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(54) Perimeter Sealing Component And Method For Manufacture Thereof

(57) The present invention relates to a perimeter sealing component (10, 20) for attaching floor and wall insulations to corners of a room, the perimeter sealing component (10, 20) comprising a first portion (11, 21) extending in a first direction, the first portion (11, 21) having a first surface, which is adapted to be attached to a first wall of the room. The perimeter sealing component further comprises a second portion (12, 22) extending in a second direction, which is different from the first direction, the second portion (12, 22) having a first surface, which is adapted to be attached to a second wall of the room. In order to avoid capillary channels between a perimeter wall and the perimeter sealing, the perimeter sealing component (10, 20) comprises a substantially rigid, pre-defined shape, which is adapted to cover the corner of the room.

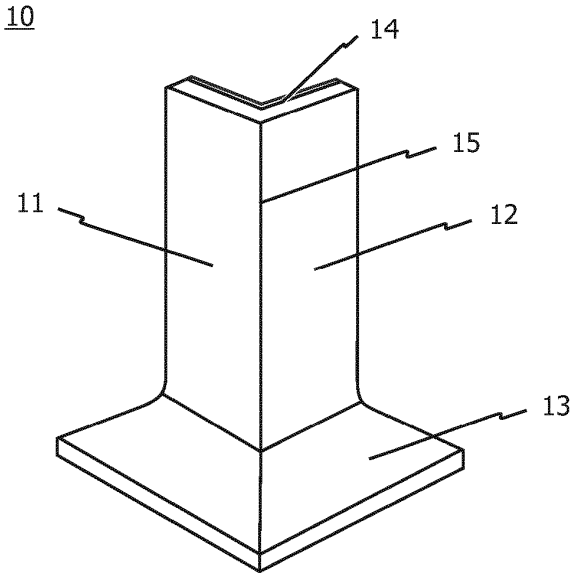

Fig. 1

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Description

[0001] The present invention relates to a perimeter sealing component for attaching floor and wall insulations to corners of a room. The invention further relates to a method for manufacturing of such a perimeter sealing component.

[0002] During the construction of houses, the major concern of the architect, when considering the internal floors of a dwelling is to ensure that the floor has the ability to support the loads that will be applied to it in the context of the whole structure of the building. Another important consideration, however, is the spatial separation that the floors provide within a dwelling in both acoustic and thermal terms.

[0003] Quite reasonably, the owner of a dwelling can expect there to be a satisfactory acoustic separation between the various levels within a dwelling. To this end, floor insulation systems are incorporated into building designs to minimize floor impact noises and airborne sound transmissions. Creating airspace between the structural and isolated floors, while decoupling the two floors, effectively controls noise transmission. An optimal sound insulation is achieved when the top floor surface (e.g. the parquet flooring or concrete top layer) is fully isolated from the building structure and non-structural components, such as duct work and piping of an under floor heating.

[0004] Problems with sound insulations are often associated with both direct transmissions through a floor and transmission via the walls of the building.

[0005] In order to improve the sound insulation between the floor and the walls of a building, it is customary to leave a gap between an edge of the floor construction and a perimeter wall, the gap being filled with a so called perimeter insulation strip. The material used for the perimeter insulation strip requires being flexible in order to permit an expansion of the floor construction, and thus, flexible foam materials have conventionally been used. These flexible perimeter insulating strips conventionally exhibit a single strip, which is arranged along the whole perimeter of a wall.

[0006] A problem arising in connection with the conventional perimeter insulating strips is that the strips have to be bend into the shape of the corners of a room, so as to be arranged along the whole perimeter of the walls. This has been found to cause capillary channels through which concrete can leak from the top floor (i.e. fluid concrete top layer) to the construction floor, resulting in a physical connection between the two layers of the floor. Needless to say that this physical connection between the different layers of the floor construction causes a substantial decrease of the sound insulation of a building, that is of the contact insulation.

[0007] Due to the problems outlined above, it is an objective of the present invention to provide for a perimeter sealing component for attaching floor and wall insulations to the corners of a room in such a manner that the sealing between the floor construction and the perimeter walls does not comprise any capillary channels through which concrete could leak. A further object of the present invention is to provide for a perimeter sealing component, which can be installed easily and quickly, without having to bend the perimeter sealing strip around corners of the room.

