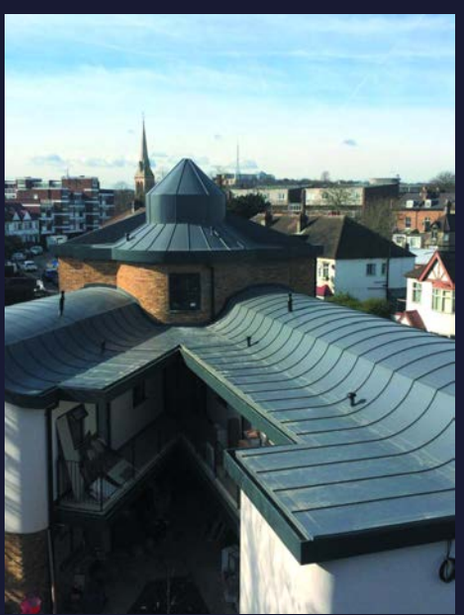
SINGLE PLY

SYSTEMS SUPPLEMENT

EPDM | PVC | TPO | ADHERED | SELF-ADHERED | MECHANICALLY FASTENED | BALLASTED






TECHNICAL ARTICLES
PROJECT INSTALLATIONS
CASE STUDIES

ROOFING TODAY 2019

in association with SPRA Single Ply Roofing Association

SPRA
Single Ply Roofing Association

Cathie Clarke, CEO

Foreword

SINGLE PLY ROOFING ASSOCIATION
www.spra.co.uk

Single ply is a versatile, durable and sustainable roofing solution, and the wide range of Single Ply Roofing Association (SPRA) members means that it is possible (and we would say desirable) to seek a total SPRA solution for your roofing project. From our membrane and associated product manufacturers, to our specialist contractors and installers, it is possible to have a complete 'SPRA system' which is underpinned with the quality assurance that SPRA membership brings.

The SPRA has been in existence since 1992 - a time when the reputation of the flat waterproofing roofing industry was falling and it was seen, perhaps, as an over-commoditised, low-margin sector. SPRA knew that a managed supply chain approach would create an environment where quality could be trusted and client satisfaction assured. By establishing a robust audit process and strong Membership Code, it was possible to identify a quality product with cradle to grave control. On the completion of Stanstead Airport in the same year - with its innovative structure and single ply roof designed by dynamic architects, Foster Associates - single ply was quickly established as a desirable flat roofing option providing technical performance, flexibility and sustainability.

> "SPRA is very much a community of like-minded organisations working across the single ply sector which seeks to improve quality and to help the wider industry."

Fast-forward 27 years, and single ply roofing retains its place as one of the most attractive roofing solutions available, which can be successfully applied to a wide range of roof designs comprising both flat and pitched elements. SPRA membership now covers over 80% of the industry, representing the whole spectrum, from PVC through to EPDM systems.

The freely available SPRA Design Guide is the centrepiece of the organisation. Back in 1992, members established a SPRA Technical Committee which was responsible for developing the first guide. This guide, along with all the other guidance documents and protocols that have been created by this group over the years, is a true reflection of an industry working hard together to achieve outstanding quality for the benefit of all. The products of this work are celebrated through the annual SPRA Awards, presented at the SPRA Conference, held in June each year. There is always an amazing variety of single ply projects and the awards showcase best practice projects delivered by SPRA members.

SPRA knows that installing a quality single ply roof requires specialist skills, knowledge and understanding. The Grenfell tragedy brought a range of issues into sharp focus, one of which was the absolutely devastating catastrophes that can occur when mistakes are made on both specification and installation. Competence is king and is at the heart of the Hackitt Review recommendations. As training has always been part of membership, SPRA is well placed to help deliver on those recommendations and support other sectors to do the same.

Over the years, SPRA has gone through its own training development programme. Through a new online single ply knowledge training and assessment module to approved existing manufacturer courses and then specialist single ply courses leading to a formal vocational qualification at Level 2, SPRA can boast a complete suite of training solutions to support apprentices and more experienced workers.

In these pages, then, you will find a collection of interesting and informative articles highlighting best practice, discussing current issues such as waste management and, of course, company advertisements promoting quality products and services.

SPRA is very much a community of like-minded organisations working across the single ply sector which seeks to improve quality and to help the wider industry. We are proud of our members and the work they do through our Technical Committee, on industry initiatives and through their day-to-day activities, and we welcome all new members who share the same ethos. ■

Contact SPRA

If you have any questions about single ply roofing, then please call the SPRA Helpline on 0845 154 7188, or email enquiries@spra.co.uk.

Working with Main Contractors for a Trouble-Free Installation

Dr Ronan Brunton,
SPRA Technical Manager

An important part of SPRA's activities is supporting the construction process with guidance and recommendations based on industry experience, all designed to help achieve a trouble-free installation.

The process starts with a good design. Far too often, SPRA specialist installer roofing contractors complain that the specification they have to price or tender on is not appropriate for the project. The detailing information is not clear and is often very open to interpretation. There is a lack of information and a lack of clarity from the outset. In some cases, main contractors are unwilling to bring in the specialist contractor early enough in the process. This, inevitably, leads to a forced or rushed design on the hoof. It feeds into a lack of planning and lack of control from the start, and can throw a spanner in the roofing works from day one.

Good design and appropriate specification generally encourage a good standard of construction. But this is not always the case. Most failed jobs arise from a combination of incorrect circumstances, especially weak site management.

So how can SPRA help to avoid these?

Protection

In a construction site environment, the potential for damage to surface finishes (flat roofing, in our case) from following operations is extremely high. This must be recognised from the outset, and protection planned accordingly between main contractor and specialist roofing contractor. Both the roof design, as well as the order in which work flows, can improve the quality of surface protection.

Following discussions with several tier one major contractors, SPRA published *Protection of Single Ply Membrane Roofs* – guidance and checklists (available by free download from www.spra.co.uk). This takes a practical look at the avoidance of damage in design, sequencing and construction.

There are five checklists applicable throughout a project, together with a toolbox talk:

1. Design
2. Pre-start agenda
3. Temporary and permanent protection
4. Site management
5. Contractual arrangements

One challenge is to find a suitably sustainable product that meets the need for a robust, easily handled, but re-useable temporary covering. A move away from unwieldy and wasteful plywood or OSB is essential, but linkable alternatives in rigid thermoplastic are rarely visible on site. SPRA continues to research an alternative effective protection solution to complement those checklists.

> "Far too often, SPRA specialist installer roofing contractors complain that the specification they have to price or tender on is not appropriate for the project."

> "Clearly, the primary responsibility for quality control rests with the roofing sub-contractor, but exactly what form this takes must be agreed prior to work starting and reflected in the contract."

Sequencing

The overriding priority tends to be a weatherproof roof, as early as possible in the programme. The notion that a complete roof system must be installed, with all the risk of damage, should be challenged at an early stage to see what two-stage options are available. For example, a temporary or permanent (fully adhered) air and vapour control layer (AVCL) and membrane flashings can be installed to allow cladding and wet trades such as rendering to proceed, before completion of the system when there is least risk of damage. Although not completely watertight until the final finished membrane and details are completed, this approach can limit and control water ingress during the works phase.

