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21 Oct 2019

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Dear Sir/Madam

## **PUBLICATION OF BC5:2019 “DESIGN GUIDE ON USE OF GRADE B600 REINFORCEMENT BARS FOR REINFORCED CONCRETE STRUCTURES”**

### **Objective**

This circular is to inform the industry that BCA has published a design guide on the use of Grade B600 reinforcement bars to complement the provisions in Eurocodes 2.

### **Background**

2 Since the migration to Eurocodes in April 2015, Singapore Standard SS 560 Specification for Steel for the Reinforcement of Concrete – Weldable, Reinforcing Steel – Bar, Coil and Decoiled Product was revised in May 2016 to include the use of high strength Grade B600 steel reinforcement bars. One key advantage of using Grade B600 reinforcement bars is to minimise congestion of bars within highly stressed structural elements, enabling better quality in the concrete works.

3 There are two possible strength grades of ribbed deformed bar (i.e. Grade B500 and B600) available from various importers in the country. Unlike Grade B500 reinforcement bars which are commonly used in Singapore, the lack of understanding on the behaviour of concrete members reinforced with Grade B600 reinforcement bars deter designers from specifying for use in their projects.

### **Design using Grade B600 Reinforcement bars**

4 The BC5:2019 provides an overview on design issues involved when using Grade B600 reinforcement bars and highlights design situation in SS EN 1992-1-1 which require additional consideration on the strain compatibility between the reinforcement bars and concrete. Recommendations on key design issues and conformity compliance of mechanical splices for reinforcement bars are also provided. Examples to illustrate design procedure and to ensure proper application of the recommendations are provided in BC5:2019 for clarity. For your information, BC5 is available for download from BCA’s website at the following link <https://www.bca.gov.sg/Publications/publications.html>.

## **Certification of Factory Production Control**

5 We would also like to highlight that clause 8 of the revised SS 560 stipulates a high level of quality control required in the finished product whereby all reinforcing steels shall be manufactured using permanent factory production control system regardless of the production process. The certification which includes surveillance of the factory production control system shall be carried out by a product certification body accredited by the Singapore Accreditation Council. As for BS 4449:2005, clause 8 specifies that a third party inspection system of routine inspection and testing is required for the manufacture of reinforcing steels (i.e. factory production control). Hence, the factory production control requirements should apply to both Grade B500 and B600 reinforcement bars. Qualified Persons are to verify and keep a copy of the factory production control certificates at site.

6 Qualified Persons who have been appointed to supervise the building works, are reminded that it is their statutory duty to take all reasonable steps and exercise due diligence in supervising and inspecting the building works or geotechnical building works, to ensure that those building works are carried out in accordance with the provisions of the Building Control Act, the building regulations, the plans approved under the Act and any terms and conditions imposed by the Commissioner of Building Control. This include carrying relevant construction and material tests as required in the regulations. QP can refer to our recently issued circular on Guidebook for Site Supervision Plan (SSP) for Structural and Geotechnical Building Works on the recommended testing guidelines.

7 I would appreciate it if you could disseminate the contents of this circular to your members. Please submit your enquiry through BCA's Online Feedback form at <https://www.bca.gov.sg/feedbackform/> Alternatively, you can contact Er. Vivien Foo at Tel. 6804 4636 or email: [Vivien\\_Foo@bca.gov.sg](mailto:Vivien_Foo@bca.gov.sg) if you need further clarification.

Yours faithfully



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