

Rules When Working with VMZINC

Patina vs. Corrosion

The resistance of Zinc to corrosion stems from the formation of a protective layer called the patina, which prevents the access of oxygen to the surface of the metal. When zinc is exposed to air and water a chemical reaction takes place to form zinc hydroxide. When zinc hydroxide comes in contact with carbon dioxide (CO₂) it produces a layer of hydroxycarbonate which becomes the patina and adds a light grey color to the zinc.

The titanium zinc must have ventilation on the underside of the zinc. If the zinc stays in direct contact with water, the zinc cannot form the patina and will not protect the zinc. That is why it is very important to control the condensation formed on the underside of a zinc roof to prevent backside corrosion.

Expansion and Contraction

With all standing-seam metal roofs, regardless of the material used, it is important to allow for unlimited thermal movement so that the panel can expand and contract without restriction. It is especially critical to allow for sufficient thermal movement for zinc panels, as it can expand over twice the distance of a steel panel. **Zinc will expand an entire inch for every 30 feet of panel when exposed to a temperature differential of 160 F**, which is very common throughout much of the United States. If the panel is restricted by the clips or fasteners when expansion and contraction take place, oil canning will occur. This will be more prevalent in standing-seam panels that have been improperly installed. Restricting the movement of the panels will also cause the sealants that help make the system watertight to break down over time. Trim components should also be given approximately 1/4-inch at end laps to allow for thermal expansion.

Malleability

Zinc is soft and very flexible and can conform to many curved shapes naturally without mechanical fabrication.

- A 1" standing seam will conform to a 30'-0" radius naturally.
- A VM Flatlock Panel will conform to a 12'-0" radius naturally.

Interaction/Compatibilities with other Materials

Because of the potential of interaction due to incompatibility from run off, metals should be installed in the following order (from top to bottom)

- Aluminum
- Zinc
- Galvalume
- Lead
- Copper

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.

Acceptable Contact Products for Zinc

- Lead
- Aluminum (painted, anodized, or bare)
- Galvanized Steel
- Stainless Steel
- Compatible Woods: pine, spruce, Scots pine, poplar.

Products that should not come in contact with or Run-off onto Zinc – This list is not exhaustive

- Copper
- Steel (Non galvanized)
- Gypsum dust/ Lime stone dust
- Non-compatible woods: larch, oak, chestnut, red cedar, Douglas fir, white cedar, all woods with a pH < 5.
- Mortar
- Rosin paper
- Bituminous membranes
- Products with fire retardants and preservative treatments
- Acidic cleaners
- Products containing mineral materials such as calcium carbonate, cement, gypsum will have a corrosive effect on zinc if exposed to damp conditions.
- De-icing salt will have a corrosive effect.
- Products used for cleaning bricks and masonry such as muriatic acid.
- Detergents used for window cleaning.

Cold Weather Installation

During installation in a cold atmosphere, zinc material may become brittle. The zinc material should not be colder than 45°F or 7°C or it may crack. When zinc is installed in weather colder than 45°F or 7°C it should be heated prior to working with it. Typical tricks of the trade are to use heated seamers or to keep the zinc under a heated blanket.

Storage and Handling

Zinc installers should always **wear gloves** and **long-sleeved shirts** when handling the zinc. Correct storage of rolled zinc will contribute to the lifespan of the roofing and/or cladding material. The following precautions apply to pre-weathered zinc and to pre-weathered ZINC PLUS products, in the form of sheets or coils.

- Avoid dropping zinc sheets, coils or formed pieces:
- Avoid dragging or sliding sheets and panels over rough surfaces:
- Avoid large temperature variations during transportation:
- When shipped by containers, it is essential to ventilate the containers immediately upon receipt and store the products as soon as possible in the correct conditions mentioned below.
- Sheets and coils of zinc must be stored in a well-ventilated, sheltered and dry warehouse, with a constant temperature so as to avoid condensation build-up.
- Sheets and coils of zinc must be separated from the ground by a pallet which allows sufficient air space for the correct ventilation of the products.

VMZINC Protective Film

VMZINC is a non-painted product with a natural metal finish. This means that the surface is susceptible to staining and marking during the construction process. It is for this reason that pre-weathered VMZINC is supplied with a protective film unless requested otherwise. The film is designed to protect the zinc from dust and dirt which are common on all construction sites. It cannot protect the zinc from physical impacts.

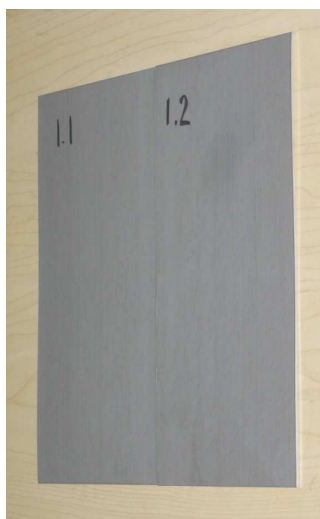
Even though zinc will form a natural protective barrier (patina), precautions should be taken during installation to ensure that no damage, deformities, or color variations occur. Zinc installers should always **wear gloves** and **long-sleeved shirts** when handling the zinc. The **acidic nature of perspiration will leave marks** on the zinc surface that will heal over time but will remain visible for a while and could have an adverse effect on the appearance of the zinc immediately after installation.