Inspection and Test Plan (ITP)

Clearly, the primary responsibility for quality control rests with the roofing sub-contractor, but exactly what form this takes must be agreed prior to work starting and reflected in the contract. An ITP will include a programme for sign-off and testing and for sub-division of large or multiple roof areas. The ITP should also include daily weld tests, which are retained with suitable photographs to record the condition of the site at key stages. SPRA research would suggest these are often overlooked by main contractors, leading to protracted disputes in the event of problems. Adhering to such an ITP methodology in such a formal process focuses all involved, signalling that the area in question is now 'signed off', having passed the required ITP. This should clearly identify the area in question, and exclusion from working in this area, unless protected as above should take place.

So where does that leave the membrane manufacturer's inspection, which is mandatory under SPRA membership rules for all projects of more than 100 square metres? The inspection should ensure that the manufacturer's warranty is not compromised by poor workmanship, that their registered contractor has a satisfactory quality control regime and that the installer of the single ply membrane has current product-specific cards. Informally, it is an invaluable route for feedback on issues of buildability, technique and appearance and an opportunity to check that recently trained or assessed installers are getting along well. But the manufacturer's inspection is a snapshot of work areas (where accessible and visible). It is not a substitute for the roofing contractor's supervision or for an agreed ITP.

Testing for Integrity

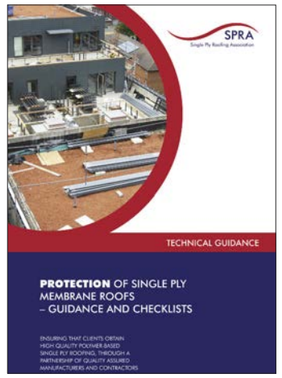
Testing to demonstrate integrity is also a grey area within main contractor procedures. Whilst testing by the sub-contractor may assist their own quality control (and perhaps identify damage issues), it is no substitute for testing by a qualified and independent service provider prior to practical completion. SPRA has produced guidance on this issue: '*Non-Destructive Testing of Single Ply Membrane Roof Coverings*' (also available by free download from www.spra.co.uk), which includes a summary code of conduct, and remains a key reference for employers and main contractors.

Supporting Main Contractor Training

SPRA has always offered training workshops to provide an independent, authoritative complement to manufacturer presentations and some main contractors have taken this up to good effect. Training is clearly a step on the road to becoming competent. The construction industry is rightly striving to be able to demonstrate competence at all levels, from design and procurement, through to installation and aftercare. There are many opportunities for main contractors to engage with SPRA and even attend management-orientated courses in order to understand not only the advantages and benefits of single ply roof installations, but also how to ensure trouble-free and quality roofing projects. ■

This is not only a lack of roof protection but a lack of site management.

Other trades may not understand roofing technology and how to respect it.



Contact The Single Ply Roofing Association

SPRA offers support for main contractor training for all types of single ply roofs. Contact the SPRA helpline on 0845 154 7188, or email enquiries@spra.co.uk.

SPRA
Single Ply Roofing Association

SIG Design & Technology: Arnold Hill Academy, Nottingham

The Project

Part of the Priority School Building Programme (PSBP), the £14m Arnold Hill Academy was constructed adjacent to the existing school in Nottingham, which was subsequently demolished. The new Academy's 3,570m^2 flat roof covers 8,200 m^2 of replacement teaching space, science labs, an indoor sports hall and a drama studio.

The Challenge

SIG D&T worked closely with Wates and their consultants and subcontractors to deliver full and impartial design and specification services, monitor accredited contractors and supply a single point guarantee, covering both the materials supplied and the workmanship of the installing contractor.

In this case, the new three-storey academy building was to be constructed using Wates' ADAPT modular steel system.

The short programme called for the roof package to be completed early as part of the project critical path to ensure early weather tightness and support the progress of other trades.

In addition, as part of PSBP requirements, the roof to the sports hall, main hall and activity studio were required to comply with the 2015 performance standards of Building Bulletin 93 (BB93) in terms of rain noise and reverberation.

The Roof Construction - approaches and achievements

The combination of concrete plank and deep profile metal deck chosen for the design of the Academy suggested a single ply membrane, and SIG D&T's dedicated partnership team designed a cost efficient build up to include IKO Armourplan P and PSG membranes, IKO Enertherm ALU insulation board and associated VCL, acoustic mat and fixings.

SIG D&T's own acoustic consultants confirmed a certified build up for the BB93 compliant elements of the roof and confirmed that a perforated deck would not be required to reduce reverberation to acceptable levels.

The project included a 3.5m change in roof height between elements of the structure, the upstand of which was originally to have been rendered, as is conventional practice.

> "The benefit for us is how quickly the programme moves forward without delays… it saves a lot of time as you get to the solution more quickly."

SIG Design & Technology suggested the team explored replacing the render with single ply, which removed not only an additional trade but also the interfaces between the two trades. Covering the upstand in single ply, therefore, had the additional benefit of assisting the project in achieving airtightness.

The roof construction and waterproofing were completed within an eight-week programme to exacting standards of workmanship.

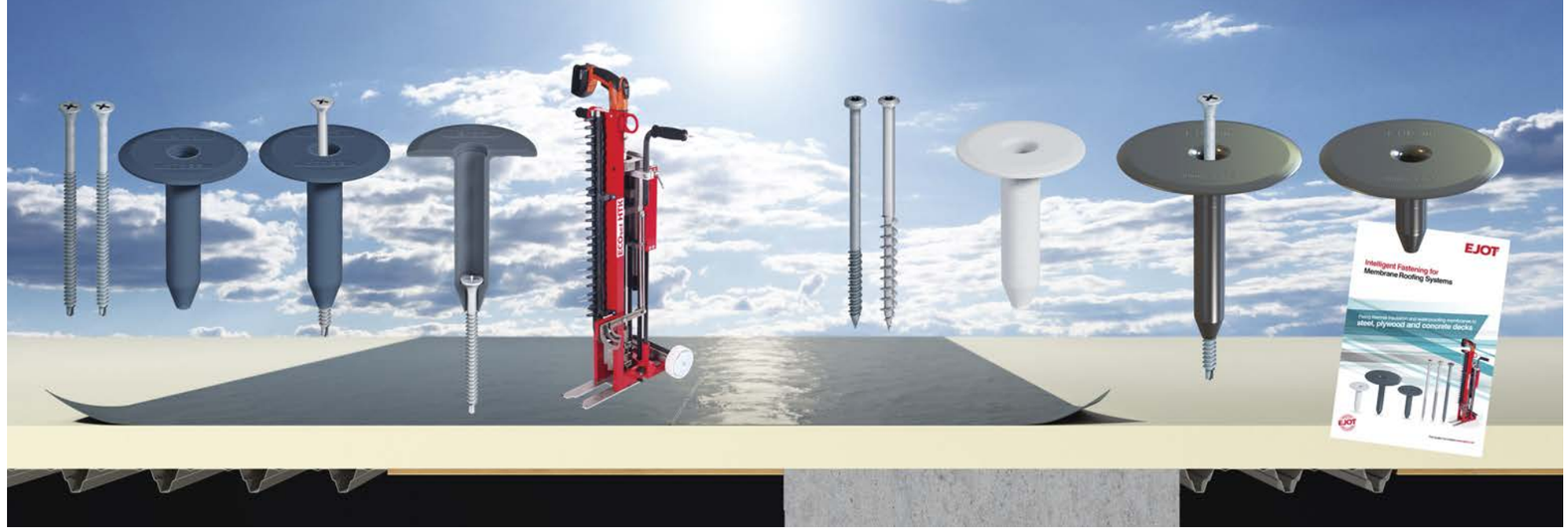
A Partnering Approach Brings Efficiencies

Working closely with IID, the architects of the new building, and co-ordinating with Wates' own design portal, SIG Design & Technology produced 25 detailed drawings, plus thermal calculations, acoustic appraisal, condensation risk analysis and wind uplift calculations. DATAC Accredited Contractor, Advanced Roofing installed the waterproofing to SIG D&T's specification without screed over engineered concrete planking. The roof also includes barrel vault and sun-pipe rooflights. During installation SIG D&T carried out regular quality control inspections and issued a single point guarantee on completion of the works.

