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(54) **Partition wall for integrating with concrete floor**

Im Betonboden zu integrierende Trennwand

Cloison à intégrer dans un sol en béton

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(56) References cited:
CA-A- 2 432 245 **NL-A- 8 603 201**
US-A- 3 195 698

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Description

OBJECT OF THE INVENTION

[0001] The object of the present invention is a partition assembly for constructing partitions with siding boards, in which the material of the siding boards may be wood, layered plaster or any material used as siding. When building partitions using siding boards it is necessary, before placing the siding boards, to place a frame made from metal profiles that configures the support for said boards. Such a partition assembly is known for example from CA-A-2 432245.

[0002] The profiles used to construct the partition assembly according to the invention are identical to those hitherto used, except for one which has special and different constructive characteristics.

[0003] The present invention is characterised by the special constructive configuration of the partition assembly, from which are derived advantages for assembling the partition frame and for the various installations, implying savings in labour costs of up to twenty per cent.

[0004] Therefore, the present invention lies within the field of partition assemblies used to build the frame of partitions made with siding boards.

[0005] The layered plaster boards used to make the partitions consist of a plaster core coated with two layers of special multiple sheet cellulose, and are available as boards of different thickness.

BACKGROUND OF THE INVENTION

[0006] Hitherto, the construction of partitions with siding boards required setting out the frame or structure that supports said boards prior to any other work.

[0007] The setting out begins from the ceiling, placing the metal profiles on which the vertical posts will be placed later. After said profiles are attached to the ceiling, the various trades may begin their installation work by turns, albeit only partially.

[0008] For example, after the partitions are set out on the ceiling the electricians may begin to lay out corrugated tubes, trays and the like, and to attach distribution boxes, using as a guide the profiles attached to the ceiling. Tubes leave from the distribution boxes to the approximate areas where electrical sockets, data connectors or switches will be placed, all of these only in an approximate position.

[0009] A similar situation occurs with the remaining trades, such as plumbers. Not all trades can work simultaneously, nor finish their installations completely. After the tubes and the like are first set in place the vertical posts are installed, placing only one of the partition sides so that the trades may continue their work; finally, the partition installers must place the siding boards and the various trades must finish their installations.

[0010] It is therefore necessary to coordinate the partition installers and the various trades, as they must al-

ternate.

[0011] The partition assembly disposed herein intends to avoid all of the aforementioned drawbacks, and more specifically to:

- Improve the setting out of the partitions by constructing the entire frame of the partitions at once, instead of in several stages;
- Prevent having to coordinate the work of the partition installers and the installers of the various trades;
- Allow the installers of the various trades to perform almost all of their work at one time, except for the final touches;
- Allow the installers of the various trades to perform their installations in a much more accurate manner, leaving the connection points at their exact location instead of at an approximate one;
- Allow the installers of the various trades to operate simultaneously instead of consecutively.

[0012] The partition assembly of the invention in which many of the bottom profiles are raised to act as guides for the various installations, allows solving several drawbacks. Specifically:

- Difficulties related to the even arrangement, with a constant spacing, of the vertical posts on the raised profiles.
- Difficulties related to attaching the profiles to the mortar or concrete poured on the floor slab.
- Difficulties related to making orifices in the base of the raised profile in order to pass through it several ducts for the various installations.
- Difficulties related to attaching the profiles to each other, especially attaching the raised profile to the vertical posts resting on the floor.

[0013] It is known from the State of the Art, the existence of partitions assemblies for construction of partitions walls as the ones described in US 3195698 and NL-8603201. In US 3195698 is disclosed a partition wall construction of random type which is distinguished by placing on the floor of duct-like parts in accordance with the previously determined pattern of division, lying of lines of various types in these duct-like parts and on the rough floor of a finishing layer. The duct-like parts serve as a basis for the partition walls to be placed on them. The upper surfaces of the elements are provided with markings, such as the peripheral edge or a relief, such that the markings on the elements together form a matrix.

[0014] In US 3195698 it is disclosed a procedure for construction partition walls wherein the partitions walls is based on the use of hollow base members, hollow corner posts and hollow door jambs. As it is stated in the description the partitions walls seeks to provide structures which are in low cost, simple and sturdy construction, it also allows to fabricate any desired type of inside construction, wherein additionally the structural elements

serves to several functions.

DESCRIPTION OF THE INVENTION

[0015] The object of the invention relates to one of the profiles used to form the frame of the partition assembly, as the remaining profiles used are identical to those known currently, although their arrangement and attachment are not.

[0016] The profile is used in a core for partitions, wherein said core comprises a support profile attached to the floor slab on which a vertical profile rests and is attached that reaches the ceiling and is attached to the ceiling by a similar profile.

