

Our ref : APPBCA-2021- 10

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).

3 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 full-scale 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: <https://go.gov.sg/bc4-2020>.

Reminder on Ensuring Safety of Structural Steelwork

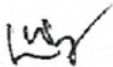
5 Steel structures often entail the use slender elements of which structural stability needs to be considered in both the design and execution of the works. Erection procedure and measures to maintain stability during construction needs to be worked out between the builder and the professional engineer; 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 <http://www.ssss.org.sg>). 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 <https://www.bca.gov.sg/feedbackform/> or call us at 1800 342 5222.

Yours faithfully



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

DISTRIBUTION (via e-mail):

PRESIDENT
INSTITUTION OF ENGINEERS, SINGAPORE (IES)
70, BUKIT TINGGI ROAD
SINGAPORE 289758

PRESIDENT
ASSOCIATION OF CONSULTING ENGINEERS, SINGAPORE (ACES)
18 SIN MING LANE
#06-01 MIDVIEW CITY
SINGAPORE 573960

PRESIDENT
SINGAPORE CONTRACTORS ASSOCIATION LIMITED (SCAL)
CONSTRUCTION HOUSE
1 BUKIT MERAH LANE 2
SINGAPORE 159760

PRESIDENT
SINGAPORE INSTITUTE OF ARCHITECTS (SIA)
79 NEIL ROAD
SINGAPORE 088904

PRESIDENT
SOCIETY OF PROJECT MANAGERS (SPM)
168 JALAN BUKIT MERAH CONNECTION ONE #10-01
SINGAPORE 150168
C/O SIPM CONSULTANTS PTE LTD

PRESIDENT
SINGAPORE INSTITUTE OF BUILDING LIMITED (SIBL)
9, AH HOOD ROAD #02-04,
SINGAPORE 329975

PRESIDENT
REAL ESTATE DEVELOPERS' ASSOCIATION OF SINGAPORE (REDAS)
190 CLEMENCEAU AVENUE
#07-01 SINGAPORE SHOPPING CENTRE
SINGAPORE 239924

PRESIDENT
SINGAPORE INSTITUTE OF SURVEYORS & VALUERS (SISV)
110 MIDDLE ROAD #09-00
CHIAT HONG BUILDING
SINGAPORE 188968

PRESIDENT
SINGAPORE STRUCTURAL STEEL SOCIETY (SSSS)
1 LIANG SEAH STREET
#02-11/12 LIANG SEAH PLACE
SINGAPORE 189022

PRESIDENT
GEOTECHNICAL SOCIETY OF SINGAPORE (GEOSS)
C/O GLOBEWERKS INTERNATIONAL PTE LTD
22 SIN MING LANE
#03-85 MIDVIEW CITY
SINGAPORE 573969

PRESIDENT
PROFESSIONAL ENGINEERS BOARD, SINGAPORE (PEB)
52 JURONG GATEWAY ROAD, #07-03
SINGAPORE 608550

PRESIDENT
BOARD OF ARCHITECTS (BOA)
5 MAXWELL ROAD
1ST STOREY TOWER BLOCK
MND COMPLEX
SINGAPORE 069110

DIRECTOR OF INFRASTRUCTURE
SCHOOL CAMPUS DEPARTMENT
MINISTRY OF EDUCATION
1 NORTH BUONA VISTA DRIVE
SINGAPORE 138675

DIRECTOR
BEST SOURCING DEPARTMENT
PUBLIC UTILITIES BOARD
40 SCOTTS ROAD #18-01
ENVIRONMENT BUILDING
SINGAPORE 228231

DEPUTY CHIEF EXECUTIVE
INFRASTRUCTURE & DEVELOPMENT
LAND TRANSPORT AUTHORITY
1 HAMPSHIRE ROAD
BLOCK 8 LEVEL 1
SINGAPORE 219428

DEPUTY DIRECTOR
PROJECT DEVT & MGT SECT 1 (C&S)
BUILDING QUALITY GROUP
HOUSING & DEVELOPMENT BOARD
HDB HUB
480 LORONG 6 TOA PAYOH
SINGAPORE 310480

DIRECTOR
TECHNICAL SERVICES DIVISION
JTC CORPORATION
THE JTC SUMMIT
8 JURONG TOWN HALL ROAD
SINGAPORE 609434

DIRECTOR
BUILDING
PEOPLE'S ASSOCIATION
9 STADIUM LINK
SINGAPORE 397750

PRESIDENT
THE TUNNELLING AND UNDERGROUND
CONSTRUCTION SOCIETY SINGAPORE (TUCSS)
C/O CMA INTERNATIONAL CONSULTANTS PTE LTD

1 LIANG SEAH STREET
#02-12 LIANG SEAH PLACE
SINGAPORE 189022

PRESIDENT
SOCIETY OF ROCK MECHANICS AND ENGINEERING GEOLOGY
1 LIANG SEAH STREET
#02-12 LIANG SEAH PLACE
SINGAPORE 189022

DEPUTY CHIEF EXECUTIVE OFFICER
SENTOSA DEVELOPMENT CORPORATION
33 ALLANBROOKE ROAD, SENTOSA
SINGAPORE 099981

HEAD (FIRE SAFETY AND BUILDING CONTROL)
BUILDING AND INFRASTRUCTURE
DEFENCE SCIENCE & TECHNOLOGY AGENCY
1 DEPOT ROAD
DEFENCE TECHNOLOGY TOWER A
SINGAPORE 109679

DIRECTOR
BUILDING AND INFRASTRUCTURE
DEFENCE SCIENCE & TECHNOLOGY AGENCY
1 DEPOT ROAD
DEFENCE TECHNOLOGY TOWER A
SINGAPORE 109679

PRESIDENT
SINGAPORE GREEN BUILDING COUNCIL (SGBC)
200 BRADDELL ROAD
BLOCK H, LEVEL 2 BCA BRADDELL CAMPUS
SINGAPORE 579700

PRESIDENT
SPECIALISTS TRADE ALLIANCE OF SINGAPORE (STAS)
23 GENTING ROAD
#07-01 CHEVALIER HOUSE
SINGAPORE 349481

PRESIDENT
SINGAPORE INTERNATIONAL FACILITY MANAGEMENT ASSOCIATION (SIFMA)
BLK 201 KIM TIAN ROAD #03-400
SINGAPORE 160201

PRESIDENT
ASSOCIATION OF PROPERTY AND FACILITY MANAGERS (APFM)
110 MIDDLE ROAD
#09-00 CHIAT HONG BUILDING
SINGAPORE 188968

ALL CORENET E-INFO SUBSCRIBERS