



## **VOLUME 15**

# **Section 6: Gas Metering Standards**

## SECTION 6 GAS METERING STANDARDS

**GENERAL GUIDELINES-GM0020G**


PURPOSE..... PAGE 2  
 POLICY..... PAGE 2  
 UTILITY DESIGN REQUIREMENTS..... PAGE 2  
 GAS METERING DIVERSIFICATION..... PAGE 3  
 LOCATION REQUIREMENTS ..... PAGE 5  
 RESIDENTIAL SERVICE AND METER LOCATIONS ..... PAGE 9  
 COMMERCIAL SERVICE METER LOCATIONS ..... PAGE 10  
 MOBILE AND MANUFACTURED HOME METER LOCATIONS ..... PAGE 10

**GAS SERVICE AND METER DESIGN-GM0035G**

GENERAL..... PAGE 11  
 EXCESS FLOW VALVES..... PAGE 11  
 METER, MAIN, AND SERVICE LINE SIZING..... PAGE 12  
 GAS METER SELECTION TABLE ..... PAGE 13

**GAS METER GUARD POST DETAIL-GM0040G**

GAS METER GUARD POST DETAIL ..... PAGE 15  
 RESIDENTIAL METERING-250 CFH METERS ..... PAGE 16  
 COMMERCIAL METERING-REGULATED UPSTREAM OF METER..... PAGE 17

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0020G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3
JB	SB	SB	10/25/18	Page 1 of 17

## GENERAL STANDARDS

**PURPOSE**

To ensure proper design and placement of gas meters in safe, uniform, and accessible locations.

**POLICY**


Gas meter assemblies and locations shall meet all the requirements of this section, and the requirements of Section 5 (meter set drawings GGMI). Exceptions to this are considered non-standard and require Gas Engineering approval.

**UTILITY DESIGN REQUIREMENTS**

The NV Energy Utility Design Administrator will gather customer load, equipment types, project scope and location information to determine appropriate main/service line sizing and metering configuration. The NV Energy Utility Design Administrator can work with Gas Engineering to assist in the initial planning stage. The planning request will be routed to Gas Planning, Gas Engineering and then to Gas Metering for planning and metering recommendations as required.

A Gas Distribution Planning Request form shall be submitted to Gas Planning & Gas Engineering by the project’s Utility Design Administrator, for the following types of projects:

1. All gas main extensions or modifications to existing mains.
2. All gas service line installations or meter improvements exceeding 2,600 cubic feet per hour demand.
3. Delivery pressures higher than 7 inch Water Column (7 inch WC or 0.25 psig) require completion of a Non-Standard Gas Pressure Request Form. This form is available on our webpage:
  - a. For multi-family non-standard pressure request forms,  
[https://www.nvenergy.com/publish/content/dam/nvenergy/brochures\\_arch/account-services/building-and-new-construction/need-gas-service/service-meter-info/Multi-Family-Non-Standard-Pressure-Request.pdf](https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/account-services/building-and-new-construction/need-gas-service/service-meter-info/Multi-Family-Non-Standard-Pressure-Request.pdf)
  - b. For commercial non-standard pressure request forms,  
[https://www.nvenergy.com/publish/content/dam/nvenergy/brochures\\_arch/account-services/building-and-new-construction/need-gas-service/service-meter-info/Commercial-Non-Standard-Pressure-Request.pdf](https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/account-services/building-and-new-construction/need-gas-service/service-meter-info/Commercial-Non-Standard-Pressure-Request.pdf)
4. Gas meters that are considered non-standard or custom (larger than 2M).
5. Excessive service lengths (over 400 feet).

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0020G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3
JB	SB	SB	10/25/18	Page 2 of 17
GENERAL GUIDELINES				

After determining the customer load and appliance information, utilize the Gas Metering Diversification section below to determine actual customer loads for design.

Typical conversion factors are shown below:

<b>CFH or SCFH</b>	<b>MCFH</b>	<b>BTUH</b>	<b>MBH</b>	<b>MMBTU</b>	<b>THERM</b>
Cubic Feet per Hour or Std Cubic Feet per Hour	1,000 Cubic Feet per Hour	British Thermal Units per Hour	1,000 British Thermal Units per Hour	1,000,000 British Thermal Units per Hour	100,000 BTU's
1	.001	1,000	1	.001	.01
100	.1	100,000	100	.1	1
1,000	1	1,000,000	1,000	1	10

\*Assumed 1 cfh = 1000 BTU


**GAS METERING DIVERSIFICATION**

Load diversification is performed to ensure that main and/or service line sizing and metering capacity is not oversized for the application since the operation of all gas appliances, at maximum load, rarely occurs simultaneously. However, the meter capacity should never be less than the largest single load. The diversification factors and calculations below are for reference and may be adjusted based upon unique or special conditions that arise.

