VMZINC®
GENERAL TECHNICAL RECOMMENDATIONS

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CI/SfB	Mh7 (41) (47) Nh7 Rh7 (D6)

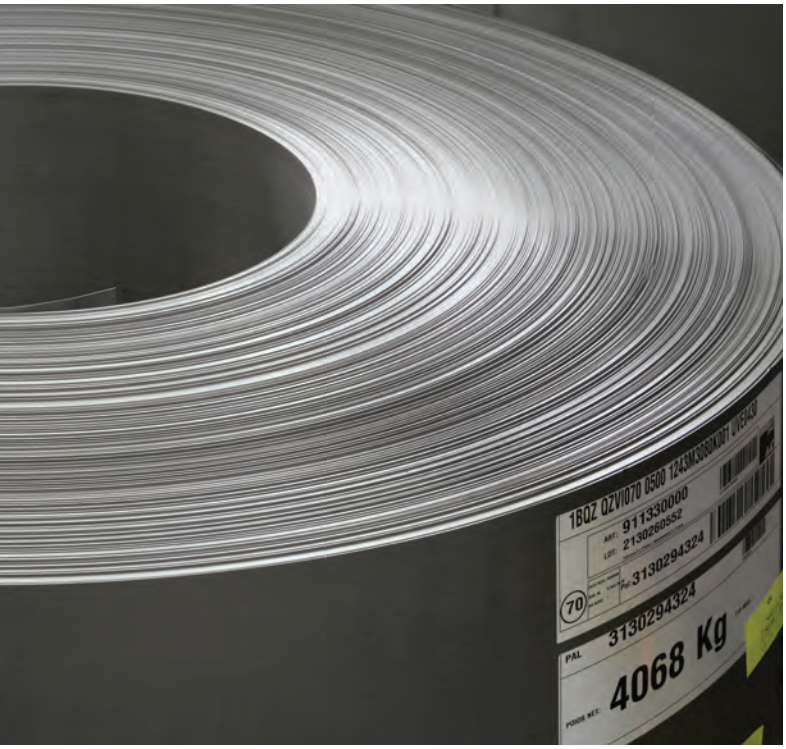
March 2024



VMZINC

TECHNICAL RECOMMENDATIONS

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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.



This general technical recommendations guide is designed to give both architects and contractors alike information about the use of VMZINC®, clarifying the limits of the material and thereby enabling correct design and installation. Following these guidelines will allow the zinc to perform as an attractive exterior building envelope for many decades.

Front Cover Credits Architect – Morgan Carey Architects
Photographer – Paul Kozlowski

TECHNICAL RECOMMENDATIONS

Introduction to VMZINC®

BACKGROUND

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® roof, facade and rainwater systems are also highly cost-effective, both from an initial procurement and design life perspective. Whether for new build or refurbishment, the VMZINC® systems have been designed to complement a wide range of building materials and styles.

The finishes available offer exceptional colour 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.

VMZINC® can be used for warm or cold roof constructions as well as rainscreen facades. Some of its many benefits are listed below.



BENEFITS OF THE VMZINC® SYSTEMS

- Lightweight and durable
- Minimal expansion and creak
- Fully recyclable
- A service life of 100 years for roofing and facade panels and in excess of 50 years for gutters
- Virtually maintenance-free
- Can be installed on pitches from 3° to 90°
- Complex shapes can be easily achieved
- EN 15804 Environment Product Declaration
- BBA certified systems
- Conforms to EN 988
- Fire classification A1 (Natural Zinc, QUARTZ-ZINC®, ANTHRA-ZINC® and AZENGAR®) and A2-s1,d0 (PIGMENTO® and VMZINC® PLUS) according to EN 13501-1:2002 as well as Brooft4 tests
- Available in a choice of either a natural finish or 10 pre-weathered finishes as well as bespoke PIGMENTO® colours

VMZINC® ATTRIBUTES

Physical properties of titanium zinc by VMZINC®	
Density	7.18 t/m³
Thermal expansion coefficient (parallel to the rolling direction)	0.022 mm/m/°C
Melting point	420°C
Recrystallization point	300°C
Heat conductivity	110 W/(mK)
Electrical conductivity	17 MS/m
Danger of sparking	Non-sparking
Magnetic properties	Diamagnetic

