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, wall 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
- Low maintenance
- Attractive, long lasting appearance
- A design life of 80 years
- Virtually maintenance-free
- Variety of systems for roofs, walls, flashings and rainwater systems
- Fully recyclable
- BRE Green Guide certified
- BBA certified
- Conforms to EN 988
- Fire performance rating 'AA' - BS 476: Part 3 ('low vulnerability' class in Scotland)
- Available in either a natural finish or 6 pre-weathered finishes and a new engraved finish

VMZINC attributes

PHYSICAL PROPERTIES OF TITANIUM ZINC BY VMZINC	
Density	7.18 t/m^3
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

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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

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%

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

Omega rule for acceptable flatness of VMZINC sheets

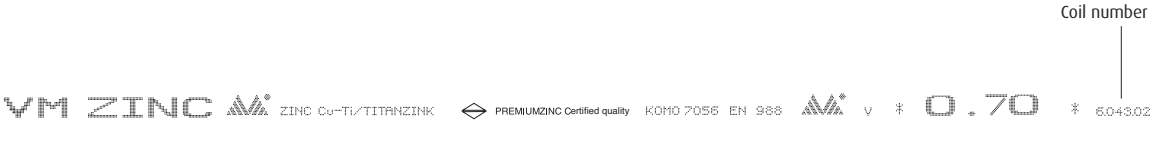
The omega (ω) rule is expressed as: $\omega = 100 \times h/L$

where: $\omega = < 0.6$

wave height is h = 2mm maximum

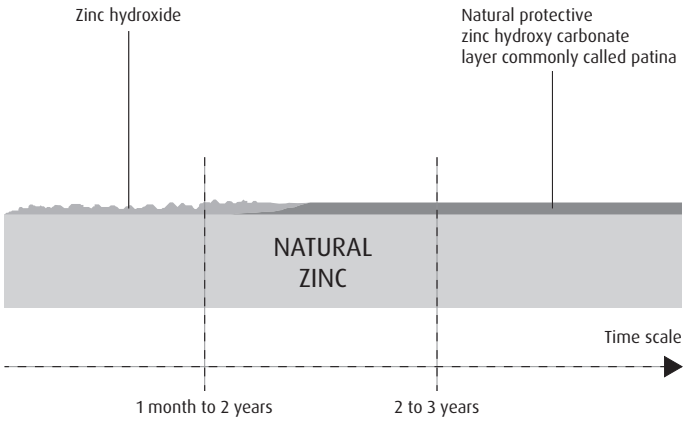
wave length is L (in mm)

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.



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. ANTHRA-ZINC is produced through a phosphatation of mill finish Natural zinc. Acceptable tolerance of ANTHRA-ZINC, Y = 5 to 7. ANTHRA-ZINC also includes a thin organic coating with a tolerance of shininess of 6 to 10. 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.

AZENGAR®
New

AZENGAR is the new 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, however it will not be available in PLUS in 2014.

PIGMENTO®

Finishes offer a unique range of colours 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 building's 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 EN13523-10:2010 for UV-humidity and EN 15523:2001 for colour stability and requires minimum maintenance. PIGMENTO provides an increased resilience, however in a non-rinsed marine environment (1km from the sea), staining is still possible and therefore the material should not be used in this application. PIGMENTO is available in four standard colours: PIGMENTO blue, green, brown, and red.

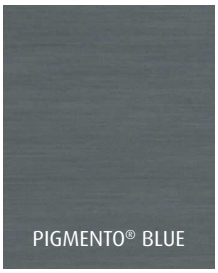
VMZINC is not a painted product and therefore colour variations may occur. No colour matches are guaranteed therefore zinc should be installed from the same roll/batch because of colour variations in the manufacturing process.

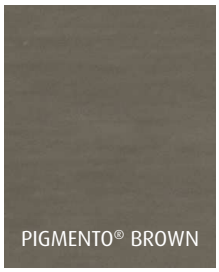

Natural VMZINC®


QUARTZ-ZINC®

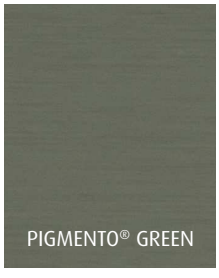

ANTHRA-ZINC®


AZENGAR®


PIGMENTO® BLUE


PIGMENTO® BROWN


PIGMENTO® RED


PIGMENTO® GREEN