THIS ISSUE'S PROJECT SPOTLIGHT:

GLENRIDGE HALL RE-SLATING PROJECT SANDY SPRINGS, GA

The R.W. Stokes Company, Atlanta, GA • Page 9



Above: Manuel Avila, crew foreman (left); Ron Stokes, owner of The R.W. Stokes Co., (center); and Juan Avila (right), re-slating Glenridge

Below: Staggered butt and ragged butt slating styles yield roofs that are both functional as well as artistic. See page 3 for hints on how to install this sort of slate roof. Staggered Butt Slating



SOLDERED-SEAM COPPER Roofs

Many old slate and tile roofs have low-slope "soldered-seam" metal roofs abutting or adjoining them. They're usually found on porches, bay windows, mansard roofs, and two-story additions and are most often made of terne metal pans, and sometimes copper pans, soldered at their flat-lock

seams, hence the name "solderedseam." "lock-seam." or "flat-lock" roofs.

The best way to repair a leaking solderedseam metal roof...

(CONTINUED ON PAGE 10)

Demo soldered-seam copper roof section under construction at a workshop conducted by Jenkins Slate Roofing Services, Grove City, PA, and taught by Keith Schorr of Butler, PA, showing drip edge and one pan installed over rosin paper (above). Participants included (left to right, below) Doug Lodge, Keith Schorr (with hat), Dave Kunz, Brent Ulisky, Barry Smith, Stacy Moore, and Orion Jenkins, all gathered around the finished roof section. This workshop will soon be available on videotape — stay tuned at jenkinsslate.com.



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Roof INSCRIPTIONS and DESIGNS



t is always a memorable experience to drive down a country road on a beautiful fall day, suddenly round a corner, and come upon a landmark slate roof. The 1880 barn shown

above sits by itself on a lonely rural road near Brandon, Vermont. It has silently impressed passers-by for 124 years and is still looking good—a mix of Vermont purple and unfading green slates.

One of the unique characteristics of slate roofs is that they can be installed in decorative styles using slates of various colors. These decorative roofs can be inscribed with installation dates or with words, names, or abstract designs. The "Harmony Barn" shown at right is on the campus of Slippery Rock University in Pennsylvania at the "Harmony Homestead" (also known as the

Macoskey Center), located on Harmony Road. The slates are Vermont recycled sea green slates with a Pennsylvania black design. The black slates were generously donated by Williams and Sons Slate and Tile of Wind Gap, PA (see ad this issue).

The easiest procedure to use when installing an inscription or design on a slate roof is to draw a schematic of the roof beforehand. Make sure the schematic shows every slate in its proper proportion. The dimensions of the roof as well as the size of the slates must be known beforehand in order to do this—a job made easier by the use of a computer (although a computer was

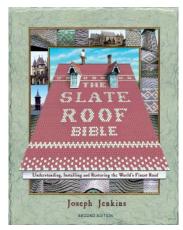
obviously not available in the 1800s when many dates were installed on slate roofs). Once the schematic has been created, the artist can play around with various designs until he or she has settled on one that looks good. Then it is only a matter of referring closely to the schematic during installation while using slates of contrasting colors in order to make the design appear on the roof. This doesn't add a lot of time to the job, but it does create a lifetime landmark roof that can live long after the craftsmen who installed it have quietly passed away.

Photos by Joe Jenkins



Joseph Jenkins, Inc., 143 Forest Lane, Grove City, PA 16127 USA Ph: (814) 786-9085; traditionalroofing.com

Project Spotlight: The R.W. Stokes Co. 9



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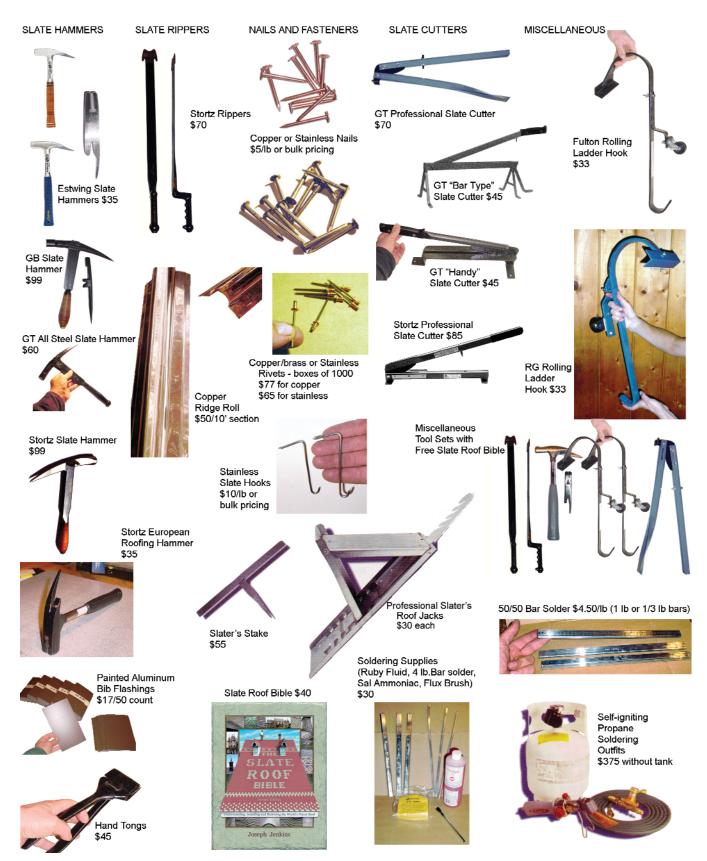








