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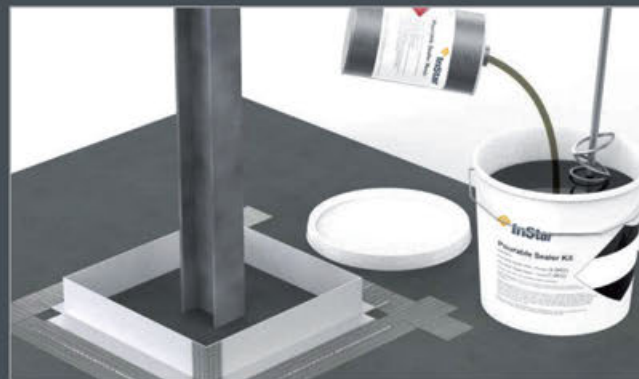


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Cathie Clarke, CEO

Foreword

SINGLE PLY ROOFING ASSOCIATION

www.spra.co.uk

The Single Ply Roofing Association (SPRA) is delighted to once again be contributing to this Single Ply Systems Supplement and we hope it continues to be an annual reminder of the quality, versatility and flexibility of single ply roofing membrane systems regardless of project size.

Twelve months ago, the construction industry was still reeling from the effects of Grenfell which unbelievably was *two years before*, and the UK was still locked in battle over Brexit. A new government at the end of last year finally allowed decisions to be taken, and almost overnight 'Brexit' was at the bottom of the news pile and more domestic matters were the focus. None of us knew then, that a strange new virus on the other side of the world would lead to the effective shutting down of the UK and many other countries. I am writing this at the beginning of May and so much has happened so quickly, that perhaps the only thing we can be sure of is that the situation will definitely be different again when this supplement comes to press! However, Grenfell, Brexit and now Covid-19 have confirmed what we already know:

Quality costs - the race to the bottom has serious consequences. This is true for any industry, not just in construction, but our health and safety record speaks for itself. Grenfell was a significant and awful example, but it was not the first, and has not been the last. SPRA was created in 1992 when the reputation of the flat roofing industry was falling.

Cheap it may have been in some places, but cheerful it wasn't. It was recognised that a clear, detailed and trusted source of specification guidance was required, and so the **SPRA Design Guide** - arguably the best, most robust design specification manual within the roofing sector and perhaps the wider industry - was born. The SPRA Design Guide is the backbone of the organisation and it's what all members are required to sign up to. Indeed, members play a very active and important role constantly reviewing the Guide to ensure that it is always relevant and up-to-date. This includes the creation of new guidance as well as reviewing the old and can lead to new training courses, such as the **SPRA Wind Loading Course**, now available. A full review is completed every two years, and 2020 will see the launch of the latest edition. SPRA is very proud of this resource and makes it available free for the whole construction industry as we know that correct specification and choice of products may seem the more expensive option at the start, but will be more sustainable and cost effective in the long run.

Transparency, openness and collaboration solves problems quicker for the benefit of all. It has been reported that the first case of Coronavirus in China was identified as early as 17 November, but it wasn't until the end of December that the world was starting to find out about the virus. At the start of May, we have seen many countries including the UK, close borders and effectively shut down to try to reduce the social and

economic impact. The death toll continues to rise, but the UK and other countries are either starting to think about lifting lockdown measures or are actively doing so. There is also a growing global commitment to work together to find a vaccine, both financially and sharing expertise and other resources.

SPRA members are proud to hold the SPRA badge, because they work together to make it what it is. This community of like-minded organisations seeks to improve quality and to help the wider industry where possible.

We live in unprecedented times. Sharing information between governments and out to the public, and following the rules and recommendations was, and continues to be, a vital weapon in managing the situation and reducing serious negative impacts as much as possible.

Good decisions can be the hardest. Making good decisions comes from transparency, openness and collaboration. The SPRA membership works collectively to create the SPRA Design Guide, so that stakeholders can make

informed choices. No less important is the SPRA membership audit process that provides clients with a valuable quality marker. Sometimes it's easy to stick with the status quo, but Grenfell, Brexit and Covid-19 have shown us that we need to be brave, and that sometimes the best decisions are the hardest to make. In 2019, SPRA started the journey of reassessing its own quality standards, and a new Membership Criteria and Code of Conduct will come into force during 2021. It has not been an easy road and will bring its own challenges that we are yet to face, but SPRA must lead the way and respond to the new post-Covid environment. SPRA is bringing in levels of membership that will a) allow clients to confidently choose suppliers and installers based on different criteria and b) have a process for continual improvement for both existing and new members to encourage everyone to reach for the top!

SPRA members are proud to hold the SPRA badge, because they work together to make it what it is. This community of like-minded organisations seek to improve quality and to help the wider industry where possible, because they know that they will benefit. We hope you find this supplement valuable and useful and maybe it will encourage like-minded companies and individuals with the same ethos to join us. Together we can continue to make a difference. If you have any questions about single ply roofing, then please call the SPRA Helpline, or email enquiries@spra.co.uk. ■

Wind Load Protocol Guidance Training



Dr Ronan Brunton,
SPRA Technical Manager

Towards the end of last year SPRA published its new *S11b-19: Wind loading; protocol for calculation*.

This new document is designed to be used in conjunction with S11a-16 (*Wind Loading - A guide to reduced risk; A checklist of the parameters required for calculation*), and therefore adds guidance in the form of a complete protocol to further assist in attempting to reduce risk and enhance the robustness of UK wind load design for flat roofs. The completion of this work represented a milestone in guidance development, having consulted the industry widely with input from SPRA members, standards institutions and private consultants to deliver the most up to date comprehensive guidance of its type.

In 2020, SPRA is following this publication with a new one-day training course aimed at those who calculate roof wind loads on a regular basis. The new course, referred to as Wind Load Protocol Calculation (WLPC), is based on implementing the guidance of S11b-19 as well as other SPRA wind load guidance information. The course is expected to assist participants in their understanding of the correct use of the documents and

associated protocols and assist in achieving the necessary level of competence in their use. More information will be available from the SPRA website (www.spra.co.uk) concerning future WLPC course dates which will be subject to Covid-19 restrictions being relaxed enabling such gatherings to take place.

Further essential guidance is provided by S11b-19 with dedicated sections on key issues including:

- ❑ Calculation software and competency
- ❑ Essential input data
- ❑ Safety factors
- ❑ Methods of attachment - (mechanical, adhered and ballasted applications). Each get a dedicated section providing specific information pertinent to attachment method. This assists in providing the necessary detail while also ensuring that a holistic approach to the issue has been taken covering all means of single ply attachment.

The WLPC course will follow the format of the guidance document, including detailed explanation of the content of these sections.

