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DESCRIPTION

FIELD OF THE INVENTION

[0001] The present invention relates to insulating wall structures, and to a method for lining walls, and a kit for lining a wall.

BACKGROUND OF THE INVENTION

[0002] The insulation of external walls is an important aspect in the renovation of buildings. Often, this is done by applying insulation material to the exterior of the building. However, in many situations this is not possible, in particular in urban areas. In such cases, the insulation must be applied to the interior side of the external walls. After application of the insulation, the wall is typically finished with a layer of a facing material, such as plasterboards.

[0003] Providing insulation from the inside can result in a considerable decrease of the living space inside the building, given the thickness of the insulation materials. There is a need for solutions which result in a lower loss of living space. Existing solutions typically focus on improved insulation materials, having a reduced thickness. Currently, Vacuum Insulated Panels (VIPs) are among the best insulation materials on the market. VIPs contain a gas-tight enclosure surrounding a porous rigid core, from which the air has been evacuated. Such panels offer a high thermal insulation, even when using very thin panels compared to conventional insulation materials. A disadvantage of VIPs is that their insulating properties depend on the integrity of the gas-tight enclosure. The panels must not be cut or drilled and require care during handling and installation. Also the user of the building must be careful during later interventions, e.g. when drilling holes in the wall.

[0004] In view of the fragility of VIPs, existing insulating wall structures typically provide a gap between the VIPs and the facing material which forms the internal side of the wall. The provision of such gap increases the total thickness of the insulating wall structure to such extent, that the economic benefits of VIPs are largely nullified.

[0005] EP1 213 406 discloses an insulating wall structure according to the preamble of claim 1. It describes a structure for attachment of heat insulating plates comprises holding elements fixed to a wall by attachment devices (5) penetrating through a vapor barrier foil (1). The holding elements with U and T shaped cross sections accommodate between themselves vacuum insulation panels (2), and also serve for fastening of cover plates (6) along their edges. The drawback of the structure is that the cover plates must present a groove to be able to fasten to the structure.

[0006] DE10 2004 018 850 A1 describes a method for attaching vacuum insulation plates to a

building wall (1) by of gluing a U or Z profile (2) of flexible fabrics to the horizontal plate edges and gluing a plaster carrier plate (5) to the resultant structure. The method is difficult because until the plasterboard is glued, the lining miss vertical strength. The method in addition requires a lot of adhesive to put on the surface.

[0007] WO2014142765 A1 refers to the system of affixing VIP to external facade. Special anchors are used to cause only minimal additional thermal bridges and only cause minimal damage to extreme thermal insulation of the VIP facade system. Groove are also required to fix the multilayered VIP to the support.

[0008] DE20 2004 004 187 U1 describes a VIP comprising a frame (4) having a U-shaped profile which protect against mechanical damage and provide dimensional stability. There remains a need of insulating wall structures causing a minimal loss of living space while still providing a good insulation.

SUMMARY OF THE INVENTION

[0009] It is an object of the present application to provide (heat) insulating wall structures, which allow for minimizing the loss of living space when insulating external walls from the inside. It is a further object of the present invention to minimize the risk of degrading VIP panels during installation or usage phase. The present inventors have found that this can be obtained using certain support profiles, and by fixing a facing material to the support profiles using an adhesive.

[0010] More particularly, the present application is defined by the appended claims.

[0011] The insulating wall structure can allow for insulating an external wall from the interior using VIPs. Whereas existing methods of installing VIPs require the provision of a gap between the VIPs and the covering material such as plasterboard, the present structure requires no gap and therefore minimizes the loss of living space; without increasing the risk of damaging the VIPs.

[0012] The independent and dependent claims set out particular and preferred features of the invention.

[0013] The above and other characteristics, features and advantages of the present invention will become apparent from the following detailed description which illustrates, by way of example, the principles of the invention. This description is given for the sake of example only, without limiting the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The accompanying Figures are provided by way of example only and should not be considered to limit the scope of the present invention.

Fig. 1

Schematic illustration of a cross-section of a particular embodiment of the insulating wall structure described herein.

Fig. 2

Cross-section of a detail of an insulating wall structure according to a particular embodiment of the insulating wall structure described herein.

Fig. 3

Support profile suitable for use in the insulating wall structure described herein.

[0015] In the Figures, the following numbering is used:
1 - Wall; 2 - Support profile; 3, 4 - Insulation sheet; 5 - Building board; 6 - Protective panel; 7 - Fixation element; 8 - Insulation; 9 - Support profile; 11 - First support face; 12 - Second support face; 13 - Intermediate portion; 14 - Insulation; 15 - Floor.

DETAILED DESCRIPTION

[0016] The present invention will be described with respect to particular embodiments.
It is to be noticed that the term "comprising", used in the claims, should not be interpreted as being restricted to the means listed thereafter; it does not exclude other elements or steps. It is thus to be interpreted as specifying the presence of the stated features, steps or components as referred to, but does not preclude the presence or addition of one or more other features, steps or components, or groups thereof. Thus, the scope of the expression "a device comprising means A and B" should not be limited to devices consisting only of components A and B. It means that with respect to the present invention, the only relevant components of the device are A and B.