David Moor, Associate at IID Architects with responsibility for Arnold Hill Academy, found the process of working with the SIG D&T/Wates methodology very efficient. 'It's a very good, streamlined process – everyone knows what they're doing. The benefit for us is how quickly the programme moves forward without delays… it saves a lot of time as you get to the solution more quickly,' he said. ■

Contact SIG D&T
www.singleply.co.uk
Technical 0844 443 4778
info@singleply.co.uk

Manufacturing Quality Products is about Developing Effective Solutions First



Since the introduction of the HTK 50mm diameter tubewasher, EJOT's product range has been developed to perform with all substrates.

"By engaging with EJOT, contractors, consultants and installers can access the company's testing capabilities which will confirm the suitability of certain solutions."

It seems hard to believe that it's over ten years since EJOT developed and introduced the 50mm diameter tubewasher to combine with a single carbon or stainless steel fastener, offering an alternative mechanical installation of insulation to steel or plywood decks. A special high grade plastic gave EJOT's HTK 50 its unique strength and presented installers with a dual-purpose solution which would also secure the specified membrane, in one easy operation. It's worth remembering that before the HTK 50 concept was introduced, the only choice installers had was to use a 75mm washer face.

Since then, the HTK 50 has been performance-tested and approved by all of the main single ply membrane manufacturers, as well as by SPRA's own technical committee. Alongside the EcoTek tubewasher for concrete substrates, this has presented installers and project managers with a technically proven and informed choice. In addition to time and inventory savings, the telescopic design also brings resistance to high rooftop loadings and minimal cold-bridging to the table. A 'cost per unit' saving that - over an average installation of 3000 square metres or more - is equally significant.

From mechanical to hybrid systems

Having successfully developed a high-performance solution for mechanical installations, EJOT's R & D team applied the same 'high strength logic' to hybrid adhesive bond/mechanical fixing systems. The resulting HTK 75 2G tubewasher combines with EJOT's 4.8mm TKR or TKE self-drilling fasteners, both approved to fix insulation back to plywood or steel deck. The new 75mm diameter was developed and tested solely to comply with the SPRA guidelines for adhered systems.

The HTK 75mm tube washer was developed and tested solely to comply with SPRA's guidelines for adhered systems.

EJObar is now being used as a carrier system for solar installations or M & E ancillary products.

Barry Barker of GWB has reviewed the EJOT product on several projects:

"We generally prefer to locate the sleeve within the insulation before fastening to the deck and the tubewasher proved to be very strong, very robust. In fact, we used hammers to drive the tubes to insulation depth, such is the product's strength. That meant a very fast and secure installation in addition to the HTK's lifetime performance benefits. There were no hitches, and no problems switching to a new product – we were well briefed in advance and the EJOT engineer made several site visits to ensure installation went smoothly".

"We were well briefed in advance and the EJOT engineer made several site visits to ensure installation went smoothly"."

Extending the range for more efficient installation

EJOT's range of single ply products and accessories has now expanded at a pace, from automated installation units through to versatile carrier systems, such as the EJOT EJObar.

Since its introduction in 2015, the EJOT EJObar is now being used globally as a non-penetrative membrane-to-membrane carrier system for rooftop solar installations or mechanical and electrical ancillary products.

EJOT Flat Roof Profile FP - membrane to wall, whatever the substrate

This product is innovatively designed to provide a metal 'bar' type of solution for structural fastening to rising walls (typically parapets) and installation edges.

The metal bar profile is engineered with three fixed and repetitively staggered holes with dimensions that enable a choice of metal screw fasteners or nylon screw set anchoring from the EJOT range of structural fixings. In turn, this makes the product suitable for pretty well all substrates: concrete, aerated concrete, steel, aluminium and most wood-based materials.

Manufacturing excellence with local support

As an international manufacturer of fastening products, EJOT has both the knowledge base and accrued performance data to aid every specification scenario. Whilst there is a wealth of technical information available online – from data sheets to product flyers - it is EJOT's service support network that sets its technical offering apart.

For example, we are all familiar with the map detailing the different exposure conditions to which structures are subjected, but it requires real expertise to translate wind speeds into the right fixing patterns and types. Crucially, the EJOT range encompasses different options for mechanically fixed and hybrid systems to suit all of the common substrates.

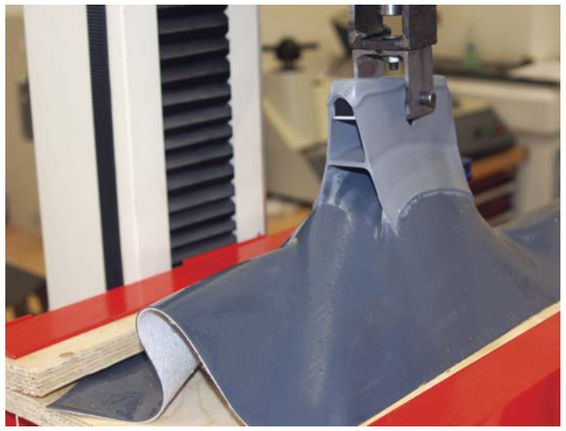
Kevin Rackley is EJOT's Product Manager for single ply products:

"EJOT has a team of regional sales engineers all able to react quickly with technical advice and support. That can mean being on site to provide pullout testing and reports for any application when required - and always recommended for concrete decks or substrates. It also means liaising between site and EJOT's Applitec Centre to provide necessary data and recommendations for installations such as tapered systems.

"By engaging with EJOT, contractors, consultants and installers can access the company's testing capabilities which will confirm the suitability of certain solutions to the location, the height or configuration of the building and the material which a membrane roofing system is being secured on to."

Globally, EJOT operates 15 manufacturing centres in ten countries, employing over 3,100 people. In addition to the manufacturing operations the group has 34 subsidiaries in 32 countries, with six research and testing centres in strategic locations. EJOT has also developed partnerships with several academic institutions, aimed at maintaining the development of advanced fastening solutions for the future.

The FP Profile Bar is engineered with repetitively staggered holes to enable options from the EJOT range of structural fixings.



EJOT UK's Applitec research and testing centre is equipped with state-of-the-art facilities to provide full technical support.

Contact EJOT UK Ltd

For more information about how Ejot UK Ltd can help, please contact Kevin Rackley, Product Manager Membrane Systems on 07720 883 827 or email k.rackley@ejot.co.uk

How Single Ply Roofs Work: the Integrated System Approach

Dr Ronan Brunton
SPRA Technical Manager

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

In the course of my work I get the opportunity to visit a large number of ongoing roofing projects constructing various single ply systems. The developments visited are always in progress, being installed by our contractor - or prospective contractor - members. We have a growing number of contractors wishing to join SPRA who see real value in being part of the Association, and that membership engenders professionalism and recognition by the wider construction industry and clients alike.

