

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference DAR01.04P PC	FOR FURTHER ACTION	See Form PCT/IPEA/416																
International application No. PCT/AU2017/050771	International filing date (<i>day/month/year</i>) 26 July 2017	Priority date (<i>day/month/year</i>) 26 July 2016																
International Patent Classification (IPC) or national classification and IPC See Supplemental Box																		
Applicant DARESTANI, Ario Yousefi																		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 14 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets containing rectifications not taken into account by this Authority because they were not available at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4<i>bis</i>, 70.2(e), 70.16 and 91.2).</p> <p style="margin-left: 40px;"><input type="checkbox"/> Superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3<i>bis</i> of Annex C of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <table style="margin-left: 20px; border: none;"> <tr><td><input checked="" type="checkbox"/> Box No. I</td><td>Basis of the report</td></tr> <tr><td><input type="checkbox"/> Box No. II</td><td>Priority</td></tr> <tr><td><input type="checkbox"/> Box No. III</td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr> <tr><td><input type="checkbox"/> Box No. IV</td><td>Lack of unity of invention</td></tr> <tr><td><input checked="" type="checkbox"/> Box No. V</td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement</td></tr> <tr><td><input type="checkbox"/> Box No. VI</td><td>Certain documents cited</td></tr> <tr><td><input type="checkbox"/> Box No. VII</td><td>Certain defects in the international application</td></tr> <tr><td><input checked="" type="checkbox"/> Box No. VIII</td><td>Certain observations on the international application</td></tr> </table>			<input checked="" type="checkbox"/> Box No. I	Basis of the report	<input type="checkbox"/> Box No. II	Priority	<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/> Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/> Box No. VI	Certain documents cited	<input type="checkbox"/> Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/> Box No. VIII	Certain observations on the international application
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Date of submission of the demand 15 January 2018	Date of completion of this report 14 May 2018																	
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaaustralia.gov.au	Authorised officer Brendan Browne AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. +61262832662																	

Box No. I

Basis of the report

1. With regard to the **language**, this report has been established on the basis of:
- The international application in the language in which it was filed:
- A translation of the international application into , which is the language of a translation furnished for the purposes of :
- international search (under Rules 12.3(a) and 23.1 (b)).
- publication of the international application (under Rule 12.4(a)).
- international preliminary examination (Rules 55.2(a) and/or 55.3(a) and (b)).
2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- the international application as originally filed/furnished, or
- the description: pages **1-15** , as originally filed/furnished
pages , received by this Authority on with the letter of
- the claims: pages , as originally filed/furnished
pages , as amended (together with any statement) under Article 19,
pages **16-19** , received by this Authority on **02 May 2018** with the letter of **02 May 2018**
- the drawings: pages **1/14-14/14** , as originally filed/furnished
pages , received by this Authority on with the letter of
- a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:
- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (specify):
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (*c-bis*)):
- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (specify):
5. This report has been established:
- taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-*bis*) and 70.2(e)).
- without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.4*bis* and 70.2(e)).
6. With regard to top-up searches (Rules 66.1*ter* and 70.2(f)):
- A top-up search was carried out by this Authority on 12 February 2018.
- Additional relevant documents have been discovered during the top-up search.
- No top-up search was carried out by this Authority because it would serve no useful purpose.
7. Supplementary international search report(s) from Authority(ies)
has/have been received and taken into account in establishing this report (Rule 45*bis*.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-21	YES
	Claims NONE	NO
Inventive step (IS)	Claims 1-21	YES
	Claims NONE	NO
Industrial applicability (IA)	Claims 1-21	YES
	Claims NONE	NO

Note: Details of earlier searches conducted following the filing of a demand can be found on Patentscope.

