BUILDING COMPONENT

TECHNICAL FIELD

A building formwork component, a system of building formwork components and a method for constructing a wall are disclosed.

BACKGROUND

Formwork is used in the construction of buildings and other structures to provide a temporary or permanent mould into which concrete or other similar materials may be poured.

Stay-in-place formwork that comprises a number of components, some which can be formed of plastic, is also known in the art.

The above references to the background art do not constitute an admission that the art forms part of the common general knowledge of a person of ordinary skill in the art. The above references are also not intended to limit the application of the building formwork component, system and method as disclosed herein.

SUMMARY OF DISCLOSURE

Disclosed herein is a building formwork component. Also disclosed is a system that employs a number of the building formwork components, as well as a method for constructing a wall using such components. The component, system and method find particular, though not exclusive, application in the construction of buildings and other structures. The component can provide and form part of a stay-in-place building formwork.

In a first aspect a building formwork component is disclosed. The building formwork component comprises first and second spaced sidewalls having one or more webs extending therebetween. Each sidewall comprises a flange that extends inwardly along a first edge of the sidewall such that an outer surface of the flange forms a ramp surface. Each sidewall further comprises a groove that extends along an opposing second edge of the sidewall.

The component may be coupled to a like component (i.e. that is the same as or substantially similar to the first-mentioned component). This coupling can occur by relative movement of the components towards each other. During this coupling the flanges can be received in respective grooves of the like component. The ramp surfaces facilitate such

coupling by engaging respective second edges of the like component to move the second

apertures may allow for material flow between the webs, thereby reducing the possibility of air pockets and gaps forming within the component (i.e. where fill material is not present). Similarly, the apertures allow the cement, when hardened, to form a continuous structure (i.e. rather than separate structures formed between the webs). This may improve the strength properties of the final composite structure (i.e. building formwork component and hardened cementitious material). Moreover, the web apertures can reduce the volume of material required to manufacture the component, thereby making the component cheaper and reducing its weight. In this respect, the component is designed to locate the apertures such that a deleterious effect on the structural properties of the component is minimised.

In an embodiment of any one of the first to fourth aspects as set forth above, the component may comprise a plurality of webs, each web having at least one aperture. The apertures in the webs can be aligned along a common axis that extends transversely through the component. The aligned apertures can allow coupled components to be used together with reinforcing, such as e.g. steel reinforcing rod or bar. In this regard, the reinforcing bar may be passed through the aligned apertures of multiple coupled components. When the reinforcing bar becomes embedded in e.g. a cementitious material poured into the multiple coupled components, it can provide additional strength to the resultant composite structure (e.g. to a building).

In an embodiment of any one of the first to fourth aspects as set forth above, the profile of at least one of the aperture may be such that it comprises first and second opposing upper and lower convex edges and third and fourth opposing side concave edges, or first and second opposing upper and lower concave edges and third and fourth opposing side convex edges. Thus, the convex edges may be oriented such that they form the bottom and top edges of the at least one aperture. This defines an aperture shape whereby when e.g. two reinforcing bars are passed through each aperture, the bars may rest in respective and opposite lower corners of each aperture. Moreover, where the component has a symmetrical profile, such that location of the bars is not affected by the orientation of the component (i.e. upright or inverted).

Further, the aforementioned profile of each aperture can avoid placement of a reinforcing bar or rod near to an outer surface of the fill material poured into the multiple coupled components. In this regard, the concave side edges of each aperture (i.e. that bow outwards towards the sidewalls) can result in an inset placement of each reinforcing bar,

relative to the adjacent sidewall, whilst still allowing for an increased size of each aperture. Maximising aperture size can allow a larger flow of cementitious material between the webs.

