

message from the

Editor



Here we are... back with our second edition of the *The North Country Slate Standard* and hoping it reaches all our customers, suppliers, architects, consultants and specifiers. I hope every one is enjoying prosperity in 2006 and had a great summer!

Is it just me, or is anyone else weirded out by the wild claims of "artificial" slate manufactures and marketers in their advertising, literature and promotional materials? Really... they're comparing their value, performance and environmental benefits against real "natural" slate?

There are three reasons why "Un-Natural" slate would be used on a building... weight (under-designed for real "natural" slate), price (under-budgeted for real "natural" slate), or performance (under-expected to last as long as real "natural" slate). In the past ten years, the market has been flooded with "slate wanna be's", most going down the drain quietly (or not so quietly) after performance problems on roof tops. Funny how actual durability on a roof top can be so different than in a laboratory, where "marketing durability" for "Un-Natural" slate is established for advertising campaigns?

All our readers probably know of real "natural" slate roofs that are still beautiful and actually performing (outside the lab) after 100 years on roof tops in our communities. The "Un-Natural" stuff is a step up from three tab shingles, but make no mistake...it ain't slate! Let's continue to keep it real guys!

Once again, if you are reading this, it probably means you have read at least some of the other articles in this newsletter. I hope you have found them to be interesting, amusing, thought provoking or controversial. I look forward to your comments, opinions or suggestions.

Regards

Dave Large

NORTH COUNTRY PRODUCTS

Unfading Green



North Country Unfading Green slate meets, or exceeds, the requirements of an S-1 rated roofing slate under ASTM C406. This beautiful material, produced by quarries in Vermont and New York, is available in smooth, medium or rough textured 1/4", 3/8", 1/2", 3/4" and 1" thickness. In general, texture will be more evident as slate thickness increases or slate face dimensions decrease. Texture refers to the degree of "tear back" from the trimmed edges, the presence of knots, knurls and cramps on the face of the slate, and the variation in thickness of slates in a shipment. An increase, from smooth to medium or rough texture, will lead to greater definition of the individual slates on a roof top. North Country monitors these "textures" to ensure that they fall within traditional North American limits.

Select quarries, producing North Country Unfading Green roofing slate, must meet our expectations for stone and fabrication quality, production capacity, and adherence to delivery lead time schedules. Our quarry suppliers have been in production for generations and have proven capabilities in meeting the demands of our discerning customers. They blend the traditional, centuries old, art of roofing slate manufacture with the mechanization and automation required to be successful in today's modern roofing slate industry.

North Country Unfading Green roofing slate has been specified and installed on prestigious private homes, courthouses, churches, university and institutional buildings throughout North America. Our customers are thrilled and our competition is green with envy!

For more information on how North Country Slate can help with your next project, contact: Dave Large
Tel: 416-724-4666
Toll-Free: 1-800-975-2835
Email: info@ncslate.com



THE SLATE FACTS

The natural mineral makeup of slate will determine its color. Hematite produces purple tones and chlorite produces green. Black and gray colors are created by carbon. The presence of iron compounds, primarily fine grained iron pyrite, can lead to the "weathering" of these original colors to tones of buff and brown in various percentages. This characteristic produces the "semi-weathering" or "weathering" designation of slates and has led to the development of commercial color descriptions Unfading Black, Semi-Weathering Black, Semi-Weathering Grey/Black, Unfading Green, Semi-Weathering Green etc ... to signify the color stability of slate from a given source.

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STANDARD



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TEXAS COURTHOUSES RESTORED TO ORIGINAL GLORY

When the new Republic of Texas formed in 1836, the government quickly drew up counties and began building courthouses to create a civic foundation in the rugged landscape. Because it was the only capital expense that counties were allowed to finance over time, these elaborate courthouses were constructed using the very best construction materials of the day. During the "golden age" of peak courthouse construction in the 1880s and 90s, many were topped with black or dark gray slate, which was typical for distinguished buildings of that era. The courthouses soon became symbols of pride for the pioneers settling there.

"One of the things that they could entice people with, was a very prestigious looking courthouse," says Sharon Fleming, AIA, with the Texas Historical Commission (THC).



"For many Texas communities today, it remains the very best building they have."

As part of a comprehensive program launched in



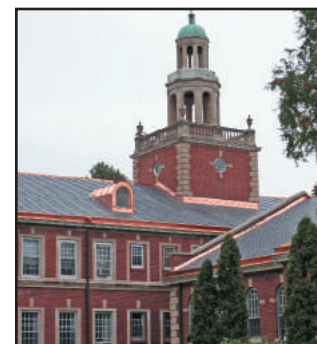
1999, historic courthouses throughout Texas are being restored. To match the original architectural designs, many are getting North Country Unfading Black roofing slate. To ensure historical accuracy, THC project manager Mark Cowan looks in attics and digs underground for slate shards to determine the

original color. "When we're excavating around the building, we look for original slate," says Cowan. "We want the new slate to be a visual match with the original." On all the projects he's worked on so far, Cowan says North Country Unfading Black Slate is identical to the slate being replaced. See [Texas Courthouses, page 2](#)

