

**Connector assembly, capping channel assembly and method for capping and/or
restraining a wall using a capping channel assembly**

Technical Field

The present disclosure relates to a connector assembly, a capping channel assembly
5 comprising the connector assembly, and a method for capping and/or restraining a wall
using the capping channel assembly.

Background

A method conventionally used for capping and/or restraining a wall is by using reinforced
concrete. In this case, it is necessary to construct shuttering to enclose the volume into
10 which concrete is to be poured, insert metal rods in the shuttering to reinforce the
eventual structure, and pour concrete into the shuttering to form the reinforced concrete
capping. The formed reinforced concrete capping will then be laid accurately at the top
of the wall for capping the wall. This conventional approach is time consuming and labour
intensive. It involves various tradesmen, for example a carpenter, a steel bender and a
15 concrete pourer, to form the reinforced concrete capping, and to eventually lay and cap
the wall using the formed reinforced concrete capping. Co-ordination between these
various tradesmen is also required to complete the entire job, adding to the complexity
of this task. This conventional method for forming the reinforced concrete capping is also
onerous, resulting in much debris, defects and wastage.

20 Another form of capping for a wall involves steel capping. Conventional steel capping is
made to order and requires accurate measurements to customise a fitting of the steel
capping to the intended top edge of a wall. Further, ends of the steel capping often have
to be welded to form different kinds of wall junctions, such as the L, T and X types, which
often result in poor fitting and an undesired finishing. Still further, the need for welding
25 introduces a requirement of another tradesman which adds to the time and labour
required to complete the installation of the wall capping.

It is therefore desirable to provide a connector assembly, a capping channel assembly
comprising the connector assembly and a method for capping and/or restraining a wall
using the capping channel assembly which address the aforementioned problems and/or
30 provides a useful alternative.

Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

Summary

- 5 Aspects of the present application relate to a connector assembly, a capping channel assembly comprising the connector assembly and a method for capping and/or restraining a wall using the capping channel assembly.

In accordance with a first aspect, there is provided a connector assembly for connecting capping channels to cap and/or restraint a wall, the connector assembly comprising a
10 connection plate having a planar body, the connection plate comprising: a first bracket projecting outwardly from the planar body to form a first insertion opening to receive a first fastening insert for connecting the connection plate to a first capping channel; and a plurality of engagement members formed in the planar body, wherein at least some of the plurality of engagement members are adapted to engage with a corresponding
15 retaining element for connecting to a second capping channel.

Thus, the described embodiment provides a connector assembly comprising a connection plate, where the connection plate includes a first bracket for forming a first insertion opening for connecting to a first capping channel and a plurality of engagement members adapted to engage with a corresponding retaining element for connecting to a
20 second capping channel. The connector assembly thus provides a convenient way of connecting capping channels to form a connected capping channel assembly for capping different wall junctions, for example wall configurations of a L, T and X-type. This obviates the need for specific skilled tradesmen for forming a customised concrete capping or for welding customised steel capping together for capping different wall
25 junctions or configurations, thereby reducing the time and effort required for capping and/or restraining a wall. Particularly, the capping channels, as connected, provide lateral restraint to the connected walls against horizontal loads (e.g. wind pressures and/or barrier loads) applied to the capping channels and/or the connected walls in contact with the capping channels. The strength of the walls in resisting the applied
30 horizontal loads is enhanced by the connected capping channels.

The plurality of engagement members of the connection plate may comprise a first set of engagement members including a first pair of brackets and a first central projection between the first pair of brackets.

5 The connector assembly may comprise a first plate connector. The first plate connector having a first planar connector body and comprising the corresponding retaining element for engaging with the plurality of engagement members of the connection plate, and the corresponding retaining element may include a first raised portion being adapted to be inserted between the first pair of brackets of the connection plate, the first raised portion having a first aperture for engaging the first central projection of the connection plate for
10 connecting the first plate connector to the connection plate.

The first raised portion may be raised by a height equivalent to a thickness of the planar body of the connection plate so that a base of the first planar connector body is flushed with a base of the planar body of the connection plate.

15 The first plate connector may be adapted to be connected at a substantially right angle to the connection plate.

The first plate connector may comprise a first connector bracket projecting outwardly from the first planar connector body to form a first connector insertion opening to receive a first connector fastening insert for connecting the first plate connector to the second capping channel.

20 The connection plate may comprise a second bracket projecting outwardly from the planar body to form a second insertion opening to receive a second fastening insert for connecting the connection plate to a third capping channel, the second bracket being located at an opposite end of the planar body to the first bracket.

25 The plurality of engagement members of the connection plate may comprise a second set of engagement members including a second pair of brackets and a second central projection between the second pair of brackets.

The first set of engagement members and the second set of engagement members may be arranged along two substantially parallel axes along a longitudinal axis of the planar body of the connection plate.

The connector assembly may comprise a second plate connector having a second planar connector body with a second raised portion, the second raised portion being adapted to be inserted between the second pair of brackets, the second raised portion having a second aperture for engaging the second central projection of the connection plate for connecting the second plate connector to the connection plate, wherein the second plate connector is adapted to be connected to the connection plate at an opposite side of the first plate connector.

The second plate connector may comprise a second connector bracket projecting outwardly from the second planar connector body to form a second connector insertion opening adapted to receive a second connector fastening insert for connecting the second plate connector to a fourth capping channel.

In accordance with a second aspect, there is provided a capping channel assembly for capping and/or restraining a wall, the capping channel assembly comprising capping channels and a connector assembly, wherein the connector assembly comprises: a connection plate having a planar body and a first plate connector having a first planar connector body. The connection plate comprising: a first bracket projecting outwardly from the planar body to form a first insertion opening for receiving a first fastening insert; and a plurality of engagement members formed in the planar body, wherein at least some of the plurality of engagement members are adapted to engage with a corresponding retaining element. The first plate connector comprising the corresponding retaining element and a first connector bracket, the corresponding retaining element including a first raised portion being adapted to engage the at least some of the plurality of engagement members, and the first connector bracket is adapted to project outwardly from the first planar connector body to form a first connector insertion opening for receiving a first connector fastening insert. Wherein each of the capping channels comprises a first central slot at one end for receiving the first bracket of the connection plate or the first connector bracket of the first plate connector for connecting the capping channel to the connection plate or the first plate connector respectively.

The capping channel assembly may comprise the first fastening insert and the first connector fastening insert, the first fastening insert being adapted to be inserted through the first insertion opening of the first bracket after the first bracket is inserted through the first central slot of a first of the capping channels and the first connector fastening insert

being adapted to be inserted through the first connector insertion opening after the first connector bracket is inserted through the first central slot of a second of the capping channels for connecting a first and a second of the capping channels via the connection plate and the first plate connector.

- 5 Each of the capping channels may comprise pairs of elongated slots arranged along a length of the capping channel, and the connection plate or the first plate connector may comprise a pair of elongated projections adapted to be inserted into one of the pairs of the elongated slots to vary an overall effective capping length for capping and/or restraining the wall. The pair of elongated projections adapted to be inserted into one of
- 10 the pairs of the elongated slots may be configured to restrain the wall from longitudinal movements (i.e. the pair of elongated projections and the corresponding pair of elongated slots prevent movements of the wall in a direction parallel to the length of the capping channel, for example in a direction 104 as shown in relation to Figure 1).

- The capping channel assembly may comprise a vertical connector adapted to connect
- 15 one of the capping channels to a side wall of a supporting frame of the wall.

- The vertical connector may comprise a L-shaped planar connector body, and the L-shaped planar connector body may include a vertical connector bracket projecting outwardly from the L-shape planar connector body at one portion and a plurality of side wall engagement members adapted to engage with corresponding retaining elements of
- 20 the side wall of the supporting frame at another portion for connecting the vertical connector to the supporting frame.

- The capping channel assembly may comprise a vertical connector fastening insert, the vertical connector bracket may form a vertical connector insertion opening for receiving the vertical connector fastening insert, the one of the capping channels may comprise a
- 25 second central slot formed at an opposite end of the capping channel to the first central slot for receiving the vertical connector bracket, and the vertical connector fastening insert may be adapted to be inserted through the vertical connector insertion opening after the vertical connector bracket is inserted through the second central slot of the one of the capping channels.

- 30 In accordance with a third aspect, there is provided a method for capping and/or restraining a wall using a capping channel assembly. The capping channel assembly

comprising capping channels, a connector assembly, a first fastening insert and a first connector fastening insert, wherein the connector assembly comprises a connection plate and a first plate connector, the connection plate having a planar body and comprising a first bracket projecting outwardly from the planar body to form a first insertion opening and a plurality of engagement members formed in the planar body, and the first plate connector having a first planar connector body with a first raised portion being adapted to engage at least some of the plurality of engagement members and comprising a first connector bracket projecting outwardly from the first planar connector body to form a first connector insertion opening. Each of the capping channels comprises a first central slot at one end for receiving the first bracket of the connection plate or the first connector bracket of the first plate connector. The method comprising: placing the connection plate and the first plate connector at a top of the wall; connecting the first plate connector to the connection plate by engaging the first raised portion of the first plate connector with the at least some of the plurality of engagement members of the connection plate; providing the capping channels at the top of the wall to overlap with a part of the connection plate and a part of the first plate connector; inserting the first bracket and the first connector bracket through corresponding first central slots of the capping channels; and inserting the first fastening insert into the first bracket and the first connector fastening insert into the first connector bracket for connecting the capping channels to the connection plate and the first plate connector respectively for capping and/or restraining the wall.

Where the channel capping assembly may comprise vertical connectors, each of the vertical connectors being adapted to connect one end of the capping channel to a side wall of a supporting frame of the wall, the method may comprise: placing the vertical connectors at the top of the wall; wherein providing the capping channels over the top of the wall may include overlapping at least some of the capping channels with a part of each of the vertical connectors, the overlapped portion of each of the at least some of the capping channels being at an opposite end to the first central slot of each of the at least some of the capping channels; connecting the vertical connectors to the at least some of the capping channels for securing the channel capping assembly to the supporting frame of the wall; and connecting the vertical connectors to side walls of the supporting frame of the wall.

The channel capping assembly may comprise vertical connector fastening inserts. Each of the vertical connectors may comprise a L-shaped planar connector body, the L-shaped planar connector body including a vertical connector bracket at one portion and a plurality of side wall engagement members at another portion for connecting the vertical connector to the side wall of the supporting frame of the wall, the vertical connector bracket projecting outwardly from the L-shape planar connector body to form a vertical connector insertion opening for receiving a vertical connector fastening insert. Each of the capping channels may comprise a second central slot formed at the opposite end of the first central slot. The method may comprise: inserting the vertical connector bracket of each of the vertical connectors through corresponding second central slots of the at least some of the capping channels; and inserting the vertical connector fastening insert into the vertical connector bracket of each of the vertical connectors for connecting the vertical connectors to the at least some of the capping channels for securing the channel capping assembly to the supporting frame of the wall.