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THE ART OF SLATE ROOFING

STAGGERED BUTT AND RAGGED **BUTT SLATE ROOFING STYLES**

by Joe Jenkins

Roof slating can be an art unto itself. Slate can be installed in many ways, some of which are highly creative. The most basic installation, a "standard" slate installation, is the most commonly used method of installing slate in the United States (Figures 1 and 2). Each slate is the same length and width. Each slate is fastened to the roof with two nails along a chalk line that marks the top edge of the slate. Each slate overlaps two courses below it. This overlap is called the "headlap" and is usually three inches. The headlap is one element of a slate roof that is essential. Slate sizes, widths, lengths, colors, shapes, and thicknesses can all vary, but the headlap is a constant that must be maintained. A minimum three-inch headlap is standard, but greater headlap is acceptable anytime, and is necessary

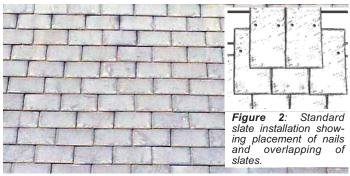


Figure 1: Standard slate installation. All slates are the same length and width. What you see is only the bottom part of each slate — most of the slate shingle is overlapped by the slates above. In fact, each slate is overlapped by the second row above it by three inches. This critical overlap is called the "headlap."

TRADITIONAL ROOFING

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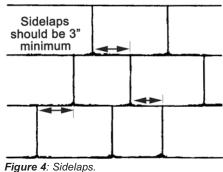


Figure 3: Random width slate installation in the UK.

when the roof slope drops toward 4:12 (which is minimum slope for slate roofs). Insufficient headlap can lead to roof leakage (although a two-inch headlap is common on older roofs with adequate slope — 12:12 or greater).

A simple variation of the standard installation is the "random width" installation, which utilizes slates of various widths (Figure 3). In random width installations, the "side-

laps," as well as the headlaps, are critical. Sidelaps are the lateral spacing of the side-butts of each slate in relation to the course above or below (Figure 4). The sidelaps, like the headlaps, should be a mini-



mum of three inches in most cases.

Slate roofs can utilize slates that vary in both width and length. One such style is called a "graduated" roof because the roof slates traditionally graduate from larger slates at the bottom of the roof to smaller slates at the top (Figure 5. p. 12). Again, proper sidelaps and headlaps must be maintained for the successful functioning of graduated slate roofs (discussed in greater detail in Traditional Roofing #2).

A random width installation can be modified into a "staggered butt" style (Figure 6, p. 12, and on back cover). The staggered butt style of slating can be further modified into a "ragged butt" style, which is simply done by cutting the exposed bottom edges of the slates randomly to create an inimitable roof (Figure 7, p. 12, and back cover).

There are two easy ways to create staggered butt slate roofs. The first is to use slates all of one length, say 20". The roof is chalked for 20" slates with added headlap (4" instead of 3"), or chalk lines every 8 inches. Slates of various widths should be used for aesthetic purposes, and various color shades will add even more to the beauty of the finished job. Every other slate is nailed above the chalk line about an inch or so during the installation (Figure 8, p. 12). This reduces the headlap of the raised slates to 3", which

(CONTINUED ON PAGE 12)

TRICKS OF THE TRADE:

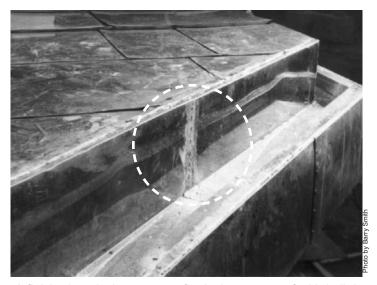
HOT TIPS

FOR VERTICAL SOLDERING

by Barry Smith

nyone who has soldered vertical or steep pitch seams knows how much harder it is than horizontal seams. You need the solder to melt so that it can get drawn into the seam, but the moment it melts, gravity wants it to run down away from your iron. Here is a method that works well on riveted lap joints.

