

VMZINC

VMZINC® AND SUSTAINABILITY



Zinc and human beings

Zinc : an essential element

Zinc is an essential element present in small proportions in our body.

It has an essential role: stimulation of the immune system, protection against cellular aging, maintenance of the quality of the skin, nails and hair, etc...

Zinc deficiency is a major health problem in developing countries, especially for young children. It weakens their immune systems and makes them vulnerable to many diseases. Zinc deficiency has also been associated with stunted growth and impaired intellectual development, affecting more than 140 million children under the age of five.

On the other hand, too much zinc can also cause significant health problems.

Through a metallurgical process, zinc in nature, alloyed with copper and titanium, becomes VMZINC® rolled zinc used in construction.

[More information on the characteristics of zinc!](#)



"Zinc saves kids" Initiative

The International Zinc Association in support of UNICEF accompanies zinc supplementation programs to improve the survival, growth and development of young children in developing countries.



Zinc and environment

Zinc is natural

Zinc is naturally present in the environment: rocks, soil, water and air contain it in varying concentrations.

Presence of zinc in the environment

Each living organism regulates its optimal internal concentration according to the needs of its metabolism. A deficit can result zinc deficiency, an excess of zinc can cause ecotoxicological problems.

Zinc is thus necessary and indispensable to all living organisms in all ecosystems.

Environmental impact studies

If the zinc concentration changes radically, the living conditions are no longer optimal and the functioning of the ecosystem may be affected. Ecotoxicological studies can then be carried out to assess the environmental risk of excess zinc, taking into account the concentration of dissolved zinc, as the insoluble part has no effect. The concentration of dissolved zinc is affected by the properties of its environment, such as pH, water hardness, dissolved organic carbon and temperature. Therefore, the specifics of the ecosystem in question and the dissolved zinc concentration, not the total zinc concentration, must be taken into account.

Ecotoxicological studies have shown that zinc concentrations in European ecosystems, either from human activities (such as atmospheric corrosion of rolled zinc and galvanized steel, wear and tear of vehicle tires, fertilizers and animal feeds,...) or from volcanic activities, remain within the limits of optimal living conditions.

To remember

Zinc is a natural and essential element for all living organisms. It is necessary and indispensable in the life of humans, animals and plants.



Characteristics of VMZINC® products for sustainable buildings

Exceptional durability for resilient buildings

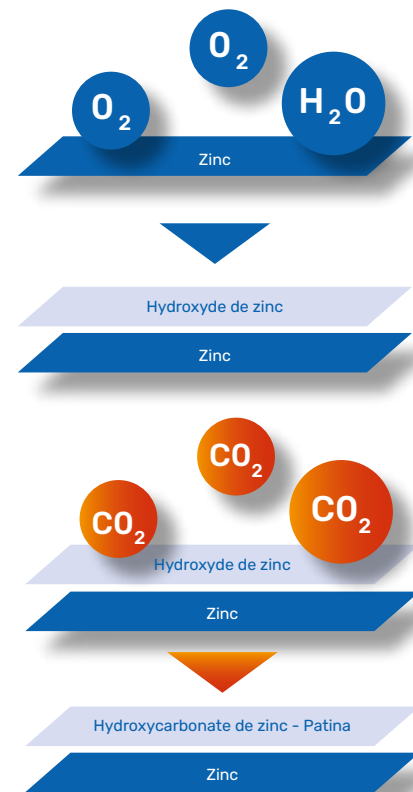
VMZINC offers buildings sustainable envelope solutions that can endure most climates:

- > Water and snow tightness from 5% slope
- > Easy management of expansion-shrinkage constraints, extreme wind depression, climatic overloads and fire prevention.

Better than any other material, thanks to its mechanical characteristics, zinc allows all rainwater drainage systems to endure the most violent weather conditions, such as hail, significant temperature variations, or UV rays in very sunny areas.

Zinc is a self-protecting metal through the formation of a patina. It has a lifespan of 80 to 100 years, which varies depending on its environment.

The corrosion rate of VMZINC® rolled zinc is currently 1 µm/year on average. With an initial thickness of 0.65 or 0.80 mm (standard in France) and a corrosion rate of 1 µm/year, a simple calculation allows us to estimate the lifespan of rolled zinc at more than 100 years. The lifespan of rolled zinc has increased over the last five decades and will continue to increase in the coming years, due to increased control of sulfur dioxide pollution, which slows the corrosion rate of rolled zinc.

