

Puma Polymers

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MASTER WORKS™ **Book Moulding Technique**



1 Creating a Textured Surface

The principle of using two hinged plates to bring together one or two detailed faces has many different product applications. In the examples shown in these illustrations, the product was a single decorative faced textured surface bonded onto “masonite” type board. This technique would be equally valid with any other substrate board such as cement fibre, MDF, HDF or even plaster board. The selection of substrate board is obviously dependant on the application.

The principle involved is to produce a single face with a substrate board backup and a textured surface from a silicone mould bed, that is held in position by the lower frame. These frames, hinges and clamps can be easily fabricated by local manufacturers.



2 Applying Material to Mould Surface

With the ‘book’ open, prepared material is applied to the mould surface. In the illustration, the material is brushed onto the mould surface because of the complex nature of the surface, however this could have been applied by spray or pump.

The silicone used in this instance was relatively soft because of the depth of texture, circa 20 Shore A. However, where the detail is less deep (such as wood grain or cut stone texture) a very hard silicone or epoxy could have been used.

The advantages of using silicone is that no release agents are required. With epoxy the appropriate release system would need to be used on every cycle.



3 Positioning the Backing Board

Having placed the prepared Master Works™ product onto the mould surface before placing the backing board, it is advisable to ‘strike off’ the product to a uniform level. This can be achieved by dragging a striker blade down the length of the panel using the two outer steel rails as guides.

In order to achieve a good bond to the substrate the material set time should have been adjusted so it is still at this stage in a fluid state. Some substrate boards may require priming prior to use. Local products should be evaluated prior to production.

DISCLAIMER OF LIABILITY

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4 Closing the Book Frame

In this instance the board has been connected to a separate steel sub-frame to facilitate handling at the end of the cycle. The board has some vent holes drilled through it to allow air to escape and facilitate direct contact between the wet surface of the M1 and the substrate board.

The main frame is then closed and pressure applied uniformly, in this instance by screw clamps, but this could have been achieved with pneumatic or hydraulic devices. At this stage, the mould is left for a 'dwell' period whilst the material sets. The operators would then move to the next mould and repeat the process. In this example, the total time elapsed from step one to step four was eight minutes and the dimensions were 3.2m long x 800mm wide.



5 Removing the Panel

After the 'dwell' period, in this instance one hour, the 'book' is opened, the panel complete with silicone mat, is slid out and turned over.

Care should be taken at this stage that the panel is rotated without stress and placed on a level surface.



6 Removing the Silicone Mat

The silicone mat is removed by unrolling, this is easily achieved because of the use of a soft silicone. If the silicone used is very hard the operation is more cumbersome or if an epoxy had been used then it would require peeling apart from the product.

The silicone is immediately placed back into the mould bed in order to avoid damage or stress.

Care should be taken to ensure no foreign matter or debris gets onto the mould bed as this will deform the silicone.

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7 Curing the Product

The finished product requires careful handling at this stage and should be taken to a storage area, placed in racks and allowed to achieve full cure.

The curing time will depend on the ambient conditions, the thickness of the product and the type of substrate board used.



8 Fixing Panels

The panels shown here have been produced as an interior lining for a public building where fire rating and speed of installation were as critical as the aesthetic appeal. These panels, having no fibre re-enforcement and no silica filler, could be easily cut on site with wood working cross cut saws.

These were then fixed to stud and plasterboard substrate with adhesive applied with a notched trowel and some discrete mechanical fixings back to the studs. However, there will be many appropriate fixing methods and these will vary due to location, thickness and weight of panel and local construction regulations.



9 Continuous Production

This technique allows for rapid continuous production of an extensive variety of surface finishes on the appropriate substrates. These finishes could include wood grain, riven slates, cut stone, brick and exposed stone. The thickness will be determined by the depth of texture and this will obviously have a bearing on cost. However with certain textures the product can be filled to reduce costs.

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