- 1. Start with an iron with a 3-sided, pointed "knife" shape (as opposed to the classic pointed, 4-sided shape) slightly cooler than you would use on a horizontal joint.
- 2. Starting at the bottom of the joint, with the tip of the iron pointed down, apply a trail of solder at the edge of the over-lapping metal. Move the iron up the length of the joint fairly quickly and don't try to heat the metal, just leave a narrow, vertical trail of solder. If it doesn't stick to the metal, use more flux until it does.
- 3. Go back to the bottom, only this time place the sharp edge of the blade across the surface of the joint and again leave a trail of solder. It should be about 1-1 ½ inches wide, which is determined by the length of the blade of the iron. This should also go fairly quickly and not heat the metal much. Again, use flux if needed. The entire joint should now be covered with a gloppy layer of solder.
- 4. Repeat the first step of #3, except don't add any more solder, and this time, move up the joint slowly so that the metal heats enough to draw the solder in between the layers, and to seal around the rivets. Only the sharp edge of



A finished vertical seam on a flat-lock copper roof with built-in autters.

the blade should be touching the metal. If done properly, the solder will pool on top of the blade of the iron long enough to be drawn into the joint. Some of the solder will run down the face of the joint, but it should quickly harden again before reaching the bottom. If it all runs straight to the bottom, then the metal is too hot. Repeat this step 3 or 4 times.

5. Once you are confident that the solder has sealed the joint, start at the top and clean off the excess solder with the sharp edge of the blade. Just smooth it off with one quick swipe, leaving a layer of solder behind. There will be a pile of solder below that will have to be cleaned up. If the vertical joint is part of a gutter, then you can use this excess to solder the bottom joint.

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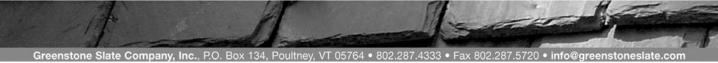
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BOOK REVIEW:

HISTORIC AND OBSOLETE **ROOFING TILE - PRESERVING THE** HISTORY OF ROOFING TILES

2001; by Vincent H. Hobson, in association with Melvin Mann Remai Publishing Company, Inc., Evergreen, Colorado USA 254 pages, indexed, with glossary and bibliography; ISBN 0965544117 (paperback) \$69.95 US; \$104.44 Canada; Currently a promo price of \$52.95 plus \$5.90 S&H

t has become increasingly difficult over the years to find definitive published resource material that is useful in the restoration and repair of older slate and tile roofs. Although The Slate Roof Bible has filled that gap with regard to slate roofs, there has been little, if anything, in print regarding tile roofs. Vincent Hobson has filled a huge information gap with his 2001 book, Historic and Obsolete Roofing Tile, a full-color book with well over 700 color photographs. Hobson's book provides anyone interested in clay tile roofs with the self-described "only guide to identifying old roofing tiles." Hobson delves into the history of clay roofing tiles, which

dates back 12,000 years, adorns the book with numerous old documents and illustrations, then takes the reader on a journey that identifies hundreds of historic and obsolete tile types, each carefully photographed against a scale.

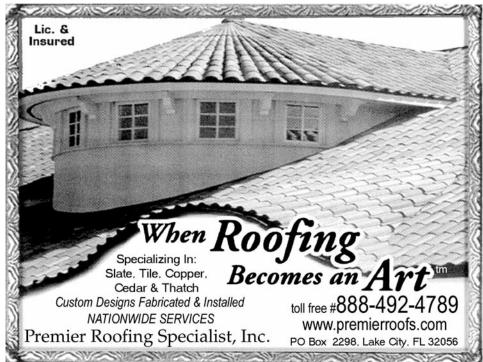
The Tile Reference Guide also lists average number of pieces per square as well as average weight per square for each type of tile. Add to this a trouble-shooting chapter with photos of hail damaged tiles, a bibliography, and a glossary, and you have undoubtedly the most comprehensive antique roof tile identification book in existence. Since the primary purpose of the book is the identification of tile, it does not cover techniques or methods of installation or repair. However, the proper repair and restoration of older tile roofs is dependent upon a supply of matching replacement tiles. This book is an important tool enabling the restoration contractor, building owner, architect, or roofer to correctly identify obscure types of older roofing tiles.

Hobson also maintains an historic and antique tile supply business called Custom Tile Roofing, Inc. where a 400,000 piece tile inventory is maintained [2875 West Hampden Avenue, Englewood, Colorado 80110; ph: 303-761-3831; FAX 303-761-3839; Email: ctrvince@gwest.net (rooftileguru.com or customtileroofing.com)]. Between this

book and the tile inventories that Hobson coordinates, there is no longer any excuse for tile roof restoration to be done with nonmatching tiles.

Additional sources of both new and salvaged roofing tiles are listed at jenkinsslate.com (look for the "sources of" listings). Information about how to repair tile roofs is included in the new Slate Roof Bible. 2nd edition (see inside front cover of this issue of Traditional Roofing).

Order Hobson's book from: Remai Publishing Company, Inc., P.O. Box 1837, Evergreen, Colorado 80437. Order online www.rooftilebook.com (email: vince@rooftilebook.com). They're currently offering (for a limited time) their full case book price on each book sold (\$52.95/book plus shipping of \$5.90).