2. CITATIONS AND EXPLANATIONS:**CITATIONS**

D1: US 2234797 A (BURNER) 11 March 1941
D2: WO 2015/199622 A1 (THOOPPHONTHAP) 30 December 2015
D3: GB 1223751 A (STAFFORD CONCRETE PRODUCTS LIMITED) 03 March 1971
D4: US 2004/0045237 A1 (COOMBS et al.) 11 March 2004
D5: US 5568710 A (SMITH et al.) 29 October 1996

NOVELTY (N)

Claims 1 to 21 are novel and therefore comply with PCT Article 33(2).

Document D2 is considered to represent the closest prior art. None of the above documents disclose a connecting arrangement for inter-connecting in a variable spaced relationship and being positioned in between opposite lateral ends of the first and second wall panels or the lateral edge portions of the first and second panel comprising reinforcing members extending horizontally from each of said edge portion for interconnecting the pairs of panels along their respective lateral edge portions. **Claims 1 and 21** are therefore novel and complies with PCT Article 33(2).

Claims 2 to 20 ultimately depend on **claim 1** and add further features to those defined in **claim 1**. Therefore, the subject matter of **claims 2 to 20** is also new and meets the requirements of Article 33(2) of the PCT with regard to novelty.

INVENTIVE STEP (IS)

Claims 1 to 21 involve an inventive step and therefore comply with PCT Article 33(3).

None of the above prior art documents either individually or in combination obviously suggests to a person skilled in the art a connecting arrangement for inter-connecting in a variable spaced relationship and being positioned in between opposite lateral ends of the first and second wall panels or the lateral edge portions of the first and second panel comprising reinforcing members extending horizontally from each of said edge portion for interconnecting the pairs of panels along their respective lateral edge portions. Therefore, the subject matter of **claims 1 and 21** is not obvious and meets the requirements of Article 33(3) of the PCT with regard to inventive step.

Claims 2 to 20 ultimately depend on **claim 1** and add further aspects of the inventive concept. Therefore, the subject matter of **claims 2 to 20** is also not obvious and meets the requirements of Article 33(3) of the PCT with regard to inventive step.

INDUSTRIAL APPLICABILITY (IA)

The invention defined in the claims is considered to meet the requirements of Industrial Applicability under Article 33(4) of the PCT because it can be made by, or used in, industry.

E04B 2/86 (2006.01)

E04B 2/64 (2006.01)

E04C 2/04 (2006.01)

E04G 11/06 (2006.01)

E04B 1/04 (2006.01)

E04C 3/20 (2006.01)

E04B 1/20 (2006.01)

E04B 2/84 (2006.01)

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 8 is not clear because I cannot find an antecedent to 'said joiner members' when the claim is appended to claims 6 or 7. For the purpose of examination and this report I have construed 'said joiner members' to be 'joiner members'.

Claim 11 is not clear because of the terms 'a first imaginary plane that intersects a second imaginary plane'. The scope of 'imaginary plane' is unclear and therefore for the purpose of examination and this report I have construed 'a first imaginary plane' to be 'a first plane' and 'a second imaginary place' to be 'a second plane'.

Michael Buck IP

Patent and Trade Mark Attorneys

By Electronic Submission

The Commissioner of Patents
IP Australia
PCT Receiving Office
PO Box 200
Woden ACT 2602

2 May 2018

Dear Commissioner

RE: International Patent Application No. PCT/AU2017/050771
Title: Pre-cast Concrete Formwork, Wall System and Method of Construction
Applicant: Ario Yousefi Darestani
Our Ref: DAR01-04P-PC

We refer to the Written Opinion of the IPEA dated 12 February 2018.

We also refer to a telephone conference between the Examiner, Brendan Browne and the Supervising Examiner Weifeng Chen.

Following on from our discussions, our reply to the Written Opinion is outlined in the following passages.

Pursuant to our discussions, the applicant wishes to withdraw claim 22 to progress the prosecution of the present application. Please see the enclosed claim amendments. The applicant respectfully requests that these amendments be entered in accordance with Art 34 of the PCT.

