WALL ELEMENT FOR A BUILDIUNG

DESCRIPTION

[0001] The present invention relates to the technical territory of building construction and, in particular, a prefabricated wall element according to Claim 1.

[0002] A building structure with a foam material foundation and a wooden framework support structure built on top of it is known from patent document NL 8902670. This is covered with front panels made of a foam material, which are reinforced with a partially metal wire grid embedded into it.

[0003] The international patent application WO 2005/121469 shows a building component made of a foam material, into which a spatially structured reinforcement grid is at least partially embedded. The grid parts that stick out from the foam material are used to anchor a plaster layer.

[0004] From EP 0191144, a planar structure to create and cover masonries, wall and facades is known. The structure comprises a plurality of aerated concrete slabs and a heat, cold and sound insulation layer, wherein both parts are connected to each other in a flush manner by means of a cement-based adhesive layer and a tough-elastic, metal-free, corrosion-resistant fabric is embedded into the adhesive layer. A plurality of such planar structures can be attached onto both sides of a supporting structure made of wood or metal by means of bolts.

[0005] It is the object of the present invention to improve the known wall structures, in particular, to increase their resilience, their heat, noise and radiation insulation with a simple construction at the same time, as well as being easier and less expensive to manufacture.

[0006] This task is solved by means of a wall element according to Claim 1, wherein the wall element has a first planar supporting body made of a solid foam material, the surface of which claim to face the interior space of the building

borders an insulation layer, and a first wave-shaped metal wire grid, which is at least partially encased within foam within a surface of the first supporting body to face the outside of the building, as well as first fastening elements, which pass through both the first grid as well as the first supporting body in order to fasten supporting elements, between which the insulation layer is accommodated.

[0007] A crucial point of the structure according to the invention is initially that its resilience, which is usually required, is insured solely by the first supporting body in conjunction with the first metal wire grid at least partially embedded into it. Thereby, the first wave-shaped grid is stabilising in such a way that tensions, that arise due to static or dynamic loads acting upon the supporting body are evenly distributed across this. Therefore, the structure according to the invention has also proven to be especially earthquake resistant, but also resistant against the effect of lateral force. Furthermore, radiation is kept away from the interior space of the building by means of the first grid, which, for example, is emitted by high-voltage lines, telecommunication systems, radioactive sources or the like. At the same time, the first grid serves to hold the fastening elements securely in their position so that these do not slip and that a stable hold of the insulation layer is insured. The supporting body can be made of a polyurethane foam with a gravel inlay, which shows a high resistance to pressure, capillary water absorption, unidirectional stability and good permeability for water vapour. By means of the good level of heat conductivity of the first grid, it is additionally hindered that a wall structured in this manner easily heats up since the absorbed heat is dissipated by the grid. Thereby, in conjunction with the insulation layer, an especially good heat and noise insulation, for example, against a combination of a hot and additionally loud environment, results. Furthermore, the wall structure described can be manufactured particularly easily and inexpensively, for example, by means of a fully automatic placement of the fastening elements at each desired point of the supporting body, regardless of given bore holes, for example.

[0008] Preferred further embodiments of the wall structure according to the invention are indicated in the subclaims. In particular, these concern insulation and stability aspects as well as equipment details.

[0009] In a favourable embodiment, it is provided that the structure has an inner cladding, which borders a surface of the insulation layer to face the building interior and is provided with second fastening elements, which pass through the inner cladding in order to fasten these to the supporting elements. Therefore, the supporting elements cannot only be used to hold the insulation layer, but also to fasten the inner cladding, thereby forming a uniform fastening system. At the same time, the inner cladding represents a further insulation layer. Thereby, a wall structure can be provided with an inner cladding, which is already pre-mounted, so that mounting with regard to this on the building site (on-site) is done without. In the simplest case, the inner cladding can comprise plasterboards, which are provided with an individual coating later on (wallpaper, paint, or the like).

