

A PARTITION WALL UNIT

FIELD OF THE INVENTION

This invention relates to a partition wall unit suitable for use in new or pre-existing constructions.

BACKGROUND OF THE INVENTION AND PRIOR ART

In the construction of a house or building, a lot of planning is required from the design to detail planning of the utility points such as water taps, electrical points and cable points. The duration of the construction project will depend on the time spent on planning since the construction work can only start after the planning is completed, checked and approved by the relevant authorities.

During the planning stage, the location and requirements for utility points such as water taps, electrical points, cable points or any other amenities have to be determined early. This is to allow for the planning of the layout of the utility lines such as water pipes, electrical and other cables. The need for such early planning is essential because it is aesthetically desirous to have these utility lines hidden away in the walls.

During the construction stage, the partition walls of the building or house are constructed first. Once a complete partition wall is constructed, the utility lines for example the water pipes, electrical cables and other cables are laid out. These utility lines are then boxed-up to hide the utility lines, which are hardly a pleasant sight. In another method of construction, grooves are hacked into a completed partition wall, and the utility lines are then positioned therein. The grooves are then patched up. In this method, extensive hacking is required and is a very tedious process. More importantly, as the completed

partition wall is no longer of a single piece construction, it is therefore susceptible to cracks.

5 After completion of the housing or building project, if the owner has a different preference to the location of the utility points, changes will be a hassle. It will be costly and inconvenient to hack the wall to change the layout and rebuild it. Further, this will cause a delay in the completion of the construction.

10 In an alternative to hide the unsightly lines, other structures such as false walls, cabinets are built. This inevitably increases the total cost of construction. Further cabinets are not as tolerant to wear as concrete, hence the cabinets need to be replaced after a short period of usage.

15 SUMMARY OF THE INVENTION

The present invention relates to a partition wall unit for receiving utility lines, said partition wall formed in addition to a pre-existing wall of a construction, said partition wall unit formed by at least a first panel, said first panel having a first surface and a second surface, said second surface having at least a protrusion extending from a region of said second surface, wherein the partition wall unit further includes an attachment means to attach said first panel to a further surface, said protrusion allowing the second surface of the first panel to be positioned spaced apart from the further surface, and wherein the spacing thus formed therebetween said second surface of the panel and the further surface forms an enclosure to receive utility lines of a construction.

In a first embodiment, the further surface is a pre-existing wall of the construction.

30 In a preferred second embodiment, the further surface is a second panel, said first and second panel forming a partition wall unit having a spacing therebetween for the receipt of the utility lines.

In a variation of the second embodiment, the protrusion of the first panel is abutting the second surface of the second panel, and the protrusion of the second panel is abutting the second surface of the first panel, forming a spacing therebetween for the receipt of utility lines.

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Preferably, the protrusion of the first and second panels are abutting each other, forming a spacing therebetween for the receipt of utility lines.

Still preferably, the protrusion further includes a resilient material, where in use, the resilient material of the protrusion of the first and second panels are abutting each other so that the protrusion is protected from wear and tear.

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In an embodiment, the resilient material is a compressive rubber.

According to a fourth embodiment of the present invention, the attachment means to attach said first panel to said second panel is releasable.

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Preferably, the releasable attachment means is a bolt and a nut, where in use, the bolt and nut may be adjusted to alter the compressive force acting upon the compressive rubber to affect the spacing therebetween said first and second panel.

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In an embodiment, the panel further includes a second attachment means, to releasably attach a first partition wall unit to a further partition wall unit.

Preferably, the partition wall units are placed lengthwise, one adjacent to another, to form a partition wall of a desired length of a user.

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Still preferably, the second attachment means releasably attaches the first partition wall unit to a further lengthwise partition wall unit to form a partition wall of a desired length of a user.

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In a preferred embodiment, the second attachment means is a link plate and a retaining means, the link plate positioned across the first partition wall unit and the further partition

wall unit so that they are adjacently aligned with respect to each other, and the retaining means to retaining the link plate to maintain an alignment between the first and further partition wall unit.

