IGEM’s Governance of industry recognised Standards
- Gas Quality

DRAFT FOR APPROVAL AND PUBLICATION

1 This draft Standard IGEM/GL/10 Supplement 1 has been prepared by IGEM Secretariat.

2 This Draft for Approval and publication is presented to Technical Co-ordinating Committee for its approval to publish on its own and Council’s behalf, and in accordance with the attached Reply Form.

3 This is a draft document and should not be regarded or used as a fully approved and published Standard. It is anticipated that amendments will be made prior to publication.

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SECTION 1 : INTRODUCTION

1.1  IGEM HISTORY

1.1.1  The Institution

1.1.1.1  IGEM is a professional engineering institution which, as a membership organisation, advances and extends gas engineering and scientific knowledge in all its forms for the benefit of the community at large.

1.1.1.2  IGEM is independent and operates as a Not For Profit Charity for public benefit.

1.1.1.3  The work of the Institution is achieved by: promoting the attainment and maintenance of the highest standards of professional competence; providing high quality products, services and personal and professional development; identifying and improving gas policy in co-operation with other stakeholder; conducting all activities with robust governance and on a sound financial basis.

1.1.1.4  The Institution was founded in 1863 as the British Association of Gas Managers by the 1100+ gas companies who operated in the United Kingdom (UK) prior to nationalisation.

1.1.1.5  The purpose of the Institution was, and still is today, to act as a focal point for formulating and standardising codes of practice and technical standards for the industry, to provide a neutral forum for the exchange of technical and managerial information, to ensure that the professional standards of individual gas engineers and those associated with the gas industry are maintained, and to encourage good practice through exchange of information.

1.1.1.6  The Institution is a registered charity and fifth in seniority of the national scientific and technical institutions, preceded only by The Royal Society (formed in 1600), The Institution of Civil Engineers (1818), The Institution of Mechanical Engineers (1860) and the Institution of Naval Architects (1860).

1.1.1.7  IGEM was a founder member of the Engineering Council (EC) and continues to be an authorised body for the accreditation of professional engineers and of academic & vocational education programmes and has members in over 70 countries.

1.1.1.8  The Institution produces its own journal (Gi) as an organ for further distributing information to its membership and it also runs a number of technical seminars, courses and conferences throughout each year.

1.1.1.9  IGEM produces a range of technical publications, including Standards, for use by the gas industry, the majority of which are recognised by regulatory bodies, such as HSE. In addition to its services to members, IGEM provides technical guidance and assistance to the public and to non-member gas companies who may contact it for information and it also answers queries from related organisations e.g. Ofgem; Government Departments; Government Agencies such as HSE; Gas Safe Register, Energy & Utility Skills and other skills bodies.

1.1.2  First gas quality publication

1.1.2.1  In 1984 the Institution published communication 1246 “A new dimension to gas interchangeability” written by B.C. Dutton and co-workers of the British Gas Corporation’s Watson House Research Station.
1.1.2.2 The publication was based on the studies performed in the late 1970’s and early 1980’s and set the limits in key gas quality parameters that were incorporated in gas supply contracts between the then British Gas Corporation and its gas suppliers up until the privatisation of the UK gas industry in 1986.

1.1.2.3 Following privatisation, these limits in gas quality were set by Schedule 3 of the Gas Safety (Management) Regulations 1996 (the “GS(M)R”), which in turn is based on the pioneering work of B.C. Dutton.

1.2 ROYAL CHARTER

1.2.1 A Royal Charter is a formal document issued by a monarch as letters patent, granting a right or power to an individual or a body corporate. They were, and still are, used to establish significant organisations. Royal Charters are usually conferred on bodies such as professional institutions and charities that work in the public interest and which are able to demonstrate financial stability, permanence and pre-eminence in their field.

1.2.2 The Incorporated Institution of Gas Engineers, as it was known from 1902-1928, was granted a Royal Charter by the Privy Council of His Majesty King George V in 1929.

1.2.3 The granting of a Royal Charter marked an important step in the progress of the Institution, for it affords ample evidence of the recognition of the value to the state and broader society of the work of gas engineers. By the grant of the Charter, the Institution became possessed of a direct state authorisation to carry on its beneficent work for the industry and community.

1.2.4 The Royal Charter describes the objects for which the Institution is established which is to “.. promote by research, discussion, education or otherwise as may seem to the Institution desirable each and all of the sciences of which knowledge may from time to time be required for the better exploration for or the better production, winning, treatment, transmission, distribution or utilisation of gas and of the by-products of its production...”

