VMZINC

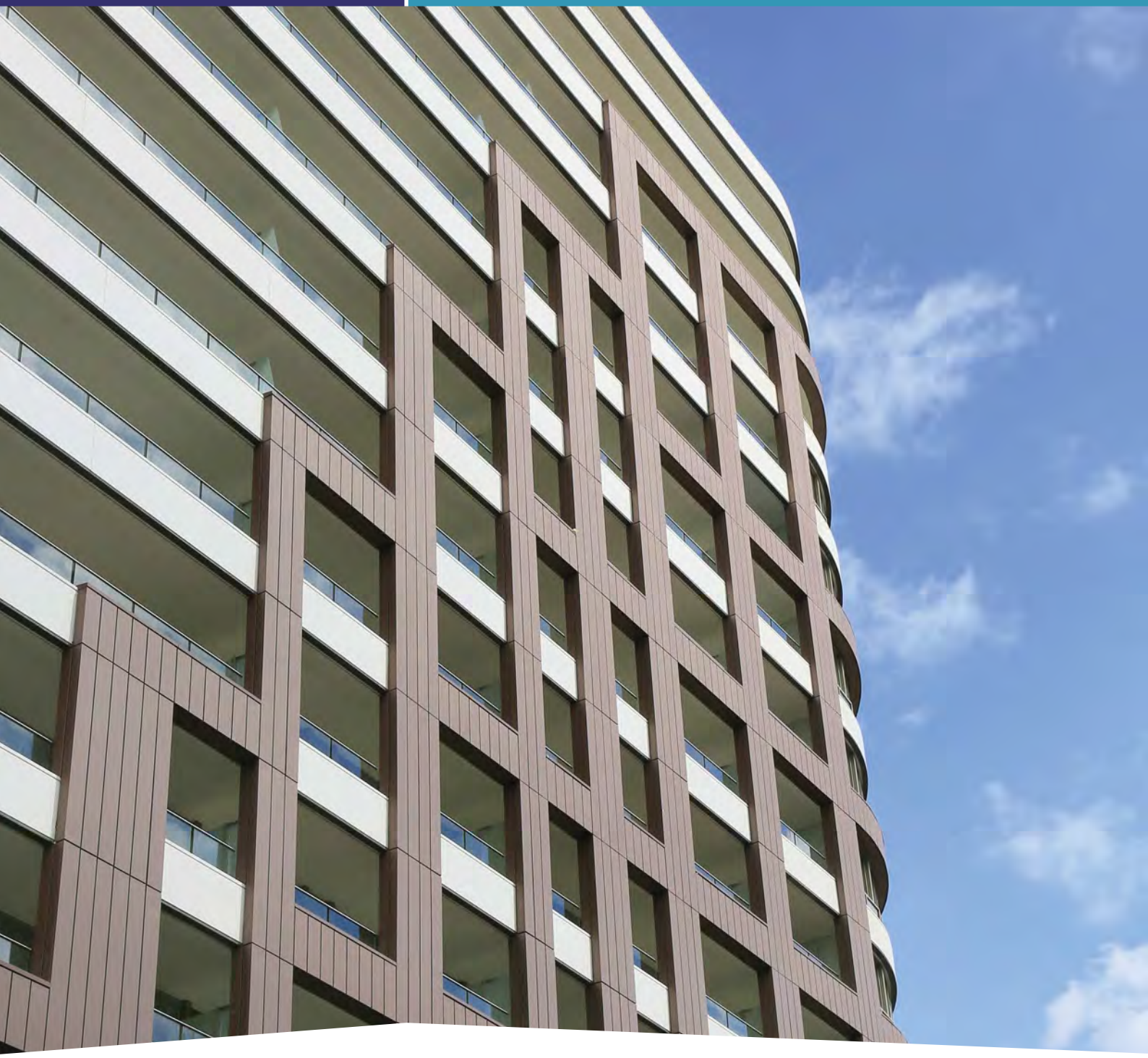
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July 2019

FACADES

FULLY SUPPORTED AND RAINSCREEN SYSTEMS

Guidelines for design and specification



VM BUILDING SOLUTIONS

VMZ Facade

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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.