Another very worthwhile addition in the new protocol guidance package, which is also covered in the WLPC course, is separate guidance on 'Site pull-out test - *Protocol for flat roofs*'. The introduction section of this document positions its importance alongside the new S11b-19 calculation protocol and states:

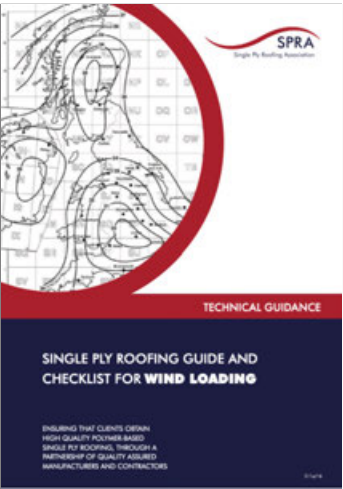
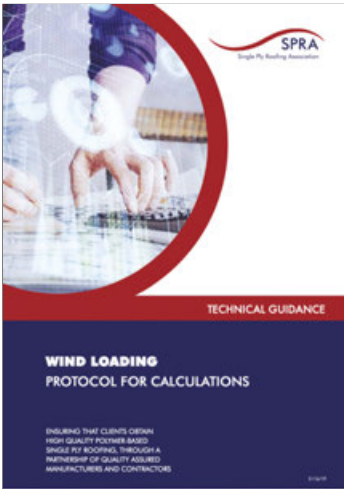
European Assessment Document (EAD) 030351-00-0402 Systems of Mechanically Fastened Flexible Roof Waterproofing Sheets was introduced in February 2019, replacing ETAG 006, Guideline For European Technical Approval of Systems of Mechanically Fastened Flexible Roof Waterproof Membranes which has subsequently been withdrawn. This SPRA protocol on site pull-out testing will replace the guidance offered by the former Appendix C of ETAG 006 which has not been reproduced within the new EAD 030351-00-0402 standard. This protocol should be read alongside the SPRA protocol for wind load calculation for which site pull-out testing forms an important task required in the determination of the fastener pull-out admissible design value (W_{adm}).

Wind loading assessment in the roofing industry is one of the most important tasks necessary to ensure the safety of

individuals, property and robustness of any project design. Getting wind load assessment wrong can also have catastrophic consequences for all involved in the design and building phase, as well as being life threatening to anyone in the vicinity of a failing roof in a windstorm. Costs involved in the repair of wind damaged roofs are

Wind loading assessment in the roofing industry is one of the most important tasks necessary to ensure the safety of individuals, property and robustness of any project design.

understandably high with major inconvenience and disruption to the building occupants or processes. The WLPC course aims to benefit all involved in wind load calculations and is therefore open to both members and non-members of SPRA. SPRA members receive a discounted course fee.



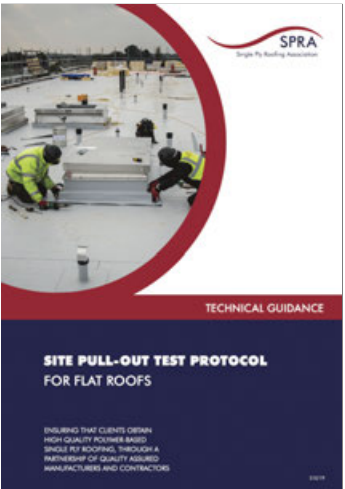
There is a necessity for wind load assessment protocol and it is important to provide up to date guidance on the subject. The WLPC course provides the opportunity not only to review all SPRA guidance documentation but also to work through real projects in a small size class setting. Participants are able to discuss the implementation of the guidance for different project types and locations.

SPRA has always taken the wind load assessment of buildings to receive a single ply roofing system as a critical element of design and has produced guidance over the years on this important subject including: S11a-16 (*Wind Loading- A guide to reduced risk; A checklist of the parameters required for calculation*) and S11b-17 (*Wind Load-Design requirements*). Both these guidance documents provide important information and are part of the suite of SPRA guidance on wind loading explained and used in the WLPC course.

S11a-16 ensures that all the required parameters are available in the correct units and as the title of the document indicates, it is a checklist which includes guidance notes for the person supplying the parameters required for calculation.

S11b-17 highlights SPRA best practice guidance with respect to membrane and insulation attachment requirements, to provide resistance to wind uplift. It supplements guidance provided within the SPRA Design Guide and offers references to other appropriate industry documents to ensure that SPRA members are fully informed of the appropriate design and installation requirements.

The recent and ongoing competency debate across the construction industry also highlights the need for a competent person providing the collection of data and carrying out such calculations. The new WLPC course aims to improve the competence of participants in using S11b-19.



Package of guidance

In conclusion, there are now a number of important documents that form the package of guidance for the assessment of wind loading from SPRA. It is recommended that they are all consulted and read in conjunction with each other, as appropriate, to review and assess any individual project:

- ❑ SPRA Design Guide – (latest edition)
- ❑ S11a-16 (*Wind Loading - A guide to reduced risk; A checklist of the parameters required for calculation*)
- ❑ S11b-17 (*Wind Load – Design requirements*)

- ❑ S11b-19 (*Wind loading- Protocol for calculation*)
- ❑ Site pull-out test - *Protocol for flat roofs*

Each document has a specific role to play in the overall assessment of flat roof wind loading. Together, they provide a comprehensive package of tools to reduce risk and enhance design and the subsequent performance of single ply roofing systems.

The new WLPC course will enable discussion and practice in using the new document in conjunction with the existing SPRA guidance on wind loading. ■

Contact

The Single Ply Roofing Association
SPRA offers training for all types of single ply roofs.
Contact the SPRA helpline on 0845 154 7188, or email enquiries@spra.co.uk.

SIG Design & Technology: The Tree House, Clowance Estate and Country Club

Project overview

Sometimes it's the smallest projects which can provide the biggest challenges. Although the roof on this treehouse at Clowance Estate is only 70m² in size, the steep pitch and attractive, technical design of the roof required a measured approach.

This treehouse is an enchanting hideaway set in some of the most beautiful surroundings Cornwall has to offer. Located between Falmouth and St. Ives, Clowance Estate sits within 97 acres of stunning countryside, complete with an 18th Century manor house, its own private golf course and a four-acre boating lake. It also provides luxury holiday accommodation and to make the most of its natural setting and to stand out from its competitors the hotel wanted to create a unique treehouse overlooking the lake.

The project

Clowance Estate approached treehouse specialists, Blue Forest and tasked them with creating a raised, self-contained forest retreat with accommodation consisting of two bedrooms, a communal living area and external balcony and dining deck.

The Tree House is a new build holiday let set in the midst of a forest location and is adjacent to the boating lake. Its design juxtaposes modern materials and a bold sharp angular concept with the canopy and foliage of an established woodland.

SIG Design & Technology worked with Blue Forest providing a full and impartial design and specification



for a more robust and lower maintenance solution. The final product choice also had to be capable of seamlessly and robustly dealing with the conical-to-conical and conical-to-dual pitch valley interfaces and curved fascia detailing.

Taking these requirements on board, SIG Design & Technology recommended IKO Armourplan P single ply membrane. It's a low maintenance and robust product and with the added benefits of attractive seam profiles and the ability to cope with complex interfaces, it was the ideal choice for this roof.

Installation challenges

The Tree House project features a challenging roofline with two main intersecting circular elements (one radius 2600mm and the other 3700mm) and one rectangular

zone. The main, internally exposed support structure consists of 150mm x 50mm C16 timbers at 400mm tapering centres, which were initially over-clad with 20 mm of red cedar (for internal aesthetics). Three layers of 6mm plywood were then introduced to the build up to lend a smoother, but still faceted appearance. 110m² of fully bonded Armourplan P PVC membrane with standing seam profile was then installed on a faceted deck using contact adhesive.

Due to its steep pitch, installation and setting out created additional problems for the contractor. The pitch of the roof would also make it visible from most angles and it was essential that clean, crisp lines of the field area and drip trim facets, and standing seams were installed to the highest standards of workmanship.

