ice dam years), but it will help.

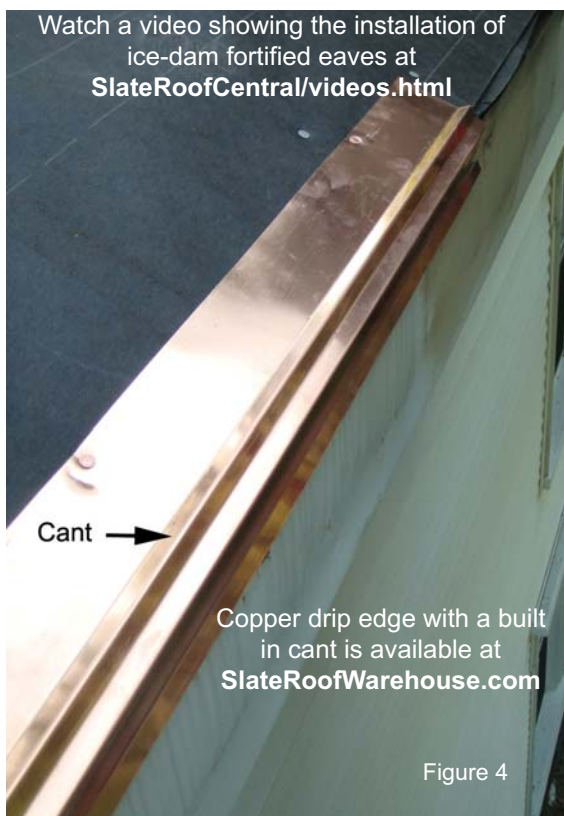
Secondly, there is a quick repair solution that is faster, more effective, and less expensive than removing slates and installing peel and stick. That is to simply install over-sized bib flashings under the joints between each pair of slates along the eaves of the roof (Figure 1). A bib-flashing is simply a flat piece of sheet metal. You can use either copper, terne-coated stainless steel, or .019" aluminum (brown side out). The bibs should be a minimum 6" wide and as long as possible. You can determine how long they can be by sliding one up under the slates until it hits the slating nails. Whatever is still hanging out is then trimmed off. Put a dab of caulk/adhesive in the slot between the slates before sliding the bib in place and wipe off any excess. What the bibs do is fortify the headlap on the slates and cover defects in the slates that can allow water to enter during ice dam conditions. Ice dams will find any tiny defect in the roof — an old repair, a nail hole too close to the slot, a slate that is cracked underneath the overlying slates, etc.

The bibs can cover the defects and tighten up the eaves, slowing down, and most of the time preventing, leakage during ice dam conditions.

A better approach, however, is to increase the headlap of the slates along the eaves. It's the headlap



Each bib is at least 6" wide and slid up underneath the slates until they hit the slating nails.



that permanently prevents water entry. Standard headlap is 3", but you can increase this to 5" along the bottom three feet of the roof when installing a new slate roof (read the article explaining headlap in TR #6 at TraditionalRoofing.com). The increased headlap is not really noticeable to the untrained eye and water would have to run uphill five inches in order to get behind the slates. Figure 2 shows a newly installed slate roof with 5" of headlap along the bottom three feet of the roof and 3" in the remainder. This technique is permanent, involves no cancer-causing chemicals, can be done when the roof is installed and it never has to be done again.

If you want to go whole hog with ice dam protection and slates, install a double layer of 30 lb. felt underneath the 5" headlap eaves slates when installing the roof. Spread trowel-grade roof cement in between the two layers as if you're making a peanut butter sandwich (Figure 3). This is the old-fashioned predecessor to peel and stick membrane — without the carcinogens. A good grade of trowel-grade roof cement, such as Karnak 19, will last many generations.

Once the underlayment has been installed, install a cant strip, or install a copper drip edge with a built-in cant (Figure 4). Then, chalk your roof lines for a 5" headlap. Make sure the starter course is correctly installed (see TR #5) and that it has the full headlap on it as well. Then lay the bottom three feet or so of slates along the eaves with the 5" headlap (Figure 5). Once you have passed the ice dam region of the roof, you can drop your headlap back to the standard 3".

Last but not least, some ice dam problems seem very difficult to resolve, especially on lower-slope roofs. When you run into a seemingly intractable situation, remove the slates from the bottom three feet of the roof and install a copper or stainless steel snow apron. This creates a waterproof eaves that will totally thwart any ice dam that may come along. See the "Snow Apron" article on page 23 for instructions on how to do this.

Ice dams pose a roofing challenge in certain parts of the country. However, the problem can be solved with resourcefulness and ingenuity. Tighten up your eaves when installing a slate roof by increasing the headlap along the eaves and beefing up the underlayment as described above. Fortify existing eaves with bib flashings. For a final solution, install a copper snow apron. 🏠



Buckingham is Back!

