Multinet Gas

Gas Metering Room Guidelines

Information for Developers

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Introduction

Gas meters and regulators inherently vent natural gas when in operation. When multiple meters are installed inside a building, the accumulation of gas can create a potentially highly flammable and explosive environment.

There are stringent requirements surrounding the construction and ongoing maintenance for the upkeep of the gas metering rooms.

This brochure has been published to serve as a guide to help potential developers / building owners understand the design requirements which are to be considered when building a gas metering room installation.

The information contained in this brochure is relevant to customers within Multinet Gas gas distribution network territory.

This can be found on the Multinet Gas website at www.multinetgas.com.au.

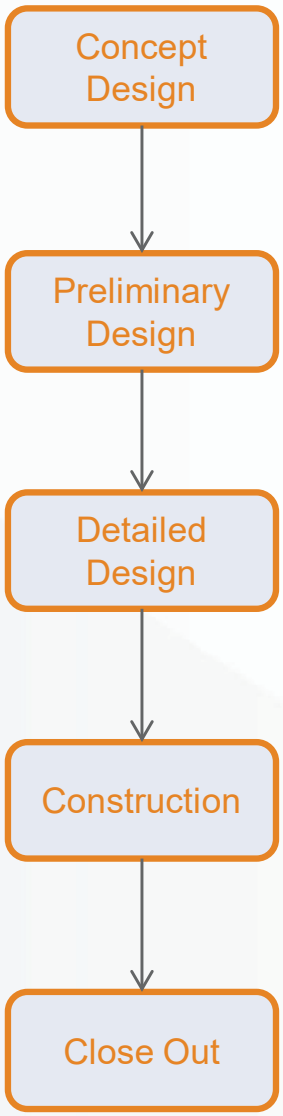
Process

The high level process for the application and construction of a gas metering room is as follows:

Concept Design Phase

- Developer applies through a nominated retailer for a gas connection before the building design is finalized.
- A “Retailer enquiry” (Gas Connection Advice) is created and sent to the Multinet Gas’ preferred service provider.
- Multinet Gas’ preferred service provider commences discussions with the developer to establish Scope of Works (SoW).
- Gas meter room requirements as per these guidelines and Multinet Technical Standards will be discussed and agreed upon, notably regarding civil, structural, HVAC, lighting, signage, service route, meter room size, venting locations, door requirements and location.
- The location of the Gas Meter Room shall be on ground floor on an external wall as close as practicable to the gas service point of entry into the building.

Note: Any issues differing from the standard are referred by the preferred service provider to Multinet Gas Asset Management for approval.



Preliminary Design Phase

Multinet Gas confirms SoW with preferred service provider.

The preferred service provider then proceeds with preliminary design and provides estimates of capital costs and time frame to retailer and responds to the Retailer enquiry for approval of contract with developer.

Detailed Design Phase

Multinet Gas’ preferred service provider will contact the developer to ensure that requirements have not changed. If changes have occurred, the service provider planner will step through the concept design process to re-establish agreement and revise the cost.

A concept sketch and SoW will be finalised. The preferred service provider completes detailed designs and provides drawings to Multinet Gas for approval upon acceptance of the connection offer. Multinet Gas approval of the detailed design drawings is required before drawings can be issued for construction.

Construction Phase

The preferred service provider is instructed by Multinet Gas to build and install the gas system. The completed installation **WILL NOT** be connected to gas supply until a final inspection is carried out by Multinet Gas or its nominated delegate and all requirements as per Multinet Gas Technical Standards are met.

Building Developer / Owner Construction Obligations

Building Developers / Owners are responsible for the construction, upkeep and ongoing management of the gas meter room and non meter related equipment (for example, mechanical ventilation, alarms, locks, cleanliness, lighting)

The building developer / owner is also required to produce certification around the construction of the new gas meter room including:

- Certificate of Electrical Safety
- Ventilation Certification.
- Fire classification of material used for construction and certified by Building Surveyor.
- Certificate of Compliance from Licensed Gas Fitter or ESV Approval
- Ensure an evacuation plan is installed within the gas meter room

The completed installation **WILL NOT** be connected to gas supply until a final inspection is carried out by Multinet Gas or its nominated delegate and all requirements as per Multinet Gas standards are met.

Location Considerations for Gas Meter Room

The Gas Meter Room shall be located on external walls of the building at ground level with access directly from outside.

