

Our Ref. : APPBCA-2024-06

01 Mar 2024

See **Distribution List**

For enquiries, please contact:  
Building Engineering Group (#12-01)  
Tel: 1800 342 5222 (1800-DIAL-BCA)  
or use our Online Feedback Form at  
<https://www.bca.gov.sg/feedbackform/>

Dear Sir/Madam

**JOINT BCA/SSSS CIRCULAR 2024**  
**DESIGN GUIDE FOR SEMI-RIGID COMPOSITE JOINTS AND BEAMS (SECOND EDITION)**

**Objective**

1 This circular is to inform the industry on the publication of the second edition of the 'Design Guide for Semi-rigid Composite Joints and Beams', which was jointly developed by the National University of Singapore, Singapore Structural Steel Society (SSSS) and Building and Construction Authority (BCA) to provide guidance for the design of various types of semi-rigid joints including steel beams connecting to reinforced concrete primary beams, beam-to-column joints, and beam-to-reinforced concrete wall joints.

**Background**

2 This design guide supersedes the first edition published in 2021, which was meant for bolted and welded steel connection without considering the benefit of composite action between the steel connection and steel reinforcements in the concrete/composite slab. Hence, this circular supersedes the earlier circular (Ref. No. APPBCA-2021-11) issued in June 2021.

**Design Guide for Semi-Rigid Composite Joints and Beams (2<sup>nd</sup> Edition)**

3 While the previous design guide primarily focused on beam-to-beam composite joints, this updated design guide broadens its application to include beam-to-column joints, steel beams connecting to reinforced concrete primary beams, and beam-to-reinforced concrete wall joints, all employing contact plates to enhance semi-rigidity.

4 This revised guide aims to provide structural engineers with confidence in using semi-rigid composite joints safely and economically, potentially reducing construction time and costs while ensuring adequate structural performance.

5 The design guide is available in softcopy at the respective websites of SSSS and BCA, namely

- [http://www.ssss.org.sg/index.php?option=com\\_content&view=article&id=269&Itemid=75](http://www.ssss.org.sg/index.php?option=com_content&view=article&id=269&Itemid=75)
- <https://go.gov.sg/semi-rigid-composite-joints-2nd-ed>

6 The design guide will be incorporated in the next update of the Approved Document. Notwithstanding that, industry practitioners can adopt the use of this design guide with immediate effect, if they wish to do so.

#### For Clarification

7 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



MELVIN SOH  
PRESIDENT  
SINGAPORE STRUCTURAL STEEL  
SOCIETY

**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)  
MACPHERSON ROAD P.O.BOX 1083  
SINGAPORE 913412

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 CMA INTERNATIONAL CONSULTANTS PTE LTD  
1 LIANG SEAH STREET  
#02-11 LIANG SEAH PLACE  
SINGAPORE 189022

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

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

AG 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

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

ALL CORENET E-INFO SUBSRIBERS