

Petroleum and Gas Inspectorate

Guideline for managing gas work at complex installations

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Summary

The Petroleum and Gas Inspectorate (the Inspectorate) of the Department of Natural Resources and Mines (the department) has recognised there is a need to improve the management of gas work at complex installations.

Approved installers carrying out gas work are required to issue a Gas System Compliance Certificate (GSCC) for all or part of any gas system. At complex installations, this gas work can become more difficult to track particularly when there is more than one installer or when installations are completed in stages over the life of a project.

This guideline has been developed to provide an overview of the obligations of relevant persons, assist key stakeholders to understand the importance of good record keeping, and provide guidance on managing gas system compliance documentation.

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Purpose

The Inspectorate has recognised there is a need to improve understanding and consistency in relation to developing, maintaining and providing accurate gas system¹ documentation for complex gas installations to ensure compliance with the *Petroleum and Gas (Production and Safety) Act 2004* (the Act) and the *Petroleum and Gas (Production and Safety) Regulation 2004* (the Regulation).

For the purpose of this guideline:

- 'Complex gas installation' means a gas system that is installed by more than one person, and/or designed by a third party, and/or under the contractual arrangements of a third party.
- 'Install' means the activity of placing in position, or connecting for service or use and the term 'installed' means having placed in position or connected for service or use.
- 'Installer' means the holder of a Gas Work Licence (GWL) or Gas Work Authorisation (GWA).

Scope

This guideline has been developed to:

1. Provide an overview of the obligations of Gas Work Licence (GWL) and Gas Work Authorisation (GWA) holders ('installers').
2. Assist key stakeholders in understanding the importance of accurate and detailed gas system compliance documentation.
3. Provide guidance as to how gas system compliance documentation may be best managed.

This guideline does not supersede the requirements of the Act, the Regulation or any other relevant legislation including, but not limited to, the *Work Health and Safety Act 2011* and the *Queensland Building and Construction Commission Act 1991*.

Appendix 1 also addresses some frequently asked questions in relation to complex installations.

Introduction

Installers are required to issue a GSCC for all or part of any gas system they install². If a person installs all of the gas system, then only one GSCC is required to be issued for the system. However, gas installations can become more difficult to track when there is more than one installer or when installations are completed in stages over the life of a project.

Where more than one installer undertakes the installation of a gas system, each installer must provide a GSCC for the stage or part of the gas system they have installed. These individual GSCC's should be kept by the supervisor (nominee³) of the gas system installation and, on completion of the project, be provided to the gas system owner as part of the hand-over. Copies will also need to be provided to the gas supplier prior to a gas supply being connected⁴.

Installers are also required to issue a Gas System Defect Notice (GSDN) for any compliance or safety concern they may have in relation to a gas system they are working on⁵. These should also be recorded by the nominee to assist in managing any upgrade or rectification work. Once such work has been completed and compliance has been established, the GSDN does not need to form part of the final handover records for the gas system.

¹ The Act schedule 2 Dictionary definition - gas system

² The Act s734(3)

³ It is a requirement of the Queensland Building and Construction Commission contractor's licence that the contracting company employ a *nominee* who holds the same class of building licence for the contracted work undertaken to supervise the work

⁴ The Act 734(3)(b)

⁵ The Act 734A(3)

Example: Managing compliance documentation at a complex gas installations

On large projects - such as the construction of a hospital that includes an extensive gas system - it is not unusual for the gas system to be installed by multiple installers. This can be due to the extent of the gas system or size of the project, licences or particular experience of installers, or the gas system being part of different primary contractor's agreements. Each contractor should have a nominee to manage the installation of all or part of the gas system to ensure compliance with the Act, technical requirements and any contractual matters.

The nominee should allocate gas work to an appropriately licensed and suitably experienced installer. The progress of each stage or part of the gas system should be managed and monitored with due regard to safe work practices and technical compliance. For each completed stage of the installation, the nominee should collate any related as-built, test records and compliance documentation (such as GSCC's, pressure test data logs etc.). At the completion of the project, all the GSCC's and related documentation must be provided to the gas system owner during the formal hand-over process.

Managing gas work at complex installations

Before the gas system installation part of any project begins, an appropriate management system should be developed to address how the work will be allocated, monitored, verified, documented and completed. By taking the time to ensure these are appropriately handled, project managers can minimise risks to projects. The following provides guidance about some important considerations when managing gas work at complex installations.