The Tree House is a new build holiday let set in the midst of a forest location and is adjacent to the boating lake. Its design juxtaposes modern materials and a bold sharp angular concept with the canopy and foliage of an established woodland.

IKO Armourplan P membrane has superior reinforcement and uses premium quality PVC throughout meaning the membrane is very durable and easy to install. The extra flexibility of the membrane helped to achieve the desired tight and crisp details on the standing seams. It is also completely UV stable which makes the membrane more durable.

Installation of the Tree House roof was undertaken by Falmouth-based, Marnick Roofing, which is one of the largest pitched and flat roofing contractors in Cornwall. Marnick Roofing is a member of SIG Design & Technology's Accredited Contractor scheme (DATAC) which ensures that designers, clients and main contractors deal with financially credible, trained specialist roofing contractors who have an ongoing relationship with the products they work with and are supported on site to deliver high quality projects.



As SIG Design & Technology approved contractors (DATAC), Marnick Roofing was supported by Field Area Technician, Jordon Hughes throughout the installation to ensure the Armourplan single ply installation met the technical challenges of this project - a clear example of SIG Design & Technology's commitment to its DATAC contractors in pursuit of construction excellence.

The installation took four weeks which, for such a small roof,



may be considered a long time. However, the complexity of the multi-faceting, sloping interfaces and steepness of pitch needed a slow and steady approach and the correct sequencing of works in order to ensure the best possible outcome for this stunning holiday home design.

Sustainable credentials

The Blue Forest team are passionate about the wellbeing of the environment and are keen to promote sustainable principles and ethics throughout the design and construction process of their projects. The majority of the timber used throughout all projects is FSC/PEFC certified or sourced from sustainably managed forests where there is an active strategy of replanting and habitat regeneration.

The Armourplan P system provided not only excellent aesthetics and longevity but suitable sustainability credentials. IKO's Armourplan

roofing membranes are the only single ply to be manufactured in the UK, and all waste at point of manufacture is recycled.

Simon Payne, Director of Blue Forest confirmed, "We are delighted with the dark grey colour of the membrane and the way the standing seam profiles seamlessly interface with the timber elements and the surrounding environment.

"The inclusion of Armourplan P membrane on a sustainably resourced structure and cladded project speaks volumes for the credibility of not only this product but PVCs generally and should be welcomed and celebrated by all."

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Sika System Chosen as Waterproofing Solution for 'Industry Challenging' Roofing Project

The superb adaptability of a Sika-Trocal single-ply waterproof membrane ensured its specification for a stunning new roof installation.

In a challenge to industry norms, the Sika-Trocal SGK 1.5mm - traditionally a flat roof membrane - was applied to a pitched, lead-style mansard roof containing imitation standing seams. The installation formed part of a large residential development in Poole, Dorset.

The town centre scheme, which occupies vacant space comprising two, three-storey blocks, was financed by social housing provider, Stonewater. It includes nine energy-efficient, one and two-bedroom affordable homes on a shared ownership and low-cost rental basis with associated parking, bin and cycle stores.

For the mansard roof, the client required a lead-style effect and associated dormers in a material that was more cost-effective than lead, to suit their specification and budget. Sika-Trocal's fully-bonded SGK system proved more than ideal for the task. The reinforced

PVC waterproof membrane offers a durable solution for warm and cold roof construction. As well as supplying high tensile strength and superb resistance to mechanical installations, Sika-Trocal® SGK provides outstanding weathering and excellent flexibility in cold temperatures, which along with its easy-fit benefits, makes it the ideal membrane for exposed roofs.

Roofing specialist, Volsen, was appointed by Glossbrook Builders to install the SGK system. It was combined with imitation standing seams to mimic the mopstick effect of a lead roof. To complete the look, Volsen continued the Sika-Trocal over the dormers, completely encapsulating them in membrane; a cost-effective option compared to lead or cladding. This provided continuous waterproofing over the area and eliminated junctions between systems,

For the mansard roof, the client required a lead-style effect and associated dormers in a material that was more cost-effective than lead, to suit their specification and budget. Sika-Trocal's fully-bonded SGK system proved more than ideal for the task.



which have could have led to future problems. This allowed cost savings for the client, as only one trade was required on site to complete the whole area.

The gutter profile was completed in powder-coated aluminium to the capping, fascia and soffits in a colour match with the Sika-Trocal slate grey to seamlessly blend with the mansard roof. For thermal efficiency, 100mm-thickness Sika-Trocal INNOFix, foil-faced insulation board was laid onto the timber deck to create a warm roof. Sika-Trocal S-Vap 500E provided the system's vapour control layer. As part of Sika's all-round service offering, its technician made regular site visits to ensure quality and conformity throughout the installation.

In terms of project management, Volsen ensured there was an increased workforce to complete the main area ahead of the client's original timeframe and took the approach of completing the remaining gutter waterproofing

with the use of an access scissor platform. This practice enabled the scaffolding to be taken down on time and prevented further access hindrance to the site for other trades. It also assisted with cost savings for the client by removing the ongoing scaffolding hire costs.

Thanks to the skills and experience of Volsen's installers and the seamless, adaptable attributes of Sika-Trocal's SGK system, the Poole development was supplied with a waterproofing solution that not only maintained the surrounding area's historical aesthetic, it will ensure this much-needed social housing scheme remains untroubled by the elements for years to come.

Contact Sika Trocal

For further details on Sika-Trocal products and systems please contact: sika-trocal@uk.sika.com or call tel: 01707 358500.



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Whitesales Project Expertise Adds Up to Top Grade for Refurbishment of School of Mathematics at University of Bristol

The challenge of preserving the intrinsic character of the 1880 Grade II Fry Building at Bristol University, whilst at the same time overhauling it by building a breath-taking atrium linking to a 140-seat lecture theatre, adding a roof garden above, and incorporating countless new seminar rooms and offices, was immense. The development was a part of the University's £525 million capital investment programme.

The complex nature of the roof structure and extensive project scope make the project an ideal reference point for highlighting how Whitesales expertise and project management

contributed to successful completion of this major restoration initiative.

Extensive investigation

Focusing on meticulous analysis during design and planning, Whitesales undertook extensive investigation of the existing structures, implications of any additional weight loading, wind uplift calculations and required fixing methods. Consideration of available features to achieve required U-values as well as detailing of all roof penetrations and connecting interfaces were all essential to ensure problem-free completion of this exceptionally demanding specification.

The logistical challenges that this complex project presented were numerous. The installation schedule itself presented many obstacles. A carefully planned, staged installation of the main units and flashings allowed for works to be completed more easily. Temporary weathering was utilised to facilitate this staged process. Successful completion was achieved as much through strict management of communications, plans and on-site coordination, as with the selection of appropriate products and the actual installation.

Exceptionally demanding

The newly installed modular rooflights and bespoke roof glazing all achieve the required enhanced u-values and levels of performance. The walk-on unit, in particular, is an outstanding element - being both visually stunning and delivering against an exceptionally demanding specification.

With Whitesales modern and innovative solutions, the design possibilities for delivering daylight are nearly endless. The company's daylighting systems can be adapted to any building, all sectors, and every purpose - ensuring Grade A results, every time. ■



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Challenges and Competence Development in Flat Roofing



Dr Ronan Brunton
SPRA Technical Manager



Use of proprietary non-penetrating welded attachment for PV array support.

We cannot rest on our laurels and must strive to further develop industry and sector competence throughout the manufacturing, design, procurement and installation phases, as well as assessment of individuals working with our products and systems.

