

VMZINC® FACADES

Fully Supported and Rainscreen Facades Systems
Design and specification requirements

December 2023



VMZINC



VMZINC® FACADES

Contents



COMPANY PROFILE

VMZINC® has been manufacturing a wide range of rolled zinc products used primarily for building envelopes since 1837. In addition to batten cap and standing seam roof systems, products include rainwater systems, a wide range of cladding systems, including a number of rainscreen facade products. Since its creation the company has also produced decorative roofing products such as dormers, bull's eyes, weather vanes, finials and balustrades.

Front cover building credit
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Project: Stanley A Milner Library

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VMZINC® FACADES

Why use VMZINC® facades?

INTRODUCTION Zinc is among the most sustainable metals used in construction today and has been used on the roofs of Paris for almost 200 years. VMZINC® facades systems can be highly cost-effective, both from an initial procurement and design life perspective.

Whether for new build or refurbishment, VMZINC® facades have been designed to complement a wide range of building materials and styles. The finishes available offer exceptional color stability. This ensures that maintenance requirements will be minimal throughout the system's design life and that the material's installed appearance will be retained for many years.

The wide range of VMZINC® facades systems and finishes offers designers a large choice of aesthetics. Some of the benefits of VMZINC® are listed below.



BENEFITS OF THE VMZINC® STANDING SEAM SYSTEM

- Lightweight and durable
- Fully recyclable
- A design life of 100 years
- Virtually maintenance-free
- Complex shapes can be clad using VMZINC®
- All flashings and trim can be in the same material
- LEED certified
- Conforms to EN 988 and ASTM B 69-Architectural zinc type 1
- Available in a choice of either a natural finish or 10 pre-weathered finishes as well as bespoke PIGMENTO® colors
- Cost effective
- Wide range of panel types



VMZINC® FACADES

Sustainable performance

LOW ENERGY USED IN THE MANUFACTURING PROCESS

VMZINC® rolled zinc products are used in construction industries throughout the world for their sustainability, distinctive appearance, and low maintenance requirements. As with VMZINC® roof and rainwater systems, manufacturing processes for our facades systems present a low environmental impact, particularly with regard to energy expenditure.

As the comparative energy expenditure diagram opposite shows, less energy is required to extract zinc from the ground than the other principal metals, and is even more favorable for recycled zinc. Such minimal use of energy in the production of zinc clearly indicates its contribution to sustainable development.

RECYCLED MATERIAL

Almost 99% of old rolled zinc recovered every year in Western Europe, currently estimated at 100,000 tonnes, is reused. This represents savings in mining resources of between 1 and 2 million tonnes.

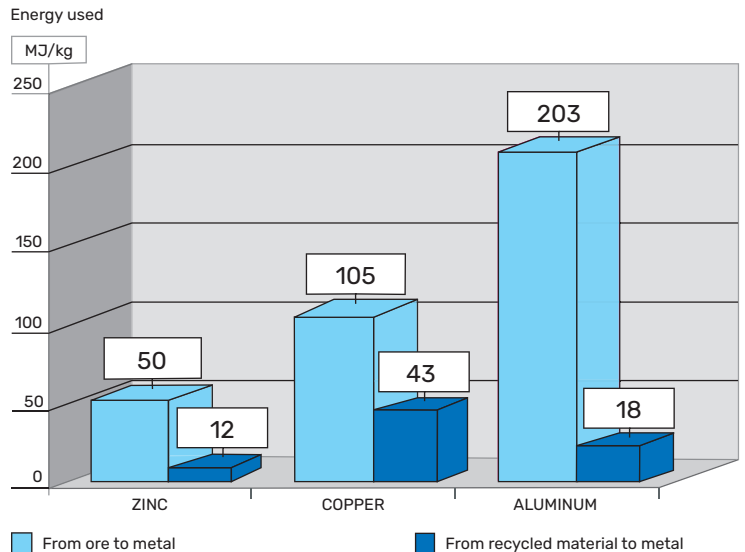
LOW CORROSION, LONG LIFE

The VMZINC® facades systems benefit from zinc's self-protecting patina which develops as a result of exposure to water and carbon dioxide. Over the last 50 years the quantity of sulfur dioxide in the atmosphere has been greatly reduced. SO₂ being the key agent of corrosion means that corrosion rates are now approximately 1-2µm per year with a sheet of VMZINC® being at least 700µm thick.

A NATURAL MATERIAL

VMZINC® undertakes Life Cycle Analysis (LCA) on its products and publishes Environmental Product Declarations (EPDs). VMZINC® offers many advantages and these enable them to contribute towards LEED® certification for the building in which they are used. The information is also used by VMZINC® as the basis for its eco-design approach.

Comparative energy expenditure in manufacture



Compared with other metals, very little energy is needed to manufacture zinc metal from ore – less than half the consumption of copper and stainless steel and less than a quarter of that used for aluminum. CO₂ and other greenhouse gas emissions are also, therefore, proportionally less.



VMZINC® FACADES

Sustainable performance

VMZINC® AND LEED® V4

VMZINC® products contribute to achieving LEED® points in a number of ways.

Material and Resources:

Credit 2.1 Construction Waste Management 1 point

All zinc construction wastes can easily be separated from other metals and sent to any local metal scrap dealer. Zinc is then processed and reused by the galvanization industry.

Material and Resources:

Credit 4.1 Recycled Content 1 point

Post-consumer content: 20%

Pre-consumer (Post-industrial) content: 35%

Post-consumer content: Most VMZINC® products come from one smelting plant located in Auby, France. The plant uses 20% of recycled zinc for all VMZINC® products.

Post-industrial content: VMZINC® reclaims all of the scrap generated during the manufacturing process. VMZINC® is the world's leading players in the rolled zinc industry with a total production capacity of over 100,000 tons per year.

Indoor Environment Quality:

Credit 4.2 Low Emitting Materials: Paints and Coatings 1 point

VMZINC® does not apply any coating on standard QUARTZ-ZINC® PLUS material. Consequently, no VOCs are generated.

Regarding VOC and aldehydes emissions, the results of assessment tests of VOC and aldehydes emissions in accordance with the French AFSSET method on organic coated rolled zinc of VMZINC® show that the total VOC concentration after 28 days of exposure is zero. These results lead to rank VMZINC® solutions "A+" according to the French regulation that means in the best class of building products.



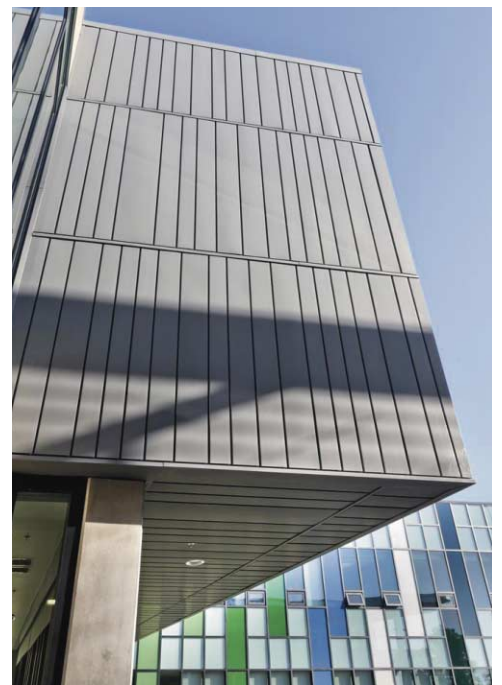
Environmental profiles measure the impacts of a construction material, product or building system throughout its life, not only during its manufacture, but also its use in a building over a 100 year period. This includes its extraction, processing, use and maintenance and its eventual disposal.

VMZINC® is a member of BRE Global's certification scheme and carries Environmental Product Declarations in accordance with EN 15804 for Natural Zinc, QUARTZ-ZINC®, ANTHRA-ZINC®, the PIGMENTO® range as well as VMZINC® PLUS.



All of VMZINC® production plants conform to ISO 14001 creating a high level of quality control with regards to the environment.

Quality management certification ISO 9001 also applies to all production plants.



VMZINC® FACADES

The systems

Underlying principles

INTRODUCTION

VMZINC® has been used as a material to clad facades for many decades. Initially traditional roofing systems such as standing seam panels were installed as 'roofs on walls'. Flat lock panels have also been installed for many decades. Both of these systems require vented continuous substrates and are commonly installed by traditional hard metal roofing contractors. Over the past two decades rainscreen facades have become very popular and VMZINC® offers a number of these rainscreen systems.

RAINSCREEN FACADES

A rainscreen facade is an outer skin that is back-ventilated by an air space that is 1½" (38mm) deep. The system can be used on both new build and renovation but always allows the outer layer to breathe whilst the inner layer deals with thermal insulation and air leakage. All joints are dry and do not use any form of sealant.

JOINT TYPES

VMZINC® wall panels can be joined using three mechanical joints:

- Standing seam
- Flat lock
- Reveal

VMZINC® PLUS

VMZINC® PLUS is a unique patented product that allows zinc to be installed on ventilated plywood (page 10).

The product consists of VMZINC® (in all finishes) having a 60µm coating applied to the underside thus allowing a more varied amount of substrates to be used and eliminating the risk of the formation of white rust on the underside of the zinc standing seam panels. VMZINC® PLUS resists to an abrasion of 140 litres when tested in accordance with ASTM D 968.

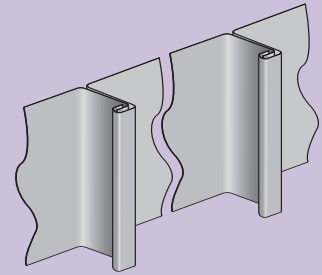
For standing seam roofs and walls VMZINC® PLUS must be used. For all other facade systems VMZINC® can be used.

Non Vented Warm Walls

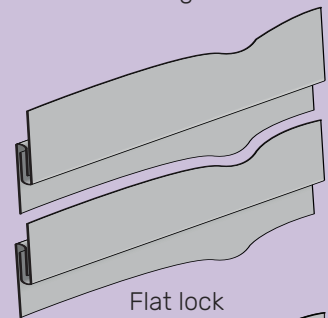
VMZINC® PLUS can be used to clad non vented warm wall construction using standing seam and flat lock panels on substrates such as insulated metal sandwich panels. Please contact us for further information.

HIGH RISE DEVELOPMENTS OVER 18M HIGH (NON OR LIMITED COMBUSTIBILITY)

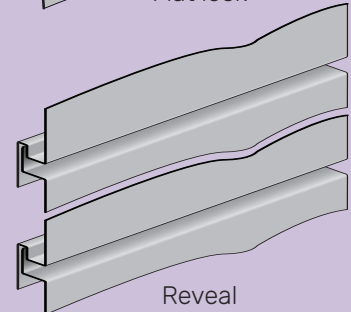
For buildings where combustible materials such as plywood cannot be used, galvanised steel decks or other non combustible substrates can be used as a substrate for the flat lock and standing seam panels. By combining this with mineral board insulation, all materials in the wall build up are non combustible or of limited combustibility. The steel deck must be at least 0.7mm thick and have dimensions allowing clips to be attached at the required spacings. Corrugated steel deck can only be used on vertical surfaces. For all surfaces such as sills, parapets, etc, the substrate must be continuous. The 1½" (38mm) vented cavity can be fire stopped using continuous vertical cavity barriers and intumescent horizontal cavity barriers. Please contact us for further information.



Standing seam



Flat lock



Reveal



A typical construction

VMZINC® FACADES

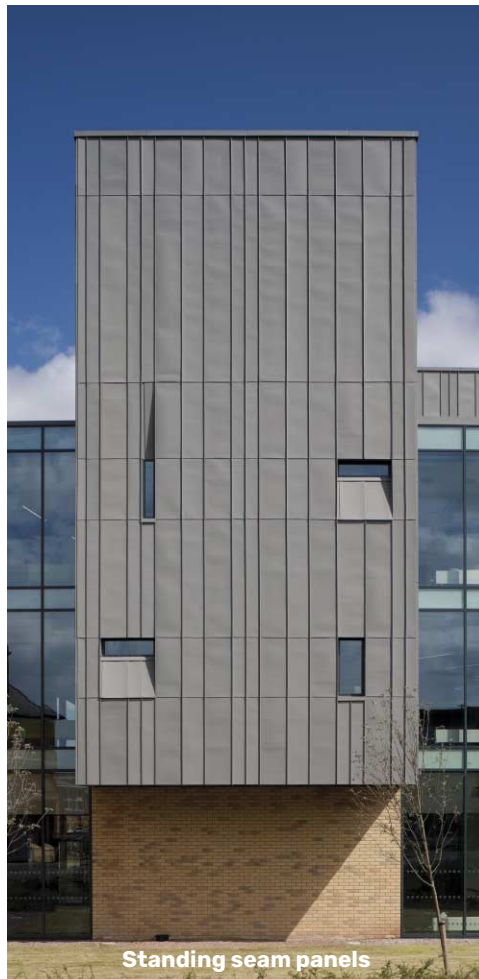
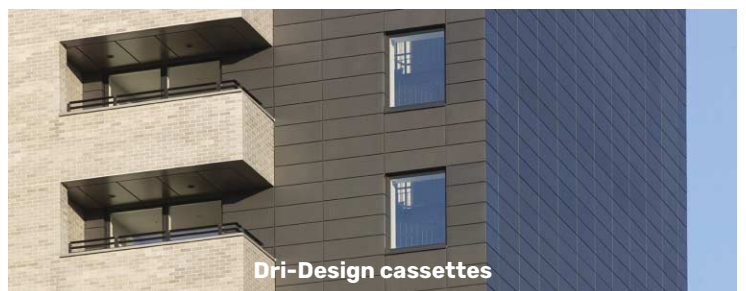
The systems

Underlying principles

Please contact us
for further
design assistance

PANEL SIZE AND FLATNESS

VMZINC® wall panels will offer very different aspects depending on the type of panel used. While standing seam panels can offer a continuity from roof to wall they will not offer absolute flatness. Flat lock panels also offer a more textured finish. The interlocking panel system provides flat panels but they are limited to 12" (300mm) in width. Alpolic ZCM on the other hand can offer excellent flatness whilst maintaining panels of up to 36" (900mm) wide. For panels between 12" (300mm) and 24" (600mm) Dri-Design cassettes should be considered – see pages 24-25.