[0017] The following terms are provided solely to aid in the understanding of the invention.

[0018] The terms "plasterboard" and "gypsum board" as used herein interchangeably and refer to a panel or board comprising a gypsum core, obtainable from a plaster slurry as described herein. Accordingly, the term "plasterboard" refers to a board or panel which is obtainable via the setting (hydration) of plaster. The term "board" or "panel" as used herein refers to any type of wall, ceiling or floor component of any required size.

[0019] The term "about" as used herein when referring to a measurable value such as a parameter, an amount, a temporal duration, and the like, is meant to encompass variations of +/-10% or less, preferably +/-5% or less, more preferably +/-1% or less, and still more preferably +/-0.1% or less of and from the specified value, insofar such variations are

appropriate to perform in the disclosed invention. It is to be understood that the value to which the modifier "about" refers is itself also specifically, and preferably, disclosed.

[0020] Provided herein is an insulating wall structure, also referred to herein as "the structure". The structure allows for providing a wall of a building with (thermal) insulation materials. Accordingly, the insulating wall structure described herein comprises a wall and insulation sheets. In particular, the structure comprises at least first and second insulation sheets, in particular Vacuum Insulated Panels (VIPs), covering adjacent parts of the wall surface. The structure further comprises a support profile for holding and supporting the insulation sheets. The support profile comprises first and second support faces are interconnected by an intermediate portion. The support profile is fixed against the wall via its first support face, wherein the support faces and the intermediate portion is interposed between the first and second insulation sheets. The structure further comprises a building board or facing material, which is fixed to the second support face with a fastener. This will be explained further herein below.

[0021] The insulating wall structure described herein contains a wall. The type of wall is not critical to the invention, as long as it can carry the support profiles and insulation sheets. For example, the wall may be made of bricks, concrete, wood, etc. The wall is typically an external wall, i.e. forming the boundary between the interior and the exterior of a building. Accordingly, the external wall has an external or exterior side (facing the exterior) and an internal or interior side (facing the interior). The support profile(s) and the first and second insulation sheets are then generally provided on the internal side of the external wall. However, in certain embodiments, the wall may be an interior wall. Typically, the wall has a planar shape and is vertically oriented. However, other shapes and orientations are not excluded. For example, in particular embodiments, the construction may be curved and/or slanted. The term "wall" as used herein also includes sloped ceilings. Prior to the installation of the insulating wall structure, any protruding nails, screws, and the like are typically removed from the wall, or covered. No other particular preparation of the wall is required. For example, it is not necessary to remove wall paper or any other finish prior to installing the support profile.

[0022] The insulating wall structure further comprises a support profile. The support profile typically is a straight elongated object, typically having a length/width ratio of at least 5, preferably at least 10. In particular embodiments, the support profile has a length between 50 cm and 300 cm, and a width between 20 mm and 100 mm.
The support profile comprises a first support face, a second support face, and an intermediate portion. The intermediate portion connects the first support face with the second support face. Accordingly the first and second support faces are provided on opposite edges of the intermediate portion, typically along the length of the intermediate portion.
The intermediate portion is adapted to be interposed between two (rows of) insulation sheets. Therefore, the intermediate portion preferentially typically has a planar shape. The first and second support faces typically also each have a preferentially planar shape, and are oriented substantially perpendiculartо the intermediate portion. The term "substantially perpendicular" as used herein includes a deviation of up to 5° from an exact perpendicular orientation,

preferably up to 3°, more preferably up to 1°.
In preferred embodiments, the first support face is provided with pre-drilled screw holes in order to facilitate fixation to the wall. In preferred embodiments, the surface of the second support face for contacting a building board is not smooth. More particularly, the surface may be at least partially textured or roughened, e.g. ribbed or studded. This increases the surface area of the support face, which can improve the adhesion of the building board to the support face with adhesive.

[0023] The support profile is attached to the wall via its first support face, such that the second support face faces away from the wall. Preferably, the support profile is attached to the internal side of an external wall. The support profile may be attached to the wall with conventional fixation means known in the art. In preferred embodiments, the support profile is screwed to the wall. In further embodiments, the screw heads may be covered with an elastic material such as a compressible foam, rubber, or other elastomers. The elastic material is preferably provided along the full length of the support profile (and thus not only on the screw heads). This helps to increase the air tightness of the insulating wall structure, thus improving the overall thermal insulation. Moreover, this helps to prevent the screw heads from damaging the VIPs. Thus, in particular embodiments, the support profile is attached to the wall using screws, wherein a (single) strip of elastic material covers the screw heads.
The support profile keeps the insulation sheets of the insulating wall structure in place. More particularly, the support faces and intermediate portion form two channels (one on each side of the intermediate portion) for receiving the insulation sheets. The channels generally are U-shaped, i.e. have a U-shaped cross section, preferably a rectangular U-shaped cross section. A first (U-shaped) channel is formed by the second support face and the intermediate portion, together with the wall and/or first support face. The first support face, second support face, and intermediate portion together form a second (U-shaped) channel.