Residential Diversification

The following lists the factors for residential load diversification:

<b>APPLIANCE TYPE</b>	<b>FACTOR</b>
Furnace	1
Range/Oven	0.1
Tank Water Heater	0.5
Tankless Water Heater	1
Dryer	0.2
Fireplace	0.2
Pool/Spa Heater (year-round)	0.8
Pool/Spa Heater (summer only)	0.2
Standby Generator	0.8
Outdoor Grill/Fire pit	0.1
Driveway/Sidewalk Heating	0.8

	<b>VOLUME 15 – ENGINEERING &amp; CONSTRUCTION STANDARD</b>			<b>GM0020G</b>
	<b>SECTION 6: GAS METERING STANDARDS</b>			
<b>Drawn:</b> JB	<b>Eng:</b> SB	<b>Appr:</b> SB	<b>Date:</b> 10/25/18	<b>Revision: 3</b>
<b>GENERAL GUIDELINES</b>				Page 3 of 17

*Example Calculation:*

Identify the largest single undiversified load (tankless water heater) from the applicant, remove it from the diversification table. Multiply the remaining appliance quantity by the manufacturer appliance BTU’s/hr, then by the factor. Then sum the diversified load and add it to the largest single load for total diversified load.


APPLIANCE TYPE	QTY	UNDIVERSIFIED LOAD [BTU/hr]	FACTOR	DIVERSIFIED LOAD [BTU/hr]
Furnace	1	100,000	1	100,000
Range/Oven	1	60,000	0.1	6,000
Tankless Water Heater	1	140,000	1	Largest Load 140,000
Dryer	1	20,000	0.2	4,000
Fireplace	2	25,000	0.2	10,000
<b>Total</b>				<b>260,000 BTU/hr</b> <b>260 CFH</b>

Small Commercial Diversification

The following lists the factors for commercial load diversification, up to 2,600 CFH:

APPLIANCE TYPE	FACTOR
Furnace/Unit Heaters	1
Boilers	0.8
Range/Cooking Equipment (primary/secondary)*	0.8/0.2
Tank Water Heater	0.5
Tankless Water Heater	1
Dryer (primary/secondary)*	1/0.2
Fireplace	0.2
Pool/Spa Heater (year-round)	0.8
Pool/Spa Heater (summer only)	0.2
Standby Generator	0.8
Outdoor Grill/Fire pit	0.6
Other process using gas	varies

\* Primary is commercial operation using the gas for production or manufacturing purposes. Secondary is if the equipment is not primary to the commercial operation. For example, a restaurant uses ranges/cooking equipment as primary.

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0020G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3 Page 4 of 17
JB	SB	SB	10/25/18	
<b>GENERAL GUIDELINES</b>				

*Example Calculation:*

Identify the largest single undiversified load from the applicant (Range/Cooking Equipment), remove it from the diversification table. Multiply the remaining appliance quantity by the manufacturer appliance BTU’s/hr, then by the factor. Then sum the diversified load and add it to the largest single load for total diversified load.

APPLIANCE TYPE	QTY	UNDIVERSIFIED LOAD [BTU/hr]	FACTOR	DIVERSIFIED LOAD [BTU/hr]
Furnace/Unit Heaters	2	150,000	1	300,000
Range/Cooking Equipment (Restaurant-primary)	3	120,000	0.8	Largest Load 360,000
Dryer (secondary)	1	25,000	0.2	5,000
Outdoor Grill/Fire pit	2	30,000	0.6	36,000
<b>Total</b>				<b>701,000</b>
				<b>701 CFH</b>

Large Commercial Diversification

Commercial loads that exceed 2,600 CFH are considered non-standard and require evaluation on a case-by-case basis. The factors above may be used as a reference only.

Large commercial meters (rotary or turbine) shall be designed to account for minimum and maximum expected load. If the minimum load is 5% or less of the maximum meter load, the designer will supply two meters to accurately account for gas usage.

LOCATION REQUIREMENTS

NV Energy's Utility Design Administrator shall select a gas meter location that is in accordance with these standards to ensure safety, uniformity, and accessibility. The gas meter shall be located on the building to be served and shall be placed either on the sides or the front of the building from the street that the building faces.


A meter placed on the side of a building shall be placed within the first six (6) feet. A meter may be placed on the front of a building if requested by the applicant. For typical gas meter locations refer to Drawing # GM0020G of this section.

Any request for a meter location in a non-standard location must receive prior approval from Gas Engineering and the Gas Service Center.


In applying dimensions as specified below, they shall be considered to be the distance from the meter assembly regulator vent.

The meter set assembly shall:


1. Be installed on the building it serves.
2. Be installed in a well-ventilated and readily accessible location.

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0020G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3
JB	SB	SB	10/25/18	Page 5 of 17
<b>GENERAL GUIDELINES</b>				

