BUILDING ASSEMBLY SET AND METHOD OF ASSEMBLING A BUILDING USING THE BUILDING ASSEMBLY SET

FIELD

The present invention relates to a building assembly set and a method of assembling a building using the building assembly set. In particular, the building is assembled using pre-fabricated wall and corner panels, floor and/or roof panels.

BACKGROUND

Any mention and/or discussion of prior art throughout the specification should not be considered, in any way, as an admission that this prior art is well known or forms part of common general knowledge in the field.

In the construction industry, there are several different techniques of constructing a building. Conventionally, timber and light steel frames are typically used in the construction of low-rise housing, mobile houses or caravan. However, traditional methods of constructing a building using timber and light steel frames is time consuming and requires substantial resources and manpower. This will thus result in an increase in construction cost.

Another technique in which a building can be constructed is by using structural insulated panel (SIP). The SIP is a form of pre-fabricated sandwich panel that consists of an insulating layer of rigid core sandwiched between two layers of structural board. The SIP is considered as an alternative to the traditional methods of constructing a building using timber and light steel frames. Although each SIP is provided with connection means such as a groove, side protrusion, etc. for joining one SIP to another SIP, there are difficulties in connecting two pieces of SIP that are arranged orthogonally to each other. As illustrated in Fig. 1, there are no proper connection means provided to each SIP for joining two pieces of SIP at a corner. The SIP at the corner are joined together solely by using external joining components such as screws, washers, nuts, bolts, sealant, adhesive, etc. The strength of the corner joint between two pieces of SIP may occasionally be weakened due to the impreciseness or incompatibility of the external joining components with the SIP. The estimated time taken to construct a shell of the building using the SIP is approximately two days and additional time will also be required to complete the exterior and interior finishings of the building.

Other than constructing a building from scratch, another option is the re-modelling of existing shipping container as a shell for home. However, there are constraints in the shipping container such as size, height, insulation, etc. that may affect the suitability as a home. Furthermore, additional time will be required to complete the exterior and interior finishes of the shipping container.

SUMMARY

According to one aspect of an example of the present disclosure, there is provided a building assembly set, wherein the building assembly set comprises: a plurality of pre-fabricated wall panels, wherein at least one of the plurality of pre-fabricated wall panels is configured as a corner panel; and wherein the at least one corner panel comprises connectors configured to mate with corresponding connectors of two of the pre-fabricated wall panels so that when the two pre-fabricated wall panels are connected to the pre-fabricated corner panel, the pre-fabricated wall panels are orthogonally arranged with respect to each other.

According to another aspect of an example of the present disclosure, there is provided a method of assembling a building, the method comprising: connecting the plurality of pre-fabricated wall panels of the building assembly set and arranging the plurality of pre-fabricated wall panels on a floor surface of the building to form walls for the building; and

connecting the plurality of pre-fabricated wall panels of the building assembly set with at least one of the corner panel.

Other optional features are defined in the dependent claims in claim section of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be better understood and readily apparent to one skilled in the art from the following written description, by way of example only and in conjunction with the drawings, in which:

Fig. 1 shows a side view of two pieces of SIP joining at a corner.

Fig. 2 shows a perspective view of a partially assembled building that has been constructed using a building assembly set that comprises of pre-fabricated panels.

Fig. 3 shows a plan view of the building assembly set of Fig. 2, illustrating how a plurality of pre-fabricated wall panels and a plurality of pre-fabricated corner panels are connected to one another.

Fig. 4 shows a plan view of a plurality of pre-fabricated floor panels in an assembled state and a side view illustrating how each of the plurality of pre-fabricated floor panels is connected to one another.

Fig. 5 shows a side view of a bottom side of one of the pre-fabricated wall panels residing in an elongate holder of one of the pre-fabricated floor panels.

Fig. 6 shows a plan view of a structure of a trailer on which a building is to be constructed using a building assembly set according to an example of the present disclosure.

Fig. 7 shows a perspective view of a partially assembled building, which is constructed using the pre-fabricated wall panels and the pre-fabricated corner panels.

Fig. 8 illustrates flexibility of material selection for the pre-fabricated panels.

Fig. 9A shows a front view of a pre-fabricated wall panel with claddings that are made of wood and metal.

Fig. 9B shows a front view of a pre-fabricated wall panel with glass louvers and claddings that are made of wood and metal.