[0010] However, it is preferred if the inner cladding comprises a second planar supporting body made of a solid foam material which is arranged bordering the insulation layer. Thereby, the resistance of the wall structure is considerably increased in addition to increasing heat and noise insulation. Preferably, the inner cladding comprises a second wave-shaped metal wire grid, which is at least partly encased in foam within a surface of the second supporting body to face the interior space of the building. By means of this, the advantages are strengthened, which have already been mentioned in association with the first metal wire grid. In particular, the second grid also prevents that the wall heats up, so that a good heat insulation against a cold environment results. Thereby it is conceivable to repeat the layer of the wall structure according to the invention in any way depending on the requirements at hand, meaning, in turn, subsequently establishing a second insulation layer on the second supporting body (with a second grid) and, in turn, establishing a third supporting body (with a third grid) etc..

[0011] Preferably, such an inner cladding has an inner plaster layer, which is applied to the surface of the second supporting body to face the interior space of the building, and is anchored onto the second metal wire grid. Thereby, an

especially secure hold of the inner plaster layer to the second supporting body is ensured by means of the second grid. Furthermore, by means of an especially good distribution of tension in the loads introduced into the second supporting body, a crack formation within the plaster is surely ruled out.

[0012] When applying an inner cladding, it is furthermore preferred to apply a water-vapour-permeable film, which extends between the insulation layer and inner cladding. Thereby, condensation water, which inevitably forms within the insulation layer during changes of temperature, can escape from this space. Thereby, moisture penetration of the wall from the inside is ruled out.

[0013] Similar to the inner cladding, an outer cladding can also be provided, which borders a surface of the first supporting layer to face the outside of the building, and which comprises an outer plaster layer, which is anchored onto the first metal wire grid. Such an outer plaster layer covers the first wave-shaped metal wire grid in its entirety and also prevents the wall structure from heating up. In addition, the outer plaster repels moisture and is additionally frost and shock resistant. In principle however, the outer cladding can also be made of a mortal layer, which covers the first grid and, in turn, bears decorative plates.

[0014] Wall structures that are subjected to the highest load levels preferably have a respective three-dimensional metal wire grid, which is fully encased in foam within the first and/or the second supporting body. Thereby, the load-bearing capacity of the wall structure is furthermore considerably increased. The insulation layer is preferably made of a mineral wool material, which represents the simplest and most effective heat and noise insulation, that is additionally even inexpensive.

[0015] An especially easy-to mount and durable fastening of the supporting elements results if the first and/or the second fastening elements consist of a respective bolt and counter bearing combination. In the simplest case, the counter bearing can consist of a threaded nut, which is tightened against part of the supporting element, thereby holding the element into position. However, plate- or

block-shaped bearings with threaded holes within them, which allow for the largest fixation surface possible, are conceivable.

[0016] However, a respective bolt and counter bearing combination, which comprises a self-cutting bolt and a counter bearing made of a plastic material, is even easier to mount. Thereby, precise alignment of both parts away from each is done without, in particular, when the counter bearing is plate- or block-shaped.

[0017] In order to achieve an especially stable fastening of the supporting elements, the head diameter of the respective bolt is preferably larger than the mesh size of the first and second metal wire grid. Thereby, the bolt can be tightened against the grid on the one hand, and, at the same time, be held in its meshes.

[0018] In principle, a washer can be provided for a respective bolt, the diameter of which is larger than the mesh size of the first and second metal wire grid. By means of this, the same bolt can be used in metal wire grids with various mesh sizes by merely adapting the washer accordingly.

[0019] In order to rule out that the bolt and counter bearing combination acts as a heat or cold bridge, the bolt can principally be made out of a material that only poorly conducts heat. However, in order to be able to use particularly highly resistant bolts made of a metal material, the head of the respective bolt must preferably be able to be covered by a plastic and/or the washer is made of plastic. Thereby, the bolt head is fully in encapsulated with respect to its immediate environment, thereby being heat-insulated.

[0020] In principle, the supporting element itself can also be made of a wooden or plastic material, whereby a bolt (self-cutting) screwed into it would be heat-insulated on the side of its counter bearing. However, if the supporting element is made of the metallic substance, it is preferred if a respective supporting element and counter bearing combination is shaped and dimensioned in such a way that a bolt screwed into the counter bearing does not come into contact with the

supporting element.

