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(54) Light exterior pane for ventilated façade

(57) It comprises means for anchoring to a load-bearing structure (2). It is **characterised in that** said outer panel (1,1a) is manufactured from fibre-reinforced high-resistance concrete. Preferably, it comprises a thickness of approximately 2 cm. A lightweight outer panel for a ventilated façade having greater resistance and larger dimensions is obtained.

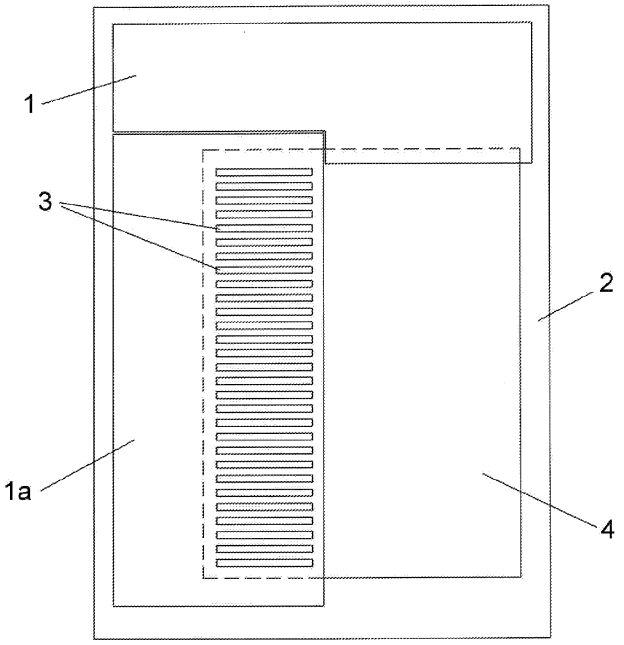

FIG. 1

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Description

[0001] The present invention relates to a lightweight outer panel of a ventilated façade.

BACKGROUND OF THE INVENTION

[0002] Lightweight outer panels of ventilated façades are known to exist in the market. The term "outer" refers to it being the face that is visible from the exterior of the building. The term "lightweight" refers to it being designed in such a manner that it is anchored to an existing support, whether a brick wall or other panel having greater load-bearing capacity, Said thin panels are intended for transmitting wind stress through the anchoring to the load-bearing structure, which in turn transmits said stress to the building structure. The term "ventilated" refers to the fact that the size of the anchorings to the existing support is such that they create a space between the plane of the lightweight panel and the support panel, wherethrough air from the exterior circulates, improving the thermal behaviour of the building.

[0003] At present, lightweight outer panels for ventilated façades manufactured from a ceramic workpiece, composites or polymer concrete or fibre cement are known to exist.

[0004] Nevertheless, these known lightweight outer panels have several drawbacks.

[0005] Ceramic workpieces allow the manufacture of lightweight workpieces; however, these have low flexotraction resistance and low impact resistance.

[0006] Reinforced concrete workpieces have good flexotraction resistance but do not allow the manufacture of thin workpieces, due to which they are heavier. Additionally, reinforced concrete does not allow openings or orifices to be made in any area, as these must obligatorily be made in the spaces between the framework.

DESCRIPTION OF THE INVENTION

[0007] In the following description, high-resistance reinforced concrete is understood to be that having characteristics comprised within the following ranges:

- Quantity: 140-190 kg/m^3
- Compression: 90-160 MPa
- Flexotraction: 25-45 MPa
- Traction: 5-12 MPa

[0008] Where quantity is the amount of fibre (in kg) per unit volume of concrete (in m^3).

[0009] Taking these definitions into account, the objective of the lightweight outer panel of a ventilated façade of the present invention is to solve the drawbacks of the outer panels known in the state of the art, providing a lightweight outer panel for a ventilated façade having greater resistance and larger dimensions.

[0010] The lightweight outer panel of a ventilated façade object of the present invention is of the type that comprises means for anchoring to a load-bearing structure and is **characterised in that** said outer panel is manufactured from fibre-reinforced high-resistance concrete.

[0011] The lightweight outer panel of the invention, manufactured from fibre-reinforced high-resistance concrete, offers a series of advantages:

- greater flexotraction resistance and greater impact resistance, guaranteeing a minimum thickness;
- greater deformability compared to ceramic in terms of transport, manageability and installation, as well as higher tolerance absorption;
- the possibility of obtaining large-sized workpieces;
- the possibility of having a smaller number of anchorings with greater separation therebetween (approximately 2 m);
- better behaviour between specific anchorings than in the case of ceramic, which frequently uses linear anchoring;
- the possibility of making openings at any point of the outer panel; and
- a pleasant perception of the superficial texture by users.

