

# CERTIFICATE OF CONFORMITY

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## Force 10 Building Super Structure



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### Product description

The Force 10 Building System consists of a suspended floor system (where applicable), a wall panel system and a roof truss system. Each part of the system consists of interlocking steel elements and cladding.

1. **Floor System:**  
The floor uses Galvaspan steel bearers and Trucore joists. Floor bearers are provided with pre-punched holes for ease of on-site assembly. The steel floor joists nest securely inside the structural bearers. Both bearers and joists are available in lengths of 1, 2 and 3 metres. The bearers are 179 x 106 mm 'Eye' section and the joists are 179 x 50 mm 'Z' section. Maximum load is 1.5 kPa for 4000 mm joist span (domestic loading) and 3.0 kPa for 3000 mm joist span (commercial loading). The Type 1 building maximum joist span is 3 metres and for other types it is 2 metres. Floor sheeting is Supaboard sheeting, compressed fibre cement sheeting or particleboard flooring. It is glued to all joists and bearers as well as being screwed to the joists.
2. **Wall Panel System:**  
The wall panel system consists of two steel components that tab-lock together to form a rectangular frame. The steel frame consists of two steel studs bridged to the top and bottom with interlocking steel noggings manufactured from Zinalume. Cellulose fibre cement sheets of 6 mm thickness are bonded to the frame and non-toxic fire retardant polyurethane foam is injected into the cavity. Full height PVC conduit ducts are fitted to be used for electrical services. Panel widths are based on a modular width of 1000 mm and heights of 2435, 2700 and 3000 mm are available in a thickness of 76 mm. Panel weights are 58, 64 and 71 kg, respectively. The wall panels are fixed to either the floor system or the concrete slab. Once installed, exterior wall panels are ready for the application of the surface moisture sealing system for the joints. Texture coating or acrylic exterior paint are among the range of exterior finishes. The panels are suitable for up to C3 areas and have been designed to withstand design gust wind speeds 'V<sub>u</sub>' according to AS/NZS1170.2: 2002 (incl. Amdt 1) up to 74 m/s.
3. **Roof System:**  
The roofing system consists of two lightweight steel sections. All sections nest together to allow mechanical fixing. The trusses are fixed to the wall panels. The trusses are cold-formed site manufactured from 1.2 mm Trucore coil steel with a hot-dipped zinc coating of 300 g/m<sup>2</sup> minimum or AZ150 (in accordance with AS 2551:1982). Roof widths are based on 1000 mm modules up to 16 metres (depending on the wind classification) and come in a standard 20° pitch truss design. The roofing system has been designed to withstand wind speeds up to 60 m/s using +0.7 internal and -0.9 external factors giving a combined pressure coefficient of 1.6. The trusses fold flat for ease of transport. Roof Purlins are fixed by screws onto the top of the trusses and allow for the use of a variety of conventional roof sheeting.



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<b>CodeMark Certification Body</b>			<u>15/9/2011</u>	<u>13/10/2011</u>	<u>15/9/2014</u>	<u>GM-11-CM30027</u>
Global-Mark Pty Ltd, Suite 4.07, 32 Delhi Road, North Ryde NSW 2113, Australia - <a href="http://www.Global-Mark.com.au">www.Global-Mark.com.au</a>	Herve Michoux Managing Director	Unrestricted Building Certifier, Peter Gardner	Date of issue	Last update	Date of expiry	Certificate Number

This Certificate of Conformity is issued by an accredited certification body under arrangement with JAS-ANZ. The ABCB does not in any way warrant, guarantee or represent that the Product the subject of this Certificate of Conformity conforms with the BCA, nor accepts any liability arising out of the use of the Product. The ABCB disclaims to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this Certificate.