Fig. 9C shows a front view of a pre-fabricated wall panel that is made of glass louvers.

DETAILED DESCRIPTION

In one example, Fig. 2 shows a perspective view of a partially assembled building that has been constructed using a building assembly set 200 that comprises of pre-fabricated panels. A pre-fabricated panel herein refers to a form of building product that is manufactured off-site and assembled on-site, providing an alternative to traditional site-based construction. The term “panel” herein includes all types of panels such as wall panel, floor panel, corner panel, roof panel, etc. As used herein in the present disclosure, the term “building” refers to any permanent or temporary building or structure and includes permanent houses, mobile houses, caravans, roofed enclosure, unroofed enclosure and/or floating structure.

The building assembly set 200 comprises a plurality of pre-fabricated wall panels 202 and a plurality of pre-fabricated floor panels 206. The plurality of pre-fabricated wall panels 202 is configured such that at least one of the plurality of pre-fabricated wall panels 202 is a corner panel 204. This means that the corner panel 204 can be used as both a prefabricated wall panel 202 and a pre-fabricated corner panel 204. In the case that the corner panel 204 is to

be used as a pre-fabricated wall panel 202, the length in which the corner panel 204 is made to have can be long enough to form part of a wall. In the case that the corner panel 204 is to be used as just a pre-fabricated corner panel 204, the length in which the corner panel 204 is made to have can be short enough just to form a corner for engaging two or more other pre-fabricated wall panels that would form walls orthogonally arranged relative to one another.

In the example of Fig. 2, there are four pre-fabricated corner panels 204. The corner panels 204 are arranged in a manner such that each of the corner panel 204 is connected to a pre-fabricated wall panel 202 and another corner panel 204. Each of the corner panels 204 is arranged in a manner such that the corner panel 204 is connected to two pre-fabricated wall panels 202, in which the two pre-fabricated wall panels 202 are orthogonally arranged with respect to each other.

Fig. 2 also illustrates an example of connecting the plurality of pre-fabricated wall panels 202 of the building assembly set 200 and arranging the plurality of pre-fabricated wall panels 202 on a floor surface of a building to form walls for the building. In the example of Fig. 2, the floor surface is made up of a plurality of pre-fabricated floor panels 206.

Fig. 3 shows an example of a plan view of the building assembly set 200, illustrating how the plurality of pre-fabricated wall panels 202 and the plurality of pre-fabricated corner panels 204 are connected to one another. In the present example, there are four pre-fabricated corner panels 204 labelled as A, E, F and L. Each of the pre-fabricated corner panel 204 is provided with connectors 304 for connecting to corresponding connectors 302 of the pre-fabricated wall panels 202. The connectors 304 of the pre-fabricated corner panels 204 is configured to mate with the corresponding connectors 302 of the pre-fabricated wall panels 202. They are mated in a manner such that the connectors 304 of the pre-fabricated corner panels 204 is plugged into the corresponding connectors 302 of the pre-fabricated wall panels 202 to make the connectors 304 of the pre-fabricated corner panels 204 engage or fit to the corresponding connectors 302 of the pre-fabricated wall panels 202. It is appreciated that in another connection arrangement, conversely, it is the connectors 302 of the pre-fabricated wall panels 202 that are plugged into the corresponding connectors 304 of the pre-fabricated corner panels 204 to make the connectors 304 of the pre-fabricated corner panels 204 engage or fit to the corresponding connectors 302 of the pre-fabricated wall panels 202.

In the example of Fig. 3, a male connector 304 of pre-fabricated corner panel A is configured to mate with a female connector of pre-fabricated wall panel B. A female connector 304 of pre-fabricated corner panel E is configured to mate with a male connector of pre-fabricated wall panel D. A female connector 304 of pre-fabricated corner panel F is configured to mate with a male connector of pre-fabricated wall panel I. A male connector 304 of pre-fabricated corner panel L is configured to mate with a female connector of pre-fabricated wall panel K. With the help of pre-fabricated corner panel A, pre-fabricated wall panel B is orthogonally arranged relative to pre-fabricated corner panel L. With the help of pre-fabricated corner panel E, pre-fabricated wall panel D is orthogonally arranged relative to pre-fabricated corner panel F. With the help of pre-fabricated corner panel F, pre-fabricated wall panel I is orthogonally arranged relative to pre-fabricated corner panel E. With the help of pre-fabricated corner panel L, pre-fabricated wall panel K is orthogonally arranged relative to pre-fabricated corner panel A.