[0012] Advantageously, the outer panel comprises a thickness of approximately 2 cm.

[0013] Optionally, the surface of the outer panel can be continuous or can include openings to allow the passage of light.

[0014] Advantageously, the outer panel is susceptible of receiving multiple panel texturisation possibilities, including paints, denaturation of the mortar to reveal the aggregates, incrusting of aggregates, superficial monolayer, lining with other workpieces such as stone or ceramic, and all the other finishes available in the market.

[0015] Also advantageously, the outer panel is susceptible of presenting multiple three-dimensional geometric shapes, such as for example projections, semispherical shapes, etc.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] In order to better understand the description of the foregoing, drawings have been attached wherein, schematically and solely by way of non-limiting example, a practical embodiment of the lightweight outer panel of a ventilated façade has been represented, wherein:

Figure 1 shows an elevational view of the lightweight outer panel according to an embodiment of the invention; and

Figure 2 shows a side view of the panel shown in figure 1.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0017] In reference to figures 1 and 2, the lightweight outer panel 1,1a of a ventilated façade of the present invention is of the type comprising means for anchoring (not represented) to a load-bearing structure 2, and is manufactured from fibre-reinforced high-resistance concrete. The use of this type of concrete allows the production of a lightweight outer panel having greater resistance and larger dimensions.

[0018] According to a preferred embodiment of the invention, steel fibres with the following characteristics are chosen:

- Diameter comprised between 0.15 and 0.25 mm.
- Traction resistance comprised between 2.5 and 1.8 MPa.
- Elastic module comprised between 170,000 and 250,000 MPa.

[0019] More preferably, the length of said fibres is comprised between 5 and 20 mm, more advantageously 13 mm.

[0020] According to an especially preferred selection, the fibres are stainless steel fibres having the following characteristics:

- Diameter of 0.2 mm.
- Traction resistance of 2 MPa.
- Elastic module of 210,000 MPa.

[0021] According to another embodiment, the fibres can be plastic fibres.

[0022] According to an embodiment of the invention, the outer panel comprises a thickness of approximately 2 cm.

[0023] In the represented embodiment, a panel 1 with a continuous surface and a panel that includes a plurality of openings 3 to allow the passage of light have been used. In this case, the load-bearing structure 2 includes a window 4 or door that fully or partially overlaps said openings 3 to allow the passage of light towards the interior of the building.

[0024] The outer panel is susceptible of receiving multiple panel texturisation possibilities, including paints, denaturation of the mortar to reveal the aggregates, incrusting of aggregates, superficial monolayer, lining with other workpieces such as stone or ceramic, and all the other finishes available in the market.

[0025] Likewise, the outer panel is susceptible of having multiple three-dimensional geometric shapes, such as for example projections, semi-spherical shapes, etc.

Claims

1. Lightweight outer panel (1,1a) of a ventilated façade comprising means for anchoring to a load-bearing structure (2), **characterised in that** said outer panel (1,1a) is manufactured from fibre-reinforced high-resistance concrete.

2. Outer panel (1,1a), according to claim 1, comprising a thickness of approximately 2 cm.

3. Outer panel (1), according to claim 1, having a continuous surface.

4. Outer panel (1a), according to claim 1, the surface of which includes openings (3) to allow the passage of light.

5. Outer panel (1,1a), according to claim 1, which is susceptible of receiving multiple panel texturisation possibilities.

6. Outer panel (1,1a), according to claim 1, which is susceptible of presenting multiple three-dimensional geometric shapes.

7. Outer panel (1,1a), according to any of the preceding claims, wherein said fibres are steel fibres with the following characteristics:

   - Diameter comprised between 0.15 and 0.25 mm.
   - Traction resistance comprised between 2.5 and 1.8 MPa.
   - Elastic module comprised between 170,000 and 250,000 MPa.

8. Outer panel (1,1a), according to the preceding claim, wherein the length of said fibres is comprised between 5 and 20 mm.

9. Outer panel (1,1a), according to any of the two preceding claims, wherein said fibres have the following characteristics:

   - Diameter of 0.2 mm.
   - Traction resistance of 2 MPa.
   - Elastic module of 210,000 MPa.