TECHNICAL RECOMMENDATIONS

Introduction to VMZINC®

FURTHER VMZINC® ATTRIBUTES

Weights of different zinc thicknesses	
Thickness (mm)	Weight (kg/m²)
0.7	5.026
0.8	5.744
1.0	7.180
1.5	10.770

All weights are calculated using a density of 7.18t/m³ or 1mm = 7.18 kg/m²

Zinc sheet tolerances (to EN 988)	
Thickness	±0.03mm
Width	0 to +2mm
Length	0 to +10mm
Flatness of sheeting	≤ 2mm (See additional omega rule below)

Mechanical properties (to EN 988)	
0.2% proof strength, non-proportional extension	≥ 100 N/mm²
Tensile strength	≥ 150 N/mm²
Percentage total elongation at fracture	≥ 35%
Bending test at 20°C	No cracks
Refolding after bending at 20°C	No cracks

Alloy composition (to EN 988)	
Zinc	To EN 1179 (with SHG 99.995% purity)
Other elements making up the alloy are:	
Copper	0.08 – 1.0%
Titanium	0.06 – 0.2%
Aluminium	≤ 0.015%

OMEGA RULE FOR ACCEPTABLE FLATNESS OF VMZINC® SHEETS

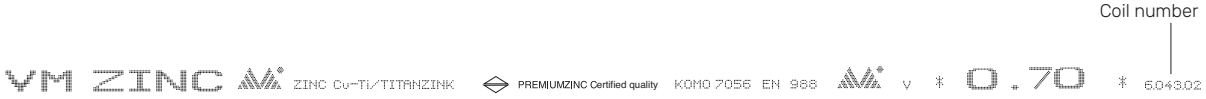
The omega (ω) rule is expressed as: $\omega = 100 \times h/L$

where: $\omega = < 0.6$

wave height is h = 2mm maximum

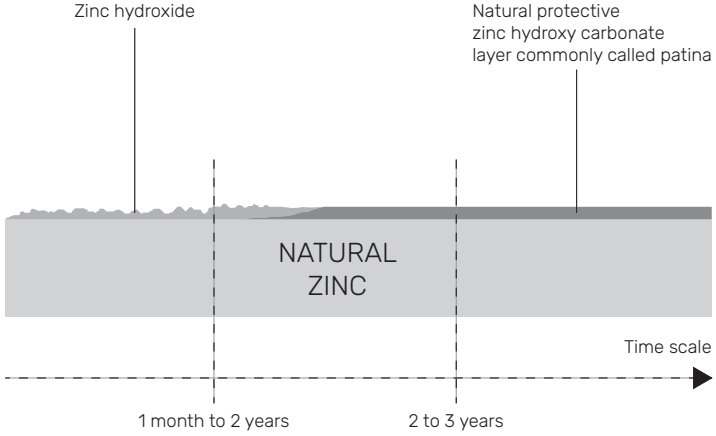
wave length is L (in mm)

IDENTIFICATION MARKS



FORMATION OF THE NATURAL PATINA

Zinc reacts with water to form zinc hydroxide; this then reacts with CO_2 to form the stable compound zinc hydroxy carbonate. When zinc is exposed to too much water and not enough CO_2 the stable grey patina will not form leaving the unstable zinc hydroxide which is commonly referred to as white rust. The amount of time required for formation of the patina from Natural zinc will depend on the exposure of the zinc to water. A low slope roof may only require 3 years whereas a protected soffit may require over 10 years exposure.

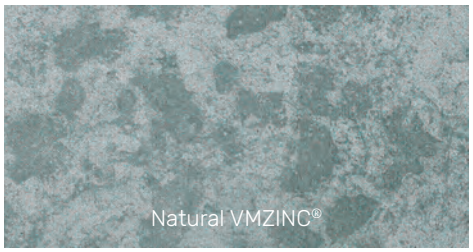


TECHNICAL RECOMMENDATIONS

Surface finishes

Please contact us for samples

VMZINC® is a non-ferrous, self-protecting metal. Natural zinc forms its own protective layer, called a patina, when it is in contact over time with air (oxygen and carbon dioxide) and water. VMZINC® offers seven zinc surface colours in addition to the natural zinc which is sometimes referred to as mill finish zinc.



NATURAL VMZINC®

Natural VMZINC® has a shiny metallic appearance when new and develops a patina over time. In facade applications, it may take 10 years for the matt grey patina to form.