Color Consistency – VMZINC applies phosphates crystals on the zinc surface to pre-weather the zinc to the various surface colors. Crystals reflect light in a specific pattern and the appearance of pre-weathered zinc is directional. This means that two identical zinc samples will look differently if they are not oriented the same.

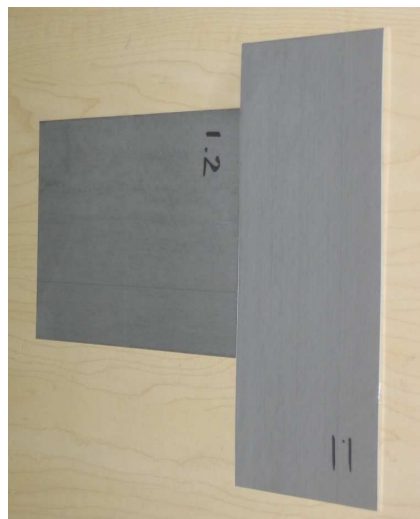
VMZINC has placed arrows labeled “**Rolling Direction**” on the protective film to help orient the zinc. It does not matter which direction the zinc is oriented, but it is important to choose a direction then maintain that direction until the continuous zinc elevation plane is completed to avoid color variation.



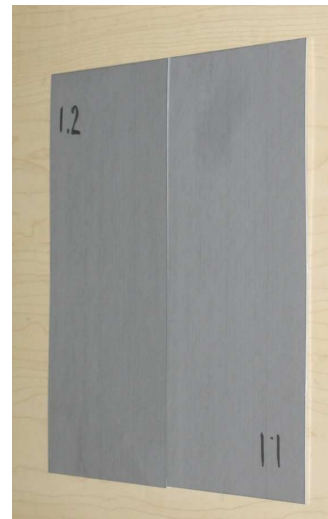
The **Rolling Direction** arrow indicated on the VMZINC Protective Film



Zinc in same Orientation



Zinc with a 90° Orientation



Zinc with a 180° Orientation

Removal of the Protective film

The protective film should be removed from zinc panels upon completion of an elevation, all at the same time. The protective film should remain on the zinc no longer than 60 days after the completion of installation. **Make sure that other trades will not contaminate zinc panels after the film is removed.** This expectation can be addressed with the construction scheduling if possible.

Pre-made zinc panels should always be stored with the film intact and in a dry and ventilated environment.

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, ie 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.

CLEANING AND MAINTENANCE

Correct maintenance will contribute to the lifespan of the zinc roofing and/or cladding material. The following precautions apply to pre-weathered zinc and to pre-weathered ZINC PLUS\ products used for wall and roof applications. The maintenance shall be at the owner's expense after the work has been completed. The maintenance work falls within the province of the different trades.

NORMAL MAINTENANCE WORK:

- Periodic removal of leaves, grass, moss and other deposits or foreign matter.
- Maintaining the rainwater drains and keeping them in good operating condition.
- Maintaining the ventilation units of the roof and keeping them in good operating condition (if necessary).
- Maintaining any elements which contribute to the roof being watertight (filets, drips, fascia, junctions roof to wall, etc.), and keeping them in good operating condition.

CLEANING:

Although the rain will drain some of the dust deposits off the roof and walls, it is recommended to limit cleaning the zinc to specific areas such as areas where decaying leaves cover the roofing panels. Precautions should be taken to avoid any deterioration of the patina. We recommend cleaning the zinc with warm water (no high pressure) and mild, thinned down detergent and gently rubbing the panels in the same direction as the grain, using a clean cotton cloth.

Caution should be taken when cleaning windows and masonry adjacent to the zinc. Cleaning agents **containing chlorine, ammonia or muriatic acid should be avoided** as they can have a reaction with the zinc.

FINGERPRINTS:

Fingerprints are visible on zinc. Installers are advised to wear gloves and long sleeved shirts to minimize prints. Strub oil can be applied to make the fingerprints less visible. However, must be used on the entire elevation to avoid color differences. Strub oil will also enhance the patina formation.

SCRATCHES:

Because of the “self-healing” nature of zinc small scratches will be obscured by the formation of the patina over time. It is recommended to let them heal on their own.

Cleaning Instructions:

Start with the mildest cleaner and work up to acquire the result desired. Construction dirt and dust on unprotected zinc can be gently removed with clean cotton cloth and warm tap water. **Sweeping or vacuuming will scratch the finish and is not recommended.**

Cleaners, non-abrasive (For VM QUARTZ ZINC®, VM ANTHRA ZINC®, VM NATURAL ZINC®): **water; soda; a diluted solution of Dawn dishwashing liquid and water; a diluted solution of white vinegar and water; alcohol, Strub oil; citrus oil cleaner (all cleaners must be thoroughly rinsed with water).**

White Rust: Strub oil with a soft cotton cloth is recommended.

Fingerprints are visible on zinc. Installers are advised to wear gloves and long-sleeved shirts to minimize prints. Apply (**Strub oil**) to make the fingerprints less visible. The Strub oil will also enhance the patina formation. Apply a small dab of oil on a clean cotton cloth and gently rub the panels in the same direction as the grain.

It must be used on the entire elevation to avoid color differences.

When using any type of cleaning product always start on the least visible area of the building for trials. VM Zinc cannot guaranty any result whatsoever and cannot be held responsible for damages occurred during the cleaning process.