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Foreword



Stewart Rowles, CEO of Association of Master Roofers

Welcome to the second edition of Traditional Roofing.

Following the success of our first publication last year, composing, curating and compiling information and examples of heritage work in the roofing sector, we resume with more useful content for those seeking further knowledge in the discipline.

Partnering with Roofing Today magazine, Master Roofers UK is proud to showcase the fine work and knowledge shared by passionate and highly skilled roofers from around the UK.

With that last statement in mind, there certainly could be more of us!

As the skills shortage conversation rages on for another year, no areas in construction are at greater risk than that of the heritage and restoration sectors.

Old skills, traditional methods, by their definition will erode over time. Our mothers and fathers learned skills in a different technological era to us. Indeed, earlier generations would have learned a plethora of skills which were necessary in a time of mend and make do. In a climate heavily dominated

by hand made products, things were built slower, more robustly and with finer materials.

If this view carries any merit, it surely stands to reason that the skills passed down through generations of tradespeople have the propensity to fade?

New technologies, simpler construction designs, less ornate, and often more streamlined architecture in modern construction, undoubtedly drive change in construction trades' working habits, attitudes and values - as they should in some ways.

However, the old architecture still exists, the old buildings still need sympathetic restoration and renewal.

This then begs the question, what happens when the grandmothers and grandfathers of roofing leave the sector, taking with them the old techniques and skills?

Did they pass on everything they knew to the mothers and the fathers?

It's unlikely, to be frank, that each generation passes every facet of their knowledge onto the next.

For this reason, training, education and the retention of knowledge (as much as is possible) from past generations of tradespeople is integral to the survival of the heritage sector.

The skills shortage doesn't only relate to numbers of bodies on a building site. To me, with my heritage hat on, it also signifies a shortage of retained skills amongst our existing operatives.

Perhaps a fitting phrase for this is 'generational knowledge' - that which is (or should be) handed down as a matter of course.

In this Traditional Roofing supplement, we aim to archive important technical information, as well as celebrating those who still retain the craftsmanship needed to restore our beautiful buildings of old.

Once again, I welcome emails and suggestions from readers on areas of the discipline which you would like to understand further.

You can email me at stewart.rowles@masterroofers.co.uk

Stewart Rowles.





Dancing With the Devil in Mayfield

Benjamin Hockey and Damien Sharkey's Restoration of a 100-Year-Old Plain Tile Roof

Russell Blackaller, Heritage Roofing Southwest

Mayfield, the quintessential English countryside town nestled in East Sussex, boasts a rich history and a captivating ambiance. Its vernacular stone buildings and twisted timber frame structures transport visitors to another era. Legend has it that the town's history intersects with the devil himself. St. Dustan, who later became the Archbishop of Canterbury, is said to have once encountered the devil disguised as a woman in Mayfield. The quick-thinking archbishop used red-hot tongs to expose the devil's true identity, sending him fleeing to Tunbridge Wells. While the devil's visit to Mayfield was short-lived, the restoration journey undertaken by Benjamin and Damien to revive a century-old property lasted a staggering 10 months.

Benjamin and Damien, who initially connected on the Master Roofers UK Facebook page a decade ago, share a passion for restoring ancient structures. Together, they possess a remarkable skill set, having completed numerous roofing projects involving slate, lead, flat roofs, and plain tiles. With a combined experience of 45 years in roofing and construction, they represent the

type of tradespeople that contribute to the industry's growth. Their hope is to pass on their knowledge and expertise to the younger generation. In July 2022, Benjamin and Damien joined forces once again to tackle the monumental task of restoring a 23,000-tile roof in Mayfield. The project presented them with a myriad of challenges, including crumbling chimneys,

warped elevations, and collapsing walls. The client opted for Wienerberger Sandtoft Goxhill tiles in Autumn Brown for the roof and Dark Red for the wall elevations, creating a durable and visually appealing result. The Mayfield roof proved to be the most demanding project Benjamin and Damien had encountered, either as individuals or as a team.



A profound sense of what might be termed 'post-event elation' was clear. This kind of elation can only be truly experienced after the completion of an intensely challenging undertaking.



After speaking with them extensively about the project, a profound sense of what might be termed 'post-event elation' was clear. This kind of elation can only be truly experienced after the completion of an intensely challenging undertaking.

Some of the challenges they faced included working with six different ridge heights, none of which were square and most of which were raked, sagging, and bent. They also had to address swept eaves, requiring a rebuild of the sprocket detail to accommodate a four-inch height deviation.

Additionally, they uncovered cracks in the external walls that spanned from the wall plate to below ground. Managing a team of 11 operatives on-site was another feat, and for Damien personally, it meant being away from his newly-wedded wife, Kirsty, for almost a year.



Both Damien and Benjamin share a work ethic rooted in precision engineering. They utilized laser levels to map out the Mayfield roof, providing precise datums for their work. This ingenious approach proved an intelligent method of leveraging construction tools beyond their conventional use.

Handloading

Once the battens were in place, the arduous task of loading and tiling commenced. Due to limited access, the team had to hand-load all 23,000 tiles. Navigating around the scaffolding to reach opposing elevations on the complex M-shaped roof required meticulous planning and coordination. While the majority of the tiling work progressed, Benjamin and Damien devoted extra attention to the chimneys. One chimney was repointed with a premixed lime mortar from Chalk Down Lime, while the other was completely rebuilt and fitted with a sizable lead damp proof course made from code 5 lead sheet. The DPC was divided into three separate bays to facilitate its installation.

As the roof began to take shape, with all bonnets in place and mortar work flowing, the focus shifted to embarking on the tile hanging. However, a crack in the side wall caused a temporary interruption. After conducting a structural survey to assess the extent of the damage, the team



Benjamin and Damien share a passion for restoring ancient structures. Together, they possess a remarkable skill set, having completed numerous roofing projects involving slate, lead, flat roofs, and plain tiles. With a combined experience of 45 years in roofing and construction, they represent the type of tradespeople that contribute to the industry's growth. Their hope is to pass on their knowledge and expertise to the younger generation.

repaired the wall using block and helical bars, ensuring it could withstand the weight of the new tiles.

Now enabled to move on to the tile hanging phase, Benjamin and Damien seized the opportunity to rejuvenate each bay window to code 5 lead sheeting. The lead roofs were divided into three bays, using wood core roll as a foundation. The gleaming pitched lead roofs, complemented by the dark red Goxhill tiles, added a touch of elegance and balance to the already impressive wall elevations and main roof.

Overcoming challenges that extend beyond standard practices is what excites Damien and Benjamin. The final hurdle

presented itself towards the end of the project: finishing the final course of tile hanging to the underside of the main roof rafters at the eave. Benjamin devised a cloaking system that involved painting a softwood bargeboard, which was then fixed in place. Scribed between each rafter with meticulous care and precision, this delicate detail served as the perfect finishing touch.

With style and finesse, Benjamin and Damien completed their 10-month endeavour. Overwhelmed with gratitude, the homeowners greeted the team with tears of joy and champagne in the warm sunshine of their south-facing garden. Together, they stood back, clinked glasses and admired the masterpiece.





The Mega Reroofing of Chislet Barn

This huge Grade II listed potato barn a few miles from Canterbury began as a reroofing project, retaining the existing centuries-old Welsh slates. It turned into an exercise in quality – of materials, supply, and workmanship.

Chislet Barn is part of a complex of buildings dating from medieval times including a Queen Anne farmhouse and a group of listed oasthouses. The barn was to be subject to refurbishment of its more than 50 metre-long slate roof.

The site is a working barn on 800-acre working farm and houses a potato cold store and an equipment store. Client, Liz Chasters approached Complete Roofing Contractors' Gary Lambert directly to execute the project.

Complete Roofing is a family run experienced contractor based in nearby Ramsgate. Specification and technical advice was provided by SIG Design and Technology, part of SIG Plc, one of the largest specialist materials suppliers in the UK, and all materials were provided by their SIG Roofing division.

With harvest finishing in September, the autumn was the ideal time to start work, but the buildings would continue to be in

use. Strict organisation would minimise disruption and additional risk assessments were carried out during the winter months.

Quality Specification

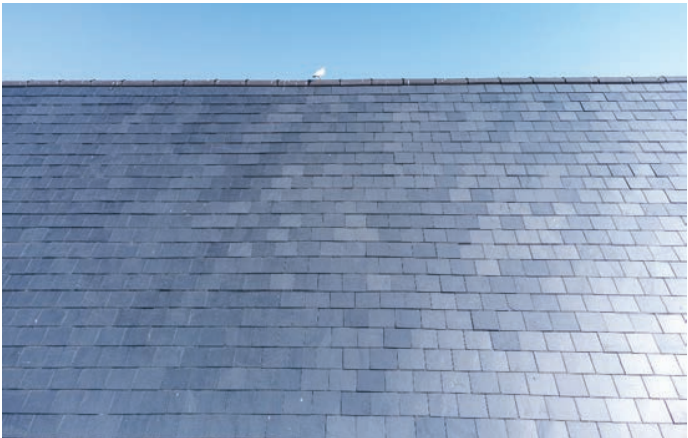
This is a huge expanse of roof, around 2000m². Any irregularities in the slate product, or in the installation would instantly be obvious. A Grade II listing meant that product choice and installation method also needed to meet with the approval of the local conservation officer.

Initially, the team planned to retain up to three-quarters of the existing slates, and a suitable approved alternative new natural slate was sourced. The slates chosen were 500x250mm Gallegas 39 from the SIGA Excellence Range of Natural Slate and were to be copper nailed onto 25x50 graded battens.

Chris Collins, Specification Manager at SIG Design and Technology (which will shortly be rebranding to Accuroof) explained, "Gallegas 39 is flat,

uniform and has a consistent thickness, which makes it the best alternative to Welsh slate."

The specification called for traditional copper nails in preference to aluminium ones. They were to have a minimum gauge of 3.35mm to give a nailhead diameter of 10mm to ensure quality of fixing. The SIGA team also recommended a minimum bite into the batten of 18mm. It meant 38mm long copper nails would ensure a quality installation across the entire roof.