Each of the pre-fabricated corner panels 204 is provided with connector 304 for connecting to a corresponding connector 304 of another pre-fabricated corner panel 204. The connector 304 of the pre-fabricated corner panel 204 is configured to mate with the corresponding connector 304 of the other pre-fabricated corner panel 204. They are mated in a manner such that the connector 304 of the pre-fabricated corner panel 204 is plugged into the corresponding connector 304 of the other pre-fabricated corner panel 204 to make the connector 304 of the pre-fabricated corner panel 204 engage or fit to the corresponding connector 304 of the other pre-fabricated corner panel 204. In the present example, a female connector 304 of pre-fabricated corner panel A is configured to mate with a male connector of pre-fabricated corner panel L. A female connector 304 of pre-fabricated corner panel E is configured to mate with a male connector of pre-fabricated corner panel F.

Each of the pre-fabricated wall panel 202 is provided with connectors 302 for connecting to corresponding connectors 302 of other pre-fabricated wall panels 202. The connectors 302 of the pre-fabricated wall panel 202 are configured to mate with the corresponding connectors 302 of the other pre-fabricated wall panels 202. They are mated in a manner such that the connectors 302 of the pre-fabricated wall panel 202 is plugged into the corresponding connectors 302 of the other pre-fabricated wall panels 202 to make the connectors 302 of the pre-fabricated wall panel 202 engage or fit to the corresponding connectors 302 of the other pre-fabricated wall panels 202. In the present example, a male connector 302 of pre-fabricated wall panel B is configured to mate with a female connector 302 of pre-fabricated wall panel C. A male connector 302 of pre-fabricated wall panel C is configured to mate with a female connector 302 of pre-fabricated wall panel D. A female connector 302 of pre-fabricated wall panel I is configured to mate with a male connector 302 of pre-fabricated wall panel J. A female connector 302 of pre-fabricated wall panel J is configured to mate with a male connector 302 of pre-fabricated wall panel K.

The present example illustrates that the pre-fabricated corner panels 204 comprise of connectors 304 that are configured to mate with corresponding connectors 302 of the pre-fabricated wall panels 202 and corresponding connectors 304 of other pre-fabricated corner panels 204. For example, connectors 304 of pre-fabricated corner panel A are configured to mate with a corresponding connector 302 of pre-fabricated wall panel B and a corresponding connector 304 of pre-fabricated corner panel L. Similarly, connectors 304 of pre-fabricated corner panel E are configured to mate with a corresponding connector 302 of pre-fabricated wall panel D and a corresponding connector 304 of pre-fabricated corner panel F. It is appreciated that the connectors 304 of the pre-fabricated corner panel 204 may also be configured to mate with corresponding connectors 302 of two pre-fabricated wall panels 202 so that when the two pre-fabricated wall panels 202 are connected to the pre-fabricated corner panel 204, the two pre-fabricated wall panels 202 are orthogonally arranged with respect to each other. The connectors 304 of the pre-fabricated corner panels 204 advantageously provide an efficient, faster and more convenient way of connecting pre-fabricated panels at a corner compared to conventional SIP method, which requires much alignment and external joining components such as screws, washers, nuts, bolts, sealant, adhesive, etc, for a corner joint. Notably, the connections between the pre-fabricated corner panels 204 and the pre-fabricated wall panels 202 are stronger as compared to conventional SIP method. This is due to the mating between the connectors 304 the pre-fabricated corner panels 204 and the corresponding connectors 302 of the pre-fabricated wall panels 202. Furthermore, as the connectors 302, 304 are configured to mate, there are less alignment issues compared to the conventional SIP method. Optionally, the connections between the pre-fabricated panels of the examples of the present disclosure can be further strengthened by using rivets, screws, nuts and bolts, adhesive, etc.

The plurality of pre-fabricated wall panels 202 and the plurality of pre-fabricated corner panels 204 may be assembled for a building in a sequence:

1) starting from connecting pre-fabricated corner panel A as a starting piece to pre-fabricated wall panel B;
2) pre-fabricated wall panel B to pre-fabricated wall panel C;
3) pre-fabricated wall panel C to pre-fabricated wall panel D;
4) pre-fabricated wall panel D to pre-fabricated corner panel E;
5) pre-fabricated corner panel E to pre-fabricated corner panel F;
6) pre-fabricated corner panel F to pre-fabricated wall panel I;
7) pre-fabricated wall panel I to pre-fabricated wall panel J;
8) pre-fabricated wall panel J to pre-fabricated wall panel K; and
9) ending with connecting pre-fabricated corner panel L as a final piece to pre-fabricated wall panel K and pre-fabricated corner panel A.

