

An MND Statutory Board

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01 Jun 2021 See **Distribution** For enquiries, please contact: Building Engineering Group (#12-01) Tel: 1800 3425 222 (1800-DIAL-BCA) or use our Online Feedback Form at: https://www.bca.gov.sg/feedbackform/

REVISED BC4: 2021 AND REMINDER ON ENSURING SAFETY OF STRUCTURAL STEELWORK

Objective

1 This circular is to inform the industry of the publication of the revised design guide BC4: 2021; and also a reminder on the need to ensure safety of structural steelwork.

Revised Publication of BC4: 2021

2 This circular supersedes a similar circular on BC4 issued by BCA on 8 Dec 2015. The previous version of BC4 relates to the design for Concrete Filled Tubular members (CFT) with high strength materials; but did not include its use for Concrete Encased Steel (CES).

BCA was cognisant that the industry was not able to take advantage the benefits of using high strength materials for CES composite columns, especially in high-rise and basement construction. With that in mind, BCA collaborated with NUS in a study to enhance Eurocode 4 on this matter. After more than 4 years of comprehensive study including fullscale experiments, BC4: 2015 has been revised to BC4: 2021 "**Design Guide for Steel-Concrete Composite Columns with High Strength Materials - An Extension of Eurocode 4 Method to C90/105 Concrete and S550 Steel**". This revision of BC4 gives additional guidance for the design of CES composite columns with concrete cylinder strength of up to 90 MPa and steel yield strength of up to 550 MPa. This BC4 now provides a unified method for the design of composite columns for both CFT and CES; and has been reviewed by renowned local and international experts with established knowledge of international design codes.

4 BC 4: 2021 will be incorporated in the next update of the Approved Document. Notwithstanding that, industry practitioners can adopt the use of this design guide immediately if they wish to do so and this document together with its sample calculations are now available for download from BCA website at the following link: <u>https://go.gov.sg/bc4-2020</u>.

Reminder on Ensuring Safety of Structural Steelwork

5 Steel structures often entail the use slender elements of which structural stability needs to be considered in both the design and execution of the works. Erection procedure and measures to maintain stability during construction needs to be worked out between the builder and the professional engineer; and these details would need to be clearly specified. Additionally, the quality of structural steelwork is also dependent on engaging a competent steel fabricator. Hence, we would like to remind QPs to specify in the contract specifications on the engagement of steel fabricator who is competent for the scale and complexity of the project. For your information, the Structural Steel Fabricators Accreditation Scheme managed by the Singapore Structural Steel Society is a good source for selection of a reliable fabricator (see link at <u>http://www.ssss.org.sg</u>). For overseas fabricators, the QP has to propose a



comprehensive testing and supervision plan, including consideration for further onsite tests in Singapore. This should also include details on remote supervision if such recourse is needed by the QP due to travel restrictions arising from extraordinary event such as the COVID-19 pandemic.

For Clarification

6 We would appreciate it if you could bring to the attention of your members the contents of this circular. Should you need any clarification, please submit your enquiry through BCA's Online Feedback Form at <u>https://www.bca.gov.sg/feedbackform/</u> or call us at 1800 342 5222.

Yours faithfully

LUNG HIAN HAO DIRECTOR, BUILDING ENGINEERING GROUP for COMMISSIONER OF BUILDING CONTROL

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