The metering room shall be located in a separate masonry room, sealed from the main building, and used exclusively for the purposes of gas metering.

Location requirements are outlined below:

- Shall be located as close as practicable to the point of service entry into the building
- Shall be accessible to Multinet with unrestricted 24 hour access
- Avoid areas subject to vibration that could affect gas installation equipment
- Adequate ventilation (as per Ventilation section)
- Avoid other utility assets or internal gas service installations
- Other locations as prohibited in AS4645.1:2008 (Appendix J) and AS 5601.1:2013 (sec 5.11)

The gas meter room shall:

- Not be positioned in an area subject to flooding
- Not be positioned in rooms intended as a switch room, electrical metering, electric substation or switchgear room
- Not be used to house other utilities assets or owner appliances
- Not be used as a storage room
- Not be in a corrosive environment
- Not be in areas at risk of mechanical damage eg. operating machinery, overhead cranes, forklift loading areas etc.
- Not be within 3m of an electrical substation or within 3m of an opening into an electrical substation room
- Not be within 5m of a flammable storage area, filling point or pressure vessel

Gas Meter Room Design

- It is the developer's responsibility that the design and construction of the GMR complies with the current Building Codes of Australia (BCA).
- Size of metering room shall allow installation of required meters and adequate access for Multinet Gas and authorised personnel. Please consult Multinet Gas authorised representatives during the design stages.
- The ceiling height of a metering room should be a minimum of 2.4m. It should have a flat profile or be sloped towards the outlet vent to avoid the possibility of gas accumulation.
- Penetrations through walls, floors or ceilings are to be sealed for the full thickness of the penetration to avoid gas migration.
- Walls in contact with a main building must be sealed and have a minimum of 2hr fire rating.
- Access from within the main building is not permitted for rooms located on external walls
- Suitable vapour-proof sealing material shall be used that does not compromise the room's FRL.
- Fire rated collars must be installed on all GMR penetrations that are not 2-hour fire rated.
- Adequate lighting shall be provided to the gas meter room

Gas Meter Room Security and Protection

- Each meter room site location shall be provided with adequate protection and security as appropriate to the level of exposure and consequences of damage and tampering.
- Installations such as additional signage, Bollards or Armco at the entrance are required when breaching the minimum separation from roadway requirements (subject to approval by Multinet Gas).

Building Materials

- The Gas Meter Room shall be a fire isolated room constructed of masonry materials which has a minimum of 2 hour FRL.
- All materials used for construction shall be fire retardant (FRL - fire rated for two hours)
- Complies with the current Building Codes of Australia (BCA)
- The GMR shall not have non fire rated pillars / columns or similar structures encroaching into designated area.
- The Gas Meter Room shall be sealed from the rest of the building to prevent possible migration of gas internal to the building.

Meter Room Doors

- Doors and doorframes shall be installed in accordance with the current BCA with a FRL appropriate to both the Class of building and Type of construction.
- All doors and frames shall have the manufacturer's identification label attached visibly indicating the appropriate FRL.
- All Gas Meter Room doors shall open outwards unless otherwise specified by Multinet Gas.
- Externally opening fully louvered doors need not be 2hr fire rated.
- External doors with partially louvered vents shall have a 2 hour fire rated door to provide structural stability.
- Gas Meter Room doors that open outwards directly on to the footpath shall feature 180° hinges.
- All Gas Meter Room doors shall provide for a mechanism to allow them to be fixed in the open position during maintenance.
- All internal doors shall be close fitting and fitted with vapor proof seals to prevent the possible migration of gas. Doors opening directly to outside do not require vapor proof seals.
- Preference is given to double opening doors. Where single doors are utilized, the door width shall not be less than 1m.
- GMR doors shall be fitted with a Multinet Gas standard lock and will be supplied by the builder. The use of a key safe is allowed should the owner/occupiers keying system be used. Doors must be able to be opened from inside without a key.
- A Multinet Gas supplied MGS2-7-1 (Danger No Smoking – Gas Meter Room) sign will be fitted to the meter room door by Multinet Gas personnel

General Gas Meter Room Ventilation Guidelines

Adequate ventilation is required for all meter regulator installations to avoid the accumulation of gas that can lead to a flammable and explosive environment.

Natural ventilation is the preferred option as this reduces capital, operational and maintenance costs.