[0021] An especially simple mounting of the supporting element and counter bearing combination is given if this is formed and dimensioned in such a way that movement of the counter bearing against the supporting element is blocked when twisting the bolt in. The counter bearing is accommodated by the supporting element in a form-fitting matter, which makes other fastening elements or materials between both of them superfluous.

[0022] Preferably, a respective supporting element additionally has a primarily U-shaped cross-sectional shape, the limbs of which are provided with openings to hold the fastening elements. A supporting element shaped in such a way has the advantage that its base can serve as an end-stop for a correspondingly shaped counter bearing.

[0023] Regardless of the shape of the supporting elements, these can preferably be used to accommodate electrical lines within the wall structure, which run within the insulation layer and are held by the supporting elements.

[0024] In another preferred embodiment, the wall structure according to the invention is provided with heating and/or cooling hoses, which are laid within the inner and/or outer cladding and primarily run between the peaks of the first and/or second metal wire grid, which protrude over the respective surface of the first and/or second supporting body. By means of this, the hoses are guided between the peaks on the one hand and can be easily laid. At the same time, the hoses can also be easily attached to the first or second grid, for example, by means of generally known cable ties.

[0025] An even simpler attachment results if the heating and/or cooling hoses are held between a respectively additional level metal wire grid, which stretches across the peaks of the first and/or second metal wire grid, and the first and/or second wave-shaped metal wire grid. Thereby, the hoses are flatly covered and fixed between the peaks of the first or second grid, which is simpler to

implement.

[0026] As an alternative to this, the heating and/or cooling hoses can also be held within a respectively additional three-dimensional metal wire grid, which stretches across the peaks of the first and/or second metal wire grid. Both the first and second as well as the additional grids are, for example, accommodated within a plaster or mortar layer, thereby acquiring additional stability and load-bearing capacity. Thereby, the hoses can already be laid within the additional grid, before this grid is attached.

[0027] By means of this, the mounting of the heating and/or cooling hoses is made considerably easier and is accelerated.

[0028] A particularly good load-bearing capacity, an insulating and radiation-protective effect of the first and second metal wire grid is achieved if their mesh with is between 5 mm and 30 mm, preferably approximately 10 mm.

[0029] Preferably, prefabricated building elements for a building, particularly wall, floor or ceiling elements should have the wall structure according to the invention. These elements can be configured according to the embodiments described in the above so that other “on-site” mounting processes are not required. Thereby, the erection of buildings in various variations according to customer requirements is possible in a quick manner.

[0030] Buildings with these prefabricated building elements are preferably designed in such a way that the building elements are arranged and connected to each other so that their first and/or second metal wire grids form a Faraday cage. Thereby, an ideal radiation protection against factors outside of the building is ensured, for example, against telecommunication radiation, high-voltage fields, radioactive radiation, or the like.

[0031] Exemplary embodiments of the invention are explained in detail in the following taking the enclose figures into account. Dimensions within the

drawings are indicated in millimetres [mm]. Identical parts or parts performing identical functions are provided with the same reference numbers. The figures show:

Figure 1 a cross-sectional view of a first wall structure according to the invention to illustrate its basic construction;

Figure 2A a cross-sectional view of a second wall structure according to the invention with an inner cladding;

Figure 2B a spatial representation of the wall structure in Figure 2A;

Figure 3A a cross-sectional view of a third wall structure according to the invention with an inner cladding;

Figure 3B a spatial representation of the wall structure in Figure 3A; Figure 4A a spatial representation of an additional three-dimensional metal wire grid to hold the heating and/or cooling hoses;

Figure 4B a spatial representation of a first or second wave-shaped metal wire grid for embedding into the first or second supporting body;

Figure 5A a lateral view of a first or second supporting body with the grids in Figure 4;

Figure 5B a front view of the first or second supporting body according to Figure 5A and

Figure 6 a top view of the grids in Figure 5.