Where each of the capping channels may comprise pairs of elongated slots arranged along a length of the capping channel, and wherein the connection plate or the first plate connector may comprise a pair of elongated projections, the method may comprise inserting the pair of elongated projections of the connection plate or the first plate connector into one of the pairs of elongated slots to vary an overall effective capping length for capping and/or restraining the wall. This enables the capping channels to be manufactured in fixed length increments while being able to adapt to different wall dimensions by varying an overall effective capping length using the capping channel assembly.

Where the wall includes an intermediate wall section, the capping channels and the connector assembly capping and/or restraining the intermediate wall section may be adapted to enable a further wall section to be built on top of the capped intermediate wall section.

Embodiments therefore provide a connector assembly, a capping channel assembly comprising the connector assembly and a method for capping and/or restraining a wall using the capping channel assembly. Particularly, the connector assembly comprises a connection plate where the connection plate includes a first bracket for forming a first insertion opening for connecting to a first capping channel and a plurality of engagement

members adapted to engage with a corresponding retaining element for connecting to a second capping channel. By having the connection plate as a means to connect the capping channels, the connector assembly provides a convenient way of connecting capping channels for capping and/or restraining wall with different configurations. In an embodiment, the connector assembly comprises a first plate connector having a first planar connector body, where the first plate connector comprises the corresponding retaining element for engaging the at least some of the plurality of engagement members of the connection plate and a first connector bracket adapted to engage with the second capping channel. This provides flexibility in connecting the capping channels for capping walls of different configurations and minimises a need to customise the connection plate used for capping different wall configurations. In an embodiment, a capping channel assembly comprising capping channels and one of the aforementioned connector assembly is provided, where each of the capping channels comprises pairs of elongated slots arranged along a length of the capping channel, and where the connection plate or the first plate connector further comprises a pair of elongated projections adapted to be inserted into one of the pairs of the elongated slots for varying an overall effective capping length for capping and/or restraining a wall. This advantageously allow the capping channels to be manufactured in fixed length increments while being able to adapt to different wall dimensions by varying an overall effective capping length using the capping channel assembly. In an embodiment, the capping channel assembly comprises a vertical connector adapted to connect one of the capping channels to a side wall of a supporting frame of a wall for securing the capping channels over the wall. This allows the capping channel assembly to be held in place over the top edge of the wall in embodiments where a supporting frame for the wall is used. The provision of the connector assembly and/or the capping channel assembly provides a convenient way for capping and/or restraining a wall without requiring work from specific skilled tradesmen, either for forming a customised concrete capping or for welding customised steel capping together for forming the different wall junctions or configurations, thereby reducing the time and effort required and provide much convenience to contractors tasked with capping walls.

Brief description of the drawings

Embodiments will now be described, by way of example only, with reference to the following drawings, in which:

Figure 1 shows a diagram of a capping channel in accordance with an embodiment;

Figure 2 shows a diagram of a vertical connector in accordance with an embodiment;

Figure 3 shows a diagram of a fastening insert in accordance with an embodiment;

5 Figure 4 shows a diagram of a vertical stiffener member for forming a supporting frame of a wall in accordance with an embodiment;

Figure 5 shows a diagram of a frame fastener for securing the vertical connector of Figure 2 to a longitudinal side wall of the vertical stiffener member of Figure 4 in accordance with an embodiment;

10 Figure 6 shows a top view of a side of a supporting frame of a wall where the vertical connector of Figure 2 is connected to a capping channel at one end and is connected to a longitudinal side wall of the vertical stiffener member of Figure 4 by using the frame fastener of Figure 5 at the other end, for securing the capping channel to the supporting frame of the wall in accordance with an embodiment;

15 Figure 7 shows a diagram illustrating capping and/or restraining of a wall with an in-line configuration in accordance with an embodiment;

Figure 8 shows a diagram of a blown-up perspective view of a L-shaped joint formed at a junction between a vertical stiffener member of a supporting frame of the wall of Figure 7 and a capping channel of Figure 1 in accordance with an embodiment;

20 Figures 9A and 9B show a connection plate in accordance with two embodiments, where Figure 9A shows a connection plate having a bracket projecting outwardly from its planar body at one end and a plurality of engagement members at the other end in accordance with a first embodiment, and Figure 9B shows a connection plate similar to the connection plate of Figure 9A but with an extended planar body for including another bracket at the end of the plurality of engagement members in accordance with a second
25 embodiment;

Figure 10 shows a diagram of a plate connector having a planar connector body and corresponding retaining element for engaging with at least some of the plurality of engagement members of the connection plate of Figures 9A or Figure 9B in accordance with an embodiment;

Figure 11 shows a diagram illustrating capping and/or restraining of a wall with a L-shaped configuration in accordance with an embodiment;

Figure 12 shows a diagram illustrating the channel capping assembly and the supporting frame of the wall of Figure 11 without the wall portions;

- 5 Figure 13 shows a diagram of a blown-up perspective view of a L-shaped junction formed for capping and/or restraining the wall with the L-shaped configuration of Figure 11, where connection between two capping channels is formed using the connection plate of Figure 9A and the plate connector of Figure 10 in accordance with an embodiment;

- 10 Figure 14 shows a diagram illustrating capping and/or restraining of a wall with a T-shaped configuration in accordance with an embodiment;

Figure 15 shows a diagram of a blown-up perspective view of a T-junction formed for capping and/or restraining the wall with the T-shaped configuration of Figure 14, where connection between three capping channels is formed using the connection plate of Figure 9B and the plate connector of Figure 10 in accordance with an embodiment;

- 15 Figure 16 shows a diagram illustrating capping and/or restraining of a wall with a X-shaped configuration in accordance with an embodiment;

- 20 Figure 17 shows a diagram of a blown-up perspective view of a X-junction formed for capping and/or restraining the wall with the X-shaped configuration of Figure 16, where connection between four capping channels is formed using the connection plate of Figure 9B and two plate connectors of Figure 10 in accordance with an embodiment;

Figure 18 is a flow chart showing steps of a method for capping and/or restraining a wall using a capping channel assembly comprising capping channels of Figure 1, the connection plate of Figure 9A, the plate connector of Figure 10 and the fastening inserts of Figure 3 in accordance with an embodiment;

- 25 Figure 19 is a flow chart showing steps of a method for capping and/or restraining a wall using the capping channels of Figure 1 and vertical connectors of Figure 2 for securing the capping channels to a supporting frame of the wall in accordance with an embodiment; and

Figures 20A, 20B, 20C, 20D and 20E show diagrams illustrating a workflow for capping and/or restraining a wall having a J-shaped configuration in accordance with an embodiment, where Figure 20A shows a diagram illustrating the wall having the J-shaped configuration formed in a supporting frame with three vertical stiffener members of Figure 4, Figure 20B shows a diagram illustrating placing and connecting of the connection plates of Figure 9A and 9B, the plate connectors of Figure 10 and the vertical connectors of Figure 2 at a top of the wall, Figure 20C shows a diagram illustrating provision of capping channels of Figure 1 at the top of the wall to overlap with parts of the connection plates, the plate connectors and the vertical connectors, Figure 20D shows a diagram illustrating insertion of fastening inserts and connector fastening inserts for connecting the capping channels to the connection plates and the plate connectors, and Figure 20E shows a diagram illustrating a completion of the capping and/or restraining of the wall.

Detailed description

Exemplary embodiments relating to a connector assembly, a capping channel assembly comprising the connector assembly and a method for capping and/or restraining a wall using the capping channel assembly are described.

Figure 1 shows a diagram of a capping channel 100 in accordance with an embodiment. The capping channel 100 is normally prefabricated and preferably made of steel or other metal. The capping channel 100 can be sized to fit atop a wall, and covering a thickness of the wall. As shown in Figure 1, the capping channel 100 comprises an elongated channel body 102 having a longitudinal axis 104. The channel body 102 includes an elongated base member 106 which is generally flat, and side legs 108, 110 projecting downwards along respective sides of the base member 106 to define a generally inverted U-shaped channel as shown in Figure 1. The side legs 108, 110 in the present embodiment are substantially perpendicular with respect to the base member 106.

The channel body 102 further comprises a first central slot 112 and a second central slot 114 formed at the two ends or end portions of the elongated base member 106 of the channel body 102. In other words, the second central slot 114 is formed at an opposite end to the first central slot 112. In the present embodiment, the first central slot 112 and the second central slot 114 are identical in shape and size and so can be used interchangeably. As shown in Figure 1, the central slots 112, 114 formed are located

along a longitudinal midline 115 of the channel body 102. The channel body 102 also includes pairs of elongated slots 116, 118 arranged along a length of the capping channel at both ends or end portions of the elongated base member 106. In the present embodiment, each of the elongated slots 116, 118 has a longitudinal slot axis 120, and the elongated slots 116, 118 are arranged such that the longitudinal slot axis 120 of each of the elongated slots 116, 118 transverses the length or the longitudinal axis 104 of the channel body 102. The pairs of elongated slots 116, 118 are designed to allow tolerances for the adaptability in size of the capping channel 100 based on standardized 50 mm length increments.

- 10 The channel body 102 also includes a series of perforations and in this embodiment, the perforations are apertures 122 arranged as rows formed on each of the side legs 108, 110 of the channel body 102. These apertures 122 are arranged to receive mortar to allow greater bonding between the capping channel 100 and sand-cement plaster finish applied to the capping channel 100. As shown in Figure 1, these apertures 122 are elliptical in shape in the present embodiment.

- Figure 2 shows a diagram of a vertical connector 200 in accordance with an embodiment. The vertical connector 200 is adapted to connect a capping channel 100 to a supporting frame of a wall. In the present embodiment, the vertical connector 200 comprises a L-shaped planar connector body 202 (e.g. a L-shape bracket) as shown in Figure 2. The L-shaped planar connector body 202 includes a vertical connector bracket 204 projecting outwardly from the L-shape planar connector body 202 at a base portion 208 and a plurality of side wall engagement members adapted to engage with corresponding retaining elements of the supporting frame at a side portion 210 for connecting the vertical connector to the supporting frame. The base portion 208 of the L-shape planar connector body 202 is adapted to slot between a top of the wall and a capping channel 100, when in use, for connecting the vertical connector 200 to the capping channel 100 at one end, while the side portion 210 of the L-shape planar connector body 202 is adapted to connect the vertical connector 200 to the supporting frame at the other end for securing the capping channel 100 to the supporting frame of the wall, when in use.
- 20 The vertical connector bracket 204 is adapted to be inserted through a first central slot 112 or a second central slot 114 of the capping channel 100 and form a vertical connector insertion opening 212 for receiving a vertical connector fastening insert for securing the

capping channel 100 to the vertical connector 200. Further details of a suitable fastening insert are discussed in relation to Figure 3. Further, in the present embodiment, the plurality of side wall engagement members includes two pairs of elongated side slots 206 formed at the side portion 210 of the vertical connector 200. The pairs of elongated side slots 206 are adapted to receive a frame fastener for securing the vertical connector 200 to a side of the supporting frame of the wall. Details on this are discussed further in relation to Figures 5 and 6.

