

Kalzip national case studies

Flexible solutions for creative architecture





Maxwell Hutchinson

My first architectural job was in 1955 when I was seven years old. I earned a few shillings by stoking the coal fires in my architect father's studio. I soon graduated up to painting water colour on to drainage runs on blue linen drawings. These were working methods dragged forward into the post war era with the advent of the dye line printing machine. I spent days and days of my school holidays printing tracing paper drawings onto sensitive paper and developing them in a crude coffin shaped device which had an open tray of ammonia at its bottom. No one, not even my mother, raised an eyebrow when I came home in the evening after a day's exposure to the fumes with a red raw face and a streaming nose.

Throughout this period drawings had been executed using lining pens which were notoriously difficult to charge with ink and use. All my father's architects and draftsmen wore linen smocks so that the splatters and mess of the ink did not get onto their clothes. This all came to an end with the advent of the self cleaning rapidograph.

Drawings were executed on ebony edged drawing boards using T squares and set squares and, subsequently, on a drawing board with a parallel motion. This resulted in the fact that the vast majority of building design was orthogonal, that is to say, straight lines and right angles. At the same time structural engineering required the use of complex tables and calculations using, not a calculator, but a slide rule. Drawings were in the main, monochrome which resulted in a minimalist use of colour in modernist designs.

All of this changed with the advent of the computer, which brought several important advances that resulted directly in a dramatic change in the approach to architectural design, much of which is reflected in the buildings in this brochure. Firstly, it was no longer necessary to draw orthogonal straight lines. The computer could happily cope with odd angles and curves and any combination of the two. Structural engineering suddenly became far quicker and simpler resulting in more efficient slender structures that, like the buildings they served, were no longer governed by the restrictions of the drawing board. Most importantly of all, computers and repro graphics allowed colour to be designed into buildings from the very beginning. The arduously hand drawn perspective was replaced with computer visualisations in glorious technicolour.

These advances in building design techniques and style required a similar new flexibility in the application of building products and materials. Concrete was well suited to a more fluid language of form, after all in its original state it is a liquid. Brickwork, stone and reconstituted cladding materials remained rigid and resistant to restructured forms.



The answer, for the imaginative new wave architect, was the use of sheet materials of one sort or another. Malleable sheet material, like flexible renders, could adapt to the challenging demands of a new architecture. This brochure is full of the most imaginative examples of the way in which a simple, well engineered sheet material can be made to dance to the changing rhythm of architectural time.

It would be invidious to select one of the projects which follows on these pages but I will. Slough Bus Station is so fluently elegant it looks almost edible. These are the sorts of shapes I dreamt I would encounter in the third millennium as I read 'Dan Dare' in the Eagle comic in the 1950's when I was stoking the coal fires. Gravity defying elegance and form is a true gift to the people of Slough.

The National Cold War Exhibition at RAF Cosford, despite its unenticing name, is refreshingly reminiscent of the hyperbolic paraboloid roof on the Commonwealth Institute which, thankfully, has recently been saved for the nation. Are they two curves? Is it all made out of straight lines? It doesn't really matter. The resultant form, structure and message is enthralling and exciting, which is more than can be said of the Cold War itself. Talking about cold, the Influenza Resource Centre in Hertfordshire is a disarmingly welcome building in yet another fluid shape which has a calm simplicity about its execution with excellent attention to detail.

The £170 million extension to the ExCel Exhibition Centre in London by architects Grimshaw introduces fluid form, colour and structural engineering ingenuity in exactly the way I had anticipated with the advent of the computer. The original ExCel building is unloved and unlovable. The new extension has redeemed the original building and made us all want to rush off to the next exhibition in anticipation of seeing Grimshaw's breath of fresh air.

Corby in North Hampshire, once the country's international powerhouse of steel production with Stewarts and Lloyds Steel Work became an all but abandoned new town. It must be such a fillip to the morale of the people in this all but anonymous small town to have the opportunity of visiting Corby international pool.

This catalogue of description and appreciation could go on. Suffice it to say that the architectural imagination is being increasingly satisfied by the ability of building product manufacturers, like Kalzip, to produce materials which match design aspiration. What can we expect next? I trust not a return to the sterile predictability of my fire stoking days.

Aintree Racecourse, Liverpool





Aintree, one of the world's most famous racecourses, has been staging steeplechases since 1839 and is best known as the venue of the Grand National with its roll call of legendary winners such as Bob Champion's Aldaniti, 100/1 shot Foinavon and of course Red Rum.

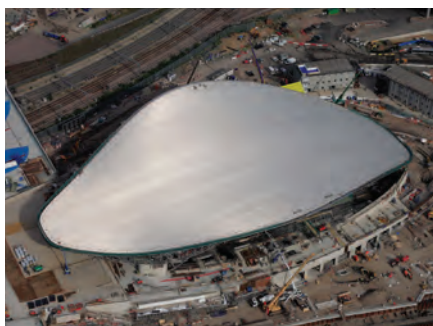
Recent years have seen major investment in both the course and its facilities, perhaps the most striking of which are the identical Earl of Derby and Lord Sefton stands that overlook the course.

Designed by the Building Design Partnership, these stunning buildings make use of 50 metre lengths of Kalzip XT aluminium standing seam material reaching from the bottom of each stand wall to the peak of the overhanging roofs. This is punctuated with vertical slots to either side that are animated by cantilevered balconies overlooking the new parade ring.

Kalzip was specified for a number of reasons including value and life cycle maintenance requirements, but also for its ability to be used on the complex geometric forms of the roof and envelope design; each individual sheet was designed using 3D CAD technology.

Aintree's grandstands were one of the most technically challenging projects to date for Kalzip approved Teamkal contractor Lakesmere, who trained their workforce in abseiling techniques to install the sheets at roof level.

Project: Aintree Race Course
Location: Liverpool, Merseyside
Architect: Building Design Partnership
Kalzip product: Kalzip XT
Cladding area: 4,040 sqm
Profile form: 3D shaped



Aquatics Centre, London



Arnold Lodge, Leicester

Bristol Skills Academy

The striking appearance of this unique landmark building is a visual reference to the old Whitchurch Airport that formerly occupied the site. Reflecting the two hemispheres of the brain the four-storey structure comprises twin sections located either side of a spacious central atrium linked by bridges at each level.

Commissioned by the City of Bristol College to drive up educational standards, this state-of-the-art, highly functional learning facility presented a complex technical challenge with the building 'shell' curving asymmetrically in three dimensions - the plan, cross section and long section - in compound curves.

Archial Architects were responsible for the futuristic, iconic design concept and materials specification with architect AWW chosen to deliver the design by contractor, Cowlin Construction Ltd and project managed by Capita Symonds. Almost 5,000 sqm of Kalzip, including over 1,000 sqm of the revolutionary Kalzip XT profile were installed by Teamkal contractor Lakesmere Ltd.

Achieving this form required close working relationships and co-operation between the main parties from a very early stage and at all times during the design, production and installation processes. Likened to 'a giant 3D jigsaw puzzle' the complex shape of the building meant every one of the 1,500 individual roof sheets was a unique shape drawn up for manufacture. Each sheet would only fit in one location and therefore it was imperative that all the details were 100% accurate which required careful planning, monitoring and control.

The material combination which provides the structure with a good thermal mass - so it stores and regulates heat well to give a steady internal temperature - saw the full Kalzip built-up system contribute to the overall sustainability of the building resulting in the building envelope attaining an 'A' rating in BREEAM's 'The Green Guide to Specification'.



Project: Bristol Skills Academy
Location: Bristol
Architect: Archial Architects & AWW
Kalzip product: Kalzip standing seam roof and Kalzip XT
Cladding area: 5,000 sqm
Profile form: Curved, 3D shaped



The full Kalzip built-up system contributed to the overall sustainability of the building resulting in the building envelope attaining an 'A' rating in BREEAM's 'The Green Guide to Specification'.



Burns Monument Centre, Kilmarnock

Described as “Scotland’s first custom-built ancestral history hub”, the £5 million Burns Monument Centre was formally opened in 2009 by First Minister Alex Salmond and houses an archive centre, register office, library and wedding venue / conferences facilities.

The original Burns Monument building was opened in 1879 but had fallen into disrepair and was seriously damaged by an arson attack in 2004. The stylish new centre provides a courtyard setting for the now clean and beautifully restored monument statue and protecting canopy.

Among the most distinctive features of the centre is its copper Kalzip roof, which will oxidise over time through subtle tones of mellow bronze to a lovely rich green patina, complementing the centre’s natural stonework.

Over 800 sqm of straight and tapered copper Kalzip sheets were installed by Teamkal contractor, CDW Ltd. East Ayrshire Council Asset Improvement Service appointed Hunter Clarke Ltd as the main contractor.

Kalzip’s fabrications department manufactured and supplied a wide variety of bespoke copper flashings including the bull-nosed fascias and specially designed louvres. Kalzip also supplied the roof liner and structural decking sheets and manufactured the membrane gutters, some of which were extensively faceted to suit the centre’s tightly curved wall areas.

Project: Burns Monument Centre
Location: Kilmarnock, Scotland
Architect: East Ayrshire Council Asset Improvement Service
Kalzip product: Copper Kalzip & various copper fabrication details
Cladding area: 800 sqm
Profile form: Straight & tapered





CO2Zero- LiveWork, Bristol



With the UK government having set aggressive zero-carbon targets for the house building industry, a number of forward-thinking environmentalists and architects are now looking at ways to achieve these goals and at the vanguard of this green movement is Logic Construction Project & Design Services.

In 2009, Logic CP&DS developed the CO2Zero-LiveWork building in Bristol, the first private residential scheme in the UK and first Live/Work scheme to attain Certification at Code for Sustainable Homes (CSH) Level 5. The development comprises a private terrace of nine properties, each with a duplex apartment over a ground level work unit with a secure street level shop front/entrance.

