55% Aluminum-Zinc Alloy Coated Steel

TECHNICAL BULLETIN #8

Unsuitable Applications

8.0 Introduction.
55% Aluminum-Zinc Alloy Coated Steel has proven to exhibit superior corrosion resistance in a diverse range of environments including those in rural, industrial, marine and severe marine regions of the country. Atmospheric corrosion testing for more than 25 years has clearly shown that 55% Aluminum-Zinc Alloy Coated Steel has at least 2-4 times the life span of galvanized G90 in these environments. However, with even the most revolutionary materials there are specific end user applications into which 55% Aluminum-Zinc Alloy Coated Steel should not be placed without careful consideration as to the ultimate performance.

These applications, and issues to be considered within these applications, are summarized in this Technical Bulletin to assist in the correct selection of materials.

8.1 Animal Confinement.
Structures erected to house the intensive farming activities of pigs, cattle, turkeys and chickens can present problems for 55% Aluminum-Zinc Alloy Coated Steel. This form of animal confinement can result in the creation of animal waste and waste decomposition by-products which can be extremely aggressive towards 55% Aluminum-Zinc Alloy Coated Steel, creating significant corrosion problems.

Waste decomposition gases such as methane, hydrogen sulfate and ammonia can combine with water vapor to form a highly corrosive compound which condenses on the bottom side of the steel roof panel, resulting in an extremely corrosive attack. Direct contact with animal wastes should be avoided regardless of the type of material employed in the construction of the building. Good panel insulation, ventilation and frequent waste removal will assist in maintaining the longevity of such a structure; however we recommend the following guidelines:

- 55% Aluminum-Zinc Alloy Coated Steel (bare or painted) should not be used for cattle, pig or poultry confinement due to the risk of the corrosive process outlined above. Heavy zinc coated galvanized or aluminum products should be used for these applications.

- 55% Aluminum-Zinc Alloy Coated Steel will perform favorably in the majority of other agricultural applications. Such structures include storage sheds, silos, grain bins and other utility farm buildings.

8.2 Concrete.
55% Aluminum-Zinc Alloy Coated Steel is not suitable for use with wet concrete mixtures. It is not recommended for use in framework and floor deck applications. The aluminum in the 55% Aluminum-Zinc Alloy Coated Steel coating will react with the wet concrete leaving the coating porous and prone to corrosion. Adhesion between the concrete and 55% Aluminum-Zinc Alloy Coated Steel is poor and the concrete itself can expand and lose strength. Small splashes of concrete onto 55% Aluminum-Zinc Alloy Coated Steel are damaging and should be removed when wet.

8.3 Culverts.
55% Aluminum-Zinc Alloy Coated Steel is not recommended for applications involving burial in the earth or soil. Soils vary widely in moisture content, acidity or alkalinity. Objects buried in the soil can be subject

to bacterial activity and oxygen levels can be highly variable. 55% Aluminum-Zinc Alloy Coated Steel is more sensitive to low oxygen levels and lack of passivity than galvanized products, hence heavy coating mass galvanized would be the recommended product under these conditions.

8.4 Miscellaneous Sources of Aggressive Substances.
The following specific applications should also be treated with caution. Contact Cascadia Metals to seek advice on the correct material to use in these instances.

- Some chemical, food processing and acid pickling plants where chemicals, acids and alkalis are present such that when combined with water vapor and dew point effect.

- Direct contact with or runoff from green lumber or chemically treated lumber containing copper. A white paper on 55% Aluminum-Zinc Alloy Coated contact with pressure-treated wood is available upon request.

- Dirt, leaves and build-up of organic matter.