It is appreciated that other sequences of assembly are also possible. However, if the sequence of assembly ends with connecting one of the plurality of pre-fabricated corner panels 204 as a final piece (e.g. pre-fabricated corner panel L), this would facilitate the ease of assembly at the end of constructing walls for the building. After the assembly process is completed, the respective connections may be protected from external environment by using a cover (e.g. aluminum cap) to conceal the connections. This cover can be adhered on using

adhesive and/or fastened via fasteners such as rivet, screws, nuts and bolts, etc. This would advantageously prevent the connections from damaging or weakening due to adverse external conditions.

In Fig. 3, pre-fabricated wall panels D and I are connected to pre-fabricated panel G and pre-fabricated panel H respectively such that pre-fabricated panel G is orthogonal to pre-fabricated wall panel D and pre-fabricated panel I is orthogonal to pre-fabricated wall panel H. Unlike the other pre-fabricated wall panels C, B, J and K, pre-fabricated wall panels D and I are each configured to have a connector 306 to contact a corresponding connector 308 of each of pre-fabricated panel G and pre-fabricated panel H respectively. After alignment and contacting each other, the connectors 306 and 308 may be adhered using adhesive and/or fastened together using fasteners such as rivets, screws, nuts and bolts, etc. The connection made between connectors 306 and 308 need not have the stronger mating connection between the connectors 302 and 304. This is because the pre-fabricated wall panel G and pre-fabricated wall panel H are interior walls of the building and can be thinner and/or have lesser strength compared to the pre-fabricated wall panels forming the exterior walls of the building.

Other than the ability to make connections between the respective pre-fabricated panels, the pre-fabricated panels can be configured to connect to other external components such as a sliding door. Fig. 3 illustrates an example of providing a wooden sliding door that is connected between pre-fabricated panel G and pre-fabricated panel H. Depending on the design of the sliding door, such sliding door can be installed on-site, or prefabricated offsite first and installed on-site later. In the case of pre-fabrication off-site, the sliding door may be connected to one or more pre-fabricated panels such as pre-fabricated panels G and H and be installed together with pre-fabricated panel G and/or H on-site.

Fig. 4 shows an example of a plan view of the plurality of pre-fabricated floor panels 206 of Fig. 2 in an assembled state and a side view illustrating how each of the plurality of pre-fabricated floor panels 206 is connected to one another. In the present example, there are nine pre-fabricated floor panels 206 labelled as A, B, C, D, E, F, G, H and I. Each of the pre-fabricated floor panels 206 is provided with connectors 406 for connecting to corresponding connectors 406 of other pre-fabricated floor panels 206. In one example, the connectors 406 of the pre-fabricated floor panels 206 may be elongate catches 408 for interlocking with corresponding elongate catches 408 of the other pre-fabricated floor panels 206. In the present example, pre-fabricated floor panel A comprises of two elongate catches 408 for interlocking with a corresponding elongate catch 408 of pre-fabricated floor panel B and a corresponding elongate catch 408 of pre-fabricated floor panel D respectively. The interlocking of one of the two elongate catches 408 of pre-fabricated floor panel A with the corresponding elongate catch 408 of pre-fabricated floor panel B will prevent at least in one direction, lateral movement of pre-fabricated floor panel A away from pre-fabricated floor panel B. The interlocking of the other one of the two elongate catches 408 of pre-fabricated floor panel A with the corresponding elongate catch 408 of pre-fabricated floor panel D will prevent at least in one direction, lateral movement of pre-fabricated floor panel A away from pre-fabricated floor panel D. The connectors 406 of the pre-fabricated floor panels 206 provide good connectivity between the respective pre-fabricated floor panels 206 and therefore enhance the strength of connection between the respective pre-fabricated floor panels 206.