ROCK OF AGES

When Cardinal George Mundelein set out to build a new Roman Catholic seminary just north of Chicago in the 1920s, he chose classical structures with an American influence that would survive the ages. His vision would become the University of St. Mary of the Lake. While his original slate roofs at the university performed well for about 50 years, leaks began appearing in the 1980s and the asphalt shingles used then as a replacement were now failing. By 2002, Stanley Rys, vice president of facilities, was looking for a solution that would restore the original appearance of the buildings, provide long term protection from the elements and save money in the long run. "As a Catholic seminary, we certainly expect to be here in a hundred years,"

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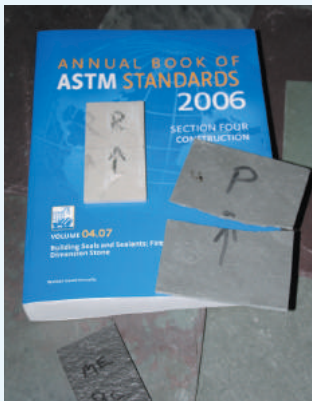
ASTM Publishes Revised Standards Covering Natural Roofing Slate

As reported in our last newsletter, ASTM International (American Society for Testing and Materials) has been overhauling their test methods and standards for natural roofing slate. This process has now been completed and they have recently approved, and published, a much revised "C120 Standard Test Methods of Flexure Testing of Slate" and a new "C406 Standard Specification for Roofing Slate".

The key point of the changes to C120 Standard Test Methods of Flexural Testing of Slate is that the test now evaluates "breaking load" rather than "modulus of rupture" to determine the physical strength of roofing slate. The sample size has been increased from six to ten specimens, and more detail is provided related to the test methods and equipment employed. The test results are specific to the average thickness of the specimens tested (or greater thickness) only, with the minimum average thickness allowable (as suitable for roofing applications) being 3/16".

The changes made to C406 Standard Specification for Roofing Slate reflect the revised C120 test methods and continues to apply an expected service life classification of S-1 - Over 75 years, S-2 - 40 to 75 years or S-3 - 20-40 years for material tested.

It is important to ensure that the most recent approved editions of ASTM documents are



referenced for your projects. ASTM publishes the approved C406 standards in November of each year in their Annual Book of ASTM Standards. This book contains all standards, as approved by ASTM, up to six months prior to the publication date. Standards that are approved between the annual editions are available separately and should be referred to as the most recent standard. At the time of the publication of

this newsletter, the current approved standards related to roofing slate are C406-06, C120-06e1, C121-06, C217-94 (2004), C99-87 (2006) and C119-06. Outdated ASTM documents listed in specifications or bid documents should be brought to the attention of the architect, specification writer, general contractor, roofing contractor and building owner for revision.

Natural roofing slate is truly a unique material when it comes to testing its physical properties for durability. The National Slate Association recently recognized three testing labs in North America (based on their experience and third party credentials) as having the expertise, interest and resources to conduct ASTM roofing slate testing in a capable manner. North Country Slate would also encourage readers of this newsletter to contact these laboratories when slate testing is required. These laboratories are:

Amber Consulting, Pittsford, VT 802-775-1650

St. Lawrence Testing, Cornwall, ON 613-938-2521

Wiss, Janney, Elstner Assoc., Northbrook, IL 847-772-7400

We will continue to update you, in future editions of the North Country Slate Standard, on ASTM slate testing methods and specifications as they develop. ☐

ROCK OF AGES

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says Rys, an aeronautical engineer with an MBA. "I was able to go to the board with these projects with good financial reasons."

After researching roofing slate, he selected North Country Unfading Black Slate for its performance, appearance, and long-term warranty. Nearly 70 percent of the buildings on campus, involving almost 1000 squares of 18 x 12 x 1/4" North Country unfading black slate, have now been restored. As well, construction of a new building, the McEssy Theological Resource Building, was recently completed using the same unfading black roofing slate. Soon the entire campus of Georgian-style red brick buildings will have the same new uniform roof lines with a deep luster that will withstand freezing winters and scorching summers.

After tearing off the original roofs, roofing contractor Larry Marshall had to figure out the best way to attach the slate roof shingles to the poured concrete deck over wooden sleepers. This labor-intensive decking method makes a sturdy substrate but can present a challenge for

installing slate. After installing copper gutters and flashing, an ice and water shield was adhered to the entire substrate. All the slate roofs were installed on very tight construction schedules during the summer months over four years, marveling visitors as to how well they matched the existing architecture.

It is the unique architecture that draws not only priests, but lay persons to the campus. In fact, Rys said that several architects, when first visiting the campus, were amazed at the buildings and layout of the campus. "They look around the place and say, 'Why didn't we learn about this place in school?'" he says.