Figure 3 shows a diagram of a fastening insert 300 in accordance with an embodiment. The fastening insert 300 comprises a planar insert body 302 having a tapered tongue portion 304 at one end, and a raised side portion 306 at the other end. The fastening insert 300 is adapted to be inserted at the end of the tapered tongue portion 304, where the tapered design aid in easing the insertion of the fastening insert 300. The raised side portion 306 is adapted to be held by the user for inserting the fastening insert 300 while in use. The planar insert body 302 further includes a central fastener projection 308 and a fastener bracket engagement portion 310. The central fastener portion 308 and the fastener bracket engagement portion 310 are adapted to engage with a bracket through which the fastening insert 300 is inserted, so that the bracket will be fitted at a gap 312 between the central fastener portion 308 and the fastener bracket engagement portion 310 for holding the fastening insert 300 in place.

Figure 4 shows a diagram of a vertical stiffener member 400 for forming a supporting frame of a wall in accordance with an embodiment. The vertical stiffener member 400 has an elongated stiffener body 402 having four side surfaces and in the present embodiment, two of the opposing side surfaces of the vertical stiffener member 400 have a plurality of engagement means in the form of elongated slots 404 which are arranged along two substantially parallel axes 406, 408 and which extend in a direction substantially parallel to the longitudinal axis 410 of the stiffener member 400. Each elongated slot 404 has a respective opening 412 formed near a centre of the elongated slot 404, and first and second recesses 414, 416 arranged at either side of the opening 412 and which extend in a direction opposite to the opening 412. The elongated slots 404 are adapted to engage with a frame fastener, as shown in relation to Figure 5, for connecting and securing the vertical connector 200 to the vertical stiffener member 400. The elongated slots 404 can also be used to receive other components such as connectors, fasteners, wall ties etc. for forming a supporting frame of a wall.

The vertical stiffener member 400 can be fabricated by roll-forming from sheets of pre-galvanised steel and laser welded at the sheet's edges to form a hollow box section. Details for using such vertical stiffener member 400 to form a supporting frame or assembly for a wall section are discussed in an earlier patent publication of the applicant,
 5 WO/2007/032746, and its entirety is included and referenced herein.

Figure 5 shows a diagram of a frame fastener 500 for securing the vertical connector 200 of Figure 2 to a side wall of the vertical stiffener member 400 of Figure 4 in accordance with an embodiment. The frame fastener 500 has a frame fastener body 502 comprising a frame fastener base member 504 and two frame fastener leg members 506,
 10 508. Each of the frame fastener leg members 506, 508 projects outward from each of the two ends of the frame fastener base member 504 in an upright manner to form a generally inverted U-shape of the frame fastener 500. As shown in Figure 5, each of the frame fastener leg members 506, 508 includes a leg projection 510, 512 which extends out from the frame fastener leg members 506, 508 in a direction substantially parallel to
 15 a longitudinal axis 514 of the frame fastener base member 504. As shown in Figure 5, the leg projections 510, 512 project from the frame fastener leg members 506, 508 towards each other and towards a centre or a midline 516 of the frame fastener 500. Each of the leg projections 510, 512 are also adapted to leave a gap 518 between an edge of each of the leg projections and the frame fastener base member 504. The gap
 20 518 is adapted to fit a thickness of the vertical connector 200 and a thickness of a side of the vertical stiffener member 400, for securing the vertical connector 200 with the vertical stiffener member 400 when the frame fastener 500 is in use. More detail on this is shown in relation to Figure 6. It should be noted that, in the present embodiment, the frame fastener leg members 506, 508 of the frame fastener 500 are similar to each other
 25 (except they are mirror-image to each other about a mid-plane of the frame fastener 500) so that the frame fastener 500 has a two-fold symmetry about its midline 516. In the present embodiment, the frame fastener 500 is removable or releasable.

Figure 6 shows a top view 600 of a side of a supporting frame of a wall where the vertical connector 200 of Figure 2 is connected to a capping channel 100 using its base portion
 30 208 and is connected to a side wall of the vertical stiffener member 400 of Figure 4 using its side portion 210. The side of the supporting frame is formed using a vertical stiffener member 400 which was previously described. As will be made clear in relation to Figures 20A to 20E, to achieve the connection as shown in Figure 6, the vertical connector 200

is first placed at a top of the wall and is connected to the vertical stiffener member 400 of the supporting frame of the wall using the frame fastener 500. The side portion 210 of the vertical connector 200 abuts a side of the vertical stiffener member 400 in this case. As shown in this top view 600, the frame fastener leg members 506, 508 of the frame fastener 500 are inserted through the elongated side slots 206 of the side portion 210 of the vertical connector 200 and the elongated slots 404 of the vertical stiffener member 400, before being secured to the vertical stiffener member 400. For securing the vertical connector 200 to the vertical stiffener member 400, the leg projections 510, 512 of the frame fastener 500 abuts the inner side 602 of the side wall of the vertical stiffener member 400, while the frame fastener base member 504 of the frame fastener 500 abuts part of the side portion 210 of the vertical connector such that the side portion 210 of the vertical connector 200 is in contact with the outer side 604 of the side wall of the vertical stiffener member 400. To secure the capping channel 100 to the vertical connector 200, the capping channel 100 is placed at the top of the wall with part of it overlapping with part of the base portion 208 of the vertical connector 200, with the vertical connector bracket 204 being inserted through the first central slot 112 or the second central slot 114 of the capping channel 100 (note that in the present embodiment, the first central slot 112 and the second central slot 114 are identical and so can be interchangeable). The fastening insert 300 is then inserted through the vertical connector bracket 204 for securing the capping channel 100 to the vertical connector 200. As shown in Figure 6, the central fastener portion 308 and the fastener bracket engagement portion 310 engage with the vertical connector bracket 204 through which the fastening insert 300 is inserted, so that the vertical connector bracket 204 is fitted between the central fastener portion 308 and the fastener bracket engagement portion 310 in the gap 312 for holding the fastening insert 300 in place, so as to secure the capping channel 100 to the vertical connector 200.

Figure 7 shows a diagram illustrating capping of a wall 702 with an in-line configuration in accordance with an embodiment. As shown in Figure 7, the wall 702 is supported at its vertical sides by a supporting frame 704 formed by two vertical stiffener members 400 at each side of the wall 702. Attached to the vertical stiffener members 400 of the supporting frame 704 are base plates 706, 708. In the present embodiment, each of the base plates 706, 708 is press-formed from pre-galvanised steel and includes a generally flat base member 710 and connection means for connecting to an extension member

712. The extension member 712 is in turn adapted to be slidably connected with the vertical stiffener member 400 so that a height of the supporting frame 704 can be adjusted.

In the present embodiment where the wall 702 is in an in-line configuration as shown in Figure 7, a capping channel 100 is made to fit a length 714 of the wall 702 for capping and/or restraining the wall 702. As described above, for capping and/or restraining the wall 702, vertical connectors 200 are first placed on both ends of the length 714 of the wall 702 at the top edge of the wall 702, and abutting side walls of the vertical stiffener members 400 of the supporting frame. The capping channel 100 is provided at the top of the wall 702 such that the capping channel 100 is overlapping with part of the base portion 208 of each of the vertical connectors 200, with the vertical connector bracket 204 of each of the vertical connectors 200 being inserted through a corresponding first central slot 112 and second central slot 114 of the capping channel 100. The vertical connectors 200 are then connected to the vertical stiffener members 400 by using the frame fastener 500 as described in relation to Figure 6. Fastening inserts 300 are then inserted through the vertical connector brackets 204 of each of the vertical connectors 200 for securing the capping channel 100 to each of the vertical connectors 200. The completed state for capping of the wall 702 with the in-line configuration is shown in Figure 7. A blown-up perspective view of a L-shaped joint 716 formed at a junction between the vertical stiffener member 400 and the capping channel 100 is shown in relation to Figure 8.

Figure 8 shows a diagram of a blown-up perspective view 800 of the L-shaped joint 716 formed at the junction between the vertical stiffener member 400 of the supporting frame of Figure 7 and the capping channel 100 in accordance with an embodiment. As shown in Figure 8, at a completed state of capping of the wall 702, the L-shaped vertical connector 200 is connected to a side surface of the vertical stiffener member 400 at its side portion 210 and is connected to the capping channel 100 via the vertical connector bracket 204 at the base portion 208 of the vertical connector 200. In the present embodiment as shown in relation to Figure 8, the side portion 210 of the vertical connector 200 is secured to the vertical stiffener member 400 using two frame fasteners 500, while the base portion 208 of the vertical connector 200 is secured to the capping channel 100 by inserting the fastening insert 300 through the vertical connector bracket 204.

Figures 1 to 3 and 5 show the components of a capping channel assembly for capping of a wall having an in-line configuration and supported in a supporting frame, as exemplified by Figures 7 and 8. For capping of walls with different configurations, in the present embodiments, a connector assembly comprising a connection plate and one or more plate connectors is also used. Components of the connector assembly are described in relation to Figures 9A, 9B and 10 below.

Figures 9A and 9B show a connection plate in accordance with two embodiments.

Figure 9A shows a first embodiment of a connection plate 900. The connection plate 900 has a planar body 902. The connection plate 900 comprises a bracket 904 projecting outwardly from the planar body 902 to form an insertion opening 906 at an end portion of the planar body 902, and a plurality of engagement members 908 formed at another end portion of the planar body 902. Similar to the vertical connector bracket 204, the bracket 904 with the insertion opening 906 is adapted to receive a fastening insert 300 for connecting the connection plate 900 to a capping channel 100.

The plurality of engagement members 908 of the connection plate 900 comprises two sets 910, 912 of engagement members, where the first set 910 of engagement members and the second set 912 of engagement members are arranged along two axes substantially parallel to a longitudinal axis 914 of the planar body 902 of the connection plate 900. Each set 910, 912 of engagement members includes a pair of brackets 916 and a central projection 918 between the brackets 916. The two sets 910, 912 of engagement members are identical, except that they are mirror image of each other along a longitudinal midline 919 of the connection plate 900. As shown in Figure 9A, the pair of brackets 916 and the central projection 918 are arranged so that their longitudinal axes are in a direction 920 which is substantially perpendicular to the longitudinal axis 914 of the planar body 902. In the present embodiment, each set 910, 912 of engagement members is adapted to engage with a corresponding retaining element of a plate connector for connecting to a capping channel 100. The mechanism for which each set 910, 912 of engagement members is adapted to engage with the corresponding element of the plate connector will be discussed in relation to Figure 10 and exemplified in relation to Figure 13 below.

