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Method for the fabrication of concrete blocks or concrete slabs

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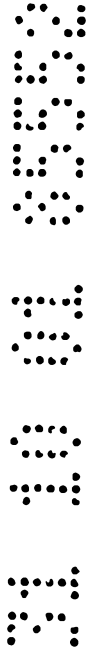
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ABSTRACT

5 A method for the fabrication of concrete blocks (2) or
concrete slabs of various forms and sizes, fabrication
taking place on the basis of vibrational compaction in
concrete-filled molds or dies, the block surface or slab
surface of the concrete blocks or concrete slabs being
10 subjected to at least one post-forming treatment and
subsequent curing. The post-forming treatment includes
gentle contact of the surfaces of the concrete blocks or
concrete slabs with soft materials.



AUSTRALIA
Patents Act 1990

COMPLETE SPECIFICATION
STANDARD PATENT

Applicant(s):

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Invention Title:

METHOD FOR THE FABRICATION OF CONCRETE BLOCKS OR
CONCRETE SLABS

The following statement is a full description of this
invention, including the best method of performing it known to
me/us:

METHOD FOR THE FABRICATION OF CONCRETE BLOCKS OR CONCRETE SLABS

TECHNICAL FIELD

[0001] This invention relates to a method for the fabrication of concrete blocks or concrete slabs of various formats and sizes, fabrication taking place on the basis of vibrational compaction in concrete-filled molds and dies corresponding to the block or slab surface, the concrete blocks or concrete slabs being subjected to at least one post-forming treatment and subsequently curing.

BACKGROUND OF THE INVENTION

[0002] A method for the manufacturing and/or treatment of concrete blocks is disclosed in European patent document 0319972B1 issued December 8, 1988 to Metten Produktions and Handels GmbH, in which the dies have projections or recesses by which the surface of the concrete blocks is roughened. The dies can, however, also be purposely kept smaller than the molds, resulting in marginal flashes, the removal of which likewise brings about a roughening of the rim of the concrete blocks. The roughening is further increased by virtue of the fact that the surfaces of the concrete blocks are treated with stiff brushes or with compressed air, water, or suitable blasting material, which issues from nozzles.

[0003] The concrete blocks manufactured according to this previous method have utility but have a rather rough surface, even the concrete grains adhering to the surface only through the binding action of the concrete.

OBJECTS AND SUMMARY OF THE INVENTION

It is an object of the present invention to provide a method by which a differently formed surface, a wider variety of colours and an enhanced reinforcement of the concrete grains on the surface is achieved. Furthermore, a surface is produced which is reduced in roughness relative to prior concrete block surfaces.

The object of the invention is achieved by virtue of the fact that, as a post-forming measure, the surfaces of the concrete blocks or concrete slabs are treated with soft materials. The soft materials and/or the concrete blocks or concrete slabs are preferably wet or wetted during the treatment operation. This “wobbling” treatment of the concrete blocks and concrete slabs in the not yet cured condition and, as appropriate, the presence of liquid during the operation, produces a surface that does experience some roughening but is such that no sharp-edged concrete graining arises.

According to the present invention, there is provided a method of manufacturing concrete blocks or concrete slabs of different formats and sizes, comprising the steps of:

- forming at least one concrete block/slab using vibration compaction in concrete-filled moulds and/or dies corresponding to the block or slab surface;
- colouring at least one surface of the concrete block or concrete slab;
- wetting at least one of the concrete block/slab or materials with a liquid, the liquid being selected from water or a colourless dispersion, the materials being selected from cloths, sponges, non-woven materials, felt, soft rubber, soft plastic or a combination thereof;
- treating the surfaces of concrete block/slab with the materials in the presence of the liquid, the concrete block/slab being in an uncured, moist state and the materials being arranged in the manner of brushes or brooms and are combined in one or more

rows, fastened to surfaces or discs, wherein the surface treatment comprises guiding the materials over the surface of the concrete block/slab in any desired direction of movement; and thereafter

- curing the concrete block or concrete slab.

5 In this respect, soft material stands are combined in one or a plurality of rows and/or fastened to surfaces or disks. They are guided over the surface of the concrete blocks or concrete slabs in arbitrary directions of motion, preferably in oscillatory or rotatory fashion, also as applicable with superimposition of a plurality of rotatory or oscillatory motions. The soft material is preferably made of natural or synthetic
10 material such as cloths, sponges, nonwoven materials, felt, rubber or plastic, which can also be made in strip form and arranged in brush fashion or broom fashion in the rows and on the surfaces or disks.

 Before the treatment of the surfaces, the soft material in the form of cloths, sponges and the like can be dipped into water, latexes, colours or colour mixtures and
15 then guided over the surfaces of the concrete blocks or concrete slabs, which are arranged on a production pallet. The latexes can also be latex paints, so that a surface colouration is effected in this way or

with the colors or color mixtures, independently of the base color of the concrete blocks, which surface coloration experiences a color nuancing by virtue of the fact that the materials of the surfaces normally do not absorb the color uniformly.

[0008] Instead of the dipping of the soft substances, such as cloths and the like, however, water, latexes, colors or color mixtures can also be inlet onto the surfaces, preferably sprayed thereon, during the treatment.

[0009] An additional color effect can further be achieved by various tinting of the surfaces of the concrete blocks or concrete slabs and through the treatment of the whole production pallet with the soft substances and, as applicable, colors, the colors being distributed over a plurality of block surfaces or slab surfaces.