Design

In addition to the issues relating to gas system compliance documentation, there has been an increase in the number of enquiries from the construction industry in relation to the requirements for the design of gas systems on larger projects. Technical considerations and additional requirements for gas system design at larger projects are not covered in this guide; however, designers and installers must ensure all gas systems comply with the requirements of the Act and any applicable safety requirements (such as prescribed Australian Standards). For example, this includes the normative sections and appendices of Australia New Zealand Standard AS/NZS5601.1 Gas installations (General installations) (AS5601).

Example: Additional design considerations for gas systems that are complex

In the case of gas systems designed and installed in high-rise buildings, the design guide detailed in appendix K of AS5601 should be considered in addition to the means of compliance solutions listed in stages 3 to 6.

However, it is not a comprehensive design guide, due to the complexity and necessity to resolve issues not encountered in normal domestic and small commercial installations.

It should be remembered that section 2 of AS5601 also provides essential requirements that should be satisfied in every gas system. By way of self-audit, designers and installers should cross check the design or the installed gas system against the essential requirements of section 2 to ensure all requirements have been considered and appropriately addressed.

The design and installation of such gas systems should only be undertaken by persons who can demonstrate competency in this type of work⁶.

⁶ AS/NZS5601 Appendix K – may be applied to all gas system that require additional considerations in design and installation

Using appropriately licensed and experienced installers

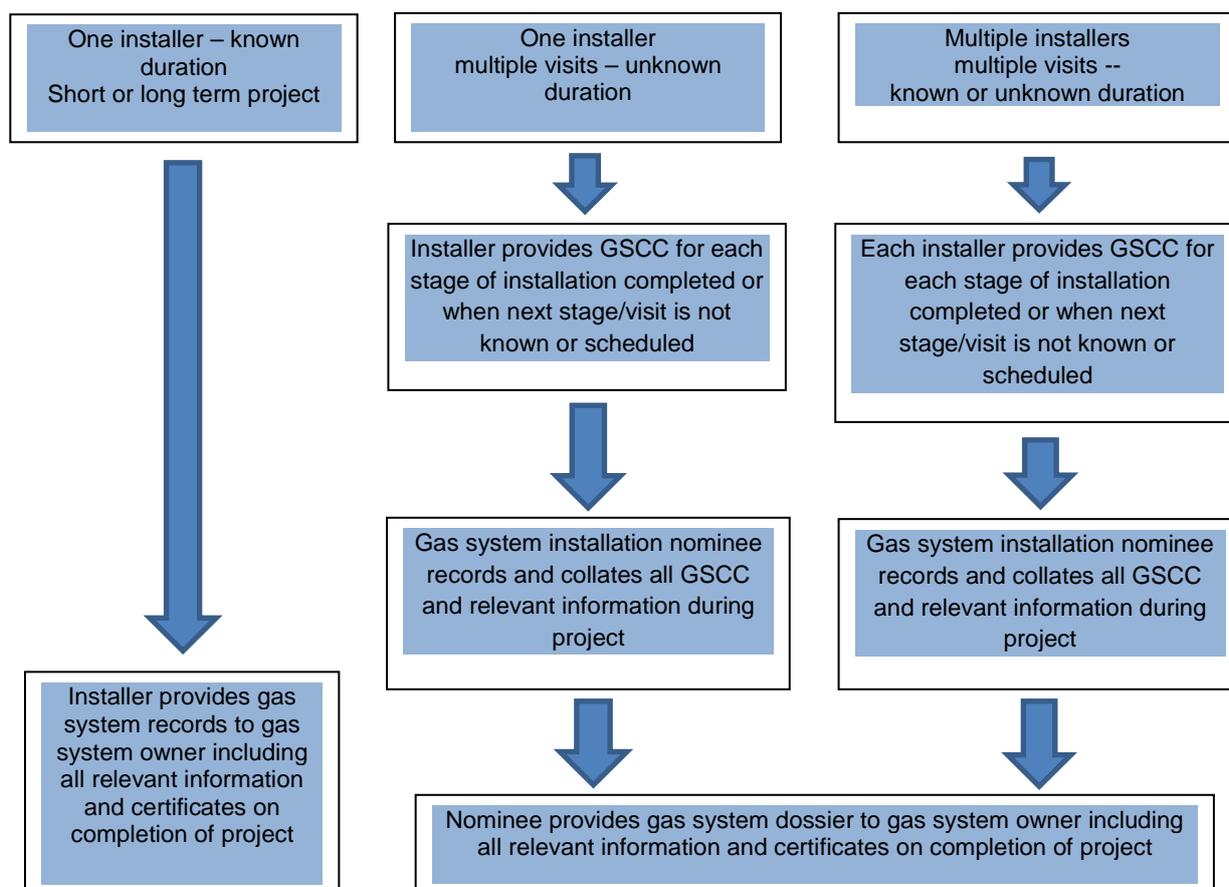
It is important that the primary contractor, project manager and any nominees recognise and allocate gas work appropriate to the installer's licence conditions and experience. A person's GWL or GWA may have conditions. As such, installers can only carry out gas work within the scope of their licence or authorisation.