[0008] For this reasons, the present invention concerns a perimeter sealing component for attaching floor and wall insulations to corners of a room, the perimeter sealing comprising a first portion extending in a first direction, wherein the first portion has a first surface, which is adapted to be attached to a first wall of the room. The perimeter sealing component of the present invention further comprises a second portion extending in a second direction, which is different from the first direction. The second portion also has a first surface, which is adapted to be attached to a second wall of the room. Additionally, the perimeter sealing component comprises a substantially rigid, predefine shape, which is adapted to cover the corner of the room.

[0009] In simple terms, the present invention relates to a separately fitted perimeter sealing component having a pre-define shape, which fits perfectly into the corner areas of a room. The perimeter sealing component of the present invention is furthermore adapted to be attached to floor and wall insulations, as will be described in more detail below.

[0010] In a further embodiment of the present invention, the perimeter sealing component comprises a third portion being attached to the first and second portions. The third portion is adapted to be attached to a floor of the room. In this regard, the third component may extend substantially horizontally from the first and second portions of the perimeter sealing component, so as to align with the substantially horizontal floor of the respective room. In this connection, the term substantially horizontal" means that the third portion extends in the same direction as the floor of a room, which is frequently far from being perfectly horizontal.

[0011] The third portion of the perimeter sealing component may further be fitted with an adhesive layer, which is disposed on a first surface of the third portion, which is adapted to be in contact with the floor of the room. Therefore, the third portion is preferably self-adhesive, and this easily connectable to the floor construction of a room.

[0012] According to another embodiment of the present invention, the first and second portions of the perimeter sealing component are formed as substantially vertical portions. In this regard, the term "substantially vertical" refers to the fact that the first and second portions are constructed so as to conform to the walls of a building, which are often far from being perfectly vertical, as has already been described in connection with the substantially horizontal third portion. The substantially horizontal first and second portions may have a height of 5 cm to 8 cm, so as to cover the complete height of conventional

flooring constructions. According to another aspect, at least the first and second portions comprise an adhesive layer on their first surfaces. Consequently, the first and second portions can easily be attached to the first and second walls of the room, by means of the adhesive layer. To this end, the adhesive layer maybe made from a pressure sensitive adhesive such that the inventive perimeter sealing component simply needs to be pushed against the corners of a room in order to obtain a perfect fit. In another embodiment, the perimeter sealing component further comprises a liner, preferably a cover tape, disposed on top of the adhesive layers. That is, before the perimeter sealing component is attached to the corners of a room, the liner, which protects the adhesive layer during transport, is striped of by the user.

[0013] In another embodiment the perimeter sealing component maybe made of a soft foam material. For example, the perimeter sealing component maybe made of polyurethane foam, which was cut and heat-sealed into its pre-defined shape. Of course, it is also conceivable to form the perimeter sealing component of any other suitable material known from conventional perimeter insulating strips.

[0014] Since the corners of most buildings are constructed at a right angle, the invented perimeter sealing component is preferably constructed in such a manner that the second direction of the second portion is substantially particular to the first direction of the first portion. In other words, the second portion is preferably arranged orthogonally to the first portion of the perimeter sealing component. As will be descripted in more detail below, the first and second portions can be connected to each other such that two different perimeter sealing components are constructed. In particular, the first and second portions maybe arranged to each other in such a manner that the perimeter sealing component is adapted to fit into an inner corner or onto an outer corner respectively.

[0015] The present invention further relates to a sound insulation for the flooring area of a room. The inventive sound insulation comprises a plurality of floor insulations, wall insulations and at least one inventive perimeter sealing component. The wall insulations, which can be constructed as perimeter insulating strips, are attached to the at least one perimeter sealing component at at least one corner of the room. Preferably, the inventive sound insulation comprises several perimeter sealing components for each corner the room. Consequently, each piece of wall insulation is attached to two perimeter sealing components at their first and second end portions.

[0016] In another embodiment of the inventive sound insulation, the wall insulations are attached to the at least one perimeter sealing component by means of at least one adhesive tape. In more detail, the at least one adhesive tape maybe used to attach and cover adjacent edges of the wall insulations and the perimeter sealing component.