- 5 Preferably, the link plate and the retaining means is a plate and a bolt.

Preferably, the first and further partition wall unit has a recess dimensioned to receive the link plate.

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DESCRIPTION OF FIGURES

In order that the invention might be more fully understood, embodiments of the invention will be described by way of example only, with reference to the accompanying drawings, in which:

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Figure 1A shows a first embodiment of the present invention;

Figure 1B shows a side elevation of a first embodiment of the present invention;

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Figure 2A shows a second embodiment of the present invention;

Figure 2B shows a side elevation of a second embodiment of the present invention;

- 25 Figure 2C shows a plan view of a variation of the second embodiment of the present invention;

Figure 3 shows a side elevation of a third embodiment of the present invention;

- 30 Figure 4 shows a fourth embodiment of the present invention;

Figure 5 shows a fifth embodiment of the present invention;

Figure 6 shows an embodiment of a partition wall using the partition wall unit of the present invention;

5 Figure 7 shows another embodiment of the partition wall using the partition wall unit of another embodiment;

Figure 8A shows a plan view of the profiled edge of the panel; and

10 Figure 8B shows a plan view of the profiled edge of the first and second panel when placed adjacent to each other.

Figure 9 shows an embodiment of a linking plate used in an arrangement of an embodiment of the partition wall.

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The attached drawings are not necessarily drawn to scale.

20 DETAILED DESCRIPTION OF THE INVENTION

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Reference will now be made in detail to the preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. The preferred embodiments of the invention are not intended to limit the invention in its broadest aspect to these embodiments. On the contrary, the invention is intended to cover
25 alternatives, modifications and equivalents, which may be included within the spirit and scope of the invention as defined by the appended claims. Furthermore, in the following detailed description of the embodiments, numerous specific details are set forth in order to provide an understanding of the present embodiments.

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The present invention relates to a partition wall unit 100 for receiving utility lines in a pre-existing wall of a construction.

Figure 1A shows a first embodiment of the partition wall unit of the present invention, and includes a first panel 10 having a first surface 11 and a second surface 12. The second surface 12 has a protrusion 14 extending from a region of the second surface 12. When the partition wall 100 is formed, the first panel 10 is positioned such that the protrusion 14 contacts a further surface 20, shown in the present first embodiment to be a pre-existing wall of the construction 21. The protrusion 14 causes the first panel 10 to be spaced in relation to the pre-existing wall. The spacing 30 thus formed therebetween forms an enclosure to receive utility lines of a construction. To maintain the position of the first panel 10 to the pre-existing wall 21, the partition wall unit 100 further includes an attachment means 40 (not shown in the figures), to releasably attach the first panel 10 to the pre-existing wall 21.

A partition wall unit thus formed enables ease in removal of the panel, so that any change in the layout of the utility lines or any subsequent maintenance or repair works may be easily managed, and there will be no need to hack open the pre-existing wall should a change in layout of the utility lines or any subsequent maintenance or repair works be desired. A user needs only to detach the first panel 10 from the pre-existing wall 21, to expose the utility lines for any change of layout or any subsequent maintenance or repair works to be carried out. Once the work is completed, the first panel 10 is re-attached to the pre-existing wall 21.

Figure 1B shows the side elevation of the partition wall unit 100 formed above.

Figure 2A shows a second embodiment of the partition wall unit 100 of the present invention. In this second embodiment, the further surface 20 is a second panel 22. The second panel 22 as seen in Figure 2A, has a first surface 23, and a second surface 24, and a protrusion 25 extending from a region of the second surface 24. When in place, the protrusion 14, 25 of the first and second panels are placed abutting each other, forming a space 30 between the second surface of the first and second panel, for the receipt of utility lines. To maintain the position of the first panel 10 to the second panel 22, the partition wall unit 100 further includes an attachment means 40, to releasably attach the first panel 10 to the second panel 22.

