

IGEM/UP/17
Communication 1754

Shared chimney and flue systems for domestic gas appliances



Founded 1863
Royal Charter 1929
Patron: Her Majesty the Queen



IGEM/UP/17
Communication 1754

Shared chimney and flue systems for domestic gas appliances



Price Code: C4S
© The Institution of Gas Engineers and Managers
IGEM House
High Street
Kegworth
Derbyshire, DE74 2DA
Tel: 0844 375 4436
Fax: 01509 678198
Email: general@igem.org.uk

Copyright © 2011, IGEM. All rights reserved
Registered charity number 214001

All content in this publication is, unless stated otherwise, the property of IGEM. Copyright laws protect this publication. Reproduction or retransmission in whole or in part, in any manner, without the prior written consent of the copyright holder, is a violation of copyright law.

ISBN 978 1 905903 29 0
ISSN 0367 7850

Published by the Institution of Gas Engineers and Managers

For information on other IGEM Standards, visit our website, www.igem.org.uk.

CONTENTS

| SECTION | PAGE | |
|----------------|--|--|
| 1 | Introduction | 1 |
| 2 | Scope | 3 |
| 3 | Legal and allied considerations | 4 |
| | <ul style="list-style-type: none"> ● 3.1 Health and Safety at Work etc. Act (HSWA) ● 3.2 Building Regulations and standards <ul style="list-style-type: none"> ● 3.2.1 England and Wales (as amended) ● 3.2.2 Building standards (Scotland) Regulations and amendments ● 3.2.3 Northern Ireland (as amended) ● 3.3 Gas Safety (Installation and Use) Regulations (GS(I&U)R) ● 3.4 Management of Health and Safety at Work Regulations (MHSWR) ● 3.5 Control of Substances Hazardous to Health Regulations (COSHH) ● 3.6 Control of Asbestos at Work Regulations ● 3.7 Gas Appliances (Safety) Regulations ● 3.8 Confined Spaces Regulations ● 3.9 Construction (Design and Management) Regulation (CDM) | 4 4 4 5 5 5 6 6 6 6 6 7 |
| 4 | Responsibilities and Management | 8 |
| 5 | Recognising types of shared or communal flue systems | 9 |
| | <ul style="list-style-type: none"> ● 5.1 General ● 5.2 Shunt duct systems ● 5.3 Se-duct systems ● 5.4 U-duct systems ● 5.5 Communal flue systems (CFSs) <ul style="list-style-type: none"> ● 5.5.1 General ● 5.5.2 Naturally ventilated CFSs (CFS/NV) ● 5.5.3 Fan assisted CFSs (CFS/FA) ● 5.5.4 Naturally ventilated or fan assisted exhaust only CFSs (CFS/EO) | 9 9 11 11 12 12 14 14 15 |
| 6 | Installing replacement appliances on existing shared flue systems | 22 |
| | <ul style="list-style-type: none"> ● 6.1 General ● 6.2 Appliance selection and replacement <ul style="list-style-type: none"> ● 6.2.1 Type identification ● 6.2.2 Type B ● 6.2.3 Type C ● 6.3 Shunt ducts ● 6.4 Se-ducts and U-ducts ● 6.5 CFSs ● 6.6 Records | 22 24 24 24 24 26 26 31 32 |
| 7 | Maintaining shared flue systems and appliances | 33 |
| | <ul style="list-style-type: none"> ● 7.1 General | 33 |

| | | |
|-------|--|----|
| • 7.2 | Maintaining a type B ₁₁ open flue appliance on a shunt duct shared flue system | 33 |
| • 7.3 | Maintaining a type C room sealed appliance on a Se-duct or U-duct shared flue system | 34 |
| • 7.4 | Maintaining a type C room sealed appliance on a CFS | 34 |
| • 7.5 | Risk assessment | 34 |
| • 7.6 | Labelling | 35 |
| • 7.7 | Advising the responsible person | 35 |
| 8 | Labelling | 36 |
| 9 | Decommissioning redundant shared flue systems and/or individual appliance flue connections | 38 |
| • 9.1 | General | 38 |
| • 9.2 | Decommissioning a Se-duct, U-duct or shunt duct shared flue systems that cannot be dismantled or removed | 39 |
| • 9.3 | Decommissioning a Se-duct, U-duct or shunt duct shared flue systems that can be dismantled or removed | 40 |