[0032] Figure 1 shows a cross-sectional view of a first wall structure W1 (Wall 1) according to the invention to illustrate its basic construction. Thereby, a basic structure comprises a first supporting body 10 made of a polyurethane foam with

a gravel inlay, the surface of which directed at the interior space of the building I (Interior) borders an insulation layer 20 made of mineral wool. A first wave-shaped metal wire grid 30 is encased in foam within the surface of the first supporting body 10 directed at the outside of the building E (Exterior) so that its peak sticks out from it. A first supporting body 10 and a first wave-shaped grid 30 represent supporting elements of the structure W1. Fastening elements 40 extend through the supporting body 10, which hold primarily U-shaped supporting elements 50 made of steel, between which the insulation layer 20 is accommodated and is thereby held onto t supporting body 10. As an example, a fastening element 40 is shown here which consists of a (shaft) bolt and counter bearing combination 41, 42.

[0033] The counter bearing 42 comprises a nut 42-1, which is tightened against a plastic bushing 42-2, which is, in turn, held within the U-shaped supporting element 50 in a form-fitting matter. Thereby, and installation of the fastening element 40 is achieved, which prevents a heat transfer between the supporting element 50 and the bolt 41 (or vice versa). In order to further increased insulation effect of the bolt and counter bearing combination 41, 42, the bolt 41 is and additionally made of a poorly conducting plastic material, which however possesses sufficient tensile strength. In addition, its screw head is provided with a covering 44 and a washer 43 made of plastic toward the outside of the building in order to maintain the insulating effect even there. The washer 43 has a diameter, which is greater than the mesh size of the first grade 30 so that the grid works against the torque of the screw 41, thereby holding this into position at the same time. This surface of the first supporting body 10 directed toward the outside of the building is provided with an outer cladding CE (Cover Exterior), which comprises various layers of mortar and a brick facing (not specified in detail).

[0034] The first wave-shaped metal wire grid 30 grips into the outer cladding CE and holds this so that its load-bearing capacity is considerably increased. At the same time, it serves to reinforce the supporting body 10 and to extensively distribute tension within this body 10. On the one hand, this leads to a considerably increased load-bearing capacity of the wall structure W1 and, on the

other prevents a crack formation within the supporting body 10 and the outer cladding CE. By means of this, the wall structure W1 is particularly resistant toward static as well as dynamic stress, and this both in the vertical, as well as the horizontal direction. The first grid 30 additionally acts as a heat insulation since it dissipates heat, thereby preventing the structure W1 from heating up. Furthermore, it represents an effective protection against all types of electromagnetic fields. Excluding a heat bridge on the fastening element 40 on a constructional level in conjunction with a first supporting body 10 made of foam and the insulation layer 20 made of mineral wool furthermore provides for an optimum heat and noise insulation of the structure W1. The supporting body 10 can furthermore be provided with an additional three-dimensional metal wire grid fully encased in foam, within it which increases its load-bearing capacity even further.

[0035] Figure 2A shows a cross-sectional view of a second wall structure W2 according to the invention with an inner cladding CI (Cover Interior), which is based on the basic construction of the wall structure W1 already shown in Figure 1. For example, the inner cladding CI consists of plasterboards 60, which fully cover the insulation layer 20 and are connected to U-shaped supporting elements 50 via fastening elements (not shown here). Thereby, the supporting elements 50 are used to hold the insulation layer 20 and to hold the inner cladding 60. In contrast to the wall structure W1 in Figure 1, the supporting elements 50 are held by fastening elements 40', which consist of a bolt and counter bearing combination 41', 42'. Thereby, the bolt 41' is equipped with a self-cutting thread, which is twisted into the counter bearing 42' made of a plastic or wooden material. The counter bearing 42' is accommodated in a form-fitting manner, therefore being blocked against rotating, within a limb of the U-shaped supporting element 50, which additionally again grips around the counter bearing 42' on its surface. Overall, such an embodiment of the fastening elements 40' allows for a mounting of the wall structure W2 that is particularly easy and can be fully automated. Between the inner cladding CI and the insulation layer 20, a water-vapour-permeable film 70 made of a PVC material is applied, in order to ensure ventilation of the interior insulation layer 20 while hindering the penetration of

liquid at the same time. Since the inner cladding CI can already be pre-mounted, its application "on-site" is no longer required. Customer requirements can additionally be taken into consideration already at a very early building construction phase. The outer cladding CE of the wall structure W2 shown here should principally not be different than those in Figure 1. Overall, the structure W2 is therefore particularly resistant, without lacking the other advantages described previously with reference to Figure 1. Furthermore, electrical lines 80 are still laid within the wall structure W2, which run within the insulation layer 20 and are held within the U-shaped supporting elements 50. Thereby, electrical cabling within the wall structure can be pre-assembled, which merely has to be connected on-site.

