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STENCILLED PAVING

This invention relates to a method for providing a pavement and to an article for use in the method.

Traditional methods of paving involve laying cobbles, bricks, paving stones, or other pavers in pattern (eg,
5 "herring bone", "basket weave", "running bond") on a suitable flat foundation. The joints between adjacent pavers may be filled with a cementitious material or with sand or soil.

Pavements which simulate the appearance of hand laid paving have been formed by incising grooves in a wet cement
10 surface by means of a trowel, the cement being coloured by oxides or the like to simulate bricks or other pavers, and the grooves being differently coloured to resemble joints.

It has also been practised to form grooves in a wet cement surface using a suitably shaped rigid grid form work.
15 More recently a technique has been developed in which a stencil is placed onto an existing, old or new, fully cured concrete slab, the stencil being then oversprayed with a coating material which dries or cures to resemble a paving material. The stencil protects the slab from build up of the
20 coating along lines which resemble the pattern of joints between pavers. The depressions remaining on removal of the stencil may, if desired, be pre-coloured to resemble a coloured mortar or may be left the colour of the underlying concrete.

25 The stencils used to produce simulated paving have hitherto been made from plastic sheets, each several metres square, which are diecut to provide the "paving joint" shapes required. The stencil sheets are placed on the concrete base

in contiguous alignment and fixed in position prior to application of the coating material. When the coating material is sufficiently hardened, the stencil sheets are removed leaving a grooved pattern resembling paving joints.

5 The stencil sheets must meet stringent performance requirements and in particular must have sufficient dry and set strength to withstand rough handling during laying and alignment as well as during spraying and subsequent removal. Stencils hitherto available have been costly to
10 manufacture and labour intensive to set out in arrays. It is the object of the present invention to provide a less labour intensive method of pavement stencilling and to provide improved stencils for use in the method.

According to one aspect, the present invention in a
15 method of forming a simulated pavement comprising the steps of:

unwinding a continuous length of stencil from a roll, the stencil being predominantly a paper, or a reinforced paper, which has been cut to define apertures, said stencil
20 having a pressure-sensitive adhesive on one surface and a release coating on the other surface;

adhering a continuous length of the unwound stencil to a substrate; and

25 applying a composition to the substrate through apertures of the stencil.

According to a second aspect, the present invention consists in A stencil for use in forming a simulated pavement comprising paper or reinforced paper which has been cut to define apertures, the total area of the cut
30 apertures being greater than the area of the remainder of the stencil, the stencil being wound as a roll and having:

sufficient dry and wet strength to withstand the application of a cementitious composition;

a pressure-sensitive adhesive on one surface; and
35 a release coating on the other surface.

In preferred embodiments of the invention the stencil is composed of a fibreglass fibre reinforced paper. Desirably the paper is waterproofed by being plastic coated, preferably with polyethylene. In a highly preferred embodiment the
5 stencil is provided with islands of pressure sensitive adhesive on one side and a release agent on the other.

The invention will now be more particularly described by way of example only with reference to the accompanying drawings wherein:

10 Figure 1 shows a portion of a stencil according to the invention in plan view;

Figure 2 shows schematically an enlarged cross-section through the stencil; and

Figure 3 shows schematically apparatus for manufacture
15 of stencils according to the invention.

With reference to Figures 1 and 2 there is shown a stencil according to the invention. The stencil is made from high wet strength kraft paper 1 having a fibreglass reinforcing 2 and a thickness of from 220 to 230 micrometres.
20 Paper 1 is coated on one side with a layer 3 of polyethylene and has a silicone release coating 4 on the polyethylene. The opposite side of paper 1 is printed with pressure sensitive adhesive dots 5. In the present example the pressure sensitive adhesive is applied from a water emulsion for
25 example Revacril A258.

With reference to Figure 3 the polyethylene coated fibreglass reinforced kraft sheet 21 is fed from a feed spool 22 via a tension controlling roller 23 to pass between a die-roller 24 and anvil-roller 25 whereby the sheet is cut into

a stencilled pattern. The diecut stencil 26 which defines apertures 32 between strip members 33 then passes through a glue station 27 wherein glue is picked up from a tray 28 via a pick up roller 29 and applied via a roller 30 to a rotogravure roller 31. Rotogravure roller 31 prints dots or islands of pressure sensitive adhesive on one side of the stencil. The stencil then passes through a hot air dryer 34 to dry the adhesive and is rolled up on a take up spool 35 with the adhesive printed side in contact with the release coating of an underlying layer. Importantly the stencil is made in long continuous lengths which are wound onto a take up roll. It will be understood that the off cuts (and hence apertures 32) are of large area in comparison with the remaining strips 33. For example the apertures may be 20 cm by 9.5 cm and the strips 1.5 cm wide.