3. Be installed to ensure free access from the street. Fences shall not block free access to the assembly.
4. Have the house line installed by the applicant prior to the meter being set. The house line should be stubbed out four (4) inches from the wall and shall have a ninety (90) degree black iron elbow (consider malleable iron fitting) with inside iron pipe size threads for house lines of two (2) inch and smaller. Larger size house lines shall have welded elbows.
5. Have a minimum obstacle clearance of one (1) foot on each side and three (3) feet directly in front of the assembly. Shrubs, bushes, trees, etc., shall not be planted where they will interfere with access to the assembly.
6. Have a minimum of three (3) foot radial distance from the regulator vent to any opening into a building, such as opening windows and doors, foundation vents, crawl spaces, etc., located within the first floor of a building. Non-opening fixed windows are exempt from this requirement. See figure below for specific clearance requirements.
7. Have a minimum of three (3) foot radial distance from any electric meter or sub panel.
8. Have a minimum of three (3) foot radial distance from any source of ignition such as air intakes for sealed combustion chamber-type applications, gas appliances vents, fireplaces, electric motors or switches, etc., located within the first floor of a building.
9. Have a minimum of five (5) feet radial distance from any mechanical draft air inlet systems such as evaporative coolers, fresh air make-up systems, etc.
10. Have no mechanical fittings or controls such as water faucets, sewer clean-outs, automatic sprinkler systems controls, etc., located behind or under the assembly.
11. Not be located under stairways, fire exits, or inside any engine, boiler, heater, or electrical equipment room.
12. Be protected by the applicant with steel guard posts when the assembly is located in an area subject to vehicular traffic. Refer to gas meter guard post detail #GM0040G for post installation specifications.
13. Have a fence or other suitable protective enclosure around the assembly for larger meter sets when required by NVE. The applicant shall provide the fence or enclosure. NVE will provide a lock and lock box for the enclosure.
14. Not encroach on city or county alley right-of-way. If installed in an alley, the assembly shall be recessed into the building. See item #18.
15. Have no surfacing material such as concrete, asphalt, brick etc., within a two (2) inch radial distance of the gas service riser.
16. Not become a hazard to pedestrian traffic. It is the customer’s responsibility to ensure gas meter locations do not become an obstacle.

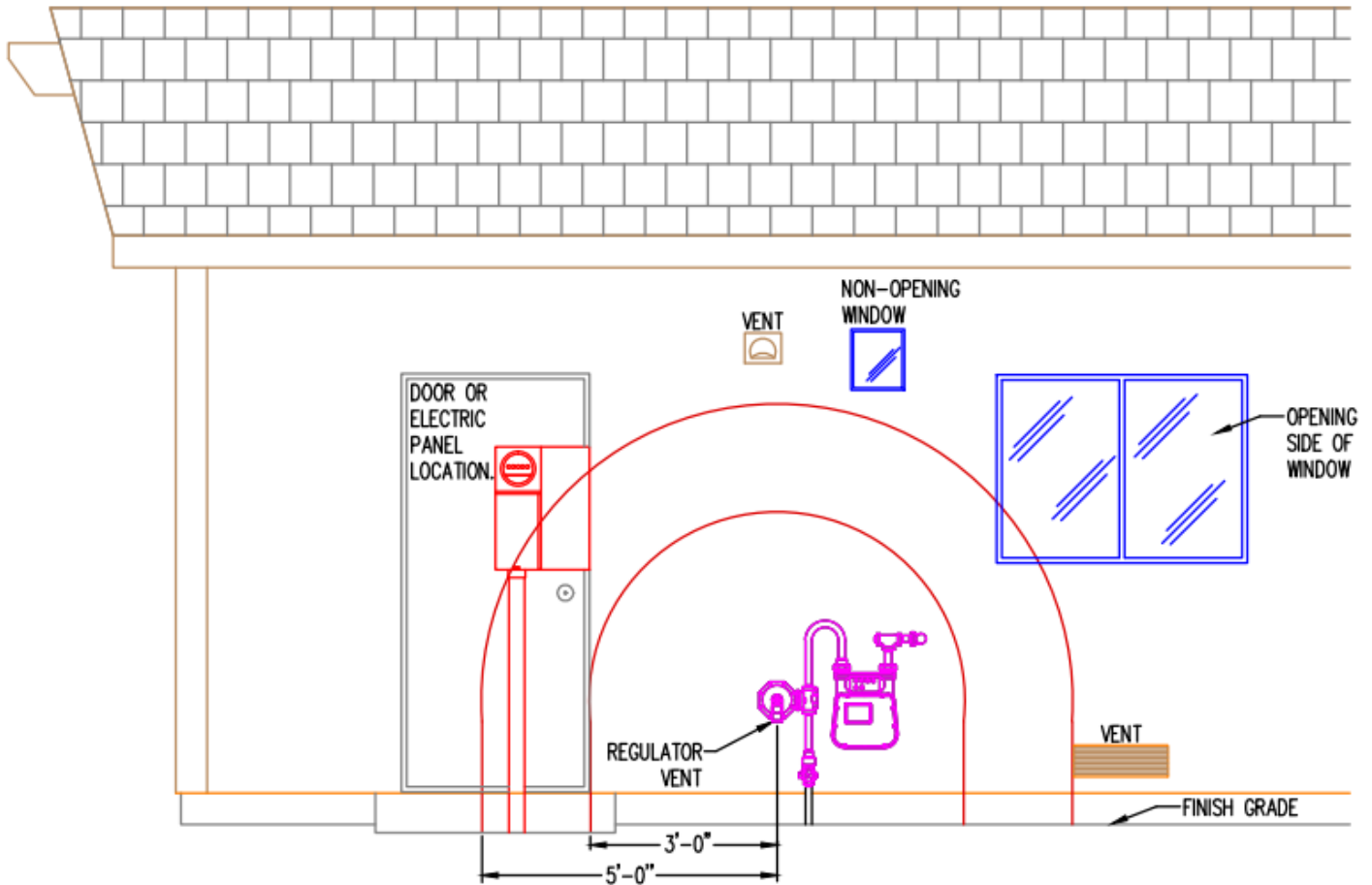
				VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD		GM0020G
				SECTION 6: GAS METERING STANDARDS		
Drawn:	Eng:	Appr:	Date:	GENERAL GUIDELINES		Revision: 3
JB	SB	SB	10/25/18			Page 6 of 17