A key component of the scheme was Kalzip's low U-value roof, a dual-insulation roof system achieving U-values down to 0.1 W/m²K.

This technically proven system is extremely cost effective and utilises the combined benefits of two complementary types of insulation materials – Kalzip Insulation Plus (glass mineral fibre) and Kalzip Insulation 23 (rigid insulation boards) – to deliver significantly greater overall thermal resistance than could be achieved using a single layer of insulation of the same thickness.

Brandon Lloyd Architect was responsible for the detail design and site supervision whilst approved Teamkal contractor CDW Ltd installed the smooth curved Kalzip roof system, fabricated rooflight soakers and gutter system.

Project: CO2Zero-LiveWork

Location: Bristol

Architect: Logic Construction Project & Design Services/Brandon Lloyd Architects

Kalzip product: Kalzip low U-value roof

Cladding area: 320 sqm

Profile form: Smooth curved





Colchester Garrison, Essex

The massive Merville Barracks project at Colchester Garrison was commissioned by RMPA Services, a 'special purpose' PFI company (consisting of Atkins, Sir Robert McAlpine, Sodexo, and HSBC Infrastructure) formed to develop and construct the new Barracks and provide through life service support to the Garrison on behalf of the MoD over the 35 year term of the contract.

Over 109,000 sqm of Kalzip aluminium standing seam system has been installed on all of the 124 new buildings which, whilst remaining consistent in appearance, were required to carry a complete system warranty that matched the 35 year PFI term, achieve the necessary performance specifications and stay within budget.

Charged with producing solutions that would achieve the new thermal and airtight target values and provide robust details to significantly reduce and eliminate cold bridging Kalzip also fabricated all perimeter details, closures and flashings to ensure a consistent finish, appearance and desired long-term weathering performance.

Teamkal contractor Prater Ltd successfully tendered for the main bulk of Phase 1 work comprising 39,000 sqm of Kalzip and four other Teamkal contractors (ASL, KGM Roofing, Thompson Roofing and TR Freeman) completed the roofing and cladding elements of the remaining buildings.

Prater also went on to negotiate with Sir Robert McAlpine for the installation of the Kalzip on the whole of the Phase 2 work to complete Colchester Garrison.



Project: Colchester Garrison, Merville Barracks
Location: Colchester, Essex
Architect: RMPA Services plc
 (Atkins, Sir Robert McAlpine, Sodexo and HSBC Infrastructure)
Kalzip product: Kalzip standing seam roofs and Kalzip fabrications
Cladding area: 109,000 sqm
Profile form: Straight & natural curved

Corby International Pool, East Midlands



Corby International Pool, home to one of just a few 50 metre long competition-size pools in the UK, is the centrepiece of a multi-million pound regeneration programme underway at this East Midlands town. Opened by British Olympic swimmer Mark Foster, this iconic facility – which also houses a gym, health suite and studio – has won a host of awards including East Midlands Public Building of the Year 2009 and has staged national and international events.

Its stylish shape is formed by a series of 32 metre long, 2.5 metre deep trusses spaced at 8 metre centres, through which have been threaded a series of 80 metre long glulam beams. While the building's overall styling is futuristic, its distinctive, natural curved shape delivers an organic feel that helps it sit comfortably alongside adjacent woodland.

The Kalzip standing seam aluminium sheeting, installed by approved Teamkal contractors WWR (UK) Ltd., incorporates acoustic insulation over the pool. Curving from the roof right down to the ground, the external shell is unusual in that the wall area – from top gutter to floor level – required the standing seam aluminium to be formed in two different radii.

The International Pool was designed by S&P Architects, also responsible for the Aquatic Centre for the 2012 Olympic Games in London, and was built for Corby Borough Council by Willmott Dixon.

Project: Corby International Pool
Location: Corby, East Midlands
Architect: S&P Architects
Kalzip product: Kalzip standing seam roof and wall cladding
Cladding area: 4,100 sqm
Profile form: Natural curved and curved with variable radius of almost seven metres, basalt grey matt finish

Dublin Airport Terminal 2 Ireland



'Transforming Dublin Airport' is a 10 year, €2 billion programme designed to deliver significantly improved facilities at what is now Europe's eighth largest airport in terms of international flights. The project will see the expansion and modernisation of all facilities but the centrepiece is the new Terminal 2, a three storey, 75,000 sqm building designed to cater for up to 15 million passengers a year.

This striking curvilinear building features two main sections the check-in area and departure/arrivals area, connected via a link bridge and Kalzip was selected as the roofing system for its ability to satisfy the many structural, acoustic and thermal requirements.

Most of the 1.2mm thick Kalzip sheets were roll formed on-site, reducing cost and environmental impact, and the acoustic requirements were achieved using a shallow-profiled, fully perforated Kalzip liner panel system complete with 50 mm thick, 60kg density insulation. Kalzip also developed a special seam clip to enable the installation of a rainscreen system on the Kalzip sheets covering the check-in area and tightly curved parts of the arrivals/departures hall.

Senior project team for the T2 development comprised Arup, lead architects Pascall+Watson and Mace; the Kalzip system was installed by Portuguese building envelope project manager and contractor, Martifer.



Project: Dublin Airport, Terminal 2
Location: Ireland
Architect: Arup/Pascall+Watson/Mace
Kalzip product: Kalzip standing seam acoustic roof
Cladding area: 31,817 sqm
Profile form: Straight, curved and tapered convex curved

East Durham College, Peterlee



The innovative use of 360 sqm of Kalzip perforated aluminium façades has helped to deliver an impressive combination of practical and aesthetic benefits at the £21 million East Durham College campus in Peterlee, Co Durham.

The system was specified by Jefferson Sheard Architects to provide a series of translucent protective 'veils' around four major external stairwell areas at the college, allowing natural daylight into the building and creating an intriguing 'textured' contrast with the college's main claddings.

And when darkness falls, the use of dramatic blue electrical back-lighting in combination with the perforated Kalzip façade creates an eye-catching architectural feature that helps bring significant additional kerbside appeal to this landmark building.

Miller Construction (UK) Ltd was the design and build contractor and Chemplas Ltd the building envelope contractor. As well as using the Kalzip sheets for the stairwell façades, Chemplas also installed more than 6,000 sqm of straight and smooth curved stucco embossed Kalzip aluminium standing seam roofing sheets, including those on the gentle wave curved canopy roof over the college's striking main entrance.



Project: East Durham College
Location: Peterlee, Co Durham
Architect: Jefferson Sheard Architects
Kalzip product: Kalzip standing seam roof and Kalzip perforated facade
Cladding area: 6,360 sqm
Profile form: Straight, smooth curved



Energus Centre of Excellence, West Cumbria

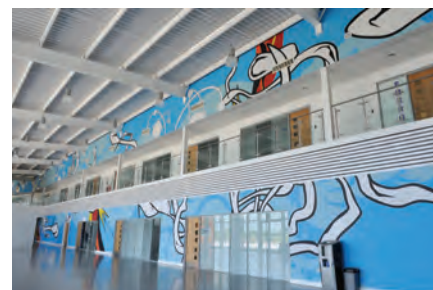


Opened in 2009, the £20 million Energus facility is a Centre of Excellence set up to provide the vocational skills training, education and business support required by Britain's nuclear industry and its partners across the renewable energy sector. Located in Workington, West Cumbria, Energus is a not-for-profit company funded by both the public and private sectors.

The centre itself, the first project to come to fruition as part of the £2 billion 'Britain's Energy Coast' initiative, was designed by Architects Plus (UK) Ltd, built by Thomas Armstrong Construction Ltd and features a number of environmentally friendly features.

Among these is a roof system which makes use of almost 4,000 sqm of Kalzip aluminium standing seam roofing, including over 1,500 sqm of Kalzip AluPlusSolar sheets. Installed by approved Teamkal contractor, Lakesmere Ltd, this provides a lightweight and fully integrated renewable power generation source: peak output is in excess of 44 kilowatts, equating to an impressive average of 30,000 kilowatt hours per annum.

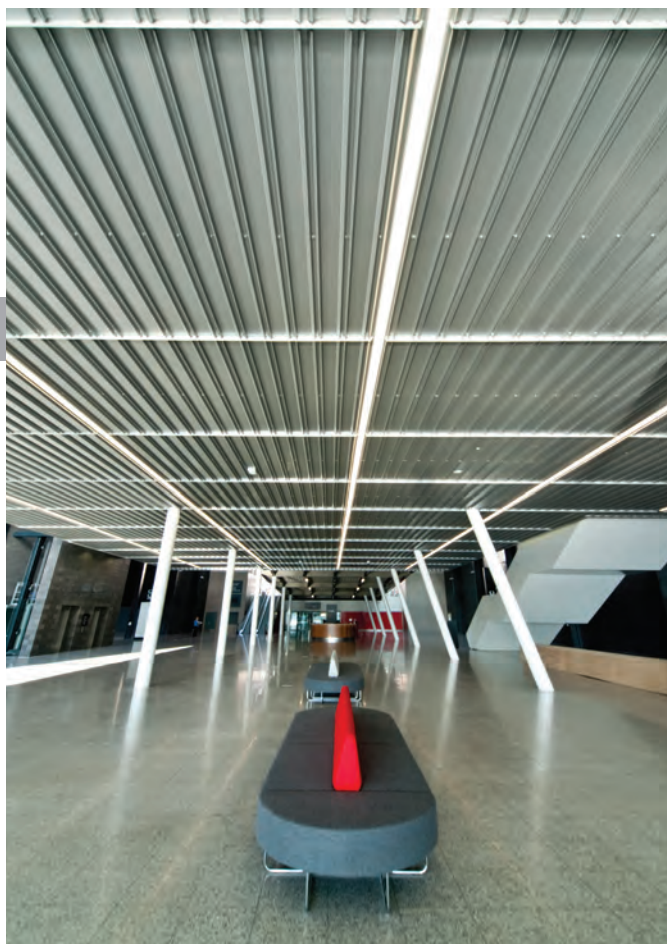
Another key factor in a location that can be subjected to extreme weather conditions is the insulation helping the roof system achieve an overall U-value of 0.25W/m²K.