Quality in Supply

An initial order of 12,000 slates was placed from the Gallegas quarry in Spain. Any concerns over availability were removed by the close relationship between SIG and the Gallegas quarry. However, the security of this supply chain was severely tested during the project as the original order of 12,000 slates was rapidly increased to the ultimate total of 48,000 over a few months when it became apparent that the existing Welsh slate, centuries old, would not be salvageable.



PICTURED - the Grade II listed Chislet Barn reroofed with 500x250mm Gallegas 39 from the SIGA Excellence range of Natural Slate.

This did not concern the SIG team, which was able to negotiate directly with the quarries and deliver all products on time as required over a three-month period.

"There have been supply issues with Natural Slate in recent years," Chris Collins explains, "but this hasn't affected the Spanish quarries, and we were confident that they would be able to deliver a consistent quality product, even across three full loads and several months. We had no problems getting the increased quantity, at a consistent quality."

CPD TOPIC: Building conservation and heritage

- Excellence range of natural slate best alternative to Welsh slate
- Consistency and surety of supply even at short notice
- Professionally graded
- SIG Design & Technology DATAC accredited contractor network
- Full technical support




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A Spectacular Result

Liz Chasters, the client, was incredibly happy with the work done. "Complete Roofing Contractors were superb; Gary especially was brilliant. They were very helpful, very communicative. They told us how they were going to do the roof and why they were going to do it that way. If we wanted a bit more information, they were happy to provide it. The guys working on site were friendly and brilliant. As well as being absolutely beautiful, the work was completed on budget and on time, so no complaints there. I'd definitely use Complete Roofing again."



Quality in Selection, Sorting and Grading

Excellence selection slates are professionally graded with a superior finish. They require the least additional sorting on site to produce a smooth, even result. Nevertheless, they are a natural product, and a good finish is ensured by professional sorting in accordance with BS 8000.

Complete Roofing's installers sorted the delivery into three groups, with the thickest slates chosen for the lower parts of the roof, and the thinnest at the top. The finish across the entire 50m length of the barn roof shows the quality of this sorting and grading.

Quality of Workmanship

Complete Roofing Contractors are members of the NFRC Roofing Competent Person Scheme and also SIG Design and Technology DATAC accredited contractors. Ninety per cent of their site workers are directly employed and many have worked for the organisation for decades. Two teams of three roofers were employed, led by qualified team leaders, each with over 20 years' experience with the company. As DATAC contractors, the team had access to technical and on-site support throughout, and SIG field technicians assess the work to ensure products were installed in line with manufacturer guidance.

Tips for a quality replacement slate roof:

- Choose a product with consistent quality
- Choose a supplier with a reliable track record
- Ensure a skilled workforce on site
- Be prepared for the unexpected!





ABOVE: Handmade plain tile roof with handmade clay ridge tiles bedded on NHL mortar by Dean Aston, Aston Roofing.

CPD TOPIC: Building conservation and heritage

- Two distinct types of lime mortar
- Natural Hydraulic Lime (NHL) with clay content and grades of hydraulic strength
- NHL suitable for pointing, rebuilding & flaunching chimneys
- Non-Hydraulic Lime forms lime putty
- Non-Hydraulic Lime suitable for torching tiles & slates
- Apply March-October
- Pivotal to conserving heritage roofs



Enhancing Roof Durability: Understanding Lime Mortar Applications

Russell Blackaller
Heritage Roofing Southwest

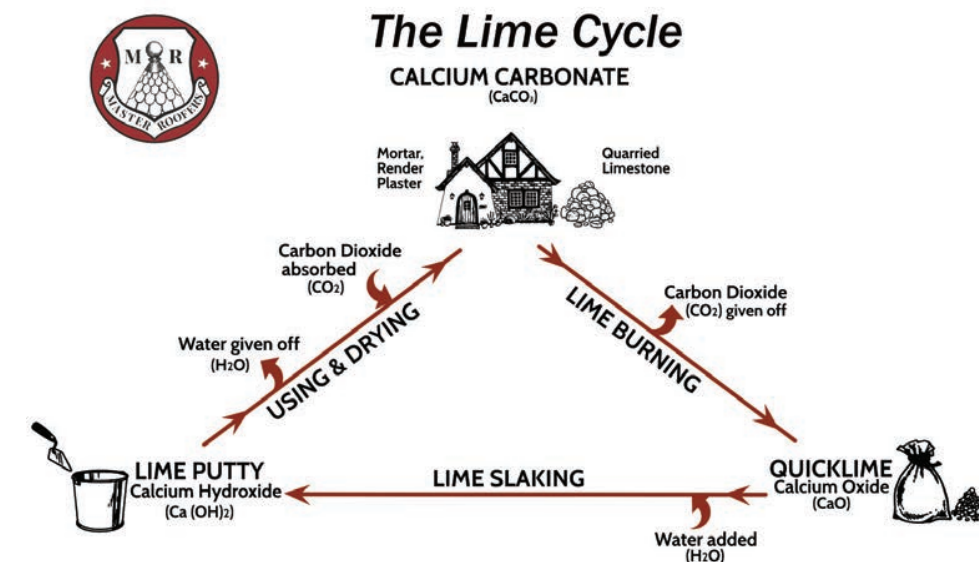
Distinguishing Between Natural Hydraulic Lime (NHL) and Non-Hydraulic Lime and Their Appropriate Usage

Within the realm of construction, precision in materials is paramount. Natural Hydraulic Lime (NHL) and Non-Hydraulic Lime represent two distinct categories often abbreviated with the same acronyms. To avoid mixing them up (pun intended), it's essential to grasp the differences between them and discern when and where each should be applied.

Natural Hydraulic Lime: Understanding its Composition and Varieties

Natural Hydraulic Lime, derived from limestone with clay content, sets through a chemical reaction with water. Historically, its resilience in underwater environments, attributed to its reaction with oxygen molecules, made it a preferred choice for bridge construction. The clay content within NHL determines its hydraulic properties: Feebly hydraulic lime (less than 12% clay), moderately hydraulic lime (12% – 18% clay), and eminently hydraulic lime (up to 25% clay). The higher the clay content, the quicker the lime sets underwater.

NHL is available in three classes: NHL 2, NHL 3.5, and NHL 5. These classifications, rooted in French standards, delineate the lime's hydraulic characteristics, with NHL 2 being moderately hydraulic, with NHL 3.5 nearly eminently hydraulic and with NHL 5 exhibiting eminently hydraulic qualities due to its robust curing strength.



Applications of Natural Hydraulic Lime in Roofing

Roofs endure the brunt of weather conditions, especially chimneys, which often demand more maintenance than anticipated. The Society for the Protection of Ancient Buildings (SPAB) advocates for the use of hydraulic lime mortar in pointing, rebuilding, and flaunching old chimneys due to its weather resistance and aesthetic compatibility with reclaimed bricks.

Non-Hydraulic Lime: Unveiling its Manufacturing Process and Attributes

Non-Hydraulic Lime, as the name suggests, is produced by kiln-burning quarried limestone at temperatures exceeding 800 or 900 degrees Celsius. This process transforms limestone into quicklime (Calcium Oxide), which, upon slaking with water, yields lime putty (Calcium Hydroxide). Lime putty, stored in sealed containers, reverts to Calcium Carbonate upon exposure to oxygen, completing what author Jane Schofield refers to as 'The Lime Cycle' in her book, *Lime In Building A Practical Guide*.

Applications of Lime Putty in Roofing

Lime putty, when mixed with aggregates, forms lime mortar. Hot mixed lime mortar, a blend of quicklime, aggregate, and water, offers favourable workability and can be tailored to specific needs. Lime putty's flexibility and adhesive properties make it ideal for torching the underside of tiles and slates, providing resilience

against wind driven rain and thermal movement.

Considerations and Limitations in Lime Mortar Usage

Seasonal variations significantly impact lime mortar's curing times. Conservationists typically recommend its application between March and October, with careful consideration of post-application maintenance to

Understanding the nuances of lime mortar applications is pivotal in ensuring the longevity and resilience of historic roofing structures against the elements.

prevent freezing or premature setting. Adding cement or antifreeze is discouraged, as they may compromise the mortar's integrity.

Additional Areas Requiring Lime Mortar in Roofing

- Bedding stone slates like Delabole Scantle, Horsham Stone, and Collyweston.
- Ridge and hip tile bedding.
- Pointing peg tile verges.
- Laying laced valleys on lime screed.
- Head bedding natural and pegged slates.
- Coping stone bedding and pointing.
- Tile and dental slip bedding on abutment walls.

In conclusion, understanding the nuances of lime mortar applications is pivotal in ensuring the longevity and resilience of historic roofing structures against the elements. With careful consideration of materials and methods, roofs can stand the test of time with enduring strength and aesthetic appeal.



Embracing Sustainability and Innovation in Roofing

ISOLINE LOW LINE

The push towards sustainability and innovation in roofing is becoming increasingly vital for professional contractors. Beyond traditional practices, the integration of sustainable roofing products is essential to future-proofing projects. By adopting forward-thinking solutions, contractors not only enhance their environmental credentials, but also align themselves with a vast market demand for eco-friendly solutions.

