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SPECIFICATION: **G-48-44b**

TITLE: **GAS METER AND SERVICE REGULATOR SIZING**

VOLUME: **3**

COURSE ID: **GAS5013**

★ **REQUIRED TRAINING GROUPS:** **GAS MEASUREMENT, ENERGY SERVICES, CUSTOMER CONNECTIONS OPS, CUSTOMER PLANNING, ALL GAS ENGINEERING DESIGNERS**

Each group listed is responsible for its own training which may be specific to a title/individual and not to the group in its entirety. Please check with your local training coordinator/department.

<p><u>Administrative Revisions</u></p> <p><u>REV 44b</u> (04/22/2024)</p> <p>Table 2: Table 2 has been reverted to its previous format as found in G-48-44. Work associated with table 2 of this specification shall follow G-48-44b.No work shall be performed in accordance with G-48-44a.</p> <p><u>REV 44a</u> (04/02/2024)</p> <p>Section 7.1: Removed “sets” and changed “Meters” to Meter” from bullets points.</p> <p>Table 2: Formatted Table to eliminate estimated operating pressure and replacing the individual capacity per regulator with a capacity range.</p>

REVISIONS: (Continued)

SUBSTANTIVE REVISIONS: (See ★)

- 1) Cover Sheet - **Changed** CORE GROUPS and TARGET GROUPS to REQUIRED TRAINING GROUPS
- 2) Section 7.1 - **Updated** requirement for GID request for medium pressure services to include meter with demand greater than 7,000 cfh and high-pressure services to include

meter with demand greater than 13,000 cfh where there is a service regulator supplying $\frac{1}{4}$ psig pressure.
- **Added** Customer Connection Ops
- 3) Section 10.2 - **Changed** "Measurement Section Manager" to "Gas Measurement Section Manager."
- **Removed** requirement for approval from General Manager, Technical Operations
- 4) Section 13.0 - **Included** Customer Connection Operations responsibility in TABLE I and II
- **Revised** 2" X 2" regulators in EO drawing numbers in Table II



Gas Operations Standards

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	Amarachi Ikwuagwu	Christian Martinez General Manager Technical Operations	11/13/2023	Metering Specs and Procedures	6 PAGES
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1.0 SCOPE

This procedure provides guidelines for selecting gas meters and service regulators. It includes tables from which most meters and regulators can be selected and describes how to request rulings from Gas Engineering – Technical Operations Measurement Section for loads is not covered in the tables.

2.0 LEGAL REQUIREMENTS

New York City Fuel Gas Code.

3.0 DELIVERY PRESSURE DEFINITIONS

3.1 Elevated Delivery Pressure – A delivery pressure greater than ¼ psig used by customer equipment.

3.2 Nominal Delivery Pressure – The lowest gas pressure a customer is expected to experience. This is the design basis for customer delivery pressures. For low pressure gas system customers, this pressure is 4 inches of water column. For medium and high-pressure system customers, this pressure is ¼ psig.

3.3 Normal Delivery Pressure – For low pressure gas system customers, this pressure is 4 inches of water column. For medium and high gas pressure system customers, this pressure is ¼ psig with an acceptable range of 5-1/2 inches of water column not to exceed 7 inches of water column.

4.0 SELECTING GAS METERS

[Table I](#) of this procedure can be used to select most gas meters. [Table 1A](#) can be used to size customer loads that include emergency generators on medium and high-pressure gas systems. For very large volume and elevated delivery pressure meters not covered in Table I or Table IA. See Section 7.0 below.

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5.0 SELECTING GAS SERVICE REGULATORS

[Table II](#) of this procedure can be used to select most gas regulators. For very large volume and elevated delivery pressure meters not covered in [Table I](#), see Section 7.0 below.