APPENDIX

| | | |
|---|--|----|
| 1 | Glossary, acronyms, abbreviations and units | 41 |
| 2 | References | 43 |
| 3 | Recognising air inlet and flue product outlet components of shared flues | 44 |
| 4 | Fire safety | 50 |
| 5 | Accessing the roof of a multi-storey building | 51 |
| 6 | Condensate drain design | 52 |

FIGURES

| | | |
|----|---|-------|
| 1 | Typical arrangements of a shunt duct shared flue system | 10 |
| 2 | Typical arrangements of a Se-duct shared flue system | 11 |
| 3 | Typical arrangement of a U-duct shared flue system | 12 |
| 4 | CFS/FA condensate collector base unit with waste trap fitted | 13 |
| 5 | Typical concentric and twin pipe connection for an appliance on a CFS system | 13 |
| 6 | CFS systems | 16-17 |
| 7 | Typical in-line NRVs that can be fitted to the exhaust ductwork between the CFS chimney and appliance | 18 |
| 8 | Typical position for a NRV fitted integral within an appliance | 18 |
| 9 | Typical gas appliance connection to a CFS | 19 |
| 10 | Identifying the type of shared flue system | 20-21 |

| | | |
|----|--|----|
| 11 | Correct appliance installation onto a Se-duct or U-duct shared flue system | 30 |
| 12 | “Spare” connection point for an appliance on a CFS system | 32 |
| 13 | An air inlet duct. Se-Duct system | 44 |
| 14 | An air inlet grille. Se-Duct system | 44 |
| 15 | An air inlet grille. Se-Duct system | 44 |
| 16 | Multiple terminals. Se-Duct system | 45 |
| 17 | Multiple terminals. Se-Duct system | 45 |
| 18 | Single terminal. Se-Duct system | 45 |
| 19 | Air inlet and outlet grilles. U-Duct system | 46 |
| 20 | Air inlet and outlet grilles. U-Duct system | 46 |
| 21 | Air inlet and outlet grilles. U-Duct system | 46 |
| 22 | Shunt duct terminal | 47 |
| 23 | Shunt duct terminal | 47 |
| 24 | Shunt duct terminal | 47 |
| 25 | CFS roof terminals | 48 |
| 26 | CFS roof terminals | 48 |
| 27 | CFS roof terminals | 48 |
| 28 | CFS roof terminal | 49 |
| 29 | CFS/EO exhaust gas roof terminal for exhaust only chimney | 49 |
| 30 | CFS fabricated box type roof terminal for exhaust extract and air supply | 49 |
| 31 | Risk of fire spread through a shared flue system | 50 |
| 32 | Typical intumescent pipe collar arrangement | 50 |

TABLES

| | | |
|---|--|----|
| 1 | Responsibility for maintenance | 8 |
| 2 | Appliances suitable for existing shared flue systems | 25 |
| 3 | Appliances suitable for shared flue systems (CFSs) | 25 |
| 4 | Continuous appliance sizing table for Se-ducts | 27 |
| 5 | Continuous appliance (with water heater) sizing table for Se-ducts | 28 |
| 6 | Continuous appliance sizing table for U-ducts | 29 |
| 7 | Continuous appliance (with water heater) sizing table for U-ducts | 29 |

SECTION 1 : INTRODUCTION

1.1 This Standard has been drafted by a Panel appointed by the Institution of Gas Engineers and Managers' (IGEM's) Gas Utilization Committee and is published by the authority of IGEM's Council.

1.2 This Standard summarises best practice in the use and maintenance of new and existing "shared flues" systems i.e. shunt duct, Se-duct, U-duct systems, and fabricated shared chimney/flue systems (communal flue systems (CFSs)).

