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(54) **Support for an elevated platform and method of manufacturing the same**

(57) The present invention is directed to a support for an elevated surface (d) comprising: a base part (a) for being positioned on an underlying surface (b), a resilient layer (e) attached to the base part (a) for making contact with said underlying surface (b), a carrier part (c) for carrying an elevated surface (d) and connectable to the base part (a), a connecting part (f) connecting the base part (a) and the carrier part (c), characterized in that said resilient layer (e) comprises a plastic foam layer

chemically inert with respect PVC.

The present invention is also directed to a method of manufacturing a support according to the above claims comprising: manufacturing a base part (a), manufacturing a carrier part (c), manufacturing a connecting part (f) connecting the base part (a) and the carrier part (c), providing a resilient layer (e), characterized in that the resilient layer (e) is permanently fixed to the base part (a).

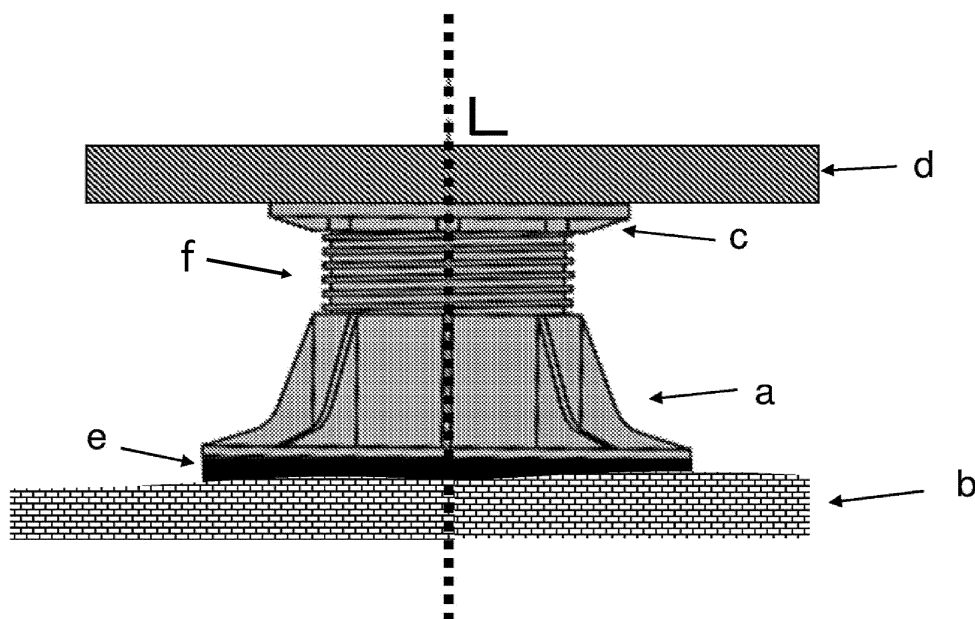


FIG 1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a support for mounting an elevated surface comprising a base part for being positioned on an underlying surface, a carrier part for carrying an elevated surface, a connecting part connecting the base part and the carrier part and a resilient layer attached to the base part for making contact with the underlying surface.

BACKGROUND OF THE INVENTION

[0002] Support systems for elevated surfaces are commonly used for all types of applications such as elevated roofs, terraces, or technical floors for outdoor and indoor applications. One example can be found in GB2378457, wherein a support system for floors, ceilings and walls is described.

[0003] A general aspect that need to be taken into account when mounting such an elevated surface is that it results in a sufficiently plain and stable elevated platform and in many cases also sound proofed elevated platforms.

[0004] In another aspect, in particular for outdoor applications, it is very important not to damage the underlying surface or the support due to difficulty in accessing and costs implied. Moreover, in case the underlying surface suffers degradation, damages can be even more extensive due to water infiltration.

[0005] However, the supports known in the art are not able to overcome these problems if the underlying surface is made from materials containing PVC.

[0006] Considering the above drawbacks it is an object of the present invention to provide a support for supporting an elevated surface suitable to be installed on underlying surfaces containing PVC, without damaging the surface, and still maintaining the functionalities in terms of compensation for small irregularities in the underlying surface, anti-slip, sound and vibration damping.

[0007] It is another object of the present invention to provide a support for supporting an elevated surface that would confer improved stability.

