

**SINGAPORE STANDARD**

# Code of practice for drainage of roofs

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*National Environment Agency*  
*Public Utilities Board*  
*Singapore Institute of Architects*



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## Foreword

This Singapore Standard is prepared by the Technical Committee on Architectural Works under the purview of the Building and Construction Standards Committee.

For prevention of mosquito breeding, roof gutters are not allowed for all new developments effective 1 November 2005 except for those where waiver has been obtained from the National Environment Agency (NEA) in writing. In such cases the design of roof gutters shall comply with the requirements as stipulated in this standard.

Additional guidelines for prevention of mosquito breeding have been incorporated to recognise the public health risk posed by roof drainage system and to take the necessary steps at the design stage to address the risk.

Factors relevant to the sizing of roof drainage channels under local rainstorm conditions and a method for direct design are included. Equations developed empirically overseas are adopted and specific systems for low and high-rise buildings were considered.

This standard is intended to serve as a guide for architects, engineers, builders and others responsible for the design of drainage systems conveying rainwater from roofs to the point of discharge into the surface drain.

This standard will be referred to in the National Productivity Quality Specification (NPQS) for the preparation of building projects specifications.

In revising this standard, the latest British Standard Gravity Drainage Systems Inside Buildings – Part 3 : Roof drainage, layout and calculation (BS EN 12056-3:2000) was used as reference.

Acknowledgement is made for the use of information from the above reference and the valuable contributions offered by the Meteorological Services Division, NEA.

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.*
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## Code of practice for drainage of roofs

### Section One – General

#### 1 Scope

This code specifies requirements for the drainage of surface water from roofs and walls and recommends methods of designing gutters, gutter outlets and rainwater downpipes (see Section Three).

Performance requirements for siphonic roof drainage systems are also outlined.

The code also gives guidance as to the choice of materials (see Section Two) in connection with fixing and jointing the drainage systems (see Section Four). Section Five deals with inspection, testing and maintenance. Section Six covers guidelines for design of gutters for the prevention of mosquito breeding.

#### 2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN 1462 : 1997	Brackets for eaves gutters. Requirements and testing
BS EN 988 : 1997	Zinc and zinc alloys. Specification for rolled flat products for building
BS EN 10088 :-	Stainless steels Part 1 : 1995 List of stainless steels Part 2 : 1995 Technical delivery conditions for sheet/plate and strip for general purposes Part 3 1995 Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes
BS EN 13598 :-	Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticised poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) Part 1 : 2003 Specifications for ancillary fittings including shallow inspection chambers
BS EN 612 : 1996	Eaves gutters and rainwater down-pipes of metal sheet. Definitions, classifications and requirements
BS 460 : 2002	Cast iron rainwater goods. Specification
BS 6100 :-	Glossary of building and civil engineering terms Part 1 : Section 1.3 : Subsection 1.3.2 : 1989 General and miscellaneous. Parts of construction works. Roofs and roofing Part 2 : Section 2.7 : 1992 Civil engineering. Public health. Environmental engineering Part 3 : Section 3.3 : 1992 Services. Sanitation
BS 5168 : 1975	Glossary of rheological terms
SS 213 : 1998	Unplasticised PVC pipes and fittings for soil, waste and vent. Applications

**SS 525 : 2006**

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SS 370 : 1994            Metal roofing

Bibliographic references are listed in Annex B.