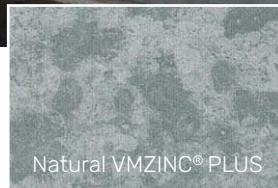


VMZINC® FACADES

Surface finishes

NATURAL VMZINC® PLUS

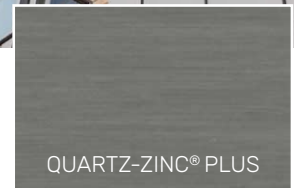
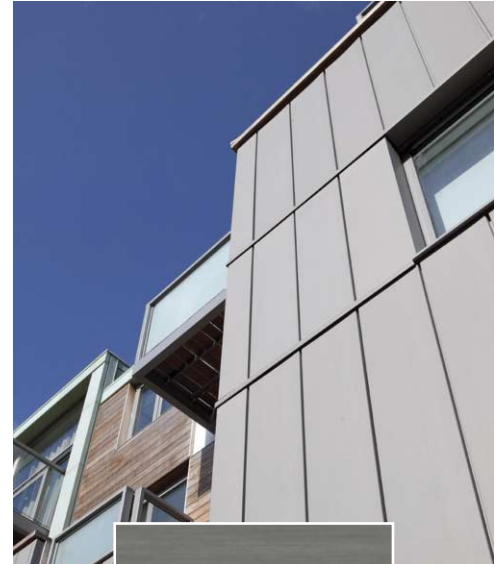
Natural VMZINC® PLUS has a shiny metallic appearance when new and develops a patina over time. In facade applications, it may take 10 years for the matt gray patina to form. It can be quickly soldered without removing the patina.



Natural VMZINC® PLUS

QUARTZ-ZINC® PLUS

QUARTZ-ZINC® PLUS offers an appearance and texture that does not change over time. When QUARTZ-ZINC® PLUS is scratched, it will self heal. The gray tones of QUARTZ-ZINC® PLUS blend well with existing construction materials – ideal for refurbishment.



QUARTZ-ZINC® PLUS

ANTHRA-ZINC® PLUS

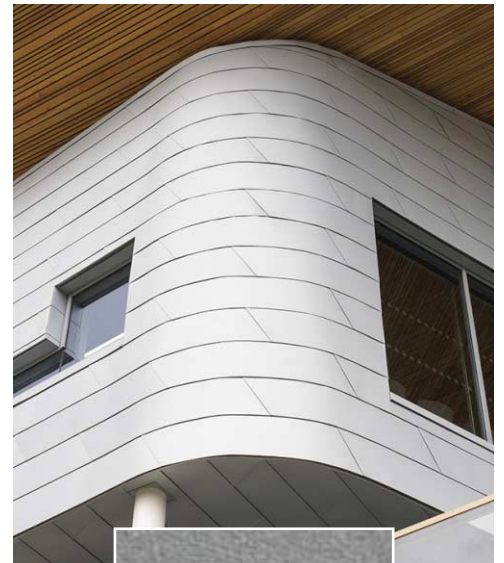
ANTHRA-ZINC® PLUS with its visible grain matches the color of slate and blends well in combination with photovoltaic panels. Due to the dark aspect of the material salt stains are possible in coastal environments especially on nonrinsed (rain water) surfaces.



*ANTHRA-ZINC® PLUS

AZENGAR® PLUS

AZENGAR® PLUS is the new surface finish from VMZINC which is the first engraved zinc giving a product with a matt, heterogeneous and light aspect. AZENGAR® PLUS can be used in the same fashion as other VMZINC® products for both roofs and facades.



AZENGAR® PLUS

*ANTHRA-ZINC® STRAT should be considered if salt is present in the air

VMZINC® FACADES

Surface finishes

Please contact us
for samples
www.v zinc-us.com

STANDARD PIGMENTO® PLUS

PIGMENTO® finishes offer a unique range of colors (Blue, Green, Brown, Red and Grey) that enhances any building. This natural product enables the texture of the QUARTZ-ZINC® PLUS to still be seen whilst offering the designer the choice of color to complement other elements of a facade or roof.

VMZINC® is not a painted product and therefore colour variations may occur. No colour matches are guaranteed therefore zinc should be installed from the same coil/batch because of colour variations in the manufacturing process.

The coloration of the zinc is achieved with a special pigment layer that enhances the qualities of the zinc without presenting a block color. This product is tested to EN13523.

PIGMENTO®, available in five standard colors, provides an increased resilience, however in a severe non-rinsed marine environment (1 mile from the sea), staining is still possible and therefore the material should not be used in this application.

BESPOKE PIGMENTO® PLUS New

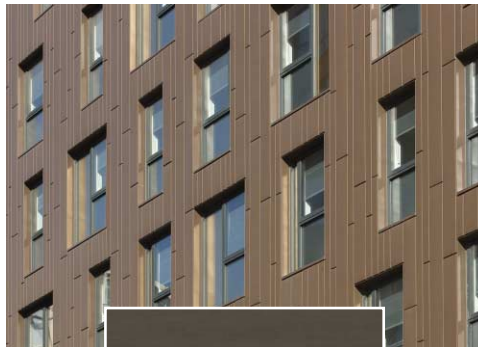
The PIGMENTO® range is now available in bespoke colors. Samples of the colors indicated here are available upon request. For other colors a sample and RAL color should be submitted in order to assess feasibility.



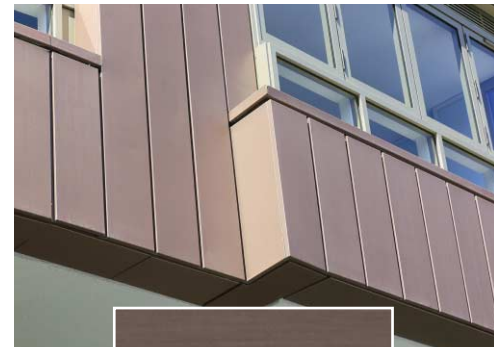
Standard
PIGMENTO® BLUE



Standard
PIGMENTO® GREEN



Standard
PIGMENTO® BROWN



Standard
PIGMENTO® RED



Bespoke PIGMENTO®
colors

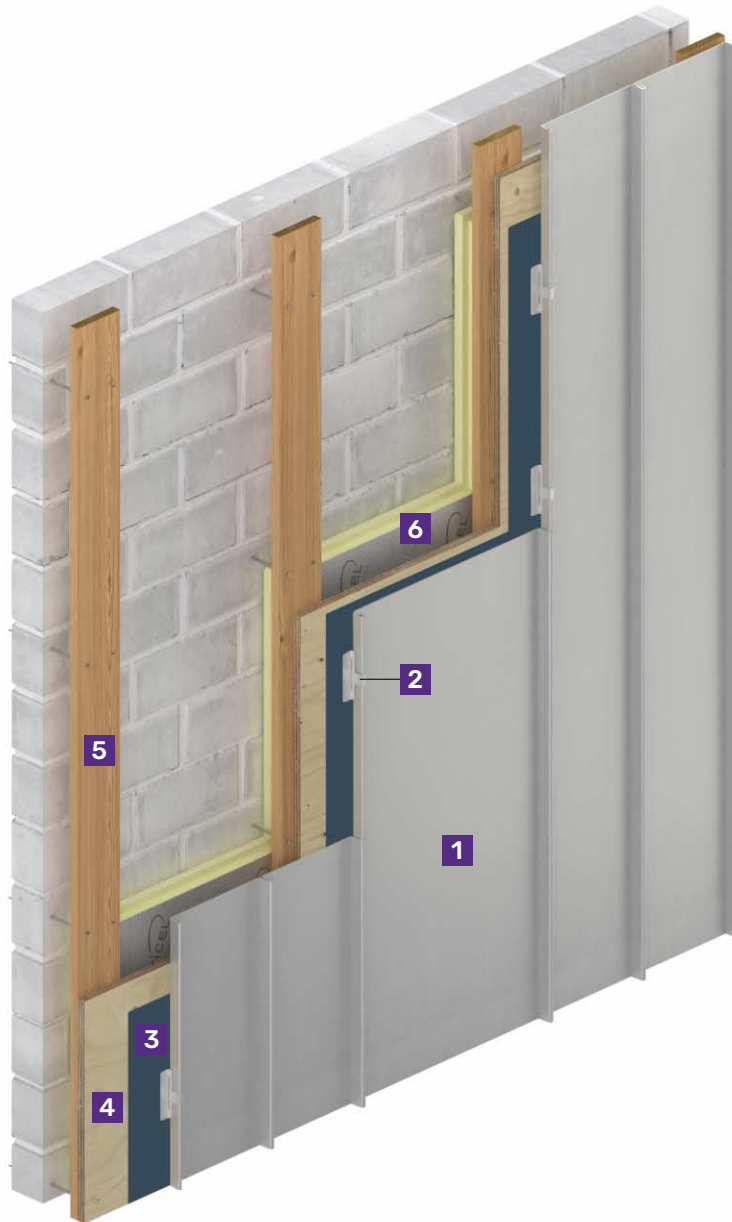
* PIGMENTO® STORM GREY and PIGMENTO® CHARCOAL BLUE have a minimum order requirement



Standard
PIGMENTO® GREY

Standing seam

TYPICAL STANDING SEAM PANEL SYSTEM CONSTRUCTION



Note:
Supporting structure is indicative and can be blockwork or metal framing with a non-combustible deck or other appropriate materials.



Maximum panel sizes are
vertical: 12'-0" (3.65m)
horizontal: 20'-0" (6.09m)

- 1** VMZINC® standing seam panel in VMZINC® PLUS
- 2** Fixing clip
- 3** Breather membrane
- 4** 5/8" (16mm) plywood or steel deck (see page 6)
- 5** Battens creating a vented 1½" (38mm) vented cavity
- 6** Insulation protected by VMZINC® Membrane

ADVANTAGES OF THE STANDING SEAM PANEL SYSTEM

- Concealed fasteners
- Roof to wall continuity
- Versatile
- Horizontal, vertical and diagonal installation possible

For more information contact us on
919 296 8868
or send an e-mail to
info@vmzinc-us.com

Standing seam

OVERVIEW VMZINC® standing seam is a ventilated cladding system that can be used for both renovation and new build. As the name standing seam implies, the system consists of seams that can be crimped in a single or double lock (for greater flatness single lock seams sometimes referred to as angle seams are recommended). The system has a traditional look with the seams being 1" (25mm) high. The trays can be installed horizontally, vertically and at an angle.

This facade system offers the possibility to clad all types of walls: flat, curved or complex forms. Another great advantage of this zinc facade system is that it can be used on both walls and roofs, thus allowing roof and wall to blend as one (standing seam roofs require double lock seams). The cladding panels can be various sizes but we would not recommend that they be more than 12'-0" (3.65m) for vertical panels and 20'-0" (6.09m) for horizontal panels and 16 $\frac{7}{8}$ " (430mm) in width. Single lock panels should not exceed 16 $\frac{7}{8}$ " (430mm) in width. All aspects of VMZINC® can be used with 1/32" (0.8mm) being the recommended thickness for facades.

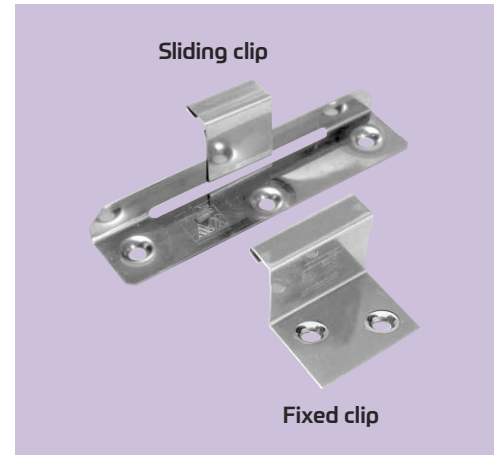


Standing seam

STRUCTURE The system is very lightweight as the panels weigh no more than 1.5lb/ft² (7 kg/m²) and can be fixed back to both soft wood open gap boarding and plywood. Both substrates require the use of ¾" (18mm) thick wood and a vented airspace should be left behind the timber of at least 1½" (38mm). The plywood must be of exterior grade. When soft wood open gap boarding is used it is possible to omit every other board, however a fully boarded substrate should be used in accessible areas. The substrate must be flush to within 1/16" (1.6mm) and all screws and nails must be countersunk. VMZINC® PLUS must be used on plywood substrates.