The intention is to make designers, installers, maintenance persons and landlords aware of the safety issues surrounding the use of shared flue systems.

1.3 This Standard makes use of the terms "must", "shall" "should" and when prescribing particular requirements. Notwithstanding Sub-Section 1.6:

- the term "must" identifies a requirement by law in Great Britain (GB) at the time of publication
- the term "shall" prescribes a requirement which, it is intended, will be complied with in full and without deviation
- the term "should" prescribes a requirement which, it is intended, will be complied with unless, after prior consideration, deviation is considered to be acceptable.

1.4 It is now widely accepted that the majority of accidents in industry generally are in some measure attributable to human as well as technical factors in the sense that actions by people initiated or contributed to the accidents, or people might have acted in a more appropriate manner to avert them.

It is therefore necessary to give proper consideration to the management of these human factors and the control of risk. To assist in this, it is recommended that due regard be paid to HSG48.

1.5 The primary responsibility for compliance with legal duties rests with the employer. The fact that certain employees, for example "responsible engineers", are allowed to exercise their professional judgement does not allow employers to abrogate their primary responsibilities. Employers must:

- have done everything to ensure, as far as is reasonably practicable, that there are no better protective measures that can be taken other than relying on the exercise of professional judgement
- have systems and procedures in place to ensure that the exercise of professional judgement by "responsible engineers" is subject to appropriate monitoring and review
- not require "responsible engineers" to undertake tasks which would necessitate the exercise of professional judgement that is beyond their competence. There should be written procedures defining the extent to which "responsible engineers" can exercise their judgement. When "responsible engineers" are asked to undertake tasks which deviate from this, they should refer the matter for higher review.

1.6 Notwithstanding Sub-Section 1.3, this Standard does not attempt to make the use of any method or specification obligatory against the judgement of the responsible engineer. Where new and better techniques are developed and proved, they should be adopted without waiting for modification of this Standard. Amendments to this Standard will be issued when necessary and their publication will be announced in the Journal of IGEM and other publications as appropriate.

- 1.7 Requests for interpretation of this Standard in relation to matters within its scope, but not precisely covered by the current text, should be addressed to Technical Services, IGEM, IGEM House, High Street, Kegworth, Derbyshire, DE74 2DA and will be submitted to the relevant Committee for consideration and advice, but in the context that the final responsibility is that of the engineer concerned. If any advice is given by, or on behalf of, IGEM, this does not relieve the responsible engineer of any of his or her obligations.
- 1.8 This Standard was published in July 2011.

SECTION 2 : SCOPE

2.1 This Standard covers the use, maintenance and de-commissioning of shared flue systems comprising:

- shunt ducts
- Se-ducts
- U-ducts
- fabricated shared chimney/flue systems (communal flue systems) (CFSs).

installed in buildings containing multiple individual dwellings. This includes the installation of replacement appliances onto existing systems.

Note 1: The principles of the Standard may equally be applied where such a flue design is used in a building containing a single dwelling or in single or multiple commercial or industrial units.

Note 2: It is important to differentiate between traditional shared flue systems i.e. shunt ducts, Se-ducts and U-ducts, and the more modern CFSs.

Note 3: It is assumed that any CFS is of a proprietary design and of materials that are fit for purpose.

This Standard does not address the installation of new shared flue systems. Once such systems are in place, this Standard applies to their subsequent use, maintenance and de-commissioning, and to the replacement of appliances.

Note: Advice on the installation of new shared flue systems is given in BS 5440-1.

2.2 This Standard applies to shared flue systems that serve domestic appliances burning any gaseous fuel.

2.3 This Standard assumes replacement domestic appliances installed onto a shared flue system are CE marked and are suitable for the system to which they are intended to be installed.

2.4 Italicized text is informative and does not represent formal requirements.

2.5 Appendices are informative and do not represent formal requirements unless specifically referenced in the main sections via the prescriptive terms "must", "shall" or "should".