[0036] Figure 2B shows a spatial representation of the wall structure in Figure 2A. The first supporting body 10, which the insulation layer 20 borders, can be recognized between the inner and outer cladding, CI and CE, of the wall structure W2. The spatial design of the supporting elements 50 of the shows that these are designed as elongated U-shaped metal sheets. In the section of the wall structure W2 shown, the openings of the supporting elements 50 are facing each other in such a way that the insulation layer 20 is held between these. A PVC film 70, which is permeable to gases and water vapour and resists water penetration in liquid form extends between the inner cladding CI and the insulation layer 20. For the sake of clarity, the fastening elements 40 and the first wave-shaped metal wire grid 30 embedded in the first supporting body 10 are not shown. The spatial representation of the structure W2 illustrates the simple and compact construction of the building wall according to the invention, which is extremely stable and robust, and impermeable to radiation at the same time, as well as being heat and noise insulating. A corresponding wall can additionally be configured according to requirements, be manufactured in a fully automated manner and be installed on-site.

[0037] Figure 3A shows a cross-sectional view of a third wall structure W3 according to the invention with an inner cladding CI '. Thereby, the structure W3 goes beyond the basic construction of the wall construction W2, which was

already described in Figure 2. Thereby, the supporting elements 50 are also held here via fastening elements 40, which comprise a self-cutting bolt 41', which is twisted into a counter bearing 42' made of a plastic or a wooden material. The outer cladding CE' of the structure W3 has an outer plaster layer 61' here, which is anchored on the first wave-shaped metal wire grid 30. The structure W3 is furthermore distinguished due to its inner cladding CI', which comprises a second supporting body 10' and an inner plaster layer 61', in which heating or cooling hoses 90 are laid to heat or cool the interior space of the building I. The second supporting body 10' in equipped with a second wave-shaped metal wire grid 30' in a mirror-inverted manner to the first supporting body 10, which is also at least partially embedded into this. Also in a mirror-inverted manner to the first supporting body 10, the second supporting body 10' is fastened to the supporting elements 50 via fastening elements 40' with self-cutting bolts. As is the case with the first supporting body 10, the second wave-shaped grid 30' thereby fulfils the task of stabilising the fastening elements 40', meaning to brace them and hold them into position. On the other hand however, it is additionally used to guide and fasten the heating and/or cooling hoses 90 between the peaks of the protruding grid 30'. Thereby, a particularly simple laying and fastening of these hoses 90 to the second supporting body is possible before the inner plaster 61 is applied. In principle, it is naturally possible in addition or as an alternative to apply heating and/or cooling hoses in the outer plaster 61' in a similar manner. Between the inner cladding CI' and the insulation layer 20, in turn, a water-vapour-permeable film 70 is applied. Naturally, also here, electrical lines can be laid in the insulation layer 20, which is, however, not shown here for the sake of clarity. Due to the inner cladding CI' with a second supporting body 10', the shown wall structure W3 has an increased load-bearing capacity and stability, which, however, is also still principally increased by means of encasing three-dimensional metal wire grids into the supporting bodies 10, 10' with foam. At the same time, the heat and noise insulation of the structure W3 is increased and a higher level of radiation protection is achieved by means of doubling the wave-shaped grids 30, 30'.

[0038] Figure 3B shows a spatial representation of the wall structure W3 in

Figure 3A. From this, the basic construction of the structure according to the invention is evident, which is accommodated between the outer and inner cladding CE', CI'. Thereby, the inner cladding CI' comprises the second supporting body 10' and an inner plaster layer 61. Between the inner cladding CI' and the insulation layer 20, the water-vapour-permeable film 70 is applied. Also, the spatial representation of the structure W3 illustrates the simple and compact construction of the building wall according to the invention, which is extremely stable and robust, and impermeable to radiation at the same time, as well as being heat and noise insulating. Such a wall can be configured according to requirements, be manufactured in a fully automated manner and be installed on-site.