It is advised to check that this Certificate of Conformity is currently valid and not withdrawn, suspended or superseded by a later issue by referring to the ABCB website, [www.abcb.gov.au](http://www.abcb.gov.au)



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The Force 10 Building System is described in the following documents:

- Drawing No CM01-01 Revision C
- Drawing No CM01-02 Revision C
- Drawing No CM01-03 Revision C
- Drawing No CM01-04 Revision C
- Drawing No CM01-05 Revision C
- Force 10 Construction Manual Ver: 8 December 2010
- Force 10 Design Manual Ver: 3.2 February 2011
- Force 10 Design Calculations Manual Ver: 2.11 March 2010
- Force 10 Specifications Manual Ver: 3.1 February 2011

### Product purpose or use

The Force 10 Building System consist of prefabricated, ready to be assembled housing structures which are normally constructed for one and two storey construction on stumps pad footings or concrete slabs-on-ground.

### Certificate holder

**Force 10 International Pty Ltd**, 30 Acanthus Street, Darra, QLD 4170, Australia



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### Complies with the Building Code of Australia 2011:

1. Volume One BP 1.1 and BP1.2 in respect of structural performance, when designed and constructed in accordance with Drawings No CM01-01, CM01-02, CM01-03, CM01-04, CM01-05, the Force 10 Design Manual and the following limitations:
2. Volume Two P2.1 Parts (a), (b) and (c) in respect of structural performance, when designed and constructed in accordance with Drawings No CM01-01, CM01-02, CM01-03, CM01-04, CM01-05, the Force 10 Design Manual and the following limitations:
3. Volume One FP1.4 in respect of damp and weatherproofing.
4. Volume Two P2.2.2 in respect of weatherproofing.
5. Volume Two P2.2.3 in respect of dampness.
6. Volume One JP1 limited only to energy efficiency of walls and roofs.
7. Volume Two P2.6.1 limited only to energy efficiency of walls and roofs.

### State Additions or Variations

Victoria – BCA 2011 Volume Two energy efficiency provisions  
NSW – BCA 2011 Volumes One and Two energy efficiency provisions set out in BASIX.  
Tasmania – BCA 2009 Volumes One and Two energy efficiency provisions.  
Northern Territory – BCA 2009 Volumes One and Two energy efficiency provisions.  
Queensland – BCA 2009 Volume One energy efficiency provisions.

South Australia – BCA 2011 Volume Two dampness.  
NSW – BCA 2011 Volume Two dampness.

### Subject to the following conditions and limitations:

1. Product selection and incorporation into the building design, and certification of the design, shall be carried out by a Professional Engineer who:
  - Has qualifications and experience acceptable to relevant approval authorities;
  - Has received training in the use, application and technical aspects of the product; and
  - Has ready access to all to the relevant technical information related to the product use, including Force 10 Design Manual Ver 3.2 February 2010, and
  - Has inspected the particular building site, and assumed responsibility for the selection of the appropriate:
    - Foundation conditions, including Site Classification in accordance with AS 2870:1996 (incl. Amdt 1, 2, 3, 4) for Class 1 buildings;
    - Load combinations and other loading considerations in accordance with AS/NZS 1170.0:2002 (incl. Amdt 1).
    - Permanent and imposed loads in accordance with AS/NZS 1170.1:2002 (incl. Amdt 1 and 2).
    - Wind loads and Wind Class, in accordance with AS 4055:2006 (incl. Amdt 1) or AS/NZS 1170.2:2002 (incl. Amdt 1), as appropriate
    - Earthquake loads, in accordance with AS 1170.4:2007
    - Snow loads (if appropriate) in accordance with AS/NZS 1170.3:2003 (incl. Amdt1).



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2. Construction drawings shall be prepared for the particular site by a qualified Draftsperson, under the direction of the Engineer, generally consistent with the standard drawings CM01-CM05.
3. Product installation, shall be carried out in accordance with the Force 10 Design Manual Ver 3.2 February 2010, by authorised Force 10 approved installers, under the direction of a Licensed Builder, both of whom:
  - Have qualifications and experience acceptable to the relevant approval authorities;
  - Have received training in the use, application and technical aspects of the product; and
  - Have ready access to all to the relevant technical information and test reports related to the product use, including Force 10 Construction Manual.
4. A Certificate of Installation must be issued by the Installer and copy of this record kept by Force 10 International Pty Ltd.
5. Standard Designs:

Drawings No CM01-01, CM01-02, CM01-03, CM01-04 and CM01-05 set out the standard designs and details for Force 10 houses, Class 1, complying with BCA Volume Two, with a maximum imposed floor load of 3.0 kPa.