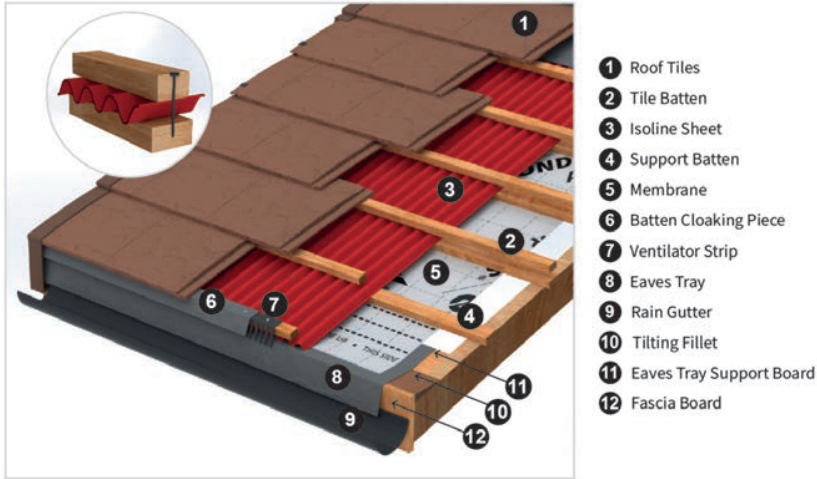
Furthermore, forward-thinking roofing contractors recognise the growing need for adaptable roofing solutions that can seamlessly integrate with sustainable technologies, such as solar panels. By designing roofs with future adaptability in mind, contractors not only meet current environmental standards but also ensure the longevity of their projects in a time where renewable energy sources are becoming increasingly prevalent.

Here, Ardit Strica, Technical Manager for Onduline Building Products, explains how Onduline's ISOLINE LOW LINE roofing system is the perfect blend of sustainability and innovation, ensuring contractors can cater to the evolving demands of the market.

Onduline's ISOLINE LOW LINE sub-roof system not only offers long-term protection against any potential water ingress, but also incorporates 50% recycled cellulose fibres, contains no asbestos, and releases no hazardous substances, contributing to its impressive green credentials.

Designed specifically for use on low pitch roofs, as low as 10°, this lightweight bituminous underlay sheeting is fitted under roof tiles, thus it is shielded from direct UV exposure, wind and leaf debris, making it an exceptionally versatile and long-lasting waterproofing solution.

Furthermore, by establishing roof tiles as a secondary line of defence, it becomes possible to maintain a roof pitch significantly lower than the minimum recommended by the tile manufacturer. This not only addresses the need to maximise living space, given the reduced pitch that minimises the roof void, but it also opens up opportunities for the application of traditional tiles in situations where they wouldn't have been able to be utilised previously, such as extensions or large roofing projects, greatly enhancing the overall aesthetic appeal of a property.



1. Installation on batted roofs

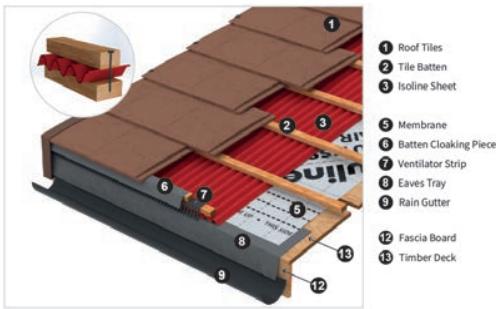
- Prepare the roof eaves detail to match the roof pitch by incorporating a fascia board, a tilting fillet, and an eaves tray support board where needed
- Install and secure the eaves tray onto the roof structure
- When using a membrane, place it between the rafters with a slight drape (recommended maximum of 15mm) and on top of the eaves tray, ensuring a minimum 100mm overlap between the two. Avoid exposing or extending the membrane past the top fascia board
- Install support battens using the tile gauge, adhering to the tile manufacturer's recommended distance between battens. Ensure

support battens are at least 50mm x 38mm in size and securely fastened to rafters

- Install ISOLINE LOW LINE sheets, beginning at the bottom of the roof and aligning them parallel to the fascia board using the eaves line as a guide. Each sheet includes two horizontally embossed overlapping guidelines, with a recommended horizontal overlap of two guidelines (approximately 210mm) and a vertical overlap of two corrugations (approximately 100mm)
- Stagger the sheets similar to tiling, starting the second row and every alternate course with a vertically cut sheet, creating a broken bond sheet pattern. Lay tiling battens over the ISOLINE sheets, aligning them with the support battens, and secure the system with suitable nails or screws

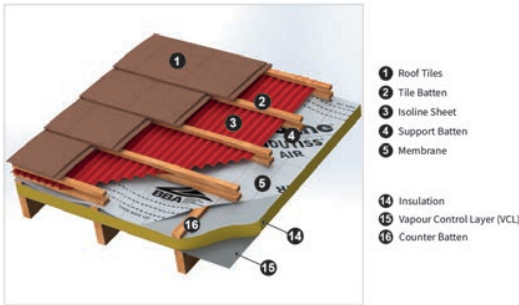
- Use smooth shank fixings with a minimum head diameter of 3.5mm. Fixings should only penetrate the sheets at the apex of the corrugation and be spaced approx. every 300mm along the length of the tiling batten
- Ensure fixings penetrate the support battens by a minimum of 15mm
- Fix the ventilator comb between the eaves battens and complete the installation by overlaying the eaves battens with a batten cloaking piece.
- Opt for deep flow guttering to minimise the risk of rainwater overshooting.

For more information on Onduline's ISOLINE LOW LINE roofing system, visit www.onduline.co.uk.



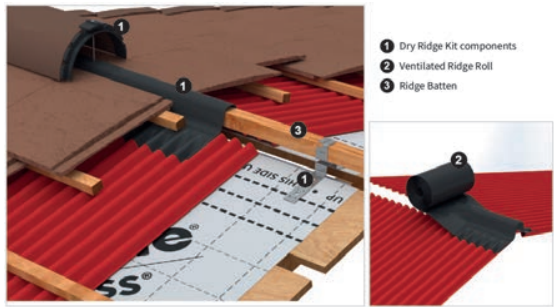
2. Installation on fully boarded roof

- Utilise timber decking, min thickness of 20mm, to cover area
- Install eaves trays securely onto the boards
- If a membrane is part of your roofing system, lay it next. Ensure a minimum overlap of 100mm between the membrane and the eaves tray. Avoid extending the membrane beyond the top edge of the fascia board
- Adhere to the installation instructions provided for a batted roof



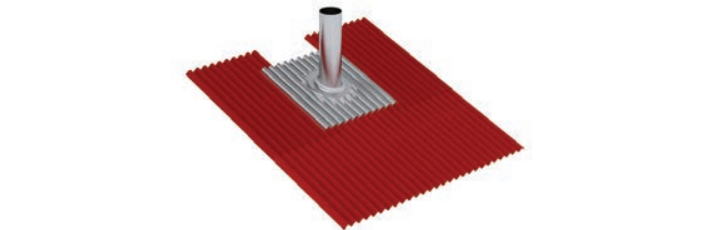
3. Installation for a warm roof

- ISOLINE LOW LINE can be installed above a warm roof, providing the proper fixings and ONDUTISS vapor-permeable membrane are utilised
- Integrate adequate ventilation into the warm roof system to enhance performance
- Please be aware that our secondary roofing system functions as a cold roof and cannot serve as an integral component of a warm roof section but can be installed above it



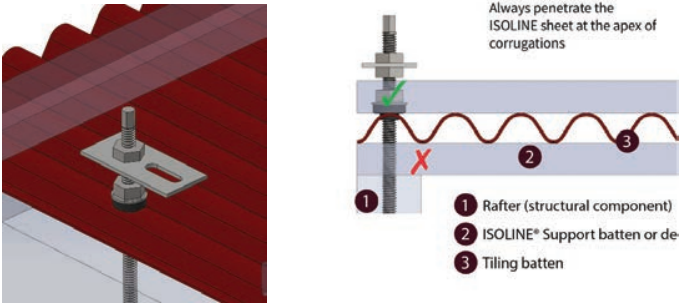
4. Roof details

- At ridges and hips (*above*) lay roofing membrane across the butt joint in the sheets and dress down a minimum of 300mm either side of the ridge. When using ventilation products, the membrane can be trimmed instead at the ridge level to allow the flow of air.
- For side wall abutments use a standard 2-3 layer waterproofing system (*right*). Chase the top-most flashing into the wall.
- For end wall abutments (*far right*), fold the roofing membrane upwards on to the wall (approx. 100mm). Install Onduline Apron Flashing Piece. The tile battens and tiles can then be fixed, and a two-part lead flashing can be applied. Abutment ventilators can also be used.



5. Watertight pipe/vent penetration

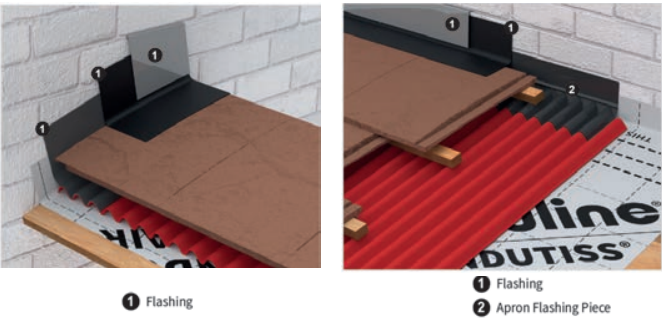
- Lay the sheets, maintaining a gap equivalent to the width of the pipe
- Horizontally overlap the ISOLINE sheets by aligning the embossed lines on the top sheet with those on the bottom sheet, providing approximately 220mm end lap coverage. For side overlaps, use two corrugations (approximately 100mm)
- Position the pipe flashing piece, ensuring a 150mm overlap between the flashing and the bottom sheet. For side overlaps, make sure the flashings cover a minimum of two corrugations on both sides
- Overlap the top ISOLINE sheet, ensuring a minimum of 150mm overlap between the flashing and the top sheet



6. Solar integration

- To seamlessly incorporate solar panels into the ISOLINE LOW LINE roofing structure it's best to use a Hanger Bolt fixing or a similar alternative
- Choose bolts of varying lengths based on the specific PV bracket and tile type
- Thread the bolt until the seal establishes solid contact with the ISOLINE sheet.
- Exercise caution to avoid over-tightening and causing the collapse of the sheet corrugations.
- Penetrate the ISOLINE sheet only at the top of the corrugations
- Always affix structural components to rafters
- If fixing is required in the absence of a rafter, incorporate an additional structural component (rafter or equivalent).

Note: When securing solar panel brackets, treat the ISOLINE sheets solely as waterproofing components, not as structural elements. Rafters typically serve as the primary structural components in a pitched roof.



