

COVER FOR AN ACCESS APERTURE

This invention relates to a cover for an access aperture provided in a raised floor constructed of a plurality of floor panels, the access aperture allowing access to the space beneath the floor. Raised floors are commonly used to provide a void for accommodating electric cables and the like beneath the floor, the floor taking the form of a raised platform positioned above, for example, an existing floor slab. The apertures provide access to the void, and allow cables and the like to pass through the floor, to be connected to electrical devices in the room space.

Commonly, floor panels are square or rectangular, and include square or rectangular recesses provided in their edges, the recesses of adjacent panels being arranged to align, in use, to form square or rectangular access apertures. The recesses allow the floor panels to be handled easily. Floors constructed using such panels generally will include access apertures in some positions where there are no underlying cables or in which there is no requirement for the cables to pass through the floor. Covers have been designed for these apertures, each cover being shaped so as to fill one of the apertures, and to lie flush with the surface of the floor panels. The cover may be a metallic plate, a synthetic resin plate, or may be constructed of any other suitable material. Covers of this type which do not allow cables to pass through the access apertures from the space beneath the floor to the room above, herein referred to as blind covers, are disclosed in unexamined Japanese Utility Model Publication No. Sho. 63-85753 and unexamined Japanese Utility Model Publication No. Hei 1-84515.

Covers similar to those described above may be used where cables are required to pass through the aperture, such

covers being referred to as wiring covers. A semicircular indent is provided on an edge of the cover. It is common to use a pair of such covers to fill each aperture. The two covers are joined together and fitted into the aperture formed by the floor panels, the semicircular indents forming circular opening through which the cables pass, in use.

An alternative type of cover is capable of being converted from a blind cover to a wiring cover, the cover including a portion arranged to be cut away so as to form an aperture through which cables may pass. The cover may include a groove defining the portion to be cut away, the groove acting as a tear line. If the cover is used in a position in which no cables are required to pass through the aperture, the portion of the cover is not removed. It will be understood that such a cover cannot be converted from a wiring cover to a blind cover.

Generally, a floor covering such as a carpet or carpet tiles is laid over the floor panels and covers, and provides additional support in the vicinity of the cover, particularly over the apertures provided in wiring covers. However, if the electrical apparatus is arranged such that a leg of the apparatus stands on that part of a cover defining an aperture, or a passage is provided such that persons occupying the room may stand on the aperture or weakened portion of one of the covers, the cover and floor covering may not provide sufficient support, and in such circumstances it may be more appropriate to use a blind cover.

If the position of the electrical apparatus in the room is changed, it may be necessary to substitute some blind covers with wiring covers, and vice versa, and there may be circumstances in which a wiring cover must be used where a blind cover would be more appropriate.

It is an object of the invention to reduce the problems associated with known covers.

According to the present invention there is provided an invertible cover for an access aperture in the floor member, the cover being receivable in the aperture, in use, and comprising a blind cover plate and a wiring cover plate having a cut-out, the cover plates being interconnected by a wall extending generally perpendicularly to the cover plates so that the cover plates are aligned, parallel and spaced apart from one another, the wall extending from an edge portion of the blind cover plate to an edge portion of the wiring cover plate, the cover being arranged such that, in use, a selected one of the cover plates is received in the access aperture and engages the floor member to support the cover, the other cover plate being spaced below the floor member such that, in use, when the selected one of the cover plates is the wiring cover plate, cabling may extend through the cut-out of the wiring cover plate, through the space between the cover plates, and into the space beneath the floor member, the spacing of the cover plates being greater than or equal to the sum of the diameter of the cabling and the thickness of the floor member.

The surface of the wall facing away from the cover plates is preferably provided with a layer of electrostatically adhered fibres.

The floor member may comprise hard square plate of width 30 to 60cm. Each access aperture preferably comprises a rectangular recess provided at the centre of an edge of the floor panel, the recess being approximately 5 to 10cm wide and 2.5cm deep, and there being such recesses on two opposite sides of the panel. A lip of width 3 to 6mm and depth 1 to 3mm is provided around the edge of each access aperture, the cover being arranged such that, in use, one cover plate of the cover sits on the lip, the cover plate lying flush with the upper surface of the floor panel.

The invention will further be described by way of example with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of a cover according to a

first embodiment of the invention;

Figure 2 is a side view of the cover of Figure 1 being positioned in a floor;

Figure 3 is a plan view showing the upper surface of the floor;

Figure 4 is a cross sectional view at the line X-X' of Figure 3;

Figure 5 is a plan view of the wiring cover plate of the cover of a second embodiment; and

Figure 6 is a plan view of the wiring cover plate of the cover of a third embodiment.

A cover "A" for covering an access aperture in a floor composed of floor panels P is shown in Figure 1, the cover A comprising a rectangular blind cover plate 1 and a rectangular wiring cover plate 2 including openings 20 for cables C to pass through, in use, the openings 20 being provided at the corners of each of the long sides of the wiring cover plate 2. The wiring cover plate 2 and the blind cover plate 1 are of generally equal dimensions.

