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(54) Assembled shower tray in plastic material with polystyrene foam sintered onto it

(57) The invention is a new assembled shower tray comprising a shower tray, or upper layer, made of thermoformed plastic material and a bottom layer made of polystyrene sintered and/or foamed directly onto said plastic material. The polystyrene saturates all the space under the thermoformed plastic tray and is provided with a hole in correspondence with the drainage hole, so as to allow the connection of said hole in the shower tray to the drainage system.

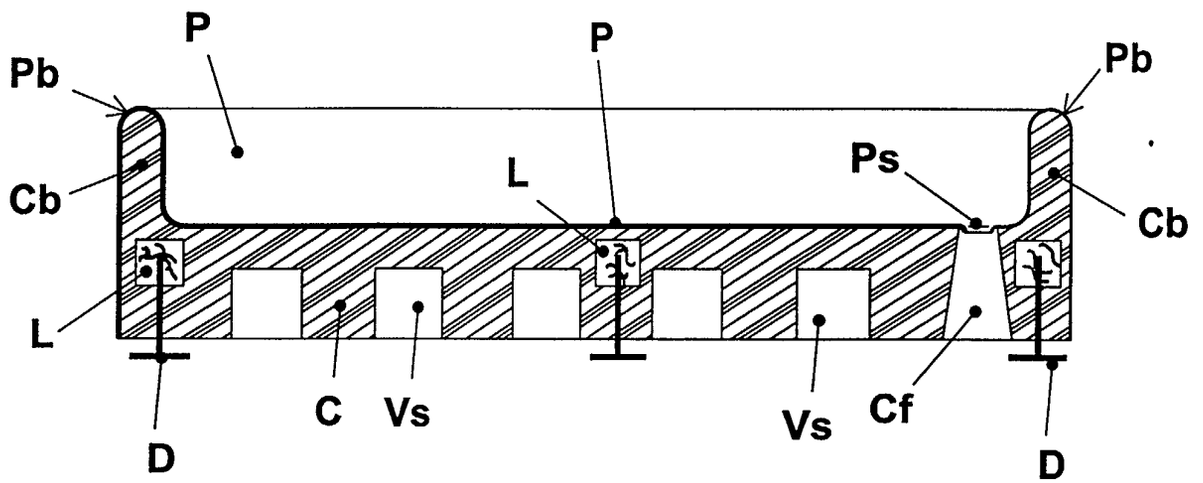

Fig. 1

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Description

[0001] The present patent refers to the sector of prefabricated elements for building construction and concerns in particular a new shower tray, the inside of which is completely insulated with foam material.

[0002] The shower trays used at present are made of steel, ceramic or plastic.

[0003] Steel and ceramic shower trays are very resistant to both stress and wear, but they require considerable processing, such as moulding, shaping, painting and other treatments, with consequent high costs. On the other hand, steel shower trays must be internally treated with special noise-deadening paints, so as to avoid the diffusion of the sound waves produced by the falling water.

[0004] Plastic shower trays are easy and quick to manufacture, they are lightweight and do not require additional treatments, but they present the drawback of being too easily deformed, and of transmitting and amplifying the noise of the water like a sound chamber.

[0005] Plastic shower trays are known, which are provided with preformed filling elements on the bottom, made of insulating material, typically polyurethane or polystyrene.

[0006] The coupling between the plastic shower tray and the filling element is carried out after the moulding of the two elements, if necessary with the aid of glue. The quality of the coupling depends on the manual skill of the operator, on the climate characteristics at the time of installation and on the moulding tolerances of both the shower tray and the filling element, consequently there may be coupling without complete adhesion, with clearances between the outer coating and the support.

[0007] To overcome the inconveniences described above, a new assembled shower tray has been designed and implemented, which comprises a shower tray, or layer of plastic material, bonded with polystyrene foam sintered on the inside, that is, on the bottom (internal) surface of the shower tray.

[0008] The assembled shower tray to which the present patent refers is similar to plastic shower trays, produced with the known techniques and with the internal and external surfaces finished exactly as when they arc extracted from the mould, with a bottom layer of insulating material, forming the filling elcment, which is foamed and sintered directly, in such a way as to adhere completely to the plastic material, if necessary treated beforehand with glue (primer).

[0009] A hole is left in the insulating material to allow the connection of the hole in the shower tray to the drainage system.

[0010] The shower tray with top plastic layer and bottom layer made of polystyrene foam sintered directly onto the internal surface of said plastic tray presents numerous advantages:

- the insulating material takes exactly the shape of each shower tray, adapting even to any imperfections;
- the insulating material adheres and joins perfectly to the shower tray;
- the labour and times necessary for the assembly of the insulating material are eliminated;
- there are absolutely no cracks or gaps or empty spaces between the insulating material and the shower tray, thus eliminating the risk of mechanical stress on the thermoformed material;
- the close union between the insulating material and the shower tray gives the shower tray characteristics of rigidity and strength that cannot be achieved otherwise.

[0011] The new plastic shower tray insulated at the bottom and internally, constituted as described above, is lighter than ceramic or steel shower trays, just as strong as ceramic or steel shower trays, but much lighter in weight and less expensive and without problems of sound reverberation or of stagnating humidity.

[0012] Assembled shower tray, comprising a shower tray or upper layer made of thermoformed plastic material and a bottom layer made of polystyrene sintered and/or foamed directly onto said plastic material, where the polystyrene foam saturates all the predefined space under the thermoformed plastic tray.

[0013] The shower tray is obviously provided with a hole in correspondence with the drainage hole, so as to allow the connection of said hole in the shower tray to the drainage system. Suitable drainage channels may be obtained in the insulating mass to save material without affecting the mechanical strength of the product; likewise, suitable supports for the application of external elements or anything else necessary for the completion of the shower tray or of the shower stall may be sunk in the insulating material: external cubicles, levelling feet, etc.

