

SINGAPORE STANDARD

**Specification for concrete masonry units
(For non-load bearing applications)**



Published by

Enterprise
Singapore

SS 271 : 1983
(ICS 91.100.30)

SINGAPORE STANDARD

Specification for concrete masonry units (For non-load bearing applications)

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 9971-67-091-7

SS 271 : 1983

This Singapore Standard having been approved by the Building and Construction Industry Standards Committee was endorsed by the Standards Council on 6 July 1983.

First published, 1983.

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

	Name	Organisation
Chairman:	Mr Sim Hong Boon	Standards Council
Deputy Chairman:	Mr Khoo Lee Meng	Singapore Institute of Standards and Industrial Research
Secretary:	Mr Foong Chee Kwong	Singapore Institute of Standards and Industrial Research
Members:	Mr Chee Soon Wah	Singapore Institute of Architects
	Dr Tony Chi	Association of Consulting Engineers, Singapore
	Mr Chua Cheng Yong	Singapore Institute of Surveyors and Valuers
	Mr S P Chua	Singapore Contractors' Association Limited
	Mr Koh Ming Sham	Singapore Manufacturers' Association
	Mr V Krishna	Development and Building Control Division
	Mr Lee Bay Tseng	Singapore Concrete Institute
	Assoc Prof David J K Lim	School of Architecture, National University of Singapore
	Mr Lim Sak Lan	Institution of Engineers, Singapore
	Assoc Prof Tam Chat Tim	Department of Civil Engineering, National University of Singapore
	Mr Tan Teng Huat	Ministry of the Environment
	Mr Robert Tay	Housing and Development Board

The Technical Committee appointed by the Building and Construction Industry Standards Committee and responsible for the preparation of this standard, consists of representatives from the following organisations:

	Name	Organisation
Chairman:	Dr Tony Chi	Building and Construction Industry Standards Committee
Secretary:	Mr Robin Low	Singapore Institute of Standards and Industrial Research
Members:	Miss Chia Lay Yong	Jurong Town Corporation
	Mr Philip Chua	Singapore Manufacturers' Association
	Mr Chua Thuan Koon	Singapore Contractors' Association Limited
	Miss Karen Goh	Singapore Engineers Pte Ltd
	Mr Ronald T P Leo	Housing and Development Board
	Mr Edward de Silva	Singapore Institute of Architects
	Mr Teo Hoo Seng	Eng Seng Cement Products (Pte) Ltd

To keep abreast of technological changes and new technical developments in the manufacturing sector, Singapore Standards are subject to periodical review. Revisions of Singapore Standards are announced through the issue either of amendment slips or of revised editions.

CONTENTS

	Page
Foreword - - - - -	5

SPECIFICATION

1. Scope - - - - -	6
2. Definitions - - - - -	6
3. Materials - - - - -	6
4. Geometrical characteristics - - - - -	7
5. Compressive strength - - - - -	8
6. Drying shrinkage - - - - -	8
7. Total water absorption (For lightweight concrete blocks only) - - - - -	9
8. Sampling - - - - -	9
9. Manufacturer's certificate - - - - -	10
10. Purchaser's independent tests - - - - -	10
11. Retest - - - - -	10
12. Marking - - - - -	10

APPENDICES

A. Measurement of dimensions and optional test for the volume of cavity - - - - -	11
B. Determination of compressive strength - - - - -	14
C. Calculation of co-efficient of variation - - - - -	16
D. Determination of drying shrinkage - - - - -	17
E. Method for retesting in compliance with Clause 5 on compressive strength of masonry units - - - - -	19
F. Determination of total water absorption - - - - -	21
G. Guidance on mortar mixes for masonry works - - - - -	23

	Page
H. Notional periods of fire resistance - - - - -	25
I. Preferred sizes for brick and block - - - - -	26

FIGURES

1. Checking and measuring dimensions of blocks - - - - -	13
2. Typical grading curve for red-clay sand - - - - -	24

TABLES

1. Sample quantities for individual tests - - - - -	9
2. Recommended mortar mixes - - - - -	23

SINGAPORE STANDARD

**SPECIFICATION FOR CONCRETE MASONRY UNITS
(FOR NON-LOADBEARING APPLICATIONS)**

FOREWORD

This standard was prepared by the Technical Committee on Concrete Masonry Units (Non-Loadbearing) under the authority of the Building and Construction Industry Standards Committee.

This standard covers solid (including lightweight concrete) and hollow concrete masonry units, and, is to supersede the requirements for Class 'B' type of blocks and bricks as given in SS 76 : 1972 and SS 76M : 1975 for 'Precast concrete blocks' and 'Precast concrete blocks (metric)' respectively.

Appendix G on 'Mortar mixes for masonry works' is intended to serve as a guide for architects, engineers, contractors and others responsible for the erection of masonry walls.

General information relating to the local fire code on the fire resistance ratings of concrete bricks and blocks is outlined in Appendix H.

Concrete paving blocks and loadbearing masonry units are outside the scope of this standard.

Although masonry units made with materials not listed in this standard may meet all the test requirements, they shall not be considered to comply with this standard since there is at present insufficient evidence of long term performance.

In preparing this standard, British Standard 6073 : Parts 1 and 2 — 1981 'Precast concrete masonry units', Australian Standard 1346 — 1973 'Concrete building bricks' and ASTM C129 'Non-loadbearing concrete masonry units (solid and hollow)' and Malaysian Standard 27 : 1971 'Precast concrete blocks' were used as the basis.

Acknowledgement is made for the use of information from the above references.

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.*

1. SCOPE

This Singapore Standard specifies materials, dimensional tolerances and minimum performance levels for concrete masonry units made from a mixture of portland cement, suitable aggregates with or without the inclusion of suitable additives for use in non-loadbearing masonry walls (Note 1).

It covers solid (including lightweight concrete) and hollow units.

Units in which the height exceeds the length or six times the width are outside the scope of this standard.