Certificate of Conformity

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InfraBuild Australia Pty Ltd
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Certificate number: CM30154 Rev0

THIS IS TO CERTIFY THAT

SENSE 600® Steel Reinforcing Bar

Type and/or use of product:

SENSE 600® Steel Reinforcing Bar are steel bars that conforms with AS/NZS 4671:2019 – Steel for the reinforcement of concrete, suitable for longitudinal column bars designed to AS 3600:2018 – Concrete structures (incorporating Amendment No. 1 & 2).

SENSE 600® Steel Reinforcing Bar is suitable for use in all building classes.

Description of product:

SENSE 600® Steel Reinforcing Bar has minimum characteristic strength (f_{sy}) of 600 MPa and Ductility Class N (A_{gt} >5%) as defined in AS/NZS 4671:2019 – Steel for the reinforcement of concrete.

COMPLIES WITH THE FOLLOWING BCA PROVISIONS AND STATE OR TERRITORY VARIATION(S) — **BCA 2022**

	Volume One		Volume Two including ABCB Housing Provisions	
Performance Requirement(s)	**B1P1**	Structural reliability	**H1P1**	Structural reliability and resistance
	B1P2	Structural resistance		
Deemed-to-Satisfy Provision(s):				
State or territory variation(s):				

Scope of certification: The CodeMark Scheme is a building product certification scheme. The rules of the Scheme are available at the ABCB website www.abcb.gov.au. This Certificate of Conformity is to confirm that the relevant requirements of the Building Code of Australia (BCA) as claimed against have been met. The responsibility for the product performance and its fitness for the intended use remain with the certificate holder. The certification is not transferrable to a manufacturer not listed on Appendix A of this certificate.

Disclaimer: The Scheme Owner, Scheme Administrator and Scheme Accreditation Body do not make any representations, warranties or guarantees, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained within this certificate; and the Scheme Owner, Scheme Administrator and Scheme Accreditation Body disclaim 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.

The purpose of Global-Mark **construction site audits** is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions

In placing **the CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein. In issuing this Certificate of Approval Global-Mark has relied on the **expertise of external bodies** (laboratories, and technical experts).

Herve Michoux
Global-Mark Managing Director

Peter Gardner
Unrestricted Building Certifier

Date of issue: 08/12/2023

Date of expiry: 08/12/2026

SUBJECT TO THE FOLLOWING LIMITATIONS AND CONDITIONS AND THE PRODUCT TECHNICAL DATA IN APPENDIX A AND EVALUATION STATEMENTS IN APPENDIX B

Limitations and conditions:	Building classification/s:
1. General Design and specification of SENSE 600® Steel Reinforcing Bar shall be conducted by a Professional Engineer as defined in Schedule 1 of the BCA in accordance with AS 3600:2018 – Concrete Structures (incorporating Amendment No.1 & 2), and amended as follows: 1) Modified requirement of Clause 10.7.1: The cross-sectional area of the SENSE 600® steel reinforcing bar used as a longitudinal reinforcement in a column shall a) be not less than $0.0083A_g$ except that, in a column that has a larger area than that required for strength, a reduced value of A_{sc} may be used if $A_{sc} \times f_{sy} > 0.15N^*$. b) As per Clause 10.7.1 (b) Where A_g= gross cross-sectional area of the column A_{sc}= cross-sectional area of compressive reinforcement f_{sy}= 600 MPa – characteristic yield strength of SENSE 600® reinforcement 2) Modified requirement of Clause 10.7.4.3 (b): The spacing of fitments, or the pitch of helices, shall not exceed the smaller of a) D_C and $15 \times \sqrt{\frac{600}{500}} d_b$ ($\approx 16.4\, d_b$) for single bars; or b) As per Clause 10.7.4.3 (b)(ii) Where D_c= the smaller column cross-sectional dimension if rectangular or the column diameter if circular d_b= diameter of the smallest SENSE 600® steel reinforcing bar used as a longitudinal bar in the column The actions shall be determined in accordance with BCA Volume One B1P1 or BCA Volume Two H1P1, as applicable.	**1, 2, 3, 4, 5, 6, 7, 8, 9 & 10**
2. General The SENSE 600® steel reinforcing bar range of bars to which this Certification is applicable is shown in Table 1. **Table 1** Designation / Diameter (mm) / Area (mm2) / Mass (kg) S11 / 11.0 / 94.2 / 0.740 S15 / 14.6 / 168 / 1.32 S18 / 18.3 / 262 / 2.06 S22 / 21.9 / 377 / 2.96	**1, 2, 3, 4, 5, 6, 7, 8, 9 & 10**

		S26	25.6	513	4.03		
		S29	29.2	670	5.26		
		S33	32.9	848	6.66		
		S37	36.5	1050	8.22		

APPENDIX A – PRODUCT TECHNICAL DATA

A1 Type and intended use of product

Refer to page 1.