In the present embodiment, the connection plate 900 further comprises a pair of elongated projections 922 formed in the planar body 902 adapted to be inserted into one

of the pairs of elongated slots 116, 118 of the capping channel 100 to vary an overall effective capping length for adapting to different sizing of walls. The bracket 904 together with the pair of elongated projections 922 can be considered as a channel engagement set 924 which is adapted to connect the connection plate 900 to a capping channel 100.

- 5 As shown in Figure 9A, the pair of elongated projections 922 also has a longitudinal axis in the direction 920 which is transverse to the longitudinal axis 914 of the planar body 902. The connection plate 900 can be used to connect two or three capping channels 100.

- Figure 9B shows a second embodiment of a connection plate 930. The connection plate 10 930 is named as an extended connection plate 930 hereafter for ease of differentiating between the first and second embodiments of the connection plate. As it is clear in Figure 9B, the extended connection plate 930 is similar to the connection plate of Figure 9A in that the extended connection plate 930 has an elongated planar body 932 and comprises the channel engagement set 933 formed at one end portion of the elongated planar body 15 932 and the plurality of engagement members 935. The extended connection plate 930, however, differs from the connection plate 900 of the first embodiment in that the extended connection plate 930 includes a second channel engagement set 936 formed at the other end portion of the extended connection plate 930 opposite to the end portion at which the channel engagement set 933 is formed. This is shown in Figure 9B. Similar 20 to the channel engagement set 924, 933, the second channel engagement set 936 includes a bracket 938 projecting outwardly from its elongated planar body 932 to form an insertion opening 940, and a pair of elongated projections 942 formed in the elongated planar body 932 adapted to be inserted into one of the pairs of elongated slots 116, 118 of the capping channel 100. In the present embodiment, as shown in Figure 9B, the 25 second channel engagement set 936 is a mirror image with respect to a transverse mid-line 944 of the extended connection plate 930 so that each of the brackets 931, 938 are placed at the outer end portions of the extended connection plate 930 for engaging with capping channels 100 at the two ends of the extended connection plate 930. The connection plate 930 can be used to connect three or four capping channels 100.

- 30 Figure 10 shows a diagram of a plate connector 1000 having a planar connector body 1002 and a corresponding retaining element 1004 for engaging with some of the plurality of engagement members 908, 935 of the connection plates 900, 930 of Figures 9A and 9B in accordance with an embodiment. The corresponding retaining element 1004

includes a raised portion 1006 being adapted to be inserted between a pair of brackets 916 of the connection plate 900, 930 where the raised portion 1006 has an aperture 1008 for engaging with a central projection 918 of the connection plate 900, 930 for connecting the plate connector 1000 to the connection plate 900, 930. As will be made clear in relation to Figure 13, with the orientations of a pair of brackets and a central projection of a set of engagement members such that their longitudinal axes are in a direction which is substantially perpendicular to a longitudinal axis of a planar body of a connection plate, the plate connector 1000 is adapted to be connected at a substantially right angle to the connection plate 900, 930 when the corresponding retaining element 1004 of the plate connector 1000 is engaged with a set of engagement members 910, 912, of the connection plate 900, 930.

The plate connector 1000 further comprises a connector bracket 1010 projecting outwardly from the planar connector body 1002 to form a connector insertion opening 1012 to receive a fastening insert 300 for connecting the plate connector to a capping channel 100. In the present embodiment, the plate connector 1000 comprises a pair of elongated projections 1014 formed in the planar connector body 1002 adapted to be inserted into one of the pairs of elongated slots 116, 118 of the capping channel 100, similar to the pairs of elongated projections 922, 942. The connector bracket 1010 together with the pair of elongated projections 1014 can be considered as a connector channel engagement set 1016 which is adapted to connect the plate connector 1000 to a capping channel 100.

In the present embodiment, the raised portion 1006 is raised by a height equivalent to a thickness of the planar body 902, 932 of the connection plate 900, 930 so that a base 1018 of the planar connector body 1002 is flushed with a base of the planar body 902, 932 of the connection plate 900, 930. This ensures that the connection plate 900, 930 and the plate connector 1000 can be laid flat at the top of a wall for capping and/or restraining the wall.

In the present embodiments, the vertical connector bracket 204 of the vertical connector 200, the brackets 904, 931, 938 of the connection plates 900, 930, and the connector bracket 1010 of the plate connector 1000 are identical so that they are all adapted to be connected to a capping channel 100 in a same way, which improves adaptability in the way the capping channel 100, the vertical connector 200, the connection plate 900, 930

and the plate connector 1000 can be connected. As will be apparent in relation to figures below, in the present embodiments, the vertical connector 200, the connection plate 900, 930 and the plate connector 1000 each have a planar body having a same thickness. This allows the capping channel 100 to be laid flat (or parallel to a top of a wall for capping) when parts of the capping channel overlap with the vertical connector 200, the connection plate 900, 930 and/or the plate connector 1000.

Figure 11 shows a diagram illustrating capping of a wall 1102 with a L-shaped configuration in accordance with an embodiment. The wall 1102 has two wall sections 1104, 1106, and the two wall sections 1104, 1106 are adjoined substantially at a right angle to each other at an end portion of each of the wall sections 1104, 1106 to form the L-shaped configuration. As shown in Figure 11, the wall 1102 is supported by a supporting frame 1101 formed by two vertical stiffener members 1103, 1105 at each free end portion of the wall sections 1104, 1106 (i.e. the end portion of the wall section which is not adjoined to the other wall section). The supporting frame 1101 is similar to the supporting frame 704 of the wall 702 with the in-line configuration, except that the two vertical stiffener members 400 are now arranged off-axis with each other (in other words, their side surfaces that are facing the wall 1102 are not parallel to each other).

In the present embodiment where the wall 1102 is in the L-shaped configuration, two capping channels 1108, 1110 are used. As shown in Figure 11, a transverse end of the wall section 1106 is adjoined to a longitudinal side of the end portion of the wall section 1104, and the capping channels 1108, 1110 can be fitted onto a length 1112 of the wall section 1104 and a length 1114 of the wall section 1106 for capping and/or restraining the wall 1102 accordingly. In the present case, a length of the capping channel 1108 is a selected modular length to suit the length 1112 of the wall section 1104 minus a thickness of the wall section 1106, while a length of the capping channel 1110 is a selected modular length to suit the length 1114 of the wall section 1106. Similar to the embodiment as described in relation to Figure 7, for capping and/or restraining the wall 1102, vertical connectors 1116, 1118 are placed at the two free ends of the wall sections 1104, 1106 for connecting to the vertical stiffener members 1103, 1105 respectively using the frame fasteners 500 as described in relation to Figure 6. In the present embodiment with the L-shaped configured wall 1102, the connection plate 900 and the plate connector 1000 are used, and are placed at a top of the L-joint 1120 of the wall sections 1104, 1106. The plate connector 1000 is connected to the connection plate 900

using a set of engagement members 910 by inserting the raised portion 1006 of the plate connector 1000 through the brackets 916 of the set of engagement members 910 and having the central projection 918 between the brackets 916 engaging with the aperture 1008 of the raised portion 1006. This will be made clear in relation to Figure 13 where a
5 blown-up perspective view of the L-joint 1120 is shown.

Once the vertical connectors 1116, 1118, the connection plate 900 and the plate connector 1000 are in place, the capping channels 1108, 1110 are provided at the top of the wall 1102 such that the capping channels 1108, 1110 are overlapping with part of the base portion of each of the vertical connectors 1116, 1118, part of the connection
10 plate 900 and part of the plate connector 1000. More specifically, in the present embodiment, the capping channel 1108 is overlapping the channel engagement set 924 of the connection plate 900, and the capping channel 1110 is overlapping with the connector channel engagement set 1016 of the plate connector 1000. The vertical connector brackets 204 of the vertical connectors 1116, 1118 are inserted through
15 corresponding central slots of the capping channels 1108, 1110 respectively. Further, the bracket 904 of the connection plate 900 and the connector bracket 1010 of the plate connector 1000 are inserted through the other of the central slots of the capping channels 1108, 1110 respectively (i.e. the central slots which are not engaged with the vertical connector brackets) as shown in Figure 11. The vertical connectors 1116, 1118 are
20 connected to the vertical stiffener members 1103, 1105 respectively using the frame fasteners 500. Fastening inserts 300 are then inserted through the vertical connector brackets of the vertical connectors 1116, 1118, the bracket 904 of the connection plate 900 and the connector bracket 1010 of the plate connector 1000 for joining the capping channels 1108, 1110, and the vertical connector brackets 204 of the vertical connectors
25 1116, 1118 for securing the capping channels 1108, 1110 to the supporting frame 1101. In the present embodiment, the capping channels 1108, 1110 are also secured to the top of wall 1102, for example, using openings 1119 provided on the elongated base members 106 of the capping channels 1108, 1110. The completed state for capping of the wall 1102 with the L-shaped configuration is shown in Figure 11.

30 Figure 12 shows a diagram 1200 illustrating the channel capping assembly and the supporting frame 1101 of the wall of Figure 11 without the wall portion sections 1104, 1106 for clarity. Similar parts are referenced similarly as previously discussed in relation to Figure 11. The channel capping assembly, in this case, includes the capping channels

1108, 1110, the connection plate 900, the plate connector 1000, the vertical connectors 1103, 1105, the frame fasteners 500 and the fastening inserts 300.

Figure 13 shows a diagram of a blown-up perspective view 1300 of the L-junction formed for capping and/or restraining the wall 1102 with the L-shaped configuration of Figure 11, where connection between the two capping channels 1108, 1110 is formed using the connection plate 900 of Figure 9A and the plate connector 1000 of Figure 10 in accordance with an embodiment. The connection at the L-joint 1120, as shown in Figure 11, involves a connection of the plate connection 900 with the capping channel 1110 and a connection of the plate connector 1000 with the capping channel 1108. In the present case, however, the connection plate 900 is shown to be in connection with the capping channel 1110 while the plate connector 1000 is in connection with the capping channel 1108. This is introduced at this point to demonstrate a flexibility in how the connection plate 900 and the plate connector 1000 can be engaged and connected together to form a same connection for a L-junction between wall sections 1104, 1106 of the wall 1102, given that the connection means between the connection plate 900 and the plate connector 1000 with the capping channels 100 are identical for the present embodiment.