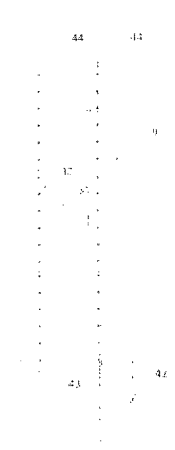
In relation to the Examiner's comments relating to independent claims 1 and 21 under Box V of the Written Opinion.

The Examiner contends that WO2015/199622 (D2) is the closest prior art and that claims 1 and 21 lack an inventive step over D2.

First and foremost, we wish to respectfully point out that the Examiner's interpretation of D2 is plainly incorrect.

D2 does not disclose "discrete" pre-cast concrete wall panels as incorrectly asserted by the Examiner.

In this regard, we wish to direct the Examiner's attention to Figures 1 to 3 and 6 and the disclosure on Page 2,



Lines 1 to 6 of D2 in which D2 clearly discloses pre-cast concrete blocks that are cast into an “H-shaped” configuration. This implies that panels 12 and 22 permanently joined by joining member 31 have been pre-cast off-site to form an H-shaped block. Figures 8 and 9 (and passages on Page 4 Line 19 to Page 5, Line 14) also make it abundantly clear that each of the panels 11 and 22 are joined by a joining member 31 to form a pre-cast reinforced block 9. A plurality of these individual blocks 9 are positioned on top of each other to form a wall. D2 is directed to an H-shaped block that is suitable for use in blockwork and not for building modular wall systems which do not need blockwork (a problem addressed by the presently claimed invention).

Referring to Page 4, Lines 4 to 18, it is clear that the joining member 31 includes a steel frame 38 that is permanently embedded into both panels 12 and 22 for strengthening the pre-cast H-shaped block. The permanent fixing of the joining member 31 into panels 12 and 22 (incorrectly labelled as “10, 10/2” in D2) has been carried out for easier transportation and installation.

The combination of the panels 12 and 22 fastened by joining member 31 forms a discrete pre-cast building block for a wall. This arrangement is evident from Figures 8 and 9 and the disclosure on Page 4 Line 19 to page 5, Line 14.

The claimed invention recites a wall system that comprises “discrete” wall panels. The plain and ordinary dictionary meaning of “discrete” is “individually separate and distinct”. Unlike the presently claimed invention, D2 teaches building blocks 9 that are essentially individual or discrete building blocks. D2 fails to recite discrete wall panels that are spaced apart and arranged in a manner as claimed in the present invention.

Furthermore, the Examiner also asserts that it would be obvious for a skilled person to consider D2 and provide a variable spacing arrangement. Once again, we respectfully disagree with the Examiner’s assertion and submit that that such a modification would render D2’s block in operable for its intended use.

The technical problem solved by D2 relates to providing an arrangement that allows each of the blocks 9 to be easily lifted during transportation by provision of lifting lugs 39 provided on the steel frame 38 for allowing the blocks 9 to be easily lifted. Removal of the individual panels 12 and 22 by unfastening the joining member 31 from the panels 12 and 22 to obtain the separated panels, as asserted by the Examiner would render D2’s invention inoperable for its intended use (which is to be able to conveniently lift each discrete block 9 during transportation and erecting a wall). It would be impossible to lift the blocks 9 when the panels 12 and 22 have been uncoupled from the joiner member 31.

Nowhere does D2 discuss separating joiner member 31 from the panels 12 and 22. Throughout D2, the emphasis is on providing a pre-cast H-shaped block. Therefore, the Examiner’s assertion that D2 teaches two discrete wall panels that can be used in formwork to form a wall system as claimed in the present invention is unsubstantiated. We wish to draw the Examiner’s attention to the passages on Page 4, Lines 8 to 19.