Front cover building credit: Scott Brownrigg Architects

VMZ Facade

Why use VMZINC facades?

Introduction

Zinc is among the most sustainable metals used in construction today and was first used for roofing and gutters in large European cities at the beginning of the 19th century. Batten cap zinc panels were used for mansard roofs but towards the end of the 20th century architects began to use zinc as a way to clad facades. Over the past 20 years VMZINC has developed a range of facade systems that vary in dimension, joint size and type.

All VMZINC facade systems can be used for new build and refurbishment alike and in combination with many other building materials. As with all VMZINC products exceptional durability, very limited maintenance and a wide range of beautiful finishes are offered by VMZINC facades.



Benefits of the VMZINC facade systems

- Lightweight and durable
- Fully recyclable
- A service life of 100 years
- Virtually maintenance-free
- Complex shapes can be clad using VMZINC facades
- All flashings and trim can be in the same material
- EN 15804 Environmental Product Declaration
- Conforms to EN 988
- Available in a choice of either Natural zinc, engraved Azengar or 8 pre-weathered finishes
- Cost effective
- Wide range of panel types
- 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



VMZ Facade

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 roofing and rainwater systems, manufacturing processes for our facade systems presents a low environmental impact, particularly with regard to energy expenditure.

Low corrosion, long life

VMZINC facade 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 sulphur dioxide in the atmosphere has been greatly reduced. SO_2 being the key agent of corrosion means that corrosion rates are now less than 1µm per year on facades. With an initial thickness of 1mm, the estimated life span of a zinc facade is well over a hundred years.

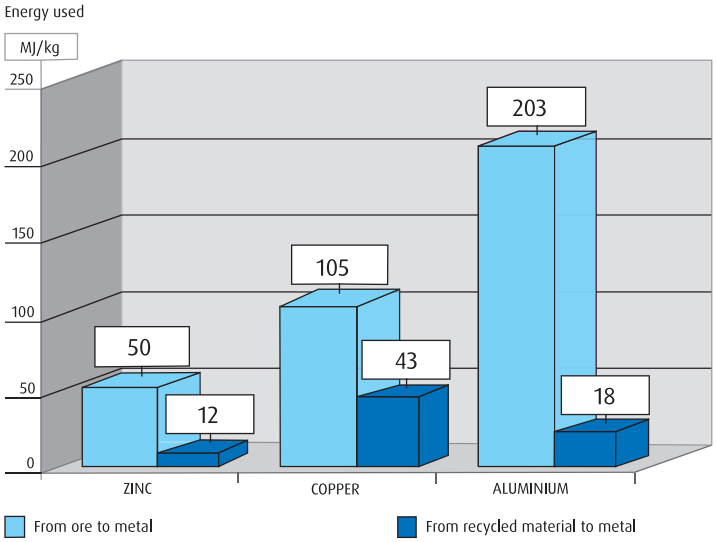
Recycled material

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.