[0024] The first and second support faces need not be arranged symmetrically with respect to each other and with respect to the intermediate portion.

[0025] The second support face typically extends from both sides of the intermediate portion, preferably over a distance of at least 10 mm on each side. This allows for keeping an insulation sheet in place on each side of the intermediate portion, when the support profile is attached to the wall.
The main function of the first support face is not to hold the insulation sheets, but to fix the support profile to the wall. Therefore, the first support face only needs to extend from one side of the intermediate portion. It is not excluded, however, that the first support face extends from both sides of the intermediate portion.
In preferred embodiments, the height of the first support face exceeds the height of the second support face; on one side of said intermediate portion. The difference in height is preferably between 10 mm and 75 mm. This allows for screwing the support profile to the wall via the first support face, without interference from the second support face. In other words, in certain embodiments, the first and second support faces both extend from one side of the intermediate portion over a certain distance, preferably at least 10 mm; wherein the first

support face extends further away from the intermediate portion than the second support face; preferably between 10 mm and 75 mm further away.

[0026] The first support face of the support profile may or may not directly contact the wall. In particular embodiments, a strip of a (visco)elastic and/or vibration damping material is provided between the wall and the support profile. The strip may avoid that small granulates fall behind the insulation sheets when drilling fixing holes, thereby further decreasing the risk of damaging the VIPs during installation. The strip of elastic and/or vibration damping material may be provided as a double sided and slightly compressible foam tape, for example a foamed acrylic tape.

[0027] The support profile is typically mounted horizontally. In such configuration, the first channel typically is a lower channel; and the second channel an upper channel. Accordingly, the first insulation sheet is then positioned below the support profile, and the second insulation sheet above the support profile. The insulating wall structure is not limited to horizontal configurations. In particular, also a vertical configuration is envisaged.

[0028] The support profile can be made of various materials as known by the skilled person. Non-limitative examples of suitable materials include plastics, metal, and wood. Preferred plastics include poly(vinyl chloride), polyethylene, polystyrene, polyurethane, and the like. Such plastics are particularly preferred for use with VIPs, as they reduce the risk of damaging the VIPs when inserting the VIPs in the channels. Plastic support profiles also reduce thermal bridging by the profiles.

[0029] The support profile supports each of the first and second insulation sheets on one sheet edge. Preferably, each insulation sheet is supported on two opposite edges. Accordingly, the insulating wall structure provided herein may comprise a plurality of support profiles. The support profiles will typically arranged substantially parallel to each other. The expression "substantially parallel" as used herein includes a deviation of up to 5° from an exact parallel orientation; preferably up to 3°, even more preferably up to 1°. The amount of profiles typically depends on the size of the wall and the size of the insulation sheets. The distance between the support profiles may depend on the size of the insulation sheets and the type of building board used.

Each of the support profile will typically have a support face onto which the building board can be fixed, similar to the second support face of the support profile as described above.

At least one of the support profiles of the insulating wall structure is a support profile as described above. Preferably, all support profiles interposed between insulation sheets are support profiles as described above.

In many cases, the support profiles at the edges of the wall (e.g. the top and bottom profiles for horizontal profiles; or the outer left and right profiles for vertical profiles) only needs to provide a single channel for support an insulation sheet. Such profiles may be different from the profiles described above. A particularly suitable profile for such cases is a (rectangular) U-shaped profile. Optionally, one of the edges of the profile may be higher than the other, as to facilitate fixation of the profile to the wall, in a similar way as described above for the first

support face.

[0030] The insulating wall structure described herein comprises at least two (heat) insulation sheets, i.e. panels or blankets of insulation material. In preferred embodiments, the insulation sheets are insulation panels, more particularly rigid insulation panels. The insulation sheets typically have a rectangular shape. According to the invention the insulation sheets are VIPs. The insulation wall structure described herein is particularly suitable for VIPs, because it maximizes the benefits thereof (thinner layers of insulation) while minimizing the downsides (risk of damaging VIPs). VIPs are well known in the art and generally comprise an insulating porous core material maintained under vacuum by a gas-tight barrier envelope or membrane. The porous core material generally is a rigid, highly-porous material, such as fumed silica, aerogel, perlite or glass fiber, to support the membrane walls against atmospheric pressure once the air is evacuated. In particular embodiments, VIPs may further contain chemicals to collect gases (known as "getters") leaked through the membrane or offgassed from the membrane materials. Vacuum insulation panels are highly effective insulation materials because the vacuum practically eliminates convection and also reduces conduction. In particular embodiments, the panels have a thermal conductivity below 20 mW/(m.K), preferably below 15 mW/(m.K), more preferably below 10 mW/(m.K), or even below 7 mW/(m.K).