The experience of the person carrying out the gas work should also be considered. For example, less experienced installers may require more supervision and guidance in the early stages of the project which can also apply to experienced installers where new technologies, materials and installation methods are being used. An unlicensed person can assist installers with general work, but they cannot carry out any gas work⁷.

Allocating and carrying out gas work

A possible way to allocate the gas work to multiple installers, through the gas system design schematic or Piping and Instrumentation Diagram (P&ID), could be to colour code each stage of the installation on a master copy and allocate a different colour to each installer. The stages could be identified between flanges, isolation valves, or through internal building boundaries (walls, levels or purpose). The relevant installer is then required to return their allocated copy with a GSCC for that stage or part of the gas system installation.

Example: Installer requirements for gas system compliance certificates



⁷ The Act s724

Monitor and manage installation progress

The nominee must ensure that all technical and contractual obligations are being met throughout the progress of the gas system installation. This is very important where the gas system will be concealed above a ceiling, behind a wall or within the infrastructure of the building. It can be a lot harder, both financially and practically, to alter, upgrade or rectify any compliance or practical issues after a stage or part of a gas system is complete or the project is finished.

Collect and manage all gas system documentation

As the project progresses, collating the gas system documentation is an important part of monitoring and managing the progress of the gas system installation. It is easier to ensure technical compliance and that the installation was carried out by appropriately licensed and experienced installers when documentation is collected and managed progressively. In addition, should a compliance or technical issue arise or if the gas system is damaged by ongoing building works there is a record of what work has been carried out and by whom. This collective documentation should be collated into a 'gas system dossier' (or file).

Example: Creating a gas system dossier (or file)

Creating a gas system dossier (or file) is critical to ensuring the collection and collation of all GSCC's and documentation relating to all of the gas system. The gas system dossier should include all gas system compliance and relevant technical documentation including, but not limited to:

- Any and all applicable GSCC's.
- All Type B Gas Device Approval Certificates.
- All special component, fitting or equipment documentation including:
 - Manufacturer's installation, operation and maintenance instructions.
 - Third party design specifications and/or certification.
- Any gas system specific testing or purge procedures (installations >30 Litres volume).
- An 'as-built' schematic of the gas system.
- A final sign-off letter or GSCC provided by the nominee, confirming that all of the gas system complies with the Act, prescribed standards, design plans, specifications and all contractual arrangements.

Handover to gas system owner

It is critically important that the gas system owner receives the gas system dossier (or file) at the completion of the work. This ensures that there is a traceable history for the gas system including what was installed, who installed it, when it was installed and where it was installed. This can assist when arranging gas supply as it demonstrates compliance at the time of installation and by providing clear documentation for any maintenance or repair work. It can further assist the gas system owner in assessing the financial and practical options should the owner consider upgrading, altering or extending the existing gas system. A copy of all relevant GSCC must be provided to the gas supplier within 5 days of the installation being completed⁸ to allow the gas system owner to be supplied gas.

Record retention

A gas system owner should keep the gas system dossier and add any additional gas system related documentation (maintenance and testing records) received during the life and operation of the gas system. Gas system owners are required under the Regulation to ensure installation, maintenance

⁸ The Regulation s91A(3)(b)

and repair work are carried out by suitably licenced and qualified people⁹, keeping the gas system dossier current helps prove these obligations are being met.

All installers should keep records of the gas work they have undertaken. It must be remembered that the GSCC is a legal document and once signed it certifies the gas system as installed, complies with the applicable safety requirement. There is no expiry date on a GSCC, so it is recommended that installers and gas system owners consider long term record-keeping.

⁹ The Regulation s93

Appendix 1: Frequently Asked Questions

GWL and GWA obligations

Who can undertake gas work?