- The owner/occupier is responsible for ongoing maintenance of room ventilation points, ducts and equipment.
- Vents that are louvred are considered to have a free ventilation area of 50% of their actual area, unless proven otherwise.
- The distance from the floor to the bottom edge of the low level opening and the distance from the ceiling to the top edge of the high level opening shall not exceed 5% of the room height

The following clearances are to be complied with regards to ventilation:

- Not less than 3m from any gas appliance, boiler, electrical installation or any other potential source of ignition
- No less than 5m from flammable substance storage areas or powered air intake systems
- Not located beneath overhead power lines
- Not within 3m of any electrical switchgear or transformers
- Not within 1m horizontally from any opening into a building. Examples of openings include fire cabinets, cupboards, booster cabinets, bin rooms etc.
- No closer than 3m from any vent openings of the meter room and electrical substations

Natural Ventilation Guidelines

Natural ventilation requires the following:

- Inlet and outlet natural ventilation grilles placed on external walls and having direct access to the outside atmosphere
- A minimum 2 m clearance shall exist at all times from any external edge of the vents to any object/substance that may impede airflow or compromise natural ventilation performance.
- Minimum ventilation area required for both ducts can be calculated in accordance AS5601.1-2013 clause 5.13.2. Equipment rated capacity is taken as the badge capacity of the largest meter in the room.
- Preference shall be given to making the high-level vent as wide as possible, ie, with a high aspect ratio.
- A high-level vent may be discontinuous over its span in order to maintain the structural integrity of the room.

Note: Installation of a fully louvered door is preferred to provide adequate natural ventilation.

Mechanical Ventilation Guidelines

The mechanical ventilation is provided entirely by the building's owner (design, maintenance, associated alarms). Multinet Gas has to approve the mechanical ventilation design.

Mechanical ventilation requirements include:

- The system shall be completely independent from any other mechanical ventilation operating inside the building.
- The fan shall be so located that a negative pressure is created within the exhaust duct over its full length to where the duct leaves the building. The duct shall be positively sealed along the seams where a positive pressure may develop.
- Where a fan motor is located inside a duct, the motor shall be explosion proof.
- Developer / Building Owner to be responsible to ensure that the minimum airflow to outside through mechanical ventilation complies with AS5601.1-2013 requirements and Multinet Gas Engineering Standard.
- Ventilation shall be obtained from the open atmosphere and high-level and low-level vent(s) shall be located on the opposing walls to provide sufficient airflow across the room.
- The inlet air shall be ducted from outside atmosphere. Inlet air must NOT be taken from inside the building.

The following safety requirements for mechanical ventilation failure shall be provided by the Developer / building owner:

- An interlock or remote alarm must be activated if power to the fan is lost. The remote alarm must only be able to be reset in the Gas Meter Room.
- A visual, aural or combination of both types of alarms shall be provided at the control room or conspicuous point, with a sign adjacent providing contact details of the person delegated responsibility for restoring, or arranging for the fan to be restored to order.
- Loss of electricity supply to the alarm circuit should also initiate an alarm.
- Installation complies with the relevant standards and operates continuously 24 hours per day.

Note: It is common practice to install the visual alarm above in close vicinity to the meter room door and the audio alarm close to attendance of people.

Equipment venting

- The owner/occupier shall provide a suitable location for the termination of the equipment vent pipe(s). The vent pipe(s) must terminate to outside open atmosphere as close as practical to the GMR
- The installation of gas equipment vent(s), from within the GMR to outside atmosphere, shall be undertaken by Multinet Gas Contractor. The owner/occupier is responsible for all costs relating to the installation of equipment vent piping and termination.
- Vent lines shall be run to outside open atmosphere and terminated in a safe location with a fitting to prevent the entry of water, foreign material, or insects.

Vent line(s) termination shall:

- Not be in the direction of any opening into the GMR or any other designated hazardous area.
- Be located at least 500mm away from any opening into the GMR
- Be located at least 1 m away both horizontally and vertically from any other opening into the building.
- Be located to avoid the possibility of venting gas to pool or accumulate.
- Not less than 2.2 metres above ground level.
- Not less than 3 metres from any gas appliance, boiler, electrical installation etc. or any other potential source of ignition.
- Not less than 5 metres from any flammable substance storage areas or powered air intake systems.
- Not located beneath overhead power lines.