[0039] Figure 4A shows a spatial representation of an additional three-dimensional metal wire grid 31, 31' to hold the heating and/or cooling hoses 90. The grid 31, 31' consists of two level grids 32, 32' and 34, 34', between which a three-dimensional wave-shaped grid 33, 33' is applied. The extremely stable construction arising from this can be embedded into an inner or outer cladding CI', CE' of the wall construction according to the invention and be used to additional stabilise it. In particular however, heating and/or cooling hoses can be accommodated into the ducts of the grid 31, 31', and then already before applying the grid 31, 31' into the claddings CI', CE'. Thereby, a particularly simple laying of the hoses is possible.

[0040] Figure 4B shows a spatial representation of a first or second wave-shaped metal wire grid 30, 30' for embedding into the first or second supporting body 10, 10'. Thereby, the wave trough 30, 30' of the grid is encased into the surface of the supporting body 10, 10' with foam while the peaks stick out from it and grip into a plaster or motor layer to be applied. Here, the mesh size of the grid is 12.7 mm. Figure 5A shows a lateral view of a first or second supporting body 10, 10' with the grids 30, 30' and 31, 31' in Figure 4; The grids 30, 30' are encased into the supporting bodies 10, 10' with foam at a depth of 6 mm and connected to the three-dimensional grid 31, 31' on their upper side. In the ducts of the grid 31, 31', heating and/or cooling hoses can be laid before the grids 31, 31' are embedded

into the cladding. In the case of correspondingly dimensioning the grids 30, 30' however, laying the hoses between the peaks of the grids 30, 30' and holding them by means of the grids 31, 31' is conceivable, which are led away via the peaks.

[0041] Figure 5B shows a front view of the first and second supporting body 10, 10' in Figure 5A. Thereby, is evident that the heating and/or cooling hoses can also be laid in a direction that runs perpendicular to the ducts in Figure 5A so that a continuous good hold of the hoses results in all directions.

[0042] Figure 6 shows a top view of the grids 30, 30<'> and 31, 31 in Figure 5, from which the continuously identical mesh size of the joint grid structure results. This only requires a continuously identical fastening element, which enters the grids 30, 30' (or additionally the grids 31, 31') and the supporting bodies 10, 10' in order to fasten the supporting elements to the supporting body 10, 10'. The figure also illustrates that such a grid structure is particularly well suited to act in a stabilising and heat conductive manner to the same extent as well as block undesired electromagnetic radiation. In particular, the wall elements with the structure according to the invention are connected with each other in such a way that a Faraday cage results, which protects an interior of a building against radiation, lightning strikes or the like.

[0043] In particular, it is also conceivable to apply a multiple layering of the basic construction to further improve the performance of the wall structure according to the invention, meaning a multiple stringing together of supporting bodies with metal wire grids as well as insulation layers, which are each connected to each other vial fastening elements. Corresponding layers are dependent on the specific requirements of a wall structure for buildings and are at the discretion of the person skilled in the art.

PATENTKRAV

1. Præfabrikeret vægelement (W1; W2; W3) til en bygning, med et første pladeformet støttelegeme (10) af et massivt skummateriale, hvis mod bygningens indre (I) vendende overflade grænser op til et isolationslag (20), og med første fastgørelseselementer (40), som griber gennem det første pladeformede støttelegeme (10) med henblik på fastgørelse af støtteelementer (50), mellem hvilke isolationslaget (20) fastholdes, **kendetegnet ved, at** byggeelementet desuden omfatter et første med bølgeform dannet metaltråd-gitter (30), som i det mindste delvist er indlejret i en mod bygningens yderside (E) vendende overflade af det første støttelegeme (10), hvorved maskevidden i det første med bølgeform dannede metaltråd-gitter (30) ligger mellem 5 mm og 30 mm, fortrinsvis er cirka 10 mm, hvorved de første fastgørelseselementer griber gennem det første med bølgeform dannede metaltråd-gitter (30), og hvorved det præfabrikerede vægelement omfatter et yderligere, tredimensionalt metaltråd-gitter (31) til modtagelse af varme- og/eller køleslanger (90), hvilket gitter strækker sig over det første med bølgeform dannede metaltråd-gitters (30) bølgerygge.