In use a roll of stencil is placed on the surface or on a trolley cradle and one end of the stencil is laid on a cementitious base with the adhesive side down so that the stencil end is adhered to the surface. The stencil may then be unrolled from the stencil roll. As the stencil roll is rolled along the surface, stencil is unwound onto the surface in long straight runs and adhered to the surface by means of the pressure sensitive adhesive. If necessary the process can be repeated in adjacent strips to cover a wide area. In comparison with the labour required to lay out and align adjacent sheets in a 3-dimensional array the process of laying out a stencil according to the invention from a continuous roll can be accomplished in much less time and at much lower cost. Furthermore, the stencil itself is of substantially

lower cost than the prior art, while having an excellent wet and dry strength and resisting delamination.

The pavement may be formed by applying a composition to substrate through apertures of the stencil of the invention for example by overspraying a grit and aggregate filled thermoplastic coating composition, a chlorinated rubber based composition, or more preferably a cement based paint composition such as that marketed under the WESTOX trade mark in a variety of colours.

Although the stencil has been described as of paper which is reinforced with glass fibres it will be appreciated that the paper may be reinforced by use of fibres other than glass fibres, for example by nylon, kevlar or carbon fibres.

The paper may also or instead be reinforced without use of fibres for example by impregnation with plastics or by lamination. Likewise in other embodiments the paper of the stencil may be rendered waterproof by impregnation, lamination or surface coating and waterproofing agents and resins other than polyethylene may be employed. Recycled paper fibres may be used and, to an extent which will be apparent to those skilled in the art, other papers may be substituted for kraft papers.

As will be apparent to those skilled in the art from the description herein contained, the stencil may be provided in a variety of forms suitable for provision of various paving patterns such as basket weave, herring bone, stretchabond and the like.

**CLAIMS**

1. A method of forming a simulated pavement comprising the steps of:
 - 5 unwinding a continuous length of stencil from a roll, the stencil being predominantly a paper, or a reinforced paper, which has been cut to define apertures, said stencil having a pressure-sensitive adhesive on one surface and a release coating on the other surface;
 - 10 adhering a continuous length of the unwound stencil to a substrate; and
applying a composition to the substrate through apertures of the stencil.
- 15 2. A method according to claim 1, wherein the stencil is composed of a glass fibre reinforced paper.
3. A method according to claim 1, wherein the stencil is composed of a nylon fibre reinforced paper, a kevlar fibre
20 reinforced paper, or a carbon fibre reinforced paper.
4. A method according to claim 1 wherein the paper is reinforced by impregnation with plastics or by lamination.
- 25 5. A method according to any preceding claim, wherein the paper is waterproofed by impregnation, lamination, or surface coating.
6. A method according to claim 5, wherein the paper is
30 waterproofed by a plastics coating.
7. A method according to claim 6, wherein the plastics coating is polyethylene.
- 35 8. A method according to any one of the preceding claims, wherein the stencil is provided with a discontinuous coating of a pressure-sensitive adhesive.



9. A method according to claim 8, wherein the adhesive coating is in the form of islands or dots.

10. A method according to any one of the preceding claims,
5 wherein the release coating is a silicone release agent.

11. A method according to any one of the preceding claims,
wherein the paper is a high wet strength kraft paper.

10 12. A method according to any of the preceding claims,
wherein the composition is a grit and aggregate filled
thermoplastic coating composition, a chlorinated rubber
base composition, or a cement based paint composition.

15 13. A stencil for use in forming a simulated pavement
comprising paper or reinforced paper which has been cut to
define apertures, the total area of the cut apertures being
greater than the area of the remainder of the stencil, the
stencil being wound as a roll and having:

20 sufficient dry and wet strength to withstand the
application of a cementitious composition;
a pressure-sensitive adhesive on one surface; and
a release coating on the other surface.

25 14. A stencil according to claim 13, wherein the stencil
is composed of a glass fibre reinforced paper.

15. A stencil according to claim 13, wherein the stencil
is composed of a nylon fibre reinforced paper, a kevlar
30 fibre reinforced paper, or a carbon fibre reinforced paper.

16. A stencil according to claim 13, wherein the paper is
reinforced by impregnation with plastics or by lamination.

35 17. A stencil according to any one of claims 13 to 16,
wherein the paper is waterproofed by impregnation,
lamination, or surface coating.



18. A stencil according to claim 17, wherein the paper is waterproofed by a plastics coating.

19. A stencil according to claim 18, wherein the plastics
5 coating is polyethylene.

20. A stencil according to any one of claims 13 to 19,
wherein the stencil is provided with a discontinuous
coating of a pressure-sensitive adhesive.

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21. A stencil according to claim 20, wherein the adhesive
coating is in the form of islands or dots.

22. A stencil according to any one of claims 13 to 21,
15 wherein the release coating is a silicone release agent.

23. A stencil according to any one of claims 13 to 22,
wherein the paper is a high wet strength kraft paper.

20 24. A method of applying a composition comprising a grit
and aggregate filled thermoplastic coating, a composition
comprising chlorinated rubber base, or a composition
comprising cement based paint to a substrate comprising
applying the composition through the cut apertures of a
25 stencil according to any one of claims 13 to 23.

25. A method according to claim 1 or claim 24,
substantially as hereinbefore described with reference to
the accompanying drawings.

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26. A stencil according to claim 13, substantially as
hereinbefore described with reference to the accompanying
drawings.