(Refer to figure 7) "From these frame (38), having lifting assy (39) comprises of a pair of steel leg angles embedded in (31) and stand in vertically, the bottom of **them welded with rectangular steel plate**, the middle attached to steel leg angles (38-1) and fastened with bolts and nuts, the upper of both angles emerged from the upper surface of flat panel (31), the steel angles having a pair of holes drilled thru, inserted the hoisting plate (40), inserted bolt and nut. Precast reinforced concrete walls H-shape full block (9) having eight lifting assy, and a half block (9/2) having four lifting assy. Left and right of steel frame (38-1) having a pair of steel plates (41) and having a hole at the center of steel plate, for inserted stud and nut to tighten between block. Steel frame (38) having steel angles (38-1) and steel rods (38-2) welded together, and welded between steel rods (38-2) and tubes (36)".

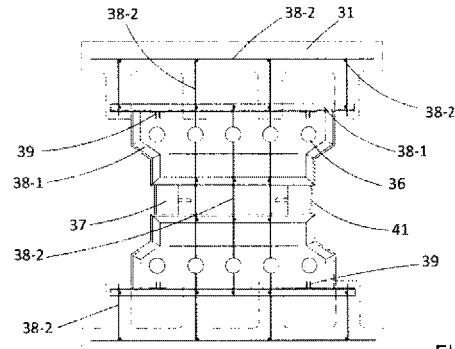


FIG. 7

From the above disclosure, it is clear that the steel frame 38 comprises steel angles 38-1 and steel rods 38-2 (embedded within the panels 12 and 22) that are welded directly to form a pre-cast H-shaped concrete block 9. It is clear that the welded configuration of the joiner member 31 prevents the joiner member 31 from being separable from the panels 12 and 22. Therefore, panels 12 and 22 are not discrete wall panels in a manner as claimed in pending claim 1.

The modification of the joining arrangement 31 in D2 to arrive at the applicant's invention is not obvious.

The Examiner also opines that the modifying the joining arrangement 31 in D2 to allow variable spacing is obvious.

As explained in the earlier sections, D2 discloses a pre-cast H shaped hollow block 9. The block 9 includes panels 12 and 22 that are pre-cast with the joiner member 31 positioned in between the panels 12 and 22.

The joiner member 31 includes a steel frame 38 including tubes 38-2 which are embedded into the concrete matrix of each panel 12 and 22 (See Figure 7) and directly welded. It would not be obvious for a skilled person to disregard the teachings of D2 and dismantle the block 9 by attempting to uncouple joining member 31 from panels 12 and 22.

Furthermore, any attempts to uncouple joining member 31 from panels 12 and 22 would render D2's block 9 inoperable for its intended technical purpose. As previously outlined, D2 relates to providing an arrangement that allows each of the blocks 9 to be easily lifted during transportation by provision of lifting lugs 39 provided on the steel frame 38 for allowing the blocks 9 to be easily lifted. The welded arrangement of the steel frame 38 within the joining member 31 to allow a variable spacing arrangement would effectively weaken the welded frame 38. As a

result, such a modification would no longer provide the joining member 31 with the required strength to allow the lifting of these blocks 9 by using the lifting lugs 39.

We wish to respectfully point out that the H-shaped block 9 is very heavy and a crane or other heavy machinery is required for place each block 9 at the time of building a wall. Contrary to D2, the presently claimed invention provides two **discrete** wall panels that can be positioned in a spaced apart arrangement and allow the spacing to be varied. D2 fails to disclose such an arrangement. Unlike D2, when a wall is built using the presently claimed system, heavy machinery or a crane is not required for lifting and positioning each H-shaped block 9. In fact, the presently claimed formwork does not use any blocks and uses a completely different approach to build the wall by using two discrete wall panels. The presently claimed system can be used for building walls at a much greater speed without requiring heavy machinery (an outcome not achieved by the H-shaped blocks of D2).

The Examiner has also conceded that D2 does not include the claimed feature of the *“lateral edge portions of the first and second panel comprise reinforcing members extending horizontally from each of said edge portion for inter-connecting a first pair of said first and second panels with a second pair of said first and second panels along their respective lateral edge portions.”*

However, the Examiner opines that horizontal rebars 30 are suitable for connecting lateral edge portions of the panels 12 and 22. Once again, the Examiner’s assertions are not supported by the D2’s disclosures.