[0031] In particular embodiments, more than one type of insulation materials may be used. Indeed, when using VIPs (which must not be cut and therefore are to be used in the size provided), a second insulation material may be needed to fill any remaining gaps. In many cases, the insulating wall structure also needs to accommodate conduits, cables and the like. Therefore, it is envisaged that in certain embodiments, the first and second insulation sheets are VIPs, wherein the structure further comprises a row of one or more insulating materials not including VIPs. The row of non-VIP insulation material typically has a height ranging from 5 cm to 50 cm, preferably 5 cm to 30 cm. For example, a row of mineral wool may be provided at the bottom of the wall, thus providing the possibility to house cables and the like.

[0032] In preferred embodiments, each of the insulation sheets is provided with a protective panel facing away from the wall (and thus facing the building board). The protective panel can protect the insulation sheet against accidental damage, e.g. during installation of the building board, or when drilling through the building board. This is particularly useful when using VIPs, which are easily damaged.

[0033] The protective panels are positioned adjacent to the insulation sheets, but are not necessarily fixed thereto. Accordingly, in particular embodiments, the protective panels and the insulation sheets are provided as separate pieces. The use of separate protective panels allows for using standard insulation sheets and building boards. Typically, the protective panels and insulation sheets are held together by the support profile. Accordingly, no fixation of the protective panels to the insulation sheets is needed. More particularly, they are both positioned in the channels provided by the support profile. The protective panels and corresponding insulation sheets are typically in direct contact, but this is not critical.

[0034] The protective panel can be made of any material strong enough to provide some degree of protection to the insulation sheets. Preferred materials include, but are not limited to, metal and plastics (polymers), or combinations thereof. Also composite materials comprising said preferred materials in combination with one or more other materials may be used. Preferred metals include steel and aluminium. Preferred polymers include melamine, phenolic resins, high density polyethylene, and aramides. In particular embodiments, the protective panel may be made at least partially of melamine or a phenolic resin. In certain embodiments, the protective panel may be a composite material comprising cellulose fibers in combination with melamine and/or a phenolic resin.

[0035] The thickness of the protective panels is typically chosen such that an adequate protection is offered, without contributing too much to the total thickness of the insulating wall structure. According to the invention, the protective panel has a thickness between 1.5 mm and 3.0 mm.

[0036] In many cases, the protective panel is made of a material which resists the diffusion of moisture. In those embodiments, the protective panel may also function as a vapour barrier. The joints between the protective panel and the support profile are then typically sealed (e.g. with a silicone, tape, or other sealing material which is impermeable to moisture). Also the joints at the other edges of the protective panel (typically this is a joint between the protective panel and a neighbouring wall) can be sealed. In this way, a structure can be obtained which is impermeable to moisture (or air).

[0037] The insulating wall structure described herein comprises one or more building boards, which cover the support profile(s) and insulation sheets.

The building board is fixed to the support profile(s) of the insulating wall structure, with a fastener, more particularly a fastener selected from adhesives, hook and loop fasteners (such as Velcro®), and the like. The use of such fasteners allows for positioning the building board close to the insulation sheets, while keeping the risk of damaging the insulation sheets low; in particular in combination with a protective panel as described above. The risk of damaging the insulation sheets is much higher when using conventional fixation means such as screws or nails. Accordingly, the fixation of the building board(s) is generally done without fixation elements such as screws, nails, and bolts. More particularly, the fixation preferably does not involve the use of any fixation means which pierce the building board.

Typically the distance between the building board and the first and second insulation sheets is less than 10 mm, preferably between 1 mm and 8 mm; more preferably the distance ranges from 3 mm to 5 mm. The distance is the shortest distance from the surface of the building board which faces the insulation sheet; to the surface of the insulation sheet facing the building board.

Preferred fasteners include adhesives. The adhesive may be a glue or an adhesive tape. In case the adhesive is a glue, a solventless glue is preferred. Solventless glues preferred because accidental contact between the VIPs and a solvent could damage the VIPs. Suitable adhesives are well known in the art. An example of a commercially available adhesive is MSP 108 from Bostik.

[0038] The type of building board is not critical. Examples of suitable building board include boards made of gypsum, cement or concrete, fiber cement, wood, wood cement, metal, plastic, composite, and glass. In preferred embodiments, the building boards are gypsum boards.

[0039] The insulating wall structure typically contains a single layer of building boards, covering the remainder of the insulating wall structure. However, it is not excluded that in specific embodiments, multiple layers of building boards are used.

[0040] Further provided herein is a method for lining a wall as defined in claim 10.

[0041] In preferred embodiments, step (i) includes - prior to covering a portion of the wall with the first insulation sheet - the installation of an edge profile at an edge of the wall (e.g. the top and bottom profiles for horizontal profiles; or the outer left and right profiles for vertical profiles). As described above, the edge profile provides a single channel for supporting the first insulation sheet; and preferably has a (rectangular) U-shaped profile. The protective panels of the first and second insulation sheets are typically provided in the respective channels of the support profile. In particular embodiments, the method further comprises the step of sealing any joints at or near the edges of the protective panel (such as the joint between the protective panel and the support profile). In this way, the structure can be made resistant to the transfer of air and/or moisture, as described above.
In particular embodiments, step (ii) involves fixing the support profile to the wall with screws, followed by covering the heads of the screws with an elastic material. In particular embodiments, step (ii) includes providing a strip of a (visco)elastic and/or vibration damping material between the wall and the support profile, as described above. In preferred embodiments, the fixation in step (iv) does not involve the use of fixation means piercing said building board, such as screws, nails, and bolts.

