

Uniclass L5223:P43+P45	EPIC E111:X421+X429
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April 2009



Kalzip Ltd

Kalzip foldable aluminium

Falzinc & TitanSilver





Light and malleable for roofs and walls

Kalzip foldable aluminium for creative building design

Skilled manual workmanship has a long history in traditional European building culture. For more than 200 years, roofers have used zinc for building façades and roof coverings with many historical buildings attesting to the striking effects achieved.

High residual values and design flexibility have made metals a popular choice for contemporary architecture offering endless possibilities and scope for individual creations and shapes throughout the entire build process.

A distinctive, mature look and feel combined with contemporary material properties, make Kalzip foldable aluminium ideal for both traditional and modern constructions.

Capable of achieving virtually any shape or form across a broad range of roof and façade applications, the benefits of Kalzip foldable aluminium are passed

through every stage of a project from planning to installation and completion of buildings that are designed to the highest technical and geometric requirements.

The result is a building fabric that combines lightness and elegance and is optimised for skilled design and installation techniques.

Left:

Project: University of Derby
Architect: Architects Design Partnership
Installer: Carlton Building Services Ltd

Bottom left:

Project: The Woodlands, Stirling
Architect: Prentice Kennedy Architects
Installer: McCormick and Hunter

Middle:

Project: St Georges Church, Catford
Architect: Thomas Ford & Partners
Installer: Metalex Traditional Metal Roofing Ltd

Bottom right:

Project: Cathkin Road, Glasgow
Architect: Five Architecture
Installer: McCormick & Hunter





Modern material, traditional skills, for roofing and façades

Ease of assembly and corrosion resistance.

The material's properties are ideal for high-quality skilled metalworking, making it possible to 'form and fit' even under unfavourable conditions.

Unaffected by very low temperatures Kalzip foldable products allow precise handling and fixing whilst maintaining their environmental and sustainable credentials.

Kalzip foldable aluminium provides many years of protection, even under the most adverse environmental conditions. Under normal circumstances the product will perform effectively as a roofing or cladding material with an ultimate life of at least 40 years, as outlined in BBA certificate 08/4571.



Top:

Project: Bryncoch School, West Glamorgan
 Architect: Neath Port Talbot County Borough Council
 Installer: Metalex Traditional Metal Roofing Ltd

Left:

Project: University of Derby
 Architect: Architects Design Partnership
 Installer: Carlton Building Services Ltd

Right:

Project: Cathkin Road, Glasgow
 Architect: Five Architecture
 Installer: McCormick & Hunter

Sustainable properties for a long and practical life

A little goes a long way

A typical 100kg coil of Kalzip foldable aluminium will clad an area of approximately 50m². Maintenance is virtually zero and at the end of its life its residual value is considerable.

Specifically, the material has excellent corrosion resistance making it almost indestructible guaranteeing decades of total building protection. Even under the most adverse environmental conditions practically no erosion of the surface occurs giving the product a long, environmentally friendly working life.

Aluminium is the third most abundant element in the earth's crust and the most common metal; at current consumption rates of known deposits, production is covered for the next 300 years.

Aluminium, like all materials, cannot be manufactured without expenditure of energy and emissions. However, where

aluminium differs from other materials is in the ease with which it can be recycled. Recycling rates of over 95% are achieved in transport and building.

Aluminium can be recycled repeatedly for only 5% of the original energy consumption with no loss of quality. More than 60%* of the world's primary aluminium is produced using hydroelectric power which is clean, carbon dioxide free and renewable.

Industry research has succeeded in achieving considerable reductions through process development and investment in environmental protection. Today, aluminium can be produced with 30% less energy than 35 years ago.

* Kalzip environmental technical information sheet TIS-HSENV-ENV-222 (issue 3) available on request

Benefits at a glance

- No corrosion on the underside (due to the aluminium base metal) from interstitial condensation
- Light weight
- Ease of handling and installation
- Quality installation through skilled craftsmen
- Long term protection against corrosion even in bad weather
- High residual values
- Environmentally friendly (fully demountable and recyclable)

Left and top right:

Project: Princess Hay Retail Development, Exeter
Architect: Chapman Taylor
Installer: Salmon Plumbing

Bottom right:

Project: Shortwood School, Telford
Architect: Telford & Wrekin Council
Installer: Sterling Building Services



Advanced product characteristics compatible with skilled traditional installation techniques

Kalzip foldable aluminium is manufactured in state-of-the-art production facilities and under stringent quality control procedures.

Material properties mean that Kalzip foldable aluminium can be folded, edged and flanged using proven and established processes. These conventional metalworking practices make it possible for the production of narrow edging tolerances and precise curve formation by the highly skilled installer.