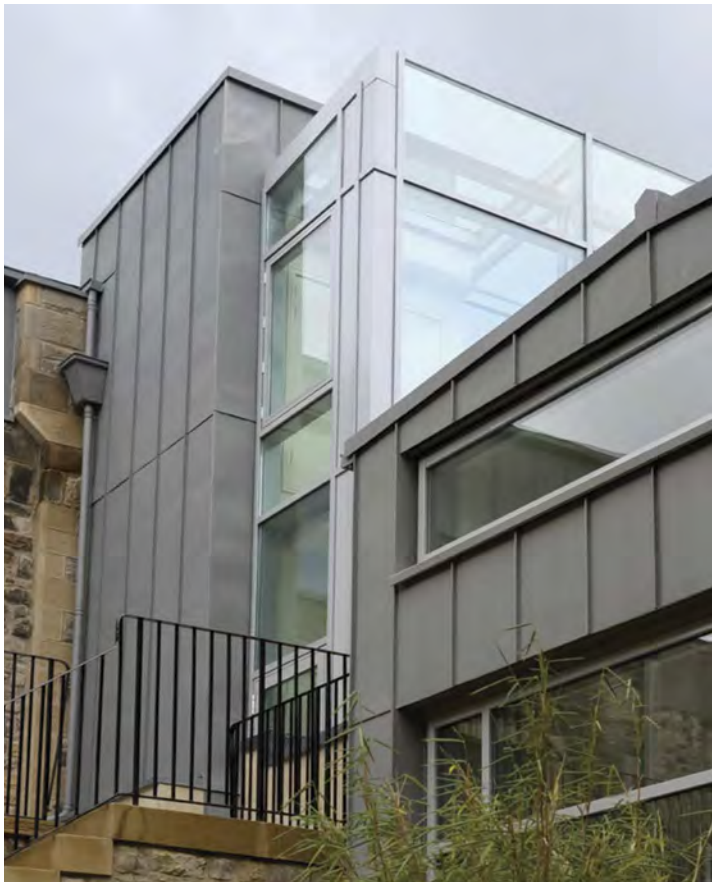
A natural material

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.co.uk** 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.

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.



VMZ Facade

Sustainable performance

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 are 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.







VMZ Facade

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 raincreen facade is an outer skin that is back-ventilated by an air space that is 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).

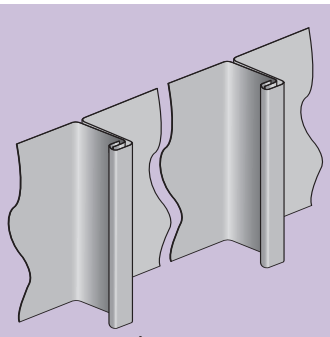
The product consists of VMZINC (in all finishes) having a 60 µm coating applied to the underside thus allowing a more varied amount of substrates to be used and eliminating the risk of the formation of white rust on the underside of the zinc standing seam panels. VMZINC PLUS resists to an abrasion of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

Non Vented Warm Walls

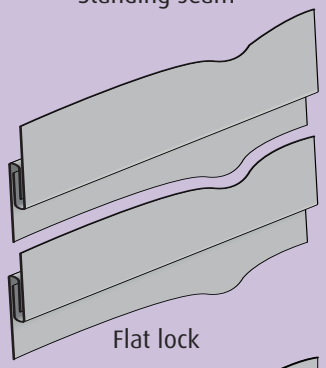
VMZINC PLUS can be used to clad non vented warm wall construction using standing seam and flat lock panels on substrates such as insulated metal sandwich panels. It is vital that the designer obtains acceptance from Building Control prior to installation.

Developments over 18m high (non or limited combustibility)

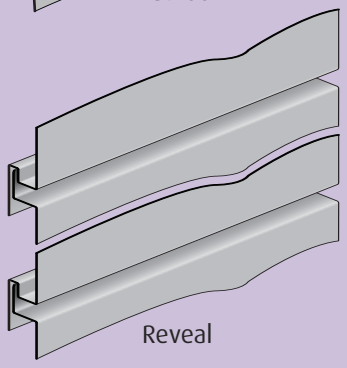
For buildings where combustible materials such as plywood cannot be used (for example residential developments over 18m in height), galvanised steel decks can be used as a substrate for the flat lock and standing seam panels. By combining this with mineral board insulation, all materials in the wall build up are A1 or A2 according to EN 13501. 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 38mm vented cavity can be fire stopped using continuous vertical cavity barriers and intumescent horizontal cavity barriers.