2. Præfabrikeret vægelement ifølge krav 1, med en indvendig beklædning (CI), som grænser op til en mod bygningens indre (I) vendende overflade af isolationslaget (20), og med andet fastgørelseselementer (40'), som griber gennem den indvendige beklædning (CI) med henblik på at fastgøre denne til støtteelementerne (50), hvorved den indvendige beklædning (CI) fortrinsvis omfatter gipskartonplader (60).

3. Præfabrikeret vægelement ifølge krav 2, hvorved den indvendige beklædning (CI) omfatter et andet pladeformet støttelegeme (10') af et massivt skummateriale, som er anbragt grænsende op til isolationslaget (20), hvorved den indvendige beklædning (CI) omfatter et andet med bølgeform dannet metaltråd-gitter (30'), som i det mindste delvist er indlejret i en mod bygningens indre (I) vendende overflade af det andet støttelegeme (10'), hvorved maskevidden for det andet med bølgeform dannede metaltråd-gitter (30') ligger mellem 5 mm og 30 mm, fortrinsvis er cirka 10 mm.

4. Præfabrikeret vægelement ifølge et hvilket som helst af de foregående krav, **kendetegnet ved, at** et første og/eller andet med bølgeform dannet metaltråd-gitter (30, 30') i det mindste delvist er indskummet i det første og/eller det andet støttelegeme (10, 10').

5. Præfabrikeret vægelement ifølge et hvilket som helst af de foregående krav, med en udvendig beklædning (CE), som grænser op til en mod bygningens ydre (E) vendende overflade af det første støttelag (10), hvorved den udvendige beklædning omfatter pynteplader eller en skalmuring.

6. Præfabrikeret vægelement ifølge et hvilket som helst af de foregående krav, med et ekstra tredimensionalt metaltråd-gitter (31'), som strækker sig hen over bølgeryggene på det andet med bølgeform dannede metaltråd-gitter (30'), og i hvilket der kan fastholdes varme- eller kølerør (90).

7. Præfabrikeret vægelement ifølge et hvilket som helst af de foregående krav, i hvilket første og/eller andet fastgørelseselementer (40, 40') består af en respektiv skrue-vederlag-kombination (41, 42).

8. Præfabrikeret vægelement ifølge krav 7, hvorved hovedet på en respektiv skrue (41) kan dækkes med en plasthætte (44) og/eller omfatter en underlagsskive (43) af et plastmateriale.

9. Præfabrikeret vægelement ifølge et hvilket som helst af kravene 7 til 8, hvorved et respektivt støtteelement og vederlag-kombination (50, 42) er således udformet og dimensioneret, at en skrue (41), der er skruet ind i vederlaget (42), ikke kommer i kontakt med støtteelementet (50).

10. Præfabrikeret vægelement ifølge et hvilket som helst af de foregående krav, med varme- og/eller køleslanger (90), der er lagt i den indvendige og/eller udvendige beklædning (CI, CE).

11. Præfabrikeret vægelement ifølge krav 10, hvorved varme- og/eller køleslangerne (90) i det væsentlige strækker sig mellem bølgeryggene i det første

og/eller andet med bølgeform dannede metaltråd-gitter (30, 30'), som rager ud over den respektive overflade af det første og/eller andet støttelegeme (10, 10').

12. Præfabrikeret vægelement ifølge krav 10, hvorved varme- og/eller køleslangerne (90) fastholdes i det respektive yderligere tredimensionale metaltråd-gitter (31, 31'), som strækker sig hen over bølgeryggene i det første og/eller andet metaltråd-gitter (30, 30').

13. Bygning med præfabrikeret vægelement ifølge et hvilket som helst af de foregående krav, hvilke vægelementer er anbragt og forbundet til hinanden på en sådan måde, at deres første og/eller andet metaltråd-gitter (30, 30') deri danner et Faraday-bur.