QUARTZ-ZINC®

QUARTZ-ZINC® offers an appearance and texture that does not change over time. When QUARTZ-ZINC® is scratched, it will self heal. The grey tones of QUARTZ-ZINC® blend well with existing construction materials. QUARTZ-ZINC® is produced through a phosphatation of mill finish Natural zinc. The darkness of the pre-weathered zinc is measured electronically using a Y figure where 0 is black and 100 is white. Acceptable tolerance of QUARTZ-ZINC®, Y = 22 to 25.





ANTHRA-ZINC®

ANTHRA-ZINC® with its visible grain matches the colour of slate and blends well in combination with photovoltaic panels. ANTHRA-ZINC® is produced through a phosphatation of mill finish Natural zinc. Acceptable tolerance of ANTHRA-ZINC®, Y = 5 to 7. Due to the dark colour of ANTHRA-ZINC® it should be carefully considered before using on non-rinsed surfaces such as protected facades and soffits. For rinsed surfaces in coastal environments ANTHRA-ZINC® STRAT should be considered.





AZENGAR®

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

PIGMENTO®

PIGMENTO® finishes offer a unique range of colours (Blue, Green, Brown, Red, Grey, Storm Grey and Charcoal Blue) that enhances any building. This natural product enables the texture of the QUARTZ-ZINC® to still be seen whilst offering the designer the choice of colour to complement other elements of a facade or roof. The colouration of the zinc is achieved with a special pigment layer that enhances the qualities of the zinc without presenting a block colour. This product is tested to EN13523. PIGMENTO®, available in 7 standard colours, provides an increased resilience, however in a severe non-rinsed marine environment (1km from the sea), staining is still possible and therefore the material should not be used in this application.

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.













TECHNICAL RECOMMENDATIONS

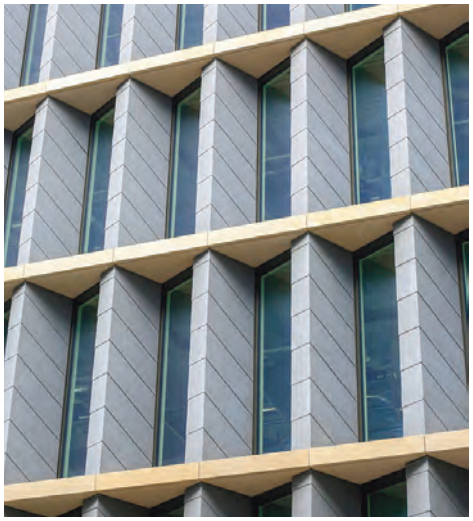
Areas of use

AREAS OF ACTIVITY

VMZINC® has a long history as a building envelope material. The four main areas of activity are:

ROOFING SYSTEMS AND FLASHINGS

VMZINC® has been used as a roofing system for almost 200 years. The most common system is standing seam roofing. However, for heritage projects, batten cap roofing is a popular option. A range of zinc flashings and trim are available for zinc, tile and slate roofs. For further information please refer to VMZINC® Standing Seam guidelines for design and specification as well as our product catalogue.



FACADE SYSTEMS

As well as Standing Seam and Flat Lock wall cladding, VMZINC® can be installed using the principle of a rainscreen facade. There are a number of panel types and sizes available. These include Interlocking Panels which can be installed horizontally or vertically in all finishes. Alternatively for larger panels VMZINC® Mozaik is an excellent solution. Sine Wave Panels offer an alternative design in zinc as do Overlapping Panels whilst remaining cost effective solutions for rainscreen cladding. Flat Lock Panels can be used on a facade in many formats, sizes and in all finishes of VMZINC®. For further information please refer to VMZINC® Facades – Guidelines for design and specification.



RAINWATER SYSTEMS

Whether for new build or refurbishment, VMZINC® rainwater systems have been designed to complement a wide range of building materials and styles. Pre-weathered finishes offer exceptional colour stability while developing the natural, self-protecting patina for which zinc is renowned. This ensures that maintenance requirements will be minimal throughout the systems' design life and that the material's installed appearance will be retained for many years.
For further information please refer to VMZINC® Roofing and Rainwater Systems – Guidelines for design and installation.

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.



