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] There is disclosed 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.

[0007] Each of the grooves preferably comprises a profile with an open narrow region and an enlarged end region. 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.

2. The elongate structural element according to claim 1, wherein each of the grooves comprises a profile with an open narrow region and an enlarged end region.

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

4. 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.

5. 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.

6. 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.

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

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

9. An elongate structural section, including:

a central wall having first and second ends;

a pair of side walls extending from the central wall to define a generally U-shaped channel; and

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

wherein the first end has a male portion and the second end has a female portion configured to receive the male portion of a further elongate structural section such that the elongate structural section is longitudinally attached and aligned with the further elongate structural section.

10. The elongate structural section according to claim 9, wherein the central wall comprises at least one aperture.

11. The elongate structural section according to claim 10, wherein each of the apertures is generally keyhole shaped with a narrowed region and an enlarged region.

12. The elongate structural section according to claim 11, wherein the narrowed region extends from the enlarged region substantially parallel to a longitudinal axis of the elongate structural section.

13. The elongate structural section according to claim 12, wherein the narrowed region extends from the enlarged region substantially at an angle with a longitudinal axis of the elongate structural section.

14. A bracket for connecting a rail to an elongate structural element, the bracket including:

a body configured for attachment to the elongate structural element, the body defining a shoulder for supporting the 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.

15. The bracket according to claim 14, wherein the bolt is further configured for adjusting a distance between the first end and the second end to adjustably apply tension to the strap.

16. The bracket according to either of claims 14 or 15, further comprising a bolt aperture for receiving the bolt therethrough, the bolt aperture extending through at least the second end and the body.

17. The bracket according to any one of claims 14 to 16, wherein, when the second end is attached to the body by the bolt, the strap defines a rail aperture for holding the rail therein.

18. The bracket according to any one of claims 14 to 17, wherein the body comprises a plate and at least one arm member extending outwardly therefrom defining the shoulder.

19. The bracket according to claim 18, wherein the arm member has a surface for abutment with the rail, the surface being substantially perpendicular to the plate.

20. The bracket according to any one of claims 14 to 19, wherein the body further comprises at least one protrusion extending from the plate portion and being receivable into another aperture of the elongate structural element for attachment.