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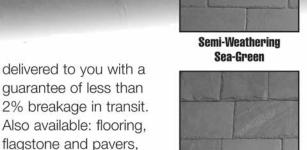
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INTERNATIONAL PRESERVATION TRADES WORKSHOPS

he seventh annual International Preservation Trades Workshops (IPTW) were held October 9-11, 2003, near Columbia, Maryland at historic Blandair Farm. Roofing workshops included slate roofing (chimney flashing using the folded corner method) conducted by Joe Jenkins, as well as traditional side-lap wood shingle roofing conducted by John Fugelso and James Houston. Other workshops at the conference included lime plaster, forging of metals, decorative plaster, timber framing, stone masonry, brick masonry, scagliola, and more. Clem Labine, publisher of Traditional Building and Period Homes magazines, was keynote speaker.

The workshops are sponsored by the Preservation Trades Network (PTN), on the web at ptn.org. IPTW registration cost for members was \$355 and for non-members. \$395. All TR readers and roof preservation contractors or mechanics are encouraged to join the PTN, PO Box 10236, Rockville, MD 20849-0236 (phone: 301-315-8345). The PTN membership fee is \$45.00 for individuals, \$25.00 for students and \$300.00 for corporations. Show your support for the preservation trades!

Put it on your calendar now! IPTW 2004 — Mobile, Alabama, October 21-23: For more information contact the Alabama Historical Commission, 468 South Perry Street, Montgomery, AL 36130-0900; phone: 334-242-3184; email: jhaynes@preserveala.org.

For a DVD or Video of the 2002 IPTW held in Fairmont, WV, send \$30.00 plus \$2.50 s/h to Vandalia Heritage Foundation, c/o Patricia Bolton IPTW Video, 701 Benoni Avenue, Fairmont, WV 26554.

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READERS WRITE

(CONTINUED FROM PAGE 8)

slate roof would have chronic leaking problems along the eaves because none of them have ice guard, yet, this problem does not exist. When a properly insulated, designed and installed slate roof leaks, there is probably a specific problem in the roof (faulty old repair, nail hole, cracked slate, etc.) where the water is penetrating. Better than putting ice guard under your eaves slates, in extreme circumstances you could remove the slates, then re-install them with greater headlap. You would need to add a row of slates in order to do this. You would only expect to have to do something like this if the roof had been installed incorrectly in the first place (slope too low, headlap insufficient, etc.), which is unlikely. A simpler method of fortifying a drip edge is to slide copper bib flashings (6" wide) under the slots along the eaves in order to artificially increase your head lap. Again, this remedy, although simple, cost effective, and long lasting, is rarely needed. I have only needed it when the roof was low slope, such as on a shed roof dormer eaves where the ice and snow could not get off quickly enough and no other faults were visible. A defective slate, invisible from above, could leak in the slot during ice damming, and the copper bib flashing remedy will cure it (which is most likely what is happening in your case). Ice guard has become the panacea of plywood roofers. A good slate roofer will never rely on temporary underlayment to keep the roof waterproof.

Reader: I recently had installed a standing seam copper roof over my home. The contractor installed the copper in the traditional way. Now that it is winter, water condensation tends to collect under the copper in the attic (which is not heated). What is the best way to deal with this? Would a dehumidifier make sense?

The Roof Savant: Your best bet in dealing with attic condensation is keeping the warm air out of the attic. As long as warm air is coming in contact with the cold metal, you will have condensation. Try either better ventilating the attic space so it stays colder in the winter, insulate the attic floor so no warm air penetrates into the roof space, or insulate the roof itself under the metal. Always install a vapor barrier (heavy mill plastic) interior to the insulation.



GENERAL ROOFING TERMS FROM THE INTERNATIONAL LIBRARY OF TECHNOLOGY, 33C, 1909 LOUVRE MANSARD ROOF SHED, PENT OR LEAN-TO ROOF **VENTILATOR** SURMOUNTED DOME OGEE ROOF GABLE ROOF SEMICIRCULAR DOME CURB OR GAMBREL ROOF SEMICIRCULAR OR ELLIPSOIDAL DOME BARREL ROOF SEGMENTED DOME HIP ROOF **BELL DOME DORMER** HIP AND VALLEY ROOF WINDOW **ROMAN PITCH GRECIAN PITCH ELIZABETHAN PITCH** A SQUINT EYEBROW DORMER **GOTHIC PITCH**

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he 15th International Federation of Roofing Trades (IFD) World Congress was held November 5-9 in Dublin, Ireland in the fall of 2002, coinciding with the World Slating and Tiling Championships for Young Roofers. A reception for delegates was held at the famous Guinness Brewery in the heart of Dublin.

The only American delegate to attend the Congress was Joe Jenkins of Jenkins Slate Roofing Services, Grove City. PA, who, along with his wife, Jeanine, enjoyed the complimentary open tap at the Guinness brewery. Jenkins also took two of his children to Dublin, daughter Phoebe, age 12, and son Orion, age 17, an apprentice slater.

After the Congress, the Jenkins clan traveled to Amsterdam, rented a car, and toured the slate mines of Europe while researching the second edition of The Slate Roof Bible, which is published and authored by Jenkins (see inside front cover).

Eight countries competed for a gold, silver, or bronze medal in Dublin. Each team of two young roofers with one older mentor was required to complete the compulsory tasks illustrated here: task 1 on day one, task 2 on day two, and finally, the free-form valley task on day three.

