

Introduction

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i. General

The Non-Domestic Gas Safety On Site Guide (parts 1 & 2) is continually reviewed and updated to be a definitive guide for individuals training as non-domestic gas engineers and, for practicing gas engineers, to be a useful reference source when going about your day-to-day work. The following sub-sections of this Non-Domestic Gas Safety On Site Guide have been amended from Version 8 (ISBN: 978-1-906091-89-7), printed December 2017 –

Section	Amendments
Part 1; Section 2	Updated sub-section 2.19 'Gas Safety (Installation and Use) Regulations' to include the recent addition of the Gas Safety (Installation and Use) (Amendment) Regulations 2018. The amendment regulation is shown within a grey box after the Regulation concerned.
Part 1; Section 3	Updated Section reflecting the requirements of a NEW IGEM Standard – IGEM/G/11 – which contains the Gas Industry Unsafe Situations Procedure (GIUSP) recently acquired by IGEM.
Part 1; Section 4	Updated Section reflecting the minimum requirements of a Warning Notice as required by IGEM/G/11, plus removal of two previous figures (superseded 'ID' triangle and 'AR' rectangle) and the consequential renumbering of remaining figures.
Part 2; Section 12	<ul style="list-style-type: none"> - Corrected an error in 12.5.4.1 clarifying additional ventilation of a space is only usually required where the air change rate is below 0.5 per hour. - General edit to remove the word 'compartment' from text and Appendices (Appendix 1 to 6 flowcharts) and replace with 'boiler/plant room'. This change was in response to feedback received, in that a compartment is more associated with the domestic sector and so only served to confuse. - Table 12.4.8 definitions updated to reflect the compartment change plus the addition of text relating to a heated space.
Part 2; Section 14	Updated information in sub-section 14.12 'Calculating extract requirements' following the introduction of the Second Edition (2018) of BESA's DW/172. NEW text relating to 'temporary' commercial catering installations supplied by LPG - sub-section 14.18
Glossary and Appendices	As highlighted in Section 12, flowcharts in Appendix 1 to 6 amended to remove the word 'compartment'.

Section	Amendments
General Editorial	Terminology and standards referenced throughout the Guide have been reviewed and as required, updated. Additionally and as appropriate, Content pages to each Section have been realigned to address discrepancies within this publication and its sister publication, the Domestic Gas Safety On Site Guide. In particular, Sections 12 and 15 sees a reduction in the number of Content pages and therefore, renumbering of pages within the sections.

It is important to note however that the Gas Safety On Site Guide series **is not to be considered as a substitute** for the source documentation (i.e. Regulations, Industry Standards produced by the British Standards Institution (BSI), the Institution of Gas Engineers and Managers (IGEM) and other industry Codes of Practice) and as such gas engineers are reminded that they should have access to the source documentation.

Neither should the On Site Guides be considered a substitute for the Manufacturer's Instructions (MIs), which shall be complied with at all times unless otherwise permitted by that Manufacturer; in such a case, ensure you obtain written confirmation of the deviation/concession, leaving a copy with the responsible person for the gas installation for future reference.

In terms of the source documentation, a cost effective solution for gas businesses is provided by Gas Safe Register and their Standard Subscription Service, which for a small annual fee provides subscribers access to BSI, IGEM & UKLPG documentation; visit www.gassaferegister.co.uk

Alternatively each standard body provides commercial services to obtain standards in either their printed or electronic format, visit:

- BSI – <http://shop.bsigroup.com>
- IGEM – <http://shop.igem.org.uk/default.aspx>
- UKLPG – <https://www.uklpg.org/shop/codes-of-practice>

Other specialist service providers exist (for example IHS.com) whereby technical information can be obtained and which, depending on the subscription, provides access to allied industry material.

ii. Scope

The Non-Domestic Gas Safety On Site Guide, via its 17 Sections (parts 1 & 2) confines itself to matters related to 'non-domestic' Natural gas and where stated, Liquefied Petroleum Gas (LPG; commercial Propane and Butane) installations, including commercial and industrial (excluding industrial process plant/equipment), that is to say:

