SS 525:2024 (ICS 91.060.20; 91.140.80)

SINGAPORE STANDARD Code of practice for drainage of roofs





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Foreword

This Singapore Standard was prepared by the Working Group on Drainage of Roofs set up by the Technical Committee on Architectural Works under the purview of the Building and Construction Standards Committee.

This is a revision of SS 525: 2006, "Code of practice for drainage of roofs". The key changes to the standard are shown as follows:

- Revision of design rainfall intensity chart based on current data and method of calculating effective catchment area for sloping surfaces has been simplified.
- Simplification of gutter calculation based on rectangular gutters.
- Replacement of design flow charts with addition of working examples of roof drainage design for flat roof and gutter.
- Addition of design considerations for drainage of wind-driven rain spaces and method of validation.
- Addition of design considerations for overflow provision.
- Addition of method for calculating reactionary forces in pipework.

In preparing this standard, reference was made to the following publications:

- 1. EN 12056-3:2000 Gravity drainage systems inside buildings Part 3: Roof drainage, layout and calculation.
- 2. BS 8490:2007 Guide to siphonic roof drainage systems

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

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Code of practice for drainage of roofs

1 Scope

This standard specifies the requirements for the drainage of surface water from roofs, walls and winddriven rain spaces and recommends methods for designing gutters, gutter outlets and rainwater downpipes.

Performance requirements for siphonic roof drainage systems have been outlined.

Considerations for designing drainage systems for wind-driven rain spaces have been outlined.

2 Normative references

There are no normative references in this standard.

3 Terms and definitions

For the purpose of this Singapore Standard, the following terms and definitions apply.

3.1 Design flow rate

The volume of rainwater that is required to be drained under design rainfall condition.

3.2 Design water depth

The water depth required for a flat roof or gutter to drain the design flow rate.

3.3 Effective catchment area

Area derived from a surface or combination of surfaces for computation of design flow rate during a rainfall event.

3.4 Freeboard

The vertical distance between design water depth and spill over level. It serves as additional safety margin for unexpected increase in water levels due to waves and splashing.

3.5 Gravity outlet

Rainwater outlets on flat roof or gutters that are meant to work with gravity rainwater drainage system.

3.6 Gravity rainwater drainage system

Rainwater drainage system that is designed to be partially filled based on principle of open channel flow. It is designed to prevent occurrence of pressure within the pipework.

3.7 Siphonic outlet

Specialised rainwater outlets on flat roof or gutters that are designed to work with siphonic system. They are designed to prevent formation of vortex and prevent ingress of air into pipeworks.