- 17. Have all house lines on a manifold meter assembly identified by the applicant with stamped metal tags showing the address for each house line as they appear on the building.
- 18. Meet the following requirements for a recessed assembly:
  - A. The riser or assembly cannot be installed within the walls or basement of a building.
  - B. Applicant shall provide a six (6) inch open channel for the service riser installation.
  - C. The recess shall have a floor at a minimum of one (1) foot above finish grade.
  - D. Recess doors shall be fully louvered and hinged with hasp and snap provided by the applicant. NV Energy will provide a lock and lock box if doors are to be locked.
  - E. Obstructions such as dumpsters, recycling bins, etc., shall not block recessed meter set assemblies, and meter set assemblies shall be protected from these types of hazards.


				<p>VOLUME 15 – ENGINEERING &amp; CONSTRUCTION STANDARD</p>		<p><b>GM0020G</b></p>
				<p><b>SECTION 6: GAS METERING STANDARDS</b></p>		
<p>Drawn:</p>	<p>Eng:</p>	<p>Appr:</p>	<p>Date:</p>	<p><b>GENERAL GUIDELINES</b></p>		<p>Revision: 3</p>
<p>JB</p>	<p>SB</p>	<p>SB</p>	<p>10/25/18</p>			<p>Page 7 of 17</p>



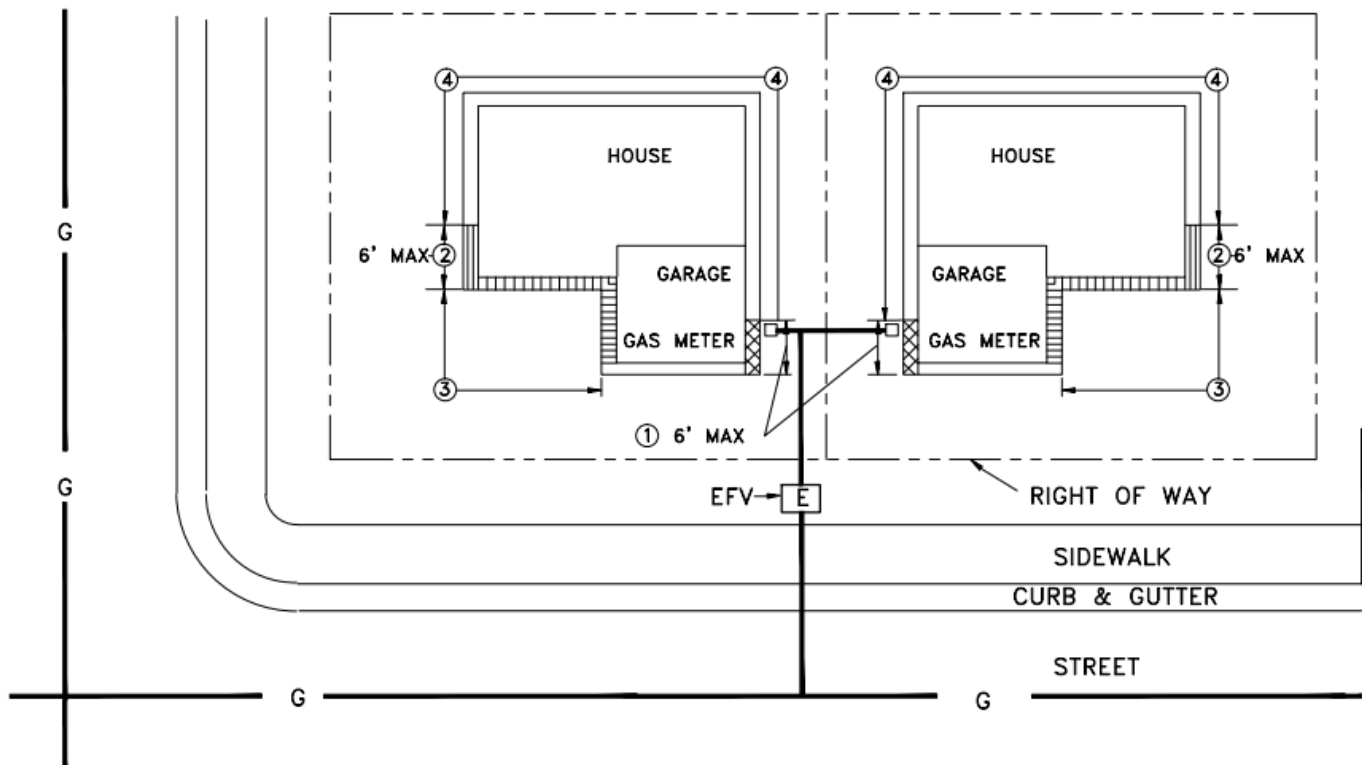
**ACCEPTABLE METER CLEARANCES**



THE REGULATOR VENT SHALL HAVE A MINIMUM CLEARANCE ZONE OF THREE (3) FEET FROM ANY OPENING INTO A BUILDING SUCH AS OPENING WINDOWS, DOORS, FOUNDATION VENTS, CRAWL SPACES, ELECTRIC PANELS, ELECTRIC OUTLETS, PHONE AND CATV CONDUITS, ETC, AND HAVE A MINIMUM CLEARANCE ZONE OF FIVE (5) FEET FROM POWERED AIR INTAKES (AC UNITS, SWAMP COOLERS, MAKE UP AIR VENTS, ETC.)

