or assembly or part of an array or assembly of building modules,

the interconnector comprising

a first connector in the form of a first projection for being received in the first receiver, and

a second connector in the form of a second projection for being received in the second receiver,

the first connector and the second connector being arranged with respect to each other so that when the first connector is received within the first receiver and the second connector is received within the second receiver, the first module and the second module are interconnected to one another in alignment with one another, the interconnector further comprising a chamber for containing a flowable material therein such that the projections are provided with an internal cavity,

the chamber having an inlet for admitting the flowable material to the interconnector and an outlet for discharging the flowable material from the interconnector, such that the flowable material may surround or envelop the projections of the interconnector,

the flowable material when cured for

enhancing the strength of the joint between the individual building modules to

connected to either the first projection or the second projection,

the second part of the third projection being spaced apart from the first projection or the second projection,

each of said projections being provided with respective internal cavities

wherein when the first module is in aligned relationship with the second module with the first projection being received within the first receiver and the second projection being received within the second receiver to securely interconnect the first and second modules in aligned relationship with each other,

the third projection is received within the third receiver to securely connect the third module to the first and second modules in contiguous relationship to the first and second modules to form the building structure

wherein the first receiver and the second receiver form a chamber for containing a flowable material therein, such that the flowable material may surround or envelop the projections of the interconnector, which flowable material when cured enhances the strength of joint between the individual building modules to limit relative movement of the modules with respect to one another.

According to a third aspect of the present invention,

there is provided an interconnection system for interconnecting multiple individual building modules to form an array or assembly or part of an array or assembly of a building structure,

the interconnection system including at least one interconnector for interconnecting the building modules to one another,

each individual module having at least one hollow tube and at least one interconnector having two or more projections for engaging respective one ends of receivers of adjacent modules, so that when the individual modules are in alignment with each other the projections are received within the respective receivers facilitating secure interconnection of the adjacent individual modules to one another to restrain respective movement of one module with respect to another module,

wherein the at least one interconnector comprises a chamber for containing a flowable material therein, said projections being provided with respective internal cavities, such that the flowable material may surround or envelop the projections of the interconnector.

According to a fourth aspect of the present invention, there is provided an interconnector for interconnecting two individual building modules to one another to form an assembly of a

building structure, the interconnector comprising

a lower end for being received in an upper open end of a hollow support member of a lower building module,

Claims

1. An interconnector for interconnecting at least a first building module having a first receiver and a second building module having a second receiver to form an array or assembly or part of an array or assembly of building modules,

the interconnector comprising

a first connector in the form of a first projection for being received in the first receiver, and

a second connector in the form of a second projection for being received in the second receiver,

the first connector and the second connector being arranged with respect to each other so that when the first connector is received within the first receiver and the second connector is received within the second receiver, the first module and the second module are interconnected to one another in alignment with one another,

the interconnector further comprising a chamber for containing a flowable material therein such that the projections are provided with an internal cavity,

the chamber having an inlet for admitting

the flowable material to the interconnector and an outlet for discharging the flowable material from the interconnector, such that the flowable material may surround or envelop the projections of the interconnector,

the flowable material when cured for enhancing the strength of the joint between the individual building modules to limit relative movement of the individual modules with respect to one another.

2. An interconnector for interconnecting at least a first building module, a second building module and a third building module to form a building structure of an array or assembly or part of an array or assembly of building modules,

the interconnector comprising a first connector in the form of a first projection, a second connector in the form of a second projection and a third connector in the form of a third projection,

the first projection for being received within a first receiver provided on the first module, the second projection for being received within a second receiver provided on the second module, and the third projection for being received within a third receiver provided on the

third module,

the first projection being in collinear alignment with the second projection,

the third projection having a first part and a second part,

the first part of the third projection being connected to either the first projection or the second projection,

the second part of the third projection being spaced apart from the first projection or the second projection,

each of said projections being provided with respective internal cavities,

wherein when the first module is in aligned relationship with the second module with the first projection being received within the first receiver and the second projection being received within the second receiver to securely interconnect the first and second modules in aligned relationship with each other, the third projection is received within the third receiver to securely connect the third module to the first and second modules in contiguous relationship to the first and second modules to form the building structure wherein the first receiver and the second receiver form a chamber for containing a flowable material therein, such that the

flowable material may surround or envelop the projections of the interconnector, which flowable material when cured enhances the strength of joint between the individual building modules to limit relative movement of the modules with respect to one another.

