

SS 608:2015+A3:2023

(ICS 23.040.10; 23.040.15; 91.140.40)

SINGAPORE STANDARD

Code of practice for gas installation

Incorporating Amendment No. 1, 2 and 3

SS 608:2015+A3:2023

(ICS 23.040.10; 23.040.15; 91.140.40)

SINGAPORE STANDARD

Code of practice for gas installation

Published by Enterprise Singapore

All rights reserved. Unless otherwise specified, no part of this publication 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.

© Enterprise Singapore 2023

ISBN 978-981-5118-21-6

Contents

	Page
Foreword _____	4
1 Scope and application _____	5
2 Normative references _____	5
3 Definitions _____	7
4 Design _____	10
5 Pipework _____	11
6 Materials _____	18
7 Installation _____	21
8 Testing _____	22
9 Commissioning _____	23
10 Inspection and maintenance _____	25

Annexes

A Typical town gas specifications _____	40
B Natural gas specifications _____	42
C Purging _____	43
D Safety precautions when using gas _____	44

Tables

1 Final pressure test for consumer's service pipes _____	22
2 Final pressure test for consumer's internal pipes _____	22
3 Proof test for consumer's service pipes _____	23
4 Proof test for consumer's internal pipes _____	23

Figures

1 Typical gas installation for a landed residential premises _____	26
2.1 Typical gas installation in multi-storey buildings – Schematic 1 SV installed in ground ____	27
2.2 Typical gas installation in multi-storey buildings – Schematic 2 SV installed on external face of building _____	28
3 Typical spool installation _____	29
4 Typical pipe embedded in channel, apron and concrete floor slab _____	30
5 Typical gas riser ducts _____	31
6 Typical duckfoot riser support _____	32
7 Typical below ground gas installation in retaining and basement walls _____	33
8 Location of gas installation zones on wall _____	34
9 Typical gas installation chased in solid wall _____	35

	Page
10 Typical gas pipe installation in walls/partitions _____	36
11 Typical gas meter installations (residential) _____	37
12 Schematic layout of a gas interlocking system _____	38
13 Colour coding for valve and syphon manhole chamber covers _____	39
Bibliography _____	46

Foreword

This Singapore Standard was prepared by a Working Group appointed by the Technical Committee on Building Maintenance and Management which is under the purview of the Building and Construction Standards Committee.

This Code is a revision of CP 51 : 2004 – ‘Code of practice for manufactured gas pipe installation’ and has been re-numbered as SS 608.

In the revision of this Code, the essential requirements for safe and good practice in gas installation work have been emphasised. The title has been changed from “Manufactured gas pipe installation” to “Gas installation” to reflect its application to both town gas and natural gas. Among the changes introduced are providing:

- a) requirements for:
 - i) gas pipes to pass through bedrooms;
 - ii) gas pipes chased in external walls of bedrooms;
 - iii) gas pipes chased in cavity or porous walls;
 - iv) gas appliance commissioning.
- b) a typical example of an installation system requiring the use of ancillaries and interlocking system.
- c) requirements for radiography examination in compliance to API 1104 standard.
- d) requirements for records of reports for testing, commissioning and maintenance to be kept.
- e) updated annexes and illustrating figures.

In preparing this Code, reference was made to the overseas publications given in the bibliography.

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 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. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as “mature standards”. Mature standards will not be subject to further review unless there are requests to review such standards.*
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 and the Singapore Standards Council 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. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

Code of practice for gas installation

1 Scope and application

1.1 Scope

This Code specifies the essential requirements for the safe and good practices in gas service work. It concerns the gas installation downstream of the gas service isolation valve (GSIV). It is applicable for the conveyance of town gas or natural gas of up to 50 kPa gauge.

This Code covers design, materials, installation, testing, commissioning and maintenance of the gas installations and appliances. The Code is applicable to new gas installations as well as addition and alteration to existing gas installations.

1.2 Application and use

This Code is intended for use by competent persons holding valid licences or practising certificates issued by the relevant authorities.

The Code does not give exemption from statutory requirements in government laws or from relevant regulations of Government departments.

