

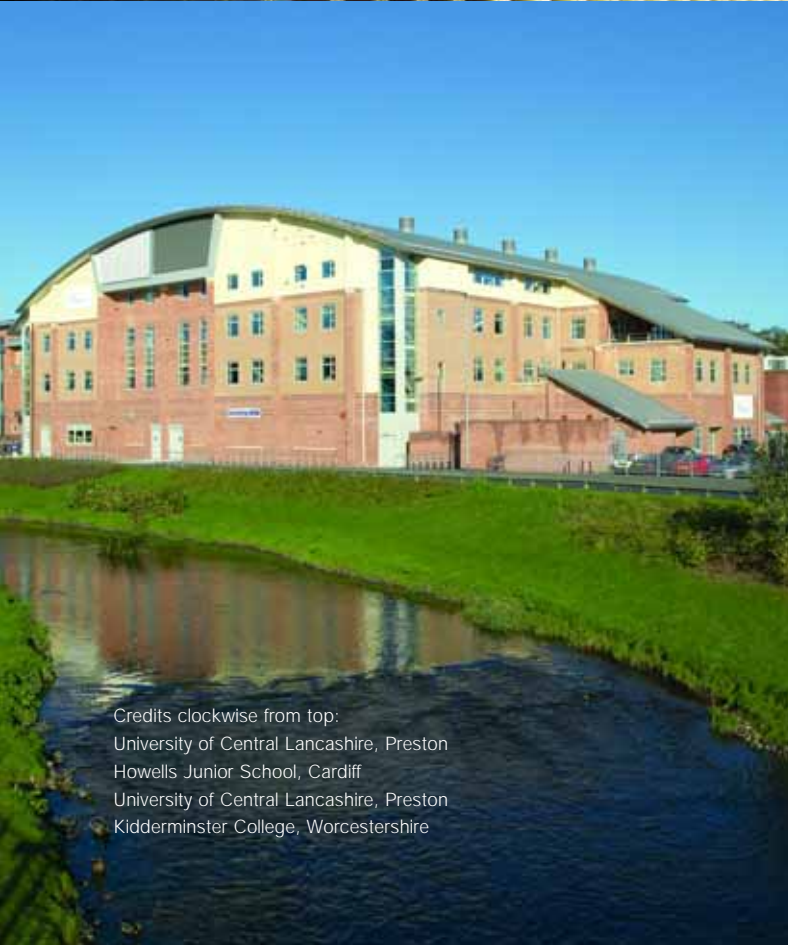
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Creating the learning environments of the future



**Creating
the learning
environments
of the future**



Credits clockwise from top:
University of Central Lancashire, Preston
Howells Junior School, Cardiff
University of Central Lancashire, Preston
Kidderminster College, Worcestershire

What is Kalzip?

Kalzip is the world's leading aluminium standing seam roof system. During the past 40 years more than 70 million square metres of Kalzip have been installed around the world, providing external envelope solutions for every type of building.

Kalzip is a precision engineered, multi-component system with proven durability, high performance and low maintenance. All systems are precisely tailored to the individual project, delivering outstanding corrosion resistance, noise absorption, thermal performance, condensation control, wind loading and spanability. All systems are installed by approved, highly trained Teamkal contractors.

In addition to aluminium, materials available include zinc, stainless steel and copper. Other alternatives include photovoltaics, Nature Roof and offsite construction systems.

Kalzip is a key business unit within the Distribution and Building Systems Division of the Corus Group, part of Tata Steel.

“Each time we specify a Kalzip standing seam roof we get the perfect job first time. With alternative standing seams we have to revisit sites time and time again. The difference in quality is not just the material but in the installation and Kalzip’s engineered details.”

Alastair Mallett, Hunter and Partners, Architects

Clockwise from top:
Woodstone Primary School, Leicester (x3)
Carr Manor High School, Leeds

“ The choice of Kalzip was ideal due to the shape of the roof, in particular the curved, tapered sheets. Working closely with Kalzip’s designers we produced an excellent roof envelope.”

Mick Papworth,
Managing Director
KGM Roofing Ltd on
Woodstone Primary
School, Leicester



Challenging times

The school of the future is going to be radically different from the traditional model. *Cells and bells* are history, fast being replaced by a new vision: beautiful, sustainable, durable, transformational spaces, shared with the surrounding community, ICT-friendly, suffused with natural light; an ideal home for personalised learning. This is a challenging brief, and many more challenges surround it.

Clockwise from top:
Ogmore Vale Primary School, Bridgend
Charleston Primary School, Dundee
Northampton Centre for Learning
Howells Junior School, Cardiff

More, different, better

Building Schools for the Future and other Government initiatives are creating unprecedented opportunities for educational construction throughout the UK. Yet in CABE's 2006 Schools Audit, 50% of buildings completed in the previous 5 years were judged either *poor* or *mediocre*, with only 4% rated *excellent*.

As a result, commissioning bodies such as Local Education Partnerships are under intense Government pressure to be much more demanding. Regulations have also never been stricter. BREEAM, SEAM and CABE are just three of the bodies demanding exceptional standards. And PFI arrangements have changed the financial rules too – whole life costs and best value now matter more than capital expenditure.

Meeting the challenge

The Kalzip range of standing seam roofing and cladding systems is ideally equipped to help you meet this complex set of challenges.

Our technical, design and installation expertise leads the world. Our bespoke systems offer maximum design freedom. We are ideally placed to help you win tenders and create landmark schools, colleges and academies.