I visit these projects to carry out audit work which is at the heart of SPRA membership. I consider this to be a real perk of the job: getting to discuss issues with installers and seeing how they have tackled a particular detail or problem on site. Difficult details or problems requiring solutions are always the most interesting, as they often take us back to first principles and call on our experience, knowledge and skills to come up with the right solution. So, I thank our manufacturer and contractor members for always being willing to discuss these issues on and off site.

Additionally, during the course of site visits it's good to get an understanding and appreciation of the range of accessories and the quality that is now available for single ply roofing systems. Indeed, accessory products are an integral part of any single ply roofing system and we are lucky within SPRA to have so many accessory product manufacturer (APM) members represented. This has clearly brought a broader, deeper, and therefore better, understanding of how a single ply roofing system can be completed for any given situation.

Accessory products play a very important part in the technical evolution of single ply systems, making them robust in design with the right product available to tackle all types of conditions. APMs are active on the SPRA Technical Committee, where all have a place and voice to ensure issues of technical guidance and proper installation are dealt with in a professional way. Any task or working groups that are formed by the SPRA Technical Committee to deal with a specific issue invariably contain technical representation from any relevant APM. This builds on the integrated approach, by having specific industry experts to provide input, ensuring SPRA get their guidance on the issue right.

Accessory products have evolved in recent years to allow better single ply systems to be developed. These include enhanced performance in the components required in a roofing system such as insulation (including cut-to-falls), attachment systems, including a range of fixings, seam and insulation plates, a range of adhesive types, as well as improved methods of application for both mechanically fastened and adhesive technologies. Other necessary system components, for example a range of different types of air and vapour control layers (AVCLs), allow a specific selection to be made depending on any given factors that the system or building type has to cope with.

An often unsung hero in the accessory discussion is the system 'protection' product range available. The obvious components here are walkway products. Again, there is such a variety available to ensure the correct type of protection for the system, in regular maintenance access areas, as well as H&S provision. Protection systems also come into play in ballasted, inverted and green roofs and, again, there are purpose-designed components to provide the right level of protection. There are excellent products for ensuring lateral pipelines and plant are suspended properly, protecting the finished system. In addition to plant at roof level, we see an increasing amount of PV arrays post-installed covering the finished roof. Here, too, it is critical that the correct accessory is used, which is specific to the PV array support and single ply membrane to achieve waterproof detailing.

On site discussion

This article was inspired by a recent discussion with a roofer on site, who was explaining to me the approach he was taking to install a PV array waterproof detail and the excellent propriety product he was using, which was fully complementary to the waterproofing membrane system. The overall detailing, as well as the accessory product and the skill of the worker, made for a very professional finish to the detail - a credit to all the companies involved and really promoting single ply roofing. It was impressive that the accessory product manufacturer had taken the time previously to explain to the roofer exactly how the product should be installed. System in action!

Single ply systems are enhanced systems today, that allow specific component choice for any project, to get the specification right. The technical choice available is wide ranging and based upon decades of roofing experience. One of the benefits of selecting a single ply roofing system for any roofing project is the opportunity to enable an engineered design with detailing tackled in an effective and efficient way. Accessory products really do complement the system as a whole resulting in a better system overall. There's an excellent outlook for single ply by having a broad spectrum of accessory components, with manufacturers continually improving their products through research and development which, in turn, allows continual improvement of the single ply roof.

It is superb that we have a vibrant and growing representation within SPRA of quality accessory product manufacturers. Ensuring that this continues is important, as is the training and instruction given to the roofers who install these components and accessories – as the earlier case shows. When you see examples of such co-operation between manufacturers and specialist contractors, a good single ply roof is hard, if not impossible, to beat. ■

Contact The Single Ply Roofing Association

SPRA offers advice on ensuring the right accessory products are used on all types of single ply roofs. Contact the SPRA helpline on 0845 154 7188, or email enquiries@spra.co.uk.

SPRA
Single Ply Roofing Association

UNIROOF AT/ST - the Complete Roof Welding Solution

The use of thermoplastic roofing membranes has increased significantly in the last 20 years. Their benefits, such as energy savings and reduced cooling costs, as well as being highly durable, mean it is the most popular material in the single-ply commercial roofing industry, according to the Single Ply Roofing Association (SPRA).

However, as with any form of construction, problems unfortunately exist and usually originate at the seams. The most common reason for failure is improper workmanship, particularly on smaller roofs where roofing contractors have to use several tools in order to navigate the small spaces.

A solution to this problem is the UNIROOF AT/ST, which is the complete roof welding tool offering high performance in a compact design. It enables roofing professionals to effectively weld thermoplastic membranes close to the roof edging, in confined spaces, on flat surfaces and on top of parapets.

Thermoplastic membranes and the problems with welding

Thermoplastic roof membranes are roof systems constructed using a Single Ply technology of strong and flexible membranes composed mainly of synthetic polymer. There are a number of thermoplastic roof membranes available, however Polyvinyl Chloride (PVC) and Thermoplastic Olefin (TPO) are the more popular options. These membranes are sealed by heating the membrane with hot air until it melts and fuses to the next membrane.

It is these seams between membranes that are the most common reason for failure in any roof system, and this is

generally caused by improper workmanship. The UNIROOF was developed for this reason and is considered by many roofing professionals as the most complete hot air welding machine for flat and low-sloped roofs (up to 30°).

UNIROOF AT/ST – one machine for three welding applications

Available in two options – AT (closed-loop control) and ST (open loop control), the UNIROOF is the most complete roof welding tool available on the market. Its innovative, movable transport axis gives outstanding flexibility and means it can be used for welding seams close to the edge (within 100mm), at-or-over the parapet, and on flat surfaces.

No longer do roofing professionals need to carry around three different pieces of equipment and alternate between them. This is particularly important, as a common reason for improper workmanship for fusing thermoplastics is that the heat welder changes from a machine welder to a hand welder at the ends of a run.

> “No longer do roofing professionals need to carry around three different pieces of equipment and alternate between them.”

Another benefit of the UNIROOF is the compact, high-performance nature of the welding machine. It offers the roofing contractor an ergonomic, robust, durable, and easy-to-navigate unit, with a consistent and controlled weld finish. Whereas hand welding is prone to fatigue which could result in wrinkles in the seams, the UNIROOF offers a more reliable and faster weld process – up to 66% faster than hand welding.

Finally, the direct-driven, maintenance-free pressure wheel on the UNIROOF means roof welders will benefit from a more reliable machine that is easy to maintain and requires fewer spare parts for optimised performance.

The UNIROOF has been used on various prestigious construction projects, including a 50,000m² area of membrane on the Aldi Distribution Centre in Perlen - one of the most modern and sustainable logistics centres in Switzerland.