[0017] As outline before, the present invention, also relates to a method for manufacturing the inventive perimeter sealing component. In this regard, the method comprises the following steps:

i. Providing first and second perimeter insulating strips;

ii. Cutting adjacent edges of the first and second perimeter insulating strips at an angle corresponding to an angle of the corner of a room;

iii. Connecting the first and second perimeter insulating strips along their adjacent edges in such a way that the first perimeter insulating strip extends in a first direction and that the second perimeter insulating strip extends in a second direction, which is different from the first direction.

[0018] According to the method of the present invention, the inventive perimeter sealing component can be produced from commonly available perimeter insulating strips, which are attached along a miter joint. Therefore, the method of the present invention provides for a simple and cost efficient way of producing the advantageous perimeter sealing components.

[0019] According to another embodiment of the inventive method, the first and second perimeter insulation strips are connected to each other by means of heat sealing. The heat sealing maybe performed for a period of 45 to 60 minutes, so as to provide a mechanically strong and waterproof joint, which prevents undesirable leakage of fluid material there through.

[0020] According to another aspect of the present method, the cutting angle is chosen to be between 40° and 50° with respect to a longitudinal axis of the first and second strips. Consequently, the first and second strips can be attached to each other at a right angle, so as to fit perfectly into the corners of a room.

[0021] In the following, the present invention will be descripted in more detail with respect to the embodiments showing by the drawings.

[0022] The drawings show:

Fig. 1	perspective view of a first embodiment of the inventive perimeter sealing component;
Fig. 2	perspective view of a second embodiment of the inventive perimeter sealing component;
Fig. 3a	perspective view of a perimeter insulating structure comprising the inventive perimeter sealing components according to the first and second embodiments shown in Figures 1 and 2;
Fig. 3b	perspective view of a sound insula-

tion according to the first embodiment of the present invention; and

Figures 4a to 4c schematic illustration of a method for manufacturing a perimeter sealing component according to the present invention.

[0023] The illustrations of Figures 1 and 2 show first and second embodiments of the inventive perimeter sealing component 10, 20. In detail, the first embodiment of the perimeter sealing component 10 is adapted to be attached to an outer corner, whereas the second embodiment of the perimeter sealing component 20 is adapted to be attached to an inner corner of a room. Thus, the first and second embodiments of the perimeter sealing component 10, 20 comprise a first portion 11, 21 attached to a second portion 12, 22 along a miter joint 15, 25, after a heat sealing step has been performed.

[0024] The first portion extends in a first direction, which is different from a second direction of the second portion 12, 22. As will be understood from Figures 3a and 3b, each of the first and second portions 11, 21, 12, 22 comprises a first surface, which is adapted to be attached to first or second walls of the room. It should be noted that Figures 1 and 2 only show the second surfaces of the first and second portions 11, 12, 21, 22 which are opposite to the first surfaces thereof.

[0025] It is important to note that the perimeter sealing component comprises a substantially rigid, pre-defined shape, which is adapted to cover a corner of the room. To this end, the first and second portions 11, 12, 21, 22 of the perimeter sealing component 10, 20 are permanently fixed to each other along said miter joint.

[0026] In order to increase the stability of the inventive perimeter sealing components and to easy the connection to the floor insulations (Fig. 3b), the perimeter sealing components 10, 20 shown in Figures 1 and 2 each comprise a third portion 13, 23, which is attached to the first and second components 11, 12, 21, 22. The third component 13, 23 is adapted to be attached to the floor of the room. To this end, the third portion 13, 23 extends substantially horizontally from the first and the second portions 11, 12, 21, 22 of the perimeter sealing component 10, 20.

[0027] As can be derived from Fig. 1, the third portion 13 according to the first embodiment of the perimeter sealing component 10, extends around the first and second portions 11, 12 of the perimeter sealing component 10. In contrast to this, the third portion 23 of the perimeter sealing component 20 according to the second embodiment extends directly in between the first and second portions 21, 22. Correspondingly, the perimeter sealing component 10 of the first embodiment is configured to fit an outer corner, whereas the perimeter sealing component 20 of the second embodiment is configured to fit an inner corner of the room.

[0028] The first and second portions are constructed as substantially vertical portions, preferably with a height of 5 cm to 8 cm. Of course, the height and direction of the first and second portions 11, 20, 21, 22 are adapted to the particular circumstances of the floor construction.

