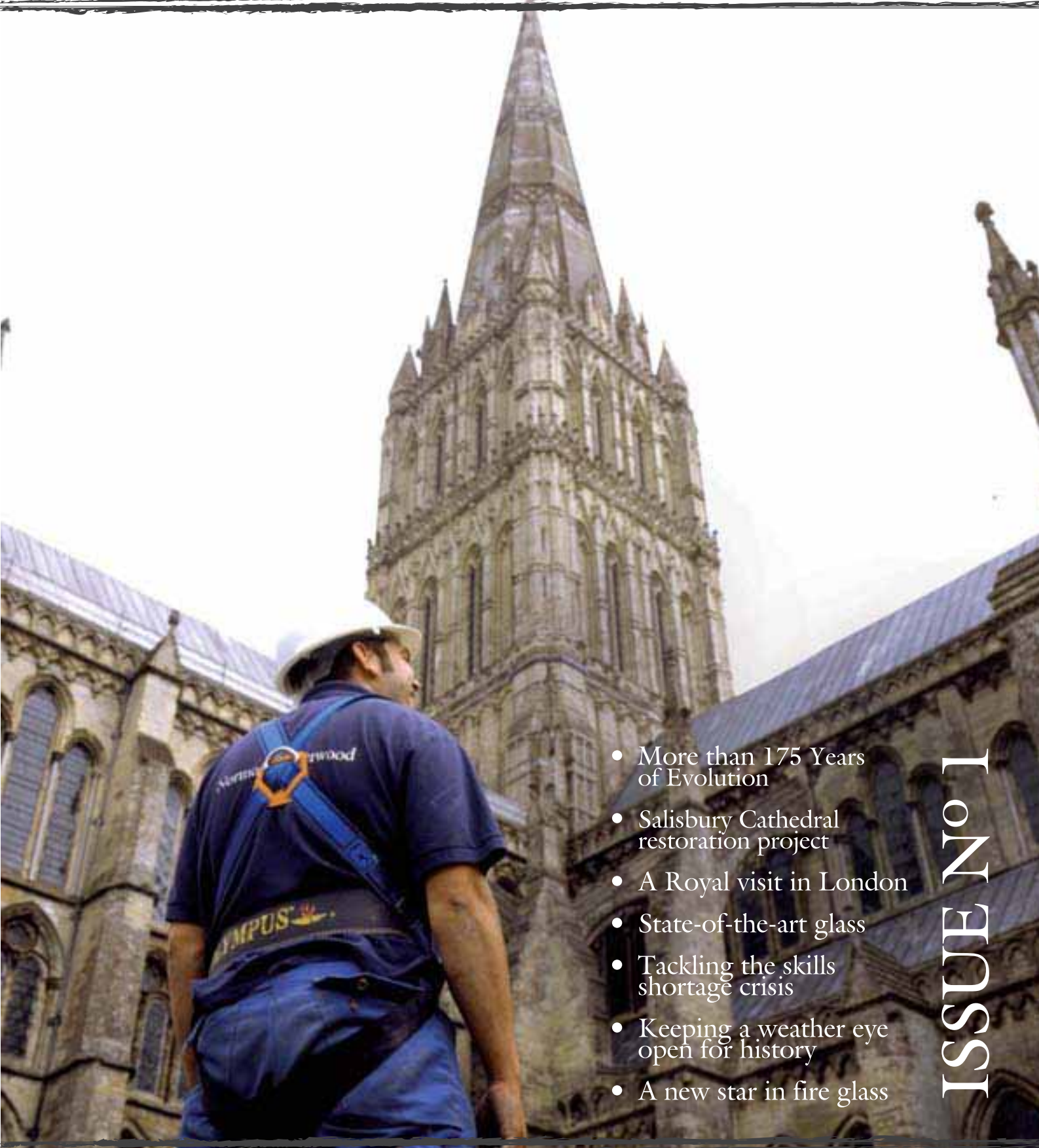
Restoring Heritage

NEWS FROM A SPECIALIST WITH OVER 175 YEARS EXPERIENCE OF CRAFTSMANSHIP IN LEAD & STAINED GLASS



- More than 175 Years of Evolution
- Salisbury Cathedral restoration project
- A Royal visit in London
- State-of-the-art glass
- Tackling the skills shortage crisis
- Keeping a weather eye open for history
- A new star in fire glass

ISSUE No 1

Norman & Underwood

ESTABLISHED 1825 WWW.NANDU.CO.UK

MORE THAN 175 YEARS OF EVOLUTION

Founded in 1825, Norman & Underwood based in Leicester has a proud history of restoring some of the world's finest ancient buildings.