General Electrical Guidelines

The developer/building owner is to ensure that all Australian Standards for electrical installations are adhered to.

- All electrical installations located within the GMR shall be suitable for Zone 1 Hazardous Area application, be explosion-proof and of a form listed in Table 2.1 of AS/NZS 60079.14:2009.
- All electrical installations located within 1m of fully sealed doors of a GMR shall be suitable for Zone 1 Hazardous Area application, be explosion-proof and of a form listed in Table 2.1 of AS/NZS 60079.14:2009.
- All electrical installations located within 3m of a fully louvered door or vent openings of a GMR shall be suitable for Zone 1 Hazardous Area application, be explosion-proof and of a form listed in Table 2.1 of AS/NZS 60079.14:2009.
- All electrical fixtures shall be protected against physical damage by suitable guards or by location.
- A minimum clearance of 500mm shall exist between ANY electrical installation and the nearest edge of ANY gas equipment, including pipes, flanges, vents, valves, etc. within the GMR.
- A minimum clearance of 3m shall exist from any vent openings of the GMR and an electrical substation
- The Power supply circuits must be capable of being isolated as specified by Section 8.2 of AS/NZS 60079.14:2009. This requires the isolation of ALL live conductors, with 'live' in this instance including the neutral conductor(s) and necessitate the use of isolator(s) capable of being locked in the open position and labelled to facilitate the ready identification of the circuit controlled.
- Pressure switches located within the GMR or less than one metre from any opening into the GMR shall be explosion-proof and of a form permitted by Table 2.1 of AS/NZS 60079.14:2009 for Zone 1 Hazardous Area (EPL 'Gb') application.
- A fan motor located inside the ventilation duct shall be explosion-proof and of a form permitted by Table 2.1 of AS/NZS 60079.14:2009 for Zone 1 Hazardous Area application.
- A Prescribed Certificate of Electrical Safety will require to be purchased and completed by the Responsible Electrical Person (REC) and Licensed Electrical Installation Worker for review and acceptance by a Licensed 'H' Class Electrical Inspector prior to electricity supply being connected.
- Full Electrical requirements are detailed in Multinet Gas Engineering Standard EP-GM-4356

GMR Pre Commissioning Checklist

The developer/building owner of the gas meter room (GMR) will be required complete a checklist and submit it to the Multinet Officer for approval before commissioning of gas connection.

Copies of all certificates or evidence of compliance must be supplied. (Please refer to example)

GMR Site Address:			
1. Electrical Installation			
Certificate of Electrical Safety (for Prescribed Electrical Installation Work) covering the gas meter room – Certificate No.: (Note: CES must be free of any noted defects or special conditions)			
Certifying Licensed Electrical Inspector	Name:	Date certified:	
2. Ventilation Installation			
Is Natural Ventilation provided in accordance with this document: YES/NO Total FREE area of HIGH-level ventilation opening(s): Total FREE area of LOW-level ventilation opening(s):			
Is Mechanical Ventilation provided in accordance with this document: YES/NO Capacity of the ventilating fan expressed as Litres per Second: Is mechanical ventilation failure monitored in accordance with this document: YES/NO Has the ventilation failure alarm been satisfactorily tested: YES/NO Date of test : Is the fan motor inside the duct explosion proof as per AS/NZS 60079.14 for Zone 1 Hazardous Area ? YES/NO			
Certifying Ventilation Engineer	Name:	Date certified:	
3. Gas Meter Room Construction			
Has the GMR's form of construction been confirmed as adequate for the Class of Building in terms of Fire Resistance Level by the Building Surveyor: YES/NO			
Certifying Building Surveyor	Name:	Registered #:	
4. Fitting Line			
Has the fitting line been tested and Certificate of Compliance completed? Or ESV approval?			
Certifying Licensed Gas Fitter or Inspector	Name:	Date certified:	
5. Evacuation Plan			
Has the Evacuation Plan for the building been installed in the Gas Meter Room by the builder? YES / NO			
Developer/building owner Sign-off	Name:	Signature:	Date:

Contacts and Further Information

For further information regarding this guideline contact can be made with the Multinet Gas designated preferred service provider using the below contact details:

Multinet Gas Service Provider:

Comdain Infrastructure

34-40 Clayton Road, Clayton, Victoria 3168

Telephone: (03) 9535 8300