It is important to note that claim 1 is limited to providing reinforcing members from lateral edge portions of each panel. The rebars 30 do not extend from lateral edge portions of the panels 12 and 22. Instead, the rebars 30 extend from the rib 25. No connecting arrangement is provided along the lateral edge portions of the panels 12 and 22. It is improper for the Examiner to suggest that it would be obvious for the skilled person to change the position of the rebars 30 when infact D2 does not even contemplate joining two adjacently located panels along their respective lateral edge portions in a manner as claimed.

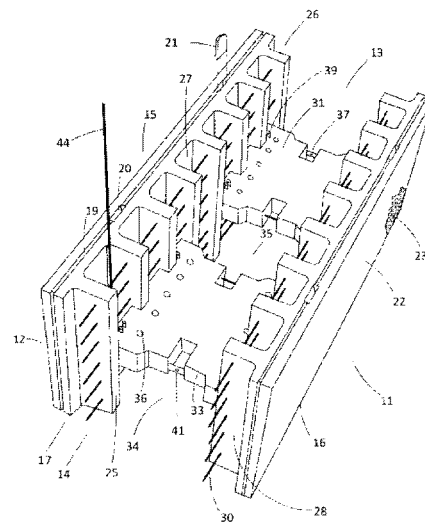


FIG. 1

We wish to draw the Examiner’s attention to the passage on Page 5, Lines 6 to 14 which states that:

“After erected wall completely, then took the vertical steel rebars (44) from lifting crane put in to the upper of inner spaces (27) of blocks, control by workers in which they stand on the flat panels (1) to controlled the steel rebars, after completely and then the workers climbed down from central space (35) to the wail base and bonded between vertical steel rebars (44) attached to horizontal steel

rebars (30) from wall base to the top of the wall, front and rear wall panels (10), then closed both side ends of wall panels by steel form work, after completed, then poured mass concrete in to the interval of wall panels.”

From reading the above passage, it is clear that there is no teaching or suggestion that the rebars (30) from one H-shaped block 9 have been inter-connected to another adjoining block 9. Instead, D2 relies on passing an additional rebar through the drilled holes after positioning the blocks which is a very cumbersome and time intensive process.

The Examiner relies on drill holes (29) that are provided on the ribs (25). Once again, the drill holes 29 in the panels 12 and 22 are not provided along a lateral edge portion of the panels 12 and 22. As a result, fastening the existing rebars (30) on each block 9 in a side by side arrangement will be extremely difficult if not impossible.

The present applicant has provided the reinforcing members along the lateral edge portions in the claimed configuration to provide sufficient wind resistance to the outwardly located wall panels which are most exposed to wind. The blocks 9 are not capable of providing the same functionality due to the location of the drill holes 29.

In view of the above, we submit that the invention defined in present claims 1 to 21 is novel and inventive over D2.

We also propose to cancel claim 22 to address the novelty objection from the recent Written Opinion.

Favourable reconsideration during examination is respectfully requested.

Yours faithfully
MICHAEL BUCK IP



Andy Mukherji
Patent Attorney

Enc. Amended Claims (Marked-Up and Clean format)

The claims defining the invention are as follows:

1. Formwork for building a wall system, the formwork comprising:

a first discrete reinforced pre-cast concrete wall panel and a second discrete reinforced pre-cast concrete wall panel, the first wall panel being adapted for being positioned in a spaced relationship with the second wall panel;

a hollow core defined by oppositely arranged spaced apart surfaces of the first and second wall panels, the core being adapted for receiving wet concrete; and

a connecting arrangement for inter-connecting the first wall panel with the second wall panel in a variable spaced relationship, the connecting arrangement extending generally in an outwardly direction relative to said oppositely arranged spaced apart surfaces of the first and second wall panels and being positioned along respective lengths of the first and second wall panels in between opposite lateral ends of the first and second wall panels and

wherein lateral edge portions of the first and second panel comprise reinforcing members extending horizontally from each of said edge portion for inter-connecting a first pair of said first and second panels with a second pair of said first and second panels along their respective lateral edge portions.