As illustrated by the example in Fig. 4, pre-fabricated floor panel E comprises of four elongate catches 408 which are configured for interlocking with another corresponding elongate catch 408 of pre-fabricated floor panel B, another corresponding elongate catch 408 of pre-fabricated floor panel D, a corresponding elongate catch 408 of pre-fabricated floor panel F and a corresponding elongate catch 408 of pre-fabricated floor panel H respectively. The interlocking of one of the four elongate catches 408 of pre-fabricated floor panel E (i.e. first elongate catch 408 of floor panel E) with the other corresponding elongate catch 408 of pre-fabricated floor panel B will prevent said lateral movement of pre-fabricated floor panel E relative to pre-fabricated floor panel B. The interlocking of another one of the four elongate catches 408 of pre-fabricated floor panel E (i.e. second elongate catch 408 of floor panel E) with the other corresponding elongate catch 408 of pre-fabricated floor panel D will prevent

said lateral movement of pre-fabricated floor panel E relative to pre-fabricated floor panel D. The interlocking of another one of the four elongate catches 408 of pre-fabricated floor panel E (i.e. third elongate catch 408 of floor panel E) with the corresponding elongate catch 408 of pre-fabricated floor panel F will prevent said lateral movement of pre-fabricated floor panel E relative to pre-fabricated floor panel F. The interlocking of another one of the four elongate catches 408 of pre-fabricated floor panel E (i.e. fourth elongate catch 408 of floor panel E) with the corresponding elongate catch 408 of pre-fabricated floor panel H will prevent said lateral movement of pre-fabricated floor panel E relative to pre-fabricated floor panel H.

Fig. 4 also illustrates an example of layering and connecting the plurality of pre-fabricated floor panels 206 of the building assembly set 200 of Fig. 2 to form a floor surface for a building. The plurality of pre-fabricated floor panels 206 may be assembled in a sequence:

1) starting from connecting pre-fabricated floor panel A as a starting piece to pre-fabricated floor panel B;
2) connecting pre-fabricated floor panel B to pre-fabricated floor panel C;
3) pre-fabricated floor panel D to pre-fabricated floor panel A;
4) pre-fabricated floor panel E to pre-fabricated floor panels B & D;
5) pre-fabricated floor panel F to pre-fabricated floor panels C & E;
6) pre-fabricated floor panel G to pre-fabricated floor panel D;
7) pre-fabricated floor panel H to pre-fabricated floor panels E & G; and
8) ending with connecting pre-fabricated floor panel I to pre-fabricated floor panels F & H.

It is appreciated that other sequences of assembly are also possible. If floor panels are required for a building, the sequence of assembly may end with connecting one of the plurality of pre-fabricated corner panels 204 of Fig. 2 as a final piece, for example, connecting pre-fabricated corner panel L in Fig. 2 to pre-fabricated floor panel I in Fig. 4, as this would facilitate ease of assembly at the end of constructing the building.

The pre-fabricated floor panels 206 may comprise of connectors 406 that are configured to engage a bottom side of the pre-fabricated wall panels 202 of Fig. 2 so as to connect the pre-fabricated floor panels 206 to the pre-fabricated wall panels 202. In one example, with reference to Fig. 5, the connectors 406 of the pre-fabricated floor panels 206 is configured such that the connectors 406 of the pre-fabricated floor panels 206 receive the bottom side of the pre-fabricated wall panels 202 to engage or fit to the pre-fabricated wall panels 202. Specifically, each connector 406 of the pre-fabricated floor panel 206 may be an elongate holder 410. The dimensions of the elongate holder 410 of the pre-fabricated floor panel 206 correspond to the dimensions of the bottom side of the pre-fabricated wall panel 202 such that the elongate holder 410 allows the bottom side of the pre-fabricated wall panel 202 to fit and reside within the elongate holder 410. Additional connectors such as rivets, screws, adhesive, bolts and nuts, etc. may be used to further strengthen the connection between the connectors 406 of the pre-fabricated floor panels 206 and the pre-fabricated wall panels 202. Instead of fitting the bottom side of the pre-fabricated wall panels 202 into the elongate holder 410, there may be present connectors (not shown in Figures) extending from each pre-fabricated wall panel 202 to connect with the corresponding connector 406.