The maintenance requirements for Kalzip roof systems are practically nil, they are BBA certified and have a minimum life expectancy of forty years.

A long, life enhancing, problem-free future is assured, exceeding the DfES expectation of a thirty year lifespan for "flat" roofs.

Flat being defined as "anything under 10 degrees" and Kalzip roofs can be installed to a minimum pitch of 1.5 degrees.



Optimum thermal and educational performance

Gorton Education Village, Manchester

Architects

Ellis Williams Architects Ltd

Contractor

Laing O' Rourke Construction North

Teamkal contractor

FK Roofing Services Ltd

A mass improved Kalzip standing seam roof, designed to maximise thermal and acoustic performance and minimise energy consumption, is an integral part of this eight acre, £25.4 million community campus in East Manchester.

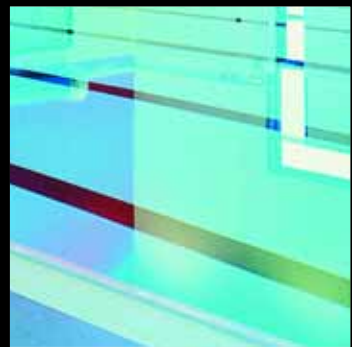
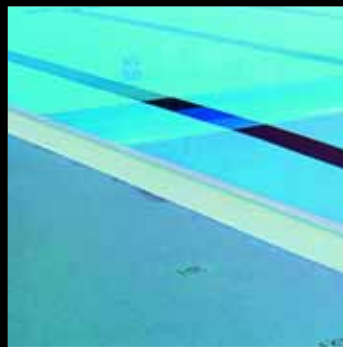
A joint venture between Manchester City Council, New East Manchester Ltd and Partnership for Schools, this is the first Building Schools for the Future project in the North of England.

Bringing together Cedar Mount and Melland Special Education Needs High Schools, the building features a two storey 100 metre long internal "street." Facilities shared by both schools and the local community include a sports hall, library, ICT facilities and a medical suite offering physiotherapy and hydrotherapy. Tom Russell, Chief Executive of New East Manchester Ltd described the Education Village as a "state of the art building" offering a "21st century learning environment."

Councillor Sheila Newman, Manchester City Council's Executive Member for Children's Services, adds: "The new campus will offer fantastic facilities for pupils and the local community and will do much to help us further raise standards of attainment and improve life chances for young people in the Gorton area."

Revision

- Demanding thermal performance standards for schools and colleges are set by ADL2A
- BREEAM and SEAM set even higher standards
- Kalzip is inherently ADL2A compliant
- Early involvement of our technical team makes the highest BREEAM and other bodies' standards achievable



Exemplary behaviour

In 2005 CABI published *Picturing School Design* to promote design quality. It is no coincidence that two out of the seven case studies featured as exemplars are schools with Kalzip roofs.

More than 1.9 million square metres of Kalzip have been installed on 1,000 school projects, proof that Kalzip and education are perfect partners.

Involving our design and technical expertise at the earliest possible stage can enable architects and contractors to meet the sustainability and other standards nowadays required by commissioning bodies.

Clockwise from top:
Kalzip AluPlusSolar
Graeme High School, Falkirk

Revision

- Building Schools for the Future is up and running
- This and other initiatives mean that lots of educational building is going to be happening throughout the UK
- Local authorities typically team-up with a PFI consortium or form a Local Education Partnership
- They are under intense Government pressure to create a very different kind of school
- Imaginative, sustainable, educationally aware design is the key to winning bids
- The extended school is now the norm. Kalzip is the roofing and cladding system that can provide the quality, flexibility, longevity and sustainability you need to bid for projects and deliver them successfully
- Early Kalzip involvement pays dividends – and not only in terms of time and money saved



Kalzip is Glasgow's primary resource

Haghill Park Primary School,
St. Benedict's Primary School,
Glasgow

Architects

City Building (Glasgow) LLP

Contractor

City Building (Glasgow) LLP

Teamkal Contractor

Grainger Building Services Ltd

Having set out to provide its citizens with "the best schools in the world" in 2000, Glasgow City Council launched a programme to completely overhaul its provision of pre-12 education in 2002.

For Phase 1 of this ambitious scheme the council invited "best value" bids for two schools from the council's in-house Building Services department. The chosen design included an aluminium standing seam roof, and Building Services immediately contacted Kalzip.

This was no surprise, as the Kalzip team had already been successfully involved in more than 20 PPP/PFI school building projects throughout Central Scotland.

No other supplier could offer the unbeatable combination of durable clad alloy material, outstanding long-term, low maintenance performance, and the presence of at least six highly trained Teamkal contractors in the region.

The bids were successful and Grainger Building Services Ltd were soon hard at work on Haghill and St Benedict's Primary Schools, while McKay Roofing Ltd were responsible for four more primary schools incorporating Kalzip roofing systems in Phases 2 and 3.

So successful were these projects that when the £70 million Phase 4 was awarded to City Building (Glasgow) LLP, the arm's length company set up to succeed the Building Services department, all 11 new schools were designed to have Kalzip roofs installed by Miller Roofing Ltd.

Even more recently, Kalzip received the global order for Clarkston Primary School, which means that all 17 North Lanarkshire PPP schools will have Kalzip roofs. The total quantity of Kalzip will be around 72,000 square metres. Grainger Building Services Ltd and McKay Roofing Ltd have completed these projects with Grainger Building Services Ltd being responsible for the majority.