[0017] The vertical posts are arranged strategically, for example at panel changes or in very long segments.

[0018] Between said vertical profiles that rest on the floor are attached raised profiles separated from the floor slab by a distance equal to the depth of the mortar or concrete that will be poured later.

[0019] The vertical posts are placed on the raised profile with an even spacing and are attached to said raised profile.

[0020] The fact that said profile is raised from the floor slab allows the various trades to lay out their ducts on the floor, making them jut out through the base of the raised profiles. These ducts will be covered when the mortar or concrete is poured.

[0021] The procedure for assembling the partition with a plaster board using the profile will consist of the following stages:

- Setting out the cleared frame of the partition walls on the floor;
- Laying out and attaching the attachment profiles to the floor;
- Attaching the vertical profiles from the floor to the ceiling; these vertical profiles will be attached at strategic points;
- Laying out and attaching the raised support profiles placed between two end vertical profiles; these support profiles will be placed at a height equivalent to the height of the mortar, so that the profiles will rest on the mortar or cement and can be accessed from the top;
- Laying out and attaching to raised profiles the vertical posts; the vertical posts will be evenly spaced.

[0022] Then, to continue mounting the installations, the following is carried out:

- Laying out and attaching the ducts of all the installations on the floor: electrical, communications, heating, etc.;
- Passing the ducts through the orifices made on the base of the raised profile;
- Pouring the mortar or concrete to a height such that the raised support profile rests on the concrete, so

that all ducts are immersed in the mortar;

[0023] The construction procedure for partition frames described above provides a number of advantages:

- The setting out of the partitions is much easier as it is performed directly on the floor
- Installers can lay out their ducts faster, more easily and with greater security regarding the location of the connection points;
- After the installation has been set out the installers can work simultaneously;
- The installers can leave the installations ready except for the final touches;
- 20% saving in the labour cost of constructing the partitions with siding boards;
- Similar 20% savings in the labour costs of trade installers;
- It is not necessary to plan a sequence of work for the installers and siding board mounters, so that the execution time of the work is substantially reduced.

[0024] The profile of the invention that corresponds to the raised profile, as may be seen in the example of a preferred embodiment, will be provided with means of attachment to the mortar or concrete directly incorporated in the profile, not requiring the use of attachment means such as screws or the like.

[0025] It will also be provided with orifices made in said profile arranged in a regular manner to allow passage of the ducts, as well as to know the exact position in which said ducts pass.

[0026] It is also provided with means for regular arrangement and attachment of the vertical posts on the raised profile.

[0027] The following advantages are obtained as a result of said constructive characteristics:

- A faster mounting in a regular manner and attachment of the vertical posts on the raised profile object of the invention.
- A faster passage of the installation ducts through the base of the profiles.
- A faster attachment of the raised profiles to the mortar or concrete.

DESCRIPTION OF THE DRAWINGS

[0028] To complete the description being made and in order to aid a better understanding of its characteristics, the present description is accompanied by a set of drawings with figures where, for purposes of illustration only and in a non-limiting manner, the most significant details of the invention are shown.

Figure 1 shows a perspective view of the frame of the partitions made with siding boards, as well as the profile object of the invention.

Figure 2 shows an enlarged view of the union of the profile object of the invention to the vertical profiles that rest on the floor.

PREFERRED EMBODIMENT OF THE INVENTION

[0029] A preferred embodiment of the invention disclosed is described below with reference to the figures.

[0030] Figure 1 shows the parts and elements forming the frame of the partition made with siding boards, with a different arrangement of the profiles than is commonly used, as well as a different manner in which said partition frame is used and engaged in relation to the assembly of the partition and the remaining installations.

[0031] The frame made with conventional profiles has bottom supporting profiles (1) that rest on the floor slab on which are disposed vertical profiles (3) attached to the former profiles and therefore resting on the floor slab and reaching the ceiling, where they are attached to other profiles similar to those on the floor.

[0032] The vertical profiles (3) resting on the floor are placed at strategic places, such as in wall changes or in long segments. Between every two vertical profiles (3) a raised profile (2) is set placed at a distance (12) from the floor slab.

[0033] The manners in which the raised profiles (2) are attached to the vertical profiles (3) may be various, such as with a flat L-plate (5) that is attached by screws (6) to the flanges of both profiles.

[0034] Attached to the inside of the raised profiles (2) at regular intervals are the profiles that act as vertical posts (4).