As shown in Figure 13, the capping channel 1108 is overlapping with the connector channel engagement set 1016 of the plate connector 1000 and the capping channel 1110 is overlapping the channel engagement set 924 of the connection plate 900 in the present embodiment. The connector plate 900 and the plate connector 1000 are connected as aforementioned described. The connector bracket 1010 of the plate connector 1000 and the bracket 904 of the connection plate 900 are inserted through the corresponding central slots of the capping channels 1108, 1110 respectively (i.e. the central slots which are not engaged with the vertical connector brackets). Fastening inserts 300 are then inserted through the connector bracket 1010 of the plate connector 1000 and the bracket 904 of the connection plate 900 for joining the capping channels 1108, 1110 to form the L-shaped capping connection.

Figure 14 shows a diagram illustrating capping of a wall 1402 with a T-shaped configuration in accordance with an embodiment. The wall 1402 has two wall sections 1404, 1406, where a longitudinal side of the wall section 1404 (i.e. a side along a height of the wall section 1404) is adjoined at a middle of the wall section 1406 at substantially right angle to form the T-shaped configuration. As shown in Figure 14, the wall 1402 is

supported by a supporting frame 1401 formed by three vertical stiffener members 1408, 1410, 1412 at each free end portion of the wall sections 1404, 1406. To be specific, the vertical stiffener member 1408 is connected to the free end portion of the wall section 1404 (i.e. the end portion which is not adjoined/abutted to the wall section 1406) and the
5 vertical stiffener members 1410, 1412 are connected to each end portions of the wall section 1406 as shown in Figure 14.

In the present embodiment where the wall 1402 is in the T-shaped configuration, three capping channels 1414, 1416, 1418 are used. The capping channel 1414 can be adapted to fit onto a length of the wall section 1404, while each of the capping channels 1416,
10 1418 is adapted to fit less than half of the length of the wall section 1406, taking into account the length of the extended connection plate 930 used in connecting the capping channels 1414, 1416, 1418 in the present case, so that an entire length of the wall section 1406 is capped once the channel capping assembly is installed.

Similar to the embodiments as previously described in relation to Figures 7 and 11, for
15 capping and/or restraining the wall 1102, vertical connectors 1420, 1422, 1424 are placed at the ends of the wall sections 1404, 1406 which are adjoining the supporting frame. In the present embodiment with the T-shaped configured wall 1402, the extended connection plate 930 and the plate connector 1000 are placed at a top of the T-joint 1426 formed at the junction of the wall sections 1404, 1406 as shown in Figure 14. The plate
20 connector 1000 is connected to the extended connection plate 930 using a set of engagement members by inserting the raised portion 1006 of the plate connector 1000 through the brackets of the set of engagement members and having the central projection between the brackets of the set of engagement members engaging with the aperture 1008 of the raised portion 1006. This will be made clear in relation to Figure 15
25 where a blown-up perspective view of the T-joint 1426 is shown.

Similar to earlier embodiments, once the vertical connectors 1420, 1422, 1424, the extended connection plate 930 and the plate connector 1000 are in place, the capping channels 1414, 1416, 1418 are provided at the top of the wall 1402 such that portions of the capping channels 1414, 1416, 1418 are overlapping with part of the base portion of
30 each of the vertical connector 1420, 1422, 1424, and part of the extended connection plate 930 or part of the plate connector 1000. More specifically, in the present embodiment, each of the capping channels 1416, 1418 is overlapping a respective

channel engagement set 933, 936 at each end portions of the extended connection plate 930, and the capping channel 1414 is overlapping with the connector channel engagement set 1016 of the plate connector 1000. The vertical connector brackets 204 of the vertical connectors 1420, 1422, 1424 are inserted through corresponding central slots of the capping channels 1414, 1416, 1418 respectively. Further, the connector bracket 1010 of the plate connector 1000 and the brackets 931, 938 of the extended connection plate 930 are inserted through the other of the central slots of the capping channels 1414, 1416, 1418 respectively (i.e. the central slots which are not engaged with the vertical connector brackets) as shown in Figure 14. The vertical connectors 1420, 1422, 1424 are connected to the vertical stiffener members 1408, 1410, 1412 respectively using the frame fasteners 500 as previously described. Fastening inserts 300 are then inserted through the connector bracket 1010 of the plate connector 1000 and the brackets 931, 938 of the extended connection plate 930 for joining the capping channels 1414, 1416, 1418. Fastening inserts 300 are also inserted through the vertical connector brackets of the vertical connectors 1420, 1422, 1424 for securing the capping channels 1414, 1416, 1418 to the supporting frame 1401. In the present embodiment, the capping channels 1414, 1416, 1418 are also secured to the top of wall 1402, for example, using openings 1428 provided on the elongated base members 106 of the capping channels 1414, 1416, 1418. The completed state for capping of the wall 1402 with the T-shaped configuration is shown in Figure 14.

Figure 15 shows a diagram of a blown-up perspective view 1500 of the T-junction 1426 formed for capping and/or restraining the wall 1402 with the T-shaped configuration of Figure 14, where connection between three capping channels 1414, 1416, 1418 is formed using the connection plate 930 of Figure 9B and the plate connector 1000 of Figure 10 in accordance with an embodiment.

As shown in this blown-up perspective view 1500, the plate connector 1000 is connected to the extended connection plate 930 by inserting the raised portion 1006 of the plate connector 1000 through the brackets 1502 of a set of engagement members of the extended connection plate 930, and having the central projection 1504 between the brackets 1502 of the set of engagement members engaging with the aperture 1008 of the raised portion 1006 of the plate connector 1000.

Also shown in relation to Figure 15 is that a portion of the capping channel 1414 is overlapping with the connector channel engagement set 1016 of the plate connector 1000 and portions of the capping channels 1416, 1418 are overlapping with respective channel engagement sets 933, 936 at each end portions of the extended connection plate 930 in the present embodiment. The connector bracket 1010 of the plate connector 1000 and the brackets 931, 938 of the extended connection plate 930 are inserted through the corresponding central slots of the capping channels 1414, 1416, 1418 respectively (i.e. the central slots which are not engaged with the vertical connector brackets). Fastening inserts 300 are then inserted through the connector bracket 1010 of the plate connector 1000 and the brackets 931, 938 of the extended connection plate 930 for joining the capping channels 1414, 1416, 1418 to form the T-shaped capping connection.

Figure 16 shows a diagram illustrating capping of a wall 1602 with a X-shaped configuration in accordance with an embodiment. For succinctness, the X-shaped configuration will be described by building up from the T-shaped configuration of Figure 14 and therefore similar features in the present X-shaped configuration share similar reference numerals. This does not, however, intend to limit the formation of the X-shaped wall 1602 in any way. For example, in another embodiment, a wall with a X-shaped configuration can be formed using more than three wall sections as is presently described.

In the present embodiment, the wall 1602 has three wall sections 1404, 1406, 1604, where a longitudinal side of the additional wall section 1604 (i.e. a side along a height of the wall section 1604) is adjoined at a middle of the wall section 1406 at substantially right angle so that the X-shaped configuration is formed from the previous T-shaped configuration as shown in relation to Figure 14. Similar to previous embodiments, the wall 1602 is supported by a supporting frame 1601, the supporting frame 1601 comprising four vertical stiffener members 1408, 1410, 1412, 1606 at each free end portion of the wall sections 1404, 1406, 1604. To be specific, the vertical stiffener member 1408 is connected to the free end portion of the wall section 1404 (i.e. the end portion which is not adjoined/abutted to the wall section 1406), the vertical stiffener members 1410, 1412 are connected to each end portions of the wall section 1406, and the vertical stiffener member 1606 is connected to the free end portion of the wall section 1604 as shown in Figure 16.

In the present embodiment where the wall 1602 is in the X-shaped configuration, four capping channels 1414, 1416, 1418, 1608 are used. In addition to the capping channels 1414, 1416, 1418 which can be fitted onto their corresponding wall sections as previously described, the capping channel 1608 can be fitted onto a length of the wall section 1604 so that the X-shaped top of the wall 1602 is capped once the channel capping assembly is installed. As described above, pairs of elongated slots 116, 118 are provided along a length of the capping channel at both ends or end portions of the elongated base member 106 of a capping channel 100. These pairs of elongated slots 116, 118 are designed to allow tolerances for the adaptability in size of the capping channel 100 based on standardized 50 mm length increments (or other length increments as appropriate). Therefore, use of the capping channels and connector assembly of the present disclosure dispense of any cutting of the capping channels on site and provide adaptability through the use of the elongated slots 116, 118 of the capping channels, and the elongated projections 922, 942 of the connection plates 900, 930 or the elongated projections 1014 of the plate connector 1000.

Similar to the embodiments as previously described in relation to Figures 7, 11 and 14, for capping and/or restraining the wall 1602, vertical connectors 1420, 1422, 1424, 1610 are placed at the ends of the wall sections 1404, 1406, 1604 which are adjoining the supporting frame 1601. In the present embodiment with the X-shaped configured wall 1602, the extended connection plate 930 and two plate connectors 1000, 1612 are used, and are placed at a top of the X-joint 1614 formed at the junction of the wall sections 1404, 1406, 1604 as shown in Figure 16. The plate connectors 1000, 1612 are connected to the extended connection plate 930 using the two sets of engagement members by inserting the raised portion of each of the plate connectors 1000, 1612 through corresponding pairs of brackets of the sets of engagement members and having the corresponding central projections between the pairs of brackets of the sets of engagement members engaging with the aperture 1008 of each of the raised portions of the plate connectors 1000, 1612. This will be made clear in relation to Figure 17 where a blown-up perspective view of the X-joint 1614 is shown.

Similar to earlier embodiments, once the vertical connectors 1420, 1422, 1424, 1610, the extended connection plate 930 and the plate connectors 1000, 1612 are in place, the capping channels 1414, 1416, 1418, 1608 are provided at the top of the wall 1602 such that the capping channels 1414, 1416, 1418, 1608 are overlapping with part of the base

portion of each of the vertical connectors 1420, 1422, 1424, 1610, and part of the extended connection plate 930 or part of the plate connector 1000, 1612. More specifically, in the present embodiment, the capping channels 1416, 1418 are overlapping the channel engagement sets 933, 936 at each end portions of the extended connection plate 930, and each of the capping channels 1414, 1608 are overlapping with a corresponding connector channel engagement set 1016 of the plate connector 1000, 1612. Each of the vertical connector brackets 204 of the vertical connectors 1420, 1422, 1424, 1610 are inserted through a corresponding central slot of each of the capping channels 1414, 1416, 1418, 1608. Further, the connector bracket 1010 of the plate connector 1000, the brackets 931, 938 of the extended connection plate 930 and the connector bracket 1010 of the plate connector 1612 are inserted correspondingly through the other of the central slots of the capping channels 1414, 1416, 1418, 1608 (i.e. the central slots which are not engaged with the vertical connector brackets) as shown in Figure 16. The vertical connectors 1420, 1422, 1424, 1610 are connected to the vertical stiffener members 1408, 1410, 1412, 1606 respectively using the frame fasteners 500 as previously described. Fastening inserts 300 are then inserted through the connector bracket 1010 of the plate connector 1000, the brackets 931, 938 of the extended connection plate 930 and the connector bracket 1010 of the plate connector 1612 for joining the capping channels 1414, 1416, 1418, 1608, and through the vertical connector brackets 204 of the vertical connectors 1420, 1422, 1424, 1610 for securing the capping channels 1414, 1416, 1418, 1608 to the supporting frame 1401. In the present embodiment, the capping channels 1414, 1416, 1418, 1608 are also secured to the top of wall 1602, for example, using openings provided on the elongated base members 106 of the capping channels 1414, 1416, 1418, 1608. The completed state for capping of the wall 1602 with the X-shaped configuration is shown in Figure 16.