Figure 2B shows the side elevation of the partition wall unit 100. The spacing 30 thus formed therebetween allows the receipt of utility lines.

Figure 2C shows a plan view of a variation of the second embodiment of the present invention. In this variation, the protrusion 14, 25 are not placed abutting each other. Rather, the protrusion 14 of the first panel 10 is abutting a second surface 24 of the second panel 22. The protrusion 25 of the second panel 22 abuts the second surface 12 of the first panel 10. The spacing formed therebetween 30 allows the receipt of utility lines. The first surface 11, 23 of the first and second panel form an aesthetically pleasing exterior.

As can be seen in Figures 1A, 1B, 2A, 2B and 2C, the partition wall unit 100 creates an aesthetically pleasing exterior wall surface. When utility line layouts need to be altered or otherwise changed, a user only needs to detach the first panel 10 from the further surface 20, and make the alterations or changes to the utility lines. Once the work is done, the first panel 10 may be placed back to form the aesthetically pleasing exterior wall surface. In this way, hacking of walls and wet works is no longer necessary, and the overall construction costs can be reduced.

In a third embodiment as shown in Figure 3, the first and second protrusions 14, 25, further include a resilient material or padding 50. When in use, and as seen in Figure 3, the resilient material 50 of the protrusions 14, 25 abut each other. The resilient material 50 is preferably compressible to advantageously allow finite adjustment of the resultant spacing between the first and second panel. This allows adjustment to be made, to attain a desired spacing therebetween, or to allow the first and/or second panels to conform to certain design constraints of a construction. Advantageously, the protrusions are also protected from any wear and tear as the resilient material 50 protects it. In this embodiment, the resilient material is a compressive rubber 51.

In the figures, all protrusions further include a resilient material or padding. However, it is to be understood that only one piece of resilient material is sufficient for one protrusion, to allow finite adjustment of the spacing therebetween.

The partition wall unit 100 further includes attachment means 40 to attach a first panel 10 to a further surface 20. As seen in Figure 4, the attachment means 40 is a bolt 41 and nut 42 combination that can easily be used to attach and detach the first panel 10 from the further surface 20, shown in Figure 4 as the second panel 22. The attachment means also allows the spacing between the first and second panels to be manipulated by a user adjusting the bolt and nut combination. In use, the bolt and nut may be adjusted to alter the compressive force acting upon the compressive rubber to affect the spacing therebetween said first and second panel.

In a preferred embodiment, the attachment means are provided at a plurality of positions, shown in Figure 5 as four positions, at the top left (16, 26), top right (17, 27), bottom left (18, 28) and bottom right (19, 29) of the first and second panel respectively. This configuration will ensure that the first and second panels are securely attached to each other.

At the positions provided at the first and second panels, the bolt and nut may be extended therethrough, to securely fasten the first and second panels.

According to another embodiment of the invention, as shown in Figure 6, there is provided a partition wall 200 formed to receive utility lines, the partition wall formed by placing a plurality of partition wall units 100 adjacent to each other to extend the effective length of the partition wall 200.

In another embodiment of the partition wall 200, the partition wall units 100 have at least one force transfer means 60 in the form of a link plate 61 and retaining means 63.

In Figure 7, the link plate 61 and retaining means 62 is a plate 63 and a bolt 64.

The force transfer means 60 allows the transfer of forces between a first partition wall unit, and an adjacent partition wall unit. This advantageously controls the differential movement between each individual partition wall units, which may cause cracks if this differential force is uncontrolled.

In an embodiment, the panel further includes a recess dimensioned to receive the link plate, so that when the linking plate is placed between the first and second partition wall units, the linking plate will be flushed with the exterior surface of the panel, so that it is more aesthetically pleasing. The recess may be further covered with grout or any other suitable material to achieve an aesthetic finish to the partition wall.