The blind cover plate 1 and the wiring cover plate 2 are interconnected by a vertically extending wall 3 whose width is approximately $1/3$ of the length of the long side of the each of the cover plates 1, 2. The wall 3 interconnects the cover plates 1, 2 in such a manner that the cover plates 1, 2 are aligned and parallel. The cover plates 1, 2 are spaced apart by the vertical wall 3, the separation of the cover plates 1, 2 being at least equal to and preferably greater than the sum of the thickness of the floor panel P on which the cover is

positioned and the diameter of the electric cables C that are to be passed through the access aperture. For example, if the thickness of the floor panel is 22 mm and the cable has a maximum diameter of 15 mm, the separation of the cover plates 1, 2 must be at least 37 mm in order to allow the cables to pass through the access aperture. Increasing the separation makes insertion of the electric cables easier, but it increases the cost and weight of the cover.

Figure 3 is a plan view of the upper surface of a floor constructed of a plurality of square floor panels P, P', P'' each including a rectangular recess 40, 40', 40'' at the centre of two of its opposed edges. Each of the floor panels is supported by four legs L (see also Figure 4). The recesses of adjacent floor panels are aligned with each other so as to define square access apertures. The regions of each floor panel defining the rectangular recesses are rebated around the recesses so as to form a lip upon which each cover is arranged to seat. The lip is positioned so that the upper surface of the cover plate in use lies flush with the upper surface of the floor panels.

Figure 4 illustrates the left hand access aperture of Figure 3 which is defined by floor panels P and P' and is closed by a pair of covers A, the left hand cover A being arranged so that its blind cover plate 1 is uppermost, and lying flush with the surface of the floor panels, the right hand cover A being arranged with its wiring cover plate 2 uppermost so as to allow cables to pass through the access aperture. The covers A are arranged so that the vertically extending walls 3 lie adjacent each other. In use, if the floor panels supporting the covers are subject to vibration, the vertical walls 3 may rub against each other resulting in the generation of an unpleasant noise. In order to prevent such noise

generation, the surfaces of the walls 3 which face each other are provided with a layer of electrostatically adhered fibres 31, the fibres 31 being thickly planted and having a short fibre length.

In order to insert the cover into the access aperture, the cover is tilted (as shown in Figure 2), one of the cover plates being slid partially underneath one of the floor panels. The cover is then lowered until the cover plates lie generally horizontally, the cover then being slid until the upper cover plate sits on the peripheral lip of the floor panel defining the access aperture.

As shown in Figure 4, the blind cover plate 1 and the wiring cover plate 2 of each cover A are separated by an amount great enough to allow a cable C to pass between the lower cover plate and the lower surface of the floor panel, thus allowing the cable C to pass through the access aperture if the wiring cover plate 2 is uppermost.

Figures 5 and 6 show modifications to the cover described above. The modification shown in Figure 5 includes a wiring cover plate having only one opening instead of two. Such a cover is suitable for use in situations in which few cables are required to pass through the access aperture. Figure 6 shows an embodiment in which the wiring cover plate includes a rectangular opening suitable for use where flat cables are required to pass through the access aperture, the flat cable comprising a plurality of electric cables bound together.

Where no cables are required, the covers can be arranged so that the blind cover plates of both covers are uppermost. If only a few cables are required, the blind cover plate of one cover and the wiring cover plate of the other cover may be uppermost, and if access for many cables is required, both covers can be arranged with

their wiring cover plates uppermost. When the requirements change, one or both of the cover plates may be removed from the access aperture, turned over so that if the blind cover plate was uppermost, the wiring cover plate is now uppermost, and vice versa, and then replaced in the manner described above.



1. An invertible cover for an access aperture in the floor member, the cover being receivable in the aperture, in use, and comprising a blind cover plate and a wiring cover plate having a cut-out, the cover plates being interconnected by a wall extending generally perpendicularly to the cover plates so that the cover plates are aligned, parallel and spaced apart from one another, the wall extending from an edge portion of the blind cover plate to an edge portion of the wiring cover plate, the cover being arranged such that, in use, a selected one of the cover plates is received in the access aperture and engages the floor member to support the cover, the other cover plate being spaced below the floor member such that, in use, when the selected one of the cover plates is the wiring cover plate, cabling may extend through the cut-out of the wiring cover plate, through the space between the cover plates, and into the space beneath the floor member, the spacing of the cover plates being greater than or equal to the sum of the diameter of the cabling and the thickness of the floor member.
2. An invertible cover as claimed in Claim 1, wherein the surface of the wall facing away from the cover plates is provided with a layer of electrostatically adhered fibres.
3. An invertible cover as claimed in any one of the preceding claims, wherein the wiring cover plate includes two cut-outs.
4. An invertible cover as claimed in Claim 3, in which the cut-outs are provided in corners of the wiring cover plate.
5. An invertible cover substantially as hereinbefore described with reference to Figures 1 to 4 of the accompanying drawings.
6. An invertible cover substantially as hereinbefore described with reference to one of Figures 5 and 6 of the accompanying drawings.