components that allow or enable buildings to be readily designed and ordered via a web based system. There is also a need for structural components that allow for sustainable building.

Object of the Invention

[0005] Embodiments of the present invention seek to substantially address one or more of the above needs, or at least provide a useful alternative.

Summary of the Invention

[0006] An aspect of the present invention provides an elongate structural element, including:

an inner plate having first and second opposing planar surfaces; and

first and second outer sections, each of the outer sections comprising:

a central wall having a pair of longitudinal grooves;

a pair of side walls extending from the central wall to define a generally U-shaped channel, the longitudinal grooves depressing into the U-shaped channel; and

a pair of flanges respectively extending outwardly from the pair of side walls,

wherein the flanges of the first outer section are attached to the first planar surface of the plate and the flanges of the second outer section are attached to the second planar surface of the plate such that the U-shaped channels are substantially closed by the inner plate and opposed to each other; and

wherein each of the grooves comprises a profile with an open narrow region and an enlarged end region.

[0007] Preferably, the profile of each groove is generally keyhole shaped.

[0008] The grooves of the first outer section are preferably substantially parallel with each other, and the grooves of the second outer section are substantially parallel with each other.

[0009] The grooves of the first outer section are preferably respectively substantially aligned with the grooves of the second outer section.

[00010] The grooves of the first outer section are preferably substantially coextensive with each other, and the grooves of the second outer section are substantially coextensive with each other.

CLAIMS:

1. An elongate structural element, including:

an inner plate having first and second opposing planar surfaces; and

first and second outer sections, each of the outer sections comprising:

a central wall having a pair of longitudinal grooves;

a pair of side walls extending from the central wall to define a generally U-shaped channel, the longitudinal grooves depressing into the U-shaped channel; and

a pair of flanges respectively extending outwardly from the pair of side walls,

wherein the flanges of the first outer section are attached to the first planar surface of the plate and the flanges of the second outer section are attached to the second planar surface of the plate such that the U-shaped channels are substantially closed by the inner plate and opposed to each other; and

wherein each of the grooves comprises a profile with an open narrow region and an enlarged end region.

2. The elongate structural element according to claim 1, wherein the profile of each groove is generally keyhole shaped.

3. The elongate structural element according to any one of the preceding claims, wherein the grooves of the first outer section are substantially parallel with each other, and the grooves of the second outer section are substantially parallel with each other.

4. The elongate structural element according to any one of the preceding claims, wherein the grooves of the first outer section are respectively substantially aligned with the grooves of the second outer section.

5. The elongate structural element according to any one of the preceding claims, wherein the grooves of the first outer section are substantially coextensive with each other, and the grooves of the second outer section are substantially coextensive with each other.

6. The elongate structural element according to any one of the preceding claims, wherein each of the central walls comprises at least one aperture.

7. The elongate structural element according to claim 6, wherein each of the apertures is generally keyhole shaped with a narrowed region and an enlarged region.

8. In combination, a bracket and an elongated structural element according to any one of claims 6 or 7, wherein the bracket is attachable to one of the first or second outer portions via the at least one aperture.

9. The combination of claim 8, wherein the bracket includes:

a body for engaging the elongate structural element, the body defining a shoulder for supporting a rail thereon;

a strap configured for wrapping around the rail, the strap having first and second ends, the first end being secured to the body; and

a bolt configured for attaching the second end to the body and also for fixing the location of the body relative to the elongate structural element.

a bolt configured for attaching the second end to the body and also for fixing the location of the body relative to the elongate structural element.

10. The combination of claim 9, wherein the bolt provides for adjusting a distance between the first end and the second end to adjustably apply tension to the strap.

11. The combination of claim 9 or 10, further comprising a bolt aperture for receiving the bolt therethrough, the bolt aperture expending through at least the second end and the body.

12. The combination of claim 11, wherein the bolt aperture aligns with a further aperture of the elongate structural element proximal to the at least one apertures, wherein the bolt is received by the further aperture.

13. The combination of any one of claims 9 to 12, wherein, when the second end is attached to the body by the bolt, the strap defines a rail aperture for holding the rail therein.

14. The combination of any one of claims 9 to 13, wherein the body comprises plate and at least one arm member extending outwardly therefrom defining the shoulder, wherein the arm member has a surface for abutment with the rail, the surface being substantially perpendicular to the plate.

15. The combination of any one of claim 8 to 14, wherein the bracket includes a plate portion, with at least one protrusion extending from the plate portion and into the at least one aperture of the elongate structural element.

16. The combination of claim 15, wherein the at least one protrusion comprises a narrow portion and an enlarged end portion, and wherein the at least one aperture comprises a narrow region and an enlarged end region.