Standing seam



Flat lock



Reveal



A typical construction

VMZ Facade

The systems

Underlying principles

Please contact us for further design assistance

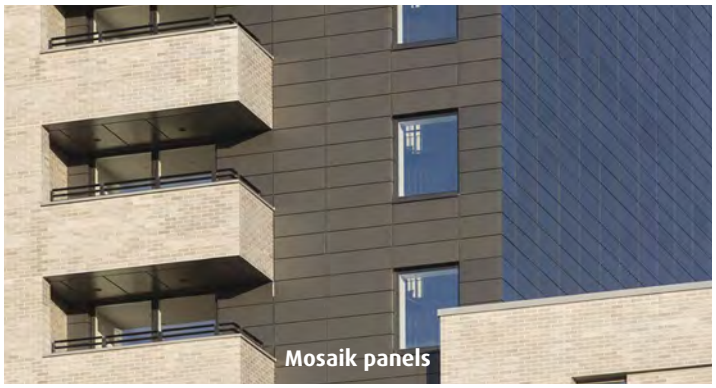
Panel size and flatness

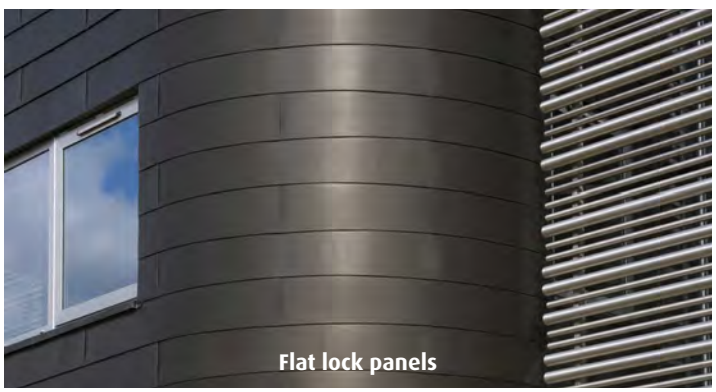
VMZINC wall panels will offer very different aspects depending on the type of panel used. Whilst standing seam panels can offer a continuity from roof to wall they will not offer absolute flatness. Flat lock panels also offer a more textured finish. The interlocking panel system provides flat panels but they are limited to 333mm in width. VMZ composite material on the other hand can offer excellent flatness whilst maintaining panels of up to 1100mm wide. For panels between 333mm and 600mm in width, Mozaik panels should be considered – see pages 24-25.


Interlocking panels


Standing seam panels


VMZ composite panels


Mosaik panels


Flat lock panels

VMZ Facade

Surface finishes

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. It can be quickly soldered without removing the patina.

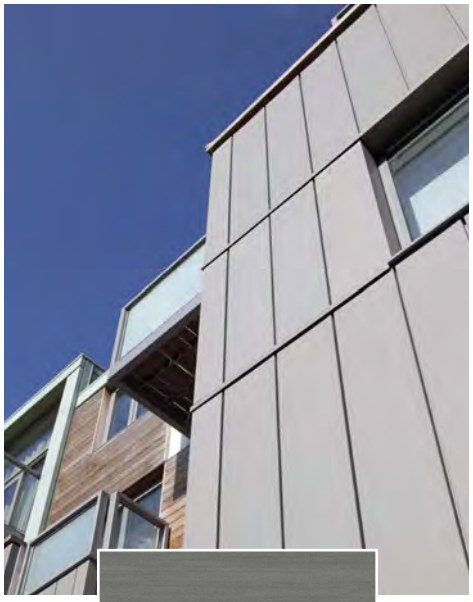
QUARTZ-ZINC® QUARTZ-ZINC offers an appearance and texture that does not change over time. When QUARTZ-ZINC is scratched, it will self heal. The grey tones of QUARTZ-ZINC blend well with existing construction materials – ideal for refurbishment.

ANTHRA-ZINC® ANTHRA-ZINC with its visible grain matches the colour 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 non-rinsed (rain water) surfaces.

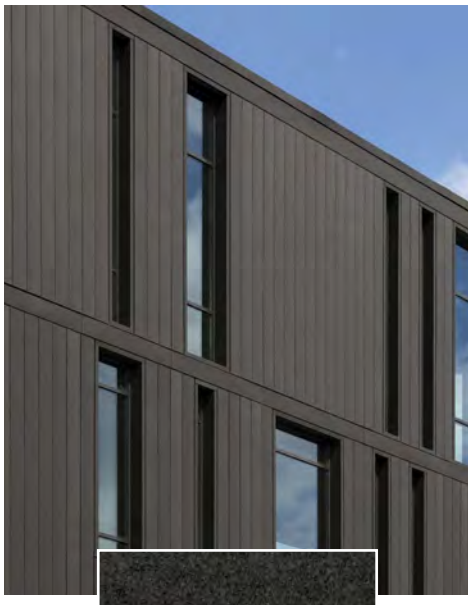
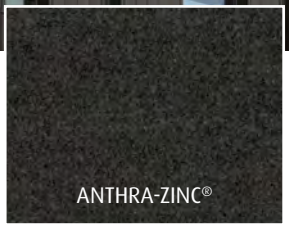
AZENGAR® AZENGAR is the surface finish from VMZINC which is the first engraved zinc giving a product with a matt, heterogeneous and light aspect. AZENGAR can be used in the same fashion as other VMZINC products for both roofs and facades.