TECHNICAL RECOMMENDATIONS

Roof and wall build-ups

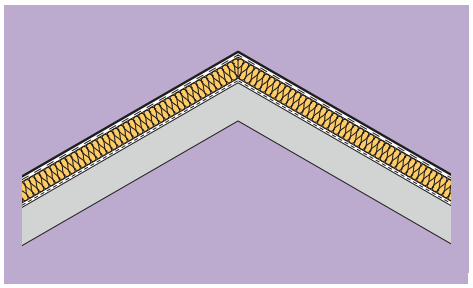
BASIC REQUIREMENTS

VMZINC® must not only be installed according to our recommendations but also designed to them as well. VMZINC® can be installed on non-vented warm roof build-ups as well as on vented cold roof build-ups. All wall cladding should be ventilated unless the designer and Building Control Officer alike take responsibility for non-vented facades. VMZINC® will only give a warranty for recommended build-ups and details. The minimum slope for zinc roofs is 3 degrees as built.

For further information please see our brochures on Facades and the Standing Seam system

DEFINITION OF WARM ROOF IN THE UK

Warm non-ventilated and cold ventilated roofs are two terms which do not always denote the same ideas to all building professionals. In order to put the warm non-ventilated roof system into context, we will refer to it as a roof where there is absolutely no vented space within the roof build-up and furthermore the entire roof structure is on the warm side of the insulation. In the UK this means that the roof structure is entirely below the insulation. During construction all elements of the roof must be kept dry.



Warm Roof: Continuous layer of insulation covering a fully supported vapour barrier.

Fundamental elements of the system:

- VMZINC® PLUS must be used on all warm roof build-ups
- VMZINC® Membrane must be used (breather membrane)
- The substrate must be continuous and even and the correct fixing clips must be used
- A fully supported continuous Aludex Max vapour barrier must be installed (bitumen-backed aluminium foil). Polythene films are not acceptable
- For humidity class 5 (swimming pools) the Compact roof with Foamglas must be used. This build-up, as with the Structural roof, carries a BBA certificate

Agrément Certicate 21/5918



Result of using a hybrid roof.

DEFINITION OF COLD ROOF IN THE UK

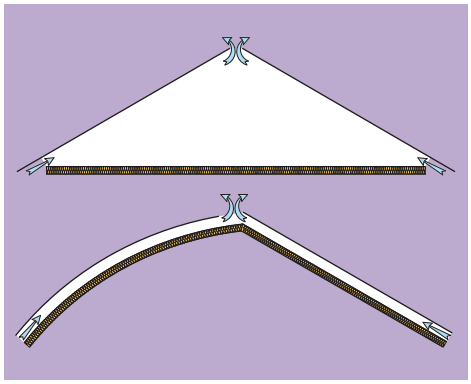
In order to put the cold ventilated roof system into context, we will refer to it as a roof where there is a continuous air space of at least 50mm between the substrate supporting the zinc and the insulation. This air space must be a vented space with openings generally at the eaves and the ridge.

Hybrid roofs are not recommended by VMZINC® and can result in the whole roof including the zinc failing.

Fundamental elements of the system:

- VMZINC® PLUS must be used on plywood whereas VMZINC® is acceptable on open-gap softwood boards
- VMZINC® Membrane can be used to protect the insulation
- The substrate must be continuous and even, and the correct fixing clips must be used

Linear air vents must be at least 10mm wide and are commonly protected by insect mesh. It is always good practice to include a vapour control layer in the build up and this should be installed on the warm side of the insulation. The system is covered by the Code of Practice 143-5: 1964 and BS EN 501.



Cold Roof: Air inlets and outlets are generally linear (at least 10mm wide) but can be individual. The ventilation must correspond to BS 5250: 2002.