Variations in thickness are minimised so that a precise forming of the locking seams is guaranteed. The material can

be installed using standard 'tools of the trade' allowing demanding roof and façade designs to be produced with ease and consistency.

The product can be manufactured to both standard specifications and customer specific requirements. Additional accessories can be easily integrated without compromising the roof integrity or overall visual appearance.

A national network of specialist installers has been set up specifically to focus on Kalzip foldable aluminium as a product offering. Further details are available on request.

Left:
Project: Princess Hay Retail Development, Exeter
Architect: Chapman Taylor
Installer: Salmon Plumbing

Top Right:
Project: Dornal Avenue, Glasgow
Architect: Hypostyle Architects
Installer: McCormick & Hunter

Bottom Right:
Project: Shortwood School, Telford
Architect: Telford & Wrekin Council
Installer: Sterling Building Services



Two surface variants meeting the highest standards

The double-sided fusion of well proven metals with Kalzip foldable aluminium gives Falzinc and TitanSilver their uniquely modern characteristics.

Containing all the inherent benefits of aluminium as a material, they are especially sturdy and hardwearing with good resistance to corrosion.

Material properties for outstanding performance:

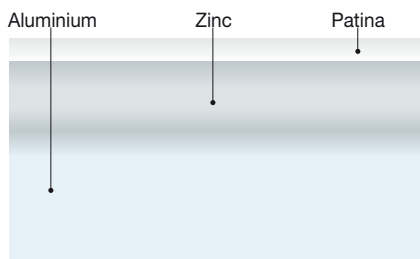
Low weight, excellent formability and outstanding weathering characteristics.

Aluminium core:	Sea-water resistant aluminium alloy AlMn1Mg0.5 (EN AW-3005) & AlMn0.5Mg0.5 (EN AW-3105) as per DIN EN 573-3
Melting point:	approx. 650°C
Linear expansion coefficient, parallel to the rolling direction:	$24 \times 10^{-6} \text{ 1/K}$
Specific gravity (density):	2.7 kg/dm ³



Falzinc

Foldable Kalzip with a zinc surface uses the symbiosis of two established metals: aluminium and zinc. The Kalzip patented PEGAL process encases the aluminium core with a weathered zinc surface, resulting in a quality product which is unobtrusive, and has all the advantages of aluminium coupled with the characteristics of weathered zinc.



The surface appearance of Falzinc will change with time from a blue grey finish to one slightly darker than that of weathered aluminium. Falzinc has excellent corrosion resistance. BBA certificate 08/4571 stands testament to the product's quality. This excellent resistance to outdoor exposure and the combination of the bonding between the aluminium and zinc produce considerable surface stabilisation.

TitanSilver

An innovative development in the Kalzip foldable aluminium range, TitanSilver provides a discreet, pre-weathered silver matt surface.

Material compatibility

Areas clad with Falzinc and TitanSilver can be combined with just about any other building element, from raw aluminium to titanium zinc as well as weathered or coil coated sheets.

However, zinc and zinc clad materials will be attacked by certain timber treatments, a common one being cedar and cedar shingles. Further information is contained within Technical Information Sheet TIS-MTL-METAL-250; available on request.

Falzinc and TitanSilver are aluminium based products and whilst a separation layer is always recommended, contact between aluminium and any timber that has been treated with copper, mercury or zinc based preservatives and fire retardants should be avoided at all times. Further details are available in Technical Information Sheet TIS-MTL-ALI-085.

Left:

Project: Dornal Avenue, Glasgow
Architect: Hypostyle Architects
Installer: McCormick & Hunter

Middle:

Project: Shortwood School, Telford
Architect: Telford & Wrekin Council
Installer: Sterling Building Services

Right:

Project: Warwick Lodge Dental Centre
Architect: MPC Consultants
Installer: cu.tech.zn.ornamental ltd



The perfect solution for all roof structures

Double standing seam

The classical double standing seam provides weathertight joints and is the preferred option for the complex shapes of modern architecture.

Ideal for roof slopes $>5^\circ$ this jointing method of adjacent sheets can be carried out both by hand or machine. Slopes at $>3^\circ$ are possible with the introduction of a sealing strip and with system installation by competent craftsmen.

The resulting finish characterises the overall aesthetic appeal. The optimised properties of Kalzip foldable aluminium guarantee a high level of formability, it is easy to create concave, convex and conical shapes.