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.

API Specification 5L	American Petroleum Institute – Specification for line pipe	
API 1104	American Petroleum Institute – Welding of pipeline and related facilities	
ASTM A234	Standard specification for piping fittings of wrought carbon steel and alloy steel for moderate and high temperature service	<i>As amended, Mar 2023</i>
BS 143 and BS 1256	Threaded pipe fittings in malleable cast iron and cast copper alloy	
BS 381C	Specification for colours for identification, coding and special purposes	
BS EN 124	Gully tops and manhole tops for vehicular and pedestrian areas – Design requirements, type testing, marking, quality control	
BS EN 331	Manually operated ball valves and closed bottom taper plug valves for gas installations for buildings	
BS EN 969	Ductile iron pipes, fittings, accessories and their joints for gas pipelines – Requirements and test methods	
BS EN 1057	Copper and copper alloys – Seamless, round copper tubes for water and gas in sanitary and heating applications	
BS EN 1092-1	Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated. Steel flanges	
BS EN 1171	Industrial valves – Cast iron gate valves	
BS EN 1254-1	Copper and copper alloys – Plumbing fittings – Fittings with ends for capillary soldering or capillary brazing to copper tubes	

BS EN 1254-2	Copper and copper alloys – Plumbing fittings – Fittings with compression ends for use with copper tubes
BS EN 1254-3	Copper and copper alloys – Plumbing fittings – Fittings with compression ends for use with plastics pipes
BS EN 1254-4	Copper and copper alloys – Plumbing fittings – Fittings combining other end connections with capillary or compression ends
BS EN 1254-5	Copper and copper alloys – Plumbing fittings – Fittings with short ends for capillary brazing to copper tubes
BS EN 1514-1	Flanges and their joints – Dimensions of gaskets for PN-designated flanges – Non-metallic flat gaskets with or without inserts
BS EN 1555-2	Plastics piping systems for the supply of gaseous fuels – Polyethylene (PE) pipes
BS EN 1555-3	Plastics piping systems for the supply of gaseous fuels – Polyethylene (PE) fittings
BS EN 10226-1	Pipe threads where pressure tight joints are made on the threads – Taper external threads and parallel internal threads – Dimensions, tolerances and designation
BS EN 10240	Internal and/or external protective coatings for steel tubes – Specification for hot dip galvanized coatings applied in automatic plants
BS EN 10255	Non-alloy steel tubes suitable for welding and threading – Technical delivery conditions
<i>As amended, Mar 2023</i> BS EN 15266	Stainless steel pliable corrugated tubing kits in buildings for gas with an operating pressure up to 0.5 bar
BS EN 60079-29-1	Gas detectors – Performance requirements of detectors for flammable gases
BS EN ISO 1460	Metallic coatings – Hot dip galvanized coatings on ferrous materials – Gravimetric determination of the mass per unit area
BS EN ISO 4016	Hexagon head bolts. Product grade C
BS EN ISO 4034	Hexagon regular nuts (style 1). Product grade C
BS ISO 11413	Plastics pipes and fittings – Preparation of test piece assemblies between a polyethylene (PE) pipe and an electrofusion fitting
BS ISO 11414	Plastics pipes and fittings – Preparation of polyethylene (PE) pipe/pipe or pipe/fitting test piece assemblies by butt fusion
<i>As amended, Mar 2023</i> EN 13501-1	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
GIS/PL2-2	Specification for polyethylene pipes and fittings for natural gas and suitable manufactured gas, Part 2: Pipes for use at pressures up to 5.5 bar
GIS/PL2-3	Specification for polyethylene pipes and fittings for natural gas and suitable manufactured gas, Part 3: Butt fusion machines and ancillary equipment
GIS/PL2-4	Specification for polyethylene pipes and fittings for natural gas and suitable manufactured gas, Part 4: Fusion fittings with integral heating element(s)
GIS/PL2-5	Specification for polyethylene pipes and fittings for natural gas and suitable manufactured gas, Part 5: Electrofusion ancillary tooling
<i>As amended, Mar 2023</i> SS 638	Code of practice of electrical installations