INSTALLATION The panels are installed in a sequential order from either left to right or right to left for vertical panels. Horizontal panels must be installed from bottom up. For panels less than 6' (1.8m) in length fixed clips can be used. For longer panels sliding clips must be used towards the bottom on vertical panels and to the left and right of the centre for horizontal panels. When using single lock all clips can be fixed. VMZINC® clips are made from 304 stainless steel and each clip must resist a pull-out force of 110lb (50 daN). It is recommended that screws be used to secure the clips, with three being used per sliding clip. The use of nails offers significantly less resistance, but in the event of using nails, contractors are advised to use ring shank nails.

The panels should be installed with the protective film in place.



Centre to centre distance between clips:

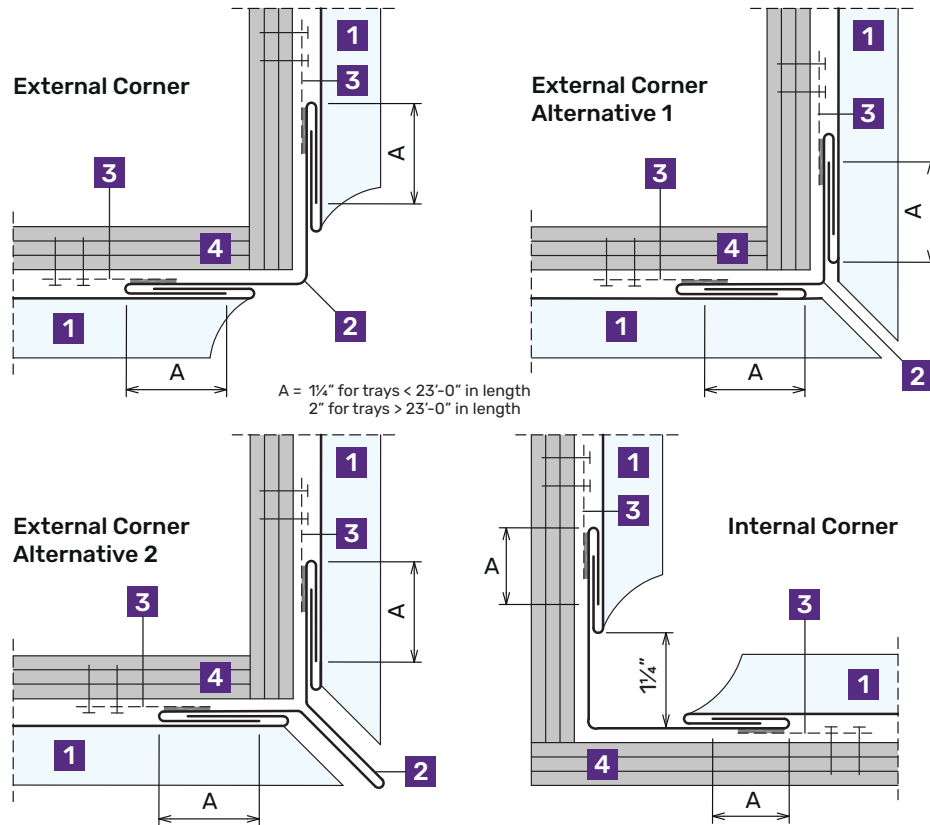
- 12" (300mm) on the main part of the facade
- 8" (200mm) on perimeter of the facade, at least 3' 8" (1100mm) from building corner
- 6" (150mm) in corner areas



Standing seam

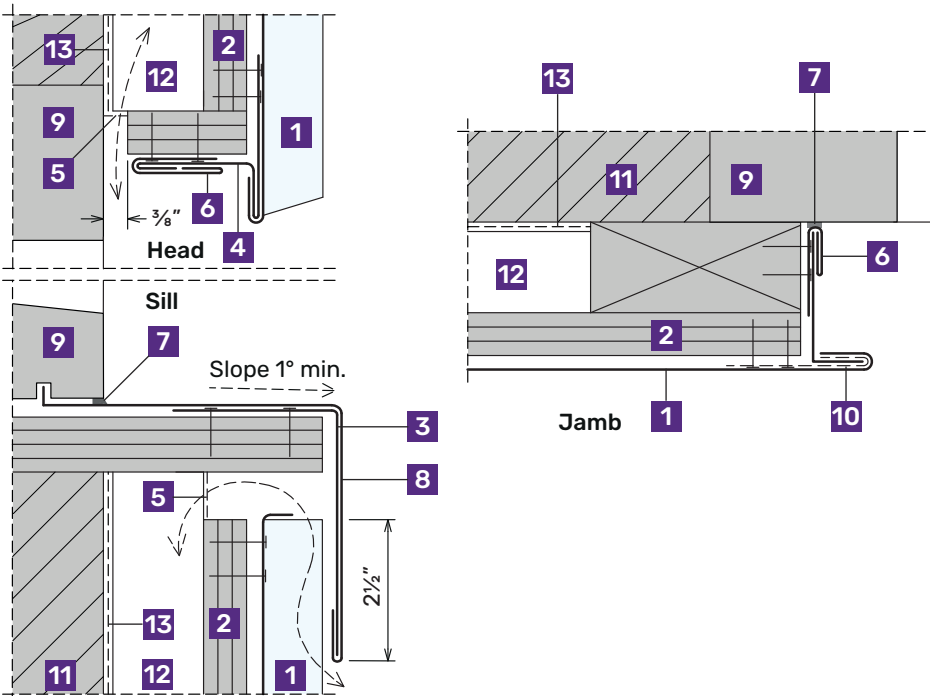
Download the technical drawings of this facade build-up from our website
www.vmzinc-us.com

CORNER DETAILS



- 1 VMZINC® PLUS Standing Seam
- 2 VMZINC® PLUS continuous corner strip
- 3 VMZINC® PLUS soldered clip
- 4 Plywood protected with breather membrane

WINDOW DETAILS



- 1 VMZINC® PLUS Standing Seam
- 2 Plywood protected with breather membrane
- 3 VMZINC® PLUS continuous folded strip
- 4 VMZINC® continuous folded strip, 0.7mm thick
- 5 Insect mesh
- 6 VMZINC® continuous folded strip
- 7 Compatible mastic sealant
- 8 VMZINC® PLUS flashing
- 9 Window frame
- 10 VMZINC® PLUS sheet clip, 0.7mm thick, width 3\", 2 per 3'-3"
- 11 Loadbearing structure
- 12 Ventilated space
- 13 VMZINC® Membrane

Flat lock

TYPICAL FLAT LOCK PANEL SYSTEM CONSTRUCTION



Note:
Supporting structure is indicative and can be blockwork or metal framing with a non-combustible deck or other appropriate materials.

Maximum panel size: 16" x 9' (400 x 2750mm)

- 1** VMZINC® flat lock panel in VMZINC® PLUS
- 2** Fixing cleat
- 3** Fixing strip
- 4** Breather membrane
- 5** 5/8" (16mm) plywood or steel deck (see page 6)
- 6** Battens creating a vented 1 1/2" (38mm) airspace
- 7** Insulation protected by VMZINC® Membrane

ADVANTAGES OF THE FLAT LOCK PANEL SYSTEM

- Concealed fasteners
- Offers great flexibility on panel size and shape

For more information contact us on
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or send an e-mail to
info@vmzinc-us.com

Flat lock

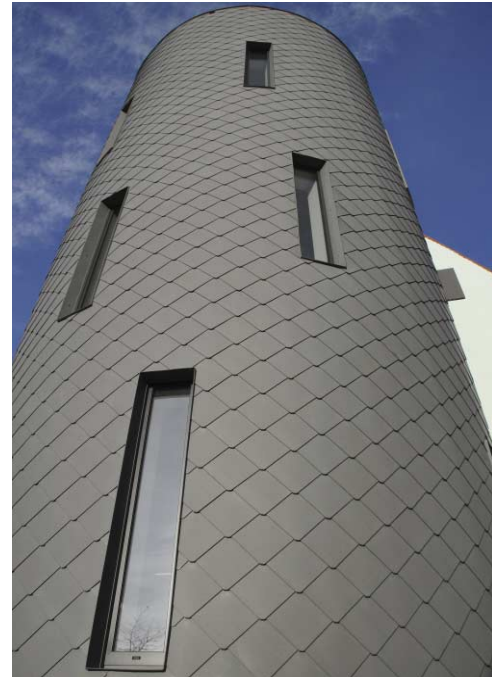
OVERVIEW VMZINC® flat lock panels, sometimes known as shingles, are installed on a continuous vented substrate on both renovation projects and new build alike. The system consists of panels with 180 degree hems approximately 1" (25mm) wide that interlock and are held on the substrate using cleats. The system allows a great deal of flexibility as flat lock panels can be made to many shapes and sizes. The panels can be square, diamond shaped and rectangular. The maximum recommended visible width for a panel is 16" x 9' (400 x 2750mm). The thickness of the zinc used will depend on panel dimensions with small panels using 0.8mm zinc whereas the larger panels will require 1mm thick zinc. Increased zinc thickness will offer a flatter panel, however, increasing panel dimensions will have the opposite effect and may induce some unevenness.



Flat lock

STRUCTURE The system is very lightweight as the panels weigh no more than 2lb/ft² (8 kg/m²) and can be fixed back to plywood and metal deck. Both substrates require the use of continuous $\frac{5}{8}$ " (16mm) thick wood and a vented airspace should be left behind the timber of at least 1½" (38mm).

INSTALLATION The panels are installed in a sequential order from bottom up. The panels are held in place using cleats which can be stainless steel, zinc or galvanised steel. For larger panels galvanised steel cleats are recommended. The cleats should be fixed at a maximum of 13" (330mm) centres. For small diamond shaped panels the hems should be slightly notched thus allowing the cleat to sit securely. When installing large rectangular panels the short side should be fixed with a long fixing strip. It is recommended that screws be used to secure the cleats. The use of nails offers significantly less resistance, but in the event of using nails, contractors are advised to use ring shank nails. The panels should be installed with the protective film in place. All clip spacing to be verified by local engineering as per specifications.

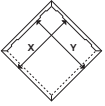
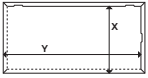
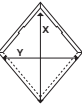
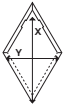


Flat lock

VMZINC® STANDARD FLAT LOCK PANEL SIZES

The sizes and shapes indicated in this table are standard and are therefore more cost effective than completely bespoke sizes. The sizes indicated correspond to dimensions as seen on the finished wall. Diamond shingles are as standard supplied with non-aligned joints. All panels are delivered with stainless steel clips.

Standard flat lock panel sizes

Pattern	Width X (mm)	Length Y (mm)	Nos of clips	Pieces per/m ²
Square 	235	235	2	19
	420	420	4	6
	590	590	4	3
Rectangle 	235	470	3	10
	235	940	4	5
	420	630	5	4
	420	840	6	3
Diamond – Wide 	590	885	6	2
	274	215	2	33
	290	230	2	29
Diamond – Narrow 	432	336	2	14
	371	193	2	27
	391	206	2	24
	585	301	2	11

Please contact us for other sizes

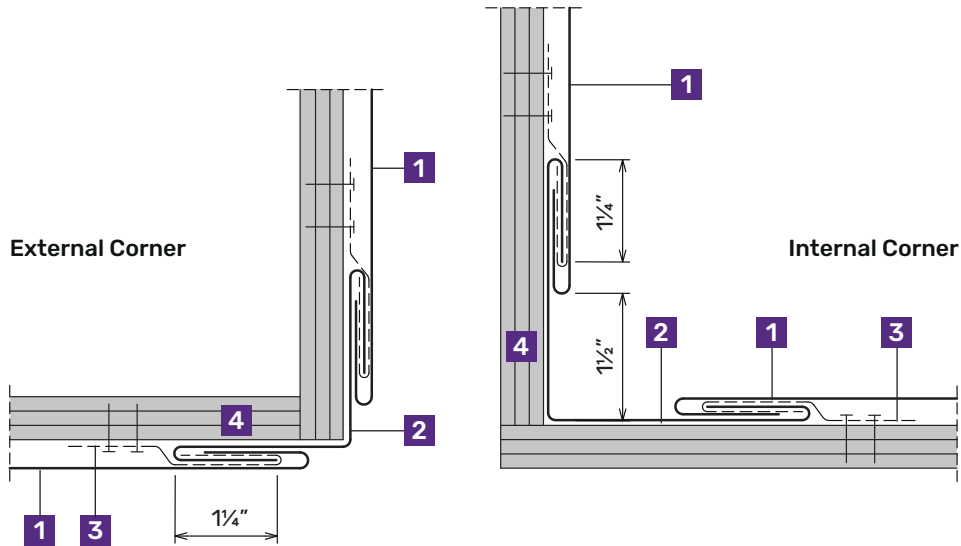
Galvanised steel deck used as a substrate for flat lock wall panels