[0035] To achieve the regular disposition of the vertical post (4) on the raised profile (2), the latter is provided with tabs (8) obtained when making the windows (7). Said windows and tabs (8) are evenly spaced, so that there is a fixed distance between them, and act as a stop in the assembly of the vertical profiles (3). Therefore, the installer will not have to measure distances; once the distance at which the vertical posts must be placed it is enough to count the number of windows present between two vertical profiles (3).

[0036] The windows (7) also help to attach the vertical posts (4) to the raised profiles (2), as an attachment screw is passed through them without requiring any further work.

[0037] In addition, and in order to favour the passage of the ducts through the base of the profile, on said base are also evenly spaced orifices or openings (14) of any shape and size, provided they do not weaken the profile or damage the ducts. The even spacing of these orifices helps the installers know the exact location of the duct connections.

[0038] Another constructive aspect of said profiles is the presence of tabs (13) that emerge from the base of the profile, which are obtained by making three parallel cuts, two end cuts (9) and a central cut (8) aligned by a cut (11) on one of its ends; thus, when the raised profile

(2) is mounted the tabs (13) will be flexed so that after the concrete or mortar is poured said tabs (13) will be embedded in the concrete and secure the attachment of the raised profile to the concrete without requiring any additional attachment means.

[0039] Figure 2 shows a means of attaching said raised profiles (2) to the vertical profiles (3) joined to the ceiling, wherein the profiles (2) are provided on the upper edge of the flanges with a fold (15) forming a recess in which one of the flanges of the plate (5) is housed, acting as a support for the raised profile (2) so that it only requires attachment to the vertical profile (3) that rests on the floor.

[0040] The materials used for the siding boards can range from wood to layered plaster or mould plaster, or any material used to manufacture siding boards with similar functions.

Claims

1. Partition assembly used for construction of partitions with siding boards said partition assembly comprising :

- bottom support profiles (1) attachable to a floor slab
- vertical profiles (3) attached to the bottom support profiles (1); these vertical profiles (3) being attachable to a ceiling
- **characterised in that** said partition assembly further comprises:
 - raised profiles (2) placed raised over said floor and attached between two vertical profiles (3)
 - vertical posts (4) placed on the raised profiles (2) in an evenly spaced manner wherein

the raised profiles (2) are provided with:

- orifices or openings (14) made in the base of the profile and evenly spaced from each other to allow passage of the installation ducts
- means for an even arrangement of the vertical posts (4) and for attaching them to the raised profile (2)
- means incorporated in the raised profile (2) itself for attaching the raised profile (2) to concrete or mortar.

2. Partition assembly according to claim 1, **characterised in that** the means for an even arrangement and attachment of the vertical posts (3) to the raised profile (2) consist of windows (7) and tabs (8) disposed inwardly to the profile obtained when making the windows (7), which also allow to attach the vertical posts (3) to the raised profiles (2), as an attachment screw is passed through them, without requiring any additional tasks.

3. Partition assembly according to claim 1 or 2, **characterised in that** the means for attaching the raised profile (2) to the concrete or mortar consist of tabs (13) that emerge from the base of the profile, obtained when making three parallel cuts on the base of the raised profile (2), two end cuts (9) and one central cut (8) aligned by a cut (11) on one of their ends, so that when the raised profile (2) is set in place the tabs (13) will be flexed so that after the concrete or concrete is poured said tabs (13) will be embedded in the concrete and secure the attachment of the raised profile to the concrete without requiring any additional attachment means.
4. Partition assembly according to claim 1 or 2 or 3 **characterised in that** to attach the ends of the raised profile (2) to the vertical profiles (3) resting on the floor slab, flat L-plates are used attached by screws to the flanges of both profiles.
5. Partition assembly according to claim 1 or 2 or 3 or 4 **characterised in that** to join the raised profiles (2) to the vertical profiles (3), a fold (15) is made on the upper edge of the flanges of the raised profile (2) that forms a recess (16) in which one of the flanges of an L-plate (5) is housed, requiring only to attach the L-plate (5) to the vertical profile (3) that rests on the floor.
6. Partition assembly according to any of the previous claims **characterised in that** it further includes siding boards made of layered plaster.
7. Partition assembly according to any of the previous claims **characterised in that** it further includes siding boards made of wood.