Tackling Lead Erosion with Sacrificial Flashings

Stewart Rowles
CEO Association of Master Roofers

Around the UK, our roofs are susceptible to harsh and unforgiving conditions. Heavy winds, driving rain and large variations in temperature throughout the year create challenges for longevity on the exterior of buildings; but perhaps the most harshly affected area on any property is the roof.

One important factor to consider when completing roof work in the UK is the effects of acids and other undesirable pollutants. In situations where acid runoff may occur, it is prudent to include a barrier of defence to prevent premature failure of lead sheet, lead flashings and other integral lead components throughout the roof area.

Sacrificial flashings, as the name implies, are designed to take the worst brunt of acid runoff and can be installed in areas where droplets of acidic runoff erode the surface of lead sheet over time. A simple band of lead, usually cut to a width of 100mm or 125mm is installed and fixed in place using welded lead straps, usually 50mm in width.

Design to be Replaced

The sacrificial flashing must be easily replaced, so considerations about how it is fitted are important. For instance, installing the flashing with screws or nails would make changing the flashing more time consuming and more likely to cause disruption to the existing roof. For this reason, a simple strap method allows for the old flashing to be removed and a new sacrificial flashing to be put back in its place, using the same straps with very little disturbance to the roof itself.

Although acid runoff is a key consideration in the longevity of lead sheet, the same defensive measures should be taken anywhere where erosion of the sheet is detected during inspection of the existing leadwork on any project.



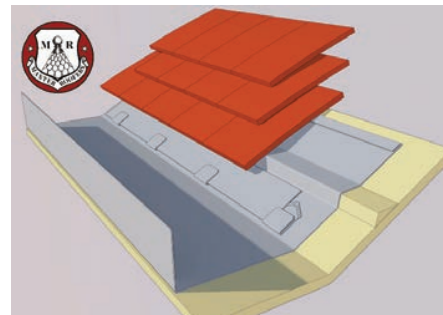
Clip welded to lead valley to hold sacrificial flashing in place.



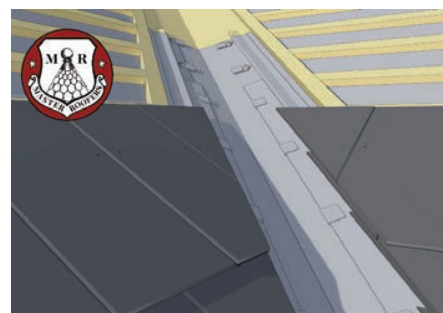
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When inspecting leadwork, there can be tell-tale signs of erosion, typically the effects show as heavily stained sections of lead with erosion visible in the form of etched grooves. Sometimes these are so deep that the lead has physically separated due to the worn grooves etching through the entire depth of the sheet.

If the inspection is part of a reroof or repair to certain lead components, a sacrificial flashing should be specified in the roof renewal as a matter of necessity.



Sacrificial flashing detail in tapered gutter or pitched roof junction with box gutter.



The valley width may need to be increased to accommodate sacrificial flashing. This example shows a 150mm wide valley with a 100mm distance between the edges of the sacrificial flashing.

What is the Cause of Acids in the Roof Area?

Mosses, lichens and tannins leaching from certain timbers can cause acid erosion. Certain species of wood can cause premature failure of lead sheet. These include oak, cedar, and other hard woods. Other environmental factors can also cause acid runoff to occur.

Other Causes

Some problems can occur without the presence of acid runoff. For example, it is not uncommon to see erosion near seaside locations where seagulls defecate on nearby roofs.

Seagull faeces will often contain sand, which can cause erosion when grit and coarse particles are mixed with rain water, constantly dripping or running on isolated parts of leadwork, almost acting like sandpaper.

Typical situations where sacrificial flashings work extremely well include:

- Catching drips falling from slate or tile edges in lead valleys.
- At the raking eave on tapered gutters.
- Where lead dormer tops meet the roof slope.
- Any other key areas where water or undesirable solutions are able to persistently drip onto leadwork.

CPD TOPIC: Building conservation and heritage

- Acids & other pollutants can cause lead erosion
- Sacrificial flashings can be installed to take up acid runoff
- Flashings should be 100-125mm width
- Fixings should allow for easy replacement with straps
- Inspections should identify areas where sacrificial flashings are necessary, eg where grooves have worn into the lead
- Acid is not the only cause of erosion - continual water exposure, bird faeces & other abrasives can be responsible



Tudor's tile cladding pulled the new and existing elements of the building together whilst also presenting something unique and fitting within its suburban context.



One of the outstanding examples in recent years of how Tudor has transformed customers' lives is the remarkable remodelling of homeowners, Lucas' and Hayley's property. The drab, box-like, poorly designed 1960's house in Saffron Walden was in dire need of renovation.

Innovative use of Tudor Roof Tiles' products to clad the whole of the redesigned building envelope brought about a striking transformation to their home and lives. Chris Dyson Architects were commissioned to give the interior and exterior a complete makeover. The new design questioned every aspect of the existing building: the front door was relocated to the heart of the plan and centred on the façade, while the boxy double garage was converted into habitable rooms. An entrance hallway, another staircase, a study and a utility

The Transformation of a 1960s House with Tudor Handmade Clay Tiles

room, plus a large upstairs skylight and a family bathroom were added.

Handmade in England, clay hanging tiles in a Medium Antique colour were used to clad the entire exterior (walls and roof) giving it a 'wow' factor, literally making passers-by turn their heads.

Architect, Chris Dyson said: "Tudor's tile cladding pulled the new and existing elements of the building together whilst also presenting something unique and fitting within its suburban context."



Images courtesy of 'Amazing Productions'

Property owner, Lucas commented: "We found Tudor Roof Tiles to be terrific to work with. We were complete novices when it came to building work, and the project itself was fairly complicated from a tiling perspective. The team at Tudor were on hand to guide us through the options, even down to producing bespoke tiles for some unusual angles. We couldn't be happier with the tiles themselves. Being handmade, each tile is completely unique and full of character. Given that the clay tile cladding is probably the most important detail of the project, we are very happy to have been able to work with Tudor Roof Tiles.

Tudor Roof Tiles produces genuine handmade clay peg tiles and plain tiles, of the kind that have graced English walls and roofs over the centuries both as decoration, insulation and weather protection. Often used as a traditional form of decorative cladding on walls (defined as any surface at a pitch of 75 degrees or greater from the horizontal), with fine detailing and historically authentic embellishments on the upper storeys, Tudor's clay tiles have a quality of craftsmanship that

makes them a preferred choice for renovators of period styled homes. Now, their hanging clay tiles are increasingly used to clad complete walls or even wrap entire buildings in an innovative way to create bold looking, modern homes with striking style.

British-made Tudor's hanging tiles offer a natural variation of tone and texture and mellow colours that suit the English built environment. Sustainable, durable, with weather protection and insulation benefits, Tudor's clay roof tiles exceed modern building regulations.

For its participation in this project, Tudor Roof Tiles was proud to be selected as a finalist in the Best Roofing Supplier category of the 2020 Home Building & Renovating Awards.

Tudor Roof Tile Co. Ltd.
Dengemarsh Rd, Lydd, Kent TN29 9JH
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www.tudorrooftiles.co.uk

CPD TOPIC: Building conservation and heritage

- UK handmade clay tiles
- Bespoke tiles available
- Suitable for like-for-like replacement roofs & cladding
- Suitable for English vernacular



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Renowned for their high-quality handmade roof tile solutions, Lifestiles collaborated closely with the church to ensure the preservation of St. Mary Magdalene Church's heritage.

Preserving the Past and Enriching the Future: Roof Tiles Safeguarding Listed Building's Heritage for Years to Come

St. Mary Magdalene Church, a Grade I listed building in Barkway, boasts an exceptionally long history, with parts dating back to the 11th century, making it one of the oldest structures in Hertfordshire.

Recognising the need for sensitive conservation and preservation efforts, Lifestiles assisted this cherished historical landmark in embarking on a restoration journey to uphold its architectural legacy.

Matching the existing roof tiles was crucial for preserving the architectural integrity of the church and obtaining planning permission to ensure it not only looked right but also met the planning criteria.

Renowned for their high-quality handmade roof tile solutions, Lifestiles collaborated closely with the church to ensure the preservation of its heritage. St. Mary Magdalene Church required restoration to address weathering and wear on its roof tiles, with preserving the church's original character being crucial. Lifestiles understood the importance of using compatible materials and traditional techniques to ensure the longevity and aesthetic appeal of the church's roof.

Lifestiles sampled the original tiles and introduced their Reclamation Mix hand-made clay tiles, which offer the texture and shade variation of reclaimed tiles while meeting stringent European Standards for quality. Unlike reclaimed tiles, the Reclamation Mix offers consistency in quality and availability, eliminating the need to source large batches of reclaimed tiles that can be expensive and time consuming to source and install.

Pre-Blended

Lifestiles Reclamation Mix is conveniently packed in pre-blended crates, streamlining the installation process for roofing contractors. This considerate packaging ensures that individual colours do not need to be blended during installation. Lifestiles recommends mixing tiles from three different pallets, to avoid any slight colour variations.

The successful integration of the Reclamation Mix tiles into Barkway Church's restoration project achieved remarkable results. The tiles seamlessly matched the existing roof tiles, preserving the church's authentic looks while meeting modern quality standards.

The Barkway Church restoration stands as a testament to Lifestiles' commitment to delivering the best quality products that are right for the job.

Lifestiles contribution goes beyond just replacing roof tiles; it becomes a part of preserving a valuable historical and cultural landmark, ensuring its continued existence for future generations.

Lifestiles Operations Director, Chris Ruggles comments: "We love to help our customers get the right roof tiles for their project – there is nothing more important than the roof over our heads and we always strive to ensure we are supplying the right ones for the job - which is

especially important for heritage and listed properties like Barkway Church. Our team comes with a wealth of knowledge and experience, which we are always happy to share!"