- Installation pipework with a Maximum Operating Pressure (MOP) not exceeding 60 bar
- Pressure-raising & pre-mix machines with a discharge pressure not exceeding 500 mbar (0.5 bar)
- Gas pipework maximum nominal bore greater than 35 mm (DN32, R 1 1/4). For nominal bores less than 35 mm, reference can be made to BS 6891 and NICEIC's Domestic Gas Safety On Site Guide.
- Tightness testing and purging procedures to IGE/UP/1; IGE/UP/1A & IGEM/UP/1B (where appropriate).
- Gas appliances having a maximum individual heat input rate of greater than 70 kW net but not exceeding 20 MW -
 - Boilers, overhead radiant heaters & forced convection heaters.
 - Laundry appliances.
 - Catering appliances.

This said and where applicable, 'domestic' sized gas appliances or pipework which can be encountered in a non-domestic setting will also be discussed but in more general terms.

The Non-Domestic Gas Safety On Site Guide deals with core elements of every gas engineers underpinning knowledge, including but not limited to: regulations; combustion & combustion analysis; gas pipework; tightness testing & purging; flueing; ventilation; gas controls and gas appliance installation/commission/service & maintenance.

Non-domestic gas engineers working in the domestic sector should reference the Domestic Gas Safety On Site Guide available from NICEIC Direct - www.shop.niceic.com

Gas engineers who deal with Liquefied Petroleum Gas (LPG) installations, either wholly or in part may also refer to the Liquefied Petroleum Gas On Site Guide for further guidance.

iii. Conventions

The writing style of the On Site Guides is informative and as such may supplement that which is stated within a particular regulation, standard or Code of Practice (CoP). This style of writing not only provides the general requirements of industry, but also allows the editors to impart their knowledge and experience as practiced gas engineers.

That said and for reasons of parity, the On Site Guides also adopts terms used by IGEM and to a far lesser extent, British Standards of “must”, “shall” and “should”:

- the term “must” identifies a requirement by law in Great Britain
- 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.

iv. Gas Engineers Responsibilities

Competent Gas Safe registered engineers must undertake any gas work in a safe and workman like manner, ensuring that their work complies with the regulations in force, the MI's and the various standards/CoPs applicable to the work activity at hand.

It is widely accepted that human error plays a significant part in industry accidents, i.e. a given action lead to an unsafe situation arising or conversely, inaction to avert the danger. Given this, engineers are reminded to manage their work activities (i.e. the human factors involved) as well as controlling any risk present/introduced by that work activity.

Additional guidance can be obtained via the Health and Safety Executive (HSE) and their publications:

- HSG48 'Reducing error and influencing behaviour'
- HSG65 'Managing for health and safety'

These and many other useful publications are freely available as a 'download' from the HSE website - www.hse.gov.uk/guidance – and can be purchased in a hard copy format.

v. Employers Responsibilities

In a similar vein to that of competent engineers, their employers must ensure that they comply with their principle legal duties and these cannot be abdicated to the engineers professional judgement alone.

An employer must:

- ensure, as far as reasonably practical, there are no better protective measures that can be taken than relying on the exercise of 'professional judgement',
- ensure, so far as practicable, that the responsible engineer has the necessary skills, training, experience and personal qualities to exercise 'professional judgement',
- ensure systems are in place to monitor and review the exercise of 'professional judgement' by responsible engineers,
- ensure responsible engineers do not undertake task that require them to exercise their professional judgement beyond their competence - written procedures should be in place defining the extent of 'professional judgement' that can be exercised.

Additional guidance for employers can be obtained from the HSE – www.hse.gov.uk/risk – and their publications:

- INDG163 (rev 4) 'A brief guide to controlling risks in the workplace'.
- INDG449 (rev 1) 'Health and safety made simple – The basics for your business'.