“ With the Local Education Partnership and ICT, people are thinking about learning outcomes rather than just buildings. This is a huge change.”

Quote from Partnership for Schools research project into Local Authority and Private Bidder attitudes, March 2006



The school in the community

“ Schools are dissolving into communities, communities are flocking into schools.”

Professor Stephen Heppell
Foreword to the Building Schools
Exhibition & Conference Guide,
February 2006

Kalzip is the ideal system for the rapidly growing concept of the *extended school* - a building that combines community facilities with its educational role.

Today's school is as likely to incorporate a community theatre or a public library as classrooms. To do so it must inevitably be a one-off design. Equally important is its need to be reliable, long lasting and low maintenance, because it is going to be used around the clock, 7 days a week.

With Kalzip systems each unique set of problems can be met with a unique solution. Outstanding corrosion resistance, noise absorption, thermal efficiency and condensation control come as standard.

Whatever the size and geometry of the building it will be designed, manufactured and installed with precision.

Better design brings better results

Local authorities are being strongly urged to commission schools that use design to enhance education, prompted by the wake-up call of the recent Audit Commission Report which concluded that

“There is a probable link between the quality of school buildings and educational attainment that is not being adequately reflected in school procurement strategies.”

The case histories featured throughout this book show how Kalzip's flexibility enables each unique design to create optimum learning conditions.

Clockwise from top:
Backwell High School, Bristol (Designed by GSS Architecture) (x2)
Kidderminster College, Worcestershire



Top marks for speed

Middleton St George Community School, Darlington, County Durham

Architects

Silvester Ashton Partnership

Contractor

Dorin Construction Ltd

Teamkal Contractor

Chemplas Ltd

As the name suggests, this village primary school on the outskirts of Darlington was designed to share its sports facilities, large hall and multi-use games area with the surrounding community.

The 315-place school's Victorian predecessor had been burnt down by vandals, so a speedy replacement was essential to minimise the time pupils and teachers would have to spend in temporary accommodation.

The architects' choice of a Kalzip roof system helped to ensure timely completion and Part L compliance, as well as making possible the sweeping curves that make the building so impressive.

Kalzip also offered the flexibility to bring distinctive detailing to the fascia, soffit and verge areas, and problem-free interfacing with the building's traditional masonry construction.

**Accessible,
sustainable, visible**

Levenshulme High School Health and Fitness Centre, Manchester

Architects

Walker Simpson Architects Ltd

Contractor

AMEC Capital Projects

Teamkal contractor

Richmond Cladding Services Ltd

For the new Health and Fitness Centre at this south Manchester girls' comprehensive school, the brief to architects Walker Simpson was clear but daunting.

Design a facility that could be fully shared with the surrounding community. Include a main hall constructed to Sport England standards. Add fitness and sports therapy suites, changing rooms, classrooms and office accommodation. Put it all under a single roof. And make it truly and visibly sustainable.

The solution, the centre's sophisticated Kalzip structural deck roofing system, provides a striking visual contrast to the traditional red brick of the existing school buildings. The renewable energy produced from sunlight by the integrated 6.7kW AluPlusSolar photovoltaic system amounts to around 4,500 kWh of clean electricity per year, and is estimated to save 2.5 tonnes of CO₂ per annum.

The power is used to run lighting and electrical equipment within the centre. Any surplus electricity is fed back into the National Grid, with the school's power bill reduced accordingly.

Revision

- Tomorrow's school will typically include facilities shared with the surrounding community
- Design and construction quality have proven ability to enhance educational standards
- Commissioning bodies know this and judge proposals accordingly
- Every Kalzip system is bespoke, easily accommodating any type of community facility and permitting education enhancing design



“ The building has been very well received. The Kalzip system allows a flat and curved roof element and enabled the building to be built efficiently according to the design. They interface very well with the other materials.”

John Holroyd, Walker Simpson Architects Ltd



Educated installation

Installation by an approved Teamkal contractor is as integral to every Kalzip system as the materials that go into it. Since the partnership was established in 1995 it has grown into the most highly regarded network in the industry, responsible for world-famous and award-winning projects such as Daniel Libeskind's Imperial War Museum North in Manchester, the GCHQ "doughnut" in Cheltenham, and Richard Rogers Partnership's Welsh National Assembly in Cardiff; hundreds of successful schools and other academic buildings too.

Architects, contractors and clients are under unprecedented pressure to set exacting standards.

Kalzip and Teamkal together help to provide the cohesive supply chain and *right first time* culture that delivers those standards without compromise.

Teamkal training is lifelong learning

Teamkal education is a continual process, CITB-approved and conducted at the largest in-house training facility in the industry. Kalzip's installers are constantly assessed on business and financial as well as technical standards.

Exam time

Rigorous inspection completes the picture. Our BBA certification covers the entire Kalzip roof system and we have a team of dedicated site inspectors who take sole responsibility for ensuring superlative workmanship and compliant installation.

Building schools is a team game

Kalzip technical team work closely with architects, main contractors and Teamkal installers, tailoring specifications precisely to the design including calculations, assembly instructions and technical advice. A comprehensive technical support service is available to the entire project team at every stage. With extensive roofing and cladding expertise and advanced CAD equipment, the most economical and sustainable solution to even the most complex design can be swiftly achieved.