Unfortunately, the "slates" used for compulsory task 1 were "fake slates," not the real thing, and only one country (Belgium) used natural slates for its optional task, the center valley. Austria won the Gold medal, Switzerland took the Silver medal, and the UK won the Bronze medal.

You can see photos of the competition on the Traditional Roofing web site at traditionalroofing.com/World-Championships-2002.htm. The 2003 IFD Congress was held in Budapest, Hungary, from 9 to 11 October, 2003. The 2004 IFD Congress will take place in Belgium in the city Wépion from 4 to 6 November, 2004. The 2004 IFD World Championship for Young Roofers will take place also in Belgium in the city Gembloux from 2 to 6 November, 2004. The 2005 IFD Congress and World Championship will probably take place in South Africa (Cape Town).

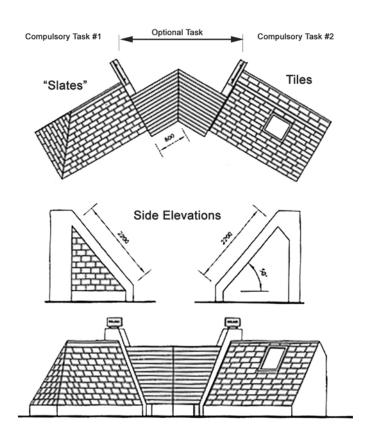
For further information about IFD please have a look at www.ifd-cologne.de

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READERS WRITE:

SLATE ROOF SAVOIR-FAIRE

Reader: "Have you ever heard of anyone running into any problems using plank board decking? I am having a small roof addition built and I want to install new slate. I'm trying to convince the contractor to use 1 inch plank board for the decking, but right now the job is spec'd using CDX plywood. I have shown him the info you have about plywood vs plank decking, but the contractor still believes the plywood will work! Yorktown, VA

The Roof Savant: No, I have never heard of a problem concerning plank board decking related to the material. I have heard of lots of problems regarding contractors. Plywood on slate and tile roofs is used strictly for the convenience of the contractor or architect and for no other reason. It has never demonstrated the phenomenal longevity necessary for a traditional slate roof (100 to 200 years). It will work temporarily, but it's not worth using when better materials are available for less money. It's your money and therefore your call — downgrade your roof construction to satisfy the convenience of your contractor, or build it right once.

Reader: I read your newsletter some months back when I was shopping for a new roof. I saw your opinion on plywood and thought, man that guy's full of it — what a blowhard! Plywood lasts forever! I've just had my mind changed — by a floor, not a roof. I recently stripped the finish flooring in my ca. 1915 house, which had an addition put on in 1965. The original subfloor is 1x6 pine, and it is still in outstanding condition. On the other hand, the addition had a plywood subfloor. Though it is still sound, you could tell it is less flexible and much more brittle than new plywood, and there was some evidence of delamination by the outside door. In a powder room in the addition, they used plywood to shim the sheetrock out, and it is brittle like an old newspaper — completely worthless. The state of the plywood all around was pretty sorry considering it was younger than I am and had been living under ideal conditions (warm, dry, and out of the sun). I can't imagine what it would be like if it had had to endure the extreme temperatures and hot/cold cycles a roof does. I guess my point is just to say thanks for such a nice and informative newsletter; you've convinced a skeptic that what you say is correct. I hope some day to own a home worthy of a fine slate roof, and you can bet it will have a lumber deck if I have anything to say about it!

Reader: Can you tell me what the approximate cost per installed square would be in Vermont using a middle of the road slate? Architectural shingles run approximately \$58.00/sq installed.

The Roof Savant: Costs are affected by various criteria. including the removal of old roofing. If yours is a new home, the slate material will cost maybe \$400/square, delivered. Installation will be that much again, or more, depending on



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the style of roof, amount of flashing, etc. Slate is a one time deal, though, if done right.

On the other hand, cheap temporary roofing such as "architectural shingles" cost less, but you get what you pay for. Would you buy windows for your new house that would last only 20 years if they were cheaper than lifetime windows, then replace them every couple of decades at ever increasing cost? I doubt it. Yet, on the urging of the roofing industry, people routinely buy cheap roofs — the most important part of the house — and replace them over and over (which makes lots of money for roofing contractors). The wisest approach in the long run is to put a lifetime, beautiful, natural roof on your house in the first place.

Reader: I own a slate roofed home built in 1954. When we experience rapid changes in weather (common here in northern Ohio), the roof gutters have frozen and ice damming has caused roof leaks at the eaves. I have installed snow melt in the gutter area, but this is not fully effective. I have been contemplating removal of the shingles to install iceguard at the gutter line to prevent this problem in the future. It appears that you object to the use of iceguard. My question is — do you believe it is detrimental to the slate to use it and if not, what are your objections?

The Roof Savant: I don't think ice guard is the solution to your ice-dam problem. If it was, every older home with a

(CONTINUED ON PAGE 15)

STAGGERED BUTT SLATING

(CONTINUED FROM PAGE 12)

job site before you get started.

