

Special Service Environments: intensive animal farming

Introduction

The environment within intensive indoor animal farms may be highly corrosive. Often the environment is closely controlled to produce optimum growth rates for large numbers of poultry, pigs or cattle. The accumulation of animal waste within the building may include sulphur and ammonia compounds which are known to be corrosive to ZINCALUME® aluminium/zinc/magnesium alloy-coated steel.

While ZINCALUME® steel offers effective corrosion resistance under the majority of atmospheric conditions, this performance may be reduced in intensive animal farming situations.

The design of the structure to prevent corrosion, as well as to optimise animal growth, is imperative. The inclusion of masonry dwarf walling and the use of insulation materials with very low moisture retaining properties are desirable to aid the prevention of corrosion.

Regular cleaning of not only the animal waste from the floor of the structure but the cleaning of general dirt and waste material from the walling and roof sheeting is required to improve service life from the structure.

During operation, water-misting and combustion-heating may lead to high condensation loads, which when combined with a high feed dust loading, may lead to an extended time of wetness and accelerated corrosion.

When designing structures utilising lightweight zinc-coated steel purlins, close attention must be paid to the purlin lip design. The environment requires that the bottom purlin lip must be turned down to reduce the retention of general detritus and condensation leading to corrosion of the flange area.

Recommended products

BlueScope recommend that intensive animal farming buildings (cladding and purlins) be fabricated from zinc-coated material with a minimum coating mass of 450 g/m² (i.e. Z450). Where possible 600 g/m² (i.e. Z600) cladding is preferable. (There is a direct relationship between coating mass and the expected performance life of the product).

For an extended life of the structure, SUPERDURA® Stainless prepainted steel sheeting in conjunction with GALVSPAN® zinc-coated steel purlins (Z450) post painted with a corrosion resistant paint system should be used.

SUPERDURA® Stainless prepainted steel, GALVSPAN® zinc-coated steel, ZINC HI-TEN® zinc-coated steel (Z450 or Z600) may be the most appropriate materials for cladding, whilst GALVSPAN® zinc-coated steel (Z450) is an appropriate material for purlins used in the construction of intensive animal farming buildings.

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