Today's roofing industry faces many challenges. These range from the critical safety aspects of design and construction of buildings specifically in relation to fire, to the dramatic recent challenge to individuals and businesses associated with the coronavirus, Covid-19. In between, the industry must deal with new or amended technical standards, as well as the broader aspects of climate. Last winter was one of the wettest on record, directly affecting production levels and construction output. When these challenges come

relatively close together, it can seriously stress company, human, and capital resources. The Covid-19 pandemic is a global challenge for society with tragic consequences for those affected in terms of loss of life and the suffering that brings. There is also the dramatic, negative economic impact affecting business and the individuals within. It may be some time before normality of a new kind emerges. Some of the technical challenges faced by our industry include improving

technical standards and, most importantly, improving the safety aspects of buildings in relation to fire. On the latter point the flat roofing industry is working tirelessly to engage with government to identify key points requiring clarification. This is extremely important work to try and achieve the clarity necessary for the flat roofing industry as a whole to ensure a way forward to meet important changes to the Building Regulations in this area. The Grenfell Tower tragedy highlighted the need for the construction industry to address these issues.

be welcomed. The ambition of the IRG, through the working group structure, is focussed on delivering improved competence and cultural change across all aspects and levels of the construction industry. The industry needs a paradigm shift to realise this ambition and the outcome of the final report based on the individual working groups attempts to deliver this. This is a real and necessary challenge that must be overcome, critically in the interests of building safety, but also in terms of industry

reputation. Understandably, raising the bar means taking a more rigorous approach to training and assessment thereby improving competence. **Competence** To this end, the single ply flat roofing sector of the construction industry has for many years had a focus on training, with manufacturers at the forefront of delivering instruction regarding their products and systems. This has clearly assisted in improving the competence levels of installers. That being said, we cannot rest

on our laurels here and must strive to further develop industry and sector competence throughout the manufacturing, design, procurement and installation phases, as well as assessment of individuals working with our products and systems. Trade associations can be a catalyst for competence development, by working within the industry to promote training at all levels, as well as developing guidance and standards driving technical improvement.

SPRA, through its training initiatives and technical agenda, continues to focus on improving competence levels and is ready to play its part in supporting cultural change. Competence can only be developed when relevant, accurate and correct information is available to build knowledge, which is then accessed and used. The library of guidance information provided by SPRA, is in part, that knowledge base. It is key to the industry and continues to be updated and expanded. Towards the end of last year SPRA published its new S11b-19 (*Wind loading; protocol for calculation*). An accompanying document '*Site pull-out test-Protocol for flat roofs*' was published at the same time.

Currently, in the SPRA guidance pipeline for this year, is an updated SPRA Design Guide as well as specific guidance on working with concrete roof decks. Ensuring that as many individuals as possible are aware of the information available and importantly, use it, is one of the keys in meeting the competence development challenge. ■



Building a Safer Future Dame Judith Hackitt's Building a Safer Future was published in 2018 following the Grenfell Tower tragedy and identifies the key failings of the construction industry with recommendations concerning improving competence and the necessity for cultural change.

In response, the interim report, *Raising the Bar: Improving Competence, Building a Safer Future* of the Competence Steering Group (CSG) and the Industry Response Group (IRG) was released at the end of last summer. The report and the ongoing follow up effort since, of the IRG working groups is to





Flex-R: Cwm Mawr House, Welsh National Park

Building a home within a designated area of natural beauty is never going to be an easy challenge. When you also add in the fact that it's a Site of Special Scientific Interest (SSSI) it can become an even bigger task.

This is what architects, Kinver Kreation, set out to do when designing this three bedroom home within the heart of the Welsh National Park. By working together as an experienced team, the architect Kinver Kreation, Flex-R – the UK's largest supplier of EPDM – and Randall & Janes Roofing have overcome the many challenges on this unusual site to deliver a stunning installation.

The Project

A SSSI is a formal conservation designation and describes an area of particular interest to science due to the rare species of fauna or flora it contains.

Gaining planning permission on a SSSI can be difficult and having worked on similar projects before, Kinver Kreation knew it was essential to work closely with the Planning Authority to achieve a design that blended in with its surroundings, but also met the client's modern requirements.

The final design is a contemporary and unique, low impact green dwelling with large walls of glass to capture the coastal views. A curved roof covered in living plants gives the impression that the property is growing out of the hillside.

Why EPDM for this roof?

When it came to the roofing membrane, Kinver Kreation had no hesitation in specifying an EPDM product for this dwelling, having used it on some 50 or 60 previous projects. The final design

features a large, curved roof with six rooflights and four chimneys to work around, finished off with a green roof; getting the detailing correct would be essential to its success. Knowing the demands on this roof, Flex-R recommended RubberBond FleeceBack.

Taking the tried and tested method also counted when choosing their roofing contractor. Kinver Kreation wanted assurances that the installation would be professional and backed by robust warranties and therefore decided to work again with Flex-R approved, local roofing contractor, Randall & Janes Roofing.

Flex-R and the contractor offered reassurances before the work even started, coming out during the quotation stage to make sure every detail was covered.

"We have worked with Flex-R and Randall & Janes Roofing on a number of projects and I know that the support will be there from start to finish. Flex-R and the contractor offered



reassurances before the work even started, coming out during the quotation stage to make sure every detail was covered."

Plan ahead

Planning and preparation are essential when delivering a successful job especially on a restricted site. This was certainly the case at Cwm Mawr where access for the roofing contractors was on foot down a quarter of a mile of narrow track!

Flex-R worked with Randall & Janes Roofing and Kinver Kreation on every step of the project, advising on specification during the tender stage and visiting the site before work started to plan the installation with the roofing contractor. Graham Matthews from the Flex-R technical team was also on hand throughout the project to provide on-site assistance and support.

The installation

Flex-R specified a fully bonded AVCL which the roofing contractor was able to lay on to the ply deck in a single day, providing a temporary waterproofing solution while the rest of the roofing works were completed. Randall & Janes Roofing prefer working with the 45m² rolls of RubberBond FleeceBack, some of the largest rolls on the market, which can cover sizeable sections of the roof at a time.

When working in an area which presents roofers with some of the most challenging weather

conditions in the UK, it's important to plan your roof and protect your work as you go. Following advice from Flex-R, the contractor split the roof into four areas, working on 3m sections at a time. This allowed them to install and waterproof each area and create secure



night seals, protecting the completed works and preventing the insulation from becoming wet. Randall & Janes Roofing applied a glass tissue faced PIR, spray applied polyurethane adhesive before installing the RubberBond FleeceBack membrane. The product leaves few seams, allowing the building to be waterproof in less time whilst still maintaining a high-quality finish. Drainage and pipe seals were applied to the upstands.

Randell & Janes Roofing are Specialist Registered Installers (SRI) and have worked with RubberBond FleeceBack for over 10 years. Their experience and local knowledge of the area was essential when working in such an open and exposed location and with multiple

knowledge of the product and the support from Flex-R made every stage of the project so easy for us. Through collaboration we've achieved an excellent result for the client that looks stunning in this setting.

The final design features a large, curved roof with six rooflights and four chimneys to work around, finished off with a green roof; getting the detailing correct would be essential to its success. Knowing the demands on this roof, Flex-R recommended RubberBond FleeceBack.

detailing points. Flex-R work hard to build an ongoing relationship with their roofing contractors and ensure installers are fully trained, supported and confident when using their products.