Similarly, the connectors 406 of the pre-fabricated floor panels 206 may be configured to engage a bottom side of the pre-fabricated corner panels 204 of Fig. 2 so as to connect the pre-fabricated floor panels 206 to the pre-fabricated corner panels 204. In one example, with reference to Fig. 5, the connectors 406 of the pre-fabricated floor panels 206 is configured to such that the connectors 406 of the pre-fabricated floor panels 206 receive the bottom side of the pre-fabricated corner panels 204 to engage or fit to the pre-fabricated corner panels 204. Specifically, each connector 406 of the pre-fabricated floor panel 206 may be an elongate holder 410. The dimensions of the elongate holder 410 of the pre-fabricated floor panel 206 correspond to the dimensions of the bottom side of the pre-fabricated corner panel 204 such that the elongate holder 410 allows the bottom side of the pre-fabricated corner panel 204 to fit and reside within the elongate holder 410. Additional connectors such as rivets, screws, adhesive, bolts and nuts, etc. may be used to further strengthen the connection between the connectors 406 of the pre-fabricated floor panels 206 and the the pre-fabricated corner

panels 204. Instead of fitting the bottom side of the pre-fabricated wall panels 204 into the elongate holder 410, there may be present connectors (not shown in Figures) extending from each pre-fabricated wall panel 204 to connect with the corresponding connector 406.

Fig. 6 illustrates a plan view of a structure of a trailer 600. A building constructed using the building assembly set 200 of Fig. 2 that comprises of the described pre-fabricated panels may reside on the trailer 600 (the assembled building is not shown in Fig. 6). The trailer 600 may be a mobile apparatus, which may be towed using a vehicle (the vehicle is not shown in Fig. 6). The vehicle may be connected to the trailer 600 by making a connection from a tow bar of the vehicle to an A frame structure 602 of the trailer 600. It is appreciated that the A frame structure 602 may have any other structural configuration that is suitable for the trailer 600 to be towed by the vehicle.

The trailer 600 comprises of a base structure 604. The base structure 604 may be made of materials that are suitable for supporting the building constructed using the building assembly set 200 of Fig. 2. An example of a suitable material for constructing the base structure 604 is steel. In a specific example, the base structure 604 of the trailer 600 is constructed using steel bars 606 and steel plates 608 that are arranged in a configuration as shown in Fig. 6. The steel bars 606 and steel plates 608 may be connected to one another by using any suitable type of connection such as screws, nuts and bolts, ropes, etc. The building may be constructed directly on the base structure 604 of the trailer 600 such that the base structure 604 of the trailer 600 constitutes floor surface of the building. In another example, the building may be constructed by laying the plurality of pre-fabricated floor panels 206 of Fig. 2 on the base structure 604 of the trailer 600 to constitute the floor surface of the building. The base structure 604 may be configured to receive the plurality of pre-fabricated wall panels 202 and the plurality of pre-fabricated corner panels 204 by providing elongate holders similar to the elongate holder 410. Alternatively, the plurality of pre-fabricated wall panels 202 and the plurality of pre-fabricated corner panels 204 may be adhered via adhesive and/or fastened via fasteners such as screws, nuts and bolts, etc. to the base structure 604.

Fig. 7 illustrates a perspective view of a partially assembled building which is constructed using the pre-fabricated wall panels 202 and the pre-fabricated corner panels 204 of Fig. 2. In the example provided in Fig. 7, different types of material are used for pre-fabricating the pre-fabricated wall panels 202 and the pre-fabricated corner panels 204 to be placed at different locations of the building. The option of customizing a design of a house may be advantageously provided to a home owner. The home owner can have the flexibility in the selection of various materials and design for the pre-fabricated wall panels 202 and the pre-fabricated corner panels 204 prior to the pre-fabrication of the wall and floor panels 202, 204. For faster time to building complete, instead of customizing, the home owner may select from a given list of pre-fabricated panels that are stocked up. Advantageously, each of the pre-fabricated wall panels 202 and the pre-fabricated corner panels 204 may be provided and completed with insulation (e.g. rockwool, polyurethane form, etc.), modifications such as pre-drilled holes in the panels 202, 204 to provide for mechanical and electrical requirements such as drainage, electrical works and plumbing works etc., and/or building exterior and/or interior finishes prior to installation of the pre-fabricated wall panels 202 and the pre-fabricated corner panels 204 on site. This effectively reduces the building resources, manpower and time that are required on site since no further work and/or modifications to the structure of the pre-fabricated wall panels 202 and the pre-fabricated corner panels 204 are necessary. The above advantages are also applicable to other types of pre-fabricated structural panels such as the pre-fabricated floor panels 206 and/or pre-fabricated roof panels, if they are required. The pre-fabricated roof panels are essentially panels configured to connect up to form a roof of the building (Note: the roof is not shown in Fig. 7). The pre-fabricated roof panels may have similar mating, engagement and/or interlocking connection features found in wall and floor panels or any other suitable mating, engagement and/or interlocking connection features described in the present disclosure. There are different types of material that are suitable as cladding for building exterior finishes. The term “cladding” refers to external surface, a covering or coating on a panel described herein that would form building exterior finishes or interior finishes. For example, composite weather board cladding that comprises of wood and polymer, powder coated aluminum sheet, tempered glass with or without aluminum louvers, etc. There are different types of material that are suitable as