TECHNICAL RECOMMENDATIONS

Roof and wall build-ups

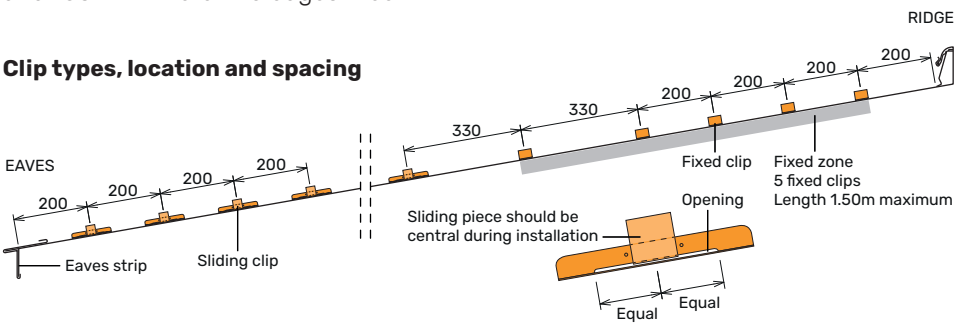
FIXING CLIPS

All standing seam panels must have a fixed area of at least 5 one-piece fixing clips which do not allow any thermal expansion or contraction. It should be noted that when items such as PV panels or snow retention systems are being fitted directly to the zinc roof a calculation of shear load must be carried out. This will determine whether by increasing the number of fixed clips will be sufficient or not to deal with the possible shear loads. Maximum clip spacing is 330mm with this reducing to 200mm along the edges of the roof (at least 1100mm or 1/8 of the projected roof) and 150mm where two edges meet.

Sliding clip



Clip types, location and spacing





Fixed clip

STANDING SEAM PANEL SIZE

Standing seam roof panels can be up to 600mm wide, with 530mm and 430mm wide panels also being standard. The maximum standard length for roofing panels is 13m. Roof panels are generally 0.7mm thick, however, for long panels or exposed sites 0.8mm thick zinc can be considered. For exposed sites 430mm wide panels should be used. When standing seam panels are being used on facades 0.8mm thick zinc should be used with 430mm wide panels in 4m lengths. It is also recommended that single lock folds be used for facades as opposed to the double, thus allowing the zinc to sit a little flatter..

NOISE

As zinc is a relatively soft metal, impact noise is rarely an issue. However, if the building owner does have concerns the use of a warm roof build-up would reduce not only impact noise but also possible noise created by pressure differences in a vented air space which is a prerequisite of a vented roof.

FACADE SYSTEMS

A wide range of VMZINC® facade systems exists. The majority follow the rainscreen principle where the panels are fixed to rails on a vertical wall incorporating a 38mm vented space. Standing seam and flat lock panels are fixed to a continuous support again with the 38mm vented cavity behind. As all the systems are vented it may be necessary to include fire breaks which can involve compartmentalising the facade using flashings or compatible intumescent fire stops. The maximum width of VMZINC® facade panels in any system is 600mm.

VMZINC® AND VMZINC® PLUS

Zinc is a metal that has been used to clad the exterior of buildings for many years and as such is resistant to water. However, this is only the case in the presence of carbon dioxide (which is present in air). If zinc is installed on a substrate that limits the amount of air that can be in contact with its back surface it is possible that this will induce the formation of white rust. It is for this reason that VMZINC® (no backside coating) can only be used on roofing when vented open gap softwood boarding is used as a substrate. VMZINC® is also acceptable on vented rainscreen facades. For all other roof build-ups VMZINC® PLUS must be used.

VMZINC® PLUS 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 40 litres when tested in accordance with ASTM D 968.

TECHNICAL RECOMMENDATIONS

Compatibility with other materials

IMPORTANT CONSIDERATIONS

When placed in contact with zinc, certain products can have detrimental effects on the appearance and/or structural integrity of the zinc. Acidic products and products that can generate a galvanic reaction must not be used with zinc. Run-off from non compatible products onto zinc also must be avoided. In general, products with a pH lower than 5 and higher than 7 are not compatible with zinc.

There are no issues with zinc in combination with metals other than copper and mild steel. When zinc is in contact with copper in the presence of an electrolyte (such as water) a galvanic reaction will lead to corrosion of the zinc and subsequent failure of the roof or wall cladding.

Run-off from a copper surface to a zinc surface must be avoided under all circumstances. Zinc in contact with mild (carbon) steel is not desirable either, due to similar electron transfers between the metal that will result in zinc corrosion and deterioration.

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 dust that comes in contact with the zinc.



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

TECHNICAL RECOMMENDATIONS

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 or soffit it is possible that the zinc may exhibit some superficial stains. These stains will not affect the integrity of the zinc itself.

It is for this reason that the very dark grey ANTHRA-ZINC® should be carefully considered before being designed on a non-rinsed facade or soffit. In marine locations (1km from the sea) the risk of superficial staining on these non rinsed areas increases and can affect all finishes of VMZINC®. ANTHRA-ZINC® STRAT should be considered on rinsed surfaces in marine environments.