[0042] Further provided herein is a kit for lining a wall, as defined in claim 13. In certain embodiments, the kit may also comprise a sealing material as described above, for sealing the joints between the protective panels and the support profile(s).
In certain embodiments, the kit may also comprise a tape of elastic material for covering screw heads. In particular embodiments, the kit may also comprise a double sided tape of elastic material for use between the wall and the support profile(s).

EXAMPLES

[0043] The following examples are provided for the purpose of illustrating the present invention and by no means are meant and in no way should be interpreted to limit the scope of the present invention.

[0044] Fig. 1 shows a cross-section of a particular embodiment of the insulating wall structure

described herein. The structure comprises a wall (1), which is typically an external wall of a building. On the interior side, the wall is provided with upper and lower VIPs (3, 4), and sheets of other insulation materials (8, 14), all held in place by support profiles (2, 9). **Fig. 2** shows a detail of the structure around the support profile (2) interposed between the insulation sheets (3). **Fig. 3** is a schematic drawing of the support profile (2) alone. The support profile (2) contains a first support face (11) and a second support face (12), interconnected via an intermediate portion (13).

As seen in Fig. 1, the profiles (2) are attached to the wall (1) via their first support face (11), using fixation elements (7) such as screws. Optionally, a double faced compressible (e.g. foamed) tape (not shown) may be provided between the support profile (2) and the wall (1). Also optionally, the heads of the screws (7) may be covered with an elastic material such as a compressible foam (not shown). Preferably, the elastic material is provided along the full length of the profile (2).

The height of the first support face (11) exceeds the height of the second support face (11), thereby facilitating the fixation. The profiles (2) are shaped such that they provide upper and lower channels for accommodating the insulation sheets (3, 4, 8, 14).

Each of the VIPs (3, 4) is provided with a protective panel (6) (see Fig. 2, not shown in Fig. 1). The protective panels (6) are also positioned in the channels provided by the support profiles (2, 9). Optionally, the joints between the protective panel (6) and the profile (2) may be sealed, e.g. using a silicone or tape (not shown).

In Fig. 1, non-VIP insulation materials (8, 14) are provided at the top and bottom of the wall, although this is optional. The top and bottom insulation materials (8, 14) may be the same or different. The bottom insulation material (8) is typically mineral wool or the like, thereby facilitating the positioning of conduits and cables (not shown) inside the structure. The top insulation material (14) mainly functions to fill the remaining gap between the upper VIP (3) and the ceiling (not shown). Accordingly, this insulation material (14) is a non-VIP material which can be cut to the desired size - unlike the VIPs (3, 4). Of course also the top insulation material (14) can be selected such that it can facilitate the positioning of conduits and cables.

The insulation materials at the top and bottom are supported by U-shaped support profiles (9), each providing a single channel. The support profiles (9) are attached to the wall (1) via fixation means (7) in a similar way as the profile (2) which is interposed between the VIPs (3, 4). Accordingly, no fixation of the lower profile (9) to the floor (15) is needed; and no fixation of the top profile (9) to the ceiling (not shown) is needed.

[0045] A building board (5) covers the remainder of the structure. The board (5) is fixed to the second support face (12) of the support profile (2) with an adhesive, e.g. a glue or tape. The building board (5) may further be painted, plastered, or otherwise decorated or finished.

[0046] Installation of the insulating wall structure typically starts with installing the bottom profile (9), followed by inserting the lower insulation sheet (14) into the channel provided by the profile. Then, a profile (2) as shown in Fig. 3 is fixed to the wall (1) such that it holds the lower insulation sheet (14) in its lower channel. Then, the first VIP (4) and its corresponding protective panel (6) are inserted in the upper channel provided by the profile (2). Preferably, any visible part of the fixation means (7) is first covered with an elastic material (not shown) for

protect the insulation sheet (2) against damaging. A further profile (2) is then provided on the top of the VIP (4) (and corresponding protective panel); and another VIP (3) and its corresponding protective panel (6) are positioned in the channel of that profile (2). The remaining gap is filled with a non-VIP insulation material (8) which is cut to the desired size. Finally, the building board is fixed to the support profiles (2, 9) with an adhesive. Whereas Fig. 1 shows two rows of VIPs (3, 4), it will be clear to the skilled person that more than two rows of VIPs (or just one row of VIPs) can be used, depending on the sheet size and wall height.