Flat lock

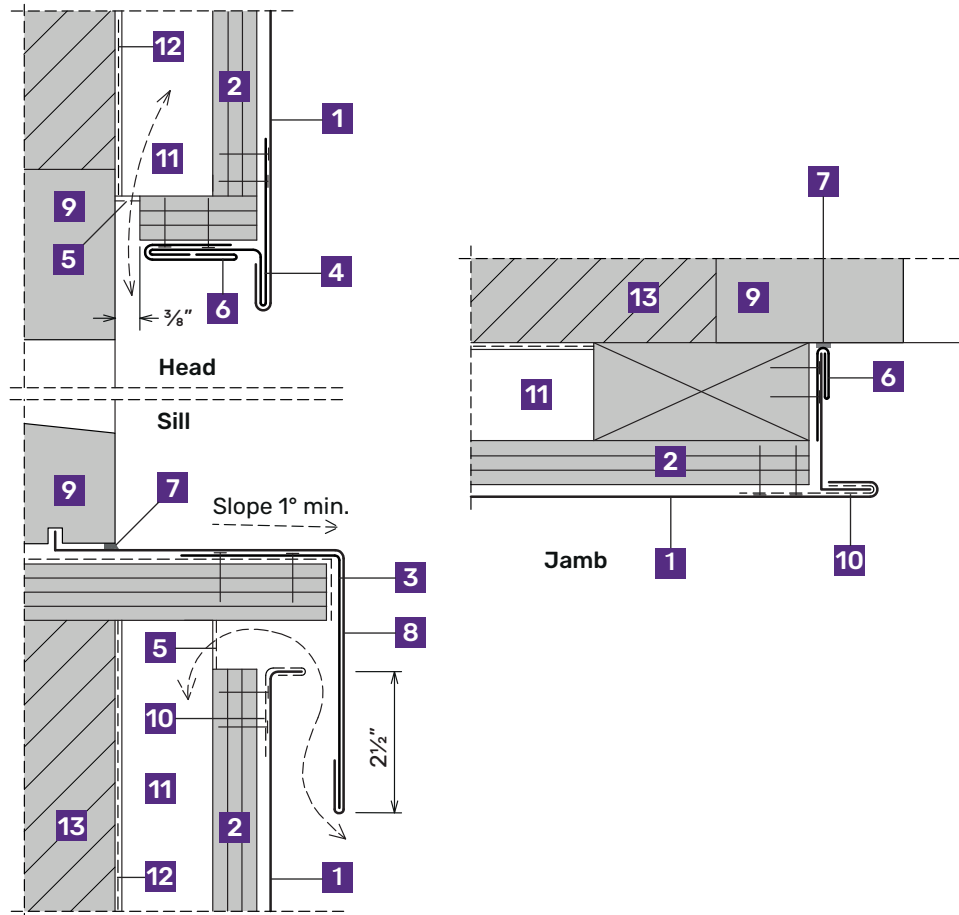
Download the technical drawings of this facade build-up from our website
www.vmzinc-us.com

CORNER DETAILS



- 1 VMZINC® flat lock panel
- 2 VMZINC® continuous corner strip
- 3 VMZINC® sheet clip
- 4 Plywood protected with breather membrane

WINDOW DETAILS



- 1 VMZINC® flat lock panel
- 2 Plywood protected with breather membrane
- 3 VMZINC® continuous folded strip
- 4 VMZINC® continuous folded strip, 0.7mm thick
- 5 Insect mesh
- 6 VMZINC® continuous welted strip
- 7 Compatible mastic sealant
- 8 VMZINC® flashing
- 9 Window frame
- 10 VMZINC® PLUS sheet clip, 0.7mm thick, width 3", 2 per 3'-3"
- 11 Ventilated space from 3/4" to 1 1/2"
- 12 VMZINC® Membrane
- 13 Loadbearing structure

ADEKA

Download the technical drawings of this facade build-up from our website www.vMZinc-us.com

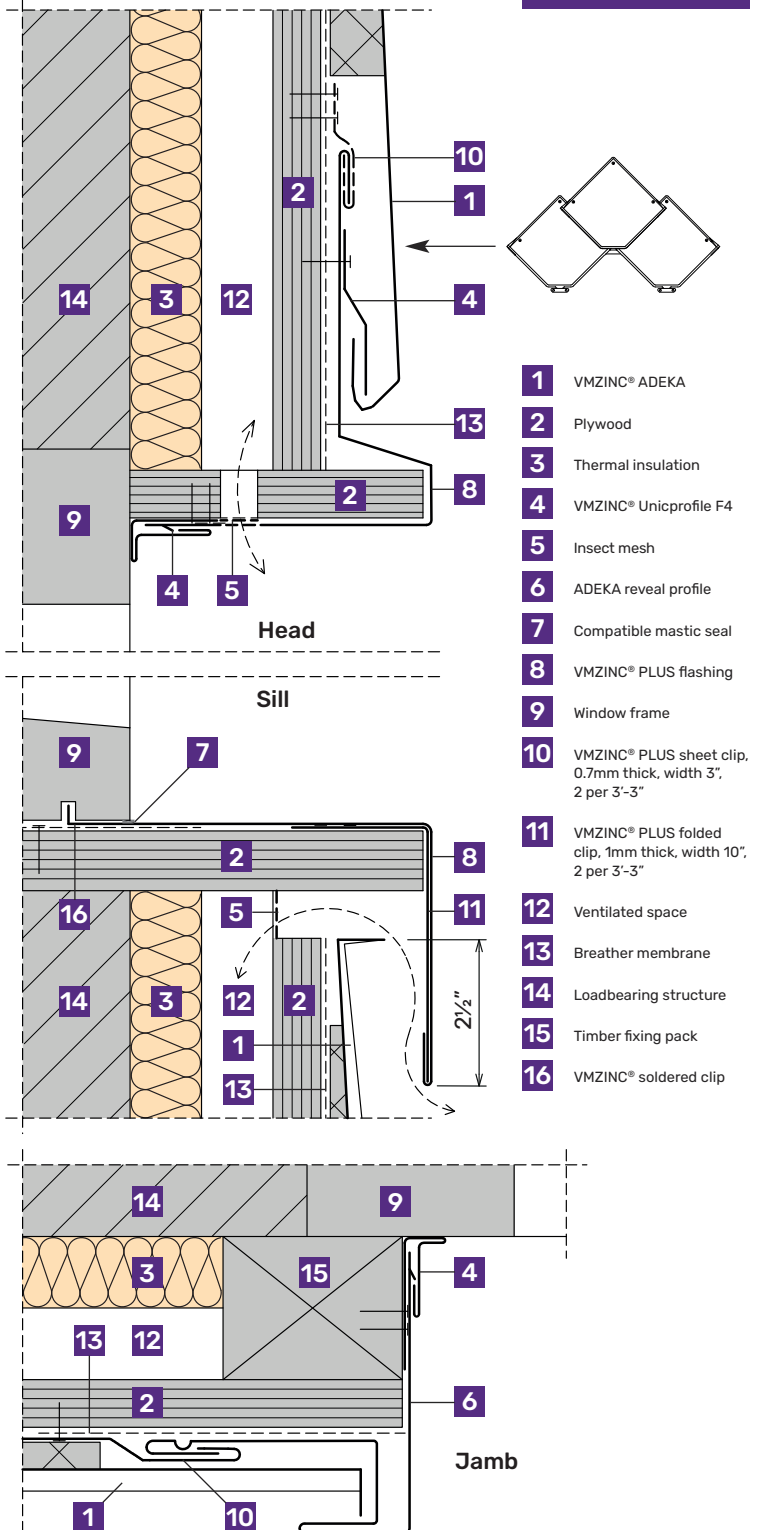
OVERVIEW ADEKA is an innovative patented facade and roof system based on small pre-formed QUARTZ-ZINC® elements featuring a unique locking key. For other finishes please contact us.

1 box of 24 elements covers 29.3ft². Due to the raised edges and 50mm overlaps ADEKA can be used for roofing for slopes of 15 degrees and over.



INSTALLATION AND STRUCTURE

ADEKA can be fixed to both vented 5/8" (16mm) plywood and steel deck with a breather membrane. The panels are installed from bottom up with the key fixing into the lower panel. Each ADEKA tile is then secured with 3 screws. ADEKA is not supplied with filmed VMZINC®.



VMZINC® cassettes

OVERVIEW In recent years zinc has been used far more as a metal for rainscreen cassettes. The system used will vary depending on panel size/format, joint type and whether fixings are visible or not and panel flatness.



Alpolic ZCM panels

TYPICAL ALPOLIC ZCM SYSTEM CONSTRUCTION



In QUARTZ-ZINC® and PIGMENTO® finishes

Maximum panel size: 4' 1" x 19' 6" (1250 x 6000mm)

In ANTHRA-ZINC® and AZENGAR® finishes

Maximum panel size: 3' 3" x 19' 6" (1000 x 6000mm)

- 1 Alpolic ZCM panel
- 2 Fixing clip
- 3 Metal framing creating a vented 1½" (38mm) airspace
- 4 VMZINC® Membrane
- 5 Insulation
- 6 Supporting structure (blockwork as shown or metal framing or other appropriate supporting structure)

ADVANTAGES OF THE ALPOLIC ZCM SYSTEM

- Very large flat panels
- Option of concealed fasteners
- Suitable for complex panel shapes
- Horizontal and vertical installation possible
- NFPA 285 tested
- Peel test to ASTM D-903

For more information contact us on
919 296 8868
or send an e-mail to
info@vmzinc-us.com

Alpolic ZCM panels

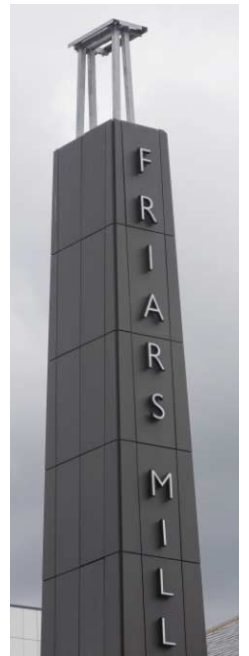
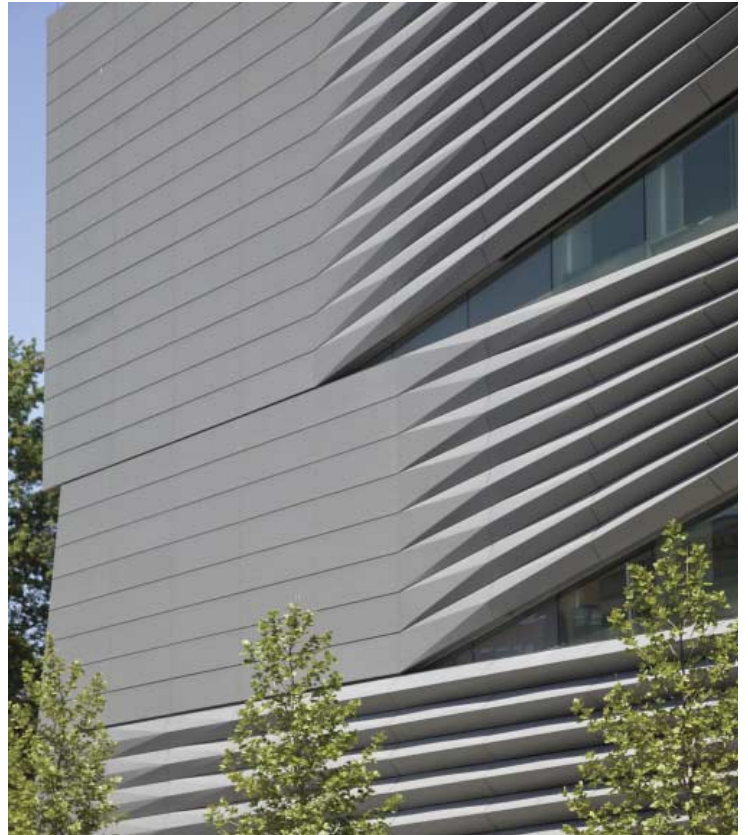
OVERVIEW Alpolic ZCM material consists of two layers of 0.5mm thick pre-weathered zinc and a fire rated 3mm mineral rich polyethylene core. The material is available in QUARTZ-ZINC®, ANTHRA-ZINC®, AZENGAR® and the 5 PIGMENTO® colors. The stiffness of Alpolic ZCM allows very large and exceptionally flat panels to be manufactured and installed. However the nature of composite material also allows it to be folded into complex and yet rigid shapes. Standard panels can be up to 9'-10" x 3'-0" (3900mm x 900mm) in size, however it is possible to extend this to 19'-2" (5900mm) and 3'-7" (1100mm). It should be noted that 3'-7" (1100mm) wide panels are only available in QUARTZ-ZINC® and PIGMENTO®.

Alpolic ZCM is always installed using the rainscreen principal with a vented air space of at least 1½" (38mm) between the back of the panels and the insulation or solid structure. Panels can be installed both horizontally as well as vertically. The panels can also be fixed with visible fasteners or using a cassette system with hidden fixings. Alpolic ZCM can also be fixed using a structural bond (vertical panels only) thus providing another secret fix option.

STRUCTURE The system weighs less than 3lb/ft² (13 kg/m²) and is generally fixed to aluminium cladding rails with a thickness of at least 2mm. The zone behind the panels must be vented and at least 1½" (38mm) deep.

INSTALLATION The panels are installed on cladding rails. The exact dimensioning of the rails and brackets will depend on loadings and panel orientation. Vertical panels are generally installed using a hook and pin principal whereas horizontal panels rely on a continuous rail. Depending on the system used, individual panels may be independently removable. Standard panel installation is bottom up with the standard joint width being ¾" (19mm).