Project: Energus Centre of Excellence
Location: Workington, Cumbria
Architect: Architects Plus (UK) Ltd
Kalzip product: Kalzip standing seam roofing and Kalzip AluPlusSolar
Cladding area: 4,000 sqm
Profile form: Straight, RAL 9006 finish

ExCeL Exhibition Centre, London





In what is one of the most striking entrances anywhere in Europe, a bright yellow, e-shaped angular 'spiral' now welcomes delegates to the Phase 2 extension of the ExCeL convention centre in London's Royal Docks.

Designed by architects Grimshaw and constructed by Sir Robert McAlpine Ltd, the £170 million extension increases the total flat floor space at this huge venue – now designated London's International Conference Centre – to over 100,000,000 sq ft, and also creates a 15 metre high hall.

The iconic spiral entrance leads into The Grand Boulevard, which at 600 metres long is the largest corridor in Europe, and also provides a strong visual orientation, 'scooping up' visitors from the ground floor and aiding access to multiple levels.

Kalzip TF800R aluminium was specified for the external cladding to the spiral primarily for its aesthetic appeal and ability to be wrapped around continuously. The need to maintain this continuous wrap while at the same time accommodating lighting, sprinklers, steelwork and service penetrations made this a demanding installation for approved Teamkal contractors Hathaway, but proved such an elegant solution that the project was named 'Best of the Best' in the 2010 Teamkal awards.

Kalzip 'recessed seam' aluminium cladding was also specified for the North and South walls of the exhibition halls – and the link to the nearby Docklands Light Railway (DLR) station – in order to provide a "visually exciting" wrap to the building, and was installed in single lengths of up to 15 metres.



Project: ExCeL Exhibition Centre, Phase 2
Location: London
Architect: Grimshaw Architects
Kalzip product: Kalzip TF800R (perforated in parts) and Kalzip recessed seam wall cladding
Cladding area: 6,200 sqm
Profile form: Straight and curved. RAL 9006 finish in parts



Barsley College, Yorkshire



Blackburn Railway Station

Grand Canal Theatre, Dublin, Ireland

The completion of the 2100 seat Grand Canal Theatre, a dynamic, angular building by world renowned architect Daniel Libeskind AG, has seen the arrival of one of the final pieces in the jigsaw that makes up Dublin's Grand Canal Square, a new urban piazza and cultural focal point of the city's Grand Canal Harbour.

With its sloping wall and column concrete frame construction (no two floors are the same), 900-tonne steel frame sloping roof and main entrance of multi-inclined glazing elevations and a 'beak' structure, this landmark building was as challenging in its construction as it is distinctive.

Approved Teamkal installers Lynch Roofing Systems (Ballaghaderreen) Ltd were responsible for installing the built-up Kalzip roof with structural deck, (including the structural deck to the wall cladding). The roof features approximately 3000 sqm of inclined Kalzip roofing installed to a 22 degree pitch.

The €75 million theatre and neighbouring office project was managed by John Sisk & Son for client, Ramford Limited/Chartered Land.

Project: Grand Canal Theatre
Location: Dublin
Architect: Daniel Libeskind AG
Kalzip product: Kalzip standing seam roof
Cladding area: 3,000 sqm
Profile form: Straight





Brooklands Farm Primary School, Milton Keynes



Carnival Arts Centre, Luton, Bedfordshire





Carnoustie Golf Links Pro Centre, Angus Scotland



Cramlington Learning Village

Grove Health and Well Being Centre, Belfast



A first for Northern Ireland, the Grove Well Being Centre provides a one-stop-shop for community services, with a combination of leisure and health services under one roof. Completed in 2008, the £16.5 million facility in north Belfast houses 11 GP practices and other health services including physiotherapy, podiatry and dentistry, alongside a suite of leisure facilities including a swimming pool, sports hall, fitness suite and library.

The centre, which won the Award for Best Community Care Design at the UK's prestigious Building Better Healthcare Awards, is a three-storey building with a layout that features a number of distinct areas linked by a common spine. It was designed by Kennedy FitzGerald Architects LLP in association with Avanti Architects, and was constructed by O'Hare & McGovern Ltd.

The 10,000 sqm complex is located on the banked edge of Grove Park and the building's design makes use of this proximity to create a therapeutic environment whilst visually reducing the scale of the building. The low pitched green sedum roof further enhances the linkage between the park and the city beyond, acting as an element of architectural landscape as if it was actually an extension to the park's natural greenery.

The 3500 sqm roof, installed by Grainger Building Services, uses a range of Kalzip product types in order to meet the different requirements of the facilities below. The largest area – some 2000 sqm – features a Kalzip Nature Roof system with a plug plant sedum covering whilst other areas include an acoustic swimming pool roof and a non-acoustic library roof.

Project: Grove Health and Well Being Centre
Location: Belfast
Architect: Kennedy FitzGerald Architects LLP in association with Avanti Architects
Kalzip product: Kalzip Nature Roof
Cladding area: 3,500 sqm
Profile form: Straight





Energy From Waste, Gilmoor



Forth Valley Hospital

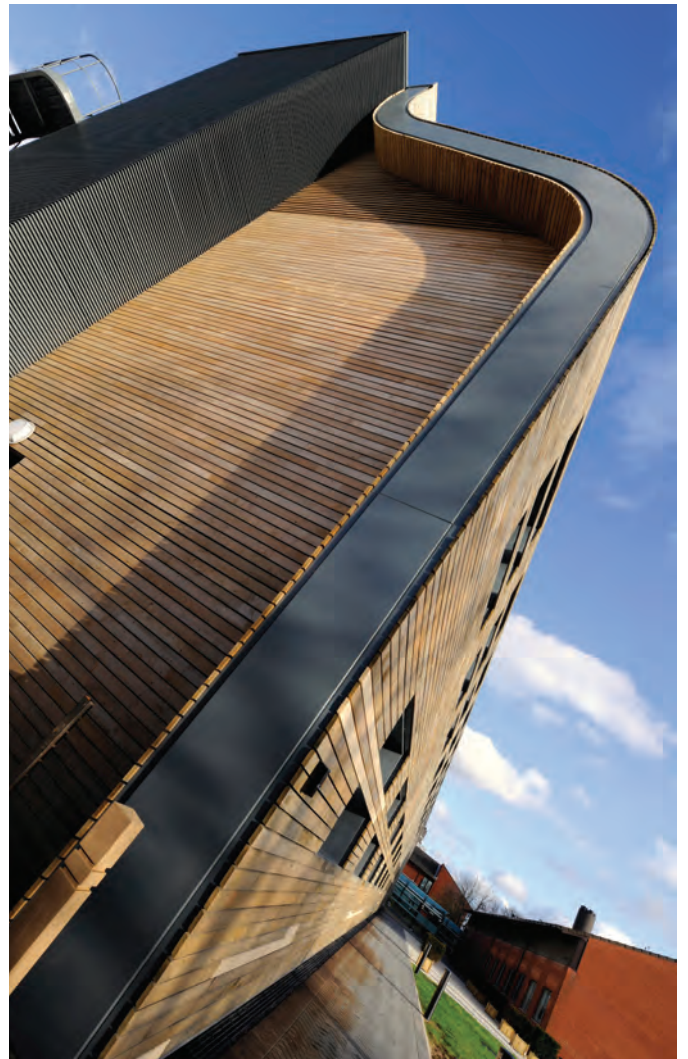
Influenza Resource Centre, Hertfordshire

The Influenza Resource Centre (IRC) has played a key role in influenza vaccine standardisation and control for over 30 years, and its scientific expertise in the field is highly respected internationally. Having outgrown its existing laboratories in South Mimms, it was relocated in 2010 to a purpose-built £12 million centre on the same site.

This distinctively-designed facility, also home to the UK Stem Cell Bank, was developed for The National Institute for Biological Standards and Control (NIBSC) by main contractor Morgan Ashurst, with Morgan Professional Services (MPS) handling the detailed design.

A critical requirement was the provision of a well-insulated and weatherproofed envelope, one capable of keeping out all external contaminants (there are numerous clean room labs) and preventing the escape of any internal biological agents.

With the support of an approved Teamkal contractor a Kalzip roofing system was installed that not only provides a tightly sealed, insulated and weatherproofed building envelope, but also carries the white chestnut timber rainscreen required to achieve the aesthetic appearance of this uniquely designed building.



