

SINGAPORE STANDARD

**Singapore National Annex to Eurocode 3 :
Design of steel structures**

– Part 1-5 : Plated structural elements

Confirmed 2016



Published by

Enterprise
Singapore

NA to SS EN 1993-1-5 : 2009 (2016)

(ICS 91.010.30; 91.080.10)

SINGAPORE STANDARD

Singapore National Annex to Eurocode 3 : Design of steel structures

– Part 1-5 : Plated structural elements

All rights reserved. Unless otherwise specified, no part of this Singapore Standard may be reproduced or utilised in any form or by any means, electronic or mechanical, including photocopying and microfilming, without permission in writing from Enterprise Singapore. Request for permission can be sent to: standards@enterprisesg.gov.sg.

ISBN 978-981-4278-35-5

NA to SS EN 1993-1-5 : 2009 (2016)

This Singapore Standard was approved by the Building and Construction Standards Committee on behalf of the Standards Council of Singapore on 10 December 2009.

First published, 2009

The Building and Construction Standards Committee appointed by the Standards Council consists of the following members:

	Name	Capacity
Chairman	: Mr Goh Peng Thong	<i>Member, Standards Council</i>
1st Dy Chairman	: Mr Lee Chuan Seng	<i>Member, Standards Council</i>
2nd Dy Chairman	: Mr Tan Tian Chong	<i>Member, Standards Council</i>
Secretary	: Mr James Choo Sou Yong	<i>SPRING Singapore</i>
Members	: Mr Boo Geok Kwang	<i>Singapore Civil Defence Force</i>
	Er. Chan Ewe Jin	<i>Institution of Engineers, Singapore</i>
	Mr Chan Yew Kwong	<i>Ministry of Manpower</i>
	Mr Paul Fok	<i>Land Transport Authority</i>
	Mr Goh Ngan Hong	<i>Singapore Institute of Surveyors and Valuers</i>
	Mr Anselm Gonsalves	<i>National Environment Agency</i>
	Mr Desmond Hill	<i>Singapore Contractors Association Limited</i>
	Mr Benedict Lee Khee Chong	<i>Singapore Institute of Architects</i>
	Ms Andris Leong	<i>Building and Construction Authority</i>
	Assoc Prof Leong Eng Choon	<i>Nanyang Technological University</i>
	Dr Lim Lan-Yuan	<i>The Association of Property and Facility Managers</i>
	Mr McDonald Low	<i>Real Estate Developers' Association of Singapore</i>
	Mr Larry Ng Lye Hock	<i>Urban Redevelopment Authority</i>
	Assoc Prof Gary Ong Khim Chye	<i>National University of Singapore</i>
	Mr Davis Ong Wee Choon	<i>Singapore Manufacturers' Federation</i>
	Er. Shum Chee Hoong	<i>Housing & Development Board</i>
	Dr Tan Guan	<i>Association of Consulting Engineers, Singapore</i>
	Mr Tang Pei Luen	<i>JTC Corporation</i>
Co-opted Members	: Prof Choo Soo Yong	<i>National University of Singapore</i>
	Dr Tam Chat Tim	<i>Individual Capacity</i>

The Technical Committee on Building Structure and Sub-structure appointed by the Building and Construction Standards Committee and responsible for the preparation of this standard consists of representatives from the following organisations:

	Name	Capacity
Chairman	: Dr Tan Guan	<i>Member, Building and Construction Standards Committee</i>
Co-Chairman	: Er. Chew Keat Chuan	<i>Building and Construction Authority</i>
Secretary	: Ms Lee Hiok Hoong	<i>SPRING Singapore</i>

Members	:	Er. Chan Ewe Jin	<i>Institution of Engineers, Singapore</i>
		Dr Chen Enyi	<i>Cement and Concrete Association of Singapore</i>
		LTC Cheok Poh Chin	<i>Singapore Civil Defence Force</i>
		Dr Sujit Ghosh	<i>Ready Mix Concrete Association of Singapore</i>
		Dr Ho Nyok Yong	<i>Singapore Contractors Association Ltd</i>
		Mr Ho Wan Boon	<i>Singapore Structural Steel Society</i>
		Mdm Neo Bian Hong	<i>Land Transport Authority</i>
		Assoc Prof Gary Ong Khim Chye	<i>Singapore Concrete Institute</i>
		Mr Sze Thiam Siong	<i>Setsco Services Pte Ltd</i>
		Er. Angeline Tan Bee Hoon	<i>Housing & Development Board</i>
		Er. Tan Jui Teck	<i>CPG Corporation Pte Ltd</i>
		Assoc Prof Tan Kiang Hwee	<i>National University of Singapore</i>
		Er. Tang Pei Luen	<i>JTC Corporation</i>
		Assoc Prof Susanto Teng	<i>Nanyang Technological University</i>
Co-opted Members	:	Dr Tam Chat Tim	<i>Individual Capacity</i>
		Dr Tan Teng Hooi	<i>Individual Capacity</i>
		Er. Tay Yak Hong	<i>Individual Capacity</i>

The following Technical Experts contributed in their *individual capacity* to the preparation of this standard:

Prof Richard Liew Jat Yuen (Convenor)
 Er. Tay Yak Hong (Co-Convenor)
 Dr Chew Sing Ping (Taskforce Leader)
 Er. Patrick Choy (Secretary)
 Er. K. Thanabal
 Er. Sze Thiam Siong
 Mr Chor How Choon

The organisations in which the experts are involved are:

Building and Construction Authority
Nanyang Technological University
National University of Singapore
Setsco Services Pte Ltd
The 22nd China Metallurgical Construction Corporation
TYH Consulting Engineers

(blank page)

Contents

	Page
National Foreword _____	6

CLAUSES

NA.1 Scope _____	7
NA.2 Nationally determined parameters _____	7
NA.3 References to non-contradictory complementary information _____	9
Bibliography _____	10

National Foreword

This National Annex was prepared by the Technical Committee on Building Structure and Sub-structure under the purview of the Building and Construction Standards Committee.

This standard is an adoption of the UK National Annex (NA to BS EN 1993-1-5:2006) to Eurocode 3 : Design of steel structures – Part 1-5 : Plated structural elements and is implemented with the permission of the British Standards Publishing Ltd.

Acknowledgement is made to BSI for the use of information from the above publication.

This Singapore NA contains information on those parameters which are left open in EN 1993-1-5 for national choice, known as nationally determined parameters. The Singapore NA is to be read in conjunction with the SS EN 1993-1-5 : 2009 – Eurocode 3 : Design of steel structures – Part 1-5 : Plated structural elements.

Where appropriate, users may refer to the guidance and recommendation in BC 1:2008 'Design guide on use of alternative steel materials to BS 5950' published by the Building Construction Authority (BCA).

At the time of publication, this standard is expected to be used as a reference in the Building and Construction Authority's 'Approved Document – Acceptable Solutions'.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*
2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

Singapore National Annex to SS EN 1993-1-5 : 2009, Eurocode 3 : Design of steel structures – Part 1-5 : Plated structural elements

NA.1 Scope

This National Annex gives:

- a) the Singapore decisions for the nationally determined parameters described in the following subclauses of SS EN 1993-1-5:2009:
 - 2.2(5)
 - 3.3(1)
 - 4.3(6)
 - 5.1(2)
 - 6.4(2)
 - 8(2)
 - 9.1(1)
 - 9.2.1(9)
 - 10(1)
 - 10(5)
 - C.2(1)
 - C.5(2)
 - C.8(1)
 - C.9(3)
 - D.2.2(2)

- b) References to non-contradictory complementary information (see NA.3).