Opposite:
The Priory, Great Yarmouth



Kalzip helps Leeds lead the PFI league

Carr Manor High School, Leeds

Architects

Seymour Harris Architects,
Watson Batty Architects

Main contractors

Carillion, Wates

Teamkal contractors

Cover Structure Ltd

Kalzip is proving integral to the success of two separate PFI schemes, together bringing no less than *sixteen* new or refurbished schools to the city of Leeds, which now has more PFI credits than any other local authority.

“Longevity and freedom from maintenance compared to normal metal roofs.”

Steven Horsman, Watson Batty Architects

The £90 million Leeds Combined Schools PFI includes four secondary schools plus one joint campus housing a secondary and a primary school – all designed by Seymour Harris Architects with Carillion as main contractor. All five projects feature Kalzip

roofs, providing both outstanding technical performance and the clean modern lines required to complement designs using through colour render, architectural masonry and rainscreen cladding.

A key objective of consortium partners, Investors in the Community, was “to allow staff to focus on pupil needs and raising standards, rather than on buildings and operational issues.”

The case for choosing long-life, low maintenance Kalzip systems could hardly be more succinctly made.

The £36 million Education Leeds PFI, involving Watson Batty Architects and Wates, is responsible for a mix of ten new build or refurbished primary schools.

To maintain consistently high standards a modular approach was adopted using a standard palette of materials. In the words of architect Steven Horsman from Watson Batty, Kalzip was chosen for all ten roofs because of its “longevity and freedom from maintenance compared to normal metal roofs.”



A lesson in completing on time and within budget

Walsall City Academy

Architects

Barnsley, Hewett and Mallinson

Contractor

Bowmer and Kirkland Ltd

Teamkal Contractor

Lakesmere Ltd

One of the first of the new generation of City Academies to open, Walsall City Academy's 7,000 square metre Kalzip roof features a combination of 3,000 square metres of clad alloy stucco embossed Kalzip straight sheets and 4,000 square metres of roll formed tapered sheets – creating an elaborate roof design, dominated by an imposing rotunda, and delivering Kalzip's customary long, maintenance free lifespan.

The Kalzip team liaised closely with the Walsall City Academy project team to create an integrated Kalzip system that met the required thermal and acoustic performance standards cost-effectively without compromising the aesthetics.

Yet despite the project's complexity, Teamkal contractors Lakesmere Ltd handed the completed project over on time and within budget.

Revision

- Every Kalzip system is installed by an approved, highly trained Teamkal contractor
- Our technical team and Teamkal contractors integrate seamlessly into the project team
- Expert advice and design input are freely available at every stage
- Rigorous inspection is integral to every Kalzip system



Sound thinking enhances learning

Acoustic performance is widely recognised as the single most influential factor in creating optimum learning conditions. All newly built or refurbished LEA maintained and independent schools are required to comply with BB93 Section 1.

In over 120 independent tests conducted worldwide, and on numerous buildings across all applications, Kalzip systems have proved their ability to meet and go far beyond the BB93 criteria.

Absorbing

Kalzip roof constructions can meet a variety of acoustic performance requirements by incorporating high-density insulation, acoustic boards and/or flexible membranes. Perforating the metal liner sheet and adding a "soft" material can also enhance sound absorption.

A standard insulated Kalzip roof system with a steel trapezoidal liner will have an approximate weighted sound reduction (R_w) of 36dB.

In locations with a great deal of external noise, schools near railway lines or airports for instance, systems incorporating high density Kalzip board have led to recorded sound reduction rates of between 33dB and 52dB.

Nature study

There is the further option of a Kalzip Nature Roof. The sedum and vegetation don't only look beautiful and enhance the environment, they also add mass to the Kalzip system, creating dB reductions.

Clockwise from top:
Ingleby Mill Primary School,
Stockton-on-Tees



BB93 and budget compliant

Beechwood, Arbour Vale and William Penn Schools, Slough

Architects

Architects Co-partnership PFI consortium led by Wates Construction

Teamkal contractor

Prater Limited

Kalzip was the architects' first choice for the roofing system on this ambitious £44 million scheme to build three brand new schools and associated community facilities for the Borough of Slough.

ACP's early involvement of the Kalzip technical team proved crucial. Their expertise and advice helped the consortium to comply with the exacting BB93 standard for acoustic performance.

Ingenuity and flexibility also helped to meet the challenging budgetary requirements, revising the original specifications without compromising either the aesthetics – tapered roofs with curved fascias – or BB93 compliance. QS pressure to switch to a less reliable roofing system was successfully resisted as a result.

All three schools were completed during 2007. Wates were then contracted to maintain and operate the facilities for a period of 28 years. The need for roofs that will provide reliable, low maintenance service for such a long period was the determining factor in the final decision to go with Kalzip.

Beechwood and Arbour Vale schools occupy the same site, with separate entrances and identities but some shared facilities. Beechwood is a new build replacement on the existing site for an 11,700 square metres secondary school with 750 pupils aged 11–16 and 150 post-16 places. Arbour Vale is a school for children with special needs incorporating a residential unit for young people with autism.

The shared site will also include sport and leisure facilities including a 25 metre swimming pool, with community access outside school hours, plus adult learning facilities and a Professional Development Centre for Slough teachers and other school staff.

William Penn is a 2,600 square metres replacement new build primary school constructed on the existing site to accommodate 420 pupils with 52 nursery places.

Crucially, both Beechwood and William Penn remained fully operational throughout the construction work.

