55% Aluminum-Zinc Alloy Coated Steel

TECHNICAL BULLETIN #2

Guide to Flashing Materials

The preferred flashing material for 55% Aluminum-Zinc Alloy Coated Steel is either bare or painted 55% Aluminum-Zinc Alloy Coated Steel. The following guidelines have been provided to assist in the informed use of other materials where necessary.

2.0 Compatibility (4 Areas to Consider).

2.1 Galvanic Corrosion.
Due to a phenomenon known as galvanic or bi-metallic corrosion, some commonly used metals can cause accelerated corrosion when used with 55% Aluminum-Zinc Alloy Coated Steel zinc/aluminum alloy-coated and pre-painted sheet. The field of corrosion study has defined an “activity” scale shown in Table 1 which shows zinc and aluminum more active than copper, lead or stainless steel. The farther apart on the scale, the more dissimilar and the stronger the potential for reaction between the metals. When a galvanic “couple” is formed by electrical contact the more active metal will sacrifice itself (or dissolve) to protect the less active component of the couple.

55% Aluminum-Zinc Alloy Coated Steel will experience accelerated corrosion when in contact with copper or lead. Leeching from copper will result in especially high levels of corrosion. The protective oxide film which naturally forms on aluminum surfaces is broken down by copper or lead in localized areas. Pitting corrosion ensues which is a highly accelerated form of attack. Zinc coatings are not generally subject to pitting when in contact with the same materials.

2.2 Rainwater Runoff.
The galvanic scale in Table 1 is also important when considering runoff from one material to another. If any two of these materials are in damp contact or a runoff situation, the metal higher on the table will sacrifice itself to protect the lower. A simple guideline to follow is to remember that water can flow downhill but not uphill. Zinc to copper is acceptable but copper to zinc is not.

2.3 Inert Catchment (Caution When Combining Different Roofing Systems).
Care should be taken when combining products on a roof system. If products are combined incorrectly severe localized corrosion may occur as a result of “inert catchment.”

The zinc coating on galvanized steel products develops a protective surface film as a result of natural weathering. This provides the longevity of performance which is typically known of galvanized products. When flowing over galvanized roofing rainwater dissolves small amounts of minerals and salts from the zinc surface. These minerals and salts promote and maintain the protective film and enhance the corrosion resistance of other galvanized steel products such as gutters and valleys.

When rainwater flows over or is collected from roofing materials which do not promote this protective film (inert materials) accelerated corrosion of unpainted galvanized steel roofs and gutters can occur. Examples of inert materials include 55% Aluminum-Zinc Alloy Coated Steel, pre-painted steel, acrylic, glazed tiles, aluminum, fiberglass and PVC.

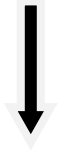
Unpainted galvanized steel must not be used for roofing or rainwater goods (including valleys and gutters) to collect water runoff from 55% Aluminum-Zinc Alloy Coated Steel or any other inert material.

55% Aluminum-Zinc Alloy Coated Steel and painted 55% Aluminum-Zinc Alloy Coated Steel can be used to collect water from galvanized or any inert catchment material. 55% Aluminum-Zinc Alloy Coated Steel gutters will typically give a longer service life than traditional galvanized steel.

2.4 Standing Water.
New applications for standing seam metal roofing have required roof slopes be minimized to as low as 1/4:12. An area of a roof can be almost flat depending on the particular building. These conditions can create areas where water can collect and remain for extended periods of time with possibility of accelerated corrosion. Where an unfavorable galvanic couple exists, the presence of standing water for prolonged periods will allow the corrosion reaction to continue for a longer time than it normally would. In cases where an adverse couple does not exist, enough water can complete the necessary electrical contact and corrosion will proceed as long as the water maintains the circuit.

The appearance of roofing panels can suffer even when all materials within a water-ponding area are compatible. Aluminum-coated steel panels are not as resistant to standing water as 55% Aluminum-Zinc Alloy Coated Steel.
When the aluminum-coated panel begins to rust, the standing water can disperse and deposit rust particles on an adjacent 55% Aluminum-Zinc Alloy Coated Steel sheet panel, resulting in an unsightly stain.

Table 1- The Electromotive (Galvanic) Series of Metallic Activity

More Active Metals	Zinc
	55% Aluminum-Zinc Alloy Coated Steel
	Aluminum
	Steel
	Lead
	Copper
More Noble Metals	Stainless Steel

2.5 Compatibility of Commonly Used Flashing Materials.

2.5.1 Copper.
Copper is incompatible with both bare and pre-painted 55% Aluminum-Zinc Alloy Coated Steel, either in contact with or where water can flow from it, such as is often experienced with hot water system overflows. Painting the outside of the copper pipe is recommended. Hot water discharge pipes should be extended beyond the roof, preferably to ground. Every effort must be made to prevent the overflow of water from copper pipes onto the roof and gutter material.

2.5.2 Lead.
Lead is the only metal generally considered to be compatible with zinc-coated steel but not with bare or pre-painted 55% Aluminum-Zinc Alloy Coated Steel. 55% Aluminum-Zinc Alloy Coated Steel, in contact with or receiving run-off water from lead is prone to corrosion. In the event of roof retrofit where lead already exists and its re-use is desirable, the
55% Aluminum-Zinc Alloy Coated Steel must be insulated from the lead by a suitable barrier. This can be achieved by painting the underside of the lead or preferably both surfaces to ensure complete electrical separation. Plastic film can also be used provided it is robust enough and will not tear, e.g., polyethylene damp course placed between the lead and 55% Aluminum-Zinc Alloy Coated Steel sheet (with paint on top), is a better alternative.

Lead in the water run-off should be avoided by painting the top surface of the lead flashing. The lead supplier should be contacted for advice as to a suitable finish coat barrier system and the ongoing maintenance requirements. Applying two or three coats of water-based acrylic is generally suitable but any painting must be maintained so it will not break down and expose any of the lead surface.

2.5.3 Galvanized Steel.
Galvanized flashing materials and accessories may be used with bare and pre-painted 55% Aluminum-Zinc Alloy Coated Steel. However, galvanized products may have a shorter life span and thus eventually makes them impractical in the long term. Conditions detailed above with unpainted galvanized subject to water runoff from 55% Aluminum-Zinc Alloy Coated Steel panels should be avoided.

2.5.4 Aluminum Coated Type II.
Flashings fabricated from this material may be used although inferior resistance of aluminum coated steel to standing water and cut edge corrosion may result in rust staining of adjacent bare and pre-painted 55% Aluminum-Zinc Alloy Coated Steel.

2.5.5 Graphite.
All materials containing graphite should not be used with or adjacent to 55% Aluminum-Zinc Alloy Coated Steel. This includes washers and also graphite from pencils used to mark 55% Aluminum-Zinc Alloy Coated Steel components.

2.5.6 Stainless Steel.
300 series grades are suitable, 400 series grades with >1.0 mil. zinc or cadmium coating may be used. Other grades should be avoided. Our sales and technical personnel should be consulted where any questions exist.