Gas work is regulated by the Petroleum and Gas Inspectorate under the Act. It is an offence for an unlicensed person to do gas work. Licensing is a three-tier regime:

1. **Apprentice/Trainee:** An apprentice or trainee can perform gas work, as long as they are under direct supervision¹⁰ which means 'in the presence of the holder of a GWL/GWA'. Apprentices and trainees cannot work unsupervised and they cannot sign off on any gas work.
2. **GWL Interim:** The holder of a GWL with an 'interim' condition can perform gas work within any stated conditions particular to their licence but they cannot sign off any gas work. Any gas work they undertake must be checked and signed off by the holder of a GWL or GWA¹¹.
3. **GWL and GWA:** The holder of a GWL or GWA can perform gas work which is within any stated conditions¹² of their GWL or GWA. Conditions may include, but are not limited to:
 - Type of work.
 - Type of gas.
 - Gas operating pressure.
 - Gas consumption capacity.

What are the obligations of an *installer*?

Installers should be aware that they are ultimately responsible for compliance of a gas system, or part of a gas system they have installed. The GSCC certifies that all or part of the gas system as installed complies with the requirements of the Act. If they have any doubts or concerns about a gas system design, the installer should discuss this with the designer, consultant or engineer prior to doing the work to ensure all gas work is compliant or the installer may be liable for any remedial work.

All *installers* are required to:

- Only install gas systems, appliances and equipment that comply with the Act, the Petroleum and Gas (Production and Safety) Regulation 2004 (the Regulation) and applicable standard (safety requirement)¹³.
- Ensure their work complies with all standards, and is conducted in a safe and professional manner¹⁴.
- Provide a GSCC for any gas system or part of a gas system they have installed¹⁵.
- Affix a Gas System Compliance Plate (GSCP) for any gas system or part of a gas system they have installed¹⁶.
- Identify and list any non-compliance, defects or safety concern(s) they recognise, and issue a GSDN¹⁷.

Can a labourer (unlicensed person) install the pipe and have it signed off by an *installer*?

No - gas work can only be undertaken by the holder of a GWL or GWA. If the installation of the gas system requires two people, then an unlicensed person may assist the installer with the works not defined as gas work. For example, an unlicensed person may assist with moving materials and tools,

¹⁰ The Regulation s117

¹¹ The Act s728(B)

¹² The Act s728(c)(3)

¹³ The Act s734

¹⁴ The Regulation 106

¹⁵ The Act 734(3)(a) and The Regulation 91(A)

¹⁶ The Act 734(3)(b) and The Regulation 91(b)

¹⁷ The Act 734A

assisting with lifting and positioning gas pipe, fittings, devices and equipment ready for fixing in position etc.

Where do GSCP need to be fitted on complex installations?

In addition to issuing a GSCC for all or part of a gas system installed, the installer is required to 'fit' a GSCP. The location of where GSCP should be fitted is prescribed under the Regulation. In a building that has one or more electrical meter boxes, it is preferred that the GSCP is fixed to the inside of the main meter box door, where this is not possible it may be fixed to the outside of the door.

Where the gas system is installed at a multi-tenant building, such as a high-rise, apartment block, shopping centre or villa complex, or where the gas system is complex, as defined in this document, the GSCP should be fixed in the relevant electrical meter box.

Example: Where to fix a Gas System Compliance Plate

Common sense should be used when affixing a GSCP; however, some common examples include:

In a high-rise where more than one installer has completed the gas system installation, each installer should fix a GSCP to the relevant electrical meter box:

- For the riser – the GSCP may be fixed in the main building electrical meter box, where there is more than one electrical meter box for the building, the closest (most relevant) to the gas supply point.*
- For each floor or level – the GSCP may be fixed in any floor specific electrical meter/control box.*
- For each apartment or unit - the GSCP may be fixed in the apartment/unit specific electrical meter/control box.*

In a shopping centre where more than one installer has completed the gas system installation, each installer should fix a GSCP to the relevant electrical meter box:

- For the main gas system infrastructure, from the gas supply meters to the tenancy isolation valve - the GSCP may be fixed in the main electrical meter box, where there is more than one electrical meter box, the closest (most relevant) to the gas supply point.*
- For each tenancy - the GSCP may be fixed in the tenancy electrical meter box.*
- For a shopping centre, common resources central hot water or standby power generation, the GSCP may be fixed in the tenancy or plant room electrical meter box.*

In a villa style installation where more than one installer has completed the gas system installation, each installer should fix a GSCP to the relevant electrical meter box:

- For the main buried infrastructure, the GSCP may be fixed to the main electrical meter distribution board.*
- For each Villa - the GSCP may be fixed in each Villa electrical meter box.*

Accurate gas system compliance documentation

Who needs to understand the importance of gas system documentation?