2. Formwork in accordance with claim 1 wherein each of the first and second panels comprises a plurality of summit portions spaced apart from each other by furrow portions and wherein during use the summit portions are located along the oppositely arranged surfaces of the first and second panels.

3. Formwork in accordance with claim 2 wherein during use, a first plurality of summit portions of the first panel are arranged in an opposed relationship relative to a second plurality of the summit portions such that each of the summit portions of the first panel is positioned adjacent a corresponding summit portion of the second panel to provide the connecting arrangement.

4. Formwork in accordance with any one of the preceding claims further comprising a spacer for being positioned and retained in between respective summit portions of the first and second panel during use.

5. Formwork in accordance with any one of claims 2 to 4 wherein a first plurality of furrow portions from the first panel are positioned in an opposed relationship relative to a second plurality of furrow portions of the second panel such that each of the furrow portions of the first panel and a corresponding furrow portion of the second panel defines a hollow core portion to receive fresh concrete poured therein.
6. Formwork in accordance with any one of claims 2 to 5 wherein lateral edge portions for each of the panels comprises profiled projections such that thickness of the projections is preferably less than the height of one or more of said summit portions to accommodate said horizontally extending reinforcing members for inter-connecting a first pair of said first and second panels with a second pair of said first and second panels along their respective lateral edge portions.
7. Formwork in accordance with claim 6 wherein the projections of the first panel are spaced apart from the oppositely arranged projections of the second panel to define a grout or concrete receiving cavity.
8. Formwork in accordance with any one of claims 6 or 7 wherein said joiner members extend in a transverse direction relative to the length of the summit portions.
9. Formwork in accordance with claim 8 comprising a plurality of spaced apart joiner members positioned in between the top and bottom portions of the panels, said joiner members further comprising one or more respective receiving portions that are aligned for receiving one or more reinforcing members extending in a generally upright direction.
10. Formwork in accordance with claim 9 wherein each joiner member comprises a first receiving portion and a second receiving portion such that the first receiving portion for each of the joiner members are aligned to receive a reinforcing member in between the oppositely arranged surfaces of the first pair of panels and the second receiving portion for each of the joiner members are aligned to receive a reinforcing member in between the oppositely arranged surfaces of the second pair of panels.

11. Formwork in accordance with any one of claims 6 to 10 wherein the joiner member is structured to allow a first structural wall formed by the first pair of panels to lie in a first imaginary plane that intersects a second imaginary plane of a second structural wall formed by the second pair of panels.

12. Formwork in accordance with any one of claims 6 to 11 further comprising locking members for locking the joiner members to at least one of said oppositely arranged surfaces.

13. Formwork in accordance with any one of claims 6 to 12 comprising an elongate capping member for being positioned along oppositely arranged lateral edges of the first and second panels wherein an internal wall of the capping member and the projections of the first and second panels define an internal space for receiving grout or fresh concrete.

14. Formwork in accordance with claim 13 wherein the capping member comprises an inter-locking arrangement for inter-locking the capping member with the lateral edges of the first and second panels.

15. Formwork in accordance with any one of claims 13 or 14 further comprising an additional joiner member extending outwardly from an internal surface of the capping member into the core portion for inter-connecting the capping member with the first and second panels wherein the additional joiner member comprises receiving portions for receiving one or more reinforcing members extending in a generally upright direction.

16. Formwork in accordance with any one of the preceding claims wherein the formwork further comprises one or more additional reinforcing members extending through the core, the reinforcing members extending in an outwardly direction, preferably in a vertical direction relative to a supporting surface supporting the first and second wall panel.

17. Formwork in accordance with any one of the preceding claims further comprising a lintel member for being positioned above in-use upper portions of the

first and second panels, the lintel member further comprising connecting members for connecting the lintel member to the core of the formwork.