REFERENCES CITED IN THE DESCRIPTION

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- DE102004018850A1 [0006]
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Patentkrav

1. Isolerende vægstruktur omfattende:

- en væg (1);

- første og anden vakuum-isolerede paneler (VIP'er) (3,4) der dækker tilstødende dele af væggen;

- et bæreprofil (2) omfattende en første bæreflade (11) fastgjort til væggen og en anden bæreflade (12), hvilke bæreflader er sammenhængende via en mellemliggende del (13) der er anbragt mellem de første og andet VIP'er; og

- en byggeplade (5) der er fastgjort til den anden bæreflade (12) med et fastgørelsesorgan valgt fra et klæbemiddel og et krog og løkke-fastgørelsesorgan;

kendetegnet ved at hver af disse VIP'er (3, 4) er forsynet med en beskyttelsesplade (6) der vender mod byggepladen og hvor beskyttelsespladen (6) har en tykkelse mellem 1,5 mm og 3,0 mm.

2. Isolerende vægstruktur ifølge krav 1, hvor beskyttelsespladen (6) er fremstillet af eller omfatter ét eller flere materialer valgt fra listen bestående af melamin, phenolresiner, metal, og aramidpolymerer.

3. Isolerende vægstruktur ifølge krav 1 eller 2, hvor beskyttelsespladen (6) og VIP'erne (3, 4) er tilvejebragt som separate stykker.

4. Isolerende vægstruktur ifølge et hvilket som helst af kravene 1 til 3, hvor bæreprofilet er fremstillet af ét eller flere materialer valgt fra listen bestående af poly(vinylchlorid), polyethylen, polystyren, og polyurethan.

5. Isolerende vægstruktur ifølge et hvilket som helst af kravene 1 til 4, hvor afstanden mellem VIP'erne (3, 4) og byggepladen (5) er mindre end 10 mm.

6. Isolerende vægstruktur ifølge et hvilket som helst af kravene 1 til 5, hvor bæreprofilet (2) er fastgjort til væggen med skruer, hvor hovederne af disse skruer er dækket med et elastisk materiale.

7. Isolerende vægstruktur ifølge et hvilket som helst af kravene 1 til 6, hvor på en side af den mellemliggende del (13), den første bærer (11) strækker sig længere fra den mellemliggende del end den anden bæreflade.

8. Isolerende vægstruktur ifølge et hvilket som helst af kravene 1 til 7, yderligere omfattende en flerhed af bæreprofiler (2) der bærer VIP'erne (3, 4); idet hvert bæreprofil (2) tilvejebringer en bæreflade (12) på hvilken byggepladen (5) er fastgjort.

9. Isolerende vægstruktur ifølge et hvilket som helst af kravene 1 til 8, hvor byggepladen er fremstillet af gips, cement, fibercement, eller træ.

10. Fremgangsmåde til beklædning af en væg, omfattende at:

(i) dække en del af en væg (1) til at blive beklædt med et første vakuum-isoleret panel (VIP) (4);

(ii) tilvejebringe et bæreprofil (2), bæreprofilet omfattende første og anden bæreflader (11, 12) adskilt af en mellemliggende del (13); hvor bæreprofilet er fastgjort til væggen (1) via den første bæreflade (11); og hvor

- den anden bæreflade (12), den mellemliggende del (13), og væggen (1) og/eller første bæreflade tilvejebringer en første kanal, idet den første kanal modtager det første VIP;

- de første og anden bæreflader og den mellemliggende del tilvejebringer en anden kanal; og

(iii) positionere et andet VIP (3) inde i den anden kanal, derved dækkende en anden del af væggen; og

(iv) forsyne hvert af de første og andet VIP'er (3, 4) med en beskyttelsesplade (6) der vender væk fra væggen (1), hvilken beskyttelsesplade (6) har en tykkelse mellem 1,5 mm og 3,0 mm; og (v)

fastgøre en byggeplade (5) til bæreprofilet via dets anden bæreflade under anvendelse af et klæbemiddel, derved dækkende de første og andet VIP'er.

11. Fremgangsmåden ifølge krav 10, hvor trin (ii) involverer fastgørelse af bæreprofilet til væggen med skruer, efterfulgt af at dække hovederne af disse skruer med et elastisk materiale.

12. Fremgangsmåden ifølge et hvilket som helst af kravene 11 til 12, hvor fastgørelsen i trin (iv) ikke involverer anvendelsen af fikseringsorgan, som gennemtrænger byggepladen.

13. Kit til beklædning af en væg, omfattende:

- en flerhed af vakuum-isolerede paneler (VIP'er) (3, 4) og en flerhed af beskyttelsesplader (6) med en tykkelse mellem 1,5 mm og 3,0 mm;

- ét eller flere bæreprofiler (2, 9), hver omfattende første og anden bæreflader adskilt af en mellemliggende del, hvilke bæreflader og mellemliggende del tilvejebringer en anden kanal; og den anden bæreflade og den mellemliggende del tilvejebringer en første kanal modstående den anden kanal;

- én eller flere byggeplader (5);

- et klæbemiddel til fastgørelse af den ene eller flere byggeplader til bæreprofilet.