Project: Influenza Resource Centre & UK Stem Cell Bank
Location: South Mimms, Hertfordshire
Architect: Morgan Professional Services
Kalzip product: Kalzip standing seam roof
Profile form: Straight and curved



Howells School, Cardiff



Imperial War Museum, Manchester

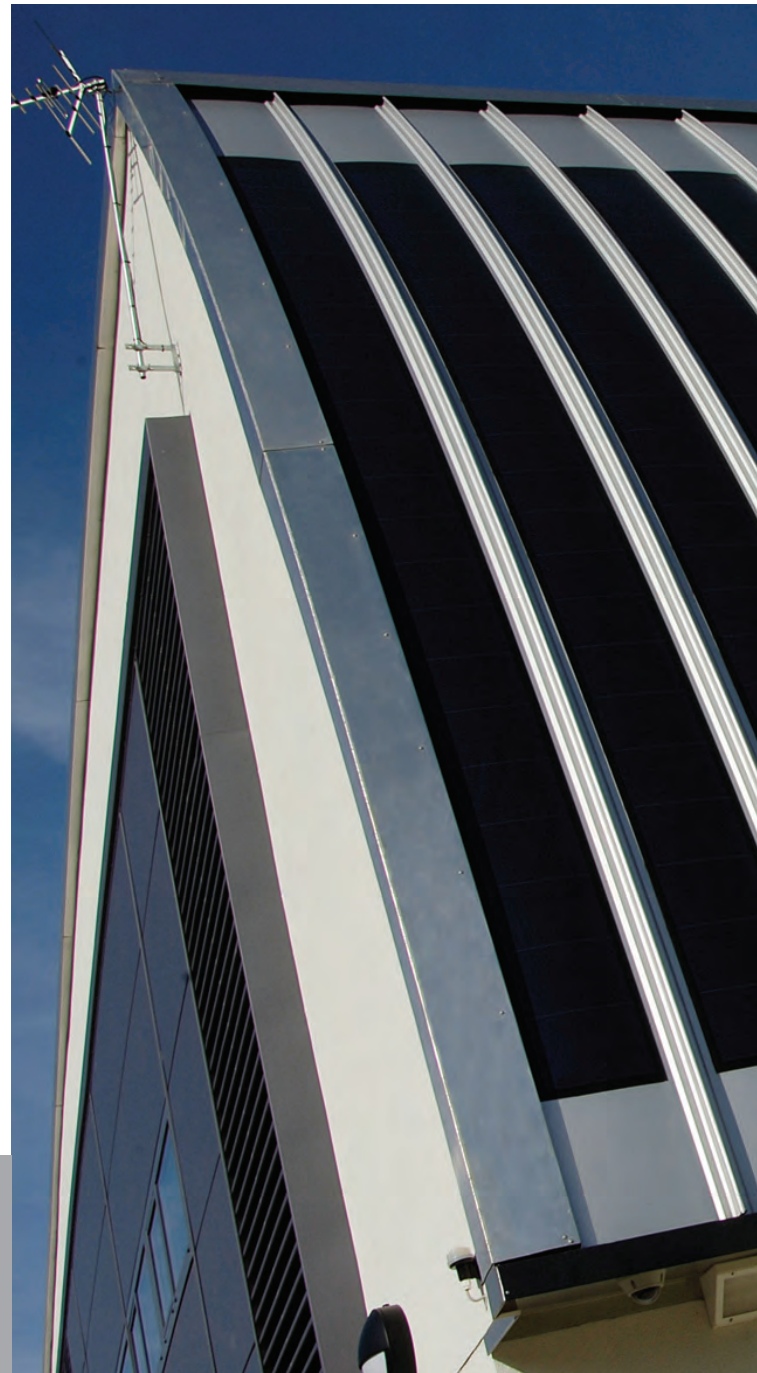
Levenshulme High School for Girls, Manchester

This striking sports hall, shared by the girls of Levenshulme High School and the wider community in this area of South Manchester, is a case book study in sustainability. Not only is the hall designed to keep energy costs low through features such as passive ventilation, but the building takes this a stage further by capturing solar power to generate its own energy.

In fact, the Kalzip AluPlusSolar system installed on the southern elevation provides around 4,500 kWh of 'clean' electricity per year, enough to power the hall's lighting and electrical equipment, and feed the surplus back to the National Grid.

The £2.2 million building, designed by Walker Simpson Architects and known locally as the 'Energy Box', sits on the site of a former tennis court on the school playing fields and provides a real contrast to the traditional red brick facades of the existing school buildings.

Installation of the Kalzip system was carried out by approved Teamkal contractor Richmond Cladding Services. Cantilevered scaffolding was used on the curved southern elevation, allowing the installation of 250 sqm of structural decking to provide acoustic absorption inside the building as well as support for the Kalzip outer skin, which sweeps up and onto the roof where 1000 sqm of stucco embossed aluminium standing seam was laid.



Project: Levenshulme High School for Girls
Location: Manchester
Architect: Walker Simpson Architects
Kalzip product: Kalzip standing seam roofing and Kalzip AluPlusSolar
Cladding area: 1,250 sqm
Profile form: Straight & curved



Leigh Academy Dartford





Lesmahagow High School



Liverpool South Parkway

Madeley Academy and Training Centre, Telford



The new Madeley Academy in Telford, Shropshire, combines a full range of traditional school facilities – including classrooms, a sports hall, theatre and fitness area – with a vocational training centre that is now helping pupils from some of the most deprived parts of the country gain the different skills necessary to find employment.

Project: Madeley Academy and Training Centre
Location: Telford
Architect: BH&M Architects
Kalzip product: Kalzip standing seam roof
Cladding area: 5,684 sqm
Profile form: Straight

Opened in 2009, the academy has drawn praise from government ministers, Ofsted inspectors and others, including the Financial Times, both for its facilities and for the outstanding success in terms of pupil progress.

A casebook study in modern architecture for education, the academy, designed by BH&M architects, features naturally-lit corridors, external wind turbines and an underground heat recovery system. Two wings extend from a central circular entrance area.

Over 5,600 sqm of Kalzip standing seam was installed on the £19.6 million project. The main contractor was Bowmer & Kirkland.



Lochend Butterfly Project



Lough Road, Water Treatment Works,

Maundown Water Treatment Works, Somerset



A raft of environmental features have been incorporated into a £25 million water treatment plant to ensure that its impact on the local landscape – a highly sensitive site on the edge of Exmoor National Park – and the wider environment is kept to the minimum.

Designed for Wessex Water by Race Cottam Associates, the Maundown treatment plant supplies clean drinking water to more than 200,000 people in the Taunton and West Somerset area.

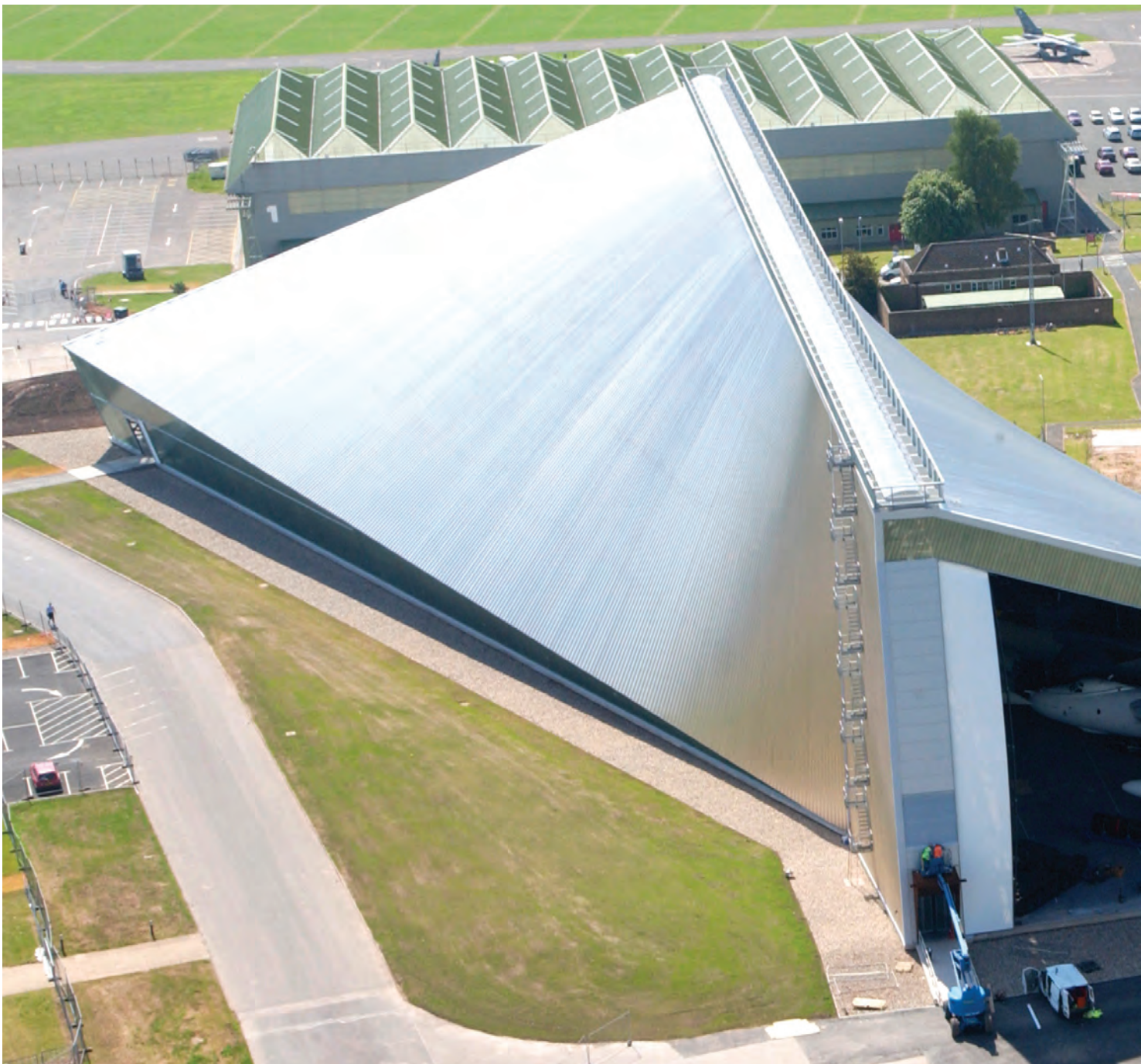
In addition to solar water heating panels, hydro-electric turbine and biomass boiler, the building also features one of the largest 'green roofs' in Europe, a 6,000 sqm Kalzip Nature Roof planted with thousands of low maintenance sedum plants. As well as providing a non-reflective roof surface that helps the building to blend into the rural landscape, the use of a green roof offers the additional benefits of increased heat insulation, absorption of carbon dioxide and a reduction in water run-off from the building in peak storm times.