BUCKINGHAM SLATE COMPANY RAMPS UP PRODUCTION

The 143 year old Buckingham Slate Company in Arvon, Virginia (Buckingham County) was purchased by a new partnership in late 2008.

Mark Claud is now president of Buckingham Slate Co. He teamed up with Sam Berger of S.F. Berger Inc. and Brad Jones of Colonial Masonry Inc. to purchase the company.

Claud has worked in the real estate business for more than two decades, while Berger's family has been in the roofing business for 60 years. Jones, an engineer, has 30 years of experience in construction and masonry. The three men viewed the acquisition as a good business investment in one of the finest slate deposits in the world. They bought the company from Richard Rose Jr., who had operated it for about 15 years, and they've spent more than a year and a half working to revitalize the business.


Since acquiring Buckingham Slate, the owners have built substantial inventory, redeveloped the quarry, dramatically reduced lead times, and invested in modernizing operations. They've upgraded equipment and invested in marketing the roofing, windowsills, tabletops, flooring, structural stone, flagstone, crushed stone and countertops that they produce. Despite the difficult economy, the company realized a 96% growth in roofing sales over the previous year and credits much of the success on a renewed emphasis on customer service, quality control, and marketing efforts. The quality of the unfading blue-black slate that is quarried by the company has never wavered.

Buckingham slate is considered by many to be of the very

highest quality roofing slate available in the U.S. (an entire chapter in the Slate Roof Bible is devoted to this slate). The company has worked diligently to restore the Buckingham Slate name to its rightful place in the slate and stone industry. It's currently in the process of building a new state of the art saw house while it continues to make customer satisfaction its ultimate priority. Buckingham Slate's production efficiency has improved greatly and is now producing more slate with fewer people. The company has about 60 employees, down from a peak of about a hundred, although they still have many workers who have been there for 40 years or more, ensuring a skilled work force.

Buckingham Slate operates two slate quarries — including one near the company's offices that is 350 feet deep. Claud estimates there is enough slate on the company's 500-acre property to last several hundred years. As the business traces its roots back to 1867, that's a lot of slate! In the 19th century, Geologist W. B. Rogers reported to the Virginia Legislature that, *"In texture, density and capacity of resisting atmospheric agents, Buckingham County slate can scarcely be excelled by a similar material in any part of the world."* He further recorded the use of

Buckingham Slate, still serviceable today, on the University of Virginia, specified by Thomas Jefferson for roof covering.

The Buckingham Slate Company is the only quarry and manufacturer of slate in Virginia, and the only source of true Buckingham® Slate. 

Buckingham Slate Company, LLC, Contact: Brad Jones, Jr.; PO Box 8, Arvon, VA 23004; Ph: 800-235-8921; Fax: 434-581-1130, Email: sales@buckinghamslate.com; Web: BuckinghamSlate.com



Tony Chambers (above), has been with the company for many years.



Photos provided by Buckingham Slate Co., LLC

Slate Roofers Converge in the Vermont Slate Valley

THE SLATE ROOFING CONTRACTORS ASSOCIATION of North America, Inc., held it's 2010 annual meetings and conference in the Slate Valley of Vermont on a sunny weekend in September. The entire Board of Directors gathered to discuss business while a general membership meeting ensued, all taking place at the Fair Haven Inn in Fair Haven, Vermont, noted for its fine food and service.

The conference began with two slate quarry tours. Shawn Camara of Camara Slate Products, Inc., in Fair Haven, gave the entire SRCA crew a guided tour of his family's slate quarry operation including the slate mill and finishing yard. A second quarry and mill tour followed in the afternoon at the Greenstone Slate Company in Poultney. Videos of these tours are available for viewing at SlateRoofers.org/conference_2010.html.

A lively evening reception was held at the Slate Valley Museum in Granville, NY, with delicious appetizers, wine, live music and a museum tour. This reception was sponsored by The Durable Slate Company of Columbus, OH. The band at the reception was sponsored by the Greenstone Slate Company.

The two-day conference included two open bars at the Fair Haven Inn, one sponsored by The Vintage Slate Company, Inc., of Wells, VT, and the other sponsored by Westone Natural Slate Co., Ltd. of China. Lunches were sponsored by both Greenstone Slate and Camara Slate. Our dinner finale was sponsored by Camara Slate with live music again sponsored by Greenstone. Appetizers were sponsored by Evergreen Slate Co., Inc., of Granville, NY. Refreshments during our meetings and presentations were sponsored by the Twelfth Century Slate Roofing Co., of Burlington, MA.

