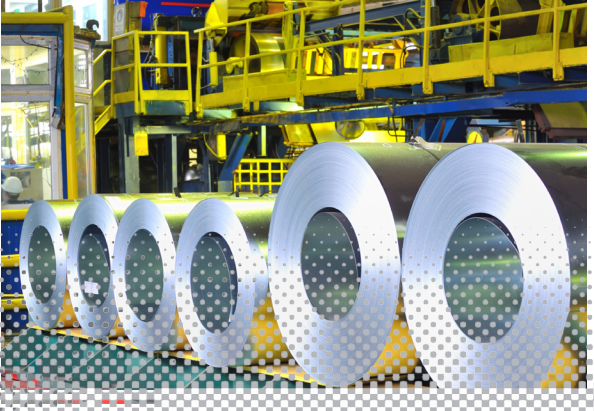
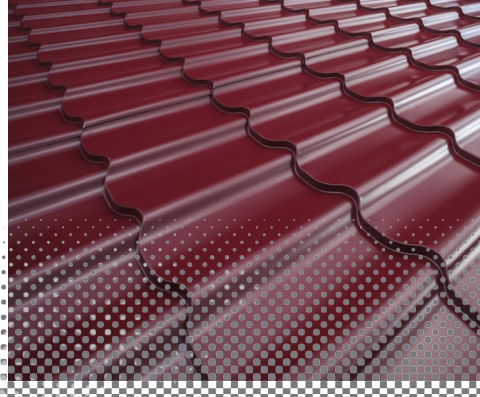




Materials in contact with galvanized coated steel sheet

All common and uncommon building or fabrication materials can be used with galvanized steel except for LEAD & COPPER.

Lead & Copper

Contact of these materials with galvanized steel can result in an accelerated corrosion of the zinc coating in the area of contact. The rate of corrosion increases with the severity of the environment. For this reason, the use of lead-head nails, lead washers or lead flashings s not recommended. Water run-off from copper, as well as actual contact with copper, should also be avoided for the same reason.

The Accelerated Drip Corrosion Phenomenon.

"Accelerated Drip Corrosion" is the premature corrosion of galvanized steel due to rainwater running off or dripping from a "less active" material onto an unpainted galvanized (zinc-coated) steel surface.

Water run-off from unpainted Galvalume steel roof to galvanized steel eavestrough.

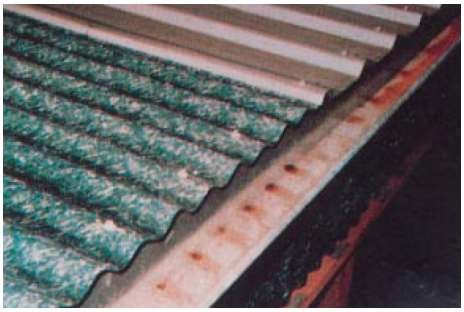
"Less active" materials may include 55% Al-Zn coated steel, Prepainted galvanized steel, Prepainted 55% Al-Zn steel, Prepainted aluminum, Glass, Plastic, Fiberglass Panels (Skylights) and Glazed Tiles. This phenomena of accelerated drip corrosion has been noted for a number of years in Canada on galvanized steel materials where

Typical materials that can be used in direct contact with galvanized steel include:

- *55% Al-Zn Coated Steel*
- *Aluminum*
- *Zinc Sheet*
- *Pre-Coat Galvanized Steel*
- *Pre-Coat Galvalume Steel*
- *Plastic*
- *Stainless Steel*
- *Wood*
- *Glass*
- *Neoprene*
- *Nylon*
- *Rubber*
- *Structural Steels e.g. purlins, [should be protected with an organic (paint) or metallic (zinc) coating]*
- *Prepainted Aluminum*
- *Glazed Tiles*
- *Fiberglass Panels (Skylights)*

Indian Sheet Steel Building Institute
G-1 & G-5, Ground Floor, Allied Bhawan, Local Shopping Centre
Madingir, New Delhi-110062
Phone: +91-11-2996-0040 | Email: kdesouza@bell.net | Web: www.zinc.org.in

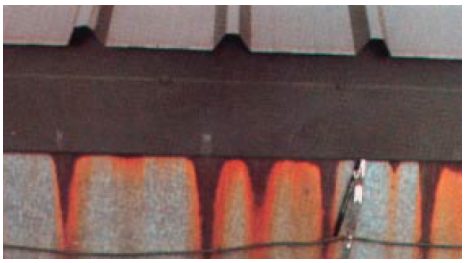
there has been rainwater run-off or dripping from pre-coated galvanized steel roofs and glass roofs (greenhouses).