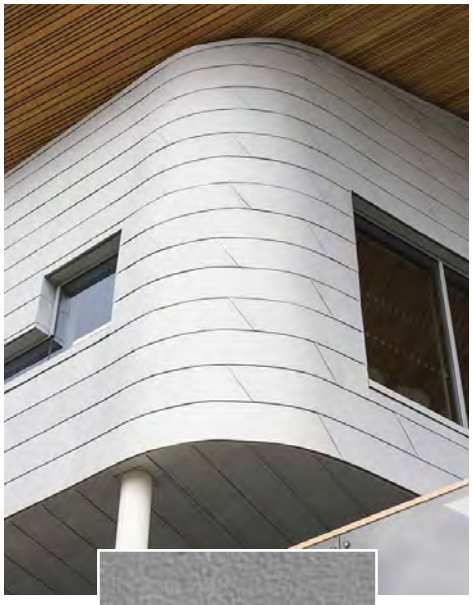


Natural VMZINC®



QUARTZ-ZINC®



ANTHRA-ZINC®



AZENGAR®

VMZ Facade

Surface finishes

Please contact us for samples

Standard PIGMENTO®

PIGMENTO finishes offer a unique range of colours (Blue, Green, Brown, Red and Grey) 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 EN13523-10/2010 and EN 15523-3/2001.

PIGMENTO, available in five 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.

Bespoke PIGMENTO® New

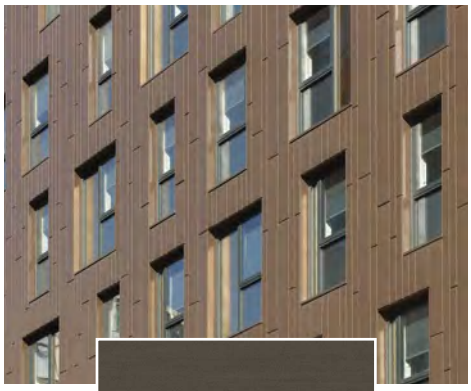
The PIGMENTO range is now available in bespoke colours. Samples of the colours indicated here are available upon request. For other colours a sample and RAL colour should be submitted in order to assess feasibility.



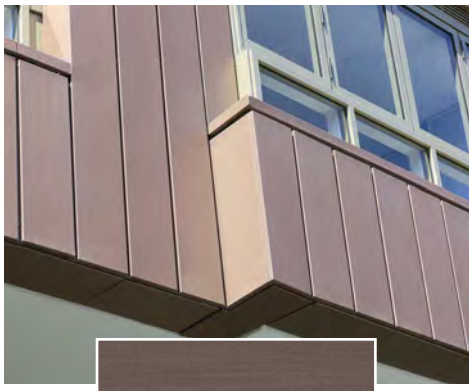
Standard PIGMENTO® BLUE



Standard PIGMENTO® GREEN



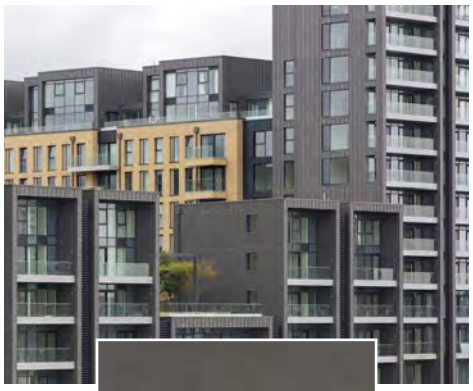
Standard PIGMENTO® BROWN



Standard PIGMENTO® RED



Bespoke PIGMENTO® colours



Standard PIGMENTO® GREY

VMZ Facade

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 size: 430 x 4000mm

1. VMZ standing seam panels in VMZINC PLUS
2. Fixing clip
3. 18mm plywood or steel deck (see page 6)
4. Battens creating a vented 38mm airspace
5. Insulation protected by VMZ Membrane

Advantages of the standing seam panel system

- Covered by Code of Practice 143-5: 1964
- Concealed fasteners
- Roof to wall continuity
- Versatile
- Horizontal, vertical and diagonal installation possible

For more information contact us on
0203 445 5640
or send an e-mail to
vmzinc.uk@vmbuildingsolutions.com

VMZ Facade

Standing seam

Overview

VMZ 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 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 4m in length and 430mm in width. Single lock panels should not exceed 430mm in width. All aspects of VMZINC can be used with 0.8mm being the recommended thickness for facades.