CLAIMS

1. A building formwork component comprising first and second spaced sidewalls having one or more webs extending therebetween, each sidewall comprising:

a flange extending inwardly along a first edge of the sidewall and towards the other sidewall such that an outer surface of the flange forms a ramp surface; and

a groove formed in and opening laterally outwards of the sidewall, the groove extending along an opposing second edge of the sidewall to receive therein a respective inwardly extending flange of a like component when the component is coupled to the like component by relative movement of the components towards each other;

wherein the flanges of the component are received in respective grooves of the like component, and whereby the ramp surfaces facilitate such coupling by engaging respective second edges of the like component to move the second edges and/or ramp surfaces for engagement of the flanges in the grooves.

2. A building formwork component as claimed in claim 1, wherein an inner surface, opposing the outer surface, of each flange forms an acute angle with the sidewall, or wherein each flange extends generally perpendicularly to its respective sidewall.

3. A building formwork component as claimed in claim 1 or 2, wherein the sidewalls are arranged symmetrically such that the flanges are located in a first end region of the component and the grooves are located in an opposing second end region of the component.

4. A building formwork component as claimed in claim 1 or 2, wherein the sidewalls are arranged asymmetrically, such that one flange and one groove are located in each of a first end region and an opposing second end region of the component.

5. A building formwork component as claimed in any one of claims 1 to 3, wherein at least one of the one or more webs extends between the sidewalls in proximity to the flanges, to inhibit movement of the sidewalls adjacent to the flanges during coupling.

6. A building formwork component as claimed in claim 5 wherein, when the component is coupled to the like component, the grooves of the component are located between the respective flanges of the like component.

7. A building formwork component as claimed in any one of claims 1 to 4, wherein at least one of the one or more webs extends between the sidewalls in proximity to the grooves, to inhibit movement of the sidewalls adjacent to the grooves during coupling.

8. A building formwork component as claimed in claim 7 wherein, when the component is coupled to the like component, the flanges of the component are located between the grooves of the like component.

9. A building formwork component as claimed in any one of the preceding claims, wherein each groove is formed so as to correspond to a respective flange of the like component, whereby the flange may be closely received in the groove when the component is coupled to a like component.

10. A building formwork component as claimed in any one of the preceding claims, wherein each flange is configured such that a distal end thereof abuts an inner surface of a respective groove in the like component to prevent lateral movement of the components away from one another when coupled.

11. A building formwork component as claimed in any one of the preceding claims further configured such that when coupled to the like component, each sidewall forms a generally flush surface with the corresponding sidewall of the like component.

12. A building formwork component as claimed in any one of the preceding claims, wherein the at least one or more webs comprise at least one aperture therethrough.

13. A building formwork component as claimed in any one of the preceding claims, the component comprising a plurality of webs, each web having at least one aperture, the apertures being aligned along a common axis extending transversely through the component.

14. A building formwork component as claimed in claim 12 or 13 wherein a profile of the at least one aperture is such that it comprises first and second opposing convex edges and third and fourth opposing concave edges.

15. A building formwork component as claimed in any one of the preceding claims wherein the one or more webs are arranged such that when the formwork component is connected to the like component, there is a space formed between the one or more webs of the component and the one or more webs of the like component.

16. A building formwork component as claimed in any one of the preceding claims, wherein the one or more webs are arranged such that when the component is coupled to one or more like components, there is a gap between the outermost web(s) of the component and the outermost web(s) of the like component.

17. A building formwork system comprising a plurality of building formwork components, each component being as claimed in any one of the preceding claims, the components able to be coupled to one another.

18. A building formwork system as claimed in claim 17, further comprising reinforcing arranged to span the coupled components and arranged with respect to one or more apertures in the components.

19. A building formwork system as claimed in claim 18, further comprising a cementitious material located in the spaces formed between the sidewalls and webs of the components.

20. A method for constructing a wall, the method comprising the steps of:

coupling a plurality of building formwork components to one another, each component being as claimed in any one of claims 1 to 16; and

filling the spaces, formed between the sidewalls and web(s), of each building formwork component with a cementitious material.