10. Outer panel (1,1a), according to any of the two preceding claims, wherein the length of said fibres is 13 mm.

11. Outer panel, according to any of claims 1 to 6, wherein said fibres are plastic fibres.

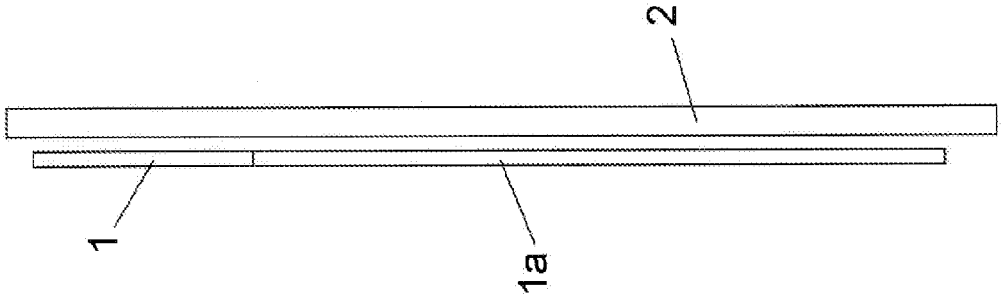

FIG. 2

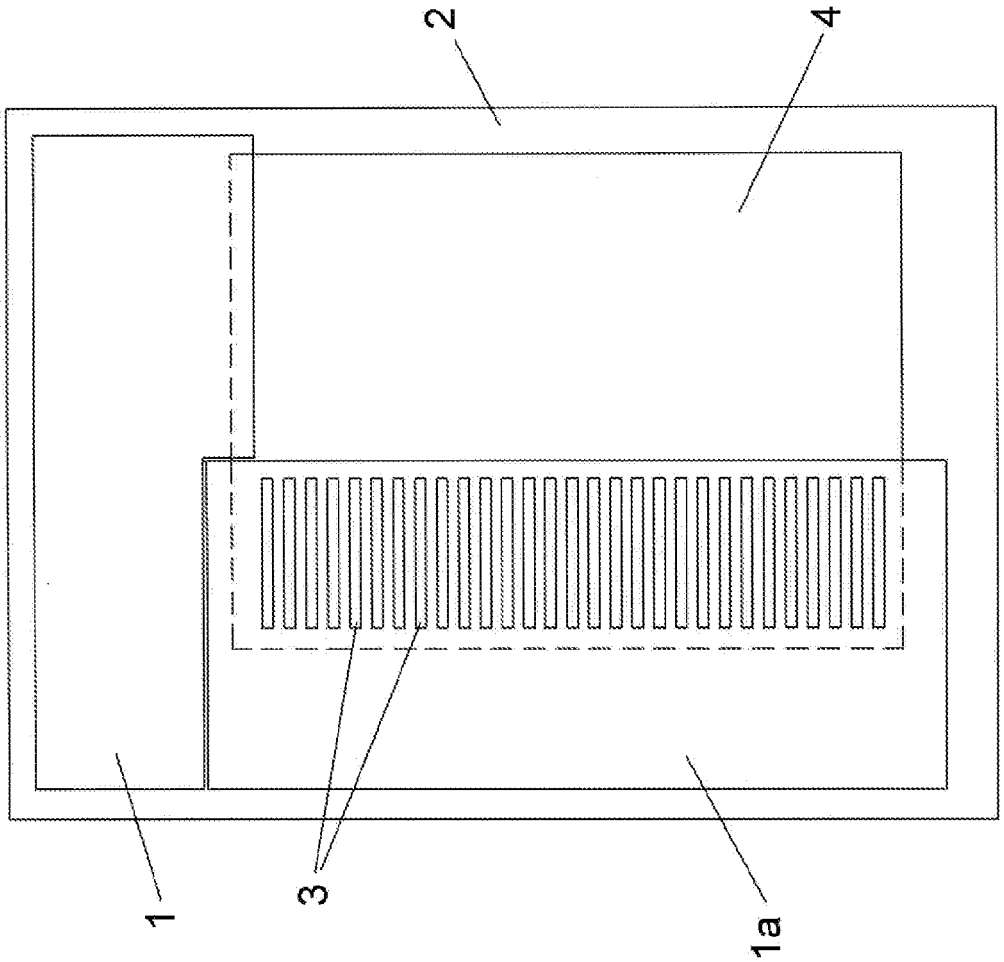

FIG. 1