VMZ Facade

Standing seam

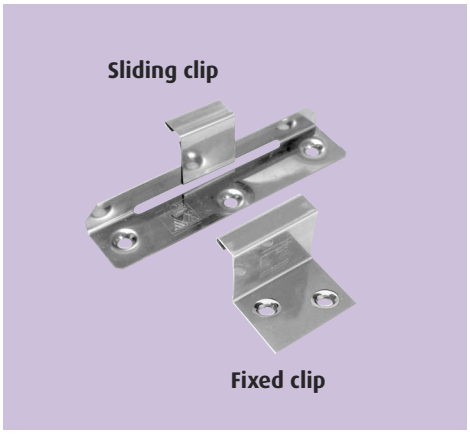
Structure

The system is very lightweight as the panels weigh no more than 7 kg/m^2 and can be fixed back to both soft wood open gap boarding and plywood. Both substrates require the use of 18mm thick wood and a vented airspace should be left behind the timber of at least 38mm. The plywood must be weather and boil proof. WBP plywood is more precisely described as EN314-2 (bond class 2) and EN636-2 (timber performance). 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 2mm and all screws and nails must be countersunk. VMZINC PLUS must be used on plywood substrates, however for vertical surfaces VMZINC and VMZ Membrane can be used on vented plywood. For projects where combustible materials such as plywood cannot be used galvanised steel decks can be used as a substrate – see page 6 for further information.

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 2m 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 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:

- 330mm on the main part of the facade
- 200mm on perimeter of the facade (at least 1100mm from building corner)
- 150mm in corner areas