DRAWINGS

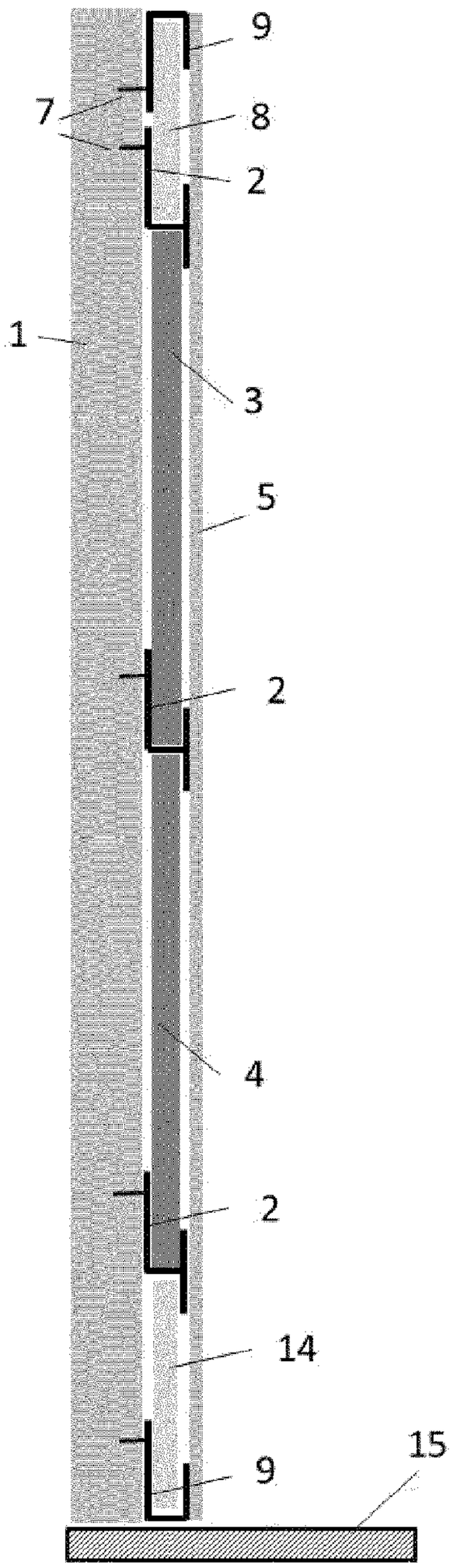

Fig. 1