For more than 175 years, its skilled craftsmen have worked on the lead and copper roofs and stained glass windows of most of the UK's finest cathedrals, palaces, stately homes and prominent public buildings. But although this is a key part of what the group does, its role is not confined to the preservation of historic architecture. As the company has evolved, it has adapted its glazing and roofing skills to work on some of the most high-tech, state-of-the-art buildings in Europe - helping to create structures that will become part of the heritage of future generations.

THOMAS NORMAN

JOHN UNDERWOOD

This news-sheet provides an interesting insight into the types of projects undertaken by the Roofing and Stained Glass Division and the Glazing Systems Division - contracts as diverse as restoring the roof of Salisbury Cathedral to installing the Pilkington Planar glazing system at an office block in Surrey. Similarly, it features an in-depth article on Norman & Underwood's role in helping to restore St Ethelburga's Church which was ravaged by a terrorist bomb.

It also focuses on the specialist skills utilised by craftsmen to return a damaged Victorian weathervane at an ancient village church to its former glory. Additionally, it looks at the industry's skills shortage crisis - and the threat this presents to the upkeep of Britain's architectural buildings.

The management team explains what measures Norman & Underwood is taking to address the situation and highlights the many career benefits awaiting craft apprentices. Looking to the future, it reports on the investment made by the Glass Products Division in both people and equipment to ensure it remains at the forefront of sealed unit manufacture as Building Regulations requirements become increasingly stringent. It also features Norman & Underwood's appointment as one of only five independent approved stockists and installers of Pilkington's revolutionary Pyrodur Plus fire resistant glass in Great Britain.

Norman & Underwood has for many years supplied and installed specialist glazing products and becoming a distributor of the Pilkington Pyrodur and Pyrostop ranges of fire resistant glass further strengthens its relationship with Pilkington.

Every year more than 600,000 visitors from all over the world come to the magnificent Salisbury Cathedral, making it the most visited cathedral in England.

Steeped in history, the cathedral Church of the Blessed Virgin Mary at Salisbury was consecrated in 1258 in the presence of King Henry III. Although it is not the largest English cathedral, Salisbury is a huge structure, with the total length of its interior measuring 449 feet. Its nave and aisles are 78 feet wide, with the nave 85 feet high and around 230 feet long. However the most perfect part of the whole cathedral is the spire, which is more than 400 feet high and was probably completed in around 1315, almost 60 years after the main building was consecrated The work of an unknown master mason, the spire is the tallest medieval structure in the world. In around 1285 construction work started on the addition of two further stages to the original tower, which had risen only a few feet above the apex of the nave roof. This work was completed in 1313 and the entire spire was then added in the following two years. It is estimated that more than 6,800 tons of stone were used, and the entire structure sits on the four-foot foundations of the original tower. This spectacular spire, and the cathedral's graceful beauty, enhanced by its lovely setting, is famously captured in the paintings of John Constable. Over its 775 year history Salisbury Cathedral has needed extensive repair and restoration work. It was in a shocking state when in 1667 Seth Ward became the bishop and asked his friend Sir Christopher Wren to survey it. It seems that the necessary repairs urged by Wren were eventually carried out by the bishop. Referring to the roofs Wren's report notes that the South Transept and half the nave had been wholly made new within (the last) 100 years, Wren's manuscript notes on its condition, and his suggested remedies are held in the cathedral library.