[0014] The following is just an example among many of a possible application of the new insulated shower tray, illustrated in the enclosed drawings, wherein:

Figure 1 is a cross-section of the shower tray and Figure 2 is a partially sectioned axonometric view of the same, respectively.

[0015] It is possible to observe the plastic shower tray (P), with the respective perimetric edges (Pb) and the drainage hole (Ps), any drainage channels in the material (Vs) and the insertion of internal cores (L) for the specific fixing of the feet (D), and the insulating material (C) sintered onto the bottom of the shower tray (P) and with the hole (Cf) to allow the connection to the drainage system.

[0016] As may be seen, the polystyrene foam fills all the spaces (Cb) inside the plastic shower tray, giving it characteristics of compactness and rigidity never obtained before.

Claims

1. Assembled shower tray, **characterised in that** it comprises a shower tray, or upper layer, made of thermoformed plastic material (P) and a bottom layer made of polystyrene (C) sintered and/or foamed directly onto said plastic material (P).

2. Assembled shower tray according to claim 1, **characterised in that** the polystyrene (C) saturates all the spaces predefined by static and bearing calculations below the thermoformed plastic tray (P).

3. Assembled shower tray according to claims 1 or 2, **characterised in that** the insulating material (C) is provided with a hole (Ps) in correspondence with the drainage hole, so as to allow the connection of said hole (Ps) in the shower tray to the drainage system.

4. Assembled shower tray according to claims 1, 2 or 3, **characterised in that** cores (D), or other items made of suitable material such as wood, plastic, metal, may be sunk into the mass of the insulating material to serve as support for elements outside the shower tray, specifically levelling feet or a shower cubicle.

5. Assembled shower tray according to claims 1, 2, 3 or 4, **characterised in that** the internal bottom surface of the plastic material (P) is treated beforehand with glue to ensure complete adhesion to the insulating mass.

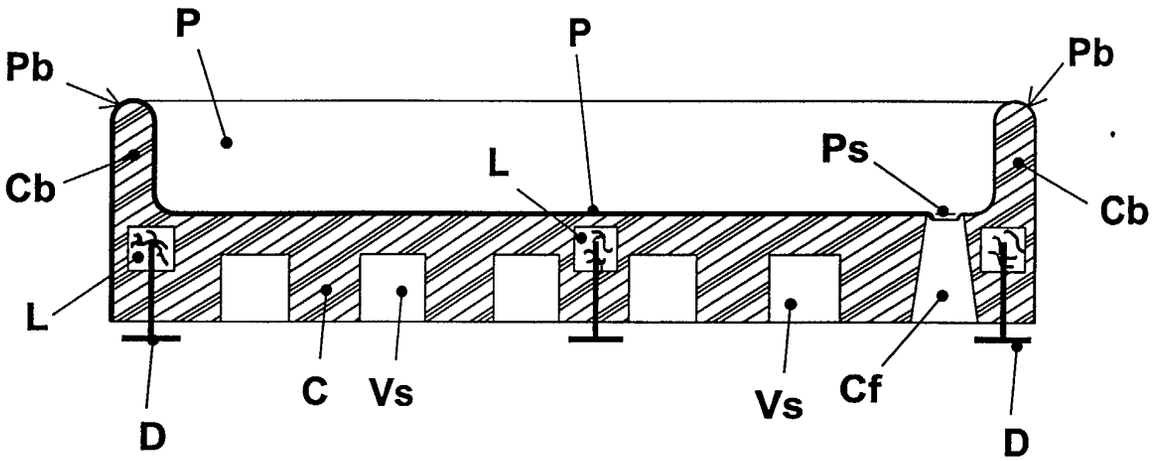

Fig. 1

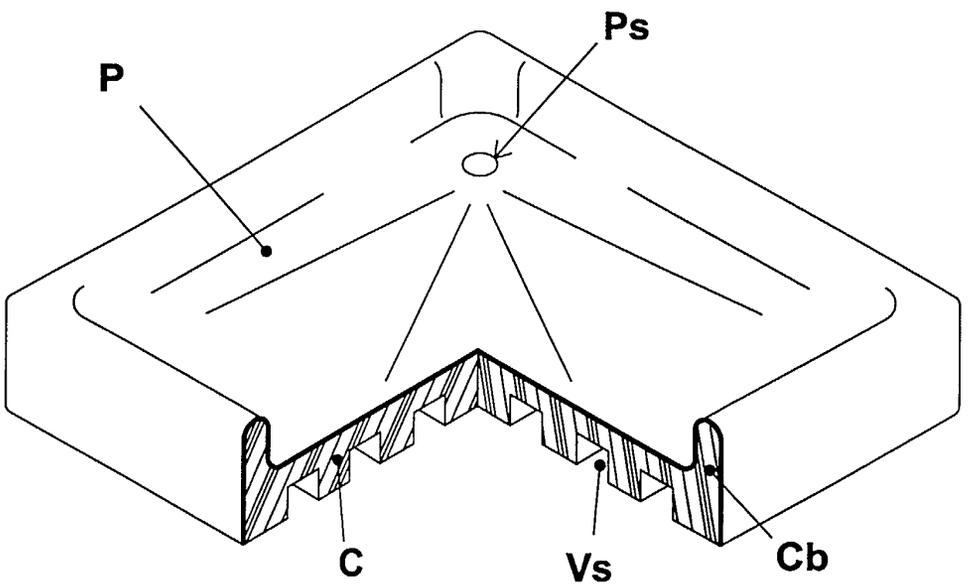

Fig. 2