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0020G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3 Page 8 of 17
JB	SB	SB	10/25/18	
<b>GENERAL GUIDELINES</b>				


**RESIDENTIAL SERVICE METER LOCATIONS**



**NOTES:**

- A) GAS METER LOCATION:  
 AREA ① – PREFERRED GAS METER LOCATION  
 AREA ② – LOCATION IF SERVICE STUB DICTATES SUCH  
 AREA ③ – ACCEPTABLE LOCATION IF REQUESTED BY APPLICANT OR SERVICE STUB DICTATES SUCH  
 AREA ④ – UNSUITABLE GAS METER LOCATION
- B) REFER TO "LOCATION REQUIREMENTS" FOR GENERAL REQUIREMENTS
- C) ANY REQUEST FOR A METER LOCATION IN A NON-STANDARD LOCATION MUST RECEIVE PRIOR APPROVAL FROM GAS ENGINEERING AND THE GAS SERVICE CENTER
- D) WHERE GAS SERVICE STUBS EXIST, ALL EFFORTS SHALL BE MADE TO UTILIZE SUCH STUBS. CONTACT OPERATIONS TO VERIFY STUB LOCATIONS. IN NO CASE WILL SERVICES RUN COMPLETELY ACROSS THE FRONT OF A BUILDING.

For branch services where homes are staggered, the Utility Design Administrator should run the gas service 30" off property line on the property to the left side (ref. TE0020U, Section 3). In cases where this cannot or has not happened, the extension of the service line to the second home should cross the property line at 90 degrees, turn and run 30" off property line on the property of the longer run.

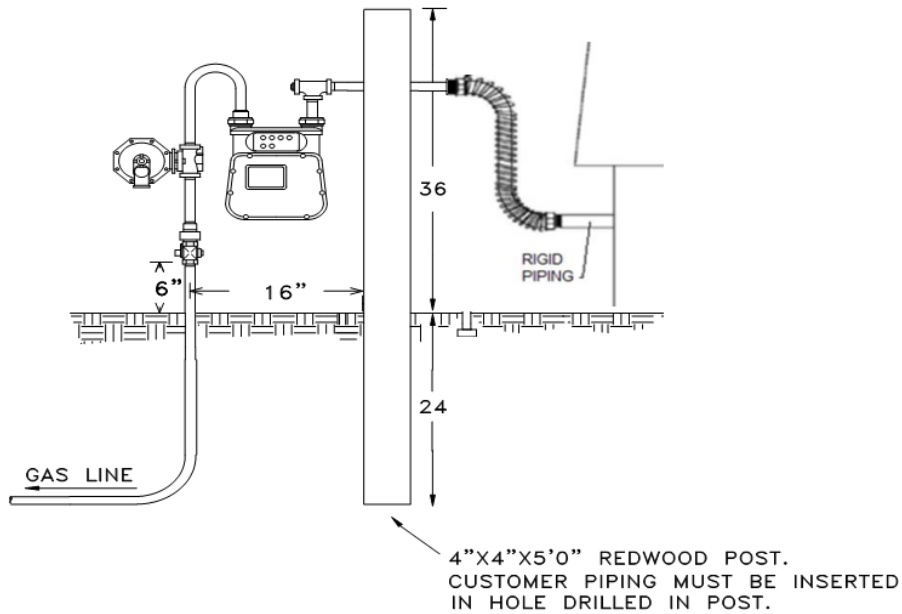
	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0020G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3 Page 9 of 17
JB	SB	SB	10/25/18	
<b>GENERAL GUIDELINES</b>				

**COMMERCIAL SERVICE METER LOCATIONS**

Commercial gas meter locations must be coordinated through one of NV Energy's Utility Administrator and must comply with the General Guidelines of this section. When customers request a gas meter location behind a building that location will be limited to the fact that NV Energy's service line will run around one corner of a building only, and the length of that service line shall be minimized. Commercial gas service lines that parallel to a building must maintain a minimum five (5) foot clearance from the structure.

**MOBILE AND MANUFACTURED HOME METER LOCATIONS**

Mobile and manufactured homes shall follow the same requirements of this standard. The addition of a meter post, as shown below, will be the responsibility of the customer. Deviation from this design will require approval from Gas Engineering and Gas Service. Consideration shall be taken to reduce the length of the customer flex line.