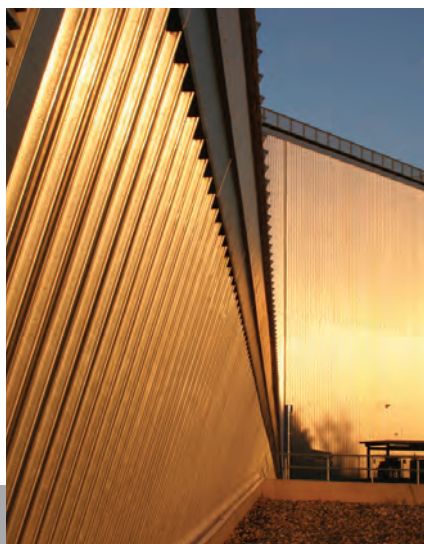
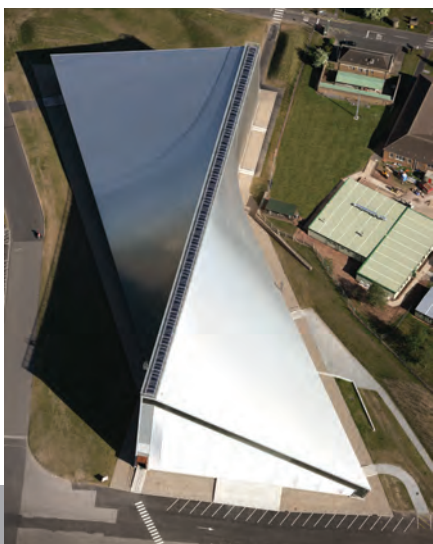
The insulation between the liner sheet and top sheet was tuned from full insulation over the offices to zero insulation over the treatment areas. The green roof build up ensured that there was no risk of condensation inside when no insulation was used.

Race Cottam worked with Faber AECOM civil engineers and process engineers Empure. Main contractor was Wessex Water Engineering and Construction Services (WECS).

Project: Maundown Water Treatment Works
Location: Somerset
Architect: Race Cottam Associates
Kalzip product: Kalzip Nature Roof
Cladding area: 6,000 sqm
Profile form: Straight

National Cold War Exhibition, RAF Cosford





The National Cold War Exhibition at RAF Museum Cosford tells the story of the role played by the Royal Air Force in the 40+ years of tension that followed the end of WWII. Opened in February 2007, the exhibition brings together under one spectacular roof such impressive exhibits as Britain's three V-Bombers – Vulcan, Victor and Valiant – alongside 13 other Cold War aircraft.

Such an impressive collection required a landmark building to match and the highly distinctive design created by leading architects Feilden Clegg Bradley – an £11 million structure rising 25 metres high and covering a floor space of almost 6,800 sqm – represents the struggle between the two opposing political ideologies of the Cold War period.

The complexity of the building's design meant that outstanding flexibility was the main consideration in the specification process and the Kalzip standing seam system was found to be the only material that could achieve the ever-changing pitch without crimping along the 135 metre axis.

The twisted plane geometry of the roof design incorporates over 10,000 sqm of Kalzip standing seam. Installed by approved Teamkal contractors WWR (UK) Ltd, Kalzip was also specified for the wall design, with the sheets twisting from the vertical spine wall to 30-degree angles at opposite ends of the building.

Project: National Cold War Exhibition
Location: RAF Cosford
Architect: Feilden Clegg Bradley Architects
Kalzip product: Kalzip standing seam roof
Cladding area: 10,000 sqm
Profile form: Straight & twisted

Newport Station, South Wales





Newport Railway Station, South Wales, was originally built in 1850 and extended in 1928. Situated in the heart of the town, the station tracks divided the district into two halves which, over the years, developed very differently: a lively business centre on one side and a quiet residential area on the other. However, over time the station's design and structure no longer fully serviced the varying needs of its commuters, in particular, people with restricted mobility.

Lead consultant Atkins with Grimshaw were responsible for the futuristic, intriguing design of the new station which now connects the two districts of the town by a bridge and accommodates two new concourses designed specifically to fulfil the requirements of all passengers from commuters to visitors, people changing trains and excursion traffic.

Curved both on plan and in section the aluminium clad structure incorporates a combination of straight, tapered and smooth curved Kalzip sheets as well as many uniquely manufactured Kalzip XT profile sheets of various shapes and sizes. To minimise disruption to the operational railway line the entire building was erected as a steel structure, prefabricated in parts and installed in its final position by cranes.

The station was built by Galliford Try Rail for client Network Rail and use by the travel operator, Arriva Trains Wales whilst the Kalzip roofing and cladding and array of bespoke fabrications were installed by experienced Teamkal approved contractor, CDW Ltd.

Project: Newport Station
Location: Newport, South Wales
Architect: Grimshaw Architects
Kalzip product: Kalzip standing seam roof (perforated in parts), Kalzip XT and various Kalzip fabrications
Cladding area: 4,000 sqm
Profile form: Straight, tapered, smooth curved & 3D shaped in a RAL 9006 / 7015 / 1018



Mountbatten Leisure Centre



National Sailing Academy, Whymouth

O2 Arena, London

In what has proven to be an extraordinarily successful transformation, the now instantly-recognisable structure in London's Docklands area that was once the Millennium Dome has been 'reinvented' as a world class music, events and sports venue, the O2 Arena. The project, carried out by HOK Sport architects, saw the construction and installation of a 23,000 seat, bowl-shaped arena within the existing structure of the dome.

As well as presenting major challenges in terms of restricted access, this 'building-within-a-building' approach also required the use of innovative products including Kalzip XT, a material that can be shaped into 3D forms to cover areas of double curvature.

The project was also unusual in that, instead of being used as a roof system solution, the Kalzip sheets were installed by approved Teamkal contractors Lakesmere as internal cladding in the concourse that encircles the arena. A pitch that changes by 22° over a length of approximately 45 metres required the use of Kalzip XT sheets, while 2000 sqm of straight and tapered standard sheets were also installed.

Once the sub-contract was placed, Kalzip and its partners took ownership of the model to develop the original offset surface and sub-structure to retain the individual sheets in the correct geometry.

Project: O2 Arena
Location: London
Architect: HOK Sport Architecture
Kalzip product: Kalzip standing seam roof and Kalzip XT
Cladding area: 2,700 sqm
Profile form: Straight, tapered and 3D shaped



Pendle Vale College, Lancashire

Established as part of the Building Schools for the Future (BSF) programme, the £29 million Pendle Vale College in Nelson, Lancashire is among the most modern and best equipped colleges in the country.

The state-of-the-art building, designed by Capita Architecture, has become a new local landmark, with its sweeping, tiered design rising in line with the contours of an inclined hillside site. The concentric arcs of classrooms that extend from the college's central spine 'internal street' are gently faceted on a radial grid.

Their mono pitched roofs comprise a series of straight Kalzip sheets interspersed with tapered Kalzip sheets at each grid line in order to achieve the desired curvature. Over 7,700 sqm of Kalzip aluminium standing seam roofing sheets were installed by Teamkal contractor Lakesmere Ltd for this project, and the system is designed to achieve a U-value of 0.15 W/m²K.

Pendle Vale College is owned and managed by Catalyst Lend Lease under a 25-year PFI agreement and Lancashire County Council is the tenant. The college was built by Bovis Lend Lease.



Project: Pendle Vale College
Location: Nelson, Lancashire
Architect: Capita Architecture
Kalzip product: Kalzip standing seam roof & Kalzip fabrications
Cladding area: 7,700 sqm
Profile form: Straight, tapered



Old Basing Health Centre, Basingstoke



Pinderfields General Hospital, Yorkshire



Serving the communities of Wakefield District and Kirkless and replacing the original 1948 building, the £250 million PFI Pinderfields General Hospital will provide comprehensive care facilities including 24/7 A&E, maternity unit, critical care, burns unit and spinal injuries unit on a 82,000 sqm site.

Designed by Building Design Partnership, the building is in two parts, with a clinical side facing into the hospital grounds and a ward side facing out to the roads and residential areas. Particular focus has been placed on the patient and staff environment, with shallow plan space and courtyards delivering daylight and views.

This is achieved through the sub-division of the hospital into a number of wings, radiating from a central spine. Each wing is roofed and clad in Kalzip standing seam aluminium, creating dramatic effect as it sweeps over the end of the roof and down the five-storey high walls. Installation was carried out by Teamkal contractor Prater and required the use of specialist mast climbers.

Prater's installation team installed the Kalzip onto multiple roofs across the hospital campus – including a curved roof linking various blocks – and each was complemented with Kalzip vertical cladding. The project was built under a PFI scheme by Balfour Beatty and Haden Young for the Mid Yorkshire Hospitals NHS Trust.

Project: Pinderfields General Hospital

Location: Yorkshire

Architect: Building Design Partnership

Kalzip product: Kalzip standing seam roof and vertical cladding

Profile form: Straight, curved and vertical



Pudsey Bus Station, Yorkshire





Funded jointly by Metro and Leeds City Council, the new £2.5 million Pudsey Bus Station provides the market town with a striking new centrepiece whose innovative, user-friendly design boasts an enclosed waiting area with comfortable seating, improved lighting overall, real-time information screens and level boarding to buses for the convenience of passengers.

Built by Allenbuild Ltd for Metro, the West Yorkshire Passenger Transport Executive, the canopy roof is crowned with over 1,000 sqm of convex and concave smooth curved Kalzip sheets which were installed by experienced Teamkal contractor, KGM Roofing Ltd and incorporate an 80mm thick layer of Kalzip Insulation 23 glass quilt sandwiched between the Kalzip soffit and top sheets for rain-sound reduction.

Convex taper-curved to a 10 metre radii, the Kalzip sheets form full semicircles on-plan at both ends of the roof - and with Metro keen to have an aesthetically pleasing underside to the bus station's canopy, the soffits were ingeniously created using a similar combination of downward facing concave curved Kalzip sheets.

Complementing the roof canopy perfectly the aluminium bull-nosed fascias are tightly curved on-plan as well as in section. Produced using a unique manufacturing process, the 'true' curved fascias (RAL 9006) were designed to be invisibly fixed using a system of bonded butt straps which create a beautifully seamless finish to the roof's eaves.