Revision

- Acoustic performance is the single most crucial difference a building can make to educational achievement
- BB93 Part 1 compliance is obligatory
- Kalzip offers outstanding acoustic standards – proven in over 120 tests conducted worldwide
- Kalzip provide comprehensive U-value calculations
- Kalzip Nature Roofs have acoustic as well as environmental benefits



The heat is on

Approved Document L2A of the Building Regulations was updated in 2006 to demand a reduction in the annual CO₂ emissions rate of at least 23%.

According to the DfES document *Performance specifications and design solutions for roof coverings in secondary schools*, the design U-values for roofs contribute towards this improvement and will typically range between 0.20 and 0.18 W/m²K.

To gain the coveted highest BREEAM Schools 2006 rating a building needs to demonstrate a 70% improvement in the predicted Building CO₂ Emissions Rate (BER) over the Target CO₂ Emissions Rate (TER) detailed in ADL2A.

Inherently compliant

In this increasingly demanding regulatory climate, it's good to know that the Kalzip system is inherently ADL2A compliant. Designed, manufactured, installed and inspected to minimise U-values, ensure insulation continuity, prevent thermal bridging and control condensation.

Kalzip roofing and cladding systems have also been shown repeatedly to achieve excellent air tightness figures, with attention to detail at the interfaces especially critical.

Once you have commissioned a Kalzip system the specified thermal performance of the roof is assured, because we supply every component, including the insulation and vapour control layers, and arrange installation by an approved Teamkal contractor.

Clockwise from top:
Horsenden Primary School, Ealing (x2)
Lower Wortley Primary School, Leeds





“ The product has proven itself in defeating malicious attacks from intruders and vandals on a number of buildings. We are pleased the product can also accommodate some of the more adventurous styles our design partners are incorporating.”

Alistair Burns, Team Leader, Corporate Technical Services Group,
Manchester City Council

Target zero

In April 2007 the then Education Secretary Alan Johnson announced the Government's commitment to create 2,000 carbon neutral schools in England by 2017.

That's a demanding target, given that schools currently emit an estimated 10 million tonnes of CO₂ per year, amounting to 15% of all public sector emissions.

Sustainability is already a key factor in the assessment of bids for new school buildings. The *Partnership for Schools* evaluation criteria make sustainability an important part of any bid proposal.

Sustainable Kalzip

Such pressures mean that sustainability's importance to bid success will continue to increase from now on. From AluPlusSolar and SolarClad to Nature Roof,

Kalzip offers a range of solutions that are ideal for meeting the demanding sustainability requirements of local authorities and their partners.

Infinitely recyclable

Kalzip's main material, aluminium, is perhaps the world's most sustainable building fabric. Earth's third most abundant element, it is so recyclable that almost three quarters of all the aluminium that has ever been produced is still in use today.

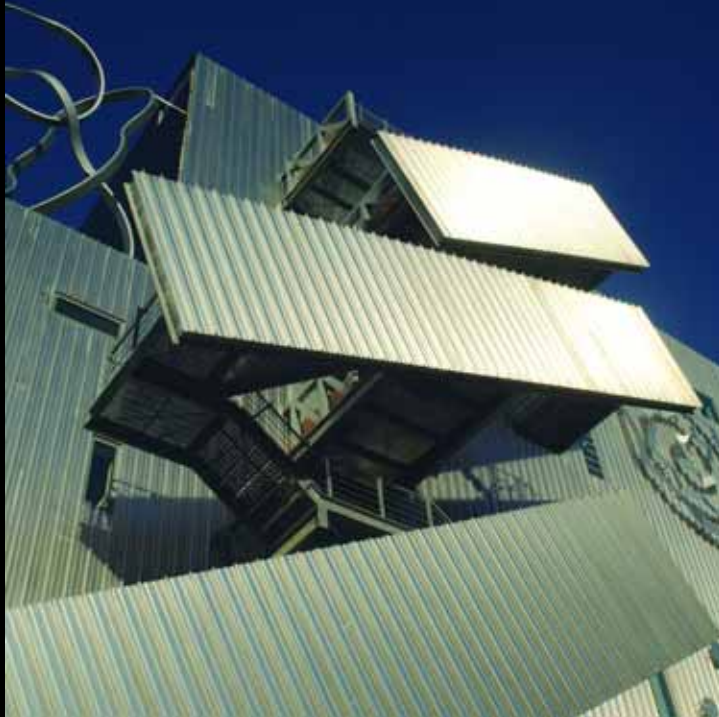
And when, after a long and problem-free life, Kalzip aluminium sheets are dismantled, they can be recycled again with no loss of quality or volume. The process uses 95% less energy than primary production, preventing an estimated 80 million tonnes of greenhouse gas emissions per year globally. And of course because aluminium is so easy to recycle, it has significant scrap value.

Aluminium's lightness also means that fewer building materials are required for the supporting structure. And the entire Kalzip system can be recycled at the end of the building's life.

Clockwise from top:
Goldsmiths College, London (x3)
Cambridge University Plant
Growth Facility
University of East London

“Bidders are requested to provide detailed statements clarifying their approach to environmental management, environmental services strategy, energy strategy and BREEAM. Sustainability features can and should be used as learning tools.”

The Partnership for Schools evaluation criteria



**Sustainability,
sensitivity, security**

**Defence 6th Form
College, Loughborough**

Architects

H L M Architects

Contractor

Interserve Project Services Ltd

Teamkal contractor

Hi-Spec Cladding and Roofing Ltd

The brief for this relocated boarding college required an excellent SEAM (Schools Environmental Assessment Method) rating, which called for optimum natural ventilation and daylighting, high thermal mass, green roofs and energy conscious fittings.