Lifestiles has a wealth of experience, and has supplied roof tiles for many of Britain's most prestigious buildings including universities, English Heritage properties, royal residences, historic private houses and many listed buildings. Each of their tiles is handmade, produced, and tested to last a lifetime and invariably much longer.

For more information, call: +44 (0) 1787 237057, email: sales@lifestiles.co.uk, or visit: www.lifestiles.co.uk.

CPD TOPIC: Building conservation and heritage

- Hand-made clay tiles
- Texture & shade variation of reclaimed tiles
- Pre-blended to ensure colour variation & streamline installation
- Meets European quality standards





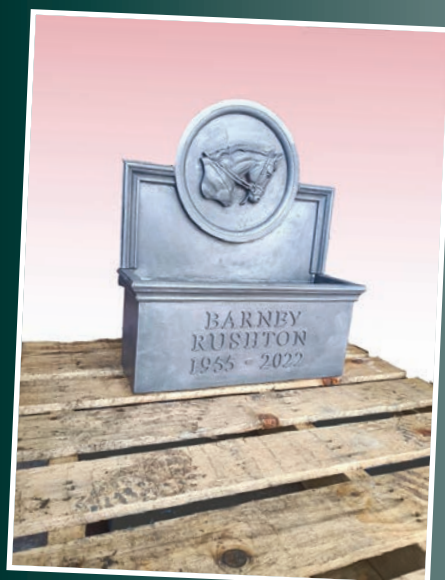
The beauty and skill of a perfectly calculated and setout batted roof! This one was prepared by Heritage Roofing Southwest Ltd, Devon prior to slating the Domesday Barn roof.

The Roofing Gallery

A collection of some of the best roofing work in heritage and restoration projects from the Master Roofers UK communities in 2023 - 2024.



This curved lead conservatory roof on the Old Vicarage, in a Hertfordshire village was superbly crafted in Code 5 lead sheet with a vented drip and vented cover flashing by WJS Leadwork working for MDP Building Services Ltd.



Talented leadworker, Craig Marshall from CM Leadworks in Duns, Scotland created this impressive bespoke commemorative lead planter.



This rather forbidding owl was made of lead sheet cut and welded together by the very skilled Traditional Lead Work, Shoreham.



This beautifully slate clad three-storey house in Kingsbridge, Devon was expertly executed by Russell Blackaller of Heritage Roofing Southwest Ltd.



Nestled in the Surrey hills between Horseley and Clandon, this turret was faultlessly completed with lead ridge and hips and in Signature's Henley Wethered plain clay tiles.



William Simpson at WSJ Leadwork & Roofing completed this striking Code 6 hollow roll cupola at a pub restaurant near Dudley.



Joe Turner from J3 Roofing & Facades completed a re-roof of this 1712 cottage. The original pantiles were past saving and so were replaced with William Blyth Light Antique Barco Old English pantiles, seamlessly combining with the adjoining property's roof. The ridge tiles were reused, following the less than straight line of the 300+-year-old roof timbers!



A Code 7 lead roof with Nicholson airtrak ventilation expertly assembled by Ben Nunn of Paul Nunn Roofing Ltd.



This superbly skilled lead detail was accomplished by Sam Hallett working on a private residence in Reading for main contractor JH Roofing Ltd.



Devon-based Nathan Spice Roofing and Leadwork skillfully achieved this stunning re-roof of a Grade II listed property in Porlock using random diminishing reclaimed Delabole slate.



Delabole Slate. What's the Attraction?

Russell Blackaller, Heritage Roofing Southwest

Being a roofer who has spent much of his working life working in the South West, predominantly in Devon and Cornwall, I have seen my fair share of Delabole slate roofs.

As not everyone will have heard of Delabole slate, Delabole quarry is one of the largest slate quarries in England and has seen known continuous operation for around 600 years, although it might, arguably, date back to around 1135AD. So essentially it is a slate that has been quarried for almost a millennium. This really does set the tone of where Delabole slate comes from.

Slate Colouring

Having laid hundreds of thousands of Delabole slate over the past two decades, I think it's safe to say that I am qualified to back up some of the claims made about it. Firstly, Delabole slate is often considered the Rolls Royce of slate, and this is fundamentally because it ages beautifully!

Here is the thing – the way slates age and the colours that they develop is, for the most part, due to what can grow on them. The grain on a Delabole slate, particularly the thick ones, is incredibly heavy. This deep grain, along with the

geological make-up, attracts the most beautiful of lichens. I'm afraid to say that I am no lichen-ologist so sadly I cannot confirm exactly what species the lichen are. What I can confirm is that they make for a rather handsomely ageing slate. Obviously, the colours the slates turn is also determined by where the roof is geographically located. The ones on Dartmoor often turn varying colours to those on the coast. The least pleasing ones are those that are on roofs inland, in the larger cities. Pollution takes its toll on many city roofs, and they often just look dirty. Interestingly, I have

bought in reclaimed, city-used, Delabole and installed it on coastal roofs. Within five years, the slates were cleansed of all their city pollution and are now turning lovely colours.

Another determining factor to the colour changing of these slates is the colour of the vein quarried. Historically, Delabole slate quarry colour-graded its output into grey, weathering grey-green, weathering green and rustic red. I have been lucky enough to have first-hand experience with all of these and will continue to enjoy all these wonderful colours for years to come.

Standard systems of slating are typically known as 'tally slating' and 'random slating', referring to the uniformity of the laying process. Tally slating involves a constant gauge up the roof and the perps to be aligned perfectly. Random slating differs because slates are sorted into sizes of equal lengths. The longest are laid at eave level, and the lengths gradually diminish up to the top of the slope.



Scantle Slating

In contrast, Delabole has two systems of slating that stand out as unique - scantle slating and rag slating.

In the first method, scantle slating, the slates were, historically, laid in a triple lap system which was a clever way of using up the narrow slates. Triple lap means that course one is overlapped by course four, and so on. Due to narrow slates having a much smaller side lap,

this method was an effective way to overcome that problem and improve wind resistance.

Nowadays, scantle slates, otherwise known as Peggies, are sold much wider; at least half the width of the length. Scantle slate roofs in Cornwall are often bedded with lime mortar to the tails. The lime mortar is absorbent, and this method is believed to provide the very longest lasting slate roof system.

Rag Slating

The second system of unique Delabole slating is 'rag slating'. This is a top fix system, and the thickness of the slates is of really great importance. When top fixing a slate, one is totally reliant on the mere weight of the slate to hold the tails down from wind uplift. Rag slates are fixed directly to the rafters so there is no need for battening out the roof. This is one of the reasons rag slates are so wide: often up to and over one metre in width.

The Delabole brand has long been exported globally, often for laying on slate roofs of very important buildings. In the UK, to name but a few wonderful Delabole roofs, one would include the Tower of London, Royal Naval College Dartmouth, Victoria and Albert Museum London, Leeds Cathedral, Kings College London, and Truro Cathedral. More prosaically, one of my all-time favourite roofs is the Post Office in Tintagel. I would strongly recommend a visit to Delabole Quarry followed by a cream tea in Tintagel. Thank me later.



Delabole has two systems of slating that stand out as unique - scantle slating and rag slating.



Picture: Tintagel Old Post Office, National Trust, Rhodri Davies

CPD TOPIC: Building conservation and heritage

- Delabole slate is South West vernacular
- Two traditional slating systems
- Scantle slating - narrow slates laid with a triple lap & lime mortar bedded
- Rag Slating - wide slates, top fixed directly to rafters

Welsh Slate owns and operates the famous Penrhyn, Ffestiniog and Cwt-y-Bugail quarries in North Wales.

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Welsh Slate Helps Shed New Light at Brighton Dome

The first phase in the regeneration of one of the UK's leading cultural venues has drawn to a close, with just a little help from Welsh Slate.

Some 16,000 of Welsh Slate's 500mm x 300mm Penrhyn Heather Blue slates, weighing 55 tonnes, have been used to refurbish the roof of the Grade 1 Listed Corn Exchange, part of the historic Brighton Dome complex.

Adjoining the famous Royal Pavilion, the Corn Exchange and Studio Theatre have been refurbished by award-winning architects Feilden Clegg Bradley Studios (FCBStudios) for a 21st Century audience. The Welsh slates were also used on the roof of the Grade II listed 29 New Road which houses a new welcome area and ticket office.

The Welsh slates were installed over 10 months by a team of up to 10 operatives from Kingsley Roofing on a hipped pitch of 25° on the Corn Exchange roof and on pitches of 54° and 28.5° on the mansard roof of 29 New Road. In addition to these two buildings, the circa £38m, six-year project also refurbished the Studio Theatre and the Church Street entrance to the Corn Exchange.

The new slates were specified on a like-for-like basis by FCBStudios, who have used them before on conservation projects including Shrewsbury Flaxmill Maltings, to replace the originals which had been on the roof for 100 years.

FCBStudios architect Josh Hobson said: "Welsh slate was chosen for its quality and durability, replacing the existing roof like-for-like, using

“

Welsh slate was chosen for its quality and durability, replacing the existing roof like-for-like, using traditional construction methods.

traditional construction methods. Where possible, across the project, we have specified locally-sourced materials to reduce the project's environmental impact.”

The 980m² roof build-up comprised a new warm build-up over timber sarking over the existing timber roof structure. The Welsh slates were each fixed with two copper nails, complemented with lead roll ridges and hips, and utilising marine-grade stainless steel vents at low and high level.

Internal Sensors

Kingsley Roofing estimator John Berry said: "Whilst the works were carried out, internal sensors and alarms were put in place to monitor the whole roof structure to check for structural movement.

"Whilst the roof was of a fairly standard design, its length meant logistical challenges moving heavy slates long distances, and long rafter lengths caused challenges with fitting the lead ridge and hips at high level. But the Welsh slate, being a premium product, performed extremely well and this is reflected in the quality of the roof finish."

He added: "We were very proud to work on such a prestigious project on an important city landmark and also of our workforce and management team who executed the contract with diligence and professionalism."

The complex project makes major technical and operational improvements to the venues. It unites, restores and upgrades four existing buildings, while a new link building captures a former courtyard space, providing a foyer and public and support facilities.