Staining on non-rinsed surfaces will decrease further away from the sea. However, salt can still be present in the air up to 20km from the sea.

Whilst stains are possible on the PIGMENTO® range the visual effect is greatly reduced and therefore these finishes may be more appropriate for some specific locations. It should be noted that the PIGMENTO® must not be left with bare edges exposed in marine locations, and folding radii must be respected.

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.







TECHNICAL RECOMMENDATIONS

General recommendations

TRANSPORT AND HANDLING

To ensure the durability and aesthetics of the zinc, specific recommendations must be followed in the handling and storage 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





TECHNICAL RECOMMENDATIONS

General recommendations

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





TECHNICAL RECOMMENDATIONS

Installing zinc

USE A PROFESSIONAL

As well as following design recommendations it is critical that VMZINC® is installed in the correct manner and by trained professionals.

VMZINC® provides training for installers with experience in metal roofing and cladding in partnership with the Lead Sheet Training Academy and National Construction Training Service. This training is designed to supplement trained professionals with specific information concerning VMZINC®.

Please contact us for further information.



VMZINC® AT WORK

We would also recommend that contractors be members of associations such as the Federation of Traditional Metal Roofing Contractors. Furthermore, VMZINC® offers a list of recognised contractors that adhere to specific conditions concerning experience and training, namely VMZINC® at WORK.

VMZINC® at WORK installers can offer 50-year material warranties for VMZINC®.



TECHNICAL RECOMMENDATIONS

Working with zinc

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®, ANTHRA-ZINC® and AZENGAR® 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 +7°C.

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 +10°C. All folding of the zinc should be carried out with the protective film in place.



It is important to use zinc from the same production batch especially when zinc is used for wall cladding. Zinc from different batches should not be used on the same facade.

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 – see page 15. 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 pieces of zinc to one another that still allow thermal movement.



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 website.



TECHNICAL RECOMMENDATIONS

Working with zinc

PROTECTIVE FILM

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

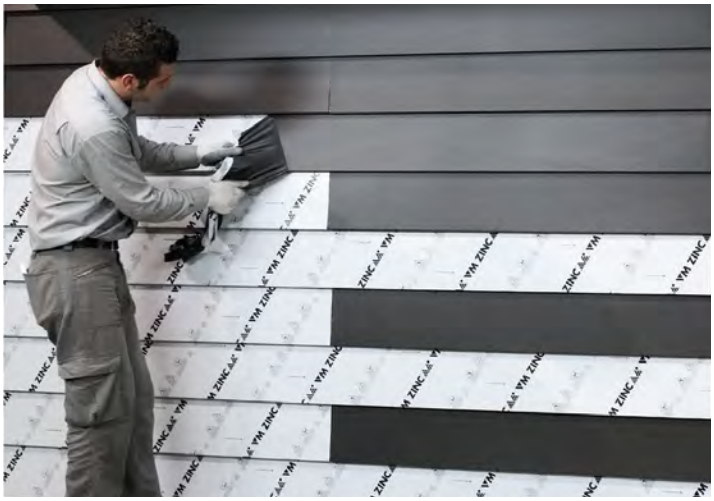
The protective film should remain on the zinc no longer than 60 days after the installation of the panels. Make sure that other trades do not contaminate zinc panels after the film is removed.

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.







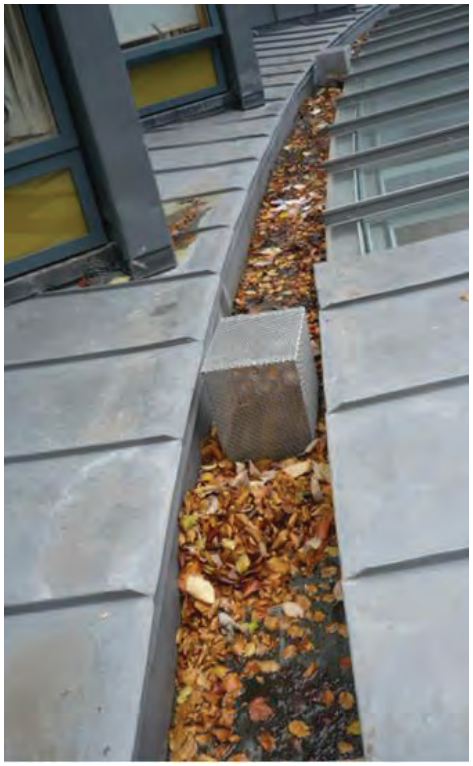


TECHNICAL RECOMMENDATIONS

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.