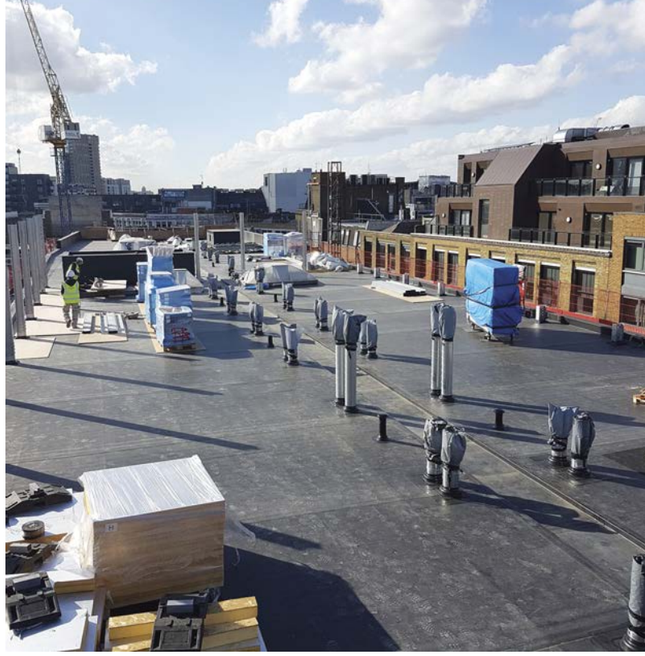
Developed by Leister, the leading name in plastic welding applications, the UNIROOF is supplied to the UK by Welwyn Tool Group. Welwyn supplies the full range of Leister plastic welding and industrial process heat equipment, and offer highly competent technical support by their team of dedicated engineers. ■

Contact Welwyn Tool Group

For further information, please call Welwyn Tool Group on 0800 856 0057, email them on info@welwyntoolgroup.com, or visit their website www.welwyntoolgroup.com

Welwyn TOOL GROUP

Nobu Hotel is a Shining Example of Expert Flat Roofing Specification and Installation



When Hollywood legend Robert De Niro and celebrity chef and restaurateur Nobuyuki Matsuhisa opened the Nobu Hotel and Restaurant in London's Shoreditch, it's probably fair to say they were unaware that another winning partnership was responsible for installing the flat roof system on the five-storey development.

The combination of Flex-R – the UK's largest supplier of EPDM – and G. S. Moore Roofing based in Croydon delivered a stunning installation on the distinctive-looking building that has been likened to a cruise ship.

The specification

Flex-R was originally tasked by the building contractor to specify a roofing system for the project. The building contractor's brief was for Flex-R to provide a specification for a robust roofing system and insulated build-up, capable of withstanding the installation of the significant amount of plant required to run a modern luxury hotel.

The building contractor stressed the requirement that the system should not be easily damaged either during the installation of the plant, or over the coming years when servicing would be required. It was paramount that any system installed must be capable of performing for many years with limited maintenance, as even a small failure could be embarrassing and costly to the hotel owners. Furthermore, they needed a system capable of being installed below an area of green roof and the series of balconies that are such a prominent part of the building's design.

RubberBond FleeceBack became the obvious choice, with the building contractor impressed by its proven track record, its resistance to puncture, the speed at which the roof would be able to be made watertight, and the support which Flex-R provides to RubberBond Specialist Registered Installers (SRIs), for this project, G. S. Moore Roofing.

"A project-specific insulation board was developed to incorporate an OSB3 facer, permanently bonded to the board to provide a solid surface on which to adhere the waterproofing."

The G. S. Moore Roofing team – which was led by Garry Moore, Wallace Moore and Mark Boorman – was recommended by Flex-R because they were well used to working under pressure and to tight deadlines whilst maintaining a high standard of workmanship.

The installation

The concrete construction included a structural deck over which was a sound foundation for roofs of this type, with the capability of withstanding the loads placed on it by plant.

Conversely, they provide an additional challenge to any roofing waterproofing installer, as mechanically fastening insulation and single ply systems are incredibly labour intensive. This aspect drove a desire to create a fully adhered build-up from the air and vapour control layer (AVCL) through to the RubberBond FleeceBack waterproofing. RubberBond's ability to turn up parapets and upstands without the need for a base tie-in is largely unique within the single-ply sector, and provides a significant advantage in situations such as this.

Working alongside the insulation manufacturer, a project-specific insulation board was developed to incorporate an OSB3 facer, permanently bonded to the board to provide a solid surface on which to adhere the waterproofing. This allowed Flex-R to specify that the insulation itself was to be bonded to the AVCL, avoiding mechanical fasteners, yet still incorporating an OSB3 deck.

Flex-R specified an AVCL capable of providing temporary waterproofing, and once this was completed, the insulation was bonded and waterproofed with 1500 square metres of RubberBond FleeceBack. It took G. S. Moore Roofing just 11 days to complete the main roof area, and allowed them to ensure that the building was made watertight on schedule.

Following the completion of the main roof, the area was left for the plant installation works and green roof areas to be installed, and the balconies were waterproofed to create an exceptional series of areas where guests can relax.

To complete the project, G. S. Moore Roofing returned to the main roof to seal the penetrations created by the installation of the plant and maintenance walkways. The installation had created 94 separate penetrations that required waterproofing. These were largely undertaken using Flex-R's Pourable Sealer, and Pocket system. This allows even awkward penetrations to be quickly and reliably sealed.

"The support from Flex-R has been second to none. The Technical Department were fantastic as they liaised with the main contractor regarding the specification and visited the site."

L-R: Garry Moore Jnr and Garry Moore Snr

A high-profile project

Reflecting on the project, Garry Moore Jnr, G.S. Moore Roofing's Business Development Manager, said: "Nobu Hotel has been a very good project for our business – not only because it's a great project for our portfolio, but it's also opened the door to other prestigious projects in London.

"The support from Flex-R has been second to none. The Technical Department were fantastic as they liaised with the main contractor regarding the specification of the materials and also visited the site. This was particularly useful as we've never come across so many points where the membrane has been penetrated."

Ben Midwinter (National Technical Manager) and Danny Cole (National Sales Manager) from Flex-R were delighted that the contractor was so open to taking expert advice on the specification.

"It was clear from the outset that the building contractors needed a roofing solution of the highest calibre," they said. "Usually, a 1500 square metre roof is a straightforward installation, but on this project there were particular challenges – namely nearly 100 penetrations and provisions for a green roof.

L-R: Danny Cole and Ben Midwinter

"This is the type of project where RubberBond FleeceBack comes into its own because it offers superior protection and long-term durability, thanks to having fewer seams. For example, 3.05m wide FleeceBack sheets reduce the frequency of field seams by 67%, respectively, compared to bituminous felt, meaning less labour and a quicker installation process.

"While Robert De Niro and Nobuyuki Matsuhisa grabbed all the headlines at the opening of Nobu, for us, RubberBond FleeceBack was the real star of the show." ■

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Firestone's RubberGard EPDM Delivers on the Detailing at Cotswold Destination


Credit: Design Engine Architects

Firestone Building Products' RubberGard™ EPDM roofing membrane has been used to help create a woodland haven for holiday makers, foodies and golfing enthusiasts at the prestigious 'The Lodges at Feldon Valley' Hotel.

Due to open in spring 2019, The Lodges at Feldon Valley is a major development that will create a unique leisure destination that combines fine dining and luxury accommodation with a picturesque Cotswolds setting, mature woodland and a prestigious golf course. The project includes refurbishment and complete interior modelling of the existing club house to create a fine dining restaurant and bar, along with construction of the main 13 guest room 'lodge', and four satellite lodges.

Designed by architectural practice, Design Engine, to complement their natural setting, the smaller lodges will be connected to the main hotel building via a raised boardwalk and will provide a secluded, natural and relaxing getaway destination with views of woodland and rolling countryside.