Since it was established in 1825, Norman & Underwood has undertaken work on many sections of the cathedral, helping to preserve the fabric of its fine medieval architecture for future generations. To ensure that all work carried out safeguards such impressive original features, the firm's craftsmen work closely with the cathedral's architects, archaeologists and structural engineers. Most recently, Norman & Underwood was selected as main contractor to replace the lead sheeting and repair the timberwork of the roofs to the North Transept, North Choir and North Choir Aisles. This contract - to be completed in just 20 weeks - was the third one to be awarded by the cathedral's architects and surveyors to the Roofing & Stained Glass Division in the past few years. Familiarity with the cathedral building and the excellence of work undertaken on the roof of the nave, contributed to Norman & Underwood securing this work, and such was the contract's importance that eight of the most experienced roofing craftsmen were deployed on the roof's lead, existing boarding and timberwork. The work was commissioned because the original roof fixings were no longer adequate to support the weight of the existing lead sheeting, resulting in the lead panels slipping down the roof slopes. Surveying the oak work of the various roofs prior to determining the repair strategy enabled good use to be made of the latest technology microboring equipment, which helped the company to measure the condition and structural stability of the cathedral's 16th century oak timbers.

As main contractor all access scaffolding and hoisting facilities were supplied by Norman & Underwood, and, in line with stringent health and safety legislation, inertia rails were fixed at ridge level to accommodate safety harnesses. It was also a requirement of the contract that the internal roof space to the nave remain open to visitors so a movable arched tunnel was designed by the company to protect the public. More than 150 tonnes of lead were stripped - including all lead flashings to the perimeter of the gutter and wall abutments - with access to the roof gained via aluminium crawler ladders and safety harnesses. Lead stripping started with the gutters so that the architect could inspect the gutter boards and associated woodwork. The roof slopes were then stripped; starting at the top, with the old lead lowered down manually to gutter level and placed onto the scaffolding. All the old lead from Salisbury Cathedral was taken to Norman & Underwood's headquarters in Leicester for re-casting then returned to the roofing team in re-cast form, maintaining important continuity. Knowledge and experience of this type of contract strengthened the company's decision to use a temporary sheeting technique during the work - a decision which proved to be the right one when stormy weather and high winds struck on Sunday October 26th 2002. Although the storm caused some damage to the temporary sheeting, the scale of the damage was nothing like the potential harm which could have been sustained to an entire false roof. To minimise any possible interior damage to the cathedral and to ensure that the main timbers did not get wet, Norman & Underwood's emergency call out team put polythene in the roof space of the north transept and aisle roofs and monitored the cathedral throughout the night. But although the team was able to react swiftly to protect the inside of the building, it could not get onto the roof because of the 90 mph winds. The temporary sheeting was replaced safely the following day.

Norman & Underwood glazing specialists help restore historic London church ravaged by IRA bomb.

Norman & Underwood's Roofing & Stained Glass Division and Glazing Systems Division have been instrumental in restoring St Ethelburga's - the famous Bishopsgate church ravaged by an IRA bomb nearly 10 years ago.

The church, re-consecrated by the Bishop of London, also recently saw the unveiling by Prince Charles of a project designed to promote peace and reconciliation. St Ethleburga's, one of the City of London's oldest and smallest churches, withstood both the Great Fire of London and the Blitz but was destroyed by a terrorist bomb in April 1993. It was originally feared that the bomb damage was so severe that the church, founded in 1250, would have to be pulled down. However, investigations by the church authorities, the City Corporation, English Heritage and the Museum of London Archaeology Service, soon revealed that rebuilding was a feasible option. St Ethelburga's has now been renovated using material from the original church - including elements of the stonework, carpentry and stained glass that survived the blast. Stained glass and leaded light restoration is an important part of the Norman & Underwood business where its knowledge of antique coloured glasses and lead crafting brings windows like St Ethelburga's back to their full glory.

The Roofing and Stained Glass Division was commissioned to install the leaded light windows to the west facing front elevation and carry out similar work to the large north window and to two smaller windows on the south aisle and south-east elevation.The Glazing Systems Division, which originally secured this restoration contract, also carried out glazing work to the church's interior. Floor to ceiling structural glazing glass screens have been erected to cordon off the nave from the rest of the church, thus creating a meeting room and office working areas. The screens were secured with specialised fixings to the head and the base and incorporate sliding glass and automatic doors open by pressing a button. Following his consecration in 1996, The Bishop of London, the Rt Rev Richard Chartres, decided that the restored church should house a centre focusing on religion's role in conflict and the part it can play in resolving war.