[0029] Figures 1 and 2 further show that at least the first and second portions 11, 12, 21, 22 may comprise an adhesive layer 14, 24 on their respective first surfaces. In order to protect the adhesive layers 14, 24 for as long as the perimeter sealing component is not attached to the edges of a room, the perimeter sealing component may comprise a liner, preferably a cover paper, which is disposed over the adhesive layer 14, 24.

[0030] Still revering to the illustrations shown by Figures 1 and 2, it can be derived that the second direction of the second portion 12, 22 is substantially perpendicular to the first direction of the first portion 11, 21. Therefore, the perimeter sealing component 10, 20 according to the first and second embodiments can be attached easily to typical corners of a room as can be derived from Figures 3a and 3b, which will be descripted in the following.

[0031] Fig. 3a shows a perimeter insulating structure 100, which comprises a plurality, here three, wall insulations represented by perimeter insulating strips 30, which are connected to a perimeter sealing component 10 according to the first embodiment shown in Fig. 1 and a perimeter sealing component 20 according to the second embodiment showing in Fig. 2 respectively.

[0032] As can further be derived from Fig. 3a, each of the perimeter insulating strips 30 comprises a first portion 31, which is a substantially vertical portion adapted to be attached to the perimeter wall of a room and a second portion 32, which is a substantially horizontally portion adapted to be attached to the floor of a room. The conventionally known perimeter insulating strips 30 can easily be attached to side edges 17, 18, 27, 28 of the inventive perimeter sealing component 10 or 20 respectively. Due to the construction of the novel perimeter sealing components 10, 20 of the present invention, the perimeter insulating strips 30 do not to have to be bent around the corners of a room anymore. Rather, the perimeter insulating strips 30 can conveniently be arranged along the straight parts of the perimeter wall. The corners, on the other hand, are reliably covered by the inventive perimeter sealing components 10, 20.

[0033] Fig. 3b shows one embodiment of the inventive sound insulation 200, which comprises a plurality of floor insulations 40, wall insulation (insulating strips 30) and at least one perimeter sealing component 10 or 20 respectively. As can be seen, the perimeter insulating strips 30 are attached along their side edges to the inventive perimeters sealing components 10 or 20 respectively, whereas their bottom edges are connected to the floor insulations 40. The wall insulations 30 are connected to the perimeter sealing components 10, 20 and the plurality of floor insulations 40 by means of several adhesive tapes 50. Of course, it is also conceivable to attach the different components of the sound insulation 200 by any other suitable means such as gluing.

[0034] With reference to Figures 4a to 4c, the inventive method for manufacturing the inventive perimeter sealing component shall be described in more detail. In a first step, first and second perimeter insulation strips 60, 70 are provided, as can be derived from Fig. 4a. The first and second perimeter insulating strips 60, 70 may be conventional perimeter insulating strips as shown by reference sign "30" in Figures 3a and 3b. Similarly to Figs. 3a and 3b, Fig. 4a shows that each of the first and second perimeter insulating strips 60, 70 comprises a first portion 61, 71, extending in a substantially vertical direction, and second portions 62, 72, extending in a substantially horizontally direction.

[0035] A second step is also illustrated by Fig. 4a. According to this step, adjacent edges 64, 74 of the first and second perimeter insulating strips 60, 70 are cut at an angle α/β relative to a longitudinal axis of the strips 60, 70, wherein the angles α/β correspond to the specifice angle of the corner of a room. In particular, the angles α, β, correspond to the miter square, which needs to be used in order to fit the perimeter insulating component to the specific corner of the room. Typically, in order to cover a right-angled corner, the angles α, β, of the first and second perimeter insulating strips 60, 70 exhibit 45 degrees.

[0036] In another step according to Fig. 4b, the first and second perimeter insulating strips 60, 70 are connected to each other along their previously cut,adjacent edges 64, 74 in such a way that the first perimeter insulating strip 60 extends in a first direction and the second perimeter insulating strip 70 extends in a second direction, which is different from the first direction. Of course, the first and second directions are defined by the angles α and β at which the side edges 64 and 74 are cut in the previous step of the inventive method. In a preferred embodiment, the first and second perimeter insulating strips 60, 70 are connected to each other by means of heat sealing, which is preferably performed for a period of 45 to 60 minutes in order to achieve a sufficiently staple connection of the first and second perimeter insulating strips 60, 70.