18. Formwork in accordance with claim 17 further comprising reinforcing bars extending along the length of the lintel member wherein an in-use upper portion comprises a first plurality of reinforcing bars and in-use lower portion comprises a second plurality of reinforcing bars.

19. Formwork in accordance with any one of the preceding claims further comprising a scaffold securing arrangement for removably securing scaffolding to at least one of said pre-cast panels.

20. Formwork in accordance with any one of the preceding claims further comprising a plurality of spaced apart elongate reinforcement members positioned in the hollow core in between lateral ends of said first and second wall panels and extending generally in a vertical direction relative to a supporting surface underlying said wall system.

21. A discrete pre-cast reinforced concrete panel to construct formwork for a wall system in a building, the panel comprising a plurality of summit portions spaced apart from each other by furrow portions wherein two of said panels can be oppositely arranged to position the summit portions of each panel in a connected configuration, wherein one or more of the summit portions comprises a connecting arrangement for inter-connecting one of said concrete panel with another of said wall panel in a variable spaced relationship, the connecting arrangement extending generally in an outwardly direction relative to an inwardly directed in-use surface of the panel and positioned in between opposite lateral ends of the panel and wherein the furrow portions of the oppositely arranged panels define a plurality of hollow cores for receiving fresh concrete therein.

The claims defining the invention are as follows:

1. Formwork for building a wall system, the formwork comprising:

a first discrete reinforced pre-cast concrete wall panel and a second discrete reinforced pre-cast concrete wall panel, the first wall panel being adapted for being positioned in a spaced relationship with the second wall panel;

a hollow core defined by oppositely arranged spaced apart surfaces of the first and second wall panels, the core being adapted for receiving wet concrete; and

a connecting arrangement for inter-connecting the first wall panel with the second wall panel in a variable spaced relationship, the connecting arrangement extending generally in an outwardly direction relative to said oppositely arranged spaced apart surfaces of the first and second wall panels and being positioned along respective lengths of the first and second wall panels in between opposite lateral ends of the first and second wall panels and

wherein lateral edge portions of the first and second panel comprise reinforcing members extending horizontally from each of said edge portion for inter-connecting a first pair of said first and second panels with a second pair of said first and second panels along their respective lateral edge portions.

2. Formwork in accordance with claim 1 wherein each of the first and second panels comprises a plurality of summit portions spaced apart from each other by furrow portions and wherein during use the summit portions are located along the oppositely arranged surfaces of the first and second panels.

3. Formwork in accordance with claim 2 wherein during use, a first plurality of summit portions of the first panel are arranged in an opposed relationship relative to a second plurality of the summit portions such that each of the summit portions of the first panel is positioned adjacent a corresponding summit portion of the second panel to provide the connecting arrangement.

4. Formwork in accordance with any one of the preceding claims further comprising a spacer for being positioned and retained in between respective summit portions of the first and second panel during use.

5. Formwork in accordance with any one of claims 2 to 4 wherein a first plurality of furrow portions from the first panel are positioned in an opposed relationship relative to a second plurality of furrow portions of the second panel such that each of the furrow portions of the first panel and a corresponding furrow portion of the second panel defines a hollow core portion to receive fresh concrete poured therein.
6. Formwork in accordance with any one of claims 2 to 5 wherein lateral edge portions for each of the panels comprises profiled projections such that thickness of the projections is preferably less than the height of one or more of said summit portions to accommodate said horizontally extending reinforcing members for inter-connecting a first pair of said first and second panels with a second pair of said first and second panels along their respective lateral edge portions.
7. Formwork in accordance with claim 6 wherein the projections of the first panel are spaced apart from the oppositely arranged projections of the second panel to define a grout or concrete receiving cavity.
8. Formwork in accordance with any one of claims 6 or 7 wherein said joiner members extend in a transverse direction relative to the length of the summit portions.
9. Formwork in accordance with claim 8 comprising a plurality of spaced apart joiner members positioned in between the top and bottom portions of the panels, said joiner members further comprising one or more respective receiving portions that are aligned for receiving one or more reinforcing members extending in a generally upright direction.
10. Formwork in accordance with claim 9 wherein each joiner member comprises a first receiving portion and a second receiving portion such that the first receiving portion for each of the joiner members are aligned to receive a reinforcing member in between the oppositely arranged surfaces of the first pair of panels and the second receiving portion for each of the joiner members are aligned to receive a reinforcing member in between the oppositely arranged surfaces of the second pair of panels.