Project: Pudsey Bus Station
Location: Pudsey, West Yorkshire
Architect: Jefferson Sheard Architects
Kalzip product: Kalzip standing seam roof and Kalzip fabrications
Cladding area: 1,000 sqm
Profile form: Convex, concave smooth curved & convex taper-curved, RAL 9006 finish

Queen Elizabeth Hospital, Birmingham

The Queen Elizabeth Hospital Birmingham, a 1,200-bed teaching hospital for the University Hospital Birmingham Foundation Trust, provides a dramatic new addition to the city's skyline.

The building's most striking features are three open centred elliptical towers that rise up above a three/four storey podium. These steel and glass towers are bisected by glazed link bridges and feature a sloping, asymmetric roof profile designed to maximise sunlight into the wards. The main entrance canopy dynamically wraps up and over the visitor lift tower, visually tying together the podium and ward towers.

The ward towers and canopy roofs were finished using some 14,000 sqm of Kalzip aluminium standing seam roofing, curved in plan and section and installed by approved Teamkal contractors Lakesmere. Tower cranes stood in the centre holes of the three main ward towers (inner atriums extend to the ground floor) and the team used bespoke basket systems to work on inner and outer edges of roofs; installation also required specialist training in the use of abseiling equipment.

The development, the first of its kind in the city for 70 years, was designed by Building Design Partnership in consultation with patients, visitors, staff and the trust's clinical review groups. Main contractor on the £585 million project was Balfour Beatty.



Project: Queen Elizabeth Hospital
Location: Birmingham
Architect: Building Design Partnership
Kalzip product: Kalzip standing seam roof
Cladding area: 14,000 sqm
Profile form: Straight and curved

Robin Hood Airport, Doncaster



When the 0915 flight to Majorca took off from Robin Hood Airport Doncaster in April 2005, it marked the opening of the UK's first new build commercial airport in over 50 years.

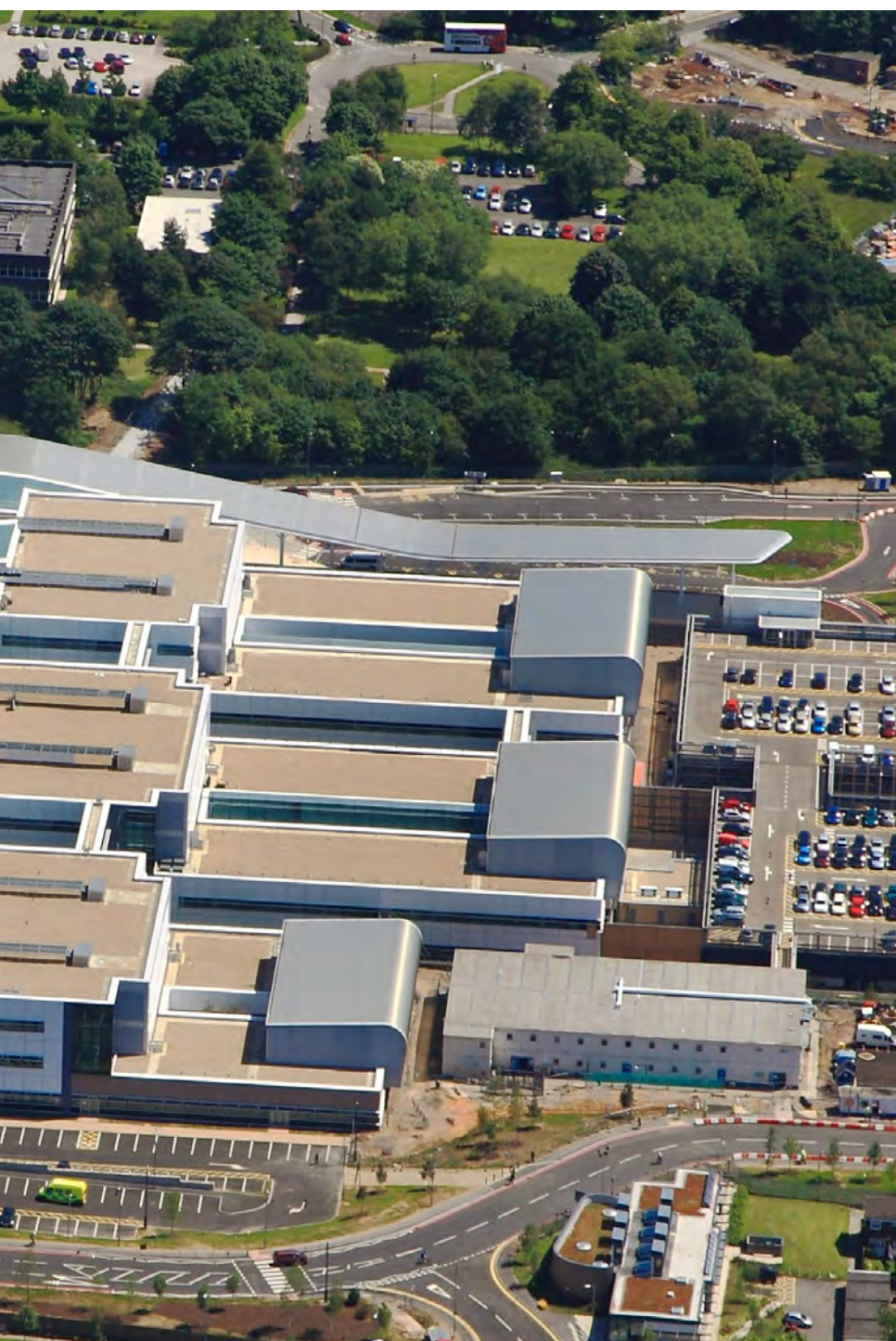
Developed by Peel Airports on the site of a former air force base with a history extending back to WWI, the project involved building an entire commercial airport infrastructure from scratch; only the runway and control tower already existed. Designers and project managers for the airport were architects Leach Rhodes Walker, construction managers Bovis Lend Lease, with Prater being appointed as the building envelope contractor.

The airport's most distinctive feature is the terminal building's dramatic and eye-catching roof structure, a waveform design that gives the building a striking appearance.

The technical specifications behind such a complex and unusual ridge-furrow arrangement presented a major challenge for Teamkal members Prater and Kalzip.

However the team rose to the challenge with the successful delivery of a 7,000 sqm Kalzip metal standing seam roof, despite a tight and demanding budget and programme.

Project: Robin Hood Airport
Location: Doncaster
Architect: Leach Rhodes Walker
Kalzip product: Kalzip standing seam roof
Cladding area: 7,000 sqm
Profile form: Curved



Sandbrook Community Primary School, Rochdale

In what is hoped will become a blueprint for other schools around the country, Sandbrook Community Primary School not only provides bright, well laid-out facilities for its 420 pupils and a range of extracurricular activities, but also generates its own energy.

Designed by the Impact Partnership, the £5 million single storey, steel framed building incorporates a number of low energy features to help reduce its carbon footprint and has been designed to take full advantage of natural light and ventilation. At the heart of its sustainability credentials however, is the roof system installed by approved Teamkal contractor Richmond Cladding Services.

The 200 sqm assembly hall roof captures solar energy to provide electricity generated via an 8.7 kW Kalzip AluPlusSolar roof system as well as the heating of hot water through passive solar panels. The makeup of the roof material – (factory laminated photovoltaic panels) – also provides the necessary insulation and acoustic values. Some 3,000 sqm of Kalzip standing seam in sustainable aluminium have also been installed.

A panel in the school's entrance foyer provides a constant display of the amount of electricity being generated, cumulative watts to date and CO₂ savings, helping to incorporate the school's sustainability features into the science curriculum.

Project: Sandbrook Community Primary School
Location: Rochdale
Architect: The Impact Partnership
Kalzip product: Kalzip standing seam roof and Kalzip AluPlusSolar
Cladding area: 3,200 sqm
Profile form: Straight, tapered, curved





Sheffield New College, Yorkshire





The completion of Sheffield New College has seen the arrival of a new landmark on the city's skyline. Featuring a fully-glazed atrium forming a secondary facade to the main eight storey tower, the £60 million building is as sustainable as it is striking.

Designed by Jefferson Sheard Architects, the college incorporates a host of renewable energy features, the most visible of which is a trio of roof-mounted wind turbines, each 15 metres tall and the first large-scale building-mounting turbines in the city.

The dramatic six storey atrium curves gently from the roof down to ground level 34 metres below. It is clad in a mixture of glazing and silver-coloured Kalzip standing seam aluminium, chosen to create a fully curved skin that expresses the structure underneath.

Kalzip was also used for the low maintenance sedum roof on the adjacent nursery building, absorbing CO₂ and retaining as much as 70% of rainfall to reduce the drainage demand from the building. The use of a Kalzip Nature Roof also reduces solar glare to keep the internal building cooler during sunlight hours, and slows down heat escape in winter time. A further benefit is its excellent acoustic sound reduction, eliminating any potential rain noise.

Installation of the Kalzip façade and roofs was carried out by approved Teamkal contractor Richmond Cladding Services; main contractor on the project was JF Finnegan.

Project: Sheffield New College
Location: West Yorkshire
Architect: Jefferson Sheard Architects
Kalzip product: Kalzip standing seam roof, Kalzip Nature Roof
Cladding area: 3,000 sqm
Profile form: Straight, curved

Slough Bus Station, Berkshire





Comprising a two storey main accommodation block with offices, public café, shops and rest room facilities for the operator, Slough's new bus station also incorporates a rooflit canopy housing 10 bus bays, waiting room and real-time information displays for passengers' convenience. Located close to Slough railway station, this imposing building is the first element of Slough Borough Council's vision for the wider regeneration of the area to be known as 'The Heart of Slough' through which the Council is seeking to change the public's perception and provide its young, multicultural population with a high quality urban environment.

bblur Architecture was responsible for the futuristic design concept and delivery of this iconic structure. Representing the different wavelengths of light in recognition of discoveries made by the borough's famous astronomer royal, William Herschel, the undulating roof form comprises of more than 1,200 sqm of Kalzip.