In addition to the installer, designers, primary contractor's, project managers and gas system owners all need to be aware of the importance of accurate gas system documentation. Establishing a process to record and manage the gas system documentation at an early stage of a project can ensure the hand over at the conclusion of the project is conducted in a smooth and professional manner.

Who is responsible for managing accurate documentation?

All companies engaging in gas fitting are required to hold an appropriate GWL and/or GWA in addition to a Contactor's Licence issued by the Queensland Building and Construction Commission (QBCC). The company must have a nominee who holds a QBCC nominee licence for gas fitting and is

responsible for supervising the relevant work on a project. Under the requirements of the QBCC, the company directors and nominee must develop and implement a system of supervision that ensures the work complies with the design plans, specifications and applicable standards. For more information, go to the QBCC website at: <http://www.qbcc.qld.gov.au/>

Why is it important to document the compliance of a gas system?

It is important for any gas system to have traceability - especially in relation to who installed it, when they installed it, where they installed it and when it was tested and put into service (or commissioned). These records assist in a number of ways by not only ensuring the installation was installed by an appropriately licenced and experienced person, but also in situations where non-compliance is identified or when the owner/operator of the gas system wants to alter, upgrade or extend the existing gas system.

Why is it important to know who installed a gas system?

It is an offence in Queensland for any unlicensed person to install any part of a *gas system*¹⁸. *Gas work* is regulated due to the level of risk to workers and the public. If the work is not done safely or correctly it can result in serious injury or death, damage to property, and have an adverse effect on functionality and efficiency of the gas system.

Where it can be established that an unlicensed person has installed any part of a *gas system*, the person who performed the *gas work* and/or the person who instructed the person to perform the *gas work* may be issued with a Penalty Infringement Notice (fine) or be prosecuted under the Act¹⁹.

GWL and GWA holders should also be aware that it is a requirement that they perform their work in a safe and professional manner²⁰ and, where it is identified that this is not the case, they can be required to rectify the work at their own expense²¹.

Why is it important to know when a gas system was installed?

Gas systems should be installed in accordance with the requirements of *AS/NZS5601: Gas installations: Part 1 General Installations*. This standard is regularly reviewed by the relevant standards committee and is from time to time amended or even republished²².

When a *gas system* is installed, the signed GSCC confirms the installation complied with the requirements of the Act at the time of installation. Should some requirements change after installation questions or conflicts can develop over the compliance of the installation. Under the Act, the application of safety requirements is not retrospective; therefore, compliance must be assessed against the requirements at the time of installation and not against the current standard.

Being able to identify the date of installation, clarify the gas system was compliant when it was installed and that the gas work was conducted in a professional manner in line with the requirements of the Act, can save the installer or contractor a lot of time and embarrassment of having to upgrade the gas system at their own expense or worse, being fined or prosecuted for non-compliant work.

Why is it important to know where the gas system is installed?

Building design and architectural considerations sometimes conceal services such as the gas pipe for aesthetic or practical reasons. A copy of an as-built drawing of the gas system should be provided for every installation. If the gas system is fairly basic there is provision on the GSCC for the installer to

¹⁸ The Act s726(1)

¹⁹ The Act s726(2)

²⁰ The Regulation 106(a)(ii)

²¹ The Regulation 107(4)

²² The Regulation schedule 1

provide a sketch. On larger complex installations, a copy of an as-built drawing should be included in the gas system compliance documentation.

In the event of a reported smell of gas or suspected leak, knowing where the gas pipe is installed can save time in assessing the best course of action to ensure building occupants safety and establishing the most suitable evacuation route. It can also save the owner considerable expense and the engaged installer considerable time in locating points of isolation, possible causes of the leak and affecting a repair.

It is also beneficial should the owner wish to extend, upgrade or alter the gas system. Knowing the details of gas pipe size, location and material can assist in determining if the works are feasible, practical and within budget.

Why is it important to know when a gas system was tested and put into service?

On some projects, there can be delays from the time when the gas system was tested by the installer and when gas was actually connected and used. Without accurate records, there is a risk the gas pipe could develop a leak from damage during ongoing building works or could become unsafe or noncompliant following alterations by other installers. Where any delay occurs, accurate documentation (who did what, where and when) can assist in assessing if the gas system is still gas tight, unaltered and suitable for the type and pressure of gas being supplied.