Early failure of galvanized steel eavestrough receiving water from prepainted roof and glass fibre roof (less active materials).

Mechanism of Accelerated Drip Corrosion

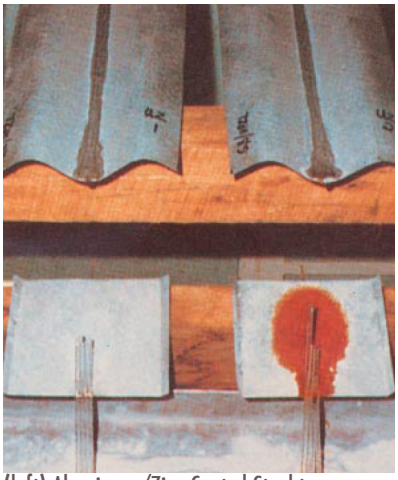
When rainwater, which has a high affinity for zinc, flows over or drips onto zinc coated steels (galvanized), there is some erosion of the zinc-coating in the areas where the dripping or rainwater flow is concentrated. As a result, this action accelerates the loss of the zinc-coating in these areas. It has been found that the entire loss of zinc-coatings (e.g. Z275/G90) can occur within a few months and as a result, red rusting occurs.



Actual installation showing accelerated drip corrosion due to water run-off from prepainted galvanized steel roof to unpainted galvanized steel flashing.

Solution to Accelerated Drip Corrosion

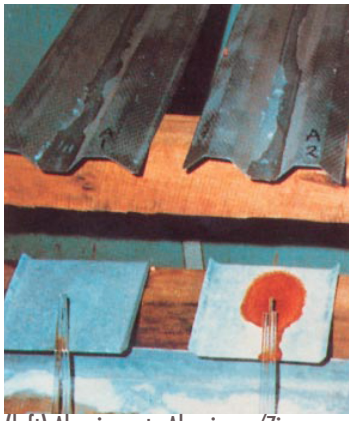
To eliminate occurrences of this corrosion on galvanized steel, the basic rule is not to use galvanized steels downstream from any "less active" material (outlined previously) from which there is rainwater flowing or dripping onto the galvanized steel. Research was undertaken by the John Lysaght Research and Technology Centre based at Port Kembla, Australia, to establish the relative performance of Galvalume steel and galvanized steel under different roof catchment conditions. These photographs were taken after two years' testing.



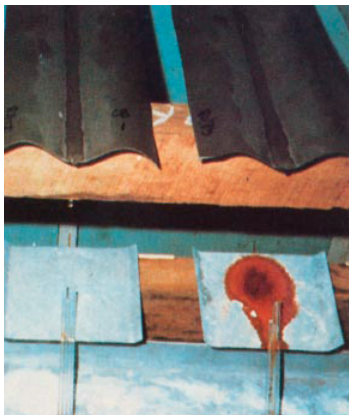
(left) Aluminum/Zinc Coated Steel to Aluminum/Zinc Coated Steel.
(right) Aluminum/Zinc Coated Steel to Galvanized Steel.

Example: Eavestroughing Material

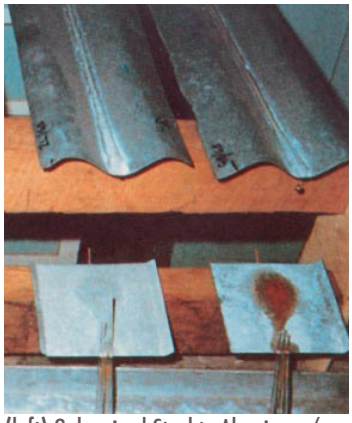
For prepainted steel roofs, instead of using plain galvanized steel eavestroughs, prepainted galvanized steel. (Painted both sides.)



(left) Aluminum to Aluminum/Zinc Coated Steel. (right) Aluminum to Galvanized Steel.



(left) Prepainted Galvanized Steel to Aluminum/Zinc Coated Steel. (right) Prepainted Galvanized Steel to Galvanized Steel.



(left) Galvanized Steel to Aluminum/Zinc Coated Steel. (right) Galvanized Steel to Galvanized Steel.

For further details regarding the compatibility of Galvalume coated steels with other materials, please contact email Ken de Souza at kdesouza@bell.net