Brighton Dome's remodelled buildings will give it much-needed flexibility in terms of layout, seating, infrastructure and accessibility, allowing a wider range of artists and performers to come to Brighton. A new creative space - named Anita's Room, after Dame Anita Roddick - is also available for artists and community groups to use for workshops, meetings and rehearsals.

Brighton Dome's Concert Hall and Corn Exchange were the first Regency buildings in Brighton. The Corn Exchange was pioneering architecture from the outset. A column-free timber structure, it measures 54m x 18m x 10m and can accommodate 505 seated and 1,291 standing, including performers and staff. It is still believed to be the widest single-span timber framed building in the country.

CPD TOPIC: Building conservation and heritage

- Tech Dept/CPD/NBS Source
- Suitable for like-for-like replacement roofs
- Roof pitches 20° - 85°
- British Standard compliant



Bossing Lead in a Heritage Setting: The Possibilities of Lead Sheet without the Need to Weld

Stewart Rowles, CEO Association of Master Roofers

For many years working in the heritage sector, it was often the case that sites stipulated no hot works, or certainly no positional hot works (near or around combustible materials). As a result, my bossing skills were tested many times and in many settings; the ability to boss complicated details was advantageous, especially when welding away from site could require loss of time and attention from the project concerned.

Here, I will give some examples via photo records of situations where lead was bossed, with varying levels of complexity, to achieve fully compliant installations without the need for welding.

The Bossing Process

Firstly, a brief description of bossing is necessary to fully

understand what the criteria is and where bossing is less beneficial.

Moving Material

Bossing lead is essentially moving material from one place to another. It can be broken down into two fundamental categories.

Firstly, bossing situations where the lead sheet is thinned; this includes areas such as an external corner, mopstick, or back gutter. In these particular settings, the sheet is being asked to move around obstacles at a deficit to its overall thickness.

Where these details are incorporated, considerations like finial sheet thickness after the task are extremely important. For instance, where a code 4 flashing is specified for a chimney detail, starting with code 4 thickness and bossing an external corner will ultimately result in a thinning of the lead.

This then means that if an overall thickness of code 4 is required, you can't begin with bossing code 4 lead, as the sheet will end up less than the specified thickness.

So, in these types of situations, it may be necessary to specify a higher starting code, or perhaps even two higher codes, to be satisfied that the end results complies.

Condensing Thickness

The second category is condensing thickness. This is where lead is worked into itself and the bossing process adds thickness as opposed to reducing it. Some examples include internal corners, bossed balls, tapered gutter upstands abutting a wall, etc. In these settings no thickness is lost.

Regardless of the situation, careful planning of the task is needed.

Where is the lead being taken from? Which part of the finished detail is missing from the initial starting point, and how should the lead be worked to supply what is need?

Determining this is largely down to experience and trial and error, and it takes leadworkers many years to learn the techniques and methods to achieve quality bossed details.

In layman's terms, (and bear with me here) in most cases the movement of lead is worked in a series of 'waves', similar to the ripples when a stone is dropped into a body of water, but in reverse; the wave or ripple moves towards the anticipated end point.

This is an extremely oversimplified description of the task, but does encapsulate the general process of bossing.



In most cases the movement of lead is worked in a series of 'waves', similar to the ripples when a stone is dropped into a body of water, but in reverse; the wave or ripple moves towards the anticipated end point.



An example of 'waves' being formed to move material from the outside of the lead sheet to the middle area. In this instance a ball was to be bossed in Code 5 lead.

Tips for Bossing

Take lead from where it is not needed.

Move as much material to areas which are missing from the finished shape.

More is more.

You really cannot rush the process. The more waves of lead which you supply to the missing area of the detail, the less chance of a failed bossing exercise.

Keep everything presentable at all times in the process.

Between waves, maintain the lead and remove any lumps and bumps which could evolve into harsh kinks. This is very important and really does improve the finished result.

Don't let things get out of hand.

Kinks which get too tight and compressed cannot be undone easily and may cause the exercise to fail.

Cold is gold.

Don't use heat on details you are inexperienced in. A mistake a lot of beginners make is incorporating heat into a bossing exercise without experience of the process.

With heat things go wrong much faster, so it can be a lot harder to keep an eye on the stages of the exercise.



Code 6 bossed discs to weather ornate finial detail.

Approximate bossing time 3 hours per disc.



Code 6 bossed flashing at downpipe area of guttering incorporating rebated design to accommodate pipe.

Approximate bossing time 2 hours.



Code 6 bossed king roll hip end.

Approximate bossing time 20 minutes.



Code 5 flashing with multi angle break for complexed flashing junction.

Approximate bossing time 45 minutes.



Code 5 cap end detail bossed for a king roll style junction.

Approximate bossing time 20 minutes.

From a Natural Pool to Natural Slate

CUPA 12 Selected for Beautiful Grand Designs Project

As showcased on a recent episode of Channel 4's Grand Designs, CUPA PIZARRAS' CUPA 12 natural slate has been specified for a spectacular new build project in Chichester. Selected to enhance the property's modern aesthetic, the slate roof also complements the rural surroundings, which include a wildlife pond along with a variety of plant life.

Property owners, Daniel and Nina Rowland both work professionally within the construction sector; Daniel heads up architectural firm Studio Fuse, while Nina is an interior designer. Combining their skills, they decided the time was right to embark on a new adventure; leaving London to design and build their own home on the South Coast of England.

They purchased a period property that happened to back onto a stagnant pond, which consisted of local drainage overflow. Daniel and Nina put together a design that would see the old house demolished and a new building constructed. Likewise, the pond was to be transformed into a crystal-clear natural swimming pond – a highly ambitious undertaking. Ideally, this would attract local wildlife, such as frogs, newts and sparrows, resulting in a beautiful waterside home.



This design joins together nature and architecture – in every sense it's beautiful.

Kevin McCloud, presenter of Grand Designs

In terms of the design of the new-build property, the couple wanted the house to be eco-friendly and have a contemporary, spacious and natural aesthetic. It was to be built from structural insulated panels (SIPs) clad in Siberian larch and flint, with large glass windows. Timber decking would then connect the house to the natural swimming pond.

When it came to the roofing, Daniel commented: "We considered using a standard seam metal roof but we went with slate to complement the natural material palette we have used throughout the rest of the house."

Darren Stigant, Director at NJS Roofing, the roofing contractor on the project made the product recommendation: "Although this project looks quite simplistic, the different roof pitches added a certain amount of difficulty to aligning the mitred hips. Having sourced products from CUPA PIZARRAS many times in the past, I suggested the company's CUPA 12 slate which was available in 400 x 250mm palettes. Utilising this smaller size, as opposed to the usual 500mm x 250mm, helped us to achieve the finish we required on the mitred hips.

"I really like the way CUPA 12 lays, and it requires minimal sorting and grading, which simplifies the process significantly. What's more, it's very good value for money, providing a really impressive finish."

CUPA 12 is a non-carbonated slate that is formed by tectonic compression, giving the product a smooth, matt surface. The dark grey colour provided an effective contrast with the timber and glass. The CUPA 12 natural slate is also high performing with outstanding weather resistance,

as it has been tested to achieve a water absorption rate of 0.11% and a rating of T1 in thermal cycle tests, thus, making it a long-lasting product with a functional life expectancy of 100 years.

What's more, not only is CUPA PIZARRAS officially a carbon neutral company, but CUPA 12 has also been assessed and certified by BRE Global, solidifying itself as a sustainable choice and bolstering the environmental credentials of Daniel and Nina's new home.

Daniel and Nina were delighted with the house and the CUPA PIZARRAS roof, "The slate is consistent in its appearance, which complements a more modern build, but it still has a soft natural aesthetic. We are very happy with the finished roof and would highly recommend CUPA PIZARRAS slate to others. It is great quality, and our roofer loved working with it."

CPD TOPIC: Sustainable architecture

- Natural slate product
- T1 rating in thermal tests
- Life expectancy 100+ years
- CUPA PIZARRAS is a carbon neutral company



Highlife Rope Access Director, William Oates enjoying the view over the Lake District during a church rooftop inspection.

A New Era for Heritage Rope Access?

Director of Highlife Rope Access Ltd, Alex Haslehurst reflects on the uses and progression of rope access in the heritage sector.

As a roofer or heritage industry professional you will probably scoff at the idea of using rope access methods instead of a professional craftsman to undertake work on your historic building project. Until recently, rope access has been used primarily for surveys and general maintenance work. Yes, I know that there are a few heritage-specific rope access companies out there that specialise in masonry components, but what about all the other trades? The heritage trades are numerous and varied, many of which can be found at height. But, before expanding on that a bit, let's go back a little first.

Many years ago, I found myself accessing a path that I would never have put myself on. Having been working in rope access for a few years, I was kind of sure that I'd end up on a turbine with cash in the bank and wind in my hair. The only thing that was holding me back was the thought of doing wind turbine blade repair. The same thing over and over... forever. I had just started doing some heritage work with a traditional steeplejack. This was a

different world, a world with a hundred opportunities. Fast forward a couple of years, and I was well and truly hooked. I had tried my hand at a lot of new trades and had started an unquenchable thirst for new skills and new knowledge.

Once myself, Will Oates and Ben Silvestre had started our company, Highlife Rope Access, we had plans; big plans. First things were first: to refine and deepen our skills. Limework - check, heritage building pathology - check, roofing repairs - check, leadwork and masonry - check - and check.

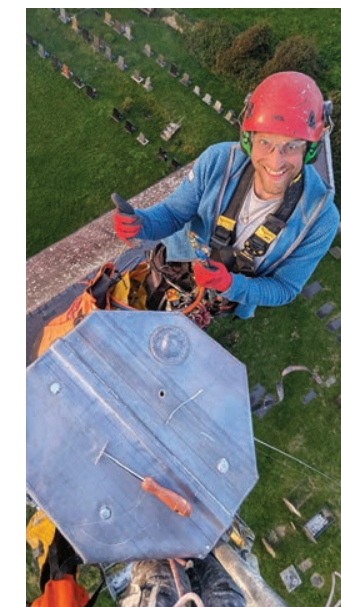
Collaborating

The obvious next thing for us was to collaborate, to find other likeminded conservators, craftspeople and industry professionals to fill the gaps in our knowledge. Finding and developing relationships with some of the industry's finest minds and craftspeople has solidified us within the community - and been thoroughly entertaining along the way.