One of the most important workers on the installation crew is the ground man because he must blend the slates on the ground before they are sent up to the installers on the roof. For example, if you are using 1/3 14" wide slates, 1/3 12" wide slates, 1/6 11" wide slates and 1/6 10" wide slates, then the ground man must select four 14" slates, four 12" slates, two 11" slates and two 10" slates, and then send these up to the slaters. The ground man is responsible for blending the slates as they're sent up so that the slaters can simply install the slates without having to worry about whether the right ratio of sizes and colors is being nailed into place. A good ground man who knows how to blend the slates is critical to an efficient slate roof installation utilizing mixed sizes and colors.

One thing that separates slate roofs from all others, aside from beauty, longevity and natural origin, is the potential for creativity. When a stone roof can be varied according to the lengths, widths, thicknesses, colors, and shapes of the shingles, the possibilities seem endless. This is where a slater can depart from the mundane job of being a roofer and instead step into the realm of becoming an artist.



Figure 9: Ragged butt style of slating on a bat house at Slippery Rock Univ., Slippery Rock, Pennsylvania (see back cover). In this case, three lengths of slates are being used (16", 18" and 20"). The tops of the slates are lined up with chalk lines spaced for 16" slates and allowing for a three inch headlap (a chalk line every 6.5"). The longer slates are allowed to hang down, but are trimmed off to leave a "battered" or "ragged' effect.

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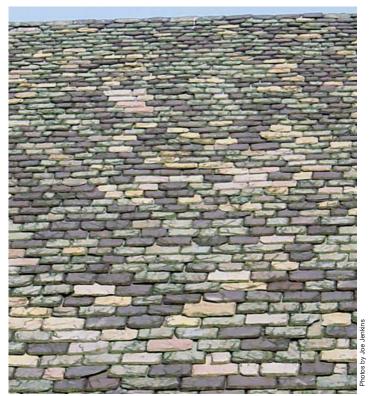


Figure 5: Graduated slate roof at Grove City College, Grove City, Pennsylvania. Slates vary in both widths and lengths. This roof also blends several colors of slate.

STAGGERED BUTT SLATING

(CONTINUED FROM PAGE 3)

is acceptable. On steep slopes (greater than 12:12) even less headlap my be acceptable in some cases, allowing for a greater staggering effect. If more pronounced staggering of the slates is desired, then chalk the slates for a five inch headlap and nail every other slate two inches above the chalk line. The result is a beautiful roof. It requires a greater quantity of slates due to the extra headlap, but the artistic effect is worth it.

Another method of installing a staggered butt slate roof is to use slates of different lengths. For example, random width and preferably multi-colored slates that are 16", 18" and 20" long can be nailed so that the top edges of all of



Figure 6: Staggered butt slate roof on the shores of Lake Catherine, Vermont. Slates vary in widths, and lengths, and, in this case, colors and thicknesses. The tops of the slates are lined up but the bottoms are allowed to hang down.



Figure 7: Ragged butt slate roof in Lake Forest, Illinois. Slates vary in widths, lengths, colors and thicknesses. The top of the slates are lined up, but the bottom is allowed to hang down. The bottom edges are trimmed at random to create a unique look.

the slates line up with the chalk lines. The roof is chalked for the 16" slates with a 3" headlap (a line every 6.5"). The effect is that the bottoms of the 18" and 20" slates hang down two inches and four inches more than the 16" slates. Not only does this create a dramatic staggering effect on the roof, but it also allows for a "ragged" or "battered" butt style to also be utilized, if desired (Figure 9, page 13).

Ragged butt slate roofs require some, if not most, of the slates to be to be trimmed erratically along the bottom edge before nailing into place. The end result is clearly a work of art, not difficult to achieve, and a lot of fun. Again, this style of slating utilizes more slates and requires more installation time, but when you know the roof is going to be looked at for a century or two, a little extra installation time doesn't really mean that much when you're creating a work of art.

One of the most important elements of staggered and battered butt slate roof installations is the planning. The installer needs to know ahead of time how many slates of each width, length, and color are going to be used. For example, if you use 95% 16" slates and 5% 20" slates, the end result won't look very good — you need a greater mix of sizes. Decide ahead of time what sort of color and size blend might look good, then have the entire selection on the

CONTINUED ON PAGE 13



Figure 8: Same length slates, staggered above chalk line, in Sewickly, Pennsylvania (see also back cover).

PROJECT SPOTLIGHT:

GLENRIDGE HALL, SANDY SPRINGS, GA

THE R.W. STOKES COMPANY

he Glenridge Hall slate roof restoration project is a good one to shine the spotlight on for several reasons. First, it was a difficult job, being a graduated, mixed Vermont slate roof with rounded valleys and eyebrow dormers. Secondly, the proprietor and resident of the building, Joey Mayson, wanted the job done right and was willing to go the extra mile to ensure that this is what happened. Thirdly, and perhaps most importantly, the existing roof was an "economy method" roof that had to be completely re-slated.