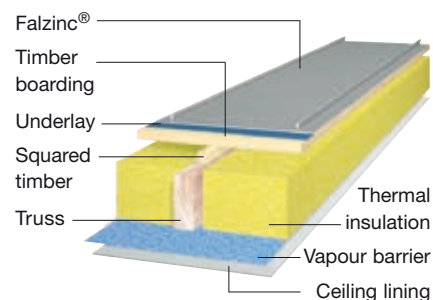
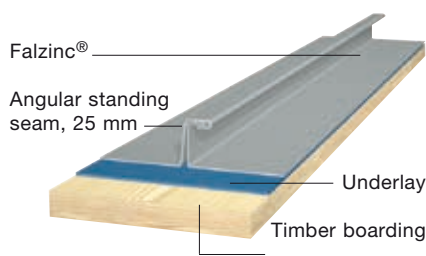
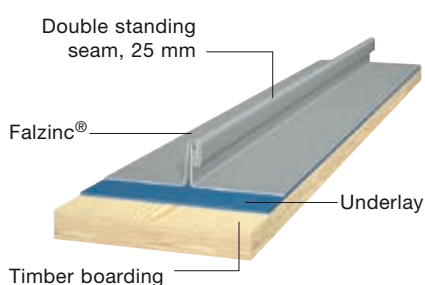
Angular standing seam

The angular standing seam is the preferred lock-seam technology for distinctive façade claddings, and parapets, with the broad surface of the seams, increasing the optical effect of the sheet division. The angular standing seam is only folded once; an additional sealing of the seam is not possible.

For roof coverings the angular standing seam, therefore requires a roof pitch of more than 25° , and in areas of heavy snow and in valleys, this should increase to at least 35° , to ensure against water ingress. Due to the outstanding formability of Kalzip foldable aluminium you can transfer at critical points from an angular standing seam to a double standing seam.

Cavity, ventilated roof structure (cold roof with air circulation)

The cavity, ventilated roof is the ideal roof structure for Kalzip foldable aluminium, the special benefit being that any penetrating moist air is safely conducted away through ventilation.





Project: Kings Oak School, Barnsley
 Architect: HLM Architects
 Installer: Varla (UK) Ltd

Single leaf, non-ventilated structure (warm roof construction)

The single leaf, non-ventilated roof structure requires greater care during the sealing of the vapour control layer to avoid warm air condensing in the roof system.

Kalzip foldable aluminium has excellent material properties and is ideal for non-ventilated roof constructions.

Roll cap roofing

The special feature of the roll cap roofing is that the separation of the panels is strongly emphasised, due to the ledge height of 40 mm (as opposed to the height of a double standing seam of approximately 23 to 27 mm).

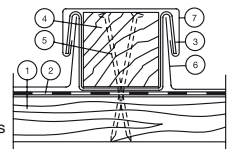
The separation of the sheets is particularly visible due to the resulting light/shade effect.

These systems are ideal for domestic applications due to their traditional look. The Belgian system can be used in low but sheltered pitches, whilst the German system is the preferred choice for exposed low pitch applications.

Note: It is always recommended that underlay is used between the foldable aluminium and the timber boarding, in case the deck has been treated with preservatives.

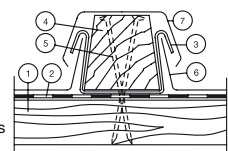
Belgian System

- 1 Wood boards
- 2 Separation layer
- 3 Fixing clip
- 4 Wood ledge
- 5 Nails, alternating angles
- 6 Sheet upstand
- 7 Roll cap



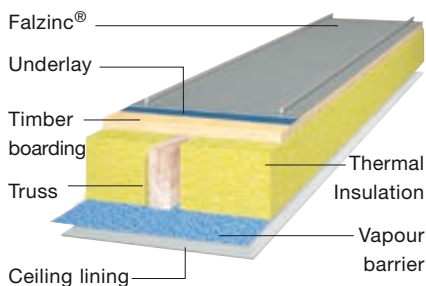
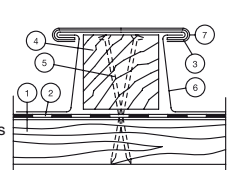
Swiss System

- 1 Wood boards
- 2 Separation layer
- 3 Fixing clip
- 4 Wood ledge
- 5 Nails, alternating angles
- 6 Sheet upstand
- 7 Roll cap



German System

- 1 Wood boards
- 2 Separation layer
- 3 Clip plate
- 4 Wood ledge
- 5 Nails, alternating angles
- 6 Sheet standup, with back bend
- 7 Roll cap



Façade cladding (double partition)

With experienced fabricating techniques Kalzip foldable aluminium can be used for metal wall cladding to create highly distinctive façades. Further details are available on request.