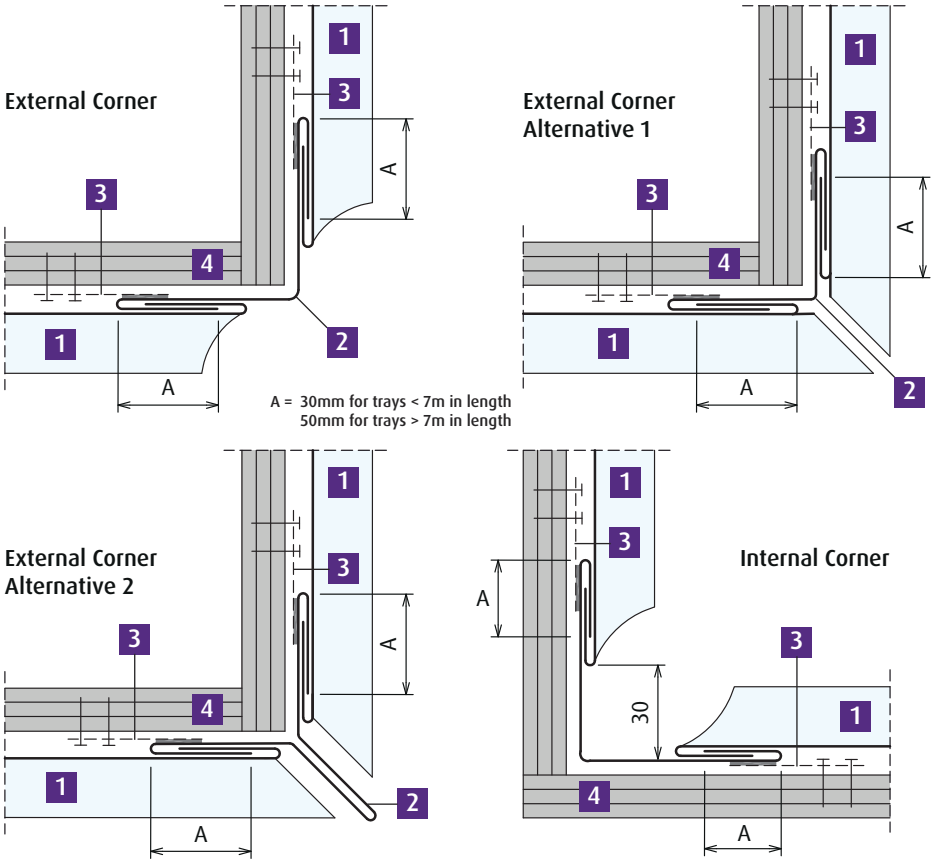


VMZ Facade

Standing seam

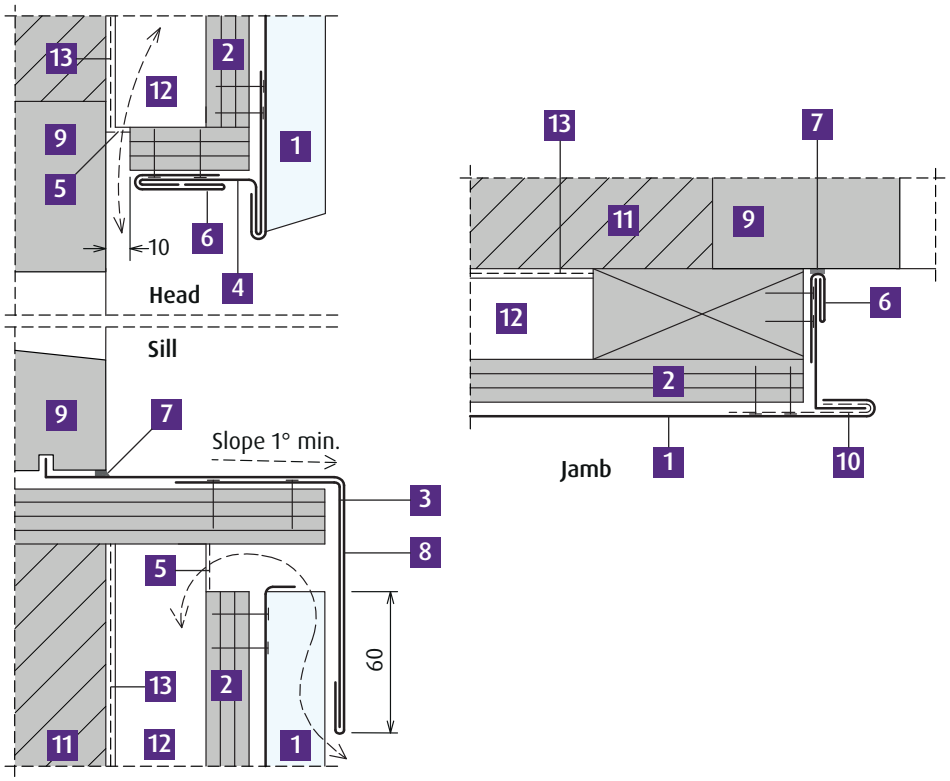
Download the technical drawings of this facade build-up from our website **www.vmzinc.co.uk**

Corner details



1 VMZINC PLUS Standing Seam
2 VMZINC PLUS continuous corner strip
3 VMZINC PLUS soldered clip
4 Plywood

Window details



1 VMZINC PLUS Standing Seam
2 Plywood
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 80mm, 2 per m
11 Loadbearing structure
12 Ventilated space
13 VMZINC Membrane

All dimensions in mm

Subject

The subject of this document is intended for specifiers (building project architects and design teams) and installers (specialist 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 the United Kingdom and the Republic of Ireland.

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.co.uk** or **www.vmzinc.ie**. Furthermore, VM Building Solutions 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, VM Building Solutions publishes and regularly updates specification and installation manuals for specific geographic areas and provides training courses. Further information concerning the design and installation of VMZINC is available at **www.vmzinc.co.uk**. Unless otherwise agreed in writing, VM Building Solutions cannot be held responsible for any damages resulting from a specification or installation that does not respect all of VM Building Solutions specifications and the above standards and practices.

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