	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD	GM0020G										
	SECTION 6: GAS METERING STANDARDS											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Drawn:</td> <td style="width: 25%;">Eng:</td> <td style="width: 25%;">Appr:</td> <td style="width: 25%;">Date:</td> </tr> <tr> <td>JB</td> <td>SB</td> <td>SB</td> <td>10/25/18</td> </tr> </table>	Drawn:	Eng:	Appr:	Date:	JB	SB	SB	10/25/18	GENERAL GUIDELINES	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Revision: 3</td> </tr> <tr> <td style="text-align: center;">Page 10 of 17</td> </tr> </table>	Revision: 3	Page 10 of 17
Drawn:	Eng:	Appr:	Date:									
JB	SB	SB	10/25/18									
Revision: 3												
Page 10 of 17												

## GAS SERVICE AND METER DESIGN

**GENERAL**


The following general guidelines must be followed when designing services and metering configurations:

- Preference for standard main and service line locations for locating, maintenance, and damage prevention.
- No creation of primary customer owned yard lines (COYL) absent justifying circumstances. Justifying circumstances include but are not limited to, unique field conditions, property rights, security/access issues, and large residential, commercial, or industrial customers where installation of a primary COYL is required to initiate service. Justifying circumstances do not include instances of customer convenience, cost avoidance, or to avoid current Utility installation standards.
- Minimize the amount of installed underground facilities.

**EXCESS FLOW VALVES (EFV)**

If services meet the criteria below, excess flow valves (EFVs) will be installed on all new services. Excess flow valves, up to 2,600 SCFH, are also known as combination valves or combo valves, where the EFV doubles as a curb stop valve. To qualify for an EFV, the service must meet ALL of the following criteria:

- The service line is on a system that has an operating pressure of 10 psig or greater throughout the year.
- Is a permanent service line and meets one of the following criteria:
  - A single service line to one single family residence (SFR);
  - A branched service line to two SFRs installed concurrently with the primary SFR service line (i.e., a single EFV may be installed to protect both service lines);
  - A new branch service line installed off a previously installed SFR service line that does not contain an EFV;
  - Single family and multifamily residences with known customer loads not exceeding the largest approved EFV in the NV Energy catalog, at time of service installation based on installed meter capacity;
  - A single, small commercial customer served by a single service line with a known customer load not exceeding the largest approved EFV in the NV Energy catalog, at the time of meter installation, based on installed meter capacity.

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0035G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3
JB	SB	SB	10/25/18	Page 11 of 17
<b>GAS SERVICE AND METER DESIGN</b>				

Service lines are designed to have excess flow valves (EFV) installed, wherever possible.

EXCESS FLOW VALVE	CAPACITY (scfh)	STOCK NUMBER
1/2" Combo Valve	800	43-1991
3/4" Combo Valve	800	43-2001
1" Combo Valve	1800	43-2011
1-1/4" Combo Valve	2600	43-2021

- Multiple meter manifolds will be utilized when conditions allow, but will not be used when the capacity of the services exceed EFV ratings.
- Appropriately sized EFVs may be installed on existing service lines of a different size. For example, a 1" EFV, rated at 1,800 scfh may be installed on an existing 3/4" service line so long as the existing service line's total length will allow sufficient flow to trigger the EFV.

### **METER, MAIN, AND SERVICE LINE SIZING**

Gas Engineering will design and size gas mains using a computational flow model for existing and future gas needs. Utility Design Administrators will size services considering the following factors:


1. Branched service versus single service.
2. Single meter versus multi-meter manifold.
3. Diversified load for each service.
4. EFV requirements.

The Utility Design Administrator shall use the following steps to size a **Single Meter** gas service:

1. Diversify load per GM0020G.
2. Select meter based on diversified load and Table 1 below.
3. Service, riser, and EFV size is shown for each corresponding meter in Table 1.
4. Verify the undiversified load does not exceed the EFV rating.

The Utility Design Administrator shall use the following steps to size a **Multi-meter Manifold** gas service:

1. Diversity Load, for each service, per GM0020G.
2. Select each meter based on diversified load and Table 1 below.
3. If all meters are the same for the multi-meter manifold, use Table 2, Table 3, Table 4 or Table 5.
4. Service, riser, and EFV size is shown for each corresponding meter combination in Table 2, Table 3, Table 4 or Table 5.
5. Verify the total undiversified load for all meters does not exceed the EFV rating.

				VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD		GM0035G
				SECTION 6: GAS METERING STANDARDS		
Drawn:	Eng:	Appr:	Date:	GAS SERVICE AND METER DESIGN		Revision: 3
JB	SB	SB	10/25/18			Page 12 of 17

Contact Gas Engineering if the following conditions exist:

1. Multi-meter manifold that requires different sized meters (e.g. one AL-425 and one AC-630).
2. Undiversified load exceeds the EFV rating.
3. The Compatible Unit states “Custom”.
4. Customer requests non-standard delivery pressure for any meter in a manifold.