3. An interconnection system for interconnecting multiple individual building modules to form an array or assembly or part of an array or assembly of a building structure,

the interconnection system including at least one interconnector for interconnecting the building modules to one another,

each individual module having at least one hollow tube and at least one interconnector having two or more projections for engaging respective one ends of receivers of adjacent modules, so that when the individual modules are in alignment with each other the projections are received within the respective receivers facilitating secure interconnection of the adjacent individual modules to one another to restrain respective movement of one module with respect to another module,

wherein the at least one interconnector comprises a chamber for containing a flowable

material therein, said projections being provided with respective internal cavities, such that the flowable material may surround or envelop the projections of the interconnector.

4. An interconnection system or interconnector according to any preceding claim in which the interconnector is a mechanical interconnector or a combined mechanical and chemical interconnector in which the combined mechanical and chemical interconnector comprises a curable flowable chemical material surrounding, enveloping or encasing a mechanical connector to form a grouted or cemented joint.

5. An interconnection system or interconnector according to any preceding claim in which the interconnector is provided with one or more individual connectors in the form of elongate projections extending outwardly from a central body portion of the interconnector in different directions to one another.

6. An interconnection system or interconnector according to any preceding claim in which the projections include one or more connectors arranged to extend either collinearly or in

substantially parallel spaced apart relationship to one another.

7. An interconnection system or interconnector according to any preceding claim in which the interconnector is a spigot or similar having a plurality or multitude of outwardly extending projections in the form of fingers or extensions arranged in pairs in which the spigot is hollow or substantially hollow having an internal cavity, void, space, channel or gap located therein for receiving and/or containing the flowable material.

8. An interconnection system or interconnector according to any preceding claim in which the interconnector has an even number of individual connectors including one pair of connectors, two pairs of connectors, three pairs of connectors or four pairs of connectors, depending upon the precise location within the building structure at which the interconnector is to be installed to join adjacent building modules to one another or the interconnector has an odd number of connectors including two pairs of connectors and a single connector arranged in side by side parallel relationship in which selected

connectors extend in a direction opposite to the direction of extension of other of the connectors.

9. An interconnection system or interconnector according to any preceding claim in which the interconnector further comprises a central section and the interconnector has a single pair of two connectors in the form of projections which are arranged to extend in opposite directions to one another such that one of the connectors extends outwardly from the central portion of the interconnector in a first direction which is about 180° to the direction of extension of the second connector extending from the other side of the central portion wherein the two connectors are arranged collinearly and extend from the central portion to substantially the same extent in opposite directions from each other.

10. An interconnection system or interconnector according to any preceding claim in which the interconnector has four individual connectors arranged as two pairs of connectors or projections in which one pair is arranged in side by side substantially spaced apart parallel

relationship to the other pair of connectors or projections wherein the first connector of one pair of connectors extends in the opposite direction to the direction of extension of the other connector of the same pair of connectors and also the two connectors of the second pair of connectors extend in opposite directions to each other wherein the first connector of each pair of connectors extends in the same direction in spaced apart parallel relationship to each other in one direction and the second connector of each pair of connectors extends in spaced apart parallel relationship to each other in a second direction which is the opposite direction to the first direction such that all first connectors of the pairs extend in the same direction as each other and all second connectors of the pairs extend in the same direction as each other, being the opposite direction to the direction of extension of the first connectors.

11. An interconnection system or interconnector according to any preceding claim in which the interconnector has five connectors comprising two pairs of oppositely directed connectors and a single connector extending in parallel spaced

apart relationship to a selected one of each of the pairs of connectors such that three of the connectors extend in the same direction as each other being a generally upwards direction and two connectors extend in the same direction as each other being a generally downwards direction wherein the three upwardly extending connectors are arranged in substantially parallel spaced apart relationship to one another and the two downwardly extending connectors are arranged in substantially parallel spaced apart relationship to one another.

12. An interconnection system or interconnector according to any preceding claim in which the interconnector is provided with four pairs of connectors comprising eight individual connectors in which four connectors, one from each pair of connectors, extend substantially vertically upwards in use and four connectors, one from each pair of connectors, extend substantially vertically downwards in use.

13. An interconnection system or interconnector according to any preceding claim in which each connector has a proximal end and a distal end separated by a central portion being a central

bridging section which is located intermediate the distal end and proximal end of each of the connectors wherein the proximal ends of two or more connectors of the same interconnector are joined to one another by the central bridging section.

14. An interconnection system or interconnector according to claim 13 in which the bridging section is a plate, collar, bracket, web, or flange wherein the lengthwise extending axis of the central section is substantially perpendicular to the longitudinal axis of the connectors.