The project's lead architect, Amanda Moore, explains: "The client was very clear that the vision for the project was to create a hotel that complements the natural setting and makes use of natural materials, so the satellite lodges have been designed as a homogenous shape with natural timber cladding.

"We needed a waterproofing membrane that could encapsulate the battening system for the timber cladding on the pitched roof and Firestone's RubberGard EPDM roofing system provided the ideal solution as it enabled much faster and simpler detailing to seal each batten and work with the pitch of the roof. Indeed, we have been so impressed with the system that we have since invited the company to deliver a CPD presentation to our design team."

Firestone Authorised Contractor, Weatherfix FRS, was appointed to carry out installation of the RubberGard EPDM roofing membrane on each of the four satellite lodges. The RubberGard EPDM membrane was installed onto the roof of all four small lodges within just four days, enabling the main contractor to begin work on the interiors. The battens were then installed onto the completed roofing membrane and Weatherfix FRS began the process of carrying out the detailing for the 400+ battens on the roofs. They adhered a strip of RubberGard EPDM to each primed batten and sealing it to the base membrane with Firestone QuickSeam™ Splice Tape on each side, and 9" QuickSeam™ Formflash at the top and bottom. Once the waterproofing had been completed, the timber cladding could be installed to the roof and external walls.

Oliver Sweeney from Weatherfix FRS comments: "The level of detailing required to incorporate more than 400 battens into the waterproof roof surface meant that it would have been cost-prohibitive to use felt-based systems because installation would have been so labour intensive. Conversely, the water-based adhesive, tapes and ease of detailing offered by the Firestone RubberGard EPDM system made the detailing much faster and easier to achieve.

"The only downside for our team is that our neat detailing is now completely obscured by the timber cladding. However, we know it's there, doing its job, and, thanks to the extended service life of the RubberGard EPDM system, we also know that the Lodges at Feldon Valley can be confident the EPDM membrane will keep guests dry and cosy for years to come." ■

Contact Firestone Building Products

For more information call Firestone Building Products on 01606 552026 or email info@fbpl.co.uk. Or visit www.firestonebpe.co.uk.

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Dr Ronan Brunton
SPRA Technical Manager

> “While there are numerous examples of good practice of reclaim, re-use, recycle in the roofing industry, recycling and re-manufacturing percentages can only improve through targeted and dedicated research funding.”

A Sustainable Business Approach for the Roofing Industry

On the 18th December, 2018, the UK Government published it’s new ‘Resources and Waste Strategy’ for England. Devolved administrations in Scotland and Wales have their own strategic waste plans. There are some very important aspects of the updated plan and the construction industry will be affected, initially through the disposal of packaging waste.

The government suggests that the evolving waste strategy plan will be open to discussion:

“…It will be supported by a series of consultations on known problem areas, such as packaging waste, and we encourage you to engage with us in delivering this strategy by sharing your views…. Our plan is to become a world leader in using resources efficiently and reducing the amount of waste we create as a society. We want to prolong the lives of the materials and goods that we use, and move society away from the inefficient ‘linear’ economic model of ‘take, make, use, throw.”

At this time, packaging waste is a key issue and the government is challenging businesses, and consumers in general, to avoid waste by making better choices at the production and procurement stages. There is a clear message emanating from this strategic approach: that the producer will be responsible for all packaging of their products. The term referred to is: extended producer responsibility (EPR).

The government wishes to “invoke the ‘polluter pays’ principle and extend producer responsibility for packaging, ensuring that producers pay the full costs of disposal for packaging they place on the market.”

The strategic plan also refers to:

- stimulating demand for recycled plastic by taxing plastic packaging with less than 30% recycled content
- set minimum standards to encourage resource-efficient product design
- manage chemicals sustainably through a Chemicals Strategy
- realise resource efficiency savings by working with businesses through ‘resource efficiency clusters’

The impact on the construction industry is, as yet, not fully understood, but manufacturers, producers and suppliers will inevitably be affected at some level. However, to put this in context, the cosmetics and food industry, for example, often rely heavily on packaging as part of their offer to tempt consumers and relative packaging costs are therefore somewhat greater than in the roofing industry in general.

> “At this time, packaging waste is a key issue and the government is challenging businesses ... to avoid waste by making better choices at the production and procurement stages.”

The government wants to move fast in implementing this strategy, and the plan goes on to describe how it is willing to assist the reduction of waste process by incentivising sustainable procurement, informing about sustainable purchases, and banning certain products where there is a clear case for it and sustainable alternatives exist. The procurement-based Greening Government Commitments are intended to demonstrate government leadership on the issue, by supporting the market for re-manufactured goods and adequate disposal of used products. The government strategy overall is targeted at business and domestic consumers alike, and each can have a causal effect on the other.

Construction waste generation through packaging is important, but so is - perhaps more so - waste disposal of used or end-of-life goods. While there are numerous examples of good practice of reclaim, re-use, recycle in the roofing industry, recycling and re-manufacturing percentages can only improve through targeted and dedicated research funding.

Scale, separation, segregation

Often lack of scale, or in numbers clustered together, makes collection logistics difficult for roofing systems at their end-of-life and removal phase. Equally, separation and segregation of different materials is a challenge to achieve in quantities that are meaningful and useful, allowing efficient transportation. And, where does this material go? To a ‘breakdown’ plant that can handle multiple material types, perhaps.

While industry can look at various pilot schemes and innovate within its sector, real circular economy-thinking perhaps requires government-backing (not intervention). Infrastructure that caters for waste may need to be developed. These are long-term, strategic investments, similar to HS2, Crossrail or any other major construction industry project that takes many years and substantial government investment. It is possible to tackle these issues in a smaller, sector-based way, but inefficiency and cost may delay and restrict their development. The roofing industry should continue to strive to find the right solutions for its own products at their end of life.

Innovate outcomes

SPRA continues to work with and talk to all members, government agencies and industry companies and organisations to innovate and improve sustainable outcomes in the single ply roofing industry. Within SPRA, a new, dedicated task group with a focus on sustainability (TG SUS) has been formed from the SPRA Technical Committee, to bring forward and develop SPRA policy on these important industry issues. ■

Manufacturers are best placed to understand the breakdown process and the potential re-use of constituent ingredients or components, and how the process of separation and segregation might take place.

Our roofing system manufacturers have many dedicated, capable individuals and companies willing and interested to be involved, but co-ordination and assistance through government funding is, perhaps, also necessary to address the logistical and infrastructure issues.

Contact The Single Ply Roofing Association

To find out more about how SPRA promotes and supports the single ply sector, call 0845 154 7188 or email enquiries@spra.co.uk.

SPRA
Single Ply Roofing Association

The Art of Waterproofing with RESITRIX Hybrid Membranes

The Macallan Distillery on the lower reaches of the Spey has been making whisky since 1824. The Edrington Group, owner of Macallan since 1999, announced an extension of the existing distillery and a new visitor center.

The overall design of the distillery is a masterpiece in itself. The imposing dome roof - one of the largest green roofs in Europe blends seamlessly with the surrounding landscape.

The Roof

The roof is specially designed to cater to the vapour created by whisky distillation. The roof panels are designed to move with the expansion and contraction created by these movements. The roofing system was specified with a bitumen system and the waterproofing layer was designed to be laid over its timber component. At quite a late stage in the project, the specification was rejected because the bitumen-based system could not accommodate the extremes of movement required and therefore didn't fulfill the construction criteria.