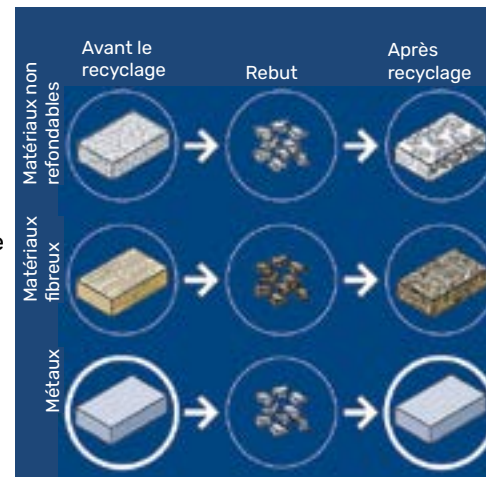


One of the highest recycling rates in the building industry

Zinc is 100% recyclable without loss of quality: During remelting, the bonds are restored and the zinc continuously regains its original performance, even after several recycling loops. In contrast, the characteristics and performance of most non-metallic materials degrade after recycling.

The recovery and recycling of old rolled zinc has therefore been organized in a structured and efficient way, allowing the highest recycling rates in the building sector.

Old rolled zinc is effectively recycled at 98% in France (Recycling of rolled zinc - i+c institute report - 2011) and at more than 95% in Western Europe (Recycling Fact Sheet - IZA).



Source : Metals for Buildings - Essential & fully Recyclable

[More information on recycling](#)



Assessment tools for VMZINC® solutions

VMZINC® is committed to environmental excellence. The company carries out Life Cycle Analysis (LCAs) on its products and publishes Environmental Product Declarations (EPDs) which it makes available to its customers to support them create sustainable buildings.

These analyses provide users of VMZINC® products and systems with complete, reliable and transparent information on the environmental characteristics of the material. They are also used by VMZINC® as the basis for its eco-design approach adopted for the development of its solutions.

The four BRE Environmental Profiles (British EPDs) for American market, FDES (French EPDs), and IBU Zertifikats (German EPDs) are the different EPDs available for VMZINC® solutions.



4 BRE



3 IBU (DE)



16 FDES (FR)

Evaluation results live up to expectations

Performance: Rolled zinc, an eco-efficient material

Rolled zinc is one of the most environmentally efficient materials among the metal solutions used for building envelopes:

- > It has a lifespan of between 80 and 100 years (depending on the type of atmosphere)
- > It requires almost no maintenance or replacement during this long period of use
- > It has an exceptional recycling rate (more than 95% in average).
- > it has a low grey energy with the lowest melting temperature.

Elements	Melting temperature
Zinc	420°C
Aluminium	660°C
Copper	1085°C
Iron	1538°C

[More information on EPDs](#)



Zinc, a minimal contributor to climate change

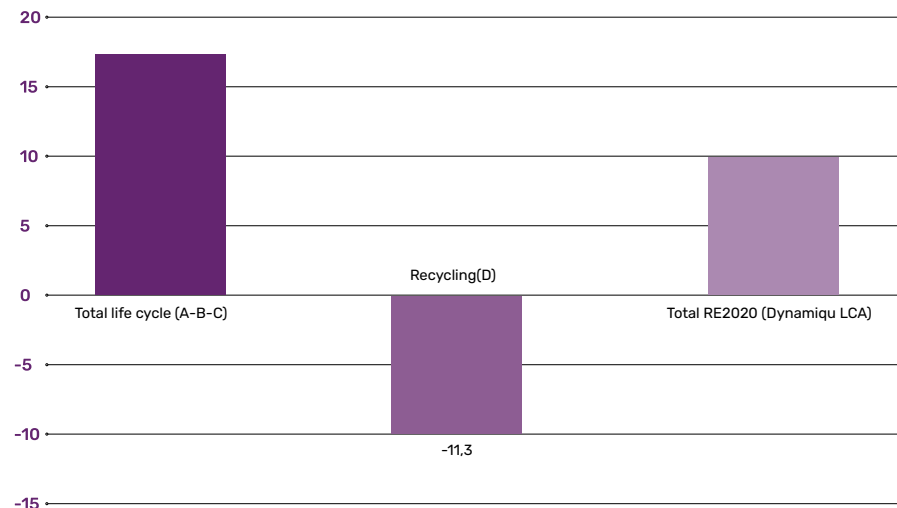
Carbon footprint

Case study in France using the method of RE2020

Unit / UF	Total life cycle (A-B-C)	Recycling (D)	Total RE2020 (Dynamic LCA)
kg éq CO2	16,8	-11,3	10,182