Glenridge Hall is on the National Register of Historic Places and is privately nestled in the middle of 47 acres in a business district just north of Atlanta, Georgia. The roof on this 14,000 square foot Tudor style house is made of Vermont slates of three color types: purple (30%), sea green (35%) and unfading green (35%). It is installed with copper nails on a 3/4" yellow pine deck in a graduated pattern and is characterized by random widths, graduating thicknesses and lengths, eyebrow dormers, rounded (slated) valleys, large chimneys, hipped roof sections, and some curved roof sections. It is a complicated roof design with many penetrations, planes, and obstructions.

The approximately 170 square slate roof was originally installed in 1929 and could have been expected, under normal circumstances (with proper maintenance), to last at least 150 years. However, at 50 years of age, in 1979, some leakage developed in the roof, probably in a valley area. At that time, the owner was convinced by a local roofing contractor that the entire roof had to be removed and then re-installed in what has been termed the "economy" method, even though the roof probably could have been easily repaired. The "economy" installation technique relies on felt paper installed over every course of slate to keep the roof from leaking. All headlap is eliminated; even side-laps were ignored during the "economy" re-installation of Glenridge Hall in 1979.

Twenty-three years later, the felt, which was exposed in the slots between the slates, had deteriorated to such an extent that the entire roof had to be essentially "condemned." The existing slate was re-usable, however, and was removed and re-installed using correct procedures in order to preserve the look and historical integrity of this architectural gem. The correct removal and re-installation of the slate roof on Glenridge Hall, using the existing slate roof as the primary source of roof slate, could be expected to last perhaps another century. This project was successfully undertaken by The R.W. Stokes Company of Atlanta, Georgia, in the winter of 2002.

Ron Stokes' crew foreman for this project was Manuel Avila whose crew had to remove all of the slate on the entire Hall, salvage it as best they could, then re-install it back on the same building with proper headlap over half-lapped 30 pound felt. The salvaged slates were used on the front of the Hall first, in order to preserve the historical look of the building. The front, however, consumed just about all of the salvaged slates.



Glenridge Hall, front entrance, after the original slate had been removed and stacked in the driveway and the new felt installed.

Re-slating is just beginning.



Glenridge Hall. The finished roof is not only beautiful, but also historically accurate. It can realistically last another century.

See additional photo, Page 20.

New slates of the same color mix and graduation scheme were installed on the back of the building, supplied by Steve Yoder of Classic Slate and Tile in Atlanta. The rounded valleys and eyebrow dormers were fortified by 20 ounce copper flashing applied underneath each course of slates in the curved sections. All of the remaining flashings on the roof were replaced during the re-installation, again using 20 ounce copper. This was a long, arduous project delayed by a lot of rainy weather, but The R.W. Stokes Company managed to complete it in the summer of 2003.

There is a moral to this story: In this case, the so-called "economy" method of slate installation simply wasted a huge amount of money (\$200,000.00 in 1979). It involved the entire removal and reslating of 170 squares, all installed at that time in a faulty, temporary manner, essentially a roofing time-bomb waiting to go off twenty years later when the felt wore out. It is obvious that calling this an "economy" installation is a gross misnomer. It would better be called the "wasteful, shoddy, and very expensive" installation, one which should be soundly condemned and avoided at all costs. There is no economy in the economy method.

A tip of the hat to The R.W. Stokes Company and to Joey Mayson for a job well done!

SOLDERED SEAM COPPER ROOFS

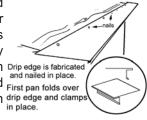
(CONTINUED FROM PAGE 20)

The best way to repair a leaking soldered-seam metal roof is the same way flashings are repaired on slate or tile roofs: the old metal is completely removed and then replaced. When the old terne metal is removed, it should be replaced with new terne-coated stainless steel or 20-ounce copper. 16-ounce copper will work too, but for the smaller extra cost and the promise of a metal roof that can last a century with little maintenance, the 20-ounce copper would be preferable (and the stainless the most durable). It has become difficult these days to find roofing contractors who can and will do flat-lock metal roof work, and it is even more difficult to find information or instructions on how to do this sort of work, which is why we have included it in this issue of Traditional Roofing.

The flat-lock roof starts with a drip edge piece (see illustration below). The field of the roof is then covered with metal pans which can be various standard sizes, the most common perhaps today is a pan 24" X 18".

The flat pans are cut, the corners are snipped off at approximately a forty-five-degree angle, then two adjacent edges are folded up and the opposite two adjacent edges are folded down, the folds being 1/2" to 3/4". The pans are fastened to the roof with cleats, these being made of the same metal, approximately 1.5" X 2", with a fold equal to the folded seam on the pan (1/2" to 3/4"). This fold is fit into the pan seam, and the other end is nailed to the roof deck with two nails, then folded over the nail heads. Two to three cleats are recommended on the long side of the pan and one to two cleats on the short side. The seam is then hammered down with a

dead blow hammer and soldered with 50/50 tin/lead solder or other suitable solder. Roof protrusions such as vent pipes are fit closely around the base with a pan, then Drip edge is fabricated a sleeve is fabricated with a flared First pan folds over bottom that is riveted to the pan drip edge and clamp and soldered in place.