cladding for building interior finishes. For example, plywood with laminate, acrylic board, composite cladding that comprises of wood and polymer, aluminum sheet, etc.

Fig. 8 illustrates the wide material selection and flexibility of material selection for the pre-fabricated panels described in examples of the present disclosure. As illustrated by various examples in Fig. 8, each of the pre-fabricated panel may be customized according to the needs of a consumer. In a first example 802, a top portion and a right side portion of a pre-fabricated wall panel 202 may be made of tempered glass. A left side portion of the pre-fabricated wall panel 202 may be designed for making into a wooden or aluminum frame with glass door. In a second example 804, a right side portion of a pre-fabricated wall panel 202 may be made of tempered glass. The left side portion of the pre-fabricated wall panel 202 may be made of a powder coated aluminum sheet. In a third example 806, a left side portion of a pre-fabricated wall panel 202 may be made of tempered glass with aluminum louvers design. The right side portion of the pre-fabricated wall panel 202 may be made of a powder coated aluminum sheet. In a fourth example 808, a pre-fabricated wall panel 202 may be made of composite weather board cladding. In a fifth example 810, a pre-fabricated wall panel 202 may be made of tempered glass. In a sixth example 812, a pre-fabricated wall panel 202 may be made of tempered glass with aluminum louvers design. As for frames of all of the aforementioned pre-fabricated panels, the frames may be constructed using steel.

Fig. 9A further illustrates a front view of an example of a pre-fabricated wall panel 202 which comprises of claddings that are made of wood and metal. Fig. 9B illustrates a front view of another example of a pre-fabricated wall panel 202 in which a left side portion of the pre-fabricated wall panel 202 comprises of claddings that are made of wood and metal. A right side portion of the pre-fabricated wall panel 202 comprises of glass louvers. Fig. 9C also illustrates a front view of another example of a pre-fabricated wall panel 202 that is made of glass louvers. Figs. 9A to 9C further show a top view illustrating how each male connector 902 of the respective pre-fabricated wall panels 202 is connected to each female connector 904 of other corresponding pre-fabricated wall panels 202. The connection between the male connector 902 and the female connector 904 are the same as the connection between the male and female connectors described earlier in the present disclosure. Additional connectors such as rivets, screws, adhesive, bolts and nuts, etc. may be used to further strengthen the connection between the male connector 902 and the female connector 904. In an example, the connections between the male connectors 902 and the female connectors 904 for each of the pre-fabricated wall panel 202 in Figs. 9A to 9C are further strengthen by using one screw at each of the connection between the male connector 902 and the female connector 904. In the present example, there are five connection points for each of the pre-fabricated wall panel 202 and therefore a total of five screws are used for each of the pre-fabricated wall panel 202. It is appreciated that the characteristics and properties of the pre-fabricated wall panels 202 as described in Fig. 8 and Figs. 9A to 9C are also applicable to the pre-fabricated corner panels 204.

Advantages of the examples of the present disclosure over conventional building techniques in the construction industry may include the following:

a) The time required to assemble a building by 3 persons using the building assembly set 200 of Fig. 2 is approximately 2 hours. There is a significant reduction in the construction time as compared to conventional SIP method since the estimated time taken to construct a shell of a building using the conventional SIP method is approximately two days. Furthermore, the conventional SIP method requires additional time to complete the exterior and interior finishes of the building. With built-in connectors for fast connection and exterior and interior finishes pre-fabricated off-site, less time is required for assembling the pre-fabricated panels of the building assembly set 200.

b) The pre-fabricated panels of the building assembly set 200 of Fig. 2 are highly accessible since the pre-fabricated panels can be manufactured in various dimensions. This allows for ease of transportation and therefore can be used even in remote sites.

