Gas in flats and other multi-dwelling buildings
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SECTION 1 : INTRODUCTION

1.1 These Procedures have been drafted by a Panel appointed by the Institution of Gas Engineers and Managers' (IGEM's) Technical Co-Ordinating Committee, subsequently approved by that Committee, the Gas Utilization Committee, the Gas Measurement Committee, and the Gas Transmission and Distribution Committee and published by the authority of the Council of the Institution.

1.2 These Procedures summarise best practice for the design, installation, operation and maintenance of gas installations for flats and other multi-dwelling buildings (see Sub-Section 2.1). They combine well established practices with new advice on aspects of design and construction of such installations. The Procedures consolidate best practice and guidance from legislation, and existing gas industry standards, procedures and recommendations, with the aim of providing a single document to help to achieve safe designs and installations for gas in the buildings concerned.

1.3 These Procedures define core areas of safety which need to be considered before gas is installed, such as:
- ventilation of pipes and pipework
- comparative risks and their mitigation when selecting designs
- overall risk assessment
- location of gas meters, particularly with respect to the Gas Safety (Installation and Use) Regulations (GS(I&U)R)
  
  Note: This significantly affects many other aspects of the installation, for example ventilation, consumer access for meter reading and isolation, and escape routes).
- type of termination and, if applicable, entry of Network pipelines, particularly with respect to ventilation and maintenance
- materials
- location of valves
- equipotential bonding

  Note: The text on this subject has been drawn up with the kind assistance of the Institution of Electrical Engineers (IEE).
- competency and responsibilities.

  Note: Guidance is provided on competency and on the responsibilities of developers, architects, landlords, installers, gas conveyors, electricians, maintenance providers, etc.

1.4 These Procedures make use of the terms “should”, “shall” and “must” when prescribing particular procedures. Notwithstanding Sub-Section 1.8:
- the term “must” identifies a requirement by law in Great Britain at the time of publication
- the term “shall” prescribes a procedure which, it is intended, will be complied with in full and without deviation
- the term “should” prescribes a procedure which, it is intended, will be complied with unless, after prior consideration, deviation is considered to be acceptable.

1.5 For new installations, these Procedures apply from the date of publication. However, it is recognised that there will be a time overlap with other standards for installations in the course of final design and construction.

These Procedures need to be read in conjunction with other recognised standards.

1.6 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, so 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 by “responsible engineers”
- have done everything to ensure, so far as is reasonably practicable, that “responsible engineers” have the skills, training, experience and personal qualities necessary for the proper 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 that deviate from this, they should refer the matter for higher review.

1.7 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 better 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 cognisance be taken of the HS(G)48.

1.8 These Procedures do 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 to these Procedures. Amendments to these Procedures will be issued when necessary and their publication will be announced in the Journal of the Institution and other publications as appropriate.

1.9 Requests for interpretation of these Procedures in relation to matters within its scope, but not precisely covered by the current text, should be addressed to Technical Services, IGEM, Charnwood Wing, Ashby Road, Loughborough, Leicestershire, LE11 3GH, 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.

1.10 The majority of figures in these Procedures have been prepared with the kind assistance of Premier Energy Services Ltd.

Figures 26 and 27 are reproduced courtesy of Orseal Ltd.
SECTION 2: SCOPE

Acronyms and abbreviations

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<td>Gas Safety (Installation and Use) Regulations</td>
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<td>IGEM</td>
<td>Institution of Gas Engineers and Managers</td>
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<tr>
<td>LPG</td>
<td>Liquefied petroleum gas</td>
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<tr>
<td>MOP</td>
<td>Maximum operating pressure</td>
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<td>NG</td>
<td>Natural Gas</td>
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<td>PRI</td>
<td>Pressure regulating installation</td>
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Units
mbar = millibar

2.1 These Procedures cover the design, installation, operation and maintenance of gas supplies to, and installations within, any building containing multiple individual dwellings and within the dwellings themselves (see Note 1). This embraces buildings containing solely domestic dwellings, and dual-purpose buildings containing both commercial properties such as shops and offices and individual dwellings.