6.0 MASTER METER AND SERVICE REGULATOR SETS

- 6.1 For master meters and service regulators in apartment buildings, the maximum coincident gas load should be calculated using the demand factors included in Specification [G-8200 "Service Sizing."](#)
- 6.2 Where gas is supplied to 12 or more apartments, a master meter and regulator set, consisting of a twin set of meters and a twin set of regulators shall be installed. Each meter and regulator in these twin sets need only be sized to supply 75% of the total maximum demand.
- 6.3 Where a single gas service supplies 6 or more stores or businesses with individual meters, a twin set of service regulators shall be installed.
- 6.4 The above guidelines are intended to minimize gas-ins and relights following equipment malfunction, planned upgrading or replacement. Generally, twin sets shall not be installed for added assurance of continuity of service at locations other than these master meter applications as detailed in Sections 6.2 and 6.3.

7.0 GAS INSTALLATION DESIGN (GID) REQUEST

- ★ 7.1 A GID task (request) shall be prepared by the Energy Services representative / Customer Connection Ops in CPMS for installations not covered by [Table I](#), [Table IA](#) or [Table II](#) as follows:
 - Meter with demand greater than 8,600 cfh supplied from a low-pressure service.
 - Meter with demand greater than 7,000 cfh supplied from a medium service where there is a service regulator supplying ¼ psig pressure.
 - Meter with demand greater than 13,000 cfh from a high-pressure service where there is a service regulator supplying ¼ psig pressure.
 - All installations with elevated delivery pressure.

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7.0 GAS INSTALLATION DESIGN (GID) REQUEST (continued)

7.2 The GID task (request) and ordering of gas meters, regulators, and volume correctors shall be completed in accordance with [G-710](#) "Gas Meter and Volume Corrector Installation Processes".

7.3 Upon receipt of the GID task (request) in CPMS, Gas Measurement shall select meters/regulators, volume correction instruments and installation drawing and complete GID. Gas Measurement will complete GID task in CPMS and attach completed GID to CPMS case.

8.0 FILTERS

Consideration should be given to adding gas filters including strainer and coalescent-type filters when known debris/contaminant problems exist or when meter sets are installed on new plastic mains and services. If coalescent filters are used, consideration should be given to the additional space required for these filters and a site-specific specification provided.

9.0 ORDERING AND SHIPPING METERS, REGULATORS, AND VOLUME CORRECTORS

9.1 The ordering and shipping of gas meters, regulators, and volume correctors shall be completed in accordance with [G-710](#).

9.2 Diaphragm gas meters (Class 250, 500, and 1000), 3M rotary meters (without instrument drives), and service regulators up to 1" x 1- 1/4" are normally available from inventories maintained in local storerooms.

9.3 Some jobs may require you to verify with Gas Measurement that meters and regulators are available well in advance of the day they are scheduled to be installed. Limited quantities of larger meters and regulators are stored at Bruckner and require long lead times to order from the manufacturers.

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10.0 DELIVERY PRESSURES

- 10.1 Delivery pressures to all customers should always be as low as reasonably allowable.
- ★ 10.2 Delivery pressures to individual living spaces within multi-unit residential buildings shall not be greater than ¼ psig. Exceptions shall be evaluated and approved in writing by the Gas Measurement Section Manager.
- 10.3 If the customer is supplied from our low pressure gas system and requires higher pressure than the normal delivery pressure (see Section 3.0), a gas booster is required (See Gas Specification [G-2040](#) “Requirements For The Gas Booster, Microturbines And Associated System Protective Devices”).
- 10.4 If the customer is supplied from our medium or high-pressure gas system and requires higher pressure than the normal delivery pressure (see Section 3.0), elevated delivery pressure is required.
- 10.5 If a customer requires elevated delivery pressure (See Section 3.0), documentation from the manufacturer of the equipment requiring elevated delivery pressure is required from the customer and shall be forwarded along with the GID request. Increments of elevated delivery pressure are ½ psig (14 in. w.c.), 1 psig, 2 psig, and one psig increments thereafter.

11.0 RECORDS RETENTION

Any records generated in the course of performing work in accordance with this specification shall be maintained as required by Corporate Instruction [CI-870-1](#) “Records Management”. Guidance on the retention of Company Gas Operations records can also be found on the [Records Management](#) intranet site.