Environmental criteria: Climate change

Carbon footprint RE2020 (kg CO2 eq) for 1 m2 of VMZINC® Standing seam for roofing in natural zinc 0,65 mm(FDES)



Impact on global warming for 1 m2 of VMZINC® Standing seam for roofing in natural zinc - Extract from the FDES

The carbon footprint of rolled zinc over its entire life cycle is low, representing 10.182 kg CO2 equivalent using the method used for the RE2020 calculation (dynamic LCA). This is possible due to its recycling at the end of its life cycle, which avoids the production of primary zinc and associated greenhouse gas emissions, and a very long life span.

Synergy with wood

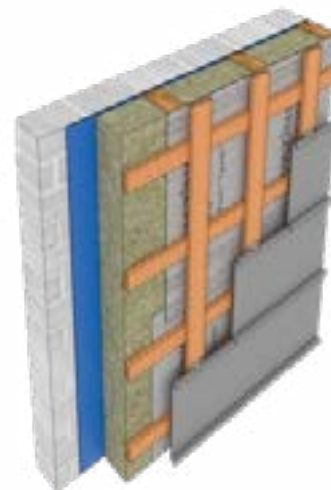
The combination of these two materials has many advantages. Bio-sourced materials store carbon. VMZINC® façade and roofing solutions can be combined with wood construction systems (MOB, COB, CLT, etc.). They can be installed on wood - decking, secondary frameworks and roll caps - and are also compatible with bio-sourced insulation, such as wood fibre panels

These two noble, natural and sustainable materials offer a synergy:

- > Aesthetic (e.g. the warmth of wood, modernity of rolled zinc)
- > Technical (e.g. rigidity of wood, durability of zinc)
- > Functional (e.g. support of wood, protection of rolled zinc)
- > Environmental (e.g. low grey energy of wood, recycling of rolled zinc)

Thus, VMZINC® systems incorporate up to 13 kg of wood per m2 of zinc, or even more with decking with a thickness of more than 15 mm.

[More information on zinc and wood synergy](#)



VMZINC® Standing seam
Ventilated facade on wood decking

VMZINC® certified projects



LEED : Gold • David Rubenstein forum, Architects: Diller Scofidio + Renfro • Chicago (US)

Numerous certifications exist, both locally and internationally. VMZINC® systems have many advantages that enable them to contribute to the environmental quality of buildings.

Some examples :

- > E+C- : French benchmark
- > BREEM (Building Research Establishment Environmental) : UK benchmark
- > LEED (Leadership in Energy and Environmental Design) : US benchmark



LEED • Bois library • Architects: Cardinal Hardy / Labonté Marcil / Eric Pelletier • Toronto (Canada)



LEED : Silver • Vattanac capital tower . Architect: TFP Farrells • Phnom Penh (Cambodia)

VMZINC® certified projects



E+C • Collective buildings • Architects: Atelier d'Architecture Brenac et Gonzales, Paris (France)

VMZINC® certified projects



BREEAM • University of Cambridge Maxwell Centre • Architect : Building Design Partnership (BDP) • Cambridge (UK)



BREEAM • Powell hall • Architect: HLM Architects . St Andrews (Scotland)



BREEAM : Excellent • Marco Polo residence • Architect: Scott Brownrigg • London (UK)



BREEAM • Docks Bruxsel • Architect : ART & BUILD • Brussels (Belgium)

VMZINC® and sustainability

To remember

VMZINC,
THE solutions



100% Recyclable
98%*
(in France)
recycled

Natural

Essential
to
life

80 to 100 years
lifespan

VMZINC,
THE products

Impact assessed
by LCAs
(BRE, FDES, IBU):
4 BRE
in the US

MANUFACTURED IN FRANCE
on **THREE**
ISO 14001*
CERTIFIED SITES

LOW GREY ENERGY
(420°)

Synergy with wood:
± 10,5 kg
for Standing seam

*Recycling of rolled ZINC in building industry - Xerfi I+C and A3M - 2018

*International environmental management system



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 States of 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 and cladding profession. While construction is underway all standards in force must be respected. Further installation information is available from www.vmpzinc-us.com. Further-more, 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, VM Building Solutions 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 VMZINC team. 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.

VM Building Solutions - VMZINC

1513 Walnut Street, Suite 270 Cary

NC 27511

Phone : +1919-296-8868

info@vmzinc-us.com

www.vmpzinc-us.com