[0008] It is another object of the present invention to provide a support for supporting an elevated surface which would considerably reduce mounting time and costs.

[0009] It is a further object of the present invention to provide a support for supporting an elevated surface, which provides improved stability on underlying surfaces suffering from significant roughness or irregularities, resulting in a better balanced elevated surface.

[0010] It is another object of the present invention to provide a support for supporting an outdoor elevated surface, which provides sufficient stability after being exposed to a number of frost-thaw cycles.

SUMMARY OF THE INVENTION

[0011] The present invention addresses the above identified needs by providing a support for an elevated surface comprising: a base part for being positioned on an underlying surface, a resilient layer attached to the base part for making contact with said underlying surface, a carrier part for carrying an elevated surface and connectable to the base part, a connecting part connecting the base part and the carrier part, characterized in that said resilient layer comprises a plastic foam layer chemically inert with respect to PVC.

[0012] It is preferred that the resilient layer comprises polyethylene (PE), polyethylene (PE) foam, polyethylene terephthalate (PET) foam, polyvinyl chloride (PVC) foam or polyethylene naphthalate (PEN) foam or a mixture thereof.

[0013] It is further preferred that the resilient layer is attached to the base part prior to mounting.

[0014] The present invention is further directed towards a method of manufacturing a support as identified above, said method comprising the steps of: manufacturing a base part; manufacturing a carrier part; providing a resilient layer, wherein the resilient layer is permanently fixed to the base part.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

FIG 1 illustrates an embodiment of a support for supporting an elevated surface in accordance with the present invention.

DESCRIPTION OF THE INVENTION

[0016] In the context of the present invention, the elevated surface (d) is understood as an elevated roof terrace, elevated apartment terrace, elevated garden terrace, an outdoor podium, an indoor/outdoor elevated technical floor, elevated indoor floor and the like.

[0017] In the context of the present invention, the underlying surface (b) is understood as the soil, roof, platform, conventional building floor between stories or any other construction on which the elevated surface has to be installed.

[0018] According to a first embodiment of the present invention and as illustrated in FIG 1, a support for an elevated surface (d) is provided comprising: a base part (a) for being positioned on an underlying surface (b), a resilient layer (e) attached to the base part (a) for making contact with said underlying surface (b), a carrier part (c) for carrying an elevated surface (d) and connectable to the base part (a), a connecting part (f) connecting the base part (a) and the carrier part (c), characterized in that said resilient layer (e) comprises a plastic foam layer chemically inert with respect to PVC.

[0019] The applicant recognized for the first time that

damage on surfaces containing PVC is caused by chemical interaction between PVC and base parts containing materials being not inert with respect to PVC, like for example rubber.

[0020] So, by having the resilient layer (e) manufactured from a material that is chemically inert with respect to PVC, the support according to the present invention does not have any limitation in to be mounted on underlying surfaces (b) based on concrete, wood, PVC or the like. The durability of the finished elevated surface (d) is considerably increased because no chemical interaction will appear on the underlying surface (b) or on the surface of the resilient layer (e). Moreover all the properties of the support are conserved throughout the lifetime of the component materials.

[0021] By using such a support the overall maintenance and inspection costs are significantly reduced because neither the underlying surface (b) nor the supports used would have to be replaced after a relatively long period of time.

[0022] Moreover, because the resilient layer (e) is a plastic foam layer, problems like surface irregularities such as small bumps or small differences in level are overcome. Furthermore, because said resilient layer (e) is attached to the base part (a), the support according to the present invention confers an increased stability before and after mounting the elevated surface (d).

[0023] By using a resilient layer (e), installers don't need to provide separate roofing or patches in order not to damage the underlying surface (b), in particular when the support is exposed to high vertical load. Not being obliged to place separate pieces of material or roofing obviously may result in less labor intensive installation, in improved efficiency, less material cost, and less installation cost.

[0024] Another advantage is that, because the resilient layer (e) is an integral part of the base part (a) of the support, water cannot intrude in between. Even after being exposed to a number of frost-thaw cycles, sufficient stability can be assured.

[0025] In a particular embodiment according to the present invention said connecting part (f) comprises means for varying the distance between the base part (a) and the carrier part (c), such that the height of the support is adjustable depending on the application. Preferably, the means for varying the distance may comprise a screw jack system.