“The brief required an excellent SEAM rating which was met through the various aspects of the design, including natural ventilation, high thermal mass, green roofs, energy conscious fittings and high daylighting factors.”

Lucy Plumridge, Regional Director, H L M Architects Sheffield on
Defence 6th Form College, Loughborough

All this and security too, because this is not only a college, but also a military establishment that provides residence for 6th form students who have been selected for officer training in the armed forces.

The architects' solution involved a combination of Kalzip aluminium standing seam roofing and Nature Roof.

The new college is located next to the Grade 2 listed Beamanor Hall just outside Loughborough. Simple, crisp eaves offset textured blockwork and cedar cladding in the resulting design, which combines environmental sensitivity with a modern campus feel.

The sedum roofs play an integral part in the building's environmental performance as well as its aesthetics. Gratifyingly, the design was warmly supported within the village and by the local planning authority.



The generation game

Sandbrook Community Primary School, Rochdale

Architects

The Impact Partnership

Contractor

Birse Build Ltd

Teamkal contractor

Richmond Cladding Services Ltd

This new £6 million Community Primary School is a fine example both of sustainability in education and of the *extended school model*, providing out of hours activities for children and adult learning facilities for the local community.

To reduce its carbon footprint the design incorporates naturally day lit spaces, a solar hot water system and a Kalzip AluPlusSolar integrated photovoltaic roof system.

The factory laminated PV panels are fixed onto an impressive barrel-vaulted 215 square metre section of the roof covering the assembly hall, just part of a 3,100 square metre Kalzip standing seam system – all, of course, constructed in sustainable aluminium.

As demanded by the PfS criteria, the Kalzip PV system also doubles as a learning resource. A display panel in the foyer contributes to the children's science curriculum by indicating the amount of electricity being generated at that moment, the total wattage generated to date and the amount of CO₂ this has prevented being emitted.

Revision

- The Government is now committed to building not just sustainable but carbon neutral schools
- Sustainability is one of the key factors upon which bids for new educational building projects are assessed
- Kalzip is made from highly sustainable aluminium
- It offers a variety of solutions such as photovoltaic panels which can bring carbon neutrality within reach



“ We specified Kalzip for Sandbrook because it is a good quality system that is suitable for low pitches, satisfies all performance requirements and enables fast, early completion.”

John Case, The Impact Partnership



Environmental beacons

The Government has called for schools to be *environmental beacons*, implying that the buildings should not just *be* sustainable, but *be seen* to be sustainable.

Add the target of 2,000 carbon neutral schools (in England alone) by 2017 and the case for considering photovoltaic systems and green roof solutions becomes even stronger.

Kalzip are innovative pioneers in both fields.

The generation game

Two PV systems have been introduced to the Kalzip range, adding the ability to generate electricity from sunlight to all the standard Kalzip benefits.

AluPlusSolar is a fully integrated system suitable for use on warm or cold roof structures.

SolarClad is a non-integrated system which can be retro-fitted to existing roof systems (ideal for refurbishment projects) or used in new build.

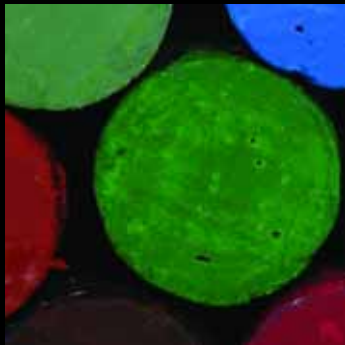
Nature Roof grows on you

Kalzip's advanced green roof system provides measurable environmental benefits and is a perfect way to maximise the already considerable green credentials of the standard Kalzip system.

In Nature Roof Kalzip is covered with low growing, self regenerating, drought resistant plant cover. As well as creating a blaze of colour on the rooftop, it generates a healthy, child-friendly micro-climate around the building, locking up airborne pollutants, and dramatically improving air quality.

Nature Roof also soaks up rainwater, releasing it gradually to reduce the strain on ground drainage and help to prevent possible flooding.

Clockwise from top:
Kalzip AluPlusSolar
Waterside School, Portsmouth
Defence 6th Form College, Loughborough



Theme and variations

No two Kalzip systems are ever visibly identical. Because every one is bespoke and the system is so flexible, it can make elaborate computer-modelled roof shapes involving curves and wave forms reality. The array of finishes and other variations available add even greater design freedom.

Kalzip's choice of finishes

Standard

The standard stucco embossed Kalzip finish provides a reflective surface which gradually dulls down to a uniform patina.

AluPlusPatina

An alternative with a high quality pre-weathered matt finish that reduces reflection by up to 20%.

AluPlusZinc

All the performance benefits of aluminium plus the unique aesthetics of zinc.

Stainless steel

A range of austenitic stainless steel finishes is available.

Copper

As you would expect with copper, the initial bright appearance gradually changes to a mellow bronze, then develops the familiar green patina as it weathers. Fully or partially weathered options are also available if you can't wait for nature to take its course.

Colour coated

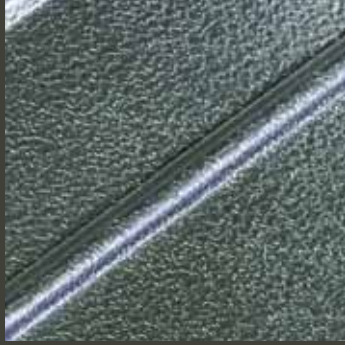
If the aluminium requires an additional protective coating because of an aggressive environment, or if the design simply calls for a colour finish, Kalzip profiled sheets are available in a choice of colour coatings.

