

The claims defining the Invention are as follows:

1. A preform for forming a composite structure, the preform including a body substantially formed of a reinforcing material defining a plurality of compartments, the compartments being fillable with a granular filler material through which settable liquid matrix material is impregnatable to form the composite structure.
2. The preform according to claim 1, wherein the compartments are arranged to extend at least one of lengthwise and width wise of the body.
3. The preform according to claim 1, wherein the compartments extend lengthwise along the body.
4. The preform accordingly to claim 1, wherein the compartments have at least one of a square or rectangular cross section.
5. The preform accordingly to claim 1, wherein open ends of the compartments are sealed to contain the granular filler material.
6. The preform according to claim 1, wherein the reinforcing material is a dry preformed reinforcing material.
7. The preform accordingly to claim 5, wherein the dry preformed reinforcing material is a fibre-based woven material having a three-dimensional structure to provide the compartments.
8. The preform according to claim 1, wherein the granular filler material is infused with a binder material to at least partially rigidify the preform.
9. The preform according to claim 1, wherein the settable liquid matrix material is a resin.
10. The preform according to claim 1, wherein the granular filler material includes particles having different sizes.

11. The preform according to claim 1, wherein the granular filler material includes particles having different densities.
12. The preform accordingly to claim 1, wherein the granular filler material includes graded particles having different sizes so as to define a predetermined void ratio.
13. The preform according to claim 1, wherein the preform is flexible or ridged.
14. The preform according to claim 1, wherein the body is substantially rectangular in shape.
15. The preform according to claim 1, wherein the body is at least 8mm in thickness.
16. A composite structure formed using a preform as defined in any one of the previous claims.
17. A panel formed using a preform as defined in any one of the previous claims.
18. A method of forming a preform for a composite structure, the method including the steps of: filling a plurality of compartments defined by reinforcing material of a body of the preform with a granular filler material through which a settable liquid matrix material is impregnatable to form the composite structure.
19. The method according to claim 18, wherein the method further includes the step of closing the plurality of compartments containing the granular filler material therein.
20. The method according to claim 19, wherein the method further includes the step of applying a binder material to the granular filler material such that the preform is rigidified whilst maintaining voids between the granular filler through which the settable liquid matrix material is impregnatable.
21. A method of forming a composite structure using a preform, the method including the steps of:
Forming a preform by filling a plurality of compartments defined by reinforcing material of a body of the preform with a granular filler material;

Fitting the preform to a mould;

Impregnating the preform with a liquid matrix material such that the liquid matrix material passes through voids of the granular filler material and the reinforcing material so as to cure there throughout.

22. A method of forming a panel for a building using a preform, the method including the steps of:

Forming a preform in the shape of the panel by filling a plurality of compartments defined by reinforcing material of a body of the preform with a granular filler material;

Fitting the preform to a mould;

Impregnating the preform with a liquid matrix material such that the liquid matrix material passes through voids of the granular filler material and the reinforcing material so as to cure there throughout thereby providing the panel.