A Charitable Trust chaired by the Bishop was founded in 1997, with an appeal launched the following year to finance the restoration work and to establish the centre securing £3.3 million. Despite the severity of the bomb attack, 70 per cent of the main tower remained intact and the west front of the church facing on to Bishopsgate looks much as it did before. The north wall, however, like the cupola, is entirely new, with the wall destroyed by the bomb now replaced with new brickwork.

Similarly, the stone mullion windows on both the east and west are new, as are the offices above the aisle. A striking feature of the rebuilt church is the new east window, which manages to simultaneously capture both the building's past and its hopes for the future. Incorporating fragments from the former east window that dated back to 1878, it depicts St Ethelburga, the church's patron saint, who has gathered up the fragments. Norman & Underwood surveyor Michelle DeBank said that St Ethelburga's poignant history made this particular restoration project both interesting and rewarding.

She added: "There was great historical value for the Norman & Underwood team in working on such a high profile project."

Loft Style Living Boosts Sales of Villeroy & Boch bathrooms

The current trend for 'clean lines' and stylish urban living has helped boost the sales of Norman & Underwood's extensive range of bathroom suites by upmarket German manufacturer Villeroy & Boch. Among the recent contracts secured by the company's Bathrooms & Plumbing Division is a prestigious project to supply Villeroy & Boch bathroom suites and shower cubicles to a loft-style apartment development in central Leicester.

The exclusive range of suites - available in both contemporary and traditional designs - is proving popular with discerning customers looking to add value to their homes by creating a designer bathroom.

Peter Gledhill, general manager of the division, added: "Brand names have taken on increasing significance and people now aspire to names like Villeroy & Boch which have an established reputation for design, quality and style.

"The huge popularity of home makeover TV programmes has also made people more adventurous when planning a new bathroom."

"Visitors to our large city centre showroom are often not only surprised by the number of Villeroy & Boch designs but also their wide price range."

While, on average, our customers spend around £3,000 to £4,000 on their bathroom suites, some spend as much as £20,000, some less than £2,000."

Planar project for Hyperion reflects technical expertise of glazing team

The technical expertise of Norman & Underwood's Glazing Systems Division is reflected in a recently completed, state-of-the-art office project for international computer software group, Hyperion. This £750,000 glazing contract at Hyperion's impressive new UK offices in Egham, Surrey, is the Division's largest to date utilising Pilkington Planar - the world-leading structural glass system. A team varying between eight and 12 Norman & Underwood glazing specialists worked full-time on the seven-month contract to help create a futuristic office block with stunning visual impact. The Planar exterior panels used on the Hyperion building are secured to the structure by stainless steel spider fixings, which are bolted through holes countersunk into the glass. This revolutionary frameless technique means that no fixings are visible on the exterior, resulting in an aesthetically pleasing flush facade and a light, open atrium. Pilkington Planar's other technological attributes include its ability to withstand a variety of wind and structural loads and a silicone seal between adjacent panels which provides weatherproofing. Sean Flynn, glazing systems manager of Norman & Underwood, said the Hyperion contract was an extremely complex job requiring high levels of technical skill and experience.

"We were chosen by main contractor Kier Southern because we are one of the few UK companies which can handle combinations of structural glazing, fire glazing, architectural aluminium systems and balustrading in a single contract." "The Hyperion contract included all of these elements plus others such as glass lifts and fire glass in the building's exits and entrance, for example." Hyperion decided upon a high-tech, glass fronted design after witnessing the popularity of a similar office development nearby which had been completed a year earlier. Mr Flynn added: "The Hyperion building is similar in shape and size and has been built using the most modern architectural building materials available." "The glazing systems used offer the benefits of maximum amounts of natural light and an anti-glare solar controlled capability that provides extremely good heat insulation." Pilkington Planar is the Rolls-Royce of structural glazing and is more expensive than conventional glazing panels. Ordinary panels cost from around £350 per square metre whereas Planar glazing is from £800 to £900 per square metre. In the Hyperion contract, 300 square metres of Planar glass panels were used on the exterior alone. The same material was also used in parts of the building's interior, including the lift shaft.