Foldables

Falzinc and TitanSilver

Falzinc is a lightweight foldable aluminium sheet with a durable zinc top layer. Suitable for a wide range of applications, Falzinc is especially appropriate for high quality skilled metal working. It can be easily folded, edged, flanged and precisely welded in even the most inhospitable conditions. TitanSilver finish is also available.

Clockwise from top:
Stucco embossed aluminium
Copper
AluPlusZinc
Coloured Kalzip
Stainless Steel
AluPlusPatina



Low cost, high satisfaction

The Bradbury Learning Centre, Queen Alexandra College, Birmingham

Architects

Associated Architects LLP

Contractor

Greswolde Construction Ltd

Teamkal contractor

EHS Holdings Ltd

Product

AluPlusZinc

A new building bringing more space and enhanced facilities to this *National College for People with Visual Impairment and Other Disabilities* brought initial budget problems for the design team.

It quickly became apparent that the original choice of a zinc standing seam roof would drive costs above the £2 million budget. Fortunately the team had worked with Kalzip before, and found that a Kalzip AluPlusZinc roof system could provide the desired look at an affordable cost.

Zinc was chosen partly because of the need to minimise glare for visually impaired people, although soft aesthetics sympathetic to the surrounding residential area were also important.

The new building, so admired architecturally that it has been used for RIBA events, houses a range of specialist facilities including a performance suite, recording studio, tactile learning environment and library – with light, airy classrooms described by the college as “encouraging even more dynamic teaching and learning”

“Encouraging even more dynamic teaching and learning.”

College spokesperson



Quality and deliverability

King's Oak Primary School, Barnsley

Architects

H L M Architects

Contractor

Carillion

Teamkal contractor

Varla (UK) Ltd

Product

Falzinc

King's Oak in Wombwell, a new build replacement for two former primary schools, is part of a £50 million, 13-primary school building programme under the Barnsley Grouped Schools PFI project. All the schools are designed to combine primary and nursery teaching spaces with community facilities.

At King's Oak the consortium chose to meet the brief – robust, low maintenance, sustainable – by combining a Kalzip Falzinc raised seam system with the distinctive use of cedar boarding.

The roof system was designed and installed by Teamkal contractor Varla (UK) Ltd with special flashings, fascias and “secret gutters” to protect the zinc from the cedar.

The design creates excellent levels of natural daylight and ventilation, with classroom spaces facing south to overlook the play areas. This also provides good separation between pupils and vehicles for safety and security. Rooms for community use are grouped around the main entrance for easy out of hours access.

Revision

- Bid winning designs for new educational buildings need to *look* as well as *be* sustainable
- Kalzip solar and Nature Roof systems provide excellent and highly visible sustainable solutions
- Kalzip offers maximum design freedom, enhanced by a wide range of styles and finishes



“ The use of materials stretched the norm for what we had seen in PFI schemes, but most of all the designs combined quality with deliverability.”

David Russell,
Principal Architect at
the time of the bid for
Barnsley Metropolitan
Borough Council

New roof: new school

It's essential to remember that *Building Schools for the Future* proposes the rebuilding or refurbishment of every secondary school in England by 2015.

When it comes to roof refurbishment, Kalzip offers the ideal combination of light weight, weather resistance, outstanding thermal and acoustic standards, minimal maintenance and speed of installation. The perfect alternative to expensively demolishing and rebuilding.

Transforming

Kalzip can provide specially fabricated steel substructures, either as 'dead load systems' (usable down to a minimum pitch of 2 degrees) or a self-supporting system suitable for pitches of 22 degrees and more.

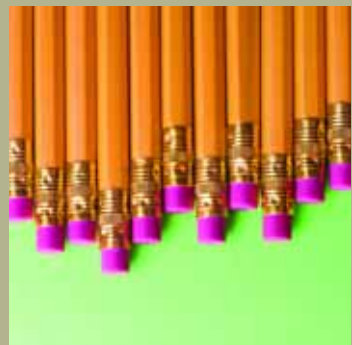
With these resources it's possible to create a conventional double-pitch roof, a barrel vault roof or even a wave-form roof, transforming the aesthetics of the building and giving it a second life of forty years or more.

As with every project, the first step is to talk to the Kalzip technical team about the most appropriate design solution for the building in question. And of course you and your clients can rest assured that the installation will be completed by approved, highly trained Teamkal contractors.

Revision

- Kalzip's lightness, durability and versatility makes it ideal for refurbishment projects
- There are likely to be a lot of these as the *Building Schools for the Future* initiative gets into its stride
- Early involvement of the Kalzip technical team and Teamkal installer will provide the optimum solution

Clockwise from top:
Hobbayne Primary School, London
Howells Junior School, Cardiff
St. Jude's School, Wolverhampton



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Person walking on the sidewalk.



University of Central Lancashire, Preston







Institute of Technology, Blanchardstown

“We specified Kalzip for Sandbrook because it is a good quality system that is suitable for low pitches, satisfies all performance requirements and enables fast and early completion. Its consistent appearance also played a part as the roofs are visible from higher surrounding areas and it enabled the curved section to the hall and adjacent straight pitched section to be achieved without lateral joints. It also enabled a smooth conical roof section to be constructed over the curved plan area of the school.”