Project: Cathkin Road, Glasgow
 Architect: Five Architecture
 Installer: McCormick & Hunter

Delivery and sizes

	Falzac	TitanSilver
Standard coil* measurements	0.7 x 600/670 mm 1.0 x 600 mm	0.7 x 600/1200 mm 1.0 x 600/1200 mm*** Note: 1200 mm coil width produces 1180 mm workable material
Standard coil weight	100 kg (508**) 500 - 950 kg (508**) 1600 - 1900 kg (508**) Other coil weights are available on request	100 kg (508**) 500 - 1000 kg (508**)
External diameter	100 kg = 600 mm 500 kg = 850 mm 1000 kg = 1100 mm 1500 kg = 1300 mm 2000 kg = 1400 mm	100 kg = 600 mm 500 kg = 850 mm 1000 kg = 1100 mm 1500 kg = 1300 mm 2000 kg = 1400 mm
Flat sheet	all standard measurements from 2000 to 6000 mm Alternative lengths available on request Non standard, narrower widths are available on application and are subject to stock availability	all standard measurements from 2000 to 6000 mm
Weight	1.89 kg/m ² /0.7 mm 2.72 kg/m ² /1.0 mm	1.89 kg/m ² /0.7 mm

All material is provided with protective UV stabilised film

* Standard delivery with cardboard inner sleeve ** Internal diameter *** Please note: extra delivery time

Fisherman's Pavilion, Boek





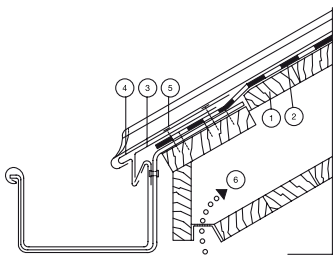
Starnberg Museum, near Munich



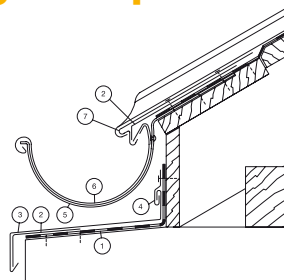
Above and right, Red Cross, Lemgo



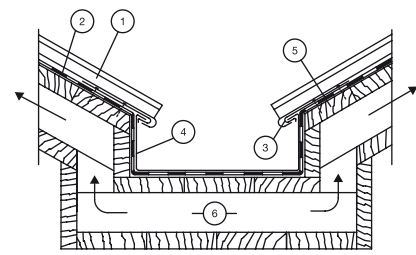
Finishing and detailing-comprehensively supported



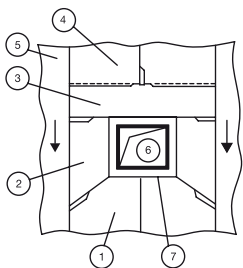
- 1 Wood boards
- 2 Separation layer
- 3 Fixing strip angle
- 4 Flashing eaves strip
- 5 Double standing seam cover
- 6 Ventilation



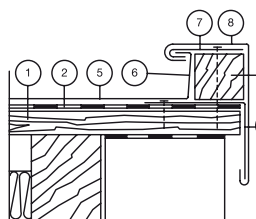
- 1 Separation layer
- 2 Fixing strip angle
- 3 Cornice cover
- 4 Clip
- 5 Gutter holder
- 6 Gutter
- 7 Eaves strip



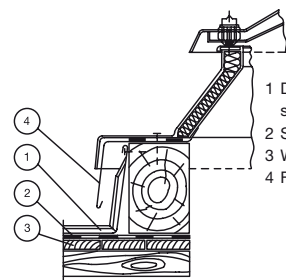
- 1 Double standing seam cover
- 2 Separation layer
- 3 Eaves strip or fixing strip
- 4 Valley gutter
- 5 Boarding
- 6 Ventilation



- 1 Apron
- 2 Sidings
- 3 Valley gutter
- 4 Upper connection panels
- 5 Side connection panels
- 6 Penetration
- 7 Framework upstand



- 1 Wood board
- 2 Separation layer
- 3 Fixing strip angle
- 4 Wood ledge
- 5 Double standing seam cover
- 6 Edge upstand
- 7 Clip
- 8 Verge flashing



- 1 Double standing seam cover
- 2 Separation layer
- 3 Wood boarding
- 4 Flashing



Project: St Georges Church, Catford
 Architect: Thomas Ford & Partners
 Installer: Metalex Traditional Metal Roofing Ltd



Project: Antrim Civic Centre
 Architect: W D R & R T Taggart
 Installer: Longworth Ireland

Kalzip foldable aluminium is highly suitable for the fabrication of technically and visually demanding junctions and interfaces. Both Kalzip and its installers craftsmen manufacture and supply a myriad flashings, accessories, panels, tiles and components to give a comprehensive package or 'systems offer'. Further information is available on request

www.falzinc.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.

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