Norman & Underwood's previous experience in this type of technical project was also instrumental in the firm securing the prestigious contract, believes Mr Flynn. He added: "Norman & Underwood had worked with Kier Southern before and we were invited to offer a price for the complete glazing package." Norman & Underwood is currently working on a smaller contract involving Planar glass for an office development in Soho Square, London. This work requires the interfacing of different materials and includes the provision of three floors of glazing between the office partitions. Given the design appeal of the Planar system, and as one of only 11 Authorised Planar Installers appointed in the UK by Pilkington, Norman & Underwood's specialist expertise and experience with this material is in great demand. Mr Flynn added: "Glass facades are very much in vogue with architects and designers, so we expect to secure other high profile contracts involving the use of Planar."

Production planning manager Simon Mace (left) and **quality assurance manager Mick Duff** make a final inspection of a sealed unit from the new automated production line.

Norman & Underwood makes quality appointments as major investment continues

Norman & Underwood's Glass Products Division has demonstrated its ongoing commitment to quality and efficiency by making major investments in both people and equipment. The Division - one of the UK's leading independent sealed unit producers - has appointed Simon Mace as Production Planning Manager and Mick Duff as Quality Assurance Manager. Both are based at the company's King's Lynn site in Norfolk. Mick, who joins Norman & Underwood from Solaglas where he held a similar position, is overseeing the Division's smooth transition from BS 5173 to EN1279 - the new European CE standard for insulated glazing. He is also working to upgrade the Division's quality system accreditation to the new international standard ISO 9001:2000 at both the company's King's Lynn and Leicester sites. Simon, who was previously with Bespak plc, is improving Norman & Underwood's plant utilisation, overall delivery performance, and, most importantly customer service. In addition, the company has also invested heavily in new equipment to ensure that its processing plant continues to meet all the latest product, quality and environmental standards. Its new computerised cutting facility, for example, provides fast, accurate and economic cutting for both toughened and non-toughened glass. The Division recently installed new in-line gas filling equipment to make certain its automated sealed unit production lines manufacture units that fully comply with Document L (Building Regulations Part L) which became law in Britain in April 2002.

Britain's construction, plumbing, glazing and joinery industries continue to be hampered by serious skill shortages as companies struggle to attract the qualified craftsmen of the future.

Latest reports show that the heritage sector has been particularly hard hit, with the upkeep of the nation's historic buildings threatened by a severe lack of skilled workers. Stonemasons, scaffolders and bricklayers are among the craftsmen who are in short supply, according to an English Heritage survey, 'The State of the Historic Environment Report.'

As a company with a proud history of restoring cathedrals and other ancient buildings in Britain and overseas, Norman & Underwood has always sought to pass on the expertise of its roofing, glazing and stained glass craftsmen to new generations of apprentices. This year the group has taken on seven craft apprentices but attracting young people who are keen to learn a trade is becoming increasingly difficult across all areas of the business. The company is tackling the situation on a number of fronts - primarily by returning to the old days of craft apprenticeships when trainees learned specialist skills directly from experienced craftsmen. To this end, Darrell Warren, senior contracts manager in the Roofing and Stained Glass Division, has established a training facility on-site where apprentices can develop their practical knowledge under the supervision of qualified personnel. Darrell added: "Unfortunately, we find that the general plumbing college courses available locally to our apprentices do not cover the skills needed to undertake the specialist lead works required by our roofing contracts." "Although the facility cannot replicate exactly the challenging working conditions apprentices will face when working on a real roof, it provides an environment in which they can at least improve their practical knowledge." Similar facilities are soon to be set up by the Glazing Systems Division to ensure its trainee glazing technicians receive more extensive in-works product training to supplement their hands-on training. It is essential apprentices have an in-depth knowledge of the wide range of glazing systems - given the increasing introduction of technically sophisticated solar and insulation products such as self-cleaning glass and non-wired fire resistant glass.

