CLAIMS

What is claimed is:

1. A reconfigurable wall system comprising:

a first module having first and second connection elements, wherein the first and second connection elements of the first module each comprise a channel that extends through an inner portion of the first and second connection elements of the first module;

a second module having a first connection element, wherein the first connection element of the second module comprises a channel that extends through an inner portion of the first connection element of the second module;

wherein the channel of the first connection element of the first module and the channel of the first connection element of the second module combine to form a horizontal attachment interface channel, having a shape;

a third module having a first connection element, wherein the first connection element of the third module comprises a channel that extends through an inner portion of the first connection element of the third module;

wherein the channel of the second connection element of the first module and the channel of the first connection element of the third module combine to form a vertical attachment interface channel, having a shape; and

wherein the shape of the horizontal attachment interface channel and the shape of the vertical attachment interface channel are the same.

2. The reconfigurable wall system of claim 1, wherein at least one module further comprises at least one tile connected to at least one connection element.

3. The reconfigurable wall system of claim 1, wherein the at least one connection element may comprise a connection component or a frame element, each being compatible with and attachable to other connection components or frame elements.

4. The reconfigurable wall system of claim 1, wherein the first connection element of the first module and the first connection element of the second module each comprise a cantilever

channel recess that extends longitudinally across an outer side edge of the first connection element of the first module and the first connection element of the second module.

5. The reconfigurable wall system of claim 4, wherein the cantilever channel recess of the first connection element of the first module and the cantilever channel recess of the first connection element of the second module combine to form a horizontal cantilever channel.

6. The reconfigurable wall system of claim 1, wherein at least one connection interface component is configured to be inserted into the horizontal attachment interface channel or the vertical attachment interface channel to reversibly secure the first and second modules or the first and third modules together, respectively, at an attachment interface.

7. The reconfigurable wall system of claim 6, wherein the at least one connection interface component comprises a body portion and a plurality of elongated securing members extending therefrom.

8. The reconfigurable wall system of claim 6, wherein the at least one connection interface component comprises a body having a substantially Y-shaped, V-shaped, U-shaped, T-shaped, or I-shaped cross-section.

9. The reconfigurable wall system of claim 6, wherein the at least one connection interface component comprises a body having a substantially X-shaped cross-section.

10. The reconfigurable wall system of claim 1, wherein the second connection element of the first module and the first connection element of the third module each comprise a cantilever channel recess that extends longitudinally across an outer side edge of the second connection element of the first module and the first connection element of the third module.

11. The reconfigurable wall system of claim 10, wherein the cantilever recess of the second connection element of the first module and the cantilever channel recess of the first connection element of the third module combine to form a vertical cantilever channel.

12. The reconfigurable wall system of claim 5, wherein the horizontal cantilever channel is adapted for receiving at least one insert selected from the group consisting of a cantilever, a sealing element, and a lighting element.

13. The reconfigurable wall system of claim 11, wherein the vertical cantilever channel is adapted for receiving at least one insert selected from the group consisting of a cantilever, a sealing element, and a lighting element.

14. The reconfigurable wall system of claim 6, wherein if the at least one connection interface component is used to reversibly secure the first module to the second module while oriented in a horizontal direction, the at least one connection interface component may also be used to reversibly secure the first module to the third module while oriented in a vertical direction.

15. The reconfigurable wall system of claim 1, wherein the at least one connection interface component comprises a rotatable member configured to secure two or more attached connection elements together when rotated into an engaged configuration.

16. A reconfigurable wall system, comprising:

a plurality of modules configured to be arranged into a modular structure, wherein each module comprises:

a tile;

a tile attachment element configured to be attached to the tile;

a connection element configured to be attached to a connection element of another module, wherein the connection elements of the attached modules cooperate to form an attachment interface channel;

a connection interface component configured to reversibly attach two or more connection elements together at an attachment interface,

wherein the connection interface component reversibly secures a first module to: (i) a second module in a horizontal direction, or (ii) a third module in a vertical direction;

wherein the connection elements of the attached modules cooperate to form a vertical receiving channel when the connection interface component reversibly secures the first module to the second module in the horizontal direction;

wherein the connection elements of the attached modules cooperate to form a horizontal receiving channel when the connection interface component reversibly secures the first module to the third module in the vertical direction; and

a functional component disposed at least partially within the horizontal or vertical receiving channel,

wherein the tile attachment element is configured to enable selective connection and disconnection of the tile and at least one connection element on a single plane.

17. The reconfigurable wall system of claim 16, wherein the functional component comprises one or more channel inserts selected from the group consisting of:

one or more lighting elements disposed within the vertical or horizontal receiving channel; or

a sealing element configured to seal at least a portion of an opening of the vertical or horizontal receiving channel, wherein the sealing element is configured to substantially prevent passage of dust or microbes into the receiving channel through the opening.

18. A reconfigurable wall system, comprising:

a first module comprising a first and second connection element, the first connection element comprising a first attachment channel and the second connection element comprising a second attachment channel;

a second module comprising a third connection element, the third connection element comprising a third and fourth attachment channels,

wherein the third and fourth attachment channels of the third connection element are configured to be selectively aligned with the first and second attachment channels of the first and second connection elements to form first and second attachment interface channels; and

two connection interface components configured to be reversibly inserted correspondingly into the first and second attachment interface channels, thereby reversibly attaching the first and second modules together at an attachment interface,

wherein a cantilever channel is formed between the first and second modules when the third attachment channel of the third connection element is selectively aligned with the first attachment channel of the first connection element to form the first attachment interface channel.