It is only now that people are starting to open their eyes to the

idea that to use rope access doesn't have to mean a compromise in quality. In fact, our team has gone from strength to strength and we now have a pretty hot shot line up, including our own heritage roofer, chartered heritage building surveyor, SPAB Fellow, SPAB Scholar and some of the finest rope techs in the industry.

This helped drive a change in us all. A keenness to bite off more than just maintenance, to take on bigger and more involved projects, to prove that we can deliver a quality service.



Alex Haslehurst installing a lead cap to St Rhuddlad's church, Anglesey having removed the spire tip.

It is only now that people are starting to open their eyes to the idea that to use rope access doesn't have to mean a compromise in quality.

So, what's next for us? More - more learning, more up-skilling and more honing of our crafts. Maybe we'll even use a scaffold one day. Skill sharing amongst our employees is vital to our own satisfaction at work. Alongside this we will prioritise investing back into our staff. Whether that's supporting an NVQ, part time degree or just time spent learning at work.

Investing into our historic crafts is not only important for doing a great job now but also to preserve them for the next generation. I would personally encourage any younger person thinking about getting into a trade to consider the variety that there is within the heritage sector, and can confirm just how rewarding it can be.

As for rope access, it felt like a long road ahead three or four years ago, but now the picture feels very different. Dynamic and forward-thinking architects, engineers and building surveyors are capitalising on the reduced cost and impact. We have so far helped many practices develop their understanding of how and when to spec using rope access methods and look forward to many more following suit.

CPD TOPIC: Building conservation and heritage

- Rope access can be successfully combined with all trades
- Can be used for surveys, limework, roofing, leadwork & masonry
- Collaboration is key to developing sector skills & knowledge



To find out more about CUPA PIZARRAS range of natural slates, including CUPA 12, please visit: www.cupapizarra.com/uk.

Working on listed buildings requires careful consideration and adherence to specific regulations to preserve their historical and architectural significance. As a roofer, obtaining Listed Building Consent is a crucial step before commencing any roofing work on such properties. This article will provide insights into the process of obtaining Listed Building Consent and offer guidance to roofers on successfully navigating this regulatory landscape.

Understanding Listed Buildings

Listed buildings are structures of special architectural or historical interest that are protected by law. In the UK, they are classified into three categories: Grade I, Grade II*, and Grade II, with Grade I being the highest level of protection. These designations aim to ensure the preservation of these buildings and their unique characteristics for future generations.

Importance of Listed Building Consent

Listed Building Consent is a legal requirement for any alterations or repairs that may affect the character or appearance of a listed building. Roofing work falls within this scope, as it can significantly impact the overall aesthetics and structural integrity of properties. It is essential for roofers to obtain consent before undertaking any work to avoid potential legal consequences and to contribute to the preservation of our architectural heritage.

The Consent Application Process

1. Research and Preparation:

Begin by thoroughly researching the specific requirements and guidelines for listed buildings in your area. Familiarize yourself with the relevant legislation, local planning authorities, and conservation officers



Navigating Listed Building Consent: A Roofer's Guide

responsible for granting Listed Building Consent.

2. Consultation

Engage in open communication with the property owner, architect, and local planning authorities. Discuss the proposed roofing work, and seek their advice and guidance throughout the process. Their expertise and insights can help ensure that your application meets the necessary criteria.

3. Detailed Application

Prepare a comprehensive application that outlines the proposed roofing work in detail. Include accurate measurements, materials to be used, and any architectural drawings or specifications required. Provide explicit justifications for the work, emphasizing the need to maintain the historical integrity of the building while addressing any structural issues or maintenance needs.

4. Supporting Documents

Include supplementary documents, such as photographs,

historical research, and expert reports, to strengthen your case. These materials can demonstrate the significance of the building, the necessity of the proposed work, and how it aligns with preservation principles.

5. Submission and Review

Submit your application to the relevant local planning authority responsible for granting Listed Building Consent. The authority will review your proposal, considering factors such as the impact on the building's character, architectural features, and surrounding environment. The review process may involve consultations with conservation officers and other experts.

6. Decision and Consent

Following the review, the local planning authority will issue a decision on your application. If granted Listed Building Consent, you will receive written confirmation outlining any conditions or limitations that must be adhered to during the roofing work. Ensure that you fully understand and comply

with these conditions to avoid any potential legal ramifications.

Obtaining Listed Building Consent

Consent is a crucial step for roofers working on historic properties. By understanding the regulations, conducting thorough research, and engaging in open communication with relevant parties, roofers can successfully navigate the process. With careful planning, attention to detail, and a commitment to preserving the architectural heritage, roofers can contribute to the maintenance and restoration of listed buildings while ensuring their long-term durability and charm.

CPD TOPIC: Building conservation and heritage

- Listed Building Consent is a legal requirement for any alterations or repairs that may affect the character or appearance of a listed building
- Must be obtained before work starts
- Adhere to all conditions and limitations



Preserving and Replicating Heritage Rainwater Systems

Contractors and installers often bear the burden of much responsibility when it comes to the repair and maintenance of traditional roofing. When the replacement or repair of a heritage rainwater system is undertaken, what are the system options? And how can precious original features around the roofline and walls be safeguarded? The answer lies entirely in the preparation. Here, John Coe, commercial director at Alumasc Water Management Solutions (AWMS), talks us through the process.

The most critical stage of any heritage specification, is the site survey. At this initial stage, we ascertain, where possible, the manufacturer of the existing system, and whether individual sections of the system need to be replaced like-for-like, or whether a complete system replacement is necessary. The surveyor will also note and report the condition of the existing building envelope, along with any defects present; for example, crumbling brickwork, perished jointing, damaged stonework, etc. This ensures the rainwater goods are not installed onto any weak or problematic areas, which may eventually compromise the lifespan or performance of the new system.

Importantly, this process will also identify any non-standard or special stonework detail, such as ornamental corbels, plinths or finials. A detailed measure will be undertaken, allowing any bespoke sections of pipework to be manufactured to suit; ensuring that all original features are accounted for by way of

appropriate off-sets and returns, when installation time comes. In more modern construction, where walls tend to be flatter and essentially 2D in appearance, take-offs can often be done from drawings. In listed properties, however, these original '3D' features make the initial site survey essential for pinpointing fine detail and ensuring a successful installation.

System Options

Once the existing manufacturer has been identified, it will become clear whether new sections of Alumasc Rainwater product can be integrated, or whether a complete system replacement is necessary. Due to historic manufacturing methods, tolerances on older systems may not be the same as those in use today. These differences in tolerance mean that certain gutters cannot be mixed and matched.

When like-for-like section replacement is possible, Alumasc's Apex Heritage Cast Iron can be used. Apex Heritage is available in all four gutter



profiles: Half Round, Victorian Ogee, Beaded Half Round, and Moulded; and it offers a full range of circular or square/rectangular downpipes with authentic socketed joints to closely replicate historic styles.

Eight standard colours are available to suit most traditional projects, and these can be pre-painted in the factory. Certified factory-painted systems are only around 13% more expensive than primed cast iron, and this small initial investment saves the labour of painting on site, which incurs a much greater cost.

Where a cast iron system has to be fully replaced, Alumasc's Heritage Cast Aluminium may be considered an option. Full aluminium systems can be designed to provide all the essential architectural features appropriate to traditionally designed buildings, with the added benefit of being inherently



lightweight. As with cast iron, Alumasc's aluminium systems are fully compliant with British Standards, and offer the added protection of a BBA approved powder coating.

Replication of Bespoke Features

The survey will also ascertain any requirement for the replication of bespoke features such as ornate hoppers. Given their age, many hoppers no longer have moulds available, so Alumasc will carefully remove the hopper they consider to be in the best condition. From this, a template mould will be created and used to fabricate the replicas.

Nothing to Chance

Whatever the chosen system, the initial site survey is your safeguard, putting all elements of the building exterior under the spotlight, giving every installation the best chance of long-term success.

For more information call Alumasc Rainwater on 01536 383810 or visit www.alumascwms.co.uk/products/rainwater.

CPD TOPIC: Building conservation and heritage

- Initial survey is critical
- Apex Heritage Cast Iron in all 4 gutter profiles, 8 colours/factory pre-painted
- Heritage Cast Aluminium can replicate heritage detail
- BBA & BS compliant

RAISE YOUR GAME



Immerse yourself in challenging and comprehensive roof training at our facilities where you will be able to unlock many new skills.

The **NCTS/Master Roofers** training programmes are designed by skilled roofers specifically with you in mind, no course is simple, or straightforward, we are here to challenge and inspire our students and build your confidence in roofing.

To book a training session with us, email:
training@masterroofers.co.uk



Training at the NCTS/Master Roofers Training Academy

As Stewart Rowles from Master Roofers UK and Nigel Johnston of NCTS celebrate three successful years in partnership with their training efforts, both managers reflect on what have been the drivers, successes and areas of celebrations for this industry-leading training initiative.

Two state-of-the-art roofing training facilities are located in the UK: one being situated in Hoddesdon, Hertfordshire and a second facility is in Salford, Greater Manchester.

Delivering training focussed at the traditional end of the roofing sector, programmes include introductory courses in leadwork, hard metals, natural slate and also tiling.

Alongside these insightful courses, the centres also offer funded NVQ courses in several key areas.

NVQ level 2 and Heritage level 3 courses are offered in the same disciplines as well as onsite assessment, as well as mobile training.

CITB has greatly contributed to the success and variety of training on offer, by way of student funding and company support for employers who are placing students on various training courses with the centres.

One such initiative which has been incredibly successful, has been the specialist applied skills (or SAP for short) funded courses.