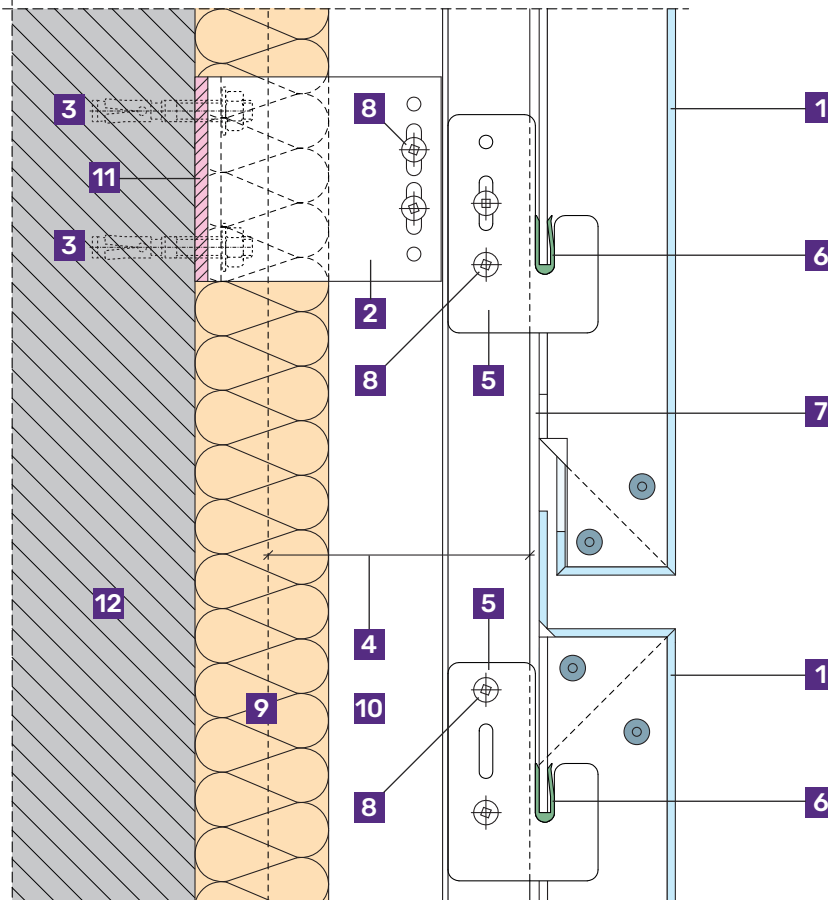
The panels should be installed with the protective film in place.



Alpolic ZCM panels

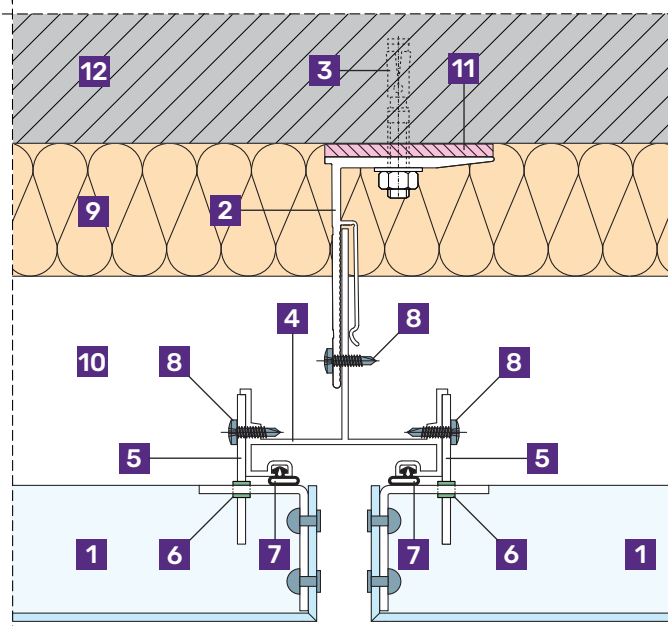
Download drgs at
[www.alpolic-america.com/
documents/
installation-details/](http://www.alpolic-america.com/documents/installation-details/)

VERTICAL SECTION



- 1** Alpolic ZCM panel
- 2** Nvelope fixing bracket
- 3** Stainless steel fixing
- 4** Cassette vertical support rail
- 5** Hook plate
- 6** PVC anti-rattle clip
- 7** Alignment gasket
- 8** Self drilling stainless steel screw $\frac{3}{16}$ " x $\frac{3}{4}$ "
- 9** External insulation
- 10** Ventilated cavity
- 11** Thermal break
- 12** Loadbearing structure

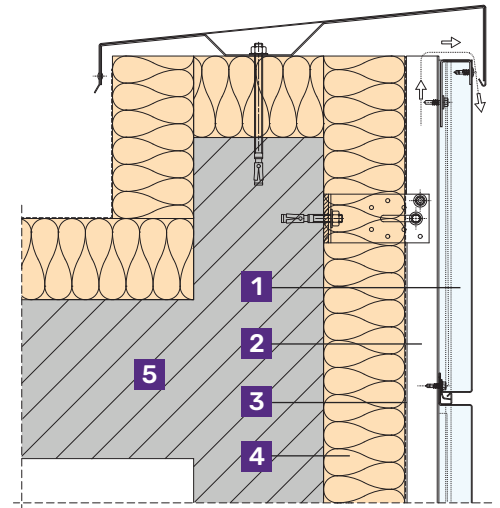
HORIZONTAL SECTION



- 1** Alpolic ZCM panel
- 2** Nvelope fixing bracket
- 3** Stainless steel fixing
- 4** Cassette vertical support rail
- 5** Hook plate
- 6** PVC anti-rattle clip
- 7** Alignment gasket
- 8** Self drilling stainless steel screw $\frac{3}{16}$ " x $\frac{3}{4}$ "
- 9** External insulation
- 10** Ventilated cavity
- 11** Thermal break
- 12** Loadbearing structure

Dri-Design cassettes

TYPICAL DRI-DESIGN CASSETTE SYSTEM CONSTRUCTION



Maximum panel size: 2' 0" x 8' 0" (600 x 2400mm)

- 1 Dri-Design cassette panels
- 2 Metal framing creating a vented 1½" (38mm) airspace
- 3 Breather membrane
- 4 Insulation
- 5 Supporting structure (blockwork as shown or metal framing or other appropriate supporting structure)

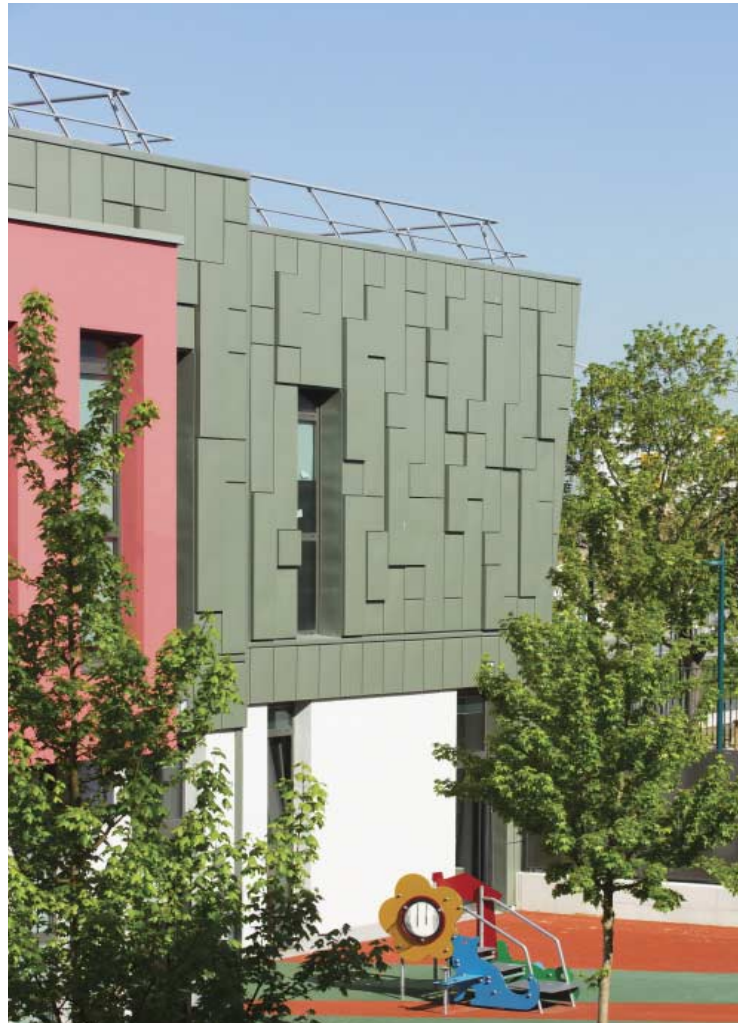
ADVANTAGES OF A TYPICAL DRI-DESIGN CASSETTE SYSTEM

- Wide range of panel sizes and depths
- Concealed fastening
- All finishes available
- Bespoke perforation possible

Download drgs at
[www.dri-design.com/
access-details/
architectural-details/](http://www.dri-design.com/access-details/architectural-details/)

Dri-Design cassettes

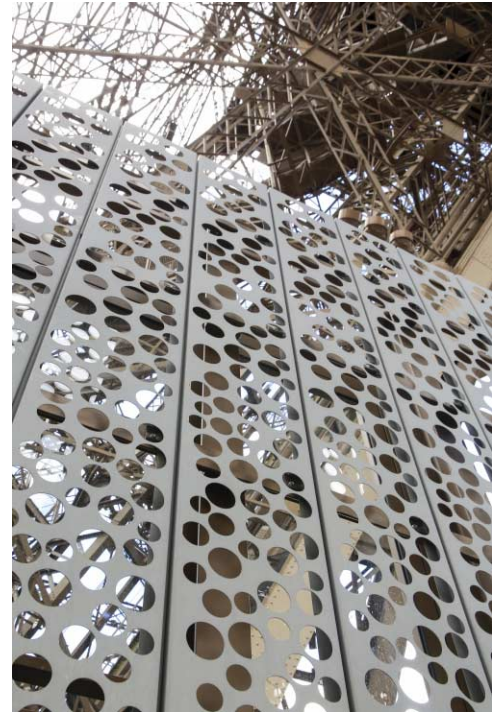
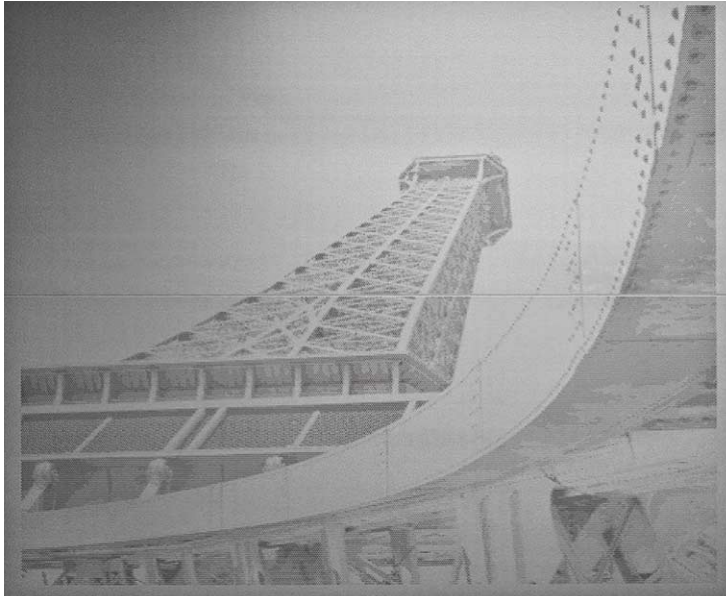
OVERVIEW Dri-Design is a rainscreen cassette system that is available in all finishes of up to 1.5mm thick VMZINC® and can be installed both vertically and horizontally. The maximum panel size is 8'-0" x 2'-0" (2400 x 600mm) and panels can have a depth of 1½" (38mm), 2½" (63mm), 3" (76mm) or 4" (100mm). Vertical and horizontal joints are ⅝" (16mm). Timber battens can be used to support the panels but metal rails are more commonly used (2mm aluminium or 1.5mm galvanised steel). Center to center spacing of the rails is typically 2'-0" (600mm) but can vary depending on the loading requirements of the facade in question.



Customised panels

PERFORATED PANELS

Almost all VMZINC® rainscreen facade panels can be perforated. This can vary from standard perforations to custom perforations creating various patterns, even images and logos.