Collaborative working

Working together has helped to deliver on this project and Kinver Kreation couldn't agree more.

"Working with Flex-R and the roofing contractor were so important on this project. The experience of Randall & Janes Roofing, their extensive

"RubberBond FleeceBack has been the ideal product on this project. Due to the flexibility of the product it has met the tricky challenges on this roof perfectly, and because it offers superior protection and long-term durability it can meet whatever coastal weather is thrown at it."

Contact Flex-R

www.flex-r.co.uk
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Hand Welding Redefined LEISTER Reinvents Hand Welding with the New UNIDRIVE 500

The ground-breaking UNIDRIVE 500 has been designed to reflect the everyday needs of professional contractors. Developed and produced in accordance with the latest state-of-the-art technology in the plastics-processing industry, this reliable and economical semi-automatic welder gives the user more automation than hand welding whilst complementing automatic welding.

performance up to 2m/min) roofs can be made leaktight quickly and safely. The UNIDRIVE 500 boasts three ergonomic handles that provide ultimate welding comfort, stability and balance, making handling of pressure and guiding so much more effortless. The UNIDRIVE 500 offers a speedy, powerful, and ergonomic solution for fatigue free welding.



Its compact and lightweight design makes it easy to manoeuvre through tight spaces, combined with a choice of three different sized rotating nozzles and dual-direction drive system allowing for welding in both directions, including vertical and horizontal.

With welding speeds three to five times faster than traditional hand-welding methods (welding

Other key features of the UNIDRIVE 500 include digitally regulated temperature, speed and air-flow range, which can be adjusted at any time during the welding process. Fitted with Leister's robust device components the UNIDRIVE 500 has low service costs with maintenance-free brushless drive and blower motors, for easy upkeep, fewer spare parts and optimised performance.



Its versatility makes the UNIDRIVE 500 the go-to tool for all roofing applications - commercial or residential, detail welding... and more.

This unparalleled tool sets a new standard for reliable, high-quality curb and base flashing, edge-metal, vertical wall and parapet detail welding.

Versatility

Its versatility makes the UNIDRIVE 500 the go-to tool for all roofing applications - commercial or residential, detail welding, sky lights, small roofs, flat and sloping roofs and cross welding. Whether welding in

confined areas, edges, along walls or field seams, the UNIDRIVE 500 is the agile partner on the roof.

It can be used for edge-close welding on roof parapets and eaves up to 60mm, overlap welding of thermoplastic & elastomer sealing sheets and overlap welding of base seams.

Not limited to roofing, it is the ideal tool for waterstops for below-grade concrete applications, geosynthetic applications and swimming pools.

Developed by Leister - the leading name in plastic welding applications, the UNIDRIVE 500 is supplied to the UK by Welwyn Tool Group. Welwyn supply the full range of Leister plastic welding and industrial process heat equipment and offers highly competent technical support by their team of dedicated engineers.

Contact Welwyn Tool Group

For further information and technical advice for equipment in this field, please contact Welwyn Tool Group on 0800 856 0057, email them on info@welwyntoolgroup.com, or visit their website www.welwyntoolgroup.com.



RESITRIX Hybrid Membranes Perfect Match for Green Roofs



Central Park Cafe,
Plymouth

CARLISLE® CM Europe is the manufacturer of the award winning RESITRIX® waterproofing membrane.

RESITRIX is a durable and robust membrane for all types of green roof systems. Some of the UK's most prestigious green roofing projects are made watertight by RESITRIX such as the Macallan Distillery in Scotland.

Recently, two very unique projects in the UK demonstrated the versatility and durability of the product are showcased below.

NORTH WITCH POINT, Port Patrick

This self-build project was featured on Channel 4's Grand Designs and generated huge interest from architects and contractors alike. This structure was constructed from steel and reinforced concrete.

vegetation was used to cover the roof area and encapsulate the structure, concealing it from passers-by.

Combining the structural waterproofing and roofing system required careful planning and workmanship of the highest standard. As the

throughout the life of the building, making RESITRIX SK W the perfect choice. The concrete structure also incorporated expansion joints – RESITRIX membranes contain EPDM and SBS bitumen layers meaning it's highly flexible, allowing it to cope easily with the potential settlement.

The waterproofing membrane was fully bonded using CARLISLE FG35 surface primer ensuring an instant, strong adhesion, essential when working in high velocity wind areas. Our technical department assisted the client with information during the planning stage and throughout the project. During this process, CARLISLE produced models to demonstrate the design, application and robustness of the membrane. In addition to appearing on television, North Witch Point also won the 2019 GIA Small Residential Award.

CENTRAL PARK CAFE, Plymouth

Plymouth City Council's Central Park Café is one of its flagship community projects. The cafe's design features a green roof, inspired by the rolling hills in the

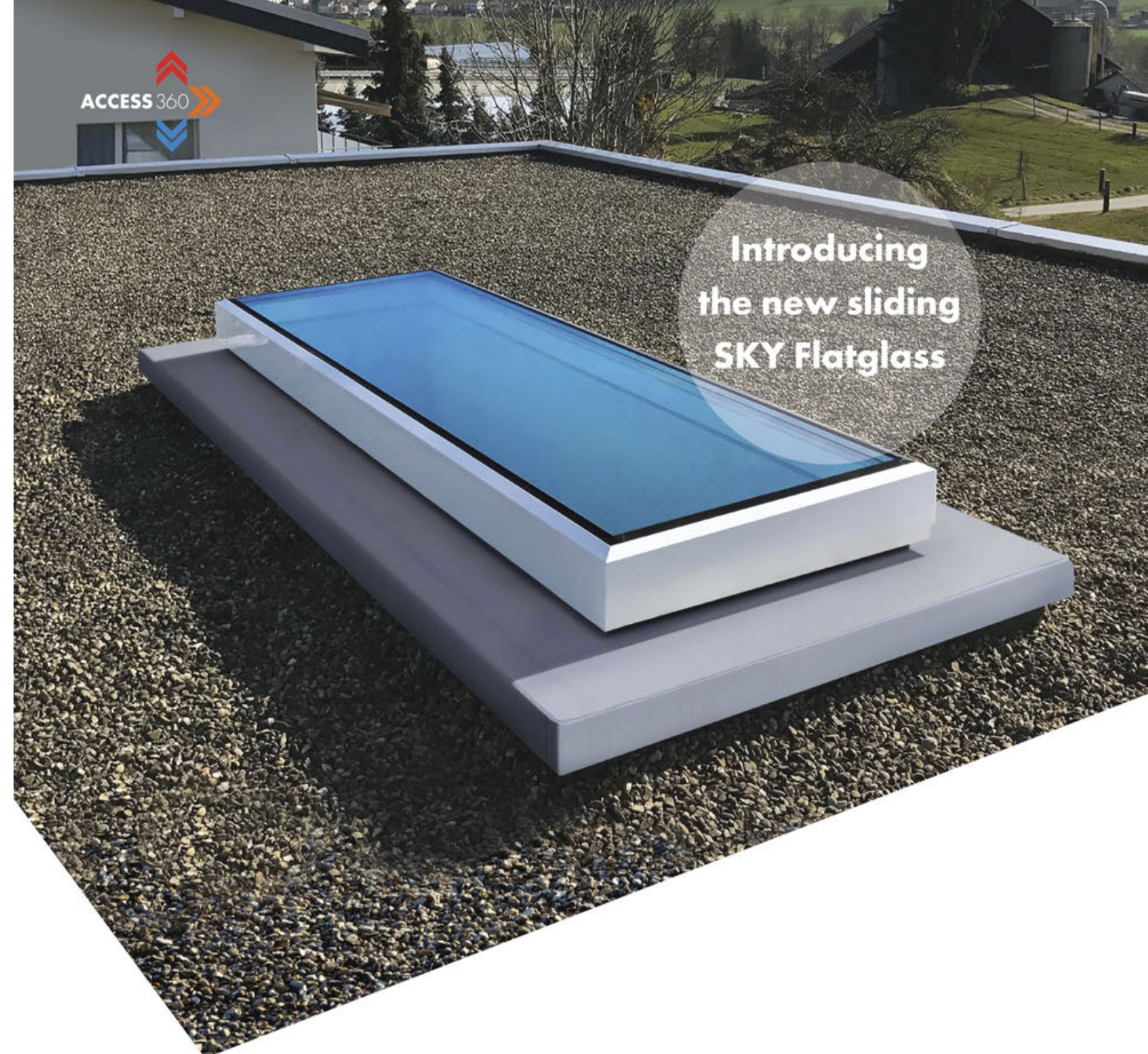
surrounding landscape and utilises natural materials, helping it blend seamlessly with the park. The warm roof construction includes PIR insulation adhered to ALUTRIX® vapour barrier, capped with RESITRIX SK W.