This scheme has provided many students with substantially

“

Working with NCTS has been a fantastic journey and Master Roofers UK is extremely proud to have played a part in developing the wide range of roofing training offered at the facilities.

funded NVQ training across the roofing disciplines.

Courses comprise multiple weeks at the training centre where students learn a range of new knowledge and skills, while also being assessed on site for work-based competency and knowledge.

This culminates in the award of a nationally recognised qualification for successful delegates.

Nigel Johnston shared his thoughts on the success of the training facilities and why NCTS values the role it plays in the traditional roofing sector.

Nigel said, “We are delighted with the outlook for NCTS and



roof training within the sector in general. The passion and enthusiasm shown by employers wishing to upskill their staff as well as the students who have visited us for further development is truly impressive. The key achievements I have been most pleased about are the quality of training and the scope of disciplines we have been able to deliver, not just with the core traditional training courses, like lead welding and bossing or slating and tiling, but also the highly specialist courses we have been able to offer, like lead casting, ornate slating and other bespoke content not typically offered elsewhere in the country.”

Stewart Rowles also reflected on the partnership. “Working with NCTS has been a fantastic journey and Master Roofers UK is extremely proud to have

played a part in developing the wide range of roofing training offered at the facilities.

“We have been gratified by the volume of interest in our courses and we hope the next chapter allows us to bolster the comprehensive training offered. I am delighted to be able to facilitate the growth and upskilling of the sector through the partnership”

The facilities have had sector-wide support from manufacturers who have donated materials, including Associated Lead Mills, Dreadnought Tiles, Lagan Building Solutions, VM Zinc, Hambleside Danelaw, Northstone Tiles, SR Timber and SIG Roofing, among many others.

Paul Walters, Managing Director of ALM which supplies a substantial amount of lead sheet and ancillary products to the training centres commented: “ALM are extremely impressed with the level of training offered at the facilities and it is a great pleasure to support roofers in the UK who seek to improve their skills and showcase what the material can do.”

For more information on the training provided by the NCTS/Master Roofers UK, please email training@masterroofers.co.uk or visit the website at www.masterroofers.co.uk.



Nigel Johnston



Stewart Rowles

Natural slate roofing is perhaps the most complicated and certainly one of the more technical types of pitched roofing to install correctly.

The first consideration: slate holing and fixings, may seem very basic to some experienced roofer readers. However, in archived roof inspections and when defective slate roofing issues are raised, these problems reoccur time and time again, even on roofs installed by otherwise competent installers.

Holing and Fixing Slates

Correctly holing slate is key to the longevity of the natural slate roof and should be treated as important.

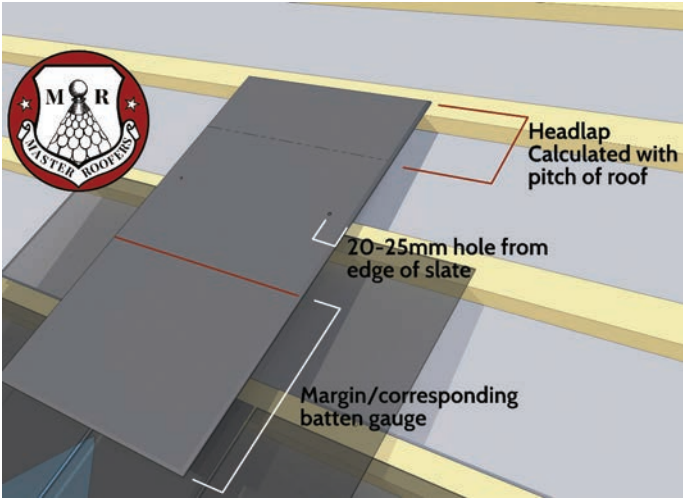
It is common to see roofs where second-hand slates have been used and the roofer has used the old damaged holes to install the slate.

Simply hanging slates from nails which barely grip the material due to poor hole size is unacceptable and will lead to failures in the future when severe weather will dislodge those slates which are poorly fixed.

Holes should be remade with a mechanical borer or 'slate punch'. The holes should be only slightly bigger than the nail shaft which typically ranges between 3mm and 3.35mm. A circular 4mm hole should be punched into the slate to provide adequate fixing without the risk of the slate swinging or rattling around.

Slate hammers or picks are not a suitable method for holing slates due to the inconsistency of the hole. Typically, when using a slate pick for holing, a square hole is formed which exceeds the recommended hole size. Again, what seems like a reasonable fixing when using a pick may lead to premature failure of the slate fixture.

If slates are able to move and swing on a nail shaft, they can in time either break the hole through which they are fixed, or in other scenarios, it has been observed that the slate itself can cut through the shaft of the nail from a prolonged sawing action caused by sideways movement of the slate.



Practical Rules for Natural Slating - Holing and Fixing

Stewart Rowles, CEO Association of Master Roofers

Simply hanging slates from nails which barely grip the material due to poor hole size is unacceptable and will lead to failures in the future.

Where to Hole Slates and Why

A common area of failure on a natural slate roof is actually the placement of fixings within the slate itself.

Fixings should be installed no closer than 20-25mm to any outside edge of the slate.

This is significant because slate can be weak when holed too close to the very edge of the stone.

For this reason, care should be taken to install battens or boarding correctly to allow for adequate fixings.

At the eave areas of the roof, it is imperative that a double batten is installed to allow for fixings to be placed correctly in the eave slate. Installing an eave slate directly to

the first batten will result in fixings too close to the edge of the slate so a secondary eave batten is installed, purely to provide a fixing area for the eave slates.

Holing Gauge

When calculating holing distance for new or even re-holed second-hand slates, the first and most important factor will be the slate headlap and roof pitch.

Using a headlap calculator, what headlap is needed for the pitched in question should be established.

Once this has been determined the following equation can be used to calculate batten gauge. The batten gauge then will tell you where to hole your slates.



Batten Gauge Calculation

Slate length - headlap ÷ 2 = Batten gauge

Holing Gauge Calculation

Slate length - headlap ÷ 2 - 5 to 7mm = Holing gauge

So essentially your holing gauge can easily be determined by taking 5 to 7mm off your batten gauge calculation.

Holing machines are extremely helpful tools to use when holing large quantities of slates.

A simple jig can be made from offcuts of timber to provide consistent standardised holes for all the slates being punched.

Usually this works best on a bench at belly button height, as this will prevent back fatigue when spending long amounts of time on the holing machine.

Alternatively, double holer machines are available; although these machines can often be very expensive and are cumbersome to transport and store as the machine is very large and made completely out of thick gauge steel bar with a foot operated punching mechanism.

CPD TOPIC: Building conservation and heritage

- Correct holing is key to slate roofs' longevity
- Nails should grip the slate to prevent abrasion from movement
- Holes should be inset 20-25mm from slate edge
- Headlap determined by pitch
- Batten gauge determines slate gauge
- Slate hammers unsuitable for holing. Holing machines or punches are preferable

The homes at Stapehill Abbey have a mixture of slate and tile roofs. We chose Clement Conservation Rooflights as we needed a product that would look perfect in both.



Clement Conservation Rooflights were perfect for both the tile roofs and the slate roofs at Stapehill Abbey.

Stapehill Abbey, Dorset

Stapehill Abbey is a unique estate consisting of a range of two to five bedroom homes. Set within beautiful gardens, these recently converted Grade II listed properties near Wimborne in Dorset are magnificent.

The original Abbey House was built in the early 19th century, with the monastic buildings dating back to the 1840s. The twin chapels were designed by Charles Hansom in 1847 and building was completed in 1851. Founded by a small group of nuns led by Madame Augustine de Chabannes, the Abbey was home to The Cross Abbey order of Cistercian Trappist nuns between 1802 and 1990.

Acquired by Stapehill Enterprises in 1990, the Abbey was a popular rural life museum, craft centre and farmyard depicting life in rural England and Victorian times until 2008.

Dorset based developers, Ankers and Rawlings, acquired the Abbey in 2015 and have worked painstakingly to retain the original artefacts and period features of this historic site. Original quarry flagstones and terracotta tiles have been preserved and an original Pugin Stone Cross has been retained to truly emphasise the character of the development.

Over 60 Clement Conservation Rooflights were chosen for the project, including both slate and tile profiles in sizes 1, 2, 3, 4 and 5.

Garry Hunter of Ankers and Rawlings commented: "The homes at Stapehill Abbey have a mixture of slate and tile roofs. We chose Clement Conservation Rooflights as we needed a product that would look perfect in both. We are really delighted with the end result and hope to use Clement's rooflights again in the future."

Manufactured for either a slate or a tile profile, the beauty of Clement skylights is that they lie flush with the roofline giving a neat finish.

Available in eight standard sizes, Clement Conservation Rooflights are constructed using mild steel sheet which makes them particularly strong. The surface is coated in polyzinc and then polyester powder paint for durability and a good-looking finish.

Clement's roof windows are made from high performance, argon filled, 24mm insulated glass units and come with a revolutionary warm T bar system. Available with several glazing options, including self-cleaning glass as standard, Clement's rooflights are manufactured to EN ISO 9001

standards and rigorously tested against air, wind and rain to BS6375. They achieve a BFRC Window Energy Rating of A+.

The standard range of rooflights is generally available for delivery within a few days. If one of the standard sizes is not appropriate, bespoke rooflights are also available.

Clement Windows Group offers an innovative range of steel windows, doors, screens and rooflights for both private residences and commercial projects. Based in Surrey, Clement's window products can

be seen in a number of prestigious projects across the UK and abroad. Prominent examples are Old Marylebone Town Hall in London, Norwich City Hall, The Brewhouse Trident Park in Malta and the Eldorado Building in New York.

01428 643393 info@clementwg.co.uk clementwindows.co.uk

CPD TOPIC: Building conservation and heritage

- Slate & tile profiles, flush with roofline
- 8 standard sizes + bespoke
- EN ISO 9001, BS6375, BFRC energy rating A+



Clement Conservation Rooflights fit flush against the roofline, whether the roof material is slate (above) or tile (below).





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