Customised panels

PERFORATED
ALPOLIC ZCM
PANELS IN
QUARTZ-ZINC®



PERFORATED
QUARTZ-ZINC®



Customised panels

**CURVED
ALPOLIC ZCM IN
PIGMENTO®
GREEN**



**CUSTOM-
FORMED
ALPOLIC ZCM IN
QUARTZ-ZINC®**



Customised panels

**CURVED
INTERLOCKING
PANELS IN
ANTHRA-ZINC®,
QUARTZ-ZINC®
AND
NATURAL
VMZINC®**

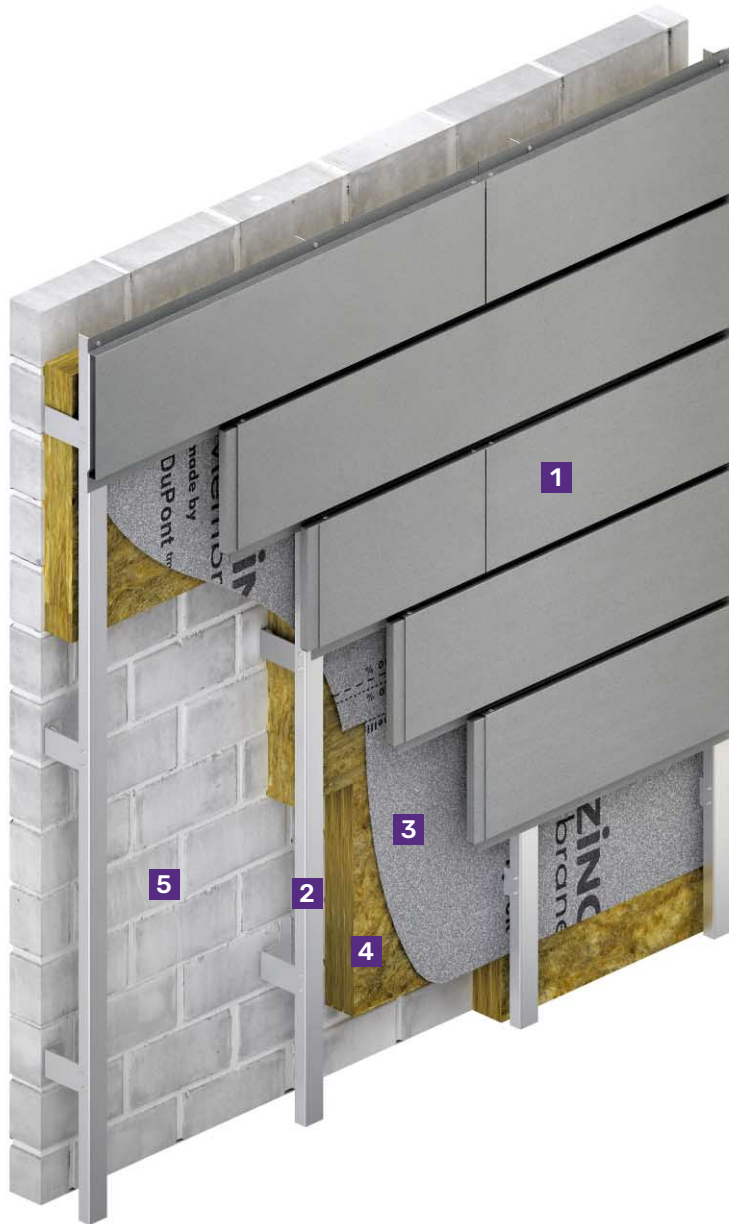


**CUSTOM-
STAMPED
NATURAL
VMZINC®
STANDING SEAM
ROOFING AND
WALL CLADDING
PANELS**



Interlocking panels

TYPICAL INTERLOCKING PANEL SYSTEM CONSTRUCTION



Maximum panel size: 1' 1" x 19' 6" (333 x 6000mm)

- 1 VMZINC® interlocking panel
- 2 Metal framing creating a vented 1½" (38mm) airspace
- 3 Breather membrane
- 4 Insulation
- 5 Supporting structure (blockwork as shown or metal framing or other appropriate supporting structure)

ADVANTAGES OF THE INTERLOCKING PANEL SYSTEM

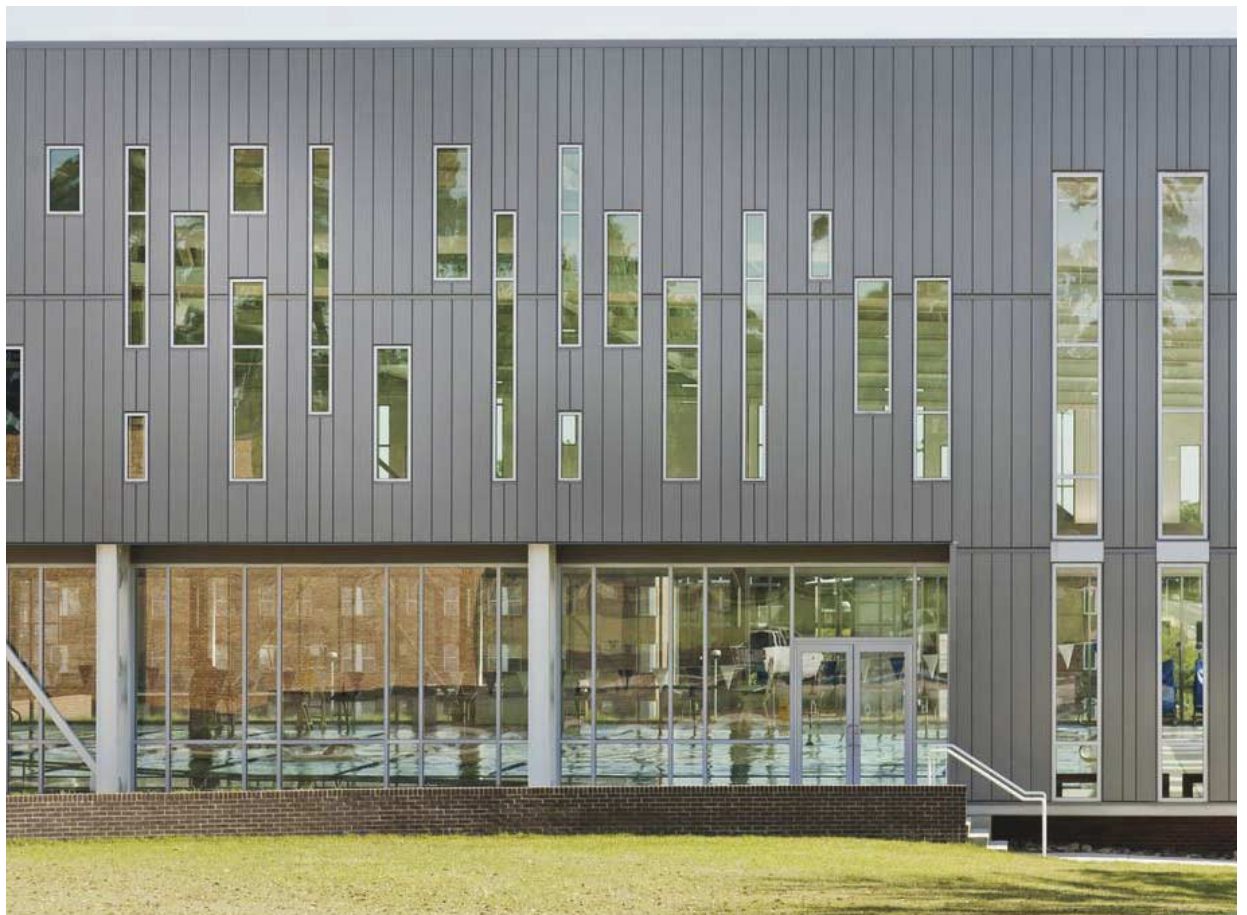
- Elegant linear panels
- Concealed fastening
- Variable joint size
- Horizontal and vertical installation possible

For more information contact us on
919 296 8868
or send an e-mail to
info@vmzinc-us.com

Interlocking panels

OVERVIEW Interlocking panels consist of a panel face, reveal joint and are fixed in position using hidden fasteners. The panels can be orientated horizontally or vertically and can be applied equally to soffits. Panels are available in all finishes of 1mm thick VMZINC® with standard panel widths being 12" (304mm), 10" (254mm) and 8" (203mm).

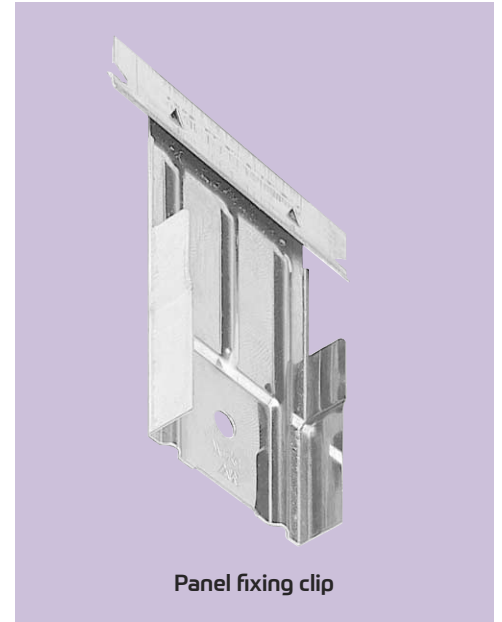
The maximum panel width is 12" (304mm) and length 20'-0" (6m) for horizontal panels and 12'-0" (3.65m) for vertical panels. Panels of less than 24" (608mm) are not recommended. Joint widths can be either ½" (12mm) or ¾" (19mm). It should be noted that panel width = panel face + joint. The depth of the panel is 1" (25mm).



Interlocking panels

STRUCTURE The system is relatively lightweight as the panels weigh no more than 2lb/ft² (12 kg/m²) and can be fixed back to both timber and metal sub frames. Support rails are installed at 24" (600mm) centres maximum. Aluminium rails are 2mm thick with both timber and aluminium rails requiring a supporting face of at least 1½" (38mm). All panels that are over 6'-6" (2m) in length must allow for thermal expansion and contraction by using stainless steel clips. The fixed point being at the top of the panel for vertical installation and in the middle for horizontal installation.

INSTALLATION The panels are installed in a sequential order from top to bottom for horizontal panels. The upper edge of each panel is engaged into the lower edge of the panel above. The panels are mechanically attached using screws and/or the panel fixing clip that allows for thermal movement. An elongated hole can also be used to allow for thermal movement. The panels should be installed with the protective film in place.



Download the
technical drawings of
this facade build-up
from our website
www.vmzinc-us.com

Upstand slope 1°

6" min.

1 1/4"

1

2

3

4

5

6

7

8

9

10

11

12

13

14

The technical drawings illustrate the installation details for a window unit, showing the Head, Sill, and Jamb sections. The drawings are divided into three main areas: Head, Sill, and Jamb.

Head Detail: This section shows the top of the window frame. It includes a cross-section of the frame (1) and the surrounding wall (2). The frame is secured with fasteners (3) and a sealant (4). The head of the window is labeled "Head". Dimensions of 2" are indicated for the frame and sealant.

Sill Detail: This section shows the bottom of the window frame. It includes a cross-section of the frame (1) and the surrounding wall (2). The frame is secured with fasteners (3) and a sealant (4). The sill is labeled "Sill". A slope of 1° min. is indicated for the sill. Dimensions of 2 1/2" are indicated for the frame and sealant.

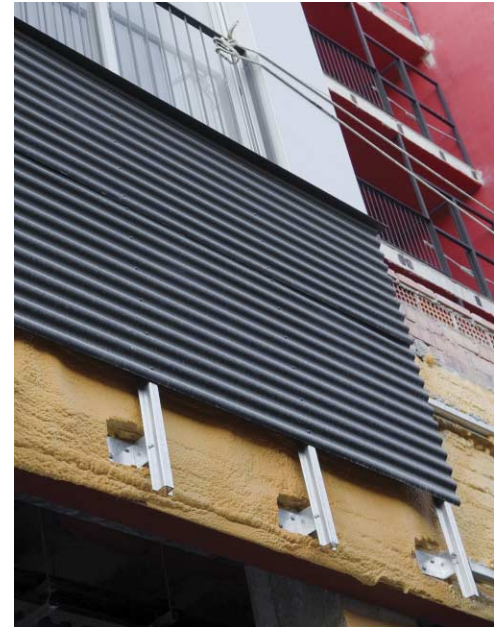
Jamb Detail: This section shows the side of the window frame. It includes a cross-section of the frame (1) and the surrounding wall (2). The frame is secured with fasteners (3) and a sealant (4). The jamb is labeled "Jamb".

Numbered Callouts: The drawings include numbered callouts (1-15) identifying specific components and materials:

- 1: Window frame
- 2: Wall
- 3: Fasteners
- 4: Sealant
- 5: Insulation
- 6: Weatherstripping
- 7: Drainage
- 8: Flashing
- 9: Sill slope
- 10: Sill seal
- 11: Head seal
- 12: Jamb seal
- 13: Jamb fasteners
- 14: Jamb seal
- 15: Insulation

Sine wave/corrugated panels

TYPICAL SINE WAVE/ CORRUGATED SYSTEM CONSTRUCTION



Maximum panel size: 10' 0" x 29 1/4" (3040 x 746mm)

- 1 VMZINC® Sine wave/corrugated panel
- 2 Stainless steel screw
- 3 Metal framing creating a vented 1 1/2" (38mm) airspace
- 4 Breather membrane
- 5 Insulation
- 6 Supporting structure (blockwork as shown or metal framing or other appropriate supporting structure)

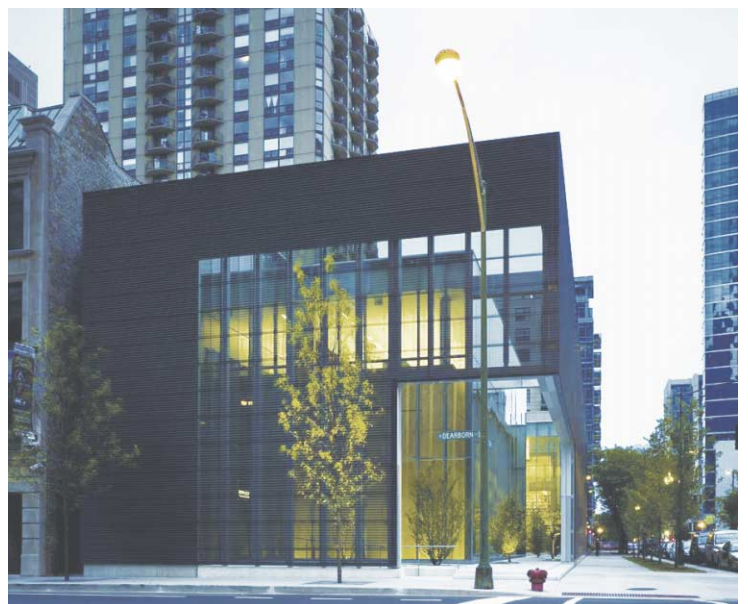
ADVANTAGES OF THE SINE WAVE/ CORRUGATED SYSTEM

- Offers a more industrial aesthetic
- Very simple installation
- Cost effective
- Available in all finishes

For more information contact us on
919 296 8868
or send an e-mail to
info@vmzinc-us.com

Sine wave/corrugated panels

OVERVIEW VMZINC® Sine wave is a corrugated profile in zinc that can be fixed to a wooden or a metal framework. Along with face-fixed Alpolic ZCM panels this is one of the few VMZINC® facade systems that relies on visible fasteners. The standard profile for the panel is a $2\frac{1}{2}'' \times \frac{1}{8}''$ (68 x 22mm) module which is available in both 0.8mm and 1mm thicknesses. The system can be used to clad walls both horizontally and vertically. Sine wave can be installed on a roof, however a secondary waterproofing layer is required.