Figure 17 shows a diagram of a blown-up perspective view 1700 of the X-junction formed for capping and/or restraining the wall 1602 with the X-shaped configuration of Figure 16, where connection between four capping channels 1414, 1416, 1418, 1608 is formed using the extended connection plate 930 of Figure 9B and the two plate connectors 1000, 1612 of Figure 10 in accordance with an embodiment.

For succinctness, only the connection made to the extended connection plate 930 by the plate connector 1612 is described here. The connections 1702, 1704 between the extended connection plate 930 and the capping channels 1416, 1418, and the

connection 1706 between the extended connection plate 930, the plate connector 1000 and the capping channel 1414 were previously described in relation to Figure 15 for the T-junction.

As shown in this blown-up perspective view 1700, the plate connector 1612 is connected
5 to the extended connection plate 930 by inserting the raised portion 1708 of the plate connector 1612 through the brackets 1710 of a set of engagement members of the extended connection plate 930, and having the central projection 1712 between the brackets 1710 of the set of engagement members engaging with an aperture of the raised portion 1708 of the plate connector 1612. It is noted that the set of engagement
10 members in use in this case is the second set of engagement members of the connection plate 930 (i.e. the set of engagement members not in use for the connection 1706). Further, a portion of the capping channel 1608 is overlapping with a connector channel engagement set 1016 of the plate connector 1612. The connector bracket 1714 of the plate connector 1612 is inserted through a corresponding central slot of the capping
15 channel 1608 (i.e. the central slot which is not engaged with the vertical connector 1610). A fastening insert 300 is then inserted through the connector bracket 1714 of the plate connector 1612 to connect the capping channel 1608 to the extended connection plate 930 for forming the X-shaped capping connection with the other connections 1702, 1704, 1706.

20 Figure 18 is flow chart showing steps of a method 1800 for capping and/or restraining a wall using a capping channel assembly comprising the capping channels 1000 of Figure 1, the connection plate 900 of Figure 9A, and the plate connector 1000 of Figure 10 in accordance with an embodiment. The method 1800 describes connections involving the connection plate 900 and one plate connector 1000 for simplicity, but it should be
25 appreciated that more than one connection plates 900, 930 and/or more than one plate connectors 1000 can be used, as exemplified in relation to Figures 17 and Figures 20A to 20E below. For simplicity, the L-shaped configuration of Figure 11 is used in the present illustration.

In a step 1802, the connection plate 900, and the plate connector 1000 are placed at a
30 top of the wall 1102, and at a corner formed at the adjoining edges of the wall sections 1104, 1106. In embodiments where there are more than one connection plates 900, 930

and/or more than one plate connectors 1000, these additional connection plates 900, 930 and/or plate connectors 1000 are also placed on top of the wall in this step.

10 In a step 1804, the plate connector 1000 is connected to the connection plate 900 by engaging the raised portion 1006 of the plate connector 1000 with the at least some of the plurality of engagement members 908 of the connection plate 900. In embodiments
5 where there are more than one connection plates 900, 930 and/or more than one plate connectors 1000, these additional connection plates 900, 930 and/or plate connectors 1000 are also connected accordingly in this step.

10 In a step 1806, the capping channels 1108, 1110 are provided at the top of the wall where a part of each of the capping channels 1108, 1110 overlaps with a part of the connection plate 900 or a part of the plate connector 1000. In the present embodiment as shown in relation to Figure 11, an end portion of the capping channel 1108 overlaps with a part of the connection plate 900, while an end portion of the capping channel 1110 overlaps with a part of the plate connector 1000, although it should be appreciated that
15 alternative arrangement as shown in relation to Figure 13 can be used. In embodiments where there are more than one connection plates 900, 930 and/or more than one plate connectors 1000, capping channels 100 are provided so that parts of these capping channels overlap with corresponding portions of these additional connection plates 900, 930 and/or plate connectors 1000 in this step.

20 In a step 1808, the pair of elongated projections 922 of the connection plate 900 and the pair of elongated projections 1014 of the plate connector 1000 are inserted into one of the pairs of the elongated slots of the corresponding capping channels 1108, 1110. One of the pairs of the elongated slots of the capping channels 1108, 1110 for engaging with the respective pairs of elongated projections 922, 1014 can be selected based on an
25 effective capping length required for capping and/or restraining the wall sections 1104, 1106. The bracket 904 of the connection plate 900 and the connector bracket 1010 of the plate connector 1000 are also inserted through corresponding central slots of the capping channels 100.

30 Similarly, in embodiments where there are more than one connection plates 900, 930 and/or more than one plate connectors 1000, pairs of elongated projections are inserted into appropriate pairs of elongated slots of their respective capping channels depending on the effective capping length required, and brackets of the connection plates and

connector brackets of the plate connectors are inserted through corresponding central slots of capping channels in this step.

In a step 1810, inserting a fastening insert 300 into the bracket 904 of the connection plate 900 and a connector fastening insert 300 into the connector bracket 1010 for
5 connecting the capping channels to the connection plate 900 and the plate connector 1000 respectively for capping and/or restraining the wall. In the present embodiment, the bracket 904 and the connector bracket 1010 are identical and so a same fastening insert 300 can be used for either brackets 904, 1010 (i.e. the fastening insert 300 and the connector fastening insert are the same). Similarly, in embodiments where there are
10 more than one connection plates 900, 930 and/or more than one plate connectors 1000, appropriate fastening inserts 300 can be inserted into brackets of the connection plates and/or the connector brackets of the plate connectors in this step.

In a step 1812, in the present embodiment, the capping channels 1108, 1110 are also secured to the top of wall 1102 using openings 1119 provided on the elongated base
15 members 106 of the capping channels 1108, 1110.

Figure 19 is a flow chart showing steps of a method 1900 for securing capping channels 100 to a supporting frame of a wall in accordance with an embodiment. This is in relation to embodiments where a supporting frame including vertical stiffener members 400 is used for supporting the wall. Vertical connectors 200 as exemplified by Figure 2 can be
20 used in these cases. Similarly, the L-shaped configuration of Figure 11 is used in the present illustration for simplicity.

In a step 1902, the vertical connectors 1116, 1118 are placed at the top of the wall 1102. As described in earlier embodiments, these vertical connectors 200 are placed at junctions where sections of the wall are connected to the vertical stiffener members 1103, 1105 of the supporting frame 1101. In relation to the L-shaped configuration of Figure 11, the vertical connectors 1116, 1118 are placed at the two ends of the wall sections 1104, 1106 which are connected to the vertical stiffener members 1103, 1105. The step
25 1902 can be performed in conjunction with the step 1802 as previously described.

In a step 1904, the capping channels 1108, 1110 provided over the top of the wall 1102
30 in the step 1806 are also arranged such that the other end portions of the capping channels 1108, 1110 overlap with a part of each of the vertical connectors 1116, 1118.

That is, the overlapped portion of each of these capping channels 1108, 1110 is at an opposite end to the end portion of these capping channels 1108, 1110 which are engaged with the connection plate 900 or the plate connector 1000. The step 1904 can be performed in conjunction with the step 1806 as previously described.

- 5 In a step 1906, the vertical connector bracket 204 of each of the vertical connectors 1116, 1118 are inserted through corresponding central slots of these capping channels 1108, 1110, respectively. The step 1906 can be performed in conjunction with the step 1808 as previously described. In the present example for the L-shaped configuration, the pairs of the elongated slots of the capping channels 1108, 1110 which are engaged with their
10 respective pairs of elongated projections 922, 1014 provide restriction on the X-Y axis movement of the capping channels. In an embodiment where a wall is in an in-line configuration (e.g. as shown in Figure 7) and is capped by a capping channel between two vertical connectors, movement of the capping channel atop this single-axis wall is allowed between the two vertical connectors.
- 15 In a step 1908, the vertical connectors 1116, 1118 are connected to side walls of the vertical stiffener members 1103, 1105 of the supporting frame 1101. This can be performed as previously described using the frame fasteners 500 or by some other suitable means. For example, to connect or secure the vertical connectors 1116, 1118 to the vertical stiffener members 1103, 1105, frame fasteners 500 are inserted through
20 the elongated side slots 206 of the side portion 210 of the vertical connector 1116, 1118 and the elongated slots 404 of the vertical stiffener member 1103, 1105 of the supporting frame 1101.

- 25 In a step 1910, the vertical connectors 1116, 1118 are connected to the capping channels 1108, 1110 for securing the capping channels 1108, 1110, together with the connection plate 900 and the plate connector 1000, to the supporting frame 1101 of the wall 1102. In the present embodiments, securing the vertical connectors 1116, 1118 to these capping channels 1108, 1110 include inserting the vertical connector fastening insert into the vertical connector bracket 204 of each of the vertical connectors 1116, 1118 for connecting the vertical connectors 1116, 1118 to these capping channels 1108,
30 1110. In present embodiments, the vertical connector fastening inserts used for connecting vertical connectors to capping channels are the same as the fastening inserts used for connecting connection plates and/or plate connectors to the capping channels,

which are shown in Figure 3. This minimises complications in relation to providing different fastening inserts for the different connections for connecting the capping channels.

5 It should be appreciated that in some embodiments, for example the J-shaped configuration as described in relation to Figures 20A, 20B, 20C, 20D and 20E below, not all of the capping channels would be connected to a vertical connector 200.

Figures 20A, 20B, 20C, 20D and 20E show diagrams illustrating a workflow for capping and/or restraining a wall 2002 having a J-shaped configuration in accordance with an embodiment. The J-shaped configuration as shown is formed by adjoining wall sections
10 using a T-junction and a L-junction, and are therefore a combination of the L-shaped configuration and the T-shaped configuration as aforementioned described. We have termed this herein as a “J-shaped” configuration for succinctness, and it does not constitute another form of configuration *per se*.

