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(54) Method to increase the adherence between two surfaces.

(57) The present invention refers to a method to increase the adherence between a relatively glossy surface, e.g. a steel surface and a substance which can be applied on or around said surface which is pourable and solidifies to a rigid form. The object of the invention is to provide a simple and a relatively cheap method to increase the adherence without that the glossy surface being exposed to deformations or weakenings, and which adherence should be accomplished on even surfaces as well as on single or double curved surfaces and also in recesses which are difficult to access. These objects have been solved by that a glossy surface which is provided with a glue layer or the like is coated in an electrostatic way, alternatively is coated with artificial fibres so-called fibre flocks, which are raised from the surface, covering an essential part of its surface, whereby the green concrete is applied against the fibre flock.

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Method to increase the adherence between two surfaces

The present invention refers to a method to increase the adherence between a relatively glassy surface, e.g. a steel surface and a substance, e.g. mortar, concrete, grout, plastic or the like, which can be applied on or around said surface and which pourable and which solidifies to a rigid form.

Background of the invention

At many applications it is desired to increase the adherence between e.g. a steel surface and one against this appliable concrete or grout substance for example by means of a spray or a cast procedure. It may e.g. concern a thin concrete construction which is too thin to be reinforced in an ordinary way by means of rounds for reinforced concrete or welded mesh reinforcements.

According to a known method (Swedish patent application No. 7908919-5) a form face is coated by a plastic material, for example a gelcoat, whereby short fibres or flocks are sprayed on to the plastic material, whereby the fibres are raised by electrostatic charging. When the gelcoat has cured concrete is cast against it. The gelcoat forms an integrated layer with the concrete and when this has cured the form face will be removed. In this method the form face do not constitute any part of the completed product.

It is also known to use a form part or a form face as a reinforcement inside a construction which has a thin wall (DE-875.403), and to which form face anchor elements are connected, which are cast into the construction part. In case the form face consists of a sheet of steel, the anchor elements must be welded, which at large surfaces, such as e.g. floor slabs is a very extensive and expensive work. A method is also known at which the reinforcement consists of a sheet,

which at one side and the end sides is intended to encompass a concrete slab. The sheet may e.g. be formed as a box or consists of a pan of galvanized sheet of steel, in which the concrete mass is cast. The pan thereby constitutes the tensile reinforcement of the concrete slab. Until now it has not been possible to join the sheet and the concrete mass, in such a way that the sheet of steel can act as a reinforcement, in spite that one has tried to give the sheet such a rough surface as possible, or has provided it with corrugations, disintegrations or elevations of other kinds. Also different tongues of hobbings and punching of tongues, which are folded against the concrete mass, has not been enough to give the necessary adherence to make it possible to contemplate the sheet as an integrated unit together with the concrete slab and which is able to carry occuring extension strains.

The object of the invention and its most important characteristics

The object with the present invention is to provide a method to increase said adherence in a simple and a relatively cheap way without that the glossy surface being exposed to deformations or weakenings, and which adherence should be accomplished on even surfaces as well as on single or double curved surfaces and also in recesses which are difficult to access. These objects have been solved by that the glossy surface which has been provided with a glue coat or the like is coated in an electrostatic way, alternatively is coated with artificial fibres, so-called fibre flocks, which are raised from the surface, covering an essential part of its surface, whereby the wet mass is applied to the fibre flock.

Description of embodiments

Practical tests have shown, that an excellent adherence between a relative glossy surface such as a galvanized sheet of steel or a smooth plastic surface and e.g. a green concrete mass may be obtained if the glossy surface is coated with

so-called fibre flock, i.e. with raised artificial fibres, which are brought to the glossy surface in an electrostatic way, by that the surface has been coated with a glue layer at first, whereby the fibres are located closely to each other raised in the glue layer. The green concrete mass is sucked into the fibre flock layer and into every single fibre by means of the capillarity and a very unexpected strong adherence is thereby obtained, which results in that it has been possible to produce very thin concrete beams, with a thickness of only about 25 mm, and these beams are handled during the manufacturing, the transportation and the mounting without that the slab show any tendency to crack.

A further object, where the increased adherence will be useful, is as an underlayer at grouting of e.g. steel constructions and to increase its fire resistance, whereby the grout or mortar mass may be applied by spraying (e.g. guniting). The method according to the invention may also be used at manufacturing of phasade or mounting base elements, at manufacturing of floor structures and so on.

In cases where the mass used includes limestone or cement it is recommended to use alkali resistant fibres.

CLAIMS

1. Method to increase the adherence between a relatively glossy surface, e.g. a steel surface and a substance, e.g. mortar, concrete, grout, plastics and the like, which can be applied on or around said surface and which is pourable and which solidifies to a rigid form,
characterized thereby,
that a glossy surface which is provided with a glue layer or the like is coated in an electrostatic way, alternatively is coated with artificial fibres, so-called fibre flocks, which are raised from the surface, covering an essential part of its surface, whereby the green concrete is applied against the fibre flock.

2. Method according to claims 1,
charachterized thereby,
that alkali resistant fibres are used as fibre material.