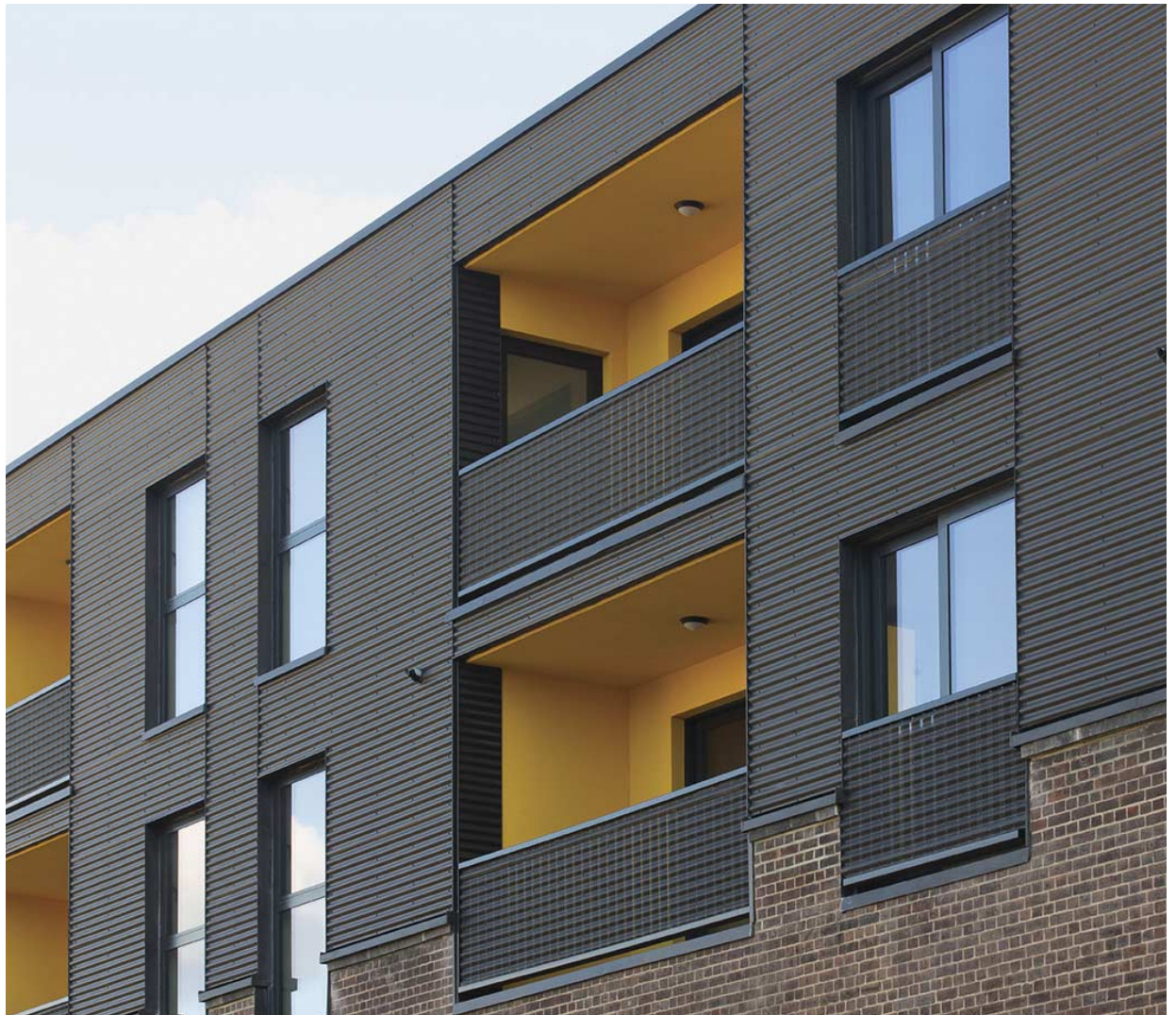
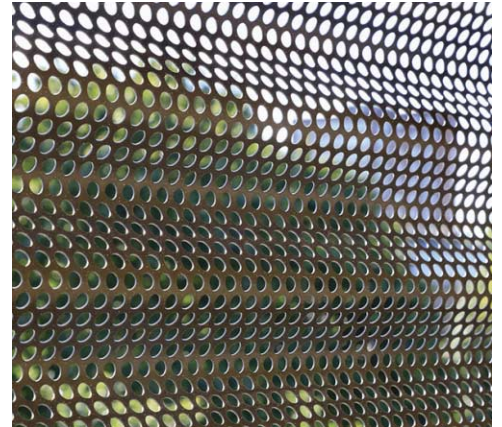
Sine wave/corrugated panels

STRUCTURE The system is fixed back to timber or metal (galvanised steel at least 1.5mm thick or aluminium at least 2mm thick) rails that are typically at centres of between 32" and 48" (0.8m and 1.2m) depending on loading. The rails must have a supporting face width of 1¼" (41mm) and should allow a minimum vented space between the VMZINC® Sine Wave panel and the insulation/sheathing of 1½" (38mm).

INSTALLATION The panels are installed in a sequential order from bottom up. Panels are fixed in place with stainless steel screws on every other wave. The maximum length for the panels is 10'-0" (3m).

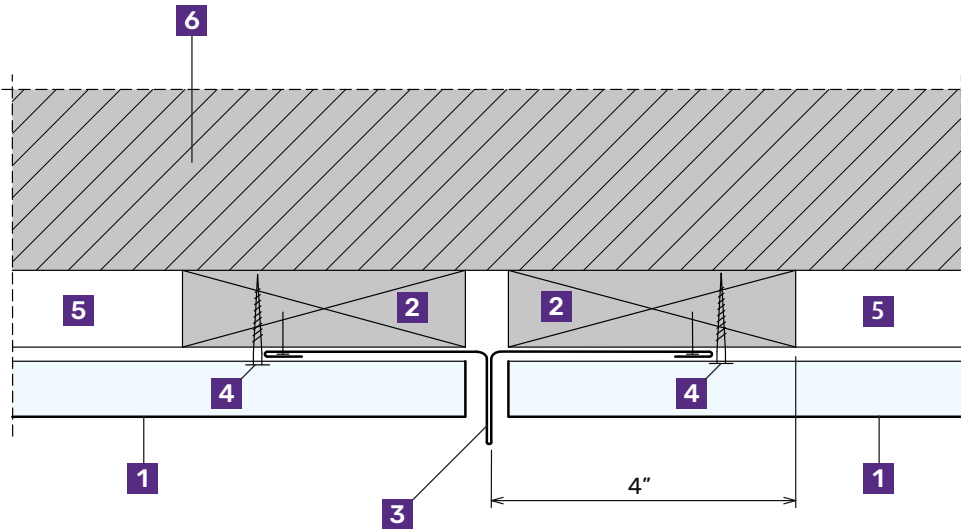
The panels should be installed with the protective film in place.

VMZINC® PLUS must be used on all non-vertical flashings.



Sine wave/corrugated panels

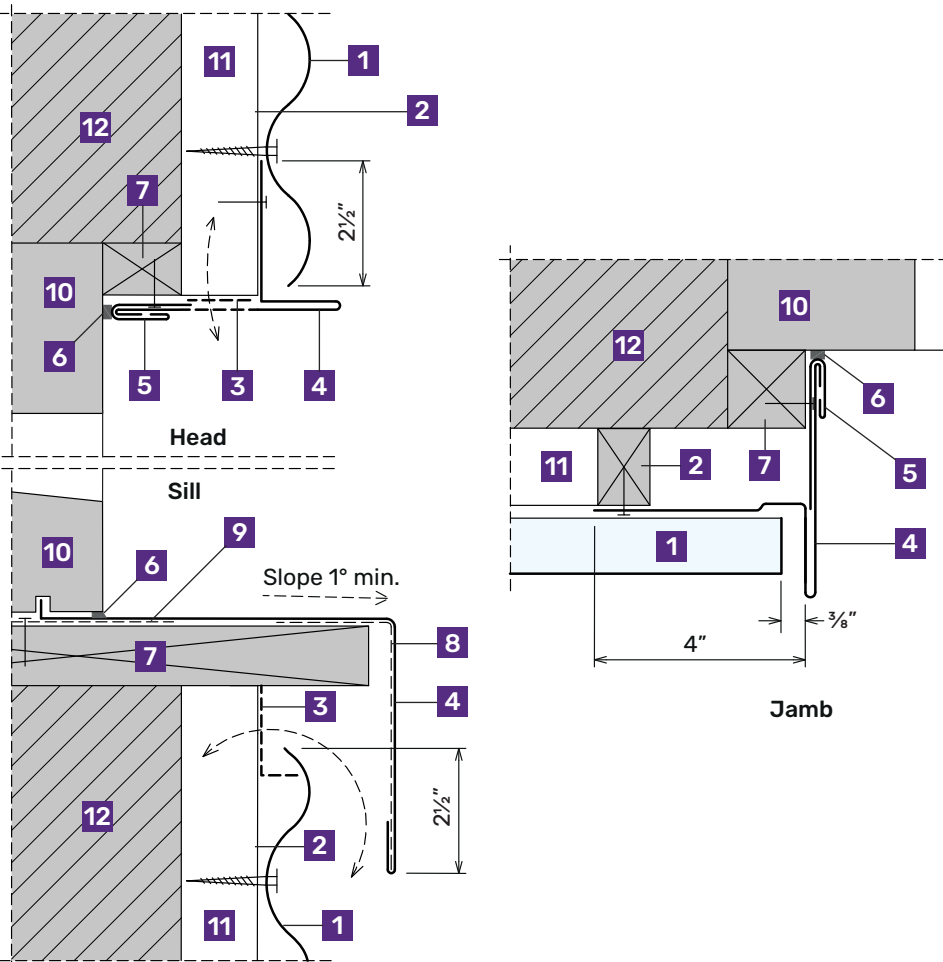
EXPANSION JOINT DETAIL



Download the technical drawings of this facade build-up from our website www.vmzinc-us.com

- 1 VMZINC® Sine Wave profile
- 2 Timber or metal framework
- 3 VMZINC® flashing
- 4 Panel fixing
- 5 Ventilated space
- 6 Loadbearing structure

WINDOW DETAILS



- 1 VMZINC® Sine Wave profile
- 2 Timber or metal framework
- 3 Insect mesh
- 4 VMZINC® flashing
- 5 VMZINC® continuous welded strip
- 6 Compatible mastic sealant
- 7 Timber fixing pack
- 8 VMZINC® folded clip, 1mm thick, width 10", 2 per 3'-3"
- 9 VMZINC® sheet clip, 0.7mm thick, width 3", 2 per 3'-3"
- 10 Window frame
- 11 Ventilated space
- 12 Loadbearing structure

VMZINC® FACADES

Further technical information

ZINC AESTHETICS

It is generally not recommended that zinc roofs and walls are cleaned as rain water performs this task very well. Non-rinsed surfaces such as soffits and some facades, especially in coastal areas may exhibit some stains. It should be noted that this is not a form of serious corrosion.

Zinc can be installed adjacent to limestone. The run off from limestone onto zinc material is acceptable. However, limestone dust and gypsum dust generated during cutting operations can react with zinc in the presence of water and form a superficial layer of white rust. No dust should be in contact with unprotected zinc. To prevent white rust, good construction practices should be used to limit the amount of construction that comes in contact with the zinc.

VMZINC® manufacturing uses a color management system based on the Y-Factor. The Y-factor ranges from 0 to 100: 0 is black and 100 is white. The range for ANTHRA-ZINC® is 5 to 7 and the range for QUARTZ-ZINC® is 22 to 25. We recommend that one project uses one production batch.

FIXING SYSTEM METHOD

Clips have a dual function:

- Ensuring the mechanical resistance of the entire roof
- Allowing free expansion of the metal

VMZINC® clips are made of 304 stainless steel. The thickness of the fixing clip is 0.5mm. The sliding clips have a moving component, which is 0.4mm thick, and a 2¾" (70mm) long slot to allow free movement of the panel when it is under expansion and contraction. Each clip must resist a pull-out force of 50daN. It is recommended that screws be used to secure the clips with two being used per sliding clip.

The use of nails offers significantly less resistance, but in the event of using nails, contractors are advised to use ring shank nails.

Center to center distance between clips:

- 16" (400mm) on the main part of the roof
- 9" (225mm) on perimeter of the roof and at least 4'-0" (1.2m) or 1/8 of the projected roof
- 6" in the corners



All Standing Seam panels require a minimum of 5 fixed clips installed over a 4'-0" (1.2m) length of the seam. When attaching PV panels, snow guards, etc it may be necessary to further increase the number of these clips. Standard panel width is 16⅞" (400mm).