The Roofing and Stained Glass Division is also considering introducing carpentry apprenticeships so it has the full complement of specialist crafts to offer clients. While the very nature of heritage and conservation work requires that newcomers to the industry master crafts passed down from generations of artisans, the Glazing Systems Division faces a rather different situation. David Cotterill, director of Norman & Underwood's Glazing Systems Division, said: "Our craftsmen are glass technicians rather than glaziers nowadays." "Developments in specialist glazing systems such as Pilkington Planar - and its popularity among today's architects and designers, have meant that we have had to adapt our existing skills to accommodate the technological aspects." "There are a lot of misconceptions about glazing, which are harming our ability to attract new people into the industry." "People associate a glazier as someone who turns up in a van with a pane of glass and a lump of putty to replace their kitchen window." Jon Castleman, director of the Roofing and Stained Glass Division, also blames the skills shortage on people's inability to think longer term. He said "Craft apprentices start on low wages but as they acquire skills and qualifications, their earnings potential soon grows." "An experienced craftsman with specialist skills can make a very good living." "Sadly, though, many school leavers have a 'back pocket' mentality and would rather get unskilled work stacking supermarket shelves because it pays slightly more today." Mr Castleman is keen to build on the company's relationship with local schools and colleges and to impress upon parents the career opportunities that craft apprenticeships offer. He added: "We regularly invite school students here on work experience and we have fostered good links with the School of Architecture at De Montfort University and with SPAB, the Society for the Protection of Ancient Buildings." Both the Roofing and Stained Glass Division and the Glazing Systems Division look to attract young people who not only have aptitude for practical skills, but who also get on well with other people and look respectable.

Mr Castleman added: "Our job often involves talking to our clients, including senior members of the clergy, so we need young people who look reasonably smart and can communicate well." "It is not essential for apprentices to have previous experience, but it helps if they have some practical know-how even if it's just through carrying out simple DIY tasks at home." Most of all, the company expects that new entrants to all divisions of the business must possess a genuine interest in their chosen trade. Opting for a craft apprenticeship rather than going to university does not necessarily preclude young people from holding an office-based, management role one day. Virtually all the Norman & Underwood management team started as apprentices. And, explained Sean Flynn, manager of the Glazing Systems Division, a career with a company like Norman & Underwood offers the opportunity to travel widely in Britain and abroad. He said: "I never imagined when I started my apprenticeship that my job would take me to countries like the Maldives and various parts of the Middle East." "Working on high profile architectural projects both for new and historic buildings gives the teams involved a great sense of achievement." Great earning potential, the chance to work on landmark buildings in exotic and exciting locations and guaranteed job satisfaction all make a craft apprenticeship an attractive career option. However, without the support of parents, the education sector and the Government, Norman & Underwood fears that school leavers will remain unaware of the rewards awaiting a skilled craftsman. Bob Savage, group chief executive, commented: "Without companies like Norman & Underwood who are prepared to invest in apprentice training, the skills shortage would be even worse." "As it is, restoration of landmark buildings is being put at risk because insufficient craftsmen are coming through the ranks." "The Government's main objective appears to be making university places available to as many school leavers as possible, irrespective of the real needs of the country." "For many young people, though, a craft apprenticeship would be a far better career option."

Norman & Underwood restores historic church's Victorian weathervane

A damaged Victorian weathervane belonging to an historic Buckinghamshire village church has been restored to its former glory by Norman & Underwood's Roofing & Stained Glass Division. The work, which took three days to complete, is a prime example of the Division's expertise in heritage projects. The rooster weathervane at the Church of St John the Evangelist in Whitchurch was in a poor state of repair with the stem broken, the steelwork corroded and the copperwork tarnished. To repair this important piece of history, roofing specialists at Norman & Underwood dismantled the weathervane including the rotating mechanism, trying to retain as many of its original features as possible. Dismantling and reassembling the weathervane, which dates back to the 1880s, was particularly tricky because of its position three metres above the church's narrow tower.