Cardinal Mundelein would be pleased with the appreciation of his efforts. He personally raised the money, selected the land and toured Europe with architect Joe McCarthy to learn how to install a sense of permanence in the campus he built. The layout of the university deliberately brings students into direct contact with peaceful gardens filled with Catholic icons and classical architecture. As steward for this university, Rys makes his decisions based on what's good for the long run. "I put a personal guarantee of 100 years on this project and the rector says he's going to hold me to it," says Rys with a laugh. ☐



If I had a HAMMER

In this disposable age, there are occasional reminders of longevity.

Few tools have the reputation for permanence like a slate hammer, which has changed little in the past 100 years. The sculpted head arching back to a fine point all resting on a broad handle has become an icon for quality and durability. It's hard to get attached to a pneumatic nailer, but a slate hammer is something more personal. A good slate installer is very protective about his hammer...some still have their grandfather's

slate hammer. These might be collectibles, if they weren't still in use every day.

When a tool has reached its pinnacle in development before the advent of electricity, like the wheel, one can be sure that it is well designed. There's a lot of utility packed into this 20 oz. sculpture of forged tool steel, beginning with that sculpted hammerhead providing a flat striking surface. The perfectly balanced arch tapers to a fine point for punching nail holes. Down the long flat shaft is an edge for trimming slate shingles to

size. The rounded handle with leather grip conforms to the hand over years of use. "New and improved" for a slate hammer, means a nail puller added onto some models decades ago. There's no dishonor in having something to pull the nails from a previous 100-year-old slate job.

The versatility and strength of a slate hammer is a symbol of the kind of material that it installs. It's a source of pride and accomplishment that rests only in a slate roofer's tool belt, and was earned for a job well done. ☐

DESIGN Matters

Bringing The Vision To Life.

Fasteners are an integral part of every slate roof installation. In most cases, these fasteners take the form of nails for attachment of the slate, flashings, valley metal and various wooden cant strips and hip/ridge nailers to the roof deck.

The length, gauge and type of nail used in the installation of roofing slate itself, should be given careful consideration. Typically, roofing slate is installed with 11 gauge copper or stainless steel slating nails with 3/8" flat heads. They may be of either smooth or ring shank design. The length of the nail required is a function of the nominal thickness of the slate being installed...thicker slates require longer nails. It is also important to understand, that depending on the style of hips and ridges specified, the nails required to install slates here may need to be longer than for the field slates, in order to provide sufficient deck or nailer penetration.

Specifiers and installers should also be aware by now, that if the recent version of ACQ (Alkaline Copper Quaternary), CA (Copper Azole), SBX (Sodium

Borate) or ACZA (Ammoniacal Copper Zinc Arsenate) treated wood is used as decking, cant or nailing strips, care must be taken that the nails used to attach them are compatible with the chemicals used in this treated wood. Fasteners used in the old CCA (Chromated Copper Arsenate) treated wood do not lend themselves well to these new versions of treated wood products due to their corrosive effects on carbon steel and electroplated galvanized steel. Hot dipped galvanized fasteners meeting ASTM A153 are considered to be acceptable, however, Type 304 or 316 stainless steel is recommended for maximum corrosion resistance. Copper nails are not currently considered to be compatible with these new treated woods and therefore should not be used to fasten slate to these decks or nailers. Because of this potential for corrosion, it is worth noting that the use of non-treated construction grade wood is suitable, and probably preferable, for use in deck, cant and nailer applications as long as they remain relatively dry in use.

It is important to have a strong specification clearly stating expected installation practices and material



requirements. Having everyone on the same page is important—a good specification will keep them there.

A detailed CSI 3 Part roofing slate specification is available free at www.northcountryslate.com under "Tech Support". For an even more convenient version, click on the 'SpecWizard' link. ☐

10 THINGS TO LOOK FOR WHEN CHOOSING SLATE

- 1 Reliable slate supplier?
- 2 Capable roofer?
- 3 Unfading or weathering slate?
- 4 Oxidizable iron pyrite?
- 5 Grading for thickness?
- 6 Over/Under-nailing?
- 7 Joint spacing?
- 8 Headlap?
- 9 Slates cut less than 6 inches wide?
- 10 Minimum side lap of 3 inches?

INSTALLATION Tips

Improve Your Installation

On your next North Country slate roofing project, instead of ordering unpunched hip and ridge slates, order unpunched slates twice the width of your intended hip and ridge slates. Using a slate trimmer, cut these slates in half (length wise) to the correct width, but instead of trimming them face down, trim them face up to produce two slates with reversed bevels on opposing edges.

Now, lay the two halves as "pairs" of hip and ridge slates and notice how the color, thickness and texture matches on both slopes. More importantly, look at how crisp, straight and tight the hip and ridge looks. The beveled pair of slates come together like two mitered edges on a fine piece of furniture. If it's impractical to order the

double wide slates, you can still achieve the mitered appearance by reverse trimming one edge of your regular sized hip and ridge slates. Now that's slating!

By employing this installation technique, you can make the most of what North Country natural roofing slate has to offer. ☐

