

CORROSION

FERTILIZER MANUFACTURING AND STORAGE BUILDINGS

TECHNICAL BULLETIN CTB-24

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This issue supersedes all previous issues

The manufacture of fertilizers utilises high concentrations of phosphorous, sulphur and chloride containing compounds along with other corrosive contaminants. Storage of the final fertilizer product in open piles, ie not in sealed bags, will also release these contaminants into the environment. The presence of these contaminants in the surrounding environment of a building will accelerate the corrosion of ZINCALUME® zinc/aluminium alloy coated steel, COLORBOND® prepainted steel and COLORBOND® Ultra prepainted steel.



Figure 1: Example of corrosion resulting from contact with fertilizer.

The broad spectrum of fertilizer products manufactured to meet the demands of the agriculture industry may expose the cladding material to a variety of fertilizer products during the service life of the building. Therefore, COLORBOND® Stainless prepainted steel is the only product recommended by BlueScope Steel Limited for roof and wall sheeting on fertilizer manufacturing and storage buildings.

As purlins are exposed to the same environment, BlueScope Steel recommend they be manufactured from GALVSPAN® Z450 steel and incorporate a turned-down lip to prevent the build-up of fertilizer dust. Furthermore, the purlins must be postpainted with an appropriate high-build industrial paint system as recommended by a reputable paint supplier.



Figure 2: Build-up on purlin

Design

Experience has shown that the incorporation of a masonry dwarf wall can dramatically reduce the instance of mechanical damage and corrosion to wall cladding. This avoids direct contact between the fertilizer and the cladding.

In cases where end lapping of roof sheeting is required, particular care should be taken to encapsulate the top end of the lapped sheet, using a generous bead of neutral cure silicon rubber sealant, to prevent the retention of fertilizer dust (*refer CTB-8*).



Figure 3: Example of a dwarf wall

Should products other than COLORBOND® Stainless steel be used as cladding, the following problems may be encountered:

- accelerated corrosion under flashings, ridge cappings and at the roof/purlin interface, where fertilizer dust is allowed to build up
- reduced service life
- exclusion of a BlueScope Steel warranty

The information and advice contained in this Bulletin is of a general nature only, and has not been prepared with your specific needs in mind. You should always obtain specialist advice to ensure that the materials, approach and techniques referred to in this Bulletin meet your specific requirements.

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