**GAS METER SELECTION TABLE**

Using the total diversification load calculated, select the appropriate meter size(s) for the application:


*Table 1: Single Gas Meter Table*

Single Riser/Service Gas Meter Selection Table									
Model	250/275	AL425	AC630	AL1000	2M	3M	5M	7M	11M
CU Listing	GGMI-AAA	GGMI-BAB	GGMI-CAB	GGMI-FAC	GGMI-GAC	GGMI-HAC	GGMI-JAD	GGMI-LAD	GGMI-MAD
Riser/Service Size (in.)	3/4"	1"	1"	1-1/4"	1-1/4"	1-1/4"	2"	2"	2"
EFV Size (SCFH)	800	1800	1800	2600	2600	N/A	N/A	N/A	N/A
Metering Pressure (PSIG)	Maximum Load (SCFH)								
	Max*	Max*	Max*	Max*	Max	Max	Max	Max	Max
0.25 (7" w.c.)	300	510	780	1,210	1,720	2,590	4,310	6,040	9,480
1	320	540	820	1,280	1,830	2,740	4,570	6,390	10,040
2	340	580	880	1,370	1,960	2,940	4,900	6,870	10,790
3	370	620	940	1,470	2,100	3,150	5,240	7,340	11,540
5	410	700	1,070	1,660	2,370	3,550	5,920	8,290	13,030

\*(Diaphragm Meters Only) Maximum Load is the maximum flow rate that the meter should be operated at on a frequent or continuous basis and assumes a 1" W.C. drop through the meter. Infrequent loads up to 40% above the maximum load are permitted, but should not be continuous.

*Table 2: 250 CFH Multi-meter Manifold*

Configuration	Compatible Unit	Riser/Service Size [in.]	EFV Size [SCFH]
1 Meter (Branch Service)	GGMI-AAA	3/4"	800
2 Meter	GGMI-ABA	3/4"	800
3 Meter	GGMI-ACB	1"	1,800
4 Meter	GGMI-ADB	1"	1,800
4 Meter Stacked	GGMI-AEB	1"	1,800
5 Meter	GGMI-AFB	1"	1,800
6 Meter	GGMI-AGC	1-1/4"	2,600
6 Meter Stacked	GGMI-AHC	1-1/4"	2,600
7 Meter	GGMI-AIC	1-1/4"	2,600
8 Meter	GGMI-AJC	1-1/4"	+
8 Meter Stacked	GGMI-AKC	1-1/4"	+

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0035G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3 Page 13 of 17
JB	SB	SB	10/25/18	
<b>GAS SERVICE AND METER DESIGN</b>				

10 Meter Stacked	GGMI-ALC	1-1/4"	+
12 Meter Stacked	GGMI-AMC	1-1/4"	+
14 Meter Stacked	GGMI-ANC	1-1/4"	+
16 Meter Stacked	GGMI-AOC	1-1/4"	+
(+) EFV not Available			

**Table 3: 425CFH Multi-Meter Manifold**

Configuration	Compatible Unit	Riser/Service Size [in.]	EFV Size [SCFH]
2 Meter	Custom	1"	1,800
3 Meter	Custom	1-1/4"	2,600
4 Meter	Custom	1-1/4"	2,600
4 Meter Stacked	Custom	1-1/4"	2,600


**Table 4: 630 CFH Multi-Meter Manifold**

Configuration	Compatible Unit	Riser/Service Size [in.]	EFV Size [SCFH]
2 Meter	Custom	1"	1,800
3 Meter	Custom	1-1/4"	2,600

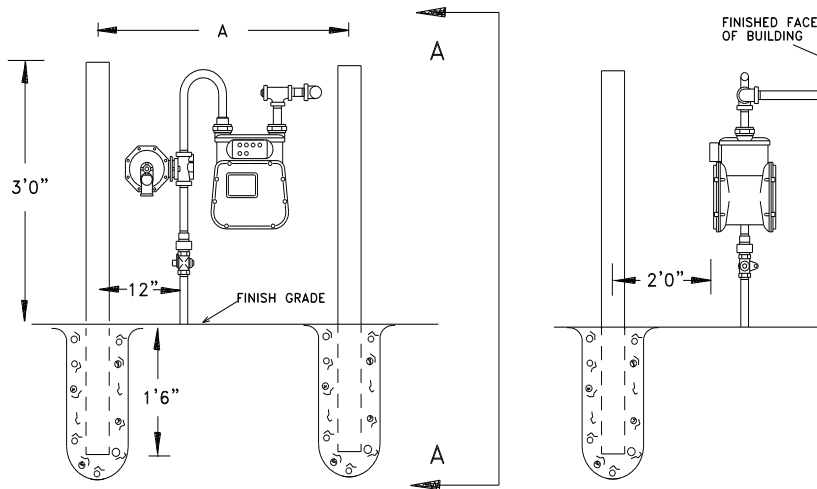
**Table 5: 1000 CFH Multi-Meter Manifold**

Configuration	Compatible Unit	Riser/Service Size [in.]	EFV Size [SCFH]
2 Meter	Custom	1-1/4"	2600

Services that require a meter set larger than 2M are considered non-standard and their application will be subject to approval by Gas Engineering and Gas Service. Services that require a meter set larger than 11M and/or have a delivery pressure greater than 5 psig are considered custom and the design will be provided by Gas Engineering.

