Introduction

The following general procedure is applicable to large vessel skirts operating at ambient temperatures of up to 50°C and should be read in conjunction with any specific requirements of the client detailed in their, or their Engineer's, Specification that may have been prepared for the project. A large vessel skirt is defined by Promat as a skirt having an inner or outer surface area in excess of 20m². The Promat FENDOLITE® MII used on these vessel skirts shall be reinforced with a galvanised square or rectangular welded wire mesh, with a typical mesh size of 50 mm to 100 mm and a wire diameter of at least 2 mm. Normally, both inner and outer skirt surfaces will require protection with Promat FENDOLITE® MII. Unless directed to the contrary in this technical guidance document, Promat FENDOLITE® MII shall be mixed and applied in accordance with the current Promat FENDOLITE® MII & Promat FENDOLITE® TG Energy Industries Application Manual.

Inspection of steel surfaces

All steel surfaces to be protected shall be in good condition, adequately protected from possible corrosion, be free from oil, grease, dirt, dust, grime or any other contaminants that may impair adhesion of the fire protection system.

Priming requirements

Anticorrosion and paint requirements are beyond the scope of this procedure. However, where the Promat FENDOLITE® MII system is to be applied directly to steel substrates, Promat recommend that the surfaces be blast cleaned to SA 2½ in accordance with SIS 05 59 00:1967 and are primed and painted with a two pack epoxy system, applied and cured in accordance with the manufacturer's recommendations.

Attachment of mesh retention pins

If permitted, Promat recommend that stud welded pins or welded nuts are attached to the skirt at maximum 400mm centres on a staggered pitch in order to assist the location of the mesh reinforcement. If welded fixings are not permitted and the skirt is of such dimension that wrapping and securing mesh to itself is not practical, the wire reinforcement may be fitted to adhesive-fixed insulation pins providing they are only used as a temporary location aid since their performance in fire conditions will not be adequate.

If welded pins or nuts are permitted, it is suggested that they are (if possible) applied prior to priming and application of PROMAT® PSK 101. If this is not possible, the paint system will require reinstatement with an approved touch-up paint after the pins are welded to the substrate.

Application of PROMAT® PSK 101

All items of primed steelwork which are to be protected with Promat FENDOLITE® MII shall receive one coat of PROMAT® PSK 101 applied at a wet film thickness of 100-150 microns (55-82 microns DFT) which must be allowed to adequately cure and dry.

Application of a keycoat (recommended)

For large vessel skirts, it may be necessary to further improve the bonding by application of a keycoat over the cured and dried PROMAT® PSK 101, especially in case of a large thickness of the first sprayed layer of Promat FENDOLITE® MII. The keycoat is a 50 : 50 mix of PROMAT® SBR Bonding Latex (8.5 litres) mixed with water (8.5 litres), the total 17 litres of watered-down PROMAT® SBR Bonding Latex is then mixed with the 20kg of Promat FENDOLITE® MII. Apply the keycoat so as to give a 20-50% coverage of the background with blobs of material standing off approximately 5mm from the surface. Ideally the material should be flicked on manually using a trowel, or sprayed with a low throughput using an 11mm nozzle and a low air pressure of approximately 10 psi. The Keycoat must be allowed to cure and dry thoroughly before proceeding with the application of the Promat FENDOLITE® MII. Typically this will take between 24-36 hours depending on the environmental conditions.

Application of first layer of Promat FENDOLITE® MII

A first layer of Promat FENDOLITE® MII of slightly less than half of the total thickness shall be applied over the full surface, before application of the mesh. Alternatively, Promat FENDOLITE® MII can be sprayed in bands but only if this will allow for secure tightening of the mesh without coming close to the substrate (i.e. mesh position to be half way through the final spray thickness).

In either case, Promat FENDOLITE® MII must be left with a rough texture and for at least 24 hours to ensure adequate bonding of the subsequent coat.

Installation of mesh reinforcement

We propose the use of 50mm to 100mm square (or rectangular) x 2mm galvanised welded wire mesh which should be attached to the previously fixed stud welded pins, nuts or adhesive-fixed insulation pins. A minimum overlap of two mesh apertures is required at all joints which shall be securely tied with 1.6mm diameter galvanised wire ties or galvanised hog rings at 150mm centres in a staggered zigzag pattern.

NOTES:

- *Joints should be staggered so that not more than three layers of mesh must overlap at any one point.*
- *In order to avoid galvanic contact between the mesh and the vessel skirt, it may be necessary to add biscuits to stand the mesh off the surface.*
- *Hexagonal mesh is generally more flexible and may deform too much when carrying the weight of the wet spray. Therefore square (or rectangular) welded mesh is recommended.*

Application of subsequent coat(s) of Promat FENDOLITE® MII

Spray apply a further coat of Promat FENDOLITE® MII to achieve the specified thickness. Where possible, Promat FENDOLITE® MII shall be applied as a single coat to the required thickness. The final coat shall be at least 8mm thick to avoid cracking. Promat FENDOLITE® MII **must not be trowelled flush with the reinforcing mesh**, as this can create a plane of weakness. The suggested finishing technique is to level the surface with a steel float to close down the surface.

Water shedding and sealing of Promat FENDOLITE® MII / steel junctions

Top surfaces and all terminations of Promat FENDOLITE® MII against steel must be sloped to shed water. Promat FENDOLITE® MII /steel junctions, bracket supports and rigid fixings shall be sealed by cutting an 8 mm wide channel into the material back to the steel substrate and applying a polysulphide or silicone mastic sealant. A mastic seal shall also be installed at the Promat FENDOLITE® MII / concrete plinth junction to prevent standing water being absorbed. Around the man way a mastic seal shall also be applied, as well as vertically over the full height of the skirt above and below the man way to serve as an expansion joint.

NOTE: We recommend that the mastic seals are not applied until after final surface treatment.

Final surface treatment

Promat propose that on curing and drying of the Promat FENDOLITE® MII, the surface is treated with a Promat approved topcoat paint system. The selected topcoat system must be applied strictly in accordance with the manufacturer's recommendations. It is necessary to maintain the correct environment conditions as stipulated in our current Promat FENDOLITE® MII & Promat FENDOLITE® TG Energy Industries Application Manual immediately before, during and after the particular application. Refer to Energy Industries Data Sheet EIDS 033 - Sikalastic (Decothane) Application Procedure.

NOTE: Ideally, all repair work should be carried out prior to application of the final surface treatment (refer to the current Promat FENDOLITE® MII & Promat FENDOLITE® TG Application Manual).

The information given in this Application Procedure is based on practical experience, independent and other tests and represents, in Promat's opinion, the best technical advice available. Since the products are applied under circumstances beyond our control, Promat can accept no direct or consequential liability, whether in contract or in tort, for the interpretation of such recommendations and reserves the right to modify the recommendations as necessary. Should it be unclear as to the meaning of any of the instructions given above, or if further information is required, please consult Promat.