[0026] The resilient layer (e) of the support according to the present invention has a thickness of at least 2 mm, from 2 to 25 mm, from 4 to 20 mm, or from 6 to 15 mm.

[0027] By having a resilient layer (e) with this range of thickness, a support according to the present invention is usable in applications where the dimension and frequency of the bumps is significant like for example concrete with aggregates having different nominal maximum diameters.

[0028] This important feature leads us to another advantage of the present invention: since the resilient layer

(e) makes direct contact with the underlying surface (b) and since its resilience makes that its thickness is locally adjusted upon applying pressure on it, improved stability may be obtained on underlying surfaces (b) having small or even significant roughness or irregularities such as bumps, resulting in improved stability and a better balanced elevated terrace, podium or floor.

[0029] An additional advantage of having a resilient layer (e) in contact with the underlying surface (b) is that impact on the elevated surface (d) is absorbed, not by the support itself or by the underlying surface (b), but by the resilient layer (e).

[0030] Further, due the resilient layer (e), a support in accordance with the present invention may have improved noise absorbance and may show improved anti-slipping characteristics, i.e. the support may stick more tightly to the underlying surface (b).

[0031] In an embodiment according to the present invention, the support comprises a resilient layer (e) with a friction coefficient of at least 0.3 or at least 0.5, or at least 0.6.

[0032] In a further embodiment according to the present invention the resilient layer (e) comprises polyethylene (PE), polyethylene (PE) foam, polyethylene terephthalate (PET) foam, polyvinyl chloride (PVC) foam or polyethylene naphthalate (PEN) foam, or a mixture thereof, or any type of plastic or plastic foam that is chemically inert to PVC.

[0033] The base part (a) and the carrier part (c) may be made of any plastic suitable for extrusion or injection moulding, such as polypropylene, low or high density polyethylene, polyvinylchloride, polystyrene, ethyl vinyl acetate, acrylonitrile butadiene styrene, or polyolefin, or a combination thereof.

[0034] In another embodiment according to the present invention the resilient layer (e) is treated with bio-fungicide or biocide substances. This feature will make the support according to the present invention usable in all type of environment conditions with different humidity characteristics, without the risk of health damage due to mold growth. Furthermore it will also protect the underlying surface (b) from unwanted insect damage, making the support according to the present invention safer to use for an extended period of time without the need of inspection or additional maintenance costs.

[0035] Furthermore, the present invention is also directed towards a method of manufacturing such a support comprising: manufacturing a base part (a), manufacturing a carrier part (c), manufacturing a connecting part (f) connecting the base part (a) and the carrier part (c), providing a resilient layer (e), characterized in that the resilient layer (e) is permanently fixed to the base part (a).

[0036] In one embodiment according to the present invention, said fixing can be done by means of welding. Other methods include casting, gluing or compression moulding.

[0037] Further, said resilient layer (e) is chemically in-

ert with respect to PVC. It can further comprise polyethylene (PE), polyethylene (PE) foam, polyethylene terephthalate (PET) foam, polyvinyl chloride (PVC) foam or polyethylene naphthalate (PEN) foam or a mixture thereof, or any type of plastic or plastic foam that is inert to PVC..

[0038] In an embodiment according to the present invention said connecting part (f) can be a separate component and not connected to said base part (a) or said carrier part (c). Preferably said connecting part (f) is connected to at least one of the two: the carrier part (c) and/or the base part (a).

[0039] Further, said carrier part (c) can be of different diameters, depending on the application and the load characteristics of the finished elevated surface (d).

[0040] By being able to select a connecting part (f) based on the needed load characteristics of the finished elevated surface (d), the support according to the present invention is not restricted to certain type of applications and the same base part (a) and carrier part (c) can be used or reused in different applications. This feature significantly reduces manufacturing costs and keeps at the same time mounting costs to a minimum.

[0041] Additionally, the present invention provides a method for manufacturing a support as described above, comprising obtaining a plastic foam composition and compression moulding the composition to form the resilient layer (e).

[0042] The base part (a) and carrier part (c) may be injection moulded or extruded, preferably after the already manufactured resilient layer (e) is placed in the mould, such that during the injection moulding or extrusion process the plastic is at least partially stuck to the resilient layer (e) and even, without being bound by any theory, intruded in the pores of the resilient layer (e).