John Case, Senior Architect, The Impact Partnership, on Sandbrook High School, Rochdale

“The building has been very well received. The Kalzip systems allow for flat and curved roof elements which lend themselves to the original design concept. The reflective roof panels then stand in contrast to the matt render surface and the metallic surface of the profiled wall panels.”

John Holroyd, Architect, Walker Simpson, on Levenshulme High School, Manchester

“The quality of finish in the schools is superb and all the building materials were carefully chosen to achieve this end result. With its excellent reputation for standing seam roofing in Scotland, Kalzip was the natural choice for these schools because we wanted to roof them with a system that looked outstanding, whilst being very versatile, maintenance free and durable. We were also extremely impressed with the wealth of support from Kalzip and the comprehensive training they offered to our in-house construction staff.”

Peter Jenkins, GCC's Construction Manager, Haghill and St Benedict's Schools, Glasgow

Roofing specifiers checklist

Use this at a glance guide to make sure all the important design and structural issues have been addressed and all the pitfalls avoided for your next projects.

Table 1: Structural specification		
	Specification	Kalzip
Over purlin construction	Have maximum purlin centres been advised and load span tables issued for profile, clip type and material thickness?	■
Structural deck construction	Have structural deck calculations been provided and loadings checked by the project structural engineer?	■
Long sheet lengths >40 m	If the sheet length is greater than 40 metres from the fixed point have the thermal expansion and in-plane forces been taken into account?	■
Fasteners	Have the correct type and number of fasteners been allowed for? Does the manufacturer offer a project specific fixing schedule and specification? (A common cause for roof failures has been attributed to incorrect and insufficient fasteners being used)	■
Lining sheet profile	Is the lining sheet profile suitable and robust enough to accommodate foot traffic without damaging the material? A minimum 30 mm depth is recommended. Additional risk if the profile is perforated.	■
Fixed point	Has the fixed point calculation and method been issued? The management of thermal expansion relies on a project specific fixed detail.	■
Tapered roof sheets	Have mechanically tapered roof sheets been allowed for?	■
Swimming pool project	Recommendation for aluminium lining sheet in PVdf or aluminium structural deck. Have aluminium tophats/saddles been allowed for? Steel bracket and rail or tophats should not be used in this type of construction due to the risk of corrosion and structural failure.	■

Table 2: Thermal performance/air tightness

	Specification and performance	Kalzip
U-Value performance	Have you received comprehensive U-Value calculation data to ADL2A and MCRMA Technical Paper 14 Guidelines? Does the build-up meet the required U-Value performance?	■
Insulation performance	What is the insulation K value and is it clearly identified in the calculations?	■
Thermal bridging	Has the thermal impairment of the clips, sub purlin and/or bracket and rail been accounted for and calculated?	■
Purlin spacing	Has purlin spacing been allowed for in the U-Value calculations?	■
Vapour control	Has the correct vapour control been included for the building use? The vapour control layer also assists air tightness in particular around perimeter and interface details.	■
Hipped ridge or valley	Has an aluminium welded detail been included to these areas?	■
Penetrations through roof	Have welded upstands/soakers been incorporated into all roof penetrations?	■
Condensation risk	Has a condensation risk analysis been provided? Taking into account the internal relative humidity and maximum internal temperature.	■

Table 3: Acoustics

	Specification and performance	Kalzip
Sound reduction performance	Does the system meet the required sound reduction requirements and has tested data been provided to confirm the performance of the system with regard to sound reduction requirements?	■
Sound absorption performance	Has tested data been provided to confirm the performance of the system with regard to sound absorption requirements?	■
Rain noise	Has tested data been provided to confirm roof system performance in relation to rain noise?	■

Table 4: Fabrications and gutters

	Specification and performance	Kalzip
Fabrication material and finish	Do the fabrications meet MCRMA Technical paper 11 guidelines? Have aluminium PPC perimeter fabrications been allowed for?	■
Curved roof fabrications	Has allowance been made for curved flashings along the verge?	■
Gutter performance	Have gutter calculations been provided as part of the design?	■

Table 5: Finish and durability

	Specification and performance	Kalzip
Clad alloy stucco embossed	Is the material clad alloy which includes a 5% thick layer of A1Zn1? Clad alloy is recommended for marine environments.	■
Stucco embossed	Has the minimum thickness tolerance of the aluminium been confirmed and can the manufacturer provide confirmation of this?	■
PVdF painted material	Has a PVdF finish been allowed for?	■
AluPlusPatina finish	Has 1.0 mm AluPlusPatina finish been allowed for?	■
AluPlusZinc finish	Has 1.0 mm AluPlusZinc material been allowed for?	■

Table 6: Installation and quality

	Installation requirements	Kalzip
Installer experience/training	Has the installer received comprehensive training on fixing the standing seam roof system? Does the installer have a minimum of 1 in 3 operators trained to the required standard?	■
Site service support	Will you be offered dedicated site service support during and after installation of the standing seam roof system?	■
On site roll forming capacity	Does the manufacturer have sufficient on site roll forming capacity for this project and additional capacity for busy periods/possible maintenance downtime?	■

Table 7: Guarantees and certification

	Responsibility	Kalzip
Full roof system responsibility	Does the manufacturer supply the whole roof system and will they be responsible for the performance of the system including everything above the purlin/structural deck and not just the standing seam top sheet?	■
BBA agrément certification	Does the manufacturer have a BBA agrément certificate for the whole roof system including insulation, vapour control layer and lining sheet/structural deck?	■

www.kalzip.com

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