Figure 20A shows a diagram 2000 illustrating the wall 2002 having the J-shaped
15 configuration formed in a supporting frame 2001 with three vertical stiffener members 400 of Figure 4. The wall 2002 includes three wall sections 2004, 2006, 2008. To form the J-shaped configuration in the present embodiment, the two wall sections 2004, 2006 are adjoined substantially at right angle to each other at an end portion of each of these wall sections 2004, 2006 to form the L-shaped configuration, while the other end portion
20 of the wall section 2006 (i.e. the end portion which is not adjoined to the wall section 2004) is adjoined at a middle of the wall section 2008 at substantially right angle in a T-shaped configuration to form the eventual J-shaped configuration, as shown in Figure 20A. It should be appreciated that in some embodiments, the other end portion of the wall section 2006 can be adjoined at any other point / portion along the wall section 2008
25 (except for the end portions of the wall section 2008) and not necessarily at the mid-point or mid-portion of the wall section 2008.

Figure 20B shows a diagram 2010 illustrating placing and connecting of the connection plates 900, 930 of Figure 9A and 9B, the plate connectors 1000 of Figure 10 and the vertical connectors 200 of Figure 2 at a top of the wall 2002. As exemplified earlier in
30 relation to Figures 13 and 15, connection between capping channels 100 for a L-shaped joint 2012 can be formed using a connection plate 900 and a plate connector 1000, while connection between capping channels 100 for a T-shaped joint 2014 can be formed

using an extended connection plate 930 and a plate connector 1000. The placements of these components of a connector assembly are shown in Figure 20B. This is in relation to the step 1802. The connection plate 900 and the plate connector 1000 are also connected at this stage at the L-shaped joint 2012, while the extended connection plate 930 and the plate connector 1000 are also connected at the T-shaped joint 2014 as previously described in relation to the step 1804. Further, as described in relation to the step 1902, vertical connectors 200 are also placed at the junctions between the wall sections 2004, 2008 and their respective vertical stiffener members 400, where each of the base portions of the vertical connectors 200 are abutting the top of the wall 2002 and each of the side portions of the vertical connectors 200 are abutting the side walls of their corresponding vertical stiffener members 400. In the present embodiment, the vertical connectors 200 are connected to their respective vertical stiffener members 400 using the frame fasteners 500 at this time, as described in relation to the step 1908.

Figure 20C shows a diagram 2020 illustrating provision of capping channels 100 of Figure 1 at the top of the wall 2002 to overlap with parts of the connection plates 900, 930, the plate connectors 1000 and the vertical connectors 200. This relates to the steps 1806 and 1904. The capping channels 100 are provided at the top of the wall 2002 where a part of each of the capping channels 100 overlaps with at least a part of the connection plate 900, 930 or a part of the plate connector 1000. In the present embodiment, the capping channel 100 atop the wall section 2006 overlaps with a part of the connection plate 900 at the L-shaped joint 2012 and a part of the plate connector 1000 at the T-shaped joint 2014. The other capping channels 100 provided over the top of the wall 2002 are arranged such that a part of each of these capping channels 100 (e.g. the capping channels 100 atop the wall section 2004 and the wall section 2008 in the present embodiment) overlap with a part of each of the vertical connectors 200. The overlapped portion of each of these capping channels 100 with a base portion of a corresponding vertical connector is at an opposite end to the end portion which is engaged with the connection plate 930 or the plate connector 1000.

Figure 20D shows a diagram 2030 illustrating insertion of fastening inserts 300 and connector fastening inserts 300 for connecting the capping channels 100 to the connection plate 900, 930 and the plate connectors 1000, respectively. Following from Figure 20C, the capping channels 100 are placed in such a way that the brackets of the connection plates 900, 930, the connector brackets 1010 of the plate connectors 1000

and the vertical connector brackets 204 of the vertical connectors 200 are inserted through corresponding central slots of the capping channels 100. This relates to the steps 1808 and 1906 as described above. Fastening inserts 300 are then inserted into the brackets of the connection plates 900, 930 for connecting the connection plates 900, 930 to their respective capping channels 100, and connector fastening inserts 300 are inserted into the connector brackets 1010 of the plate connectors 1000 for connecting the plate connectors 1000 to their corresponding capping channels 100. Vertical connector fastening inserts 300 are also inserted into the vertical connector bracket 204 of each of the vertical connectors 200 for connecting the vertical connectors to their corresponding capping channels. As shown in Figure 20D, each capping channel 100 are secured at each of their two end portions to either a vertical connector 200, a connection plate 900, 930 or a plate connector 1000. Together, these connections formed an interconnected capping channel assembly which is secured or connected to the supporting frame 2001 of the wall 2002.

Figure 20E shows a diagram 2040 illustrating a completion of the capping of the wall 2002. As shown in Figure 20E, the five joints 2012, 2014, 2016, 2018, 2020 are connected so that the capping channel assembly is secured or connected to the supporting frame 2001 of the wall 2002. In the present embodiment, the capping channels 100 are also secured to the top of wall 2002, for example, using openings provided on the elongated base members 106 of the capping channels 100.

Although embodiments of the connector assembly as described above use both a connection plate and a plate connector for connecting the various wall configurations, in some embodiments, the connection plate can be made to complete the shape of the joint so that a plate connector is not necessary. For example, for a L-shaped joint, the connection plate can be made into a L-shape of a suitable size so as to directly connect two capping channels without the need of a plate connector. In this case, brackets can be formed at the two ends of the L-shape connection plate for connecting to respective capping channels using fastening inserts as described above. The same applies for a T-shape joint where a T-shape connection plate can be formed.

In the above embodiments as described, the brackets of the connection plates 900, 930, the connector bracket of the plate connector 1000 and the vertical connector bracket 204 of the vertical connector 200 are all identical. Therefore, the fastening insert, the

connector fastening insert and the vertical connector fastening insert used for these respective brackets are also identical (e.g. using the fastening insert 300 as shown in Figure 3). This provides flexibility in mixing and matching the fastening inserts for these brackets and minimises customisation and therefore lowers the overall manufacturing costs. Further, by having identical brackets, the capping channels can also be made to have identical central slots on both end portions to improve manufacturability of the capping channels. This also allows more flexibility in how these capping channels can be connected and assembled for capping walls with different configuration.

In the present embodiments, the connection plate 930 provided can be used for either a T-junction or a X-junction (see e.g. in relation to Figures 14 to 17) with one plate connector 1000 or two plate connectors 1000, respectively. For the connection plate 900 as shown in Figure 9A, it can be used for a L-junction or a T-junction with one plate connector 1000 or two plate connectors 1000, respectively. The connection plate 930 is not suitable to be used with L-junctions, while the connection plate 900 is not suitable to be used with X-junctions. The two different embodiments of the connection plates 900, 930 provided therefore complement each other. In an embodiment where the connection plate 900 is used for a T-junction, it will require two plate connectors 1000. Depending on a situation, it may be a viable option. For example, when connection plate 930 is not available for use in a T-junction and a worker is under time constraint to keep work in progress without disruption, it may be feasible to use the connection plate 900 with two plate connectors 1000 to form the T-junction.

Further, in the aforementioned embodiments, thicknesses of the walls or wall sections used have been assumed to be of a same size. In some embodiments, intersecting wall sections may have different wall thicknesses (e.g. when one of the adjoining walls has a thickness or width which is substantially larger than the other one of the adjoining walls), and customised sizing (e.g. a width and/or a thickness) of the connection plates 900, 930 and/or the plate connector 1000 may be necessary. Similarly, the width and/or the thickness of the vertical connector 200 can also be customised according to a thickness/width of a wall for capping. However, it is likely that the size of the fastening insert 300 and the vertical connector fastening insert, together with the size of their corresponding central slots of the capping channels can be retained even for different wall thicknesses. In these embodiments, the width of the capping channels 100 can also be customised based on the thickness of each wall sections.

It should also be appreciated that sizes of the vertical connectors, the connection plates, the plate connectors and the capping channels can be customised. The shapes and/or sizes of each of the features of the vertical connectors, the connection plates, the plate connectors and the capping channels can also be customised and are not limited to those as shown in relation to the embodiments as described above. Each of the
 5 aforementioned components, for example the capping channel, the vertical connector, the fastening insert, the vertical stiffener member, the frame fastener, the connection plate and the plate connector are normally prefabricated and preferably made of steel or aluminium or other metal.

10 Further, although supporting frames are used in the different embodiments for supporting the wall structure, use of the supporting frame is optional. Therefore, in some embodiments, the capping channel assembly do not include the vertical connectors and may be configured to be secured to a top of the wall by other means.

Other alternative embodiments include: (1) other locking mechanisms (e.g. bolt and nut),
 15 besides the bracket and fastening insert method as afore-described, for use in connecting the vertical connector to the capping channel, the connection plate to the capping channel, and the plate connector to the capping channel; (2) other locking mechanisms for connecting the connection plate to the plate connector (e.g. bolt and latch); (3) a capping channel which does not include the pairs of elongated slots 118; (4)
 20 a capping channel which does not include the perforations; (5) other locking mechanisms (e.g. use of a jack nut) for securing a vertical connector to a supporting frame of a wall; (6) the plate connector is adapted to be connected to the connection plate with a range of suitable angles (e.g. between 30° to 150° or between 45° to 135° etc.) other than at right angle; (7) a vertical connector having a side portion and a base portion angled at
 25 an acute angle or an obtuse angle (i.e. an angle other than a right angle); (8) the connection plate 900 comprising only one set of engagement members for engaging with a corresponding retaining element of the plate connector 1000; (9) pairs of elongated slots 116, 118 designed to allow tolerances for the adaptability in size of the capping channel 100, where the pairs of elongated slots 116, 118 are separated from one another
 30 based on customised increments (e.g. 10 mm, 20 mm, 30 mm etc.); (10) capping and/or restraining a masonry wall; (11) side legs 108, 110 of a capping channel being at an angle (e.g. an acute angle or an obtuse angle) to the base member 106 and are configured to adapt to a cross-sectional profile of the wall (for example, the side legs 108,

110 are angled so that an area of the side legs 108, 110 remain in contact with a face of the wall); (12) the apertures 122 may have a circular shape or an oval shape; (13) the vertical stiffener member 400 can be roll formed and nested; (14) the vertical connector 200 having circular holes in place of its elongated slots 206 to facilitate use of anchor bolts (or bolt and nut) for fastening the vertical connector 200 onto a concrete column; (15) the adjoining position between wall sections being at off-centre positions (for example, the wall section 1404 can be positioned at an off-centre position to the wall section 1406, and the wall section 2006 can be positioned at an off-centre position to the wall section 2008 etc.); (16) the plurality of engagement members 908, 935 being positioned off-centre with respect to the connection plates 900, 930 respectively; (17) a shape of the capping channel 100 as afore-described being in other forms or shapes other than a flat elongated plate with two side legs having a cross-section of an inverted U-shape as exemplified in relation to Figure 1. This may include a Z-shaped profile where the side legs of a capping channel are perpendicular to its base but with one side leg projecting upwards and the other downwards; (18) the capping channels and the connector assembly being placed on top of an intermediate wall section (i.e. not at the top of the eventual wall built, and wall construction can continue on top of the capping channel and channel assembly), and the capping channels and the connector assembly capping and/or restraining the intermediate wall section may be adapted to enable a further wall section to be built on top of the capped intermediate wall section; (19) where the capping channels and the connector assembly are placed on top of an intermediate wall section and a further wall section is provided on top of the capping channels and the connector assembly capping and/or restraining the intermediate wall section, the capping channel may be adapted to restrain a bottom of the further wall section. This may be provided by a shape of the capping channels (e.g. the side legs of the capping channel can extend both downwards and upwards so that the capping channel may have a H-shaped cross section or the aforementioned Z-shaped profile) and/or use of attaching elements for anchoring the further wall section on the capping channel; and (20) connecting or securing vertical connectors 200 to vertical stiffener members 400 of a side frame of a wall by using the frame fastener 500, before providing capping channels 100 at the top of the wall to overlap part of a base portion 208 of each of the vertical connectors 200 and with the vertical connector bracket 204 of each of the vertical connectors 200 being inserted through a corresponding central slots of the capping channels 100.