[0037] In a last step, indicated by Fig. 4b, excess portions of the first and second perimeter insulating strips 60, 70 are removed by a vertical cut along cutting lines 81, 82. Depending on the customers' requirements, the cutting lines 81, 82 can be distanced differently far from the side edges 64, 74 of the insulating strips 60, 70, thereby producing first and second portions 11, 12 comprising different lengths. The insulating strips 60, 70 should be cut along the lines 81, 82 in such a manner that the outer side edges 17, 18 (Fig. 3a) are cut at an angle of 90 degrees.

[0038] Whilst Figures 4a to 4c describe the method of the present invention in connection with the first embodiment of the inventive perimeter sealing component 10, it is of course also conceivable to produce the perimeter sealing component 20 according to the second embodiment in a similar manner. In particular, the only difference when producing the perimeter sealing component 20 shown in Fig. 2 is that the angles α and β have to be inverted. In other words, whereas the angles α and β where chosen to be about 45 degrees in order to produce the first embodiment of the inventive perimeter sealing component, the insulating strips have to be cut at angles α, β of -45 degrees in order to produce the perimeter sealing component 20 according to the second embodiment.

List of reference signs

[0039]

10, 20	perimeter sealing component
11, 21	first portion
12, 22	second portion
13, 23	third portion
14, 24	adhesive layer
15, 25	miter joined
17, 18, 27, 28	side edges
30	perimeter insulating strip
31	first portion
32	second portion
40	floor insulation
50	adhesive tape
60, 70	perimeter insulating strip
61, 71	first portion
62, 72	second portion
64, 74	side edge
81, 82	cutting line
100	perimeter insulating structure
200	sound insulation
α, β	cutting angle
L	longitudinal axis

Claims

1. A perimeter sealing component (10, 20) for attaching floor and wall insulations to corners of a room, the perimeter sealing component (10, 20) comprising

- a first portion (11, 21) extending in a first direction, the first portion (11, 21) having a first surface, which is adapted to be attached to a first wall of the room; and
- a second portion (12, 22) extending in a second direction, which is different from the first direction, the second portion (12, 22) having a first surface, which is adapted to be attached to a second wall of the room,

characterized in that

the perimeter sealing component (10, 20) comprises a substantially rigid, pre-defined shape, which is adapted to cover the corner of the room.

2. The perimeter sealing component (10, 20) of claim 1, wherein the perimeter sealing component (10, 20) further comprises a third portion (13, 23) being attached to the first and second portions (11, 12, 21, 22), the third portion (13, 23) being adapted to be attached to a floor of the room.

3. The perimeter sealing component (10, 20) of claim 2, wherein the third portion (13, 23) extends substantially horizontally from the first and second portions (11, 12, 21, 22) of the perimeter sealing component (10, 20).

4. The perimeter sealing component (10, 20) of any of claims 1 to 3,
wherein the first and second portions (11, 12, 21, 22) are substantially vertical portions, preferably having a height of 5 cm to 8 cm.

5. The perimeter sealing component (10, 20) of any of claims 1 to 4,
wherein at least the first and second portions (11, 12, 21, 22) comprise an adhesive layer (14, 24) on their first surfaces.

6. The perimeter sealing component (10, 20) of claim 5, wherein the adhesive layer (14, 24) is made from a pressure sensitive adhesive.

7. The perimeter sealing component (10, 20) of claim 5 or 6,
wherein the perimeter sealing component (10, 20) further comprises a liner, preferably a cover paper, disposed on top of the adhesive layer (14, 24).

8. The perimeter sealing component (10, 20) of any of claims 1 to 7,
wherein the perimeter sealing component (10, 20) is made of a soft foam material.

9. The perimeter sealing component (10, 20) of any of claims 1 to 8,
wherein the second direction of the second portion (12, 22) is substantially perpendicular to the first direction of the first portion (11, 21).

10. Sound insulation (200) for the flooring area of a room, the sound insulation comprising a plurality of floor insulations, wall insulations and at least one perimeter sealing component (10, 20) according to any of claims 1 to 9, the wall insulations being attached to the at least one perimeter sealing component (10, 20) at a corner of the room.

11. Sound insulation according to claim 10,
wherein the wall insulations are attached to the at least one perimeter sealing component (10, 20) by means of at least one adhesive tape (50).

