

MILD STEEL IN AN EXTERNAL ENVIRONMENT

SUMMARY

The following document aims to offer solutions to the problems and risks involved when using mild steel in an external environment.

Steel which has not been galvanised or shotblasted and zinc primed before painting will corrode and we recommend the use of one of these methods to enhance protection.

CORROSION

Although mild steel can be satisfactorily powder coated, its unpredictable nature coupled with its readiness to corrode, makes it an unsuitable substrate where decorative performance and protection is required.

All unprotected steel corrodes (rusts) in moist atmospheres, which will ultimately result in the adhesion failure and delamination of the paint layer to the mild steel substrate.

Welded areas or joints are often the first areas to corrode and any fabrication work undertaken once painted which involves breaking the painted surface, is strongly not recommended as bare areas, impact damage, water traps or weld decay will act as an accelerator to speed up the corrosion process.

The risk of corrosion is greatly reduced when painted mild steel material is used internally, as the substrate is not exposed to weathering from the elements.

LIFE EXPECTANCY

Painted mild steel could start to corrode within a very short space of time when externally installed (potentially within days), and especially if situated in a marine environment.

If there is no other alternative to using mild steel, then to aid life expectancy of the product the following procedures are recommended:-

1. Minimum film thickness is increased to 60 microns minimum
2. All joints or water traps must be sealed with an approved mastic
3. There shall be no exposed bare edges
4. Material to be coated all over

MARINE ENVIRONMENT

Sea salts are very corrosive and affect both ferrous and non-ferrous metals.

Shoreline installations are particularly at risk as they are frequently exposed to sea salt solutions followed by dry periods, where this wet/dry cycle produces a very corrosive environment

We strongly recommend that in such locations only galvansied steel or aluminium substrate be used, and if possible, extrusion edges be radiused to facilitate maximum edge protection.

SHOTBLAST AND ZINC RICH PRIMER

For mild steel material which is of a suitable thickness and type to be shotblasted, for example steel door and window frames, approved zinc rich primer systems applied before the top coat are designed to give enhanced corrosion protection to abrasive blast cleaned steel.

This system will also improve corrosion performance around welded and joined areas.

PLEASE NOTE

Tomburn Ltd will not refuse to coat mild steel for external environments.

We assume that our customer has examined and understood the risks prior to dispatch to us and has made a decision on the suitability of the material to meet the client's specification.

WARNING

**ABSOLUTELY NO PERFORMANCE OR CORROSION GUARANTEES ARE AVAILABLE FROM
TOMBURN LTD FOR POWDER COATING DEGREASED OR PHOSPHATED MILD STEEL
SUBSTRATE FOR INTERNAL OR EXTERNAL ENVIRONMENTS, AND ALL ASSOCIATED
FAILURES ARE AT THE RISK OF THE CLIENT.**