[0043] Further, a support according to the present invention can be used as a pedestal.

3. A support according to claim 1 wherein the resilient layer (e) comprises PE, PE foam, PET foam, PVC foam or PEN foam or a mixture thereof.

5 4. A support according to claim 1 wherein said resilient layer (e) comprises bio-fungicide or biocide.

5. A method of manufacturing a support according to the above claims comprising:

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- Manufacturing a base part (a)
- Manufacturing a carrier part (c)
- Manufacturing a connecting part (f) connecting the base part (a) and the carrier part (c)
- Providing a resilient layer (e)

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Characterized in that the resilient layer (e) is permanently fixed to the base part (a)

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6. A method according to claim 5 wherein said resilient layer is fixed to the base part by means of welding, casting, gluing or compression moulding,

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7. A use of a support as per any of the above claims as a pedestal.

Claims

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1. A support for an elevated surface (d) comprising:

- A base part (a) for being positioned on an underlying surface (b)
- A resilient layer (e) attached to the base part (a) for making contact with said underlying surface (b)
- A carrier part (c) for carrying an elevated surface (d) and connectable to the base part (a)
- A connecting part (f) connecting the base part (a) and the carrier part (c)

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Characterized in that said resilient layer (e) comprises a plastic foam layer chemically inert with respect to PVC.

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2. A support according to claim 1 wherein the resilient layer (e) has a thickness from 2 to 25 mm

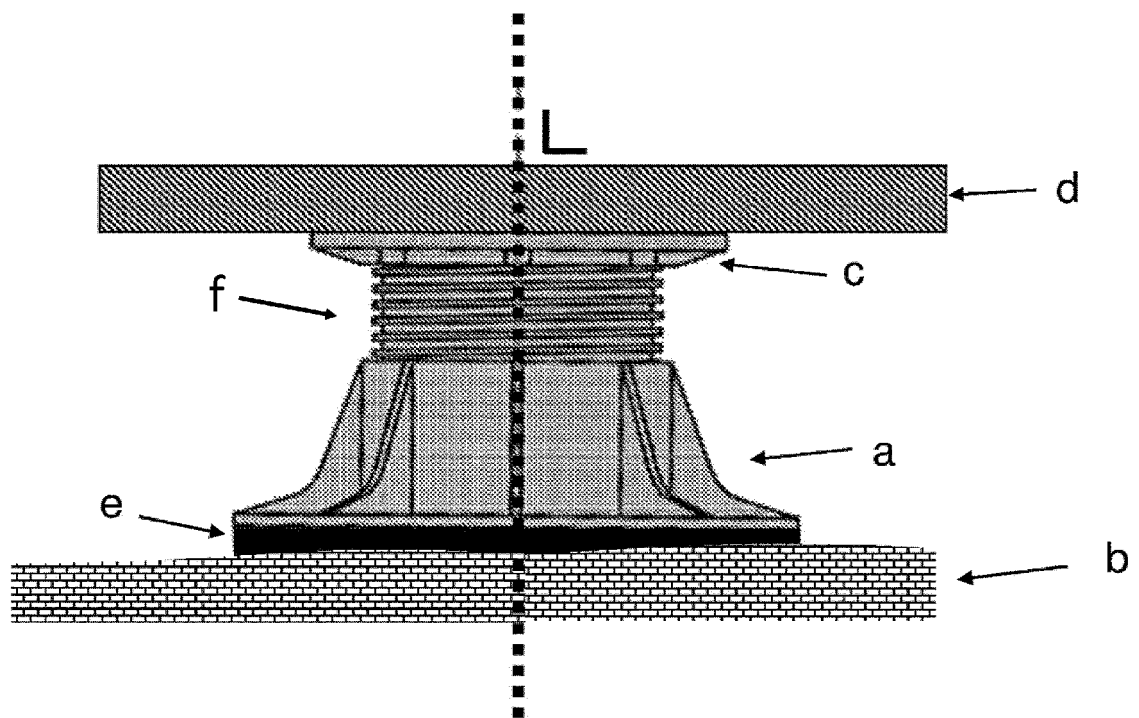


FIG 1



EUROPEAN SEARCH REPORT

Application Number
EP 13 19 7823

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Place of search Munich		Date of completion of the search 24 April 2014	Examiner Bourgoin, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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