Patentansprüche

1. Trennwandaufbau, verwendet für die Konstruktion von Trennwänden mit Verkleidungsbrettern, **dadurch gekennzeichnet, dass** der Trennwandaufbau umfasst:
 - untere Stützprofile (1), die an eine Bodenplatte befestigt werden können
 - vertikale Profile (3),- befestigt an die unteren Stützprofile (1); wobei diese vertikalen Profile (3) an eine Decke befestigt werden können
 der Trennwandaufbau umfasst weiter:
 - erhöhte Profile (2), die über dem Boden erhöht angebracht und zwischen zwei vertikalen Profilen (3) befestigt sind
 - vertikale Pfosten (4), die auf den erhöhten Profilen (2) auf eine gleichmäßig beabstandete

Weise angebracht sind, wobei

die erhöhten Profile (2) ausgestattet sind mit:

- Löchern oder Öffnungen (14), die in der Basis des Profils ausgeführt sind und gleichmäßig voneinander beabstandet sind, um die Durchführung von Installationsrohren zu ermöglichen
 - Mittel für eine gleichmäßige Anordnung der vertikalen Pfosten (4) und für ihre Befestigung an das erhöhte Profil (2)
 - Mittel, die in das erhöhte Profil (2) selbst eingebaut sind, um das erhöhte Profil (2) an Beton oder Mörtel zu befestigen
2. Trennwandaufbau nach Anspruch 1, **dadurch gekennzeichnet, dass** die Mittel für eine gleichmäßige Anordnung und Befestigung der vertikalen Pfosten (3) an das erhöhte Profil (2) aus Aussparungen (7) und Laschen (8) bestehen, die im Innern des Profils angebracht sind und erhalten werden, wenn die Aussparungen (7) durchgeführt werden, die es auch ermöglichen, die vertikalen Pfosten (3) an die erhöhten Profile (2) zu befestigen, wenn eine Befestigungsschraube durch sie durchgeführt wird, ohne dass zusätzliche Arbeiten erforderlich sind.
 3. Trennwandaufbau nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Mittel für die Befestigung der erhöhten Profile (2) an den Beton oder Mörtel aus Laschen (13) bestehen, die aus der Basis des Profils hervortreten, die erhalten werden, wenn drei parallele Schnitte auf der Basis des erhöhten Profils (2) durchgeführt werden, zwei Endschnitte (9) und ein mittlerer Schnitt (10), ausgerichtet durch einen Schnitt (11) an einem ihrer Enden, so dass, wenn das erhöhte Profil (2) angebracht ist, die Laschen (13) festgestellt werden, so dass, nachdem der Beton oder der Mörtel gegossen ist, die Laschen (13) im Beton eingebettet sind und die Befestigung des erhöhten Profils an den Beton sicherstellen, ohne weitere Befestigungsmittel zu erfordern.
 4. Trennwandaufbau nach Anspruch 1 oder 2 oder 3, **dadurch gekennzeichnet, dass** zur Befestigung der Enden des erhöhten Profils (2) an die vertikalen Profile (3), die auf der Bodenplatte ruhen, flache L-Platten verwendet werden, die durch Schrauben an die Flansche beider Profile befestigt sind.
 5. Trennwandaufbau nach Anspruch 1 oder 2 oder 3 oder 4, **dadurch gekennzeichnet, dass**, um die erhöhten Profile (2) mit den vertikalen Profilen (3) zu verbinden, auf der oberen Kante der Flansche des erhöhten Profils (2) ein Falz (15) durchgeführt wird, der eine Vertiefung (16) bildet, in der einer der Flansche einer L-Platte (5) untergebracht wird, wodurch es nur erforderlich ist, die L-Platte (5) an das vertikale

Profil (2), das auf dem Boden ruht, zu befestigen.

6. Trennwandaufbau nach jedem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** er weiter Verkleidungsbretter einschließt, die aus geschichtetem Putz hergestellt sind. 5
7. Trennwandaufbau nach jedem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** er weiter Verkleidungsbretter einschließt, die aus Holz hergestellt sind. 10

Revendications

1. Ensemble de parois de séparation utilisées pour la construction de murs en plaques coulissantes, **caractérisé par** :
 - des profils de supports inférieurs (1) assemblés à une dalle de sol 20
 - profils verticaux (3) assemblés aux profils de support inférieur (1); ces profils verticaux (3) pouvant être assemblés au toit, cet ensemble de parois de séparation pouvant comprendre par ailleurs : 25
 - des profils en relief (2) installés en rehausse sur ce sol et assemblés entre des profils verticaux (3) 30
 - supports verticaux (4) installés sur les profils en relief (2) de manière uniformément espacée où les profils en relief (2) sont dotés de : 35
 - orifices ou ouvertures (14) réalisés à la base du profil et uniformément espacés entre eux afin de permettre le passage des conduits d'installation 40
 - dispositifs destinés à une disposition uniforme des supports verticaux (4) et pour les assembler au profil en relief (2) 45
 - dispositifs intégrés dans le profil en relief (2) pour assembler le profil en relief (2) à du béton ou du mortier 45
2. Ensemble de parois de séparation, selon la revendication 1, **caractérisé par le fait que** les dispositifs destinés à obtenir une disposition uniforme et un assemblage des supports verticaux (3) au profil en relief (2) consistent en des fenêtres (7) et des appendices (8) disposés vers l'intérieur du profil obtenus lorsque sont fabriquées les fenêtres (7), qui permettent également d'assembler les supports verticaux (3) aux profils en relief (2), en faisant passer à travers une vis d'union, sans autre action nécessaire. 50
3. Ensemble de parois de séparation selon revendica- 55