RESITRIX is a root resistant, FLL certified waterproofing membrane, making it a great choice for any green roof. Sustainability was an important consideration for the council, all of our EPDM flat roofing membranes have a 50 year+ life expectancy, are recyclable and produce very little waste which means they are amongst the greenest flat roofing materials available.

Due to the project's ambitious timeline, multiple trades were required to work simultaneously. ALUTRIX Vapour Barrier provides a temporary waterproofing for up to five weeks which allowed the interior sub-contractors to continue their work uninterrupted by any adverse weather conditions and ensured this exciting new facility was open for business on schedule! ■

Contact Carlisle CM Europe

For further technical
information, sales or
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please email
info.uk@ccm-europe.com
or log on to
www.ccm-europe.com.



Introducing
the new sliding
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A smoke vent, access hatch and rooflight. Three solutions in one



Our new SKY Flatglass offers a sleek and functional approach to natural smoke ventilation whilst also offering roof access and natural daylight for a room, stairwell or corridor.

The sliding cover is both stylish in design and practical in exposed areas where a hinged opening is impractical.

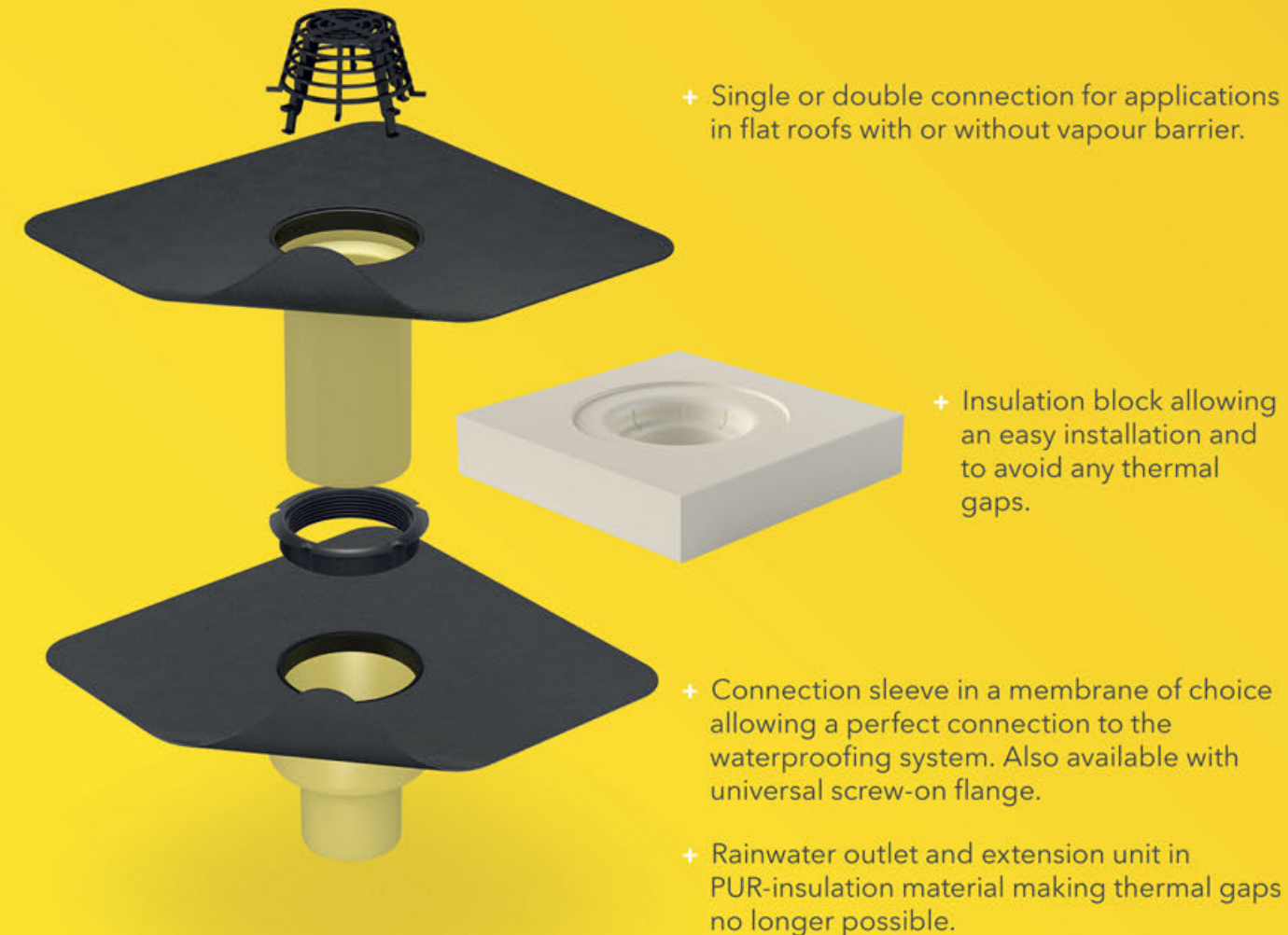
Meeting the requirements of building regulations document B and tested to EN12101-2 as a natural smoke vent, why would you specify anything less?



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Confidence Through Competence

Dr Ronan Brunton
 SPRA Technical Manager



The Single Ply Roofing Association (SPRA) has been delivering specialist training courses and assessing for level 2 qualifications for many years now, but the numbers going through the system remain small. However, many hundreds and thousands of installers have been trained over the years by our membrane manufacturers and distributors, and a commitment to training is a key aspect of membership.

Grenfell was a wake-up call for our industry. It has caused us to challenge what is acceptable, and what should be expected - or even demanded - with regards to levels of skill, knowledge and understanding of all those working in the construction industry. In recent times, construction has seen an increasing race to the bottom, with broken specifications, and a closed eye on competence to achieve the cheapest price. The consequences of this approach are laid bare with Grenfell, but it is only now, nearly three years on, that the industry is turning this particular ship around.

