

"CONSTRUCTION PANELS"

This invention relates to construction panels, and to their use in the formation of "floating floors".

On board ship there has been a move in recent years towards higher levels of noise, resulting from the installation of lighter and higher speed diesel engines, increased power output per shaft, higher propeller shaft loadings and the placing of the accommodation block aft and nearer the propeller. As a result of this, the Authorities in many countries have issued recommendations or regulations relating to the maximum permitted noise levels in the various compartments and living areas onboard ship.

The noise level in a ship's compartment is a combination of the effects of airborne sound and structure borne sound. One means of reducing structure borne sound is by isolating the surface of a room from the basic structure of the ship. This can be achieved by installing a "floating floor".

One form of floating floor consists of a floor of relatively large mass supported on a mat of relatively flexible glass or mineral wool. Bulkhead linings and partitions are mounted on the floor and are thus insulated from the basic structure of the ship.

It is an object of the invention to provide a floor for use in constructing a "floating floor".

According to the invention there is provided a floor comprising a plurality of construction panels provided with edge grooves and assembled in edgewise abutting relationship with splines inserted into the edge grooves of adjacent abutting panels, wherein each panel comprises a non-combustible fire-resisting board faced with metal on one or each of its major faces and a staple is driven into said abutting panels such that the limbs thereof are deflected upon contacting the spline.

Suitably the metal extends not only over the major face(s) of each board but also over the edges thereof, or

panels according to the invention.

The construction panels which are assembled to form the floor of the invention each comprise a non-combustible fire-resisting fibre-reinforced board 10, for example a 19mm. thick Cape Marine Board, faced on both major faces with a metal veneer 11. The metal veneer, which may be a 0.4mm. galvanised steel veneer, is turned down over the edges of the board 10, as best seen at 12 in Figures 1 and 4.

10 A "floating floor" is constructed by assembling a floor of veneer-faced boards 10 on top of a layer 13 of mineral wool fibres, for example of thickness 50mm. The layer 13 is illustrated in Figure 1 as being made up of a plurality of slabs 14. The layer 13 is laid directly on
15 the ship's deck 15, and may for example consist of "Rocksil" (Trade Mark) mineral wool slabs.

The method of jointing the panels is illustrated in Figure 4. The edges of the panels are provided with longitudinal grooves 16. The metal facing 12 extends along the
20 edges of the panels to a position just short of the grooves 16.

The panels are brought into edgewise-abutting relationship, and are held together, so far as relative vertical movement is concerned, by inserting splines 17
25 into the grooves 16. The splines are suitably steel splines, for example of dimensions 3mm. x 38mm. in cross-section. After insertion of the splines 17 staples 18 are driven into the panels across the joint. The limbs of the staples 18 entering the boards 10 must
30 be of a length greater than half the thickness of the construction panel, in order that when their points contact the spline 17 they are deflected by the spline. Typical staples for use with 19mm. thick boards 10 have a width of 1mm., a crown length of 9.5mm., a limb length
35 of 19mm. and a thickness of 0.5mm. A suitable deformation of the staple upon contacting spline 17 is shown at the left-hand side of Figure 4.

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The gaps in between the edges of abutting construction panels left by the folds 12 of the metal veneers may suitably be filled with a mastic, such as a butyl rubber, polyurethane or polysulphide.



CLAIMS

1. A floor comprising a plurality of construction panels provided with edge grooves and assembled in edgewise abutting relationship with splines inserted into the edge grooves of adjacent abutting panels, wherein each panel comprises a non-combustible fire-resisting board faced with metal on one or each of its major faces and a staple is driven into said abutting panels such that the limbs thereof are deflected upon contacting the spline.
2. A floor according to claim 1 wherein the metal facing comprises a galvanised steel veneer.
3. A floor according to claim 1 or 2 wherein the metal facing has a thickness in the range 0.2 to 0.6mm.
4. A floor according to any of claims 1 to 3 wherein in the or each metal facing is in the form of a shallow tray which covers a major face and at least part of the sides of the said board.
5. A floor according to any of claims 1 to 4 wherein the non-combustible fire-resisting board comprises a cement or calcium silicate binder reinforced with fibrous material.
6. A floor according to claim 5 wherein the fibrous material comprises cellulose, glass or mineral wool fibres.
7. A floor according to any of claims 1 to 6 supported on a layer of mineral wool.