Note 1: Each (individual) dwelling would be independently occupied and require its own gas supply, which may include a primary or secondary meter installation (which may be installed in, or remote from, the dwelling). “Multiple individual dwellings” means more than one dwelling within the single building and where the dwellings may share a common means of escape from the building.

These Procedures do not cover detached, semi-detached or terraced houses when the established industry standards such as BS 6400, BS 6891 and IGE/TD/4 contain sufficient information.

Note 2: These Procedures do not cover buildings that are solely commercial premises.

Note 3: These Procedures assume a gas supply layout as given in IGE/G/1 for “recommended gas supply arrangements”. Where a “bulk meter” serves secondary meters, via installation pipework, the principles of IGE/UP/2 also may be applicable.

Note 4: For clarity, these Procedures use the terms “dwelling” and “building” and not the term “premises”. In this regard, terms and definitions vary from those given in IGE/G/1.

Cellars and basements do not constitute a storey for the purposes of deciding whether a building is in the scope of IGE/G/5, but the Procedures apply to cellars and basements below such buildings.

2.2 These Procedures cover new and complete replacement gas Network pipes, PRIs and meter installations, installation pipework (including secondary meters), appliances and flues.

Note 1: In this context, “new and complete replacement” embraces:
- any first time gas supply or complete replacement of any of the mentioned sections of the gas supply system
- any new extension to an existing section of the gas supply system
- significant partial replacement of/alteration to any of the sections of the gas supply system. For example, a like for like meter (new or second hand) replacement may not be deemed to affect any other part of the meter installation or the remainder of the gas supply system, whereas the replacement of a riser system with one having more laterals connected would likely be deemed to have an effect.

Regarding replacement/alteration, it is important to comply with legal obligations, for example those in GS(I&U)R that concern post checks following work on any part of a gas supply system.

Note 2: For European and British product, design and installation standards, a “lead-in” time is given for implementation, which varies dependent upon several factors. IGEM Procedures announce a “lead-in” time of 3 months and this is intended to apply for the clear new and complete replacement situations, as above, covered by its Scope. For existing installations and like for like component replacement, IGEM recommends adoption of these Procedures but, if not adopted, engineers, installers etc. need to be aware of current arrangements and procedures used by authorities to define the status of a gas installation, for example “not to current standards”. It is strongly recommended that the risk assessment (see Sub-Section 4.4) is always carried out and appropriate modifications made if indicated.
Note 3: A Network pipeline supplying a primary meter installation will be a "service" or a "distribution main". The difference, for the purposes of these Procedures, is insignificant except when cross referring to other publications, for example IGE/TD/3 and IGE/TD/4, and, hence, the terms "Network" or "pipeline" or both are used throughout.

Note 4: IGE/TD/3 does not address pipes in buildings. Compliance with IGE/TD/4 is deemed equivalent. However, it is likely that the next edition of IGE/TD/4 (Edition 4) will reference IGE/G/5 with respect to gas in multi-dwelling buildings.

2.3 These Procedures apply to new, refurbished and existing buildings and individual dwellings (see Sub-Section 2.1) within the buildings.

Note: The Procedures contain numerous clauses on the design of buildings and individual dwellings within such buildings, for example on ventilation. Notes 1 and 2 to Sub-Section 2.2 on the gas supply system similarly apply for buildings and dwellings.

2.4 These Procedures apply to installations intended to contain odorised Natural Gas (NG) at a maximum operating pressure (MOP) not exceeding 75 mbar within an occupied building.

Note 1: The Procedures do not apply to liquefied petroleum gas (LPG).

Note 2: Where the Network MOP exceeds 75 mbar, a pressure regulating installation (PRI) has to be installed in the Network pipeline in accordance with IGE/TD/13 or the primary meter installation has to be in accordance with BS 6400-2 or IGE/GM/8, as appropriate. Any such PRI or meter installation has to be located outside the building or in a separate enclosure sealed from the building and accessible only from outside.

2.5 All pressures quoted are gauge pressures, unless otherwise stated.

2.6 The term “meter” means “gas meter” unless otherwise stated.

2.7 Italicised text is informative and does not represent formal Procedures.

2.8 Appendices are informative and do not represent formal Procedures unless specifically referenced in the main sections via the prescriptive terms “should”, “shall” or “must”.