At last, SPRA is meeting more and more stakeholders that are reporting that clients are starting to insist on, and check that installers, in particular, have the correct qualifications before they are allowed on site. Sitting on the Hackitt Review Working Groups for Installers and Products, we know that new standards are being developed and more change is on its way. But we already have existing processes in place, like the CSCS card scheme - what matters now is ensuring it is implemented by policing it on site.

Soon, it will not be enough to hold a blue Skilled Worker CSCS card, the person will need to ensure that they have the correct qualification endorsement on the card. Just

because you have a level 2 qualification in one occupation, does not mean you are able to carry out another one! Smart card technology means that it is very easy to check cards, and the Build UK annual smartcard audit is tightening the net each year. The 2019 audit was focused on looking at how many site operatives were undertaking specialist work on

transfer. Some years ago, with the support of its members and the CITB, SPRA developed a Level 2 NVQ, with supporting training and assessment courses. A proper understanding of the roof build-up as well as the installation of the single ply membrane gives the installer, and therefore the client, the confidence that the job will be

The 2020 SPRA Conference is titled 'Confidence through Competence' and at the time of writing was still planned to go ahead. Covid-19 may have had a hand in whether or not it will still go ahead on June 24th or not, or in what format - but the conference is open to all and will be covering a whole range of issues around competence, not just installer training. If you

Soon, it will not be enough to hold a blue Skilled Worker CSCS card, the person will need to ensure that they have the correct qualification endorsement on the card.



a labour-only card. These loopholes are being fixed - so why not get ahead of the game?

SPRA has always advocated quality training and the SPRA Design Guide (free to download) and online training and assessment course are valuable resources that aid knowledge development and

done properly. Last year, SPRA targeted managers, inspectors and sales staff with its Single Ply Awareness Training Course and this year, SPRA will release a new Windload course to add to our training offer.

Call us to find out more or visit the website:
www.spra.co.uk/training-careers.

want to be part of the solution, and ensure you are not part of the problem, visit the SPRA website: <https://spra.co.uk/events/spra-conference-and-awards-dinner-2020/> to find out more details. By working together, we can solve these issues and work towards creating the safe environment that we all want to live and work in. ■

Bauder Profiled EPS system

Extending the Life of a Timeworn Metal Roof

Critically, a pull-out test is carried out to ensure that an overlay of the existing metal roof is a feasible solution. Bauder will undertake a survey of the roof to ensure that the necessary pull-out figures exceed the minimum level required. A wind load calculation is also carried out for the project at this time.



Before and after of profile metal roof overlaid with Bauder Thermofol PVC membrane

The Bauder profile overlay system incorporates a bespoke measured, designed and manufactured EPS profiled insulation board fitted to match a profiled sheet roof, typically of single-skin steel, composite panels or aluminium.

The profiled EPS insulation is waterproofed with Bauder Thermofol PVC single ply to provide a cost-effective, long term, lightweight, durable solution. It is intended for refurbishing existing metal roofs, or for increasing the thermal performance where the original insulation standards are not adequate, bringing the construction up to current Building Regulation requirements.



Bespoke EPS insulation cut for existing profiled metal deck.

Key Features

- Extends the life of an old roof.
- Upgrades thermal efficiency utilising the depth of the trough.
- Durable, lightweight and easy to handle.
- TS1187 BROOF (t4) System Fire Tested.
- Single-source supply.
- One-point guarantee.
- BBA certified products.
- No building interruption.
- More cost effective than re-cladding.

Planning

It is essential prior to any site survey taking place that adequate consideration is given to safe access of the existing roof structure and that any covered roof lights have been identified and made secure.

Critically, a pull-out test is carried out to ensure that an overlay of the existing metal roof is a feasible solution. Bauder will undertake a survey of the roof to ensure that the necessary pull-out figures exceed the minimum level required. A wind load calculation is also carried out for the project at this time.

Insulation Application

The EPS is manufactured to order, with the profile machine-cut to match the existing roof sheets. Sample boards are provided to site to check accuracy of fitting before the full order is delivered. Experience has shown that existing cladding sheets can warp and stretch over time, so some on site trimming may be required. The profiled EPS is manufactured with a tolerance that assists with variations in the existing substrate.

The U-value is calculated on an average depth of the profiled board. The required U-value can be achieved by any given



Decorative profiling on a new build school in Westport.

combination of existing cladding, insulation and weathering finish and is therefore assessed individually.

A condensation risk analysis test is also carried out to ensure the additional thermal performance will not compromise the dew point.

The Bauder Profiled EPS Insulation Board can be installed by mechanically fastening with thermally broken tubes and screws or, in some cases fully adhered using a suitable Bauder insulation adhesive.

Membrane Application

In mechanically fastened membrane applications, a loose laid separation fleece, Bauder GV120, is required between the upper surface of the EPS product and the Thermofol PVC membrane.

Fleece-backed adhered membranes are installed with a suitable Bauder Canister Adhesive.

Technical Information

- Standard Board Size: 1200mm x 1200mm
- Product Weight: 25Kg /M³

- Compressive Strength: 0.15N /mm²
- Thermal Conductivity: 0.035W / mK

Pre-Fabricated Metal

Utilisation of Bauder Pre-Coated Single Ply Metal for the fabrication of flashings helps to maintain the continuity between the original metal cladding and the new Bauder Profile Overlay System. Existing gutters can be simply relined with this material to create a fully encapsulated detail. The inherent metal structure provides an excellent fastening point for these fabrications.

Simulating the existing standing seam can be achieved by adding Thermofol decorative profiles to the membrane on completion of the waterproofing.

Rooflights

It is not unusual in traditional cladded roofs to see in-plane translucent panels allowing the transmission of daylight into the building. These panels often prove to be a source of water ingress. Should the existing rooflights need replacing then a new Bauder rooflight and kerb are installed onto the surface of the new waterproofing and then secured through the system and into the structure below. The new roof light is then waterproofed to ensure total waterproofing security. If the in-plane rooflights are no longer required, then they are removed whilst the new waterproofing takes place and suitable replacement decking installed.

Decorative Profile

Simulating the existing standing seam can be achieved by adding Thermofol decorative profiles to the membrane on completion of the waterproofing. The light and shade effect that this creates greatly enhances the aesthetics, particularly on pitched roofs.



Refurbishment project with decorative profile in anthracite on the Wolsey Theatre.

Bauder Technical Support

Tel: 01473 257671

or Email:

technical@bauder.co.uk



Stunning Sarnafil Roof Tops Inspiring New Sports Facility at St George's College

Client:	St. George's College
Main contractor:	Blenheim House Construction
Roofing contractor:	Malone Roofing
Project name:	St. George's College Activity Centre
Location:	Weybridge, Surrey
Area:	3500m ²
Architect:	Scott Brownrigg

In need of a roofing product elegant and pliable enough to accommodate the complex design, lightweight enough to minimise the impact on the roof's structure and cost effective enough to cover such a large area, Sarnafil G410-ELF lead grey single ply membrane was specified

Celebrating its 150th anniversary in 2019, St. George's Weybridge – a Roman Catholic private day school in Surrey – marked the occasion with the introduction of an exciting new architectural development.

Requirement

Transforming its existing, functionally simple sports hall into an inspiring, beautifully designed facility, the College's accommodation brief comprised a premiership level hockey pitch and six-court sports hall, as well as a strength and

conditioning suite, dance studio and flexible multi-use areas for group activities, meetings, presentations, exhibitions, open days and 'match teas'.