12. Method for manufacturing a perimeter sealing component (10, 20) according to claims 1 to 9, the method comprising the following steps:

i. Providing first and second perimeter insulating strips;
ii. Cutting adjacent edges of the first and second perimeter insulating strips at an angle corresponding to an angle of the corner of a room;
iii. Connecting the first and second perimeter insulating strips along their adjacent edges in such a way that the first perimeter insulating strip extends in a first direction and that the second perimeter insulating strip extends in a second direction, which is different from the first direction.

13. The method of claim 12,
wherein the first and second perimeter insulating strips are connected to each other by means of heat sealing.

14. The method of claim 13,
wherein heat sealing is performed for a period of 45 to 60 minutes.

15. The method of any of claims 12 to 14,
wherein the cutting angle is between 40° and 50° with respect to a longitudinal axis of the first and second strips.

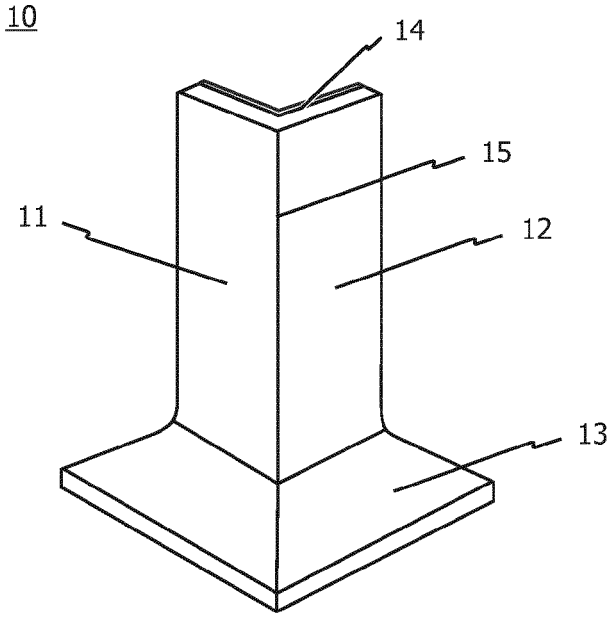

Fig. 1

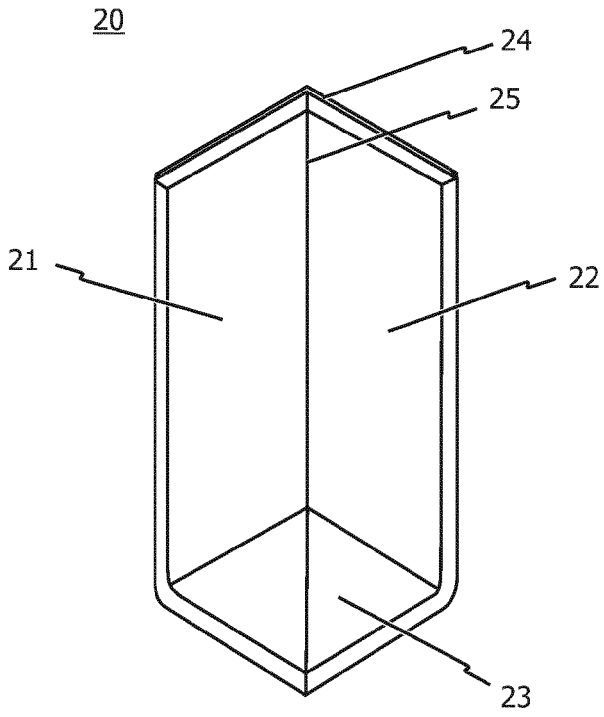

Fig. 2

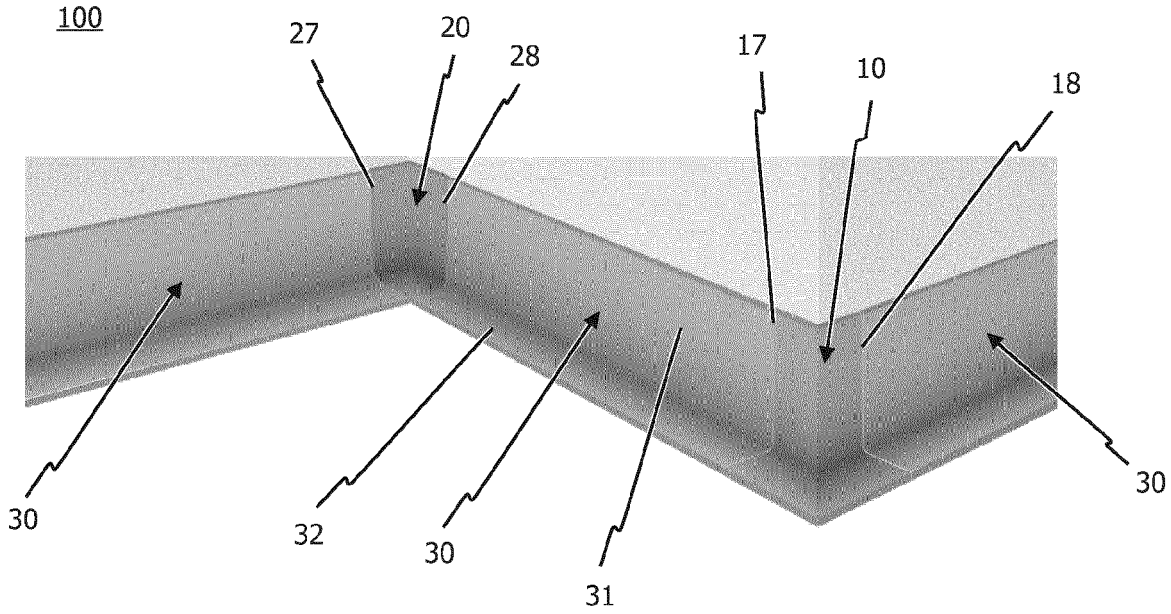
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Fig. 3a

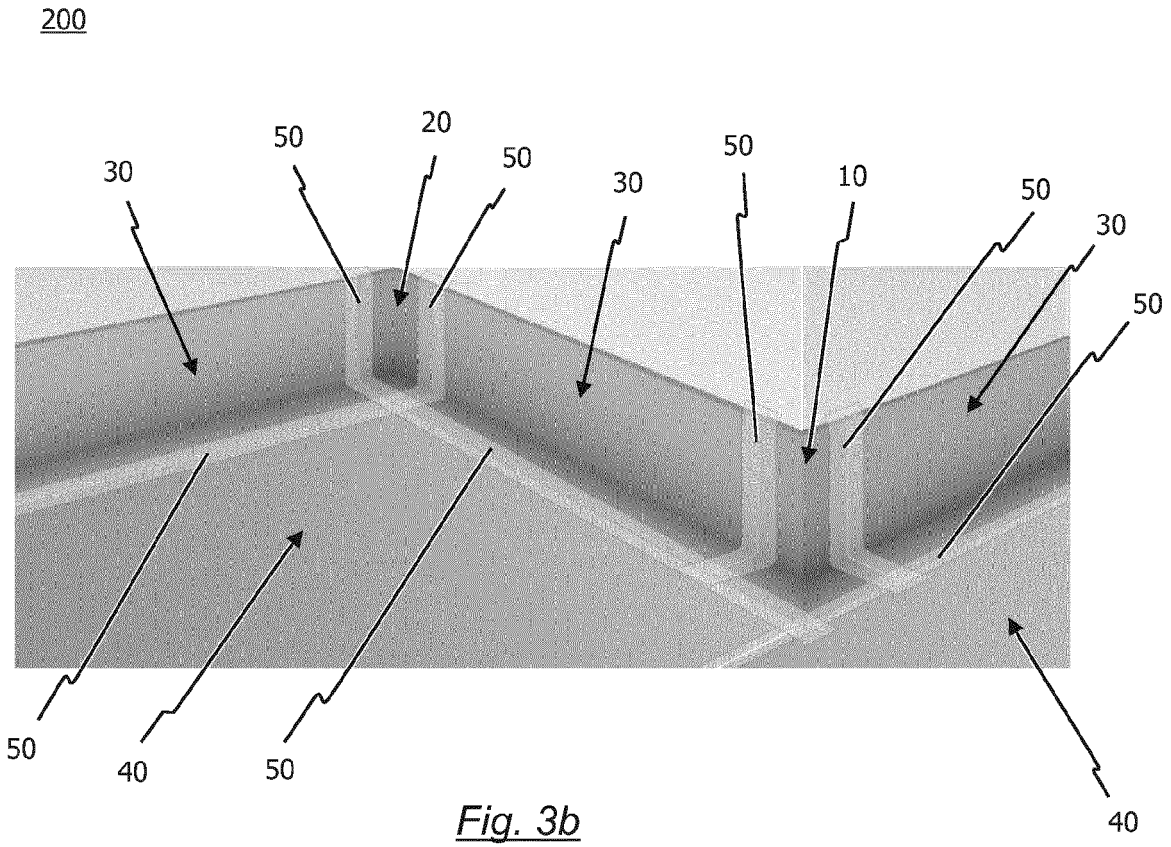
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Fig. 3b