tion 1 ou 2, **caractérisé par le fait que** les dispositifs destinés à assembler le profil en relief (2) au béton ou au mortier consistent en des appendices (3) qui ressortent de la base du profil, obtenus par l'exécution de trois rainures parallèles sur la base du profil, en relief (2), deux rainures aux extrémités (9) et une rainure centrale (8) alignées par une rainure (11) à l'une des extrémités, de sorte que quand le profil en relief (2) est placé sur les appendices (3), il sera fléchi, de manière à ce que lorsque le béton est versé, ces appendices (13) restent ancrés dans le béton et fixent l'assemblage du profil en relief au béton sans besoin d'autre dispositif d'assemblage.

4. Ensemble de parois de séparation selon revendication 1, 2 ou 3 **caractérisé par le fait que** pour assembler les extrémités du profil en relief (2) aux profils verticaux (3), qui s'appuient sur la petite dalle de revêtement du sol, on utilise des plaques en L plates assemblées par des vis aux brides des deux profils. 15
5. Ensemble de parois de séparation selon revendication 1, 2, 3 ou 4 **caractérisé par le fait que** pour assembler les profils en relief (2) aux profils verticaux (3), on réalise un pli (15) sur le bord supérieur des brides du profil en relief (2) formant une feuillure (16) dans laquelle est logée l'une des brides d'une plaque en L (5), qui n'a plus qu'à assembler la plaque en L (5) au profil vertical (3) s'appuyant sur le sol. 20
6. Ensemble de parois de séparation conformément à quelque revendication précédente que ce soit, **caractérisé par le fait qu'il** comprend, en plus, des plaques coulissantes fabriquées en plâtre en couches 25
7. Ensemble de parois de séparation conformément à quelque revendication précédente que ce soit, **caractérisé par le fait qu'il** comprend, en plus, des plaques coulissantes fabriquées en bois. 30

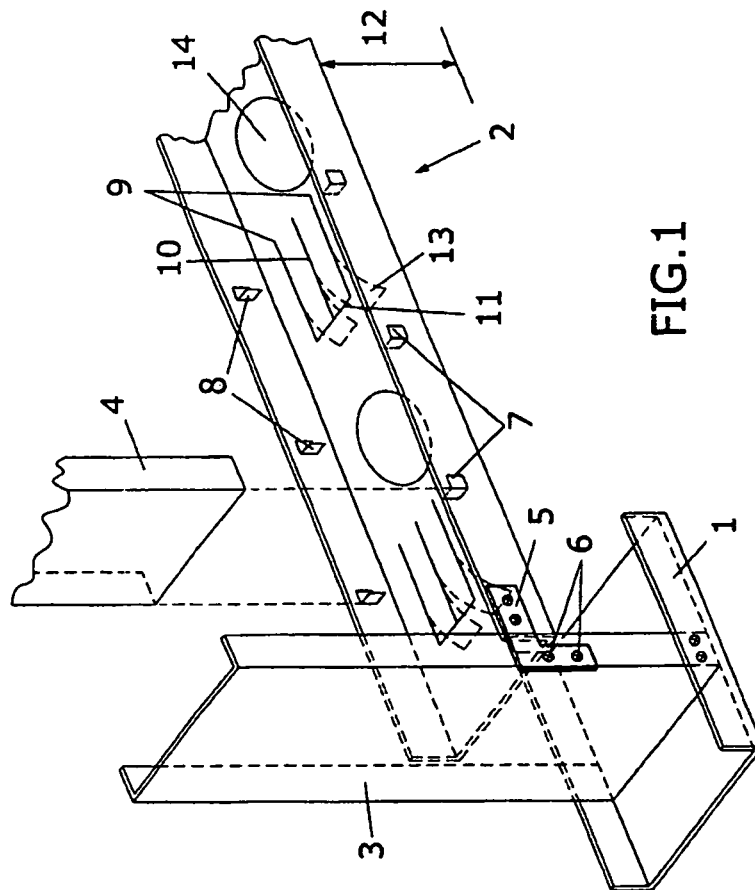


FIG. 1