To reach it, the Norman & Underwood team carried scaffolding up the tower, and then carefully lowered the vane down to the ground using a hoist. It was then transported back to Norman & Underwood's Roofing & Stained Glass Division in Leicester where the damage was assessed by the roofing team, senior contracts manager Darrell Warren and workshop foreman Steve Bevins. All the ironwork that supports the weathervane when in situ was sent away to be shot blasted by a specialist, along with the clamping plates that hold the steel in place which had been remade by skilled craftsmen. Meanwhile the vane was stripped apart and each profile reconstructed to resemble as near as possible the original design. Stainless steel tube and plate were used to give the ornamental finial part extra support, but to ensure authenticity, the steel was hidden by copper sheathing which matched the original. The vane was rebalanced using lead then painted by an outside specialist contractor to architects' specifications. When finished, it was transported back to the church and reassembled on the roof by a team of four. At the same time the original flagpole was repainted and the lead cap replaced. Steve Bevins said he and the roofing team had enjoyed carrying out repair work to the weathervane. He added: "It was a nice job to do".

"The weathervane is an important part of the church tower and we're pleased to have played a major part in restoring it." Work on the weathervane was undertaken at the end of Norman & Underwood's original roofing contract at the church, which involved replacing the copper roof with a lead roof. The copper roof, which had replaced an earlier one made of lead, had come to the end of its life and needed attention because of leaks and water ingress. This contract - which was won by competitive tender and took approximately seven weeks to complete - consisted of reroofing the nave roof, north aisle, chancel roof and tower roof. Three leadworking specialists were assigned to the roofing project plus two carpentry specialists for the timber repairs and a stonemason for associated stone repairs. The Church of St John the Evangelist, built on the site of a former 10th century Saxon church, is in Whitchurch, North Buckinghamshire which is mentioned in the Domesday Book of 1086. Its existing nave dates back to the 13th century, with the tower added in the late 14th century and the belfry windows in the 15th century. Copper weathervanes like the one at St John the Evangelist, reached the height of their popularity in the last quarter of the 19th century.

Pilkington selects Norman & Underwood to supply and install fire-resistant glasses in the Midlands and East Anglia.

Leicester company Norman & Underwood has been selected by Pilkington to supply and install its full range of fire-resistant glasses in the Midlands and East Anglia. Pyrodur Plus and Pyroshield will be available cut to size from stock, with Pyrostop to order. Norman & Underwood is one of only five independent glass companies in the whole of Great Britain chosen by Pilkington to both supply and fit these Pilkington products. Pyrodur Plus is a new thin, clear, fire-resistant glass designed for internal applications and provides 30 minutes fire integrity combined with impact safety. The ideal choice for internal fire-resistant doors and partitions, it meets all the latest European fire and impact standards. Featuring a unique intumescent interlayer, it offers the optimum combination of minimum thickness, fire resistance and impact performance. In the event of a fire, the interlayer intumesces and turns from clear to opaque, so creating an effective barrier against hot gases and flames. Once opaque, the interlayer also significantly reduces the level of radiant heat from the fire, achieving exceptionally low radiant heat intensities for such a thin integrity glass.

Under independent testing conditions integrity of more than 40 minutes was achieved – a safety margin of 30 per cent above the minimum classification time of 30 minutes. Its performance in the tests allows an approved fire door containing Pyrodur Plus to be classified as a Category B door within the provisions of European standards BS EN 1634-1, which allows specific increases in dimensions. Pilkington is at the forefront in product testing and product development for fire resistant glass, with Pyrodur, Pyroshield and Pyrostop among its range of unique fire protection products. Its decision to appoint Norman & Underwood as a fire glass supplier and installer builds on the strong relationship that already exists between the two well established glazing industry companies. Pilkington spokesman Peter Gilbert added: “Effectively, this arrangement allows us to combine our high quality products with Norman & Underwood’s excellent supply and installation service capability in the Midlands and East Anglia region of England.”

Creating Heritage

NEWS FROM A SPECIALIST CREATING ART WITH METAL AND GLASS IN THE BEST NEW-BUILD PROJECTS

How to find out more about Norman & Underwood

There are new brochures for the Glass Products Division, the Glazing Systems Division and the Group where you can find out more about our products and services. Our web site on www. Nandu.co.uk has a wealth of further information and a regularly updated news section.

For further information you can contact us in the following ways:

Tel: 0116 251 5000 Fax: 0116 253 2669 Web: www.nandu.co.uk Email: info@nandu.co.uk

11-27 Freeschool Lane, Leicester LE1 4FX United Kingdom

Norman & Underwood

ESTABLISHED 1825 WWW.NANDU.CO.UK