More information about soldered-seam metal roofing can be found in the Slate Roof Bible, 2nd edition (see inside front cover).

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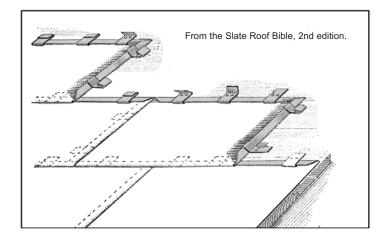
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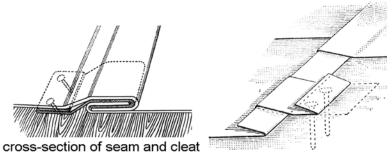
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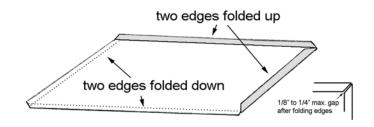
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SLATE ROOFING

CONTRACTORS ASSOCIATION

(SLATEROOFERS.ORG)

by Joe Jenkins

A national organization dedicated to slate roofing contractors is way overdue. Yes, we already have the National Roofing Contractors Association (NRCA). But it is an organization that has about zero interest in the issues that are important to traditional slate roofing professionals. Plus, it has a strongly conservative political leaning that some find distasteful, and its monthly magazine reads like a who's who of the chemical industry. Besides, we have enough trade organizations devoted to golfing.

What we need is a slate roofing trade organization devoted to education, networking, hands-on training, and the establishment and maintenance of contractor and material standards. We need an organization that will separate the roofers who are serious about slate from the pretenders. We need to be able to direct the public to screened, experienced, professional and ethical slate roofing contractors. We slate roofing professionals need to be able to communicate online and by phone to help each other out when we're faced with difficult roofing scenarios. We need the Slate Roofing Contractors Association (SRCA), a national association that would include all of North America.

I have been kicking this idea around for years and have posted information about it on our online message board at jenkinsslate.com. However, nothing has come to fruition until now. Because we publish the Slate Roof Bible and the Traditional Roofing newsletter, a lot of traffic goes through our web site at jenkinsslate.com. I get a lot of inquiries from homeowners, roof owners, architects, contractors and the like looking for competent roofing contractors who can either install a new slate roof, replace an existing slate roof with a new slate roof, or restore an existing slate roof. I also get a lot of feedback from people who have had very bad experiences with roofers who don't have a clue about how to work with a slate roof. The time has come to establish a serious association of slate roofing contractors. The association would:

- 1) Have a multi-tiered membership that would include:
- a) fully qualified slate roofing contractors (for example, 75% of income derived from slate roofing contracting projects and minimum 5 years experience with no ethical misconduct on record)
- b) other roofing contractors, technicians, mechanics, apprentices, etc. who do not qualify for the membership

category above (but may do so in the future)

- c) non-contractor industry professionals such as slate quarry personnel, slate brokers, slate tool manufacturers, etc.
- d) other professionals such as architects, conservators, roofing consultants, and preservation specialists
- e) general members (slate roof owners, general public)
- 2) Develop training programs with the intention of eventually establishing certification programs (slate roof installation training, slate roof repair training, slate roof restoration training, etc.).
- 3) Interface with other related national and regional organizations such as the National Slate Association, NRCA, Preservation Trades Network, Craftsmans' Guilds,
- 4) Establish exchange programs with overseas roofing schools (we are already talking with Telford College in Scotland about this, and have had keen interest shown by the German schools).
 - 5) Maintain a web presence that will:
- a) list qualified slate roofing professionals, including contact information, photos of work completed, etc. This would be a professional directory open to the public, a source list of qualified slaters to where inquiring people can be directed.
- b) Provide an informative web page for each full member contractor, including email accounts (yourname@slateroofers.org).
- c) maintain a public message board where anybody can post questions and answers (such as we now have at jenkinsslate.com)
- d) maintain a members only message board where issues such as costs, techniques, contracting issues, materials, estimating jobs, etc. can be discussed among members.
- 6) Hold an annual conference where members exchange information, techniques, and trade secrets; where we help each other to advance our skills; where we get our hands dirty; and where we make new friends and have fun in a cost efficient manner.
 - 7) Publish a newsletter, perhaps Traditional Roofing.

This will not be a free or frivolous organization; it will be a trade organization that will require a serious commitment, including the payment of annual dues. We will be developing the details of this organization during the winter months of 2003/2004 and will be creating a member base shortly thereafter. We have no ambitions of creating a huge organization such as the 5,000 member NRCA. If there are only twenty of us to start, that's twenty more than we have now. The web domain (slateroofers.org) is already secured and a rudimentary website is awaiting further development. If you want to get in on the ground floor, email me at joe@slateroofers.org, call us toll free at 1-866-641-7141, or write to SRCA, 1543 Forest Lane, Grove City, PA 16127. Get your name on the potential membership list and let us know if you want to help with the organizational development process as well!