Designed by global architectural practice Scott Brownrigg, the architect's vision was to create a contemporary and timeless building that would inspire students to achieve their very best.

With plans including a stunning tree canopy-like roof structure draping over the internal spaces, the roof needed to achieve 30m clear spans

across the main hall and the design needed to be clever and sensitive to the fact that the site's location sits within the green belt. It also required a flexible and durable waterproofing solution to ensure the building leaves a lasting legacy for future generations of Georgians.

Solution

Scott Brownrigg designed a bespoke freeform glulam roof that curves in multiple directions. Computer modelling software allowed the architect to create and control this complex roof form in virtual reality, pushing and pulling it to blend into the landscape.

Computer modelling software allowed the architect to create and control this complex roof form in virtual reality, pushing and pulling it to blend into the landscape.

In need of a roofing product elegant and pliable enough to accommodate the complex design, lightweight enough to minimise the impact on the roof's structure and cost effective enough to cover such a large area, Sarnafil G410-ELF lead grey single ply membrane was specified, along with Sarnavap 5000, 120m SarnaTherm G insulation board and Sika SolarMount-1. Sarnafil adhered décor profiles were built, allowing rainfall to be interrupted and guided across the roof, while Sarnavap HD SA was used on the high-pitched areas in order to provide more slip resistance than the foil-faced SA, offering substantial health and safety benefits.

Malone Roofing, the roofing contractor tasked with realising the architect's vision for the roof, is a longstanding and



experienced Sarnafil installer, while Scott Brownrigg is a regular specifier of Sarnafil. As such, the entire team was confident that Sarnafil single ply was the right fit for this unique roof form.

Sarnafil worked closely with the architects and contractors to develop a specification that not only had the correct U-values, but was also compatible with the Cross Laminated Timber roof build up and ancillary roof

mounted systems used, such as Photovoltaics, Latchways, a built-in gutter and upstands for roof openings.

Despite working through challenging weather, with Malone enduring a particularly rainy period, and a challenging design, with curves sloping up to 30 degrees in some areas, the project was delivered on time and to budget.

Exceptional design, impeccable installation and Sika Sarnafil's

robust guarantees all combine to ensure this timeless design will be protected and enjoyed for years to come. ■

Contact Sika Sarnafil

For more information call
Sika Sarnafil
on 0800 112 3878 or email
sarnafilroofing@uk.sika.com

Apollo Roofing Solutions – More Than Adhesives

Apollo Roofing Solutions (part of the Apollo group) is a UK manufacturer of adhesives, liquid coatings, sealants and primers for roofing system suppliers.

The business offers more than product alone. By working in partnership with customers, Apollo provides an extensive range of support services – adding value throughout the entire supply chain. This is Apollo's 'More than adhesives' brand promise.

Since its launch in 1972, Tamworth-based Apollo has become synonymous with supplying innovative, high-performance products to roofing, construction, industrial and end-user markets.

Pioneering Foundations

Apollo founder, Robert Saunders, was a development chemist and helped to pioneer polyurethane technology, making Apollo the first UK manufacturer to develop solvent-free moisture-curing polyurethane (MCPU) adhesives.

This family-owned business continues to innovate under Chairman, Jon Saunders, Robert's son. (pictured).

Apollo's roofing division, Apollo Roofing Solutions, has been supplying private-labelled products to roofing system suppliers across the world for the last two decades. All products are subject to rigorous internal and independent testing. For added confidence, products also undergo



Thanks to its industry knowledge and product developments, technical expertise has become Apollo Roofing Solutions' key asset.

independent dynamic wind uplift tests.

Apollo's vision is to become its customers' unseen department. It has a policy to never supply contractors. Instead, Apollo works in partnership with roofing system suppliers to develop the best solution for a wide range of markets, including single-ply (EPDM, TPO, PVC), RBM & BUR, AVCL/ carrier membrane and

insulation adhesives, as well as cold liquid-applied waterproofing systems.

Technical Expertise

Thanks to its industry knowledge and product developments, technical expertise has become Apollo Roofing Solutions' key asset. Expert chemists and application technologists ensure that customers get the most out of

their products, whether this is speed of application, improving efficiency or reducing cost/waste. The Technical team is based in new purpose-built facilities, enabling them to offer unparalleled support for customers in terms of product development, testing, demonstrations and training.

Private-Label

All Apollo Roofing Solutions' products are supplied to market under private-label brands. With strong design, packaging and print connections, Apollo has access to a wide variety of different packaging options. Their Marketing, Compliance, Technical and Logistic teams work with customers to create packaging that looks professional and is compliant with all health & safety and transport regulations.

Compliance Support

Apollo's expert Compliance team support their customers with global industry and statutory regulation changes. They also provide comprehensive advice on issues such as labelling, storage, transportation and disposal of products.

Innovative Products

Apollo has a history of introducing innovative products to market, from MCPU adhesives to fast-cure primers. They introduced their MCPU canister range in 2013, shortly followed by their canister primer range in 2014, which revolutionised application techniques and provided savings in cost and time on site. ■

Contact Apollo Roofing Solutions
Please visit
www.apolloroofingsolutions.co.uk
for more information



Adhesive and Primer Canisters

Benefits

- Speed and precision: canisters are proven to give up to 5x faster, more professional application due to the pressurised system
- Economical coverage: products have been developed to give improved coverage rates compared to traditional application methods
- Minimises back fatigue and pain: the ease of application reduces stooping
- Reduces waste: the pressurised canister system gives much more control on the amount of adhesive or primer being applied
- Simple to recycle: once empty and depressurised, the empty canisters are classified as scrap metal for recycling

Disposal

For standard packaging, including containers ranging from bottles to tins, to be classified as non-hazardous waste, it has to be treated in such a way that all reasonable efforts must have been made to remove any left-over contents from the packaging. The process involves specific methods and complex equations.

Canisters however, can be easily disposed of as non-hazardous scrap waste, without being washed out, if it is empty and everything is expelled when the canister is depressurised, under code EWC 150104 (empty aerosol, no hazardous residues).

Canisters that are still pressurised and contain adhesive/primer should be disposed of in accordance with the national or local waste company under code EWC 160504 (full or partially empty aerosol).

Maintenance Tips

The associated canister tooling (hoses, spray-guns and tips) are also designed to be reusable, which keeps equipment and product costs to a minimum. Follow the below tips to ensure you get the most out of your equipment:



Leave the canister valve open when not in use, with the spray-gun turned off, until the canister is empty to stop the adhesive blocking the hose.



When in use, periodically spray the spray-tip with a cleaning solvent to remove any build up of adhesive.



Clean the end of spray-gun and spray tip after each use, to prevent damage to the aperture.



If the system is not going to be used for a significant period of time, the hose and spray-gun should be thoroughly cleaned with the Canister Flushing System.



The equipment will remain useable for approx. 1 month after use. If the system is not intended to be used within this time, the adhesive in the hose and gun should be renewed by purging 250ml of adhesive through the system every few weeks.

General Tips

- Ensure you are wearing the correct PPE, including safety glasses and gloves.
- Avoid using the hose to pull the canister along when trying to move it. This can cause serious damage to the equipment.
- Always use a spanner when tightening and loosening. Do not only use your hands, as this may cause the product to leak.
- Safely store away the canister and equipment in a well-ventilated, covered area when not in use. Canisters need to be kept in a designated cage, with any flammable products required to be kept in a designated area away from any combustible materials.



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