Please consult us for further information and note that these are recommended spacings and all fastened points should be verified by a local engineer to confirm wind uplift requirements for your project.

VMZINC® in relation to other materials

Compatible contact products	
Metals	
Lead	
Aluminium (painted, anodised or bare)	
Galvanised steel	
Stainless steel	
Woods	
Pine	
Spruce	
Scots pine	
Poplar	
Miscellaneous materials	
Polyurethane	
Non-acetic silicones	
MS polymer mastics	
Organic timber treatments	

Incompatible contact products & run-off*	
Metals	
Copper	
Steel (non-galvanised)	
Gypsum dust/limestone dust	
Woods	
Larch	
Oak	
Chestnut	
Red cedar	
Douglas fir	
White cedar	
All woods with a pH < 5	
Miscellaneous materials	
Mortar	
Building paper	
Bituminous membranes	
Fire retardant & preservative treatments	
Acidic cleaners (brick cleaner etc)	
Acetic silicones	
Metal salt timber treatments	

* This list is not exhaustive

Transport, handling and storage

TRANSPORT AND HANDLING

To ensure the durability and aesthetics of the zinc, specific recommendations must be followed in the transport and handling of zinc sheets and coils.

- Avoid dropping sheet, coils and formed pieces. Any blow or punch to the zinc can cause deformity in the zinc, in the form of folds or bumps. This can affect one or more of the sheets and coils. These deformities will affect the aesthetics of the zinc and may also damage its structural integrity, with cracks occurring over time
- Panels must be transported and stored vertically, standing on the L profile in the containers designed for them
- When coils are shipped, they must be placed either on their horizontal axis or vertical axis, depending on the client's request
- Rough surfaces may scratch the zinc which can develop into cracks either during forming or after installation due to expansion and contraction. Therefore the dragging or sliding of sheets should be avoided
- When handling the zinc, gloves and long sleeved shirts must be worn. The acid nature of perspiration will leave visible marks and finger prints on the zinc that over time will heal but can remain visible for quite some time
- When the zinc is shipped in containers, it is essential to open the containers immediately upon receipt and store the products as soon as possible in the correct conditions



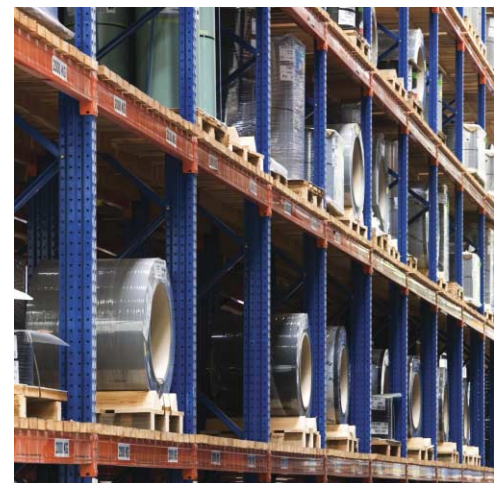
STORAGE

The zinc sheets, coils, and formed pieces must be stored in a well-ventilated, sheltered and dry area where temperature variation is kept to a minimum.

- Temperature variations can cause condensation build-up, that in turn will cause zinc hydroxide (white rust) to form. Ensure that the zinc is stored in an area without great temperature variations. Zinc hydroxide forms when the surface of zinc comes into contact with humidity without carbon dioxide. Zinc hydroxide provides no protection and leaves unattractive, indelible marks on the zinc. Consequently, we do not recommend installing any panel that has been affected by zinc hydroxide
- The sheets, coils and formed pieces should be separated from the ground by pallet or similar storage device to allow sufficient ventilation of the zinc
- Pallets or similar storage device should allow the zinc sheet to be stored flat to reduce risk of deformation
- It is recommended that the coils be stored in their original packaging

If the coils are to be stacked due to lack of storage space the following recommendations must be followed:

- If coils are delivered on their horizontal axis, the pallets must be stored in their original packaging and individually on separating racks
- If coils are delivered on their vertical axis the pallets must be stored on top of one another with a maximum of 4 pallets for stability reasons
- Zinc must never be stored outside



VMZINC® FACADES

Working with zinc

USE A PROFESSIONAL

VMZINC® provides training for installers with experience in metal roofing and cladding. This training is designed to supplement trained professionals with specific information concerning VMZINC®. Please contact us for further information.

PROFILING AND FOLDING ZINC

As zinc is a rolled metal it has a rolling direction, which is also indicated on the protective film. It is recommended that this direction is respected on a roof or wall as light will reflect differently on panels laid in opposite directions. The zinc must also be folded in a way that creates a gentle radius rather than a sharp fold.

This is the case for all equipment whether it be hand tools, CNC equipment or profilers. Natural zinc, QUARTZ-ZINC® and ANTHRA-ZINC® should always have an internal folding radius of at least 2 x the thickness of the zinc sheet, and the metal should never be folded if the temperature of the metal is less than +45°F.

When using PIGMENTO®, this radius should be increased to 3 x the thickness of the zinc sheet, and the folding should only be carried out when the temperature of the metal is at least +50°F. All folding of the zinc should be carried out with the protective film in place.

PROTECTING ZINC

Protective gloves should not only be used as a safety measure when working with zinc but also to avoid staining the metal. The protective film should be left on the zinc during panel manufacture and installation. Zinc roofs and walls must not be covered with tarpaulins during the installation as it will cause condensation build-up resulting in possible white rust staining.

SOLDERING ZINC

Soldering is an excellent way of joining two pieces of zinc to another in a weather-tight fashion. It should be noted that a soldered joint will not allow for any thermal expansion and contraction, therefore soldering should only be used to join small pieces of zinc to one another.

Before soldering, all surface treatment of oxidation on the metal must be either chemically or physically (gentle abrasion) removed.

For more information please consult our guide to soldering.

PROTECTIVE FILM

The protective film should be removed from the zinc panels upon completion of the facade or roof all at the same time.

The protective film should remain on the zinc no longer than 60 days after the installation of the panels. Make sure that other trades do not contaminate zinc panels after the film is removed.

The film must not be partially removed during installation for the remaining film to be removed at a later date, as this is likely to allow water to become trapped between the zinc and the partially removed film resulting in staining. It should be noted that most stains are very difficult to remove.

If fully filmed sheets are being used to form panels, which may make it difficult to remove the film after installation, the film can be scored by using a piece of zinc (greatly reduces scratching of the pre-weathering). This must be done on an area of the panel where water cannot build up, i.e. in the reveal of a cassette panel and not on the face of a panel. The scoring must also be done so as to leave a clean well-adhered edge to the film.

Once the film has been removed it must not be covered with timber, tarpaulins, etc as these will trap water and induce staining.



VMZINC® FACADES

Maintenance

MINIMUM REQUIREMENTS AND NORMAL MAINTENANCE

Although zinc is a metal that requires very little maintenance and the rinsing effect of rain water is often sufficient to keep the zinc in ideal condition the following precautions should be followed. The roof and or wall should be regularly inspected and any foreign matter such as leaves, grass and other deposits should be removed. Special attention should be given to gutters, insuring that they are clean and not blocked thus allowing the free flow of water (flat gutters which result in standing water are not recommended). This maintenance shall be at the owner's expense after the installation work has been completed.

FOOT TRAFFIC

Normal foot traffic use implies traffic reduced to a strict minimum for normal maintenance defined above and for other work, such as installation and servicing of aerials, etc.

It is advisable to take all the precautions and useful provisions necessary so as not to cause any puncturing of the flat parts or deformation of the joints, roll capping, roof vents, etc. Care must also be taken to clean footwear prior to walking on the roof.

In the case where technical equipment requiring frequent inspections (air conditioning, for example) is installed on the roof, certain adaptive arrangements such as walkways should be considered.

CLEANING

As indicated above, the rinsing effect of the rain will often mean that no other cleaning is necessary. However, it is possible to wash the zinc with warm water and a mild detergent.

The zinc must always be cleaned in the direction of the grain of the metal. Pressure washers are not recommended. Cleaning with detergent can be supplemented with application of a very small amount of mineral oil. The zinc must be completely dry prior to any application of mineral oil. It is always advisable that a small test area is cleaned and left for 24 hours prior to proceeding to a larger area.

SCRATCHES

Due to the self healing nature of zinc we would recommend that small scratches be left to heal on their own. We do not recommend the use of touch-up paint.

SALT

In coastal areas salty water can stagnate on all surfaces including zinc. When the water evaporates it is possible that this can leave a white stain.

On surfaces that are rinsed by rainwater the majority of the staining will be removed. However, on non-rinsed facades and soffits it is possible that these stains will build up and be more prominent.

It should be noted that this staining is purely aesthetic. All projects within 1 mile of salt water should be considered as 'severe coastal' and within 12 miles as 'coastal'.



VMZINC® FACADES

Zinc in different environments

AESTHETICS Zinc has been installed all around the world and in all types of climates ranging from coastal Scotland, the deserts of Arizona, tropical Singapore, the high mountains of Switzerland and even near the cliffs of Cape Horn, to name but a few locations.

Hot, cold, wet, dry, windy, coastal, rural and urban climates are all environments where zinc has been installed.

As well as the almost endless variety of environments where zinc can be, and has been used, zinc is a material that requires almost no maintenance as the rinsing effect of rainwater performs this task naturally. However, when zinc is used on a non-rinsed surface such as a protected facade, soffit or in a very dry climate it is possible that the zinc may exhibit some superficial stains. These stains will not significantly affect the integrity of the zinc itself.

It is for this reason that the very dark gray ANTHRA-ZINC® should be carefully considered before being designed on a non-rinsed facade or soffit. In marine locations (1 mile from the sea) the risk of superficial staining in these areas increases substantially. ANTHRA-ZINC® will also continue to evolve on rinsed roofs in marine locations and ANTHRA-ZINC® STRAT should be considered for these environments. Staining on non-rinsed surfaces will decrease further away from the sea. However, salt can still be present in the air up to 12 miles from the sea. It should be noted that non-rinsed surfaces in close proximity to roads that are heavily salted in the winter can also exhibit superficial staining. The PIGMENTO® range must not be left with bare edges exposed in marine locations, and folding radii must be respected. PIGMENTO® is also not recommended for non-rinsed surfaces within 2 miles of the sea or on rinsed surfaces within ¼ mile of the sea*. When QUARTZ-ZINC® is installed on a roof just prior to snowfall and the snow lies on the zinc for several weeks it is possible that some superficial stains can be left visible following the eventual snow melt. These stains will not affect the integrity of the zinc and will in time fade due to the rinsing effect of rainwater.

As the PIGMENTO® range continues to extend, the material can be used on all roofs and walls across the US and Canada. In very high UV environments due to the nature of the PIGMENTO® finish a reinforced version must be used for roofing, broadly South West of a line drawn from Oregon to South Carolina – see map. These recommendations also apply to the STRAT range. For further project specific information please contact us.

* for the State of Florida rinsed surfaces are extended to 1 mile from the sea.



VMZINC® FACADES

Other VMZINC® systems

ROOFING SYSTEMS

VMZINC® has been used as a roofing system for almost 200 years. The most common system is standing seam roofing. However, batten cap roofs and Adeka tiles offer a different aesthetic for the roof.



ORNAMENTS

VMZINC® ornaments were first made by 19th century workshops in Paris. The tradition continues with VMZINC® ornaments fabricating both standard and bespoke ornaments that are sent to all corners of the world including North America. Many of these ornaments are also available in copper.



RAINWATER SYSTEMS

Whether for new build or refurbishment, VMZINC® rainwater systems have been designed to complement a wide range of building materials and styles. Why not consider VMZINC® gutters and downpipes, especially when using VMZINC® roofs and facades. The durability and low maintenance performance can be not only applied to zinc for roofs and walls but also for rain water systems.



Usage and contact information

Subject

The subject of this document is intended for specifiers (building project architects and design teams) and users (companies responsible for installation on the building site) of the designated product or system. Its purpose is to provide the main information, text and diagrams, relating to specification and installation. Any use or specification outside the area of use and/or specifications contained in this brochure requires specific consultation with the VMZINC® technical departments. This does not commit the latter to any responsibility with regard to the feasibility of the design or implementation of these projects.

Countries of application

This document applies exclusively to the specification and installation of the designated products or systems on building sites in North America.

Qualifications and reference documents

Please note that the specification of all construction systems for a given building remains the exclusive responsibility of its design team, who must, in particular, ensure that the specified products are suitable for the purpose of the building and compatible with the other products and techniques used. Please note that the correct use of this manual requires knowledge of VMZINC® materials and of the zinc roofing profession. While construction is underway all standards in force must be respected. A video showing the installation process is available via download from **www.vmzinc-us.com**. Furthermore, VMZINC® offers training courses specifically for professionals.

Responsibility

The specification and installation of VMZINC® products manufactured by VM Building Solutions are the sole responsibility of the architects and building professionals who must ensure these products are used in a way suited to the end purpose of the construction and that they are compatible with other products and techniques used. The specification and installation of the products implies respecting the standards in force and the manufacturer's recommendations. In this regard, VMZINC® publishes and regularly updates specification and installation manuals for specific geographic areas and provides training courses. All the information on the latter can be obtained from the local VMZINC® team. Unless otherwise agreed in writing, VMZINC® cannot be held responsible for any damages resulting from a specification or installation that does not respect all of VMZINC®'s specifications and the above standards and practices.

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