Intricate 3D contouring combines with a standing seam system to achieve technically perfect free-flowing building shapes on the bus station's main accommodation block where double curved convex geometry occurred and again on the roof canopies where they were distended and waisted accordingly to suit the areas around the convex and concave quadrant points on the long elevation.

Standard smooth curved Kalzip sheets were installed in the straight areas of canopy between the points of contra flexure. A tertiary spacer system was used on the faceted Kalzip structural decking to create the smooth double curved contour lines required to accept the smooth flowing form of the external Kalzip XT sheets.

Main contractor McLaren Construction Group appointed leading building envelope specialist and experienced Teamkal contractor, Lakesmere Ltd to create the smooth flowing lines of this striking 140 metre long roof.

Project: Slough Bus Station
Location: Berkshire
Architect: Bblur Architecture
Kalzip product: Kalzip XT
Cladding area: 1.085 sqm
Profile form: Smooth curved & 3D shaped

Sunderland Aquatic Centre



Sunderland's striking £20 million Aquatic Centre, built next door to the city's home of football 'Stadium of Light', is one of the country's most advanced – and environmentally friendly – water sports and leisure facilities. Built by Balfour Beatty Construction, the long, tubular shaped centre houses an Olympic-sized pool, diving pool and a range of state-of-the-art wellness and exercise facilities.

Over 6,000 sqm of Kalzip aluminium standing seam sheets, a similar quantity of Kalzip aluminium structural decking and a range of Kalzip fabrications were specified by Red Box Architecture. A key requirement was that the Kalzip components be matched to a colour specifically designed for this project, and all were PVF2/PPC coated with a 'one-off' matt lilac colour.

In addition to the Kalzip roofing and decking sheets the building features large curved flashings, a series of feature 'portholes' providing louvered ventilation to the plant room areas and a Kalzip TPO secret gutter system which runs along the roof's length.

Web-perforated Kalzip aluminium structural decking was specified for the main hall to control the acoustic problems that invariably affect swimming pools. Supported on 15 pairs of gracefully curved glulam beams that span 52 metres over the pool, the decking sheets themselves span 7.5 metres between the beams with a central support.

Project: Sunderland Aquatic Centre
Location: Sunderland
Architect: Red Box Architecture
Kalzip product: Kalzip standing seam roof and Kalzip fabrications
Cladding area: 6,000 sqm
Profile form: Straight & curved PVF2 'one off' matt lilac colour

Swindon Academy, Wiltshire



The Swindon Academy building, a £34 million school run by the United Learning Trust (ULT) and sponsored by Honda, opened its doors to pupils in 2009. Believed to be the first 0-19 academy in the country, Swindon Academy is home to a primary and secondary school and offers such advanced facilities as a dance studio complete with sprung floor, drama studio and international sports hall and gym.

As with all modern educational facilities, energy efficiency was at the heart of its design and a full Kalzip built-up system was specified by Aedas Architects Ltd for its ability to provide 'Green Rating' for BREEAM accreditation, in this case to 'A' rating.

Security was another important factor, with Kalzip's long sheet lengths making it extremely difficult for potential intruders to gain access through the roof. Installation of the Kalzip system was carried out by approved Teamkal contractor WWR (UK) Ltd.

The Academy, built by Leadbitter, is a long linear 2-storey building that folds back on itself like a paperclip. The versatility of the Kalzip system enabled it to cope with tightly curved areas of buildings; to be installed at differing low pitch roof angles; to accommodate numerous penetrations for roof lighting and air ventilation; and to interface with a variety of wall/parapet constructions.

Project: Swindon Academy
Location: Swindon
Architect: Aedas Architects Ltd
Kalzip product: Kalzip standing seam roof
Cladding area: 5,850 sqm
Profile form: Straight & tapered

Tamar Bridge Toll Plaza, Cornwall



The Tamar Bridge, jointly owned and operated by Cornwall County Council and Plymouth City Council, first opened to the public in 1961 and was at the time, with a span of 335 metres, the UK's longest suspension bridge.

Since then it has undergone strengthening and widening work and its most recent upgrade, a £4.5 million refurbishment of the toll plaza at the Plymouth end, has seen the installation of a striking new canopy designed by Harris McMillan architecture + design.

Installed by a dedicated Kalzip Teamkal roofing contractor for main contractor Dean & Dyball Construction, the eight metre wide canopy roof features 500 sqm of Kalzip aluminium standing seam, curved and tapered over six half and two quarter scallops. This distinctive segmented design echoes the architecture of the adjacent Brunel cylinder girder railway bridge and the use of Kalzip enabled the complex tapers and curves to be achieved without the need for welding.

As well as its aesthetic qualities and ability to meet complex design requirements, Kalzip also provides a robust cladding solution capable of withstanding not only extreme weather conditions but also the traffic fumes of the 50,000 vehicles a day that use the bridge.

Project: Tamar Bridge Toll Plaza
Location: Cornwall / Devon
Architect: Harris McMillan architecture & design
Kalzip product: Kalzip standing seam roof
Cladding area: 500 sqm
Profile form: Curved & tapered



Shoreham Lifeboat Station



Snow Centre, Hemell Hempsted



'The Hub' York University



University of Reading

T5 and 5C Satellite Building BAA Heathrow Airport, London



The huge roof on the flagship central terminal building that forms the heart of BAA's £4.2 billion T5 development at Heathrow has set a number of new records.

Measuring 396 metres long and 176 metres wide, it is one of the largest single span roofs ever built, covering an area of around 70,000sqm. Construction of the 156 metre single wave form roof, made of sections weighing 2,500 tonnes each, was critical to the timing of the overall project and was successfully achieved through off-site fabrication.

Roofing contractor and approved Teamkal installer Hathaway Roofing Ltd built the subsidiary layer in cassette form, delivering to site ready for installation of thermal insulation and the Kalzip standing seam system. This in itself was a record-breaking process, making use of 156 metre long Kalzip standing seam sheets – the longest ever – which were rolled on site.

The entire structure was constructed at ground level then raised in position hydraulically, a process made necessary by limitations on the use of cranes in the world's busiest international airport.

Other innovations associated with this ground-breaking project included the use of a new reinforced polyamide Kalzip E-clip, designed to reduce the frictional force often associated with thermal cycling of long sheet lengths, and specially fabricated louvres matching the exact profile of Kalzip cladding used on ancillary buildings.

Principal architects were Richard Rogers Partnership; main contractors were Laing O'Rourke and structural engineers were Arup.



T5C is the second satellite building to be linked to BAA's multi-billion pound T5 development at Heathrow. The facility provides an additional 12 operational stands and is connected to the other two buildings via an underground train system.

Built by Carillion and designed by Pascall+Watson Architects, the £300 million satellite project follows the same architectural style as Terminal 5, its most distinctive feature being a wave-form roof, constructed using Kalzip standing seam aluminium sheeting.

The complicated design of the roof – involving concave and convex curves – together with on-site restrictions driven by the proximity of airfield operations, placed particular demands on the building envelope contractor and Teamkal member Prater. However, through meticulous design, strategic planning and close collaboration with the Kalzip team, Prater was able to deliver on time and on budget.

With bespoke insulated cassettes manufactured to fit the curves, and 40 metre Kalzip roof sheets rolled on site, Prater were able to provide an innovative solution that enabled the direct fixing of the Kalzip clips with no risk of water damage.

Project: Heathrow Airport, Terminal 5
Location: London
Architect: Richard Rogers Partnership
Kalzip product: Kalzip standing seam roof
Cladding area: 70,000 sqm
Profile form: Straight

Project: Heathrow Airport, Terminal 5C
Location: London
Architect: Pascall+Watson Architects
Kalzip product: Kalzip standing seam roof
Profile form: Concave & convex curved

The Moorings Anderson Street, Inverness



Breathing new life back into the Merkinch district, which is located on the bank of the beautiful River Ness is one of the key projects faced by the city of Inverness.

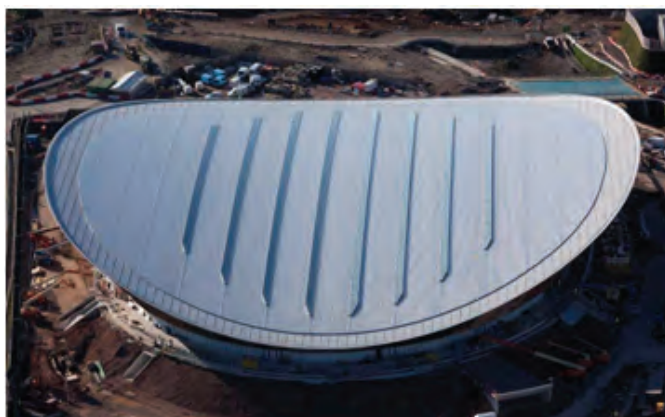
One of the key objectives in the flowing, S-shaped design of The Moorings, Anderson Street, (an affordable housing project that has since received a commendation from Inverness Civic Trust for its design). was to fulfil the requirement that surrounding, new developments have to complement the natural beauty

Architect Keppie's distinctive design features an S-shaped footprint and a "wave-shaped" roof. The design team selected a Kalzip standing seam aluminium roof system from the outset for its flexibility and longevity. Whilst the roof may appear to be complex, the shape sought by the architect was achieved by tilting a single plane flat roof in one direction and cutting to follow the outline of the plan, creating the appearance of a wave.

The successful design of this aspect of the project is a reflection of the collaboration between the architect, structural engineer, main contractor Rok, roofing/cladding contractor Fowler McKenzie and Kalzip's own technical team.

By calling upon the expertise of the specialist roofing teams at an early stage in the development, a solution was proposed that would meet Keppie Design's aesthetic and practical objectives whilst delivering significant cost savings.

