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For enquiries, please contact:
Building Engineering Group (#10-01)
Tel: 1800 3425 222 (1800-DIAL-BCA)
or use our online feedback form at:
<https://www.bca.gov.sg/feedbackform/>

Dear Sir/Madam

PUBLICATION OF REVISED DESIGN GUIDES –

- (I) DESIGN GUIDE FOR STEEL-CONCRETE COMPOSITE COLUMNS WITH HIGH STRENGTH MATERIALS (BC4: 2025)**
- (II) DESIGN GUIDE FOR SEMI-RIGID COMPOSITE JOINTS AND BEAMS (3RD EDITION)**

Objective

This circular informs the industry of the publication of the revised Design Guide for Steel-Concrete Composite Columns with High Strength Materials (BC4: 2025) and the Design Guide for Semi-Rigid Composite Joints and Beams (3rd Edition).

Background

2. As part of BCA's efforts to promote innovation and encourage the adoption of advanced technologies in the built environment sector, BCA together with key stakeholders has undertaken research and development efforts to enhance the above-mentioned design guides. The revised design guides are now available for use.

Design Guide for Steel-Concrete Composite Columns with High Strength Materials (BC4: 2025)

3. BCA's previous circular dated 01 June 2021 (ref: APPABCA-2021-10) introduced the Design Guide for Steel-Concrete Composite Columns with High Strength Materials (BC4: 2021). This earlier edition covered the design of high-strength steel-concrete composite members, including Concrete Encased Steel members (CES) and Concrete Filled Tubular members (CFT). To support wider adoption of composite design through new innovative design approaches, BC4: 2025 has been updated to include a new chapter on the design of Prefabricated Steel Reinforced Concrete (PSRC) columns. PSRC columns are composite sections comprising prefabricated steel lattice encased in concrete. Qualified Persons (QPs) may consider designing and adopting PSRC columns in their projects to improve construction productivity.

Design Guide for Semi-Rigid Composite Joints and Beams (3rd Edition)

4. This circular supersedes the BCA's earlier circular dated 01 March 2024 (refer APPBCA-2024-06) which introduced the 2nd edition of this design guide. The 3rd edition of the design guide includes

additional provisions and expanded application scope. In particular, the guide now covers the design of joints between biaxial reinforced concrete columns and structural steel beams. QPs are encouraged to use this design guide and adopt efficient structural systems, such as semi-rigid composite structural systems in their projects to enhance productivity and sustainability in the built environment sector.

Access to Design Guides

5. The revised design guides are available for download from BCA website at the following link:

Design Guide	Link for Download
a) BC4: 2025 Design Guide for Steel-Concrete Composite Columns with High Strength Materials - An Extension of Eurocode 4 Method to C90/105 Concrete and S550 Steel	Guidelines for ST Plan Applications Building and Construction Authority (Website address - https://www1.bca.gov.sg/safety-and-standards/applications-and-licenses/structural-plan-submission/guidelines-for-st-plan-applications/)
b) Design Guide for Semi-Rigid Composite Joints and Beams (3rd Edition)	

For Clarification

6. We would appreciate it if you could bring the content of this circular to the attention of your members. Should you require clarification on this matter, you may call our hotline at 1800 342 5222 or use our Online Feedback Form at: <https://www.bca.gov.sg/feedbackform/>.

Yours faithfully



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for COMMISSIONER OF BUILDING CONTROL