Carlisle CM proposed RESITRIX® hybrid EPDM membrane. By composition RESITRIX® hybrid EPDM is a flexible and durable membrane with root resistant qualities and can not only accommodate the expansion, but would also keep the building watertight for decades.

"The deciding reason for using a Carlisle roofing system was the fact it allowed for expansion without compromising on the waterproofing of the building. All the components within the system were tested to and able to accommodate the expansion," comments Stewart Orton, Carlisle's Product Technical Manager.

"We took on the challenge and delivered. All the teams worked tirelessly and as a result the roof was completed on schedule," adds John Whittaker, Carlisle's Head of Technical.

Macallan Distillery has a complicated wooden roof construction with a cantilever canopy forming an external covered walkway.

Waterproofing

The individual roof panels were formed as a sectional cassette, every cassette was made in an unequal triangle shape to form the dome shape required. Each cassette was fixed with one pivoted anchor which allowed the panel to move independently of the surrounding panels. ALUTRIX® 600 vapour barrier membrane was used as a full vapour check to prevent the steam and vapours from the whisky production, which can cause condensation problems within the roof cavity.

The movement of these panels was overcome by using RESIFLEX® SK expansion strips, which allowed the movement of up to 40mm in every direction bonded to the joints of the panels to complete the air seal. A 150mm thick insulation was bonded directly to the ALUTRIX® 600 using FG35, Carlisle's insulation adhesive and the expansion gaps were completed with a system developed by Carlisle's technical team.

The final waterproofing layer of the roof construction was completed with RESITRIX® SKW full bond hybrid EPDM adhered to the insulation and heat welded at junctions and laps.

The highest dome posed a challenge with 45 degrees slope at is steepest section. The steep pitches of the domes were easily walkable due to the slip resistance of the RESITRIX® membranes. ■

Contact Carlisle CM

For Sales & Distribution Enquiries

Contact: John Whittaker / Allen Coldrake

01623 627285

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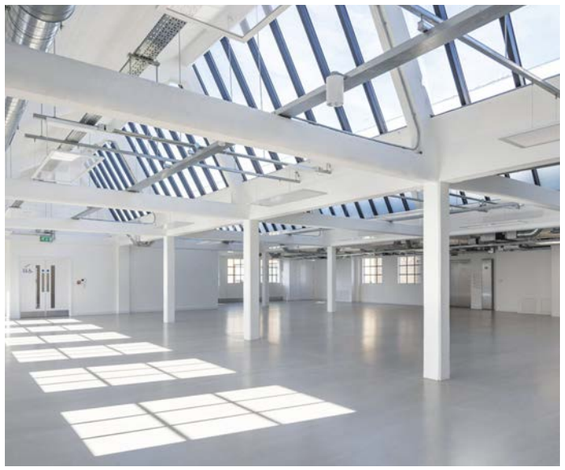
"Whitesales installers worked closely with the roofing contractor to phase the installation of the rooflight along with the single ply membrane."

Whitesales is a Hit at Gramophone Works



Better concentration, increased productivity, more motivation and morale, resurgent recruitment and retention levels – all are proven to be achieved through optimum daylight levels. Combine that with the fact that Whitesales installers didn't miss a beat when working with the roofing subcontractor on the iconic Gramophone Works - the former home of Saga Records and UK epicentre of reggae music - and it's easy to appreciate how Whitesales' roof glazing system contributed to the all-singing-and-dancing single ply roof of this landmark London building.

The recently refurbished Gramophone Works, located on the canal side in West London's Kensal Rise, is one of the area's best-kept secrets. Nestled between Queen's Park, Notting Hill, Portobello Road and Ladbroke Grove, and with an eclectic mix of shops, bars and restaurants, Kensal Rise has been dubbed the 'hippest street in Europe' and the area is home to some of the capital's key creatives.

So, when it came to refurbishing and extending the building's office spaces, daylight was an integral part of the dynamic design. The redesign of the original 20th century building needed to achieve high levels of light transmission as well as faithfully replicating the pre-existing roof glazing, while still ensuring decreased energy bills and a lower carbon footprint, to achieve a BREEAM rating of 'very good' for the single ply re-roof.

The large, set back terrace areas perfectly suited the choice of a single ply membrane for the roof, offering seamless interfaces to the other industrial-character construction elements and also provided the flexibility needed for the complex refurbishment project.

Whitesales installers worked closely with the roofing contractor to phase the installation of the rooflight along with the single ply membrane. Using single ply membrane meant that the upstands could be sealed and welded before the main roof was ready to be weatherproofed. The single ply flashings were then welded to the main roof area covering at the end of the project, which allowed the installation of the rooflights to continue uninterrupted, and ensured the new roof was not disturbed by following trades.

The new aluminium continuous roof glazing on Gramophone Works exactly matches the pre-existing in appearance, retaining all the building's historic charm, whilst still delivering improved solar control through double-glazed low e-glass. The bespoke Em-Glaze monopitch rooflights feature custom fixing details to incorporate with existing concrete structural beams and custom flashings for head detail. The removal of the original fragile units presented many challenges during the project, but the staged installation of main units and flashings allowed for works to be completed more easily.

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 – making it a true hit at Gramophone Works. ■

Contact Whitesales

Discover a brighter experience as a roofing professional, every time at whitesales.co.uk or call the Whitesales Customer Service Team on 01483 917 580.

Bauder Opens New Single Ply Training Facility

Bauder recently opened its fully renovated single ply training facility at its UK offices in Suffolk to recreate a realistic environment for operatives to gain the required skills and knowledge to meet the standards for becoming a Bauder badged installer and begin working towards gaining BCP certification.

Bauder is one of the manufacturer members of the Single Ply Roofing Association (SPRA) that not only focuses on research and development to progress its membranes and systems, but also places emphasis on the competence of its installers working on site. The recognition that each installer plays an influential role in the success of a project is testament to its investment in the roofing industry.

Roofing Today spoke to Single Ply Product Manager for Bauder, Chris Lee, about why Bauder supports best practice in single ply detailing and installation techniques.

Tell us about the single ply facility and the badged operative training offered by Bauder

"Our dedicated training room has many new additions; we are particularly excited to introduce a large wall upstand feature, enabling operatives to be shown, and practice, the different methods of creating a technically sound and aesthetically pleasing finish to an awkward detail.

"We have created a number of common and yet less than straightforward details to ensure operatives, novice or experienced, can build knowledge and confidence away from the pressure of a live working site.

"Our training provides an opportunity for installers to familiarise themselves with the different adhesives available, when they are suitable and how they are employed. We cover mechanical restraint options and how commonly specified accessories should be detailed.

"Whether it's a two-day course for those less experienced installing single ply, or an assessment of existing skills. we can adjust the training to suit."

What about the Basic Competency Programme (BCP)?

"Successful completion of the Bauder BCP training course will enable an experienced operative to apply for a special three-year Experienced Worker CSCS card (subject to successfully passing the CSCS Working at Heights Health Safety and Environment Test), allowing them to get on site. The installer is then expected to gain the full Single Ply Waterproofing NVQ Level 2 before the end of the three years."

Does Bauder also offer support to installers on site?

"In addition to training courses, Bauder UK has a team of 14 site technicians that are dedicated to providing the best practical support to our network of roofing contractors. Whilst site technicians are able to offer site assistance, bespoke Thermofol PVC and Thermoplan FPO membrane training courses offer the best environment to develop the key knowledge and skills of operatives."

