TECH NOTE 1.1.5

PERFORATED OR PUNCHED STEEL

WHAT IS PUNCHED METAL?

Punched or perforated metal is sheet metal that has been perforated with small holes. The holes are punched cleanly through the metal, producing razor-sharp edges around each hole.

WHAT IS EXPANDED METAL?

Expanded metal is sheet metal that has been cut with large numbers of small, regular slits. The sheet is then pulled apart to reveal diamond-shaped spaces in the sheet metal.

Both punched and expanded metal sheeting are used for privacy screens. They allow air to circulate, and add architectural interest to a project.

WHAT ARE THE ISSUES WITH PAINTING PUNCHED METAL?

The razor-sharp edges in both punched and expanded metal are a problem to paint. All coatings, whether wet paint, molten zinc (used in the galvanising process) or oven-baked powder coating all exhibit the same behaviour around sharp edges; that is, they shrink away from the sharp edge and pool on either side. This presents one and possibly two problems:

- Minimum recommended dry film thickness of the coating cannot be achieved, and therefore the coating cannot perform its task of protecting the steel from edge corrosion
- The pooling effect can result in the coating on either side of the sharp edge to be higher than the recommended maximum dry film thickness, resulting in cracks or wrinkles in the excessively thick section of the coating.

WHAT CAN BE DONE TO PREVENT EDGE RUSTING?

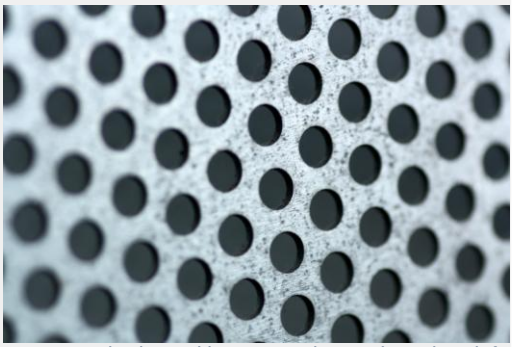
The only way to adequately coat steel edges is to mechanically grind off the sharp edge to achieve a minimum radius of 2 millimetres. Whilst this is generally done on structural steel members, it is obviously not practical or viable to painstakingly grind the edges on thousands of holes or slits on punched or expanded sheet steel.

The typically thin gauge of the steel also prohibits abrasive blast and power tool cleaning, as the steel may buckle under the force. It is also difficult to clean steelwork within crevices.

Inadequate anticorrosive primer thickness (whether it is provided by zinc rich coatings, powder coatings or galvanising) is the major cause of edge corrosion and the major cause of coating failure generally on steelwork.

It is virtually impossible to ensure that the sharp edges of punched or expanded metal sheeting have adequate coating thickness to prevent widespread edge corrosion.

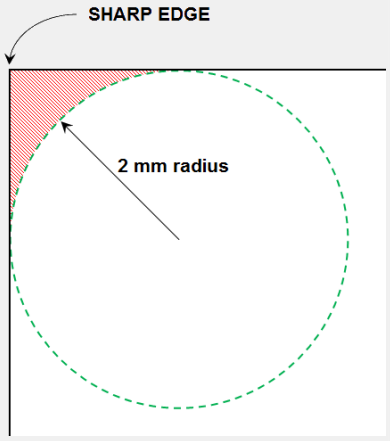
For more information, please contact the Dulux Protective Coatings Technical Consultant in your state.



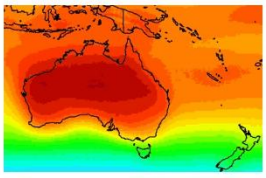
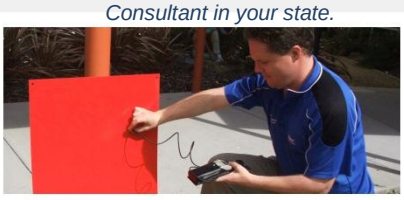
Punched metal has razor sharp edges that defy painting.

Expanded metal also has sharp edges

Screens in a two-year old bayside car park



Rounding the edges of steelwork ensures that adequate coating thickness can be achieved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