TECHNICAL RECOMMENDATIONS

Maintenance

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 1km of salt water should be considered as 'severe coastal' and within 20km as 'coastal'. See page 10 for more information.





TECHNICAL RECOMMENDATIONS

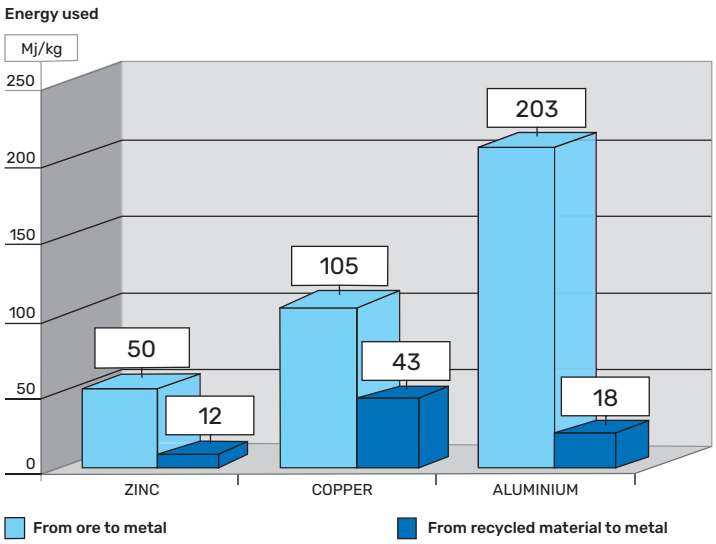
Sustainable performance

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® facade and rainwater systems, manufacturing processes for our standing seam system presents 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 favourable for recycled zinc. Such minimal use of energy in the production of zinc clearly indicates its contribution to sustainable development.

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 aluminium. CO_2 and other greenhouse gas emissions are also, therefore, proportionally less.

RECYCLED MATERIAL

95% 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® standing seam system benefits 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 sulphur dioxide in the atmosphere has been greatly reduced. SO_2 being the key agent of corrosion means that corrosion rates are now 1µm per year. With an initial thickness of 0.7mm, the estimated life span of rolled zinc is over a hundred years.

A NATURAL MATERIAL

VMZINC® undertakes Life Cycle Analysis (LCA) tests on its products and publishes Environmental Product Declarations (EPDs), such as BRE Environmental Profiles, available from our website **www.vmzinc.com/en-gb/homepage** and **www.greenbooklive.com**. These provide users with comprehensive, reliable and transparent information on relevant environmental characteristics. The information is also used by VMZINC® as the basis for its eco-design approach.



TECHNICAL RECOMMENDATIONS

Sustainable performance

BRE

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.



ISO 14001
ISO 9001

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 not only all production plants but also to all services and products.



Usage and contact information

Use a Professional

As well as following design recommendations it is critical that VMZINC® is installed in the correct manner and by trained professionals.

VMZINC® provides training for installers with experience in metal roofing and cladding in partnership with the Lead Sheet Training Academy and the National Construction Training Service. This training is designed to supplement trained professionals with specific information concerning VMZINC®.

VMZINC® at Work

We would also recommend that contractors be members of associations such as the Federation of Traditional Metal Roofing Contractors. Furthermore, VMZINC® offers a list of recognised contractors that adhere to specific conditions concerning experience and training, namely VMZINC® at WORK. VMZINC® at WORK partners are able to offer 50-year material warranties.

RIBA Approved CPD Seminars

Please contact us to book a CPD seminar entitled `Zinc as Building Envelope`. This seminar covers many subjects including aesthetics, applications, design requirements, installation methods as well as sustainability.

CAD Details

A large library of CAD drawings in both .dwg and .pdf format is available. We also offer BIM objects.

NBS Specifications

We offer specifications for all of our systems. These can be either downloaded or sent out from our office.

Bespoke Roof and Wall Design

Panel layouts and project specific details can be created for projects when standard detailing may not quite be enough.

Samples

Please contact us for material samples on all of our finishes. We can also send out larger samples for planning. All our literature is also available online and in paper format.









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