Project: The Moorings Anderson Street
Location: Inverness
Architect: Keppie Design
Kalzip product: Kalzip standing seam roof & Kalzip fabrications
Cladding area: 585 sqm
Profile form: Straight



Velodrome, London



Woodstone Primary School

Walsall Manor Hospital, Birmingham

A £174 million redevelopment of Walsall's Manor Hospital has resulted in the rationalisation and rejuvenation of a previously fragmented campus, connecting existing buildings with new facilities to deliver an enhanced patient experience, easier navigation and a more coherent overall impression.

Designed by Steffian Bradley Architects and built by Skanska for Walsall NHS Trust, the project features a bespoke facade and roofing system that delivers the architect's vision of a seamless envelope finish linking together the old and the new. A key aspect of this was the Kalzip aluminium standing seam walling and roofing, which played a major part in helping the project meet its high sustainability specification.

Early involvement in the project enabled Teamkal contractor Prater, with the support of Kalzip's in-house teams, to improve the build's environmental credentials. This included sourcing 100% recycled aluminium and a roof build-up that used Kalzip's liner, vapour control layer and thermal insulation to achieve a minimum U-value of 0.25 W/m²K. The cost savings resulting from this solution were then reallocated to install a 5000 sqm Nature Roof, further increasing the build's sustainability rating.

The use of Kalzip also enabled Prater to meet the aesthetic and practical challenge of delivering a smooth wrap around glazed lanterns which protruded from the building at an incline, encapsulating the soffits, walls and roof in one.



Project: Walsall Manor Hospital
Location: Birmingham
Architect: Steffian Bradley Architects
Kalzip product: Kalzip standing seam roof and wall cladding, Kalzip Nature Roof
Cladding area: 5,000 sqm
Profile form: Straight

Washington School, Sunderland Tyne and Wear



Sunderland City Council was among the first local authorities in the UK to take advantage of a government funding initiative designed to bring 21st century learning facilities to students across the country, and this has resulted in the development of a number of new school and academy buildings.

One of the most impressive of these is Washington School, a £19 million specialist technology college opened by the Queen in October 2009.

Designed by _space Architecture, this flagship project takes an innovative X-shaped footprint, creating a space that is both practical and interesting beneath a Kalzip roof that is in itself one of the building's most innovative features.

Covering around 5,500 sqm, the roof is planted with a hybrid mixture of low maintenance sedums suitable for local climatic conditions. The installation of a Kalzip Nature Roof helped the school to blend in with its surroundings while also benefiting the greater environment by absorbing CO₂ and pollutants, and releasing oxygen and water vapour into the atmosphere.

Other features that have seen the school awarded a Green Apple Award for Environmental Best Practice include solar power generation and the recycling of rainwater in toilets. The main contractor was Balfour Beatty Construction and the roof installation was carried out by Kalzip Teamkal contractor Chemplas Ltd.



Project: Washington School
Location: Sunderland, Tyne and Wear
Architect: _space Architecture
Kalzip product: Kalzip Nature Roof
Cladding area: 5,500 sqm
Profile form: Straight

West Ham Bus Garage, London





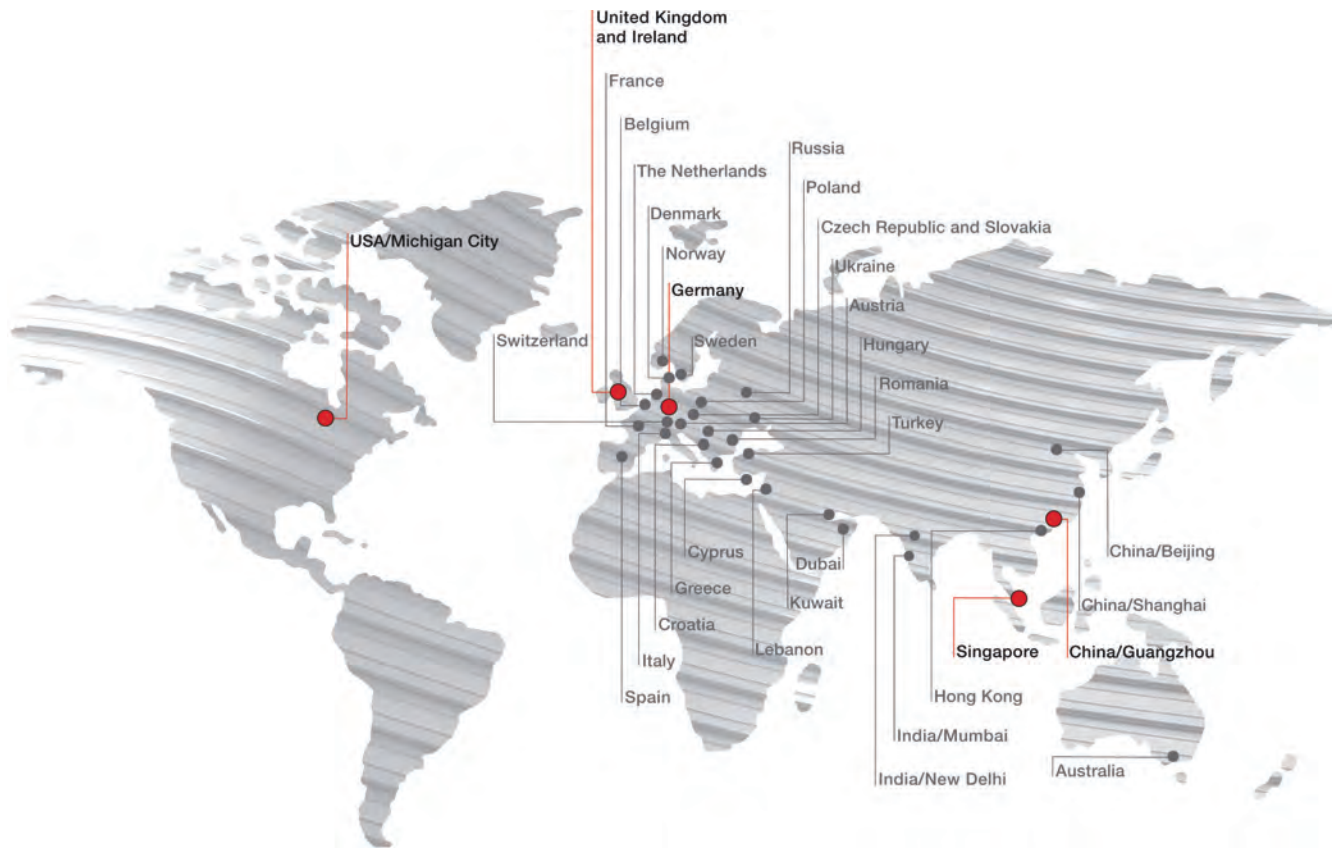
The new £48 million West Ham Bus Garage was designed for Transport for London by Pringle Richard Sharratt (PRS) Architects of London and constructed by Mansell Construction Services in order to meet the increased demand for public transport during the London 2012 Olympic Games.

PRS specified a Kalzip roof system with 4,000 sqm of extensive Nature Roof planting, as part of an environmental package utilising eco-solutions such as biomass boilers and a 100kW wind turbine. Working in close partnership, Kalzip, Blackdown and Teamkal Contractor Lakesmere provided a tailored solution for the West Ham project, which aims to exceed the Mayor of London's target of producing more than 20% of its energy needs from renewable on-site resources. Kalzip's high quality pre cultivated sedum Nature Roof was installed on two of the striking four barrel vaulted aluminium standing seam roofs, on the Western and Eastern Vaults, forming an important part of the Sustainable Drainage System (SUDS) and helping to improve the bio-diversity of the former brownfield site.

The completed facility is the most environmentally sustainable bus garage in the UK, achieving an 'A' rated Energy Performance Certificate. Its eco-friendly design and structure are predicted to cut CO₂ emissions by 27% compared to a building using traditional materials.

Project: West Ham Bus Garage
Location: London
Architect: Pringle Richard Sharratt (PRS) Architects
Kalzip product: Kalzip standing seam roof, Kalzip Nature Roof
Cladding area: 4,000sqm
Profile form: Straight & curved

Kalzip around the world



Working on an international or overseas project? Why not take advantage of the knowledge and experience of Kalzip's international projects team who can help with your specification and project delivery. Tel: +44 (0) 1942 295500 or email: international@kalzip.com

The following is a snapshot of Kalzip from around the world. Visit our on-line gallery at www.kalzip.com to view further examples of inspiring metal architecture.



Kameha Grand Hotel, Germany



Deichhalle Ettelbrück, Multi Purpose Centre, Luxembourg



Industrial Building, Germany



Open Air Pool, Idstein, Germany



Rivergate Office Building, Austria



Technical High School, France



Gdyn Sports Hall, Poland



Shanghai Expo Performance Centre, China



XXXXXXXXXXXX



Office Building, The Netherlands



Multi Purpose Cultural Centre
Triangel St Vith, Belgium



Hunan Science and Technology
Museum, China



Xi'an Daming Palace, China



BCA Academy Building, Singapore



Shopping Mall, Romania



Terminal Lien Kuong Airport Da Lat, Vietnam



Commercial Building, Netherlands



University of Quebec at Chicoutimi, Canada



Klimahaus@ Bremerhaven 8° East, Germany



Terminal Airport Karlovy Vary, Czech Republic



Mumbai Airport, India



Spencer Street Station, Australia



Music Hall, France



Kindergarten St. Georges de Montaigu, France



Marne College, Netherlands



Asian Games Town Gymnasium Guangzhou, China

www.kalzip.com

Care has been taken to ensure that this information is accurate, but Tata Steel Europe Limited – including its subsidiaries – does not accept responsibility for information which is found to be misleading.

Copyright 2011

Kalzip Ltd

Haydock Lane

Haydock

St Helens

Merseyside WA11 9TY

England

T: +44 (0) 1942 295500

F: +44 (0) 1942 295508

Email: enquiries.uk@kalzip.com

English