The group enjoyed an Historic Roof Tour, guided by Shawn Camara, in the afternoon after the meetings and presentations. The tour included old slate roofs in the slate valley, old slate-walled houses, an old abandoned slate mill and some newer slate roofs and buildings.

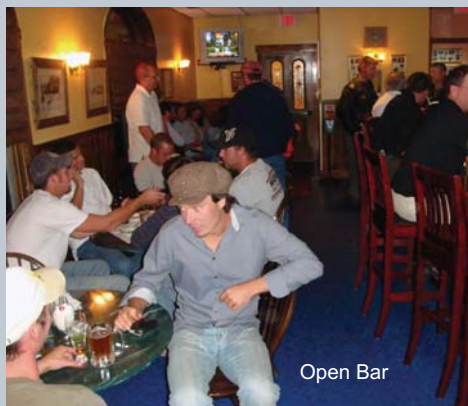
Presentations were provided by John Chan and Gary Howes of The Durable Slate Company, and Joe Jenkins of Joseph Jenkins, Inc. John showed a Powerpoint about the restoration of a copper cupola in Westerville, Ohio and a second presentation about a residential slate roof in Baton Rouge, Louisiana. Gary's Powerpoint discussed the restoration of St. Peter's Catholic Cathedral in Jackson, Mississippi. Joe's presentation was about the International Federation of Roofing Trades Congress.

The SRCA became a member of the International Federation of Roofing Trades (IFD) in 2009 and sent a delegation to the IFD Congress in Belfast, Northern Ireland in November, 2010. The delegates included six Board members; seven additional Americans affiliated with the SRCA also attended.

The location for the 2011 SRCA annual meetings and conference has not yet been determined. Stay tuned at SlateRoofers.org.



Museum Reception



Open Bar



Member's Meeting



Historic Roof Tour

Conference Sponsors:

Twelfth Century Slate Roofing Co., 10 Spring Valley Rd., Burlington MA 01803; Ph: 617-666-3888

The Vintage Slate Company, Inc., 164 Vermont Rt. 30, Wells, VT 05774 (mail) and 122 Vermont Rt. 30 South, Poultney, VT 05764 (shop); Phone: 802-645-0274; Cell: 802-342-0915

The Durable Slate Company, 1050 N. Fourth Street, Columbus, OH 43201; Ph: 800-666-7445; Fax: 614-299-7100; durablelateslate.com

Camara Slate Products, Inc., PO Box 8, 963 S. Main Street., Fair Haven, VT 05743; Ph: 802-265-3200; Fax: 802-265-2211

Evergreen Slate Co., Inc., 68 E. Potter Ave., PO Box 248, Granville, NY 12832-0248; Ph: 518-642-2530; Fax: 518-642-9313

Greenstone Slate Company, PO Box 134, Poultney, VT 05764; Ph: 802-287-4333; Fax: 802-287-5720

Westone Natural Slate Co., Ltd., Headquarters: 5B, Palmary Plaza, Tangyan Road, Hi-Tech Zone, Xian, Shaanxi, 710075, China, Phone: +86-29-88193888; Cell: +86-1389-2888958; Fax: +86-29-88193889



For more photos and videos of the conference, visit SlateRoofers.org


STRAP HANGERS



OF THE ACCEPTABLE METHODS FOR REPAIRING SLATE ROOFS, THE USE OF STRAP HANGERS IS NOT ONE OF THEM. It's ironic, then, that we see so many strap hanger "repairs" on slate, tile and hard-shingle roofs.

A strap hanger is a strip of copper, or any sheet metal, nailed to the roof where the roof shingle is missing. The bottom of the strap is left to hang below the replacement shingle, then it's bent up to hold the shingle in place. The problem with this system is two-fold: the strap hangers look bad. They constitute a repair that leaves unsightly repair evidence on the surface of the roof. In addition, the strap hangers won't work when something like ice or snow slides down the roof because the weight of the sliding material will flatten out the strap and the roof shingle will slide out.

What to do then? Use a slate hook or use the "nail and bib" repair technique. A slate hook is a copper or stainless steel hook that will not bend open and is virtually invisible on the roof. The nail and bib technique requires nailing the replacement slate in the slot between the overlying slates, then sliding a bib flashing under the slates but over the nail. Again, this repair is virtually invisible when done right.

A video showing how to repair slate roofs is available at SlateRoofCentral.com/videos.html. We show how to make and use roof tile repair hangers at TraditionalRoofing.com (issue # 1). 

Slate hooks and copper bibs are available at SlateRoofWarehouse.com.



▲ Correct: Slate hook repair.