11. Formwork in accordance with any one of claims 6 to 10 wherein the joiner member is structured to allow a first structural wall formed by the first pair of panels to lie in a first imaginary plane that intersects a second imaginary plane of a second structural wall formed by the second pair of panels.

12. Formwork in accordance with any one of claims 6 to 11 further comprising locking members for locking the joiner members to at least one of said oppositely arranged surfaces.

13. Formwork in accordance with any one of claims 6 to 12 comprising an elongate capping member for being positioned along oppositely arranged lateral edges of the first and second panels wherein an internal wall of the capping member and the projections of the first and second panels define an internal space for receiving grout or fresh concrete.

14. Formwork in accordance with claim 13 wherein the capping member comprises an inter-locking arrangement for inter-locking the capping member with the lateral edges of the first and second panels.

15. Formwork in accordance with any one of claims 13 or 14 further comprising an additional joiner member extending outwardly from an internal surface of the capping member into the core portion for inter-connecting the capping member with the first and second panels wherein the additional joiner member comprises receiving portions for receiving one or more reinforcing members extending in a generally upright direction.

16. Formwork in accordance with any one of the preceding claims wherein the formwork further comprises one or more additional reinforcing members extending through the core, the reinforcing members extending in an outwardly direction, preferably in a vertical direction relative to a supporting surface supporting the first and second wall panel.

17. Formwork in accordance with any one of the preceding claims further comprising a lintel member for being positioned above in-use upper portions of the

first and second panels, the lintel member further comprising connecting members for connecting the lintel member to the core of the formwork.

18. Formwork in accordance with claim 17 further comprising reinforcing bars extending along the length of the lintel member wherein an in-use upper portion comprises a first plurality of reinforcing bars and in-use lower portion comprises a second plurality of reinforcing bars.

19. Formwork in accordance with any one of the preceding claims further comprising a scaffold securing arrangement for removably securing scaffolding to at least one of said pre-cast panels.

20. Formwork in accordance with any one of the preceding claims further comprising a plurality of spaced apart elongate reinforcement members positioned in the hollow core in between lateral ends of said first and second wall panels and extending generally in a vertical direction relative to a supporting surface underlying said wall system.

21. A discrete pre-cast reinforced concrete panel to construct formwork for a wall system in a building, the panel comprising a plurality of summit portions spaced apart from each other by furrow portions wherein two of said panels can be oppositely arranged to position the summit portions of each panel in a connected configuration, wherein one or more of the summit portions comprises a connecting arrangement for inter-connecting one of said concrete panel with another of said wall panel in a variable spaced relationship, the connecting arrangement extending generally in an outwardly direction relative to an inwardly directed in-use surface of the panel and positioned in between opposite lateral ends of the panel and wherein the furrow portions of the oppositely arranged panels define a plurality of hollow cores for receiving fresh concrete therein.

~~22. A method of constructing a wall in a building, the method comprising:
positioning a first discrete reinforced pre-cast concrete wall panel in a spaced relationship from a second discrete reinforced pre-cast concrete wall panel,~~

~~the first wall panel being adapted for being positioned in a spaced relationship with the second wall panel;~~

~~connecting the first wall panel with the second wall panel to maintain the first and second wall panels in the spaced relationship wherein the connecting arrangement extends generally in an outwardly direction relative to said oppositely arranged surfaces of the first and second wall panels and along respective lengths of the first and second wall panels in between opposite lateral ends of the first and second wall panels; and~~

~~pouring wet concrete into a core defined by oppositely arranged surfaces of the first and second wall panels.~~