In a further embodiment, the peripheral edge 300 of each panel is profiled. Figure 8A shows a plan view of a first panel of a first wall unit, and Figure 8B shows a plan view of a first panel of a first wall unit, when placed to an adjacent panel of an adjacent wall unit. The profile of the panels is complementary, so that they may be joined to adjacent panels easily. The advantage of the profiled edge 300 is that when bonding material, for example grout or other cementitious material is introduced to bond the first and adjacent panels together, the profiled edge forms a convoluted passageway to deter the egress of the grout introduced therein, so that the panels may be bonded. It also adds to the stiffness of the eventual bonded joint. Further, the profiled edge also serves to function as a means to correctly align the first and adjacent panel together, to form an aligned wall.

In yet another embodiment as seen in Figure 9, the linking plate 61 is angled to allow the installation of partition wall units at a relative angle to the first partition wall unit 100. The angle of the linking plate 61 may be adjusted in accordance with the relative angle of each partition wall unit desired.

In a preferred embodiment, the partition wall unit is made of a durable material, for example, wood, plastics, concrete or ferrocement concrete.

CLAIMS:

1. A partition wall unit for receiving utility lines, said partition wall formed in addition to a pre-existing wall of a construction, said partition wall unit formed by
at least a first panel, said first panel having a first surface and a second surface, said second surface having at least a protrusion extending from a region of said second surface;
wherein the partition wall unit further includes an attachment means to attach said first panel to a further surface, said protrusion allowing the second surface of the first panel to be positioned spaced apart from the further surface;
wherein the spacing thus formed therebetween said second surface of the panel and the further surface forms an enclosure to receive utility lines of a construction; and
wherein the protrusion further includes a resilient material.
2. A partition wall unit for receiving utility lines according to claim 1, wherein the further surface is a pre-existing wall of the construction.
3. A partition wall unit for receiving utility lines according to claim 1, wherein the further surface is a second panel, said first and second panel forming a partition wall unit having a spacing therebetween for the receipt of the utility lines.
4. A partition wall unit for receiving utility lines according to any one of claims 1 or 3, where in place, the protrusion of the first panel is abutting the second surface of the second panel, and the protrusion of the second panel is abutting the second surface of the first panel, forming a spacing therebetween for the receipt of utility lines.
5. A partition wall unit for receiving utility lines according to any one of claims 1 or 3, wherein the protrusion of the first and second panels are abutting each other, forming a spacing therebetween for the receipt of utility lines.
6. A partition wall unit for receiving utility lines according to any one of the preceding claims, wherein the resilient material is a compressive rubber.

7. A partition wall unit for receiving utility lines according to any one of claims 1, 3 to 6, wherein the attachment means to attach said first panel to said second panel is releasable.
8. A partition wall unit for receiving utility lines according to any one of claims 1, 3 to 7, wherein the releasable attachment means is a bolt and a nut, where in use, the bolt and nut may be adjusted to alter the compressive force acting upon the compressive rubber to affect the spacing therebetween said first and second panel.
9. A partition wall unit for receiving utility lines according to any one of claims 1, 3 to 8, wherein the panel further includes a second attachment means, to releasably attach a first partition wall unit to a further partition wall unit.
10. A partition wall unit for receiving utility lines according to any one of claims 1, 3 to 9, wherein the partition wall units are placed lengthwise, one adjacent to another, to form a partition wall of a desired length of a user.
11. A partition wall formed to receive utility lines according to any one of claims 9 or 10, wherein the second attachment means releasably attaches the first partition wall unit to a further lengthwise partition wall unit to form a partition wall of a desired length of a user.
12. A partition wall formed to receive utility lines according to any one of claims 10 or 11 wherein the second attachment means is a link plate and a retaining means, the link plate positioned across the first partition wall unit and the further partition wall unit so that they are adjacently aligned with respect to each other, and the retaining means to retaining the link plate to maintain an alignment between the first and further partition wall unit.
13. A partition wall formed to receive utility lines according to claim 12, wherein the link plate and the retaining means is a plate and a bolt.

14. A partition wall formed to receive utility lines according to any one of claims 10 to 13, wherein the first and further partition wall unit has a recess dimensioned to receive the link plate.