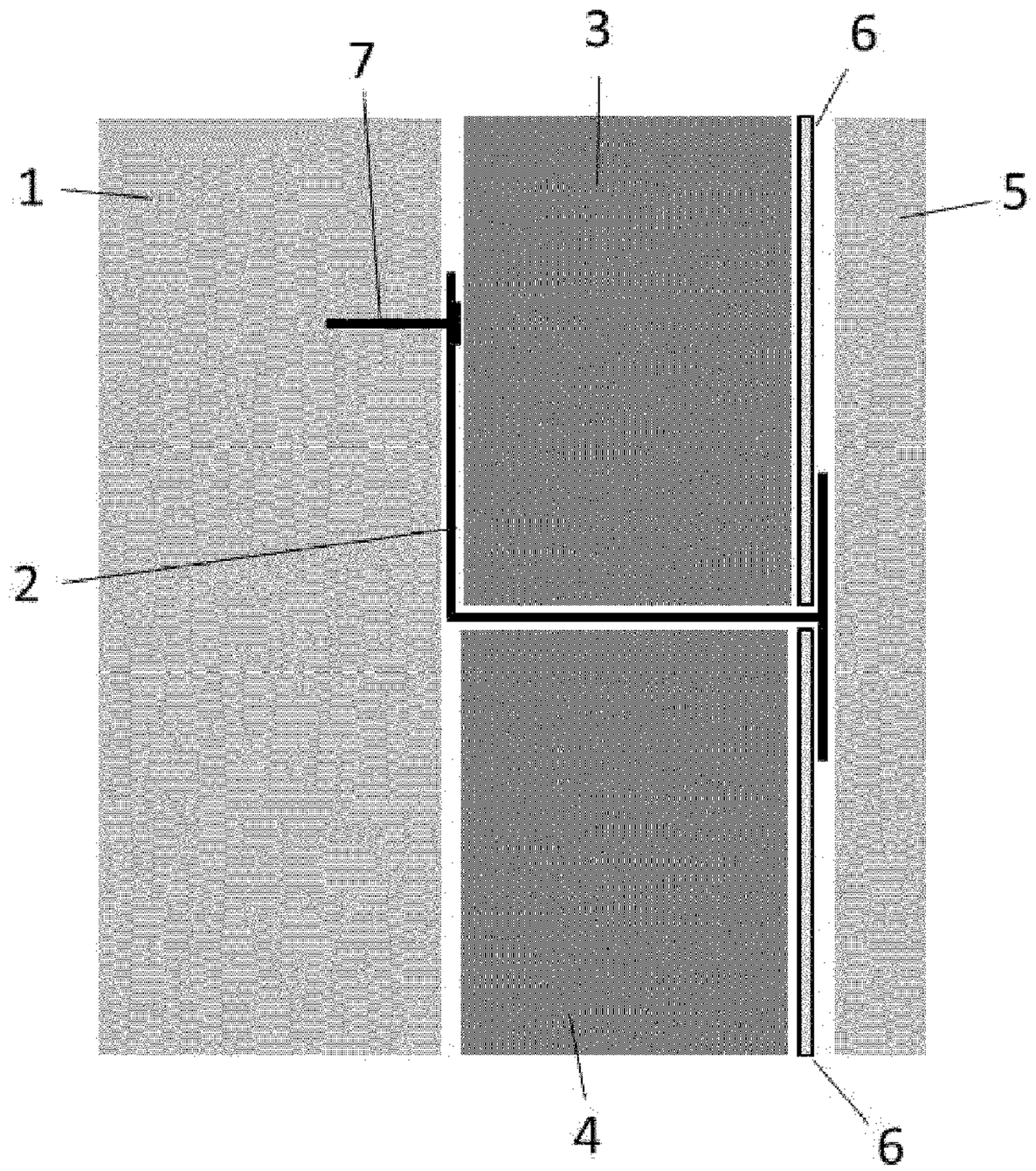

Fig. 2

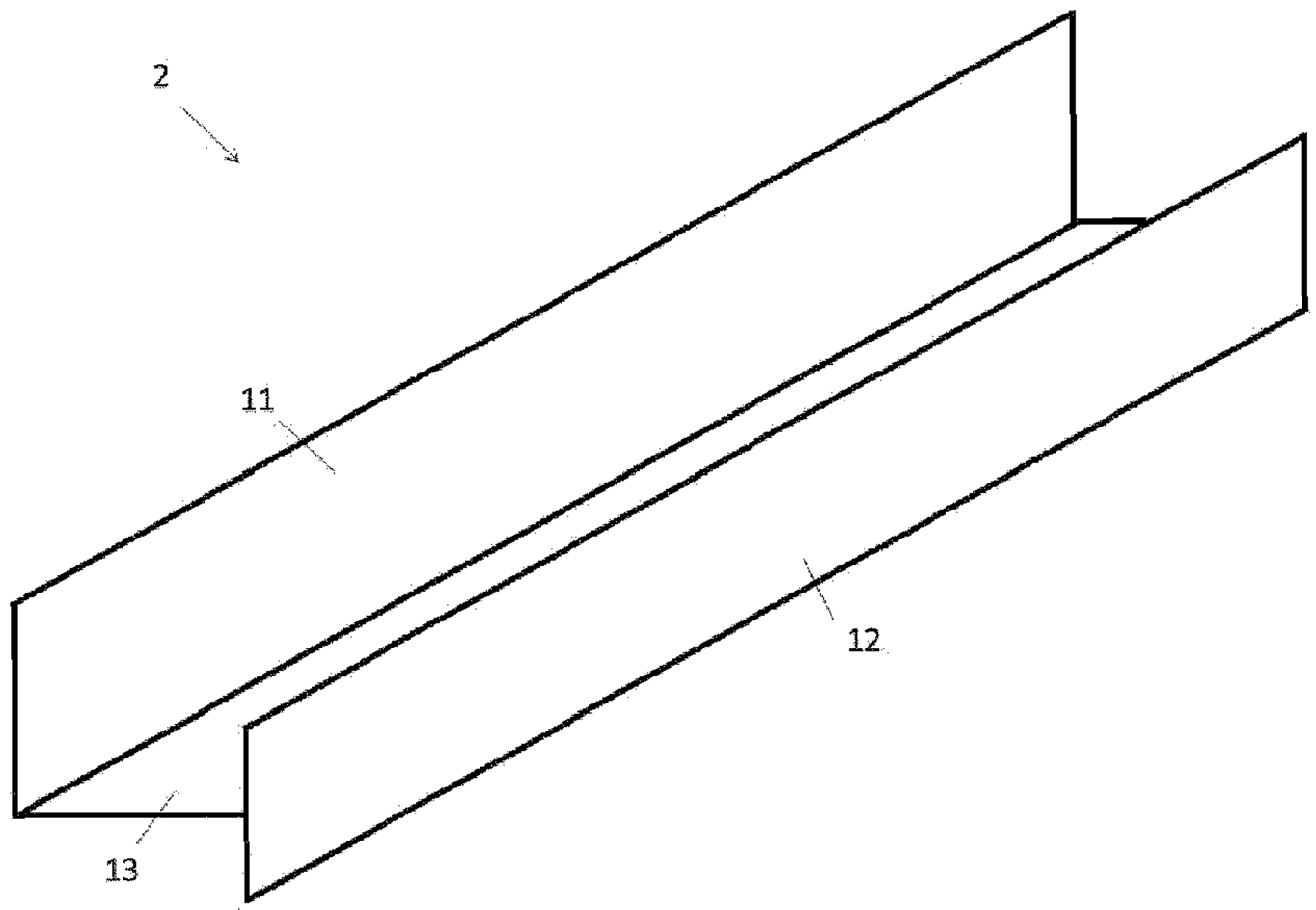

Fig. 3