1.2.5 IGEM is very proud of its Royal Charter and Her Majesty Queen Elizabeth II remains patron of our Institution today.
SECTION 2 : SCOPE

1.1 With a specific focus on the governance process for the Gas Quality Standard, this document has been prepared to:

- describe the role of the Institution in creating Standards which supports industry, duty holders, regulators and engineers
- outline the robust governance process which ensures the content of those published Standards are produced by Panels of industry leading experts in their field, a thorough peer review process, an industry wide further peer review and Committee oversight before publication of the final Standards.

It is this robust quality process for evidence-based generation of Standards that ensures IGEM standards continue to be respected by industry and regulators in the UK and also internationally.

1.2 The document clearly sets out why the Institution is uniquely positioned as an independent body to produce this new Gas Quality Standard and describes the Institution’s role in supporting the creation of the existing gas quality specification contained with GS(M)R Regulations.
SECTION 3 : GOVERNANCE

3.1 IGEM COUNCIL

3.1.1 Council is the most senior body within the governance structure for IGEM. The Council is a board of all Trustees plus Advisors. It is led by the elected President and has a collective responsibility for the governance and control of the Institution. In accordance with the Royal Charter, Council may choose to appoint Boards and Committees to conduct clearly delegated work on its behalf. Boards, Committees and other working groups report into Council.

Council has delegated the authority to produce and approve technical standards to a permanent Technical Coordinating Committee (TCC).

3.1.2 Not less than half of all the members of Council at any given time are Chartered Engineers or Incorporated Engineers or Engineering Technicians, and not less than two-thirds will be Corporate members of IGEM.

3.1.3 The Institution follows good governance practice at all times. An excellent reference source, to which IGEM’s Trustees adhere, is current Guidance published by the Charity’s Commission.

3.2 TECHNICAL COORDINATION COMMITTEE (TCC)

3.2.1 Originally established in 1939 as The Chairman’s Technical Committee it then became the IGEM’s Technical Coordinating Committee in 1972. The new name was deemed more suitable since it was believed this would better allow its members to review current and future programmes of technical work and make policy recommendations.

3.2.2 The scope of the TCC is to study and review all gas engineering and other technically related matters incumbent upon IGEM as an independent Chartered body. Specifically to review matters affecting safety, engineering, technical and operational practices in the gas industry including the potential effect that such activity or use of gas may have on the environment and public safety, as defined in the By-Laws of IGEM and those affecting the use of gas, on which IGEM might give advice by the publication of Reports and Standards or by other means.

3.2.3 The TCC has a clear Terms of Reference, which is reviewed periodically, most recently in 2019.

3.2.4 The TCC’s Terms of Reference empower the Committee to also co-opt additional members whose advice was deemed to be desirable. In the first year, representatives from the Gas Council’s production and supply division, marketing division and the Society of British Gas Industries (SBGI) were asked to serve on the Committee.

3.2.5 This pattern is still followed today with representatives of various agencies, bodies and organisations sitting on the TCC. These include bodies such as the HSE, Energy & Utilities Alliance (EUA) formally SBGI, OFGEM, Gas Safe Register as well as leading companies dealing with gas supply, distribution, utilisation and Liquid Petroleum Gas (LPG) sitting on the Committee in order to secure representation of the whole industry. Other organisations are invited to join at the direction of the chairman.

3.2.6 The TCC formally makes a standing report into every meeting of IGEM Council. Copies of the Minutes of the TCC meetings are always circulated to all Council members prior to each meeting. Full details of the TCC’s Governance including
Organisations which sit on the Committee are published on IGEM’s website www.igem.org.uk.

3.3
TECHNICAL PANELS AND WORKING GROUPS (OF THE TCC)

3.3.1 The TCC can appoint standing Technical Panels and task and finish Working Groups. These produce the detailed content contained in the Standards. The Panels and Working Groups have a balanced representation from the different sectors and are made up of expert engineers and scientists involved in the subject matter of the Standard in question. Representation is determined by the scope of work and expertise required.

3.3.2 Organisations are identified whose members are involved in working in the relevant subject area such as ENA, HHIC, ICOM, CIBSE, AIGT etc. This will include as appropriate the Regulator (HSE, Ofgem) and/or their nominated partner (Gas Safe Register) and may include Government departments such as BEIS and DEFRA.