A2 Description of product

Refer to page 1.

SENSE 600® - Steel Reinforcing Bar is available in the diameters shown in Table 1.

A3 Product specification

Refer to page 1.

Design and specification of SENSE 600® Steel Reinforcing Bar shall be conducted by a Professional Engineer as defined in Schedule 1 of the BCA in accordance with AS 3600:2018 – Concrete Structures (incorporating Amendment No.1 & 2), and as amended in the Limitations & Conditions section of this certificate.

A4 Manufacturer and manufacturing plant(s)

The Australian Steel Co. (Operations) Pty Ltd

- 105-123 Dohertys Road, Laverton North, Victoria, 3026

InfraBuild (Newcastle) Pty Ltd

- Ingall Street, Mayfield, NSW, 2304

A5 Installation requirements

SENSE 600® steel reinforcing bar shall be installed in accordance with the requirements of AS 3600:2018 – Concrete structures (incorporating Amendment No.1 & 2) and the professional engineer's plans.

A6 Other relevant technical data

Any referenced documents within the technical literature identified in Appendices A3 & A5.

The technical justification of substitution of SENSE 600® Steel Reinforcing Bar for conventional steel reinforcing bar, is provided in;

- InfraBuild Performance Solution Report – SENSE 600® Longitudinal Column Bars v1.0, dated 17 November 2023.

APPENDIX B – EVALUATION STATEMENTS

B1 Evaluation methods

The following assessment methods have been used to determine compliance with BCA 2022:

Code Clause	Assessment Method(s)	Evidence of suitability	Evidence reference in B2
Volume One B1P1	BCA Volume One A2G2 (2)(a) & (c)	BCA Volume One A5G3 (1)(e) Certificate or report from a professional engineer or other appropriately qualified person	Items 1, 2, 3, 4 & 5
Volume One B1P2	BCA Volume One A2G2 (2)(a) & (c)	BCA Volume One A5G3 (1)(e) Certificate or report from a professional engineer or other appropriately qualified person	Items 1, 2, 3, 4 & 5
Volume Two H1P1	BCA Volume Two A2G2 (2)(a) & (c)	BCA Volume Two A5G3 (1)(e) Certificate or report from a professional engineer or other appropriately qualified person	Items 1, 2, 3, 4 & 5

B2 Reports

The following reports have been used as evidence to determine compliance with BCA 2022:

Ref	Author	Reference	Date	Description	NATA Registration
1	Australasian Certification Authority for Reinforcing and Structural Steels Ltd (ACRS)	Certificate Number: 311021	1 Nov 2003	CERTIFICATE OF APPROVAL - Product Conformity Certification Reinforcing Bar Manufactured in coil to AS/NZS 4671:2019	JAS-ANZ Accreditation Nos.: Z5221212AC
2	Australasian Certification Authority for Reinforcing and Structural Steels Ltd (ACRS)	Certificate Number: 31103	1 Nov 2003	CERTIFICATE OF APPROVAL - Product Conformity Certification Reinforcing Bar Manufactured in coil to AS/NZS 4671:2019	JAS-ANZ Accreditation Nos.: Z5221212AC
3	InfraBuild – Anthony Ng	Performance Solution Report -SENSE 600® Longitudinal Column Bars v1.1	24 Nov 2023	Performance Solution Report for SENSE 600® Longitudinal Column Bars	N/A
4*	UNSW – Professor Stephen Foster	N/A	24 Sept 2023	Expert Opinion - SENSE 600® Longitudinal Column Bars	N/A
5*	UNSW – Professor Hamid Vali Pour & Professor Stephen Foster	RG232236	24 Sept 2023	Buckling of steel bars in the reinforced concrete columns	N/A

* The Certificate Holder has chosen not to make the above identified evidence of compliance publicly available, due to the document(s) being considered commercial in confidence.