These details may also be applicable to Class 2 to 9 buildings, complying with BCA Volume One, except that additional requirements may apply. In particular, there may be extra requirements in respect of Volume One Parts D, E, G, H and I; and the imposed floor loads could be greater than 3.0 kPa, the value on which the standard drawings are based. For Class 2 to 9 buildings, a Professional Engineer (as defined in the Building Code of Australia) shall design the structure for the expected imposed loads.
6. In respect of structural performance, when designed and constructed in accordance with Drawings No CM01-01, CM01-02, CM01-03, CM01-04, CM01-05, the Force 10 Design Manual and the following limitations apply:
  - Design in accordance with Drawings No CM01-01, CM01-02, CM01-03, CM01-04, CM01-05
    - Floor imposed load up to 3.0 kPa
    - Roof imposed load up to 0.25 kPa
    - Racking loads due to wind N1, N2, N3, N4, C1, C2 resisted by Type WA1, WB1, WA2 and WB2 bracing panels fixed to the bearers or concrete slab.
  - Design in accordance with Force 10 Design Manual, and supported by engineering calculations:
    - Loads in excess of the values noted above or involving construction other than that noted above.

The primary elements in contact with the ground are steel or concrete (slab-on-ground), which are not prone to termite attack, and termite barriers are not required for construction complying with Drawing CM01-2 C; and BCA Volume One Part BP1.1(b)(xv) and BCA Volume Two Part P2.1(b)(xv) are satisfied.



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### Limit of the scope of certification

Certification applies only to those Building Code of Australia parts specifically mentioned. Parts omitted are not covered by the CodeMark certification. Omission should not be interpreted as either “the part does (or does not) apply to the specific building” or “the part does apply and the system does or does not conform”.

The following are specifically excluded from the scope of the certification:

- Performance requirements in respect of BCA Volume One Parts D, E, G, H and I.
- Performance requirements in respect of BCA Volume Two Parts 2.5.
- Setting out

Certification does not apply to structures below finished floor level.

Excludes compliance with BCA Volume One Section C: compliance for non-combustibility, fire hazard properties when used as a wall or ceiling lining, fire hazard properties when used as a composite member (eg. insulation within a wall), fire hazard properties generally, and regarding fire resistance or fire resistance levels.

Excludes compliance BCA Volume Two Part 3.7: compliance for non-combustibility and regarding fire resistance or fire resistance levels.

Excludes compliance with the bushfire protection properties of BCA Volume One and BCA Volume Two.

Certification does not apply to:

- Liquid pressure – Part (vi)
- Groundwater action – Part (vii)
- Earth pressure action – Part (ix)
- Differential movement – Part (x)
- Time dependent effects – Part (xi)
- Ground movement – Part (xiii)
- Construction activity – Part (xiv)

Certification of these structures must be provided separately by a Professional Engineer as defined in BCA Volume One Part A.1.1 and BCA Volume Two Part 1.1.1.

The certification of the stumps and pad footings or concrete slabs-on-ground and associated membrane is not included in this CodeMark certification, and must be provided separately by a Professional Engineer as defined in BCA Volume One Part A.1.1 and BCA Volume Two Part 1.1.1.

Damp-proofing is contingent upon the slab and membrane being installed in accordance with the BCA and AS 2870:1996 (incl. Amdt1, 2, 3, 4), including the State variations. External moisture management shall be achieved by the surface treatment (sealing system) applied to the panels and a comprehensive flashing system, as detailed in Drawings No CM01-01, CM01-02, CM01-03, CM01-04 and CM01-05.

**End of the document**



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