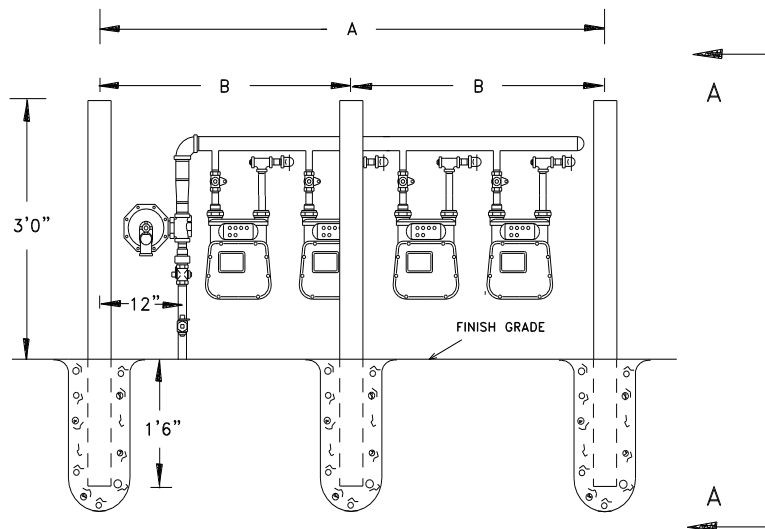
	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0035G
	SECTION 6: GAS METERING STANDARDS			
Drawn:	Eng:	Appr:	Date:	Revision: 3 Page 14 of 17
JB	SB	SB	10/25/18	
<b>GAS SERVICE AND METER DESIGN</b>				

# GAS METER GUARD POST DETAIL



FRONT VIEW


SECTION A-A



FRONT VIEW

NOTES:


- 1) IF METER SET IS LOCATED IN AN AREA SUBJECT TO VEHICULAR TRAFFIC GUARD POSTS MUST BE INSTALLED PER THIS STANDARD.
- 2) IF METER SET IS NOT ADJACENT TO A BUILDING FACE, POSTS BE SET ON BOTH SIDES OF THE METER.
- 3) POSTS TO BE 4" STD STEEL SCH 20 OR HEAVIER STEEL PIPE.
- 4) PIPE POSTS TO BE FILLED WITH CONCRETE. BASE TO BE POURED AS SHOWN.
- 5) POSTS TO BE PRIMER COATED AND THEN PAINTED YELLOW.
- 6) POSTS SHALL NOT BE PLACED AT GREATER THAN 4'0" CENTERS.

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0040G
	SECTION 6: GAS METERING GUIDELINES			
Drawn:	Eng:	Appr:	Date:	Revision: 3 Page 15 of 17
JB	SB	SB	10/25/18	
GAS METER GUARD POST DETAIL				



**RESIDENTIAL METERING - 250 CFH METERS  
BOLLARD DIMENSIONS**

COMPATIBLE UNIT	# OF METERS	DIMENSIONS		# OF POSTS
		A	B	
GGMI-AAA	1	3' 0"		2
GGMI-ABA	2	4' 0"		2
GGMI-ACB	3	5' 0"	2' 6"	3
GGMI-ADB	4	6' 0"	3' 0"	3
GGMI-AEB	4 STACKED	4' 0"		2
GGMI-AFB	5	7' 0"	3' 6"	3
GGMI-AGC	6	8' 0"	4' 0"	3
GGMI-AHC	6 STACKED	5' 0"	2' 6"	3
GGMI-AIC	7	9' 0"	3'	4
GGMI-AJC	8	10' 0"	3' 4"	4
GGMI-AKC	8 STACKED	6' 0"	3'	3
GGMI-ALC	10	7' 0"	3' 6"	3
GGMI-AMC	12	8' 0"	4' 0"	3
GGMI-ANC	14	9' 0"	3'	4
GGMI-AOC	16	10' 0"	3' 4"	4

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0040G
	SECTION 6: GAS METERING GUIDELINES			
Drawn:	Eng:	Appr:	Date:	Revision: 3
JB	SB	SB	10/25/18	Page 16 of 17
<b>GAS METER GUARD POST DETAIL</b>				

**COMMERCIAL METERING - REGULATED UPSTREAM OF METER  
BOLLARD DIMENSIONS**

COMPATIBLE UNIT	METER SIZE	# OF METERS	DIMENSIONS		# OF POSTS
			A	B	
GGMI-BAB	425 CFH	1 METER	3' 10"		2
CUSTOM	425 CFH	2 METER	6' 8"	3' 4"	3
CUSTOM	425 CFH	3 METER	9' 6"	3' 2"	4
CUSTOM	425 CFH	4 METER	12' 4"	4' 1"	4
CUSTOM	425 CFH	4 METER STACKED	6' 8"	3' 4"	3
GGMI-CAB	630 CFH	1 METER	3' 10"		2
CUSTOM	630 CFH	2 METER	6' 8"	3' 4"	3
CUSTOM	630 CFH	3 METER	9' 6"	3' 2"	4
GGMI-FAC	1000 CFH	1 METER	4' 2"		2
CUSTOM	1000 CFH	2 METER	7' 4"	3' 8"	3
GGMI-GAC	2 M	1 METER	5' 4"		2
GGMI-HAC	3 M	1 METER	5' 4"		2
GGMI-JAD	5 M	1 METER	6'	3'	3
GGMI-LAD	7 M	1 METER	6'	3'	3
GGMI-MAD	11 M	1 METER	7'	3' 6"	3

	VOLUME 15 – ENGINEERING & CONSTRUCTION STANDARD			GM0040G
	SECTION 6: GAS METERING GUIDELINES			
Drawn:	Eng:	Appr:	Date:	Revision: 3
JB	SB	SB	10/25/18	Page 17 of 17
<b>GAS METER GUARD POST DETAIL</b>				