

SINGAPORE STANDARD

**Code of practice for installation, operation,
maintenance, performance and construction
requirements of mains failure standby
generating systems**

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The Working Group on Mains Failure Standby Generating Systems, appointed by the Technical Committee to assist in the preparation of this standard, comprises the following experts who contribute in their *individual capacity*:

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Chong Lee Leong Seng Co. Ltd

Housing & Development Board

Land Transport Authority

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Nanyang Technological University

National University of Singapore

Ngee Ann Polytechnic

Singapore Civil Defence Force

Singapore Electrical Contractors and Licensed Workers Association

Singapore Institute of Technology

Singapore Polytechnic

SP Group

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Foreword

This Singapore Standard was prepared by the Working Group on Mains Failure Standby Generating Systems appointed by the Technical Committee on Buildings Facilities and Services under the direction of the Electrical and Electronic Standards Committee.

It is a revision of SS 535 : 2007. In this revision, emphasis on the earthing arrangement of the standby generating set is included. The power rating definitions in Annex A is based on that given in ISO 8528 – "Reciprocating internal combustion engine driven alternating current generating sets." The standby generating set maintenance schedule as a guide is in Annex B.

Acknowledgement is made to the International Organization for Standardization for their kind permission to reproduce materials from the following ISO standards:

- ISO 8528-1:2018, "Reciprocating internal combustion engine driven alternating current generating sets – Part 1: Application, rating and performance"
- ISO 8528-5:2018, "Reciprocating internal combustion engine driven alternating current generating sets – Part 5: Generating sets".

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.

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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.*
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Code of practice for installation, operation, maintenance, performance and construction requirements of mains failure standby generating systems

1 Scope and purpose

This Code applies to the performance and construction requirements, installation, operation, testing, inspection and maintenance of mains failure standby generating systems for buildings and where applicable to mobile generating systems. It does not apply to installations for marine/offshore or base load use. Installations are designed to conform to the requirements of the relevant authorities in Singapore.

The purpose of this Code is to establish uniformity in engineering practices for mains failure standby generating systems in Singapore. The recommendations of this Code are intended to ensure safety to life and property. Installation and maintenance of mains failure standby generating systems require close coordination among users, architects, engineers, manufacturers and contractors. This Code covers the essential information that should be exchanged among parties from the planning stage to installation, including subsequent maintenance.

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 159 : 1992	Specification for high-voltage busbars and busbar connections
BS 476	Fire tests on buildings materials and structures
	Part 7 : 1997 Method for the classification of the surface spread of flame tests for materials
BS 2869	Fuel oils for non-marine use
	Part 2 : 1998 Specification for fuel oils for agricultural and industrial engines and burners (classes A2, C1, C2, D, E, F, G and H)
BS 5000	Rotating electrical machines on particular types or for particular applications
	Part 3 : 2006 Generators to be driven by reciprocating internal combustion engines. Requirements for resistance to vibration
BS 61936	Part 1 : 2010 Code of practice for design of high-voltage open-terminal stations
BS EN 590 : 2013	Specification for automotive diesel fuel
IEC 60034	Rotating electrical machines
	Part 1 : 2017 Rating and performance
IEC 61439	Low-voltage switchgear and controlgear assemblies
	Part 1 : 2011 Type-tested and partially type-tested assemblies
	Part 6 : 2011 Particular requirements for busbar trunking systems (busways)

IEC 60947	Low-voltage switchgear and controlgear Part 4 : 2002 Contactors and motor-starters Section 1 : Electromechanical contactors and motor-starters Amd 1 : 2012
IEC 62271-200	A.C metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV
ISO 1996	Acoustics-Description and measurement of environmental noise Part 1 : 2003 Basic quantities and procedures Part 2 : 2007 Acquisition of data to land use
ISO 3046	Reciprocating internal combustion engines – Performance Part 1 : 2002 Standard reference conditions, declarations of power, fuel and lubricating oil consumptions, and tests methods
ISO 3744 : 2010	Acoustics - Measurement of airborne noise emitted by construction equipment intended for outdoor use - Method for determining compliance with noise limits
ISO 8528	Reciprocating internal combustion engine driven alternating current generating sets Part 1 : 2005 Application, ratings and performance Part 2 : 2005 Engines Part 3 : 2005 Alternating current alternators for generating sets Part 4 : 2005 Controlgear and switchgear Part 13 : 2016 Safety
SS 551 : 2009	Code of practice for earthing
SS 593 : 2013	Code of practice for pollution control
SS 638 : 2018	Code of practice for electrical installations