3.3.3 It may also be necessary to identify an industry or subject matter specialist(s) in the form of companies or individuals who will be invited to participate.

3.3.4 The review of the Standards is a process that holds the integrity of the Standard above everything else. This is why our process is governed by quality and evidence, not by time. One of the main reasons that the Standards are so highly regarded and trusted is that they are developed and reviewed by experts from the industry. IGEM’s Council oversee the reviewing of the Standards by the TCC and this responsibility is aided by appointments of the Panel and Working Group members.

3.4
TECHNICAL STANDARDS FORMAL DRAFTING PROCESS

3.4.1 Decisions on technical content are taken by overwhelming majority consensus of the Technical Panel/Gas Quality Working Group. In cases of significant division, matters shall be referred to the relevant Sub-Committee, to TCC or to Council as appropriate.

3.4.2 The Technical Panel/Gas Quality Working Group chairman, with the nominated secretary seeks Panel/Working Group members from across the relevant part of the industry. Note that the Chairman is obliged to ensure that the make-up of the Technical Panel/Working Group represents the relevant industry sector. This shall be by looking for new members or confirming the retention of existing Technical Panel/Working Group members.

3.4.3 In preparation of a Standard the Technical Panel/Working Group reviews the document, considering in the first instance the initial comments received from the consultees to bring it to a version formally entitled ‘Draft for comment’.

3.4.4 This draft is sent out to all industry consultees for wider peer review for a period of six weeks. All comments will be collated and reviewed by the Technical Panel/Working Group who agree the responses. Subsequent document drafts are then formally entitled ‘1st Working draft after comment’ etc.

3.4.5 When the Technical Panel/Working Group has agreed all responses the document is sent for approval to the IGEM Technical Committees, Gas Transmission and Distribution Committee (GTDC), Gas Measurement Committee (GMC) and Gas Utilisation Committee (GUC) for a period of two weeks. The document is then entitled ‘Draft after comment v1 etc.’.
3.4.6 Any comments from GTDC, GMC and GUC shall be taken back to the Working Group for consideration and agreed response. The 'Draft after comment v2' shall be resubmitted for approval, as appropriate.

3.4.7 The document is then sent to the TCC now entitled 'Draft for Approval and Publication' for two weeks' consideration. Finally, and subject to comment by the TCC which has to be resolved by the Technical Panel/Working Group and approved by the TCC, the document is reviewed for editorial and IGEM style conformance then sent for publishing as a Standard.

3.4.8 All IGEM Standards are routinely reviewed, on a 5 yearly cycle.

3.5 PROPOSALS FOR CHANGES TO THE GAS QUALITY STANDARD

3.5.1 As stated above, IGEM standards are created through a robust peer review governance process and are routinely reviewed, as a minimum, on a 5 yearly cycle. However changes and amendments can be made to Standards during this cycle.

3.5.2 Any party may submit a proposal to create a new requirement in the Standard, or to revise or withdraw a requirement in the Standard.

3.5.3 A proposal shall:
- clearly describe the intention of, and reasons for, the proposed change to a requirement in the Standard
- state when this change is needed and the reasons for the stated timescale
- provide relevant supporting information to assist the Panel/Working Group in taking a decision regarding whether to proceed with the proposal.

3.5.4 IGEM shall log the request for the change to the Standard and discuss with the Panel/Working Group chair the details of the request.

3.5.5 The chair of the Panel/Working Group shall decide if necessary to reconvene the Panel/Working Group.

3.5.6 The proposer shall be kept informed of progress with the proposal and also of any significant amendments to it, with an explanation for these amendments.

3.5.7 Consideration of proposals for changes to the Standard by the Gas Quality Working Group shall be reviewed considering whether the proposal is sufficiently complete, based on the evidence base requirements.

3.5.8 Appropriate expertise and experience shall be employed in the production of the Standard to achieve the necessary quality of output. Where specific expertise is required and that expertise is not readily available, the necessary expertise shall be procured from a suitable source.

3.5.9 The Working Group shall prepare a working draft for members of the group to develop. Once this has been completed IGEM secretariat shall prepare a 'Draft for industry comment' and wider peer review. This consultation shall include the evidence base which supports the changes.