Why does Bauder offer so much to its badged installers?

"We provide all these skills training opportunities to ensure we continue to deliver the highest quality installations with market leading guarantees. Bauder believes it is crucial to create effective specialist training courses to develop a valuable network of skilful installers."

What other skills training is available from Bauder?

"In addition to our newly refurbished Single Ply Training room, we have recently launched our new Bituminous Training facility, also located at our headquarters in Ipswich.

"In this covered outdoor area, we can hone the skills for up to four experienced operatives during a session in self-adhesive and Bauder DUO technology installations, as well as our Safe2Torch techniques and standard bituminous detailing. ■

Contact Bauder

For further details on all Bauder system training please contact info@bauder.co.uk or call 01473 257671.

Are All PVC Membranes the Same?

When there are so many types and brands of single ply membranes on the market, specifiers might sometimes struggle with choosing the right membrane for their project's requirements. Time may not allow sufficient consideration of the options available, especially if what they specified worked previously and there is no time to look for alternatives.

However, not all single ply membranes are equal. Variations between PVC, TPO, TPE and EPDMs aside, even within the same product type, it is common to see many differences between one manufacturer's products to another. PVC membranes - the most popular membrane choice in the UK market - have different thickness, colour, performance and guarantee offerings. So, what should an architect, surveyor or specifier consider when they are designing a PVC roofing system?

Durability and extended guarantees

There is a misconception in the market that the thicker the PVC membrane, the longer it lasts. This statement is only accurate to a certain extent. Thicker membranes may be more robust and not completely puncture if damage occurs, but once the top layer is broken, the lower layers are then exposed to UV, which in time will break down the membrane if the damage is not repaired. Thicker membranes are more difficult to install and can be troublesome for detailing works, especially at cross joints where multiple build-up of layers come together.

For the extended guarantee market, IKO Polymeric developed Armourplan P membrane, a 1.2mm thick membrane with a higher specification reinforcement to withstand strong tensile forces. Unlike other PVC membranes on the market, Armourplan P membrane consists of equal amounts of UV stabilisers in both the top and bottom layers. This makes the membrane less susceptible to UV degradation and water ingress if accidental damage occurs to the top layer of the membrane.

> "What should an architect, surveyor or specifier consider when they are designing a PVC roofing system?"

Ease of installation and detailing

As well as offering extended guarantees, Armourplan P membranes also provide the desired flexibility to the installing contractors. Thanks to their high quality plasticiser and increased polymer content, Armourplan P membranes are very easy to install, which becomes an even bigger advantage for projects with complex detailing.

Suitable for mechanically fixed applications, Armourplan P's flexibility also ensures a reduced risk of workmanship errors around complex detailing elements such as corners, pipes and roof lights. For adhered applications, Armourplan PSG is available, offering the same quality and flexibility.

UK manufacturing

Choosing a UK-manufactured product not only means supporting the UK economy, but also helps the specifiers to minimise the carbon footprint of their projects by reducing CO_2 emissions during the transport of the materials.

IKO Polymeric manufactures its Armourplan PVC membranes at its state-of-the-art facility in Chesterfield, UK which has BS EN ISO 9001, BS EN ISO 14001 and BES 6001 accreditations. All raw materials used in manufacturing its products are sourced responsibly, which can help specifiers or purchasers secure additional BREAAM credits for their projects. As the only UK manufacturers of single ply membranes, IKO Polymeric also re-uses by-products from manufacture, wraps products in minimal packaging and employs a streamlined transportation network.

All single ply membranes offered by IKO Polymeric are resistant to weathering, chemical oxidation and UV radiation which ensures long-term durability, a key factor in environmental sustainability.

Contact IKO Polymeric

If you want to find out more about Armourplan P membranes or other products available from IKO Polymeric, get in touch with their technical team.

T: 01257 488 012

E: polymeric.technical.uk@iko.com

SPRA Delivering on Quality and Leadership in Single Ply Roofing

The Single Ply Roofing Association (SPRA) goes from strength to strength, continually educating, influencing and supporting our members, and the industry as a whole. SPRA is focused on quality as the cornerstone of the association and strives to ensure all members uphold this, whether in product manufacturing or as specialist contractors.

SPRA is recognised as the UK authority on all aspects of single ply roofing with a strong technical focus which underpins this quality approach. Continual internal and external engagement helps ensure that SPRA works on the current industry issues of the day, as well as the long-term objectives of improving the single ply roofing experience for all who participate - from building owners, through to the supply chain and the product manufacturer, incorporating the design and contractor installation teams.

Technical focus

SPRA has always had a strong technical focus and being a member allows representation at the regular Technical Committee meetings which shape the technical discussion. All members have the opportunity to attend and are encouraged to participate. Over many years, the Technical Committee and associated task and working groups have developed and recurrently updated key single ply roofing design documents and tackled important industry technical issues. This has resulted in the constant improvement of systems and installation education, as well as supporting SPRA membership and external stakeholders in the design and contracting fields.

The SPRA Design Guide (2018) is now in its 7th edition and, together with a suite of specific guidance documents, is freely available from the SPRA website. This guidance has been developed based on extensive research and over 35 years' experience of single ply roofing systems in the UK. The SPRA Design Guide information takes into account industry building standards and regulations and is an essential reference for designers and installers of UK single ply roofing systems.

The SPRA technical helpline - a phone or email service available through the SPRA website - deals with issues on a daily basis to provide advice to members, their clients, and designers concerning all single ply roofing matters. This reinforces the good advice and design message that SPRA is always willing to promote on behalf of its members.

In recent years, SPRA has invested in a dedicated training focus for installers of single ply roofing. Contractors of all levels and experience have been able to participate in skills attainment and improvement through a complete range of specialist training courses designed to develop installation skills, as well as to provide operatives with a national qualification. The SPRA training department works tirelessly to ensure that the advice on course access and training delivery is of the highest quality, reinforcing the SPRA message of focusing on high standards and achievement.

SPRA continues to add members across the various categories of product manufacturers and specialist installing contractors achieving increasing influence and relevance for today's more demanding market conditions. New members are always welcome. After applying to become a member, the high standards of SPRA across all categories requires passing an audit to meet SPRA membership requirements at that time. SPRA is always willing to advise on how to achieve the required membership standard and more information can be obtained from the SPRA website. Audits are specific to the category applied for and require an office visit and additional site visits in the case of prospective contractors.

Membership allows access to regular SPRA events and access to content on the SPRA website reserved for members only.

The future

The future sees SPRA focused on maintaining and developing high professional standards in single ply roofing. Continued engagement at the highest industry levels and in association with other trade bodies and government. Engagement is also ongoing with members in all categories to ensure their individual opinion is listened to and represented, as part of a collective approach to single ply roofing industry improvement.

With a comprehensive and active technical agenda, training strategy and continual improvement focus, together with engagement at all industry levels, there has never been a better time to be part of the SPRA community.

If you want to know more about SPRA, then there is a free workshop on the morning of the 13th June,2019 at Heythrop Park in Oxfordshire. This is prior to SPRA's annual national conference, which is open to members and non-members and recommended for anyone working in the single ply roofing industry, as well as for those working in any part of the flat roofing sector. All the details and booking for both the SPRA Membership Session and the SPRA National Conference and Awards Dinner can be found on the SPRA website. ■

SPRA
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