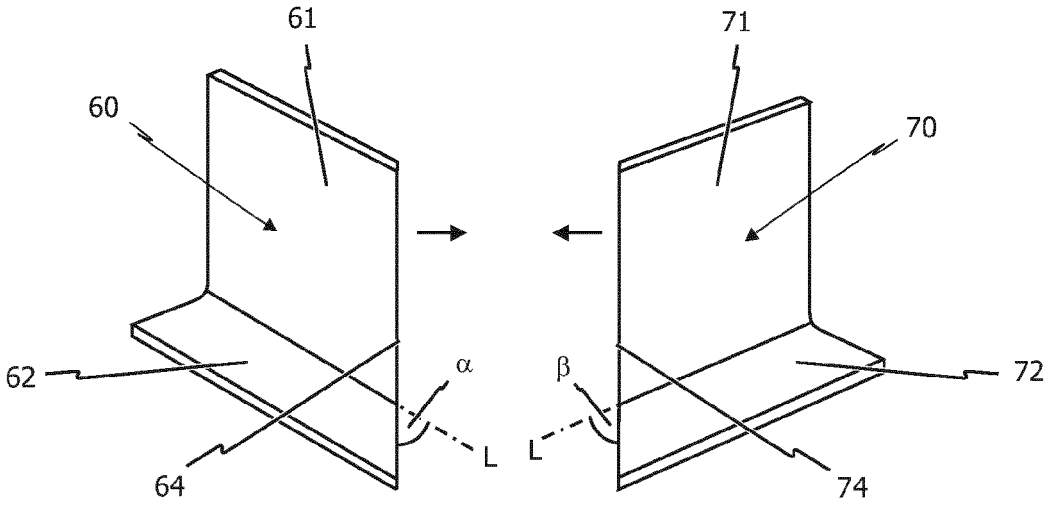

Fig. 4a

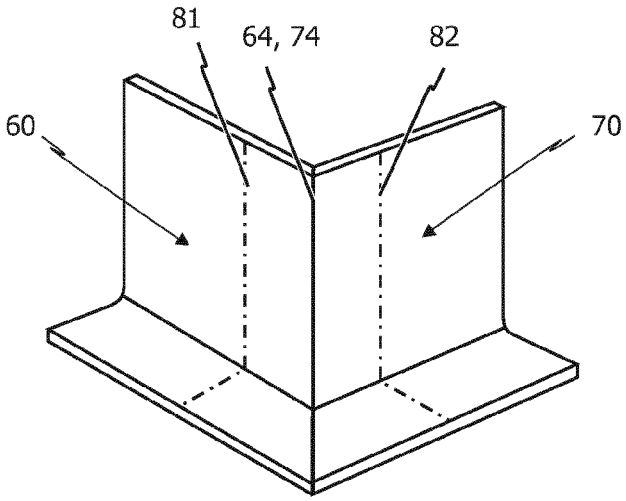

Fig. 4b

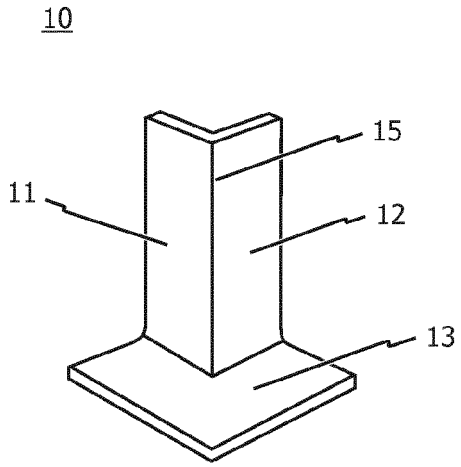

Fig. 4c

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EUROPEAN SEARCH REPORT

Application Number
EP 14 15 2340

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	20 June 2014	Khera, Daljit

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 15 2340

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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20-06-2014

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82