15. An interconnection system or interconnector according to claim 14 in which the plate is provided with one or more apertures, holes, voids, cavities or bores wherein the number of apertures corresponds to the number of the pair of connectors or projections of the interconnector.

16. An interconnection system or interconnector according to any one of claims 13 to 15 in which the distal end of each connector or projection is tapered, bevelled, or provided with an

inclined surface, ramp, or sliding surface for facilitating insertion of the tapered end of the connector or projection into a receiving portion or receiving part of a support member, post, column or vertical element or framework member of an adjacent building module when two or more separate building modules are aligned and connected to each other.

17. An interconnection system or interconnector according to any preceding claim in which support members of the individual building module are provided with internal dividers, partitions or barriers to subdivide the support members into individual sections, chambers, compartments, spaces or voids.

18. An interconnection system or interconnector according to claim 17 in which the support members are provided with three individual sections, chambers or compartments, the first being an open ended upper section, in the form of a receiver for a downwardly depending lower projection or connector, the second being an open ended lower section in the form of a receiver for a projection of the interconnector in the form of an upwardly extending projection

or connector, and the third being a closed central section located intermediate the open-ended upper section and open-ended lower section.

19. An interconnection system or interconnector according to claim 18 in which the closed central section is provided with a pair of conduits, in the form of tubes, pipes, hoses, channels, bores, or ducts allowing fluid communication between the upper open-ended section and the lower open-ended section.

20. An interconnection system or interconnector according to claim 19 in which the pair of conduits includes a first conduit and a second conduit arranged in spaced apart side-by-side substantially parallel relationship to each other in which the first conduit, being an inlet tube, or grouting duct, extends from one of the dividers or barriers, being an upper transverse partition or wall, forming an upper grout plate, located near to the top of the column, through the interior of the hollow column towards a second divider or barrier, being a lower transverse barrier or wall, forming a lower grout plate, located near to the open-ended base

of the column in which the second conduit, in the form of an outlet tube or air/grout bleed duct extends from the upper transverse plate through the interior of central section of the hollow column to the lower transverse plate.

21. An interconnection system or interconnector according to claim 20 in which the first conduit is in the form of an inlet tube or grout duct that extends lengthwise through the lower transverse plate or wall so as to extend into and through the lower open ended portion at the base of the column to protrude through the opening at the base of the column from the open lower end of the column for engagement with an upwardly extending connector of the interconnector located intermediate the upper building module and lower building module and the second conduit or outlet tube or air/grout bleed duct, extends between the upper transverse grout plate and the lower transverse grout plate terminating in the openings in the respective barriers, and being of a length corresponding to the spacing between the upper and lower transverse grout plates or the length of the central section of the column.

22. An interconnection system or interconnector according to claim 21 in which the length of the first conduit or inlet tube or grout duct extending from the upper transverse grout plate to beyond the lower end or space of the column is greater than the length of the second conduit or outlet tube or bleed duct which extends between the upper transverse grout plate and the lower transverse grout plate only terminating at either end thereof at the respective transverse barriers.

23. An interconnection system or interconnector according to any one of claims 20 to 22 in which the grout plate is a grout stopper, in the form of a grout stopper plate transversely oriented with respect to the lengthwise extending axis of the column wherein the transverse grout plate is provided with a pair of openings, apertures, holes, perforations, rims, or similar arranged in spaced apart side by side relationship corresponding to the dimensions and orientation of the pair of conduits.

24. An interconnection system or interconnector according to any one of claims 21 to 23 in which

the inlet tube, conduit or grout duct extends from the upper transverse grout stopper plate located near to the top of the column to the lower transverse grout stopper plate located near to the base of the column and the outlet tube conduit or bleed duct extends from the upper transverse grout stopper through the interior of the hollow column to the lower transverse grout stopper plate.

25. An interconnection system or interconnector according to any one of claims 21 to 24 in which when an upper building module is aligned in stacked relationship upon a lower building module with a spigot located intermediate the respective columns of the upper and lower building modules extending therebetween, the flowable material in the form of a grout injected into the open upper end of the inlet tube and forced under pressure to flow through the entire length of the inlet tube for discharge into the interior of the spigot flows into a chamber formed from an upper section of a lower column and a lower section of an upper column to completely fill, surround and embed the spigot after which the grout flows into a lower opening of the outlet tube, through the entire length of

the outlet tube for discharge into the upper section of the column of the upper module to emerge from the upper grout plate to provide a visual indication that the chamber between the two building modules is completely filled with grout to enhance the strength and rigidity of the joint by encasing the spigot within the two columns now filled with grout when the grout is allowed to set or cure.