[0010] According to the invention it is also possible, as a further or an additional treatment measure, to apply latex, latex paint and/or colors and/or lacquers, as well as colorless lacquers, to the surfaces of the concrete blocks or concrete slabs before and/or after curing. A visual enhancement of the surface is achieved in this way, absorption of dirt is reduced, and the concrete grains are additionally immobilized. It has been found that the adhesion of dirt or dirt particles is also reduced. For example, chewing gum residues and the like do not adhere to the block surface. The colorfastness is also improved.

[0011] Furthermore, it is possible with this method to texture the surfaces of the concrete blocks or concrete slabs upon compaction and lifting of the dies by texturing of the dies, in particular with projections or recesses. The dies can also be purposely kept smaller than the molds so that a rim results. This as well as the roughening is equalized and made uniform by the subsequent "wobbling," so that a particular surface form is achieved.

[0012] The method of this invention yields a concrete block or a concrete slab whose

surface is textured in a particular way and in which a variegated and/or lustrous surface is formed through special coloring and the concrete grains are immobilized.

BRIEF DESCRIPTION OF THE DRAWING

[0013] An essential step in the method is illustrated by the drawing, in which:

The single Figure shows a side view of a production pallet with concrete blocks and a rotatory disk arranged thereover.

DETAILED DESCRIPTION OF THE INVENTION

[0014] In the drawing, the reference numeral 1 identifies a production pallet, on which a large number of concrete blocks 2 are arranged. The blocks 2 were preferably made by vibrational compaction of concrete filled molds. A textured die with recesses and/or projections may be used to form the blocks 2, which results in a textured block surface. Mounted on a shaft above the concrete blocks 2 is a disk 3, which can, as shown by the arrows, be driven in either direction of rotation. The disk 3 can also be guided transversely to its rotational axis in various directions over the upper surfaces of the concrete blocks 2. Attached to the disk 3 are strips of soft material 4, the ends of which graze the surfaces of the concrete blocks 2. The soft material (4) is pliable and may be natural or synthetic material such as woven and nonwoven cloth or fabric, rubber, sponge, felt or plastic.

[0015] Because material strips 4 are wet while grazing the surfaces of the concrete blocks, a particular surface texture of the concrete blocks is achieved. The surface treatment may be enhanced by tinting the top layer of the concrete blocks, if appropriate, by tinting in various colors distributed over the pallet. This post-forming treatment of the surfaces of the concrete

blocks is preferably carried out when the concrete blocks are still wet or moist. As
hereinbefore explained, the treatment can be carried out by adding latex, paint or tint to
the surfaces of the concrete blocks prior to or during the post-forming treatment with
the soft material strips (4). Also the soft material strips (4) may be dipped in latex,
5 paint or a tinting liquid prior to post-forming engagement with the block surface.

In the claims which follow and in the preceding description of the invention,
except where the context requires otherwise due to express language or necessary
implication, the word “comprise” or variations such as “comprises” or “comprising” is
used in an inclusive sense, i.e. to specify the presence of the stated features but not to
10 preclude the presence or addition of further features in various embodiments of the
invention.

It is to be understood that, if any prior art publication is referred to herein, such
reference does not constitute an admission that the publication forms a part of the
common general knowledge in the art, in Australia or any other country.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method of manufacturing concrete blocks or concrete slabs of different formats and sizes, comprising the steps of:
 - 5 • forming at least one concrete block/slab using vibration compaction in concrete-filled moulds and/or dies corresponding to the block or slab surface;
 - colouring at least one surface of the concrete block or concrete slab;
 - wetting at least one of the concrete block/slab or materials with a liquid, the liquid being selected from water or a colourless dispersion, the materials being selected
10 from cloths, sponges, non-woven materials, felt, soft rubber, soft plastic or a combination thereof;
 - treating the surfaces of concrete block/slab with the materials in the presence of the liquid, the concrete block/slab being in an uncured, moist state and the materials being arranged in the manner of brushes or brooms and are combined in one or more
15 rows, fastened to surfaces or discs, wherein the surface treatment comprises guiding the materials over the surface of the concrete block/slab in any desired direction of movement; and thereafter
 - curing the concrete block or concrete slab.
- 20 2. A method according to claim 1, in which during the treating step, the materials are guided over the surface of the concrete block or slab in an oscillating and/or rotating manner.
3. A method according to any one of the preceding claims, in which in the treating
25 step the materials are immersed in the liquid and are then guided over the surfaces.

4. A method according to any one of the preceding claims, in which the liquid is used to wet the blocks and/or materials during the treating step of the concrete block/slab surfaces.

5 5. A method according to any one of claims 1 to 3, in which the surfaces of the concrete blocks or concrete slabs are wetted with water or colourless dispersions prior to the step of treating the surface of the concrete blocks/slabs.

6. A method according to one of the preceding claims, further comprising the step
10 of applying a dispersion and/or paint and/or coating to the surfaces of the concrete blocks or concrete slabs prior to curing.

7. A method according to one of the preceding claims, further comprising the step
of applying a dispersion and/or paint and/or coating to the surfaces of the concrete
15 blocks or concrete slabs after curing.

8. A method according to one of the preceding claims, further comprising the step
of texturing the surfaces of the concrete blocks or concrete slabs during compaction and
lifting of the dies as a result of profiling of the dies.

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9. A method according to claim 8, in which the texturing is a result of projection or recesses in the dies.

10. A concrete block produced according to a method according to any one of the

preceding claims.

11. A concrete block or concrete slab produced according to claim 1 or claim 7 or 8,
in which the block or the slab has a processed surface, the concrete particles are fixed
5 and the concrete block or the concrete slab has a coloured and/or glossy surface.

12. A method of manufacturing a concrete block, substantially as herein described
with reference to the accompanying drawings.

10 Dated this 24th day of February 2005

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