



## **VOLUME 15**

# **Section 6: Gas Metering Guidelines**

# SECTION 6 GAS METERING GUIDELINES

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## GENERAL GUIDELINES

- PURPOSE:** To ensure placement of gas meters in safe, uniform, and accessible locations.
- POLICY:** Gas meter assemblies and locations shall meet all the requirements of this Section 6, and the requirements of Section 5, (meter set drawings GMI).
- PROCEDURE:** NVE's Utility Design Coordinator shall select a gas meter location that is acceptable to the applicant while ensuring 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 ten (10) 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 Customer Service Engineering, Gas Operations, and the Service Center.

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


### LOCATION REQUIREMENTS

The meter set assembly shall:


1. Be installed on the building it serves.
2. Be installed in a well-ventilated and readily accessible location.
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 with inside iron pipe size threads for house lines of two (2) inch and smaller. Larger size house lines shall have welded elbows.