Although only certain embodiments of the present invention have been described in detail, many variations are possible in accordance with the appended claims. For example, features described in relation to one embodiment may be incorporated into one or more other embodiments and vice versa.

Claims

1. A connector assembly for connecting capping channels to cap and/or restrain a wall, the connector assembly comprising a connection plate having a planar body, the connection plate comprising:
 - 5 a first bracket projecting outwardly from the planar body to form a first insertion opening to receive a first fastening insert for connecting the connection plate to a first capping channel; and
 - a plurality of engagement members formed in the planar body, wherein at least some of the plurality of engagement members are adapted to engage with a
 - 10 corresponding retaining element for connecting to a second capping channel.
2. The connector assembly of claim 1, wherein the plurality of engagement members of the connection plate comprises a first set of engagement members including a first pair of brackets and a first central projection between the first pair of brackets.
- 15 3. The connector assembly of claim 2, further comprising a first plate connector having a first planar connector body and comprising the corresponding retaining element for engaging with the plurality of engagement members of the connection plate, the corresponding retaining element includes a first raised portion being adapted to be
- 20 inserted between the first pair of brackets of the connection plate and having a first aperture for engaging the first central projection of the connection plate for connecting the first plate connector to the connection plate.
4. The connector assembly of claim 3, wherein the first raised portion is raised by a height
- 25 equivalent to a thickness of the planar body of the connection plate so that a base of the first planar connector body is flushed with a base of the planar body of the connection plate.
5. The connector assembly of claim 3 or claim 4, wherein the first plate connector is
- 30 adapted to be connected at a substantially right angle to the connection plate.
6. The connector assembly of any one of claims 3 to 5, wherein the first plate connector further comprises a first connector bracket projecting outwardly from the first planar

connector body to form a first connector insertion opening to receive a first connector fastening insert for connecting the first plate connector to the second capping channel.

7. The connector assembly of any one of claims 1 to 6, wherein the connection plate
5 further comprises a second bracket projecting outwardly from the planar body to form a second insertion opening to receive a second fastening insert for connecting the connection plate to a third capping channel, the second bracket being located at an opposite end of the planar body to the first bracket.

10 8. The connector assembly of any one of claims 2 to 7, wherein the plurality of engagement members of the connection plate further comprises a second set of engagement members including a second pair of brackets and a second central projection between the second pair of brackets.

15 9. The connector assembly of claim 8, wherein the first set of engagement members and the second set of engagement members are arranged along two substantially parallel axes along a longitudinal axis of the planar body of the connection plate.

20 10. The connector assembly of claim 8 or claim 9, further comprising a second plate connector having a second planar connector body with a second raised portion, the second raised portion being adapted to be inserted between the second pair of brackets, the second raised portion having a second aperture for engaging the second central projection of the connection plate for connecting the second plate connector to the connection plate, wherein the second plate connector is adapted to be connected to the
25 connection plate at an opposite side of the first plate connector.

30 11. The connector assembly of claim 10, wherein the second plate connector further comprises a second connector bracket projecting outwardly from the second planar connector body to form a second connector insertion opening adapted to receive a second connector fastening insert for connecting the second plate connector to a fourth capping channel.

12. A capping channel assembly for capping and/or restraining a wall, the capping channel assembly comprising capping channels and a connector assembly,

wherein the connector assembly comprises:

a connection plate having a planar body, the connection plate comprising:

a first bracket projecting outwardly from the planar body to form a first insertion opening for receiving a first fastening insert; and

5 a plurality of engagement members formed in the planar body, wherein at least some of the plurality of engagement members are adapted to engage with a corresponding retaining element; and

a first plate connector having a first planar connector body and comprising the corresponding retaining element and a first connector bracket, the corresponding
10 retaining element including a first raised portion being adapted to engage the at least some of the plurality of engagement members, and the first connector bracket is adapted to project outwardly from the first planar connector body to form a first connector insertion opening for receiving a first connector fastening insert, and

wherein each of the capping channels comprises a first central slot at one end
15 for receiving the first bracket of the connection plate or the first connector bracket of the first plate connector for connecting the capping channel to the connection plate or the first plate connector respectively.

13. The channel capping assembly of claim 12, further comprising the first fastening
20 insert and the first connector fastening insert, the first fastening insert being adapted to be inserted through the first insertion opening of the first bracket after the first bracket is inserted through the first central slot of a first of the capping channels and the first connector fastening insert being adapted to be inserted through the first connector insertion opening after the first connector bracket is inserted through the first central slot
25 of a second of the capping channels for connecting a first and a second of the capping channels via the connection plate and the first plate connector.

14. The channel capping assembly of claim 12 or claim 13, wherein each of the capping
30 channels comprises pairs of elongated slots arranged along a length of the capping channel, and wherein the connection plate or the first plate connector further comprises a pair of elongated projections adapted to be inserted into one of the pairs of the elongated slots to vary an overall effective capping length for capping and/or restraining the wall.

15. The channel capping assembly of claim 14, wherein the pair of elongated projections adapted to be inserted into one of the pairs of the elongated slots are configured to restrain the wall from longitudinal movements along the length of the capping channel.

5 16. The channel capping assembly of any one of claims 12 to 15, further comprising a vertical connector adapted to connect one of the capping channels to a side wall of a supporting frame of the wall.

10 17. The channel capping assembly of claim 16, wherein the vertical connector comprises a L-shaped planar connector body, the L-shaped planar connector body including a vertical connector bracket projecting outwardly from the L-shape planar connector body at one portion and a plurality of side wall engagement members adapted to engage with corresponding retaining elements of the side wall of the supporting frame at another portion for connecting the vertical connector to the supporting frame.

15 18. The channel capping assembly of claim 17, further comprising a vertical connector fastening insert, wherein the vertical connector bracket forms a vertical connector insertion opening for receiving the vertical connector fastening insert, and wherein the one of the capping channels further comprises a second central slot formed at an
20 opposite end of the capping channel to the first central slot for receiving the vertical connector bracket, the vertical connector fastening insert is adapted to be inserted through the vertical connector insertion opening after the vertical connector bracket is inserted through the second central slot of the one of the capping channels.

25 19. A method for capping and/or restraining a wall using a capping channel assembly, the capping channel assembly comprising capping channels, a connector assembly, a first fastening insert and a first connector fastening insert, wherein the connector assembly comprises a connection plate and a first plate connector, the connection plate having a planar body and comprising a first bracket projecting outwardly from the planar
30 body to form a first insertion opening and a plurality of engagement members formed in the planar body, and the first plate connector having a first planar connector body with a first raised portion being adapted to engage at least some of the plurality of engagement members and comprising a first connector bracket projecting outwardly from the first planar connector body to form a first connector insertion opening, and wherein each of

the capping channels comprises a first central slot at one end for receiving the first bracket of the connection plate or the first connector bracket of the first plate connector, the method comprising:

- placing the connection plate and the first plate connector at a top of the wall;
- 5 connecting the first plate connector to the connection plate by engaging the first raised portion of the first plate connector with the at least some of the plurality of engagement members of the connection plate;
- providing the capping channels at the top of the wall to overlap with a part of the connection plate and a part of the first plate connector;
- 10 inserting the first bracket and the first connector bracket through corresponding first central slots of the capping channels; and
- inserting the first fastening insert into the first bracket and the first connector fastening insert into the first connector bracket for connecting the capping channels to the connection plate and the first plate connector respectively for capping and/or
- 15 restraining the wall.

20. The method of claim 19, wherein the channel capping assembly further comprises vertical connectors, each of the vertical connectors being adapted to connect one end of the capping channel to a side wall of a supporting frame of the wall, the method further
- 20 comprising:

- placing the vertical connectors at the top of the wall;
- wherein providing the capping channels over the top of the wall includes overlapping at least some of the capping channels with a part of each of the vertical connectors, the overlapped portion of each of the at least some of the capping channels
- 25 being at an opposite end to the first central slot of each of the at least some of the capping channels;
- connecting the vertical connectors to the at least some of the capping channels for securing the channel capping assembly to the supporting frame of the wall; and
- connecting the vertical connectors to side walls of the supporting frame of the
- 30 wall.

21. The method of claim 20, wherein the channel capping assembly further comprises vertical connector fastening inserts, and wherein each of the vertical connectors comprises a L-shaped planar connector body, the L-shaped planar connector body

including a vertical connector bracket at one portion and a plurality of side wall engagement members at another portion for connecting the vertical connector to the side wall of the supporting frame of the wall, the vertical connector bracket projecting outwardly from the L-shape planar connector body to form a vertical connector insertion opening for receiving a vertical connector fastening insert, and wherein each of the capping channels further comprises a second central slot formed at the opposite end of the first central slot, the method further comprising:

inserting the vertical connector bracket of each of the vertical connectors through corresponding second central slots of the at least some of the capping channels; and

inserting the vertical connector fastening insert into the vertical connector bracket of each of the vertical connectors for connecting the vertical connectors to the at least some of the capping channels for securing the channel capping assembly to the supporting frame of the wall.

22. The method of any one of claims 19 to 21, wherein each of the capping channels comprises pairs of elongated slots arranged along a length of the capping channel, and wherein the connection plate or the first plate connector further comprises a pair of elongated projections, the method further comprising inserting the pair of elongated projections of the connection plate or the first plate connector into one of the pairs of elongated slots to vary an overall effective capping length for capping and/or restraining the wall.

23. The method of claim 22, wherein the pair of elongated projections inserted into one of the pairs of the elongated slots are configured to restrain the wall from longitudinal movements along the length of the capping channel.

24. The method of any one of claims 19 to 23, wherein the wall includes an intermediate wall section, the capping channels and the connector assembly capping and/or restraining the intermediate wall section are adapted to enable a further wall section to be built on top of the capped intermediate wall section.