3.5.10 In any evidence case, HSE have the power of veto.

3.5.11 On completion of the industry wide consultation period, comments on the proposals shall be collated by IGEM secretariat and presented to the Working Group for consideration.
3.5.12 The Working Group shall prepare a ‘Draft after comment’ of the Standard, which shall be agreed by the Working Group.

3.5.13 The evidence case and the ‘Draft after comment’ of the Standard shall be submitted to the IGEM Technical Committees GTDC, GMC and GUC for approval for a period of two weeks.

3.5.14 Any comments from GTDC, GMC and GUC shall be taken back to the Working Group for consideration and agreed response. The ‘Draft after comment v2’ shall be resubmitted for approval, as appropriate.

3.5.15 The evidence case and the ‘Draft for approval and publication’ of the Standard, with any Committee comment shall be submitted to IGEM TCC for approval for a period of two weeks.

3.5.16 Any comments from TCC shall be taken back to the Working Group for consideration and agreed response.

3.5.17 Once the Gas Quality Working Group has agreed the response, the Standard as ‘Draft for approval and publication v2’ shall be resubmitted to the TCC for approval. The document shall be reviewed for editorial and IGEM style conformance then published as a Standard.
SECTION 4: WHY AN IGEM GAS QUALITY STANDARD?

4.1 At a meeting of IGEM with DECC, HSE, OFGEM in late 2015, the work of SGN’s “Opening up the Gas Market” was discussed. This identified that evidence was currently available which supported a change in gas quality, specifically the Wobbe Index.

4.2 In subsequent meetings held by all parties it was agreed, in 2016, that IGEM would set up a Working Group to create a new Standard for Gas Quality. The HSE also set out the process for change which would result in a formal, legal change to the specifications currently contained in GS(M)R. After that, it would be proposed to revoke and amend the relevant parts of GS(M)R, with the new specifications being contained in an IGEM Standard.

4.3 In the production of a new Gas Quality Standard IGEM has been able bring together experts from across the production, transmission, distribution and utilisation sectors of the industry.

4.4 IGEM has also driven research in the evidence base to support the changes to the new specification.

4.5 The current GS(M)R specification origins come from the publication of the gas quality specification by the Institution in 1984. This was based on the methodology, and in particular the limit values in key properties, on the performance of domestic appliances in use at the time, many of which were originally designed for operation with towns gas and converted during conversion to Natural Gas between 1966 and 1978.

4.6 Today, 40+ years since conversion, UK appliance types and designs are widely different. In the production of the new Standard for Gas Quality, IGEM has considered it appropriate to revisit the Dutton approach and assess its usefulness both for existing and future gas supplies.

4.7 It is important to remember that the GS(M)R are primarily intended to ensure the safety of the public – this will continue to be the primary aim of the new Gas Quality Standard. This will be achieved with sound scientific evidence base supporting any changes. Further, to ensure there is no perception of or real diminution of safety standards, the HSE will retain a power of veto.

4.8 IGEM’s remit of advancing gas engineering for societal benefit as an independent, not for profit, engineering institution ensures that a robust, evidence based, new Gas Quality Standard is delivered.
APPENDIX 1 :  GLOSSARY, ACRONYMS AND ABBREVIATIONS

A1.1  GLOSSARY

All definitions except those detailed below are given in IGEM/G/4 which is freely available by downloading a printable version from IGEM’s website www.igem.org.uk.

A1.2  ACRONYMS AND ABBREVIATIONS

AIGT  Association of Independent Gas Transporters
BEIS  Department for Business, Energy and Industrial Strategy
CIBSE  Chartered Institution of Building Services Engineers
DEFRA  Department of the Environment, Food and Rural Affairs
EC  Engineering Council
EUA  Energy & Utilities Alliance
Gi  IGEM’s Journal
GS(M)R  Gas Safety (Management) Regulations
HHIC  Heat and Hot Water Industry Council
HSE  Health and Safety Executive
ICOM  Industrial and Commercial Energy Association
IGEM  Institution of Gas Engineers and Managers
ISBN  International Standard Book Number
LPG  Liquefied Petroleum Gas
NG  Natural Gas
SBGI  Society of British Gas Industries
TCC  Technical Coordinating Committee
UK  United Kingdom.
APPENDIX 2 : REFERENCES

A2.1 SECONDARY LEGISLATION

• Gas Safety (Management) Regulations 1996.

A2.2 IGEM

• Royal Charter & By-laws 1929 as amended
• TCC Governance manual CD12/01/19.