◀ Incorrect: The strap hanger repair at left has already failed and the slate has fallen out.



So You Have Roofing Slates For Sale?

YOU TORE DOWN A BUILDING AND SALVAGED THE SLATES. Or you tore off a perfectly good slate roof because a roofing contractor talked you into it. In any case, you now have a pile of good, salvaged roofing slates that you want to sell. Well here's a bit of advice — when you call a company that buys salvaged roofing slates, you need to give them the following information before they're going to know whether they want to buy your slates or not:

1) SIZE — What is the size of the slates? 12"X24"? 6"X12"? People call and say, "Well, it looks like they're maybe ten inches wide and maybe 15 inches long." "Maybe" doesn't work. Exact measurements are necessary. Also, if the slates are "standard thickness," meaning 3/16" to 1/4" thick, there will be about 50 per foot of stack. If the slates are thicker than that, the buyer needs to know that too.

2) SHAPE — What is the shape of the slates? Are all the corners square? Is one end rounded? Are two corners cut off at an angle? This is important information.


3) QUANTITY — How many do you have? If you have 50 or 100, don't waste your time trying to sell the slates to a company that buys them for resale unless they are very special slates. Most companies want lots of at least 500 and preferably thousands if they can get them. The quantity has to be large enough that a buyer can do something with them other than paint on them, like repair or install roofs. If you want to sell them for arts and crafts, run an ad in the local paper or on Craigslist.

4) TYPE — What type of slate is it? Red? Green? Black? Mottled green and purple? Sea green? Chapman? Bangor? Unless you're an expert in slate roofing, you probably won't be able to identify the type, which means you'll have to either deliver samples to the buyer or send them photos, either by snail mail or email. No serious buyer will commit to buying slates without knowing what type they are.

5) CONDITION — What is the condition of the slates? Are they good and hard? Are they flaking and falling apart? Do they have paint on them? Roof cement? Rust stains? Are there holes in the face (the part of the slate that shows on the roof)? If the slates have any foreign material or holes on the face, they're rejects and worthless.

6) LOCATION — Where are the slates? Are they still on the roof? Are they on the ground? Are they in pallets on your truck, ready to deliver? Do they have to be picked up? Are they hundreds of miles away, or right around the corner? The buyer needs to know this information.

7) PRICE — Most people don't know what salvaged roofing slates are worth. That may be because the prices can be all over the place. If the buyer has to take them off a roof, his labor and insurance costs will be high and he will have paid handsomely for them before he has given you a penny. So if the slates have to be removed by the buyer, don't expect to get paid much, if anything. Size, shape, condition, type, location and quantity all affect the price as well. Odd sized, odd shaped slates in small quantities are usually worth least. About the only time you're going to make money on small lots of odd shaped slates is if someone needs those exact slates for roof repairs, or if someone wants to paint on them.

8) STORAGE — Make sure you have the slates stacked on edge during storage. Don't pile them up flat like a stack of dishes. The weight bearing down on the stack will damage the lower slates. Pile them on edge on boards or lath, or in pallets. With the above information, you will have the best opportunity to sell your slates. Good luck! 

Sources of salvaged roofing slates can be found at:
SlateRoofers.org/sources_salvaged_slate.html



SolderWarehouse.com

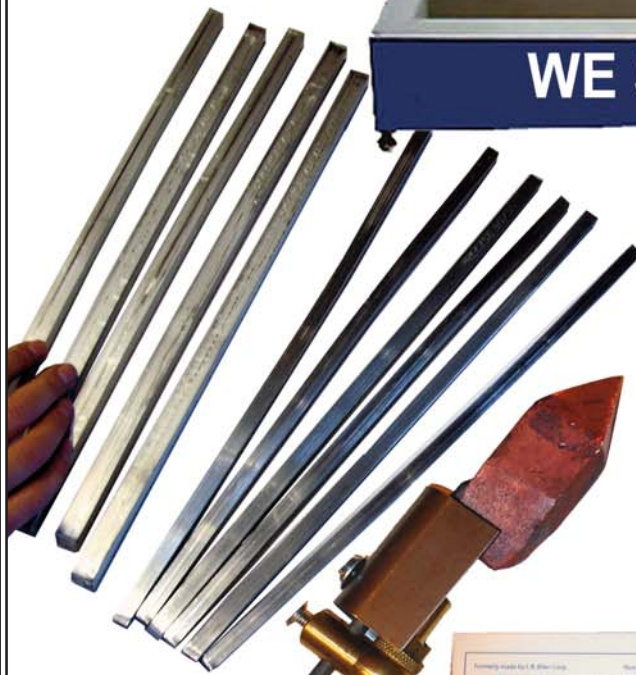
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