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12.0 REFERENCES

[CI-870-1](#) – Records Management

[G-2040](#) – Requirements for the Installation of Gas Boosters, Microturbines and Associated System Protective Devices

[G-8200](#) – Service Sizing

[G-710](#) – Gas Meter and Volume Corrector Installation Processes

13.0 ATTACHMENTS

[Table I](#) - Customer Loads That DO NOT Include Emergency Generators

[Table IA](#) - Customer Loads That Include Emergency Generators

[Table II](#) - Gas Service Regulator Selection

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GAS METER SELECTION

(Select the lowest capacity meter that meets demand)

- ★ For loads greater than those covered loads below and all elevated delivery pressure jobs, ESD or Customer Connection Operations shall complete GID task (request) in CPMS. See Section 7.0.

TABLE I – Customer Loads That DO NOT Include Emergency Generators

Maximum Gas Load Demand (cfh)			
Meter Type	Meter Size (cfh)	Low Pressure Services	Medium/High Pressure Services (1/4 psig delivery)
Diaphragm	250	250	250
	500	500	500
	1,000	1,000	1,000
Rotary	3,000	1,001 - 2,300	1,001 - 3,000
	5,000	2,301 - 3,500	3,001 - 5,000
	7,000	3,501 - 4,200	5,001 - 7,000
	11,000	4,201 - 6,400	7,001 - 11,000
	16,000	6,401 - 8,600	11,001 - 16,000

TABLE IA – Customer Loads That Include Emergency Generators

Maximum Gas Load Demand (cfh)		
Meter Type	Meter Size (cfh)	Medium/High Pressure Services (1/4 psig delivery)
Diaphragm	250	375
	500	750
	1,000	1,500

★ **TABLE II**

GAS SERVICE REGULATOR SELECTION
(Select the smallest regulator that meets demand)

For loads greater than those covered loads below and all elevated delivery pressure jobs, ESD or Customer Connection Operations shall complete GID task (request) in CPMS. See Section 7.0.

Service Regulator Size Inlet x Outlet x Vent	1"x1"x3/4"	1"x1-1/4"x1"	2"x2"x2-1/2" Fisher CS805IQ-stb	2"x2"x2-1/2" Fisher CS805IQ- stb	Future
Orifice Size	Various	Various	1/2"	7/8	
Code Letters					
Indoors /Outdoors	MEE, MFE, MLE	MFF, MHF	MXM	MXQ	
Specifications					
Indoors (Single)	EO 14158	EO 14158	EO 14158	EO 14158	
Indoors (Twin)	EO 14166	EO 14166	EO 14166	EO 14166	
Outdoors (Single)	Diaphragm-EO-16585 Rotary-EO-16511	Diaphragm-EO-16585 Rotary-EO-16511	Rotary-EO-16511	Rotary-EO-16511	
Outdoors (Twin)	EO 514203	EO 514203	EO 514203	EO 514203	
Estimated Operating Pressure (EOP in psig)	Maximum Capacity (cfh)				
3 to 6 psig	500	1,200	1800	3100	
7 to 10 psig	875	2,100	3100	5850	
11 to 15 psig	1,100	2,700	4200	7700	

Service Regulator Size Inlet x Outlet x Vent	1"x1"x3/4"	1"x1-1/4"x1"	2"x2"x2-1/2" Fisher CS805IQ-stb	2"x2"x2-1/2" Fisher CS805IQ-stb	Future
Orifice Size	Various	Various	3/8"	1/2"	
Code Letters					
Indoor/Outdoor	HEE, HFE, HLE	HFF, HHF	HXL	HXM	
Specifications					
Indoors (Single)	EO 14158	EO 14158	EO 14158	EO 14158	
Indoors (Twin)	EO 14166	EO 14166	EO 14166	EO 14166	
Outdoors (Single)	Diaphragm-EO-16585 Rotary-EO-16511	Diaphragm-EO-16585 Rotary-EO-16511	Rotary-EO-16511	Rotary-EO-16511	
Outdoors (Twin)	EO 514203	EO 514203	EO 514203	EO 514203	
Estimated Operating Pressure (EOP in psig)	Maximum Capacity (cfh)				
20 to 30 psig	500	1,200	4,630	7,910	
31 to 40 psig	700	1,500	6,330	10,350	
41 to 50 psig	875	1,800	7,930	12,000	
51 to 99 psig	900	2,000	9,490	12,140	