The dimensions of the pre-fabricated panels provided in the drawings are merely for illustrative purposes only. These dimensions may vary and can be changed depending on consumer and actual site requirements.

In the specification and claims, unless the context clearly indicates otherwise, the term “comprising” has the non-exclusive meaning of the word, in the sense of “including at least” rather than the exclusive meaning in the sense of “consisting only of”. The same applies with corresponding grammatical changes to other forms of the word such as “comprise”, “comprises” and so on.

While the invention has been described in the present disclosure in connection with a number of embodiments and implementations, the invention is not so limited but covers various obvious modifications and equivalent arrangements, which fall within the purview of the appended claims. Although features of the invention are expressed in certain combinations among the claims, it is contemplated that these features can be arranged in any combination and order.

CLAIMS

1. A building assembly set comprising:
a plurality of pre-fabricated wall panels, wherein at least one of the plurality of pre-fabricated wall panels is configured as a corner panel; and
wherein the at least one corner panel comprises connectors configured to mate with corresponding connectors of two of the pre-fabricated wall panels so that when the two pre-fabricated wall panels are connected to the pre-fabricated corner panel, the pre-fabricated wall panels are orthogonally arranged with respect to each other.

2. The building assembly set of claim 1, wherein the building assembly set comprises:
a plurality of pre-fabricated floor panels,
wherein each floor panel comprises a connector configured to mate with a corresponding connector of one of the pre-fabricated wall panels so as to connect the floor panel to the pre-fabricated wall panel.

3. The building assembly set of claim 2, wherein the connector of each of the pre-fabricated floor panels is an elongate holder for receiving a bottom side of one of the pre-fabricated wall panels.

4. The building assembly set of claim 2 or 3, wherein each of the pre-fabricated floor panels further comprises another connector which is an elongate catch for interlocking with a corresponding elongate catch of one of the prefabricated floor panels.

5. The building assembly set of any one of claims 1 to 4, wherein the pre-fabricated wall panels are pre-fabricated with cladding as building exterior and/or interior finishes.

6. The building assembly set of any one of claims 1 to 5, wherein the building assembly set further comprises:
a plurality of pre-fabricated roof panels configured to connect up to form a roof of a building.

7. The building assembly set of any one of claims 1 to 6, wherein the corner panel comprises a connector to mate with a corresponding connector of another corner panel.

8. The building assembly set of any one of claims 1 to 7, wherein a building constructed using the building assembly set resides on a trailer configured to be towed by a vehicle.

9. The building assembly set of any one of claims 1 to 8, wherein one connector of the pre-fabricated wall panels is a male or female connector for coupling with a corresponding female or male connector of the corner panel.

10. The building assembly set of any one of claims 1 to 9, wherein one or more of the plurality of pre-fabricated wall panels is pre-fabricated to have one or more connector for connecting to a pre-fabricated wall panel for forming a wall inside a building.

11. The assembly set of claim 10, wherein the one or more connectors for connecting to the pre-fabricated wall panel for forming the wall inside the building is configured to make contact with corresponding one or more connectors of the pre-fabricated wall panel, and the connectors to make contact are adhered and/or fastened via fasteners together, wherein the pre-fabricated wall panel for forming the wall inside the building is thinner compared with a pre-fabricated wall panel for forming an exterior wall of the building.

12. A method of assembling a building, the method comprising:

connecting the plurality of pre-fabricated wall panels of the building assembly set of any one of claims 1 to 11 and arranging the plurality of pre-fabricated wall panels on a floor surface of the building to form walls for the building; and
connecting the plurality of pre-fabricated wall panels of the building assembly set of any one of claims 1 to 11 with at least one of the corner panel.

13. The method of claim 12, wherein the method comprises:
layering and connecting the plurality of pre-fabricated floor panels of the building assembly set of claim 2, 3 or 4 to form the floor surface.

14. The method of claim 12, wherein the floor surface is a top portion of a base structure of a trailer configured to be towed by a vehicle.

15. The method of any one of claims 12 to 14, wherein connecting the plurality of pre-fabricated wall panels of the building assembly set of any one of claims 1 to 10 with the at least one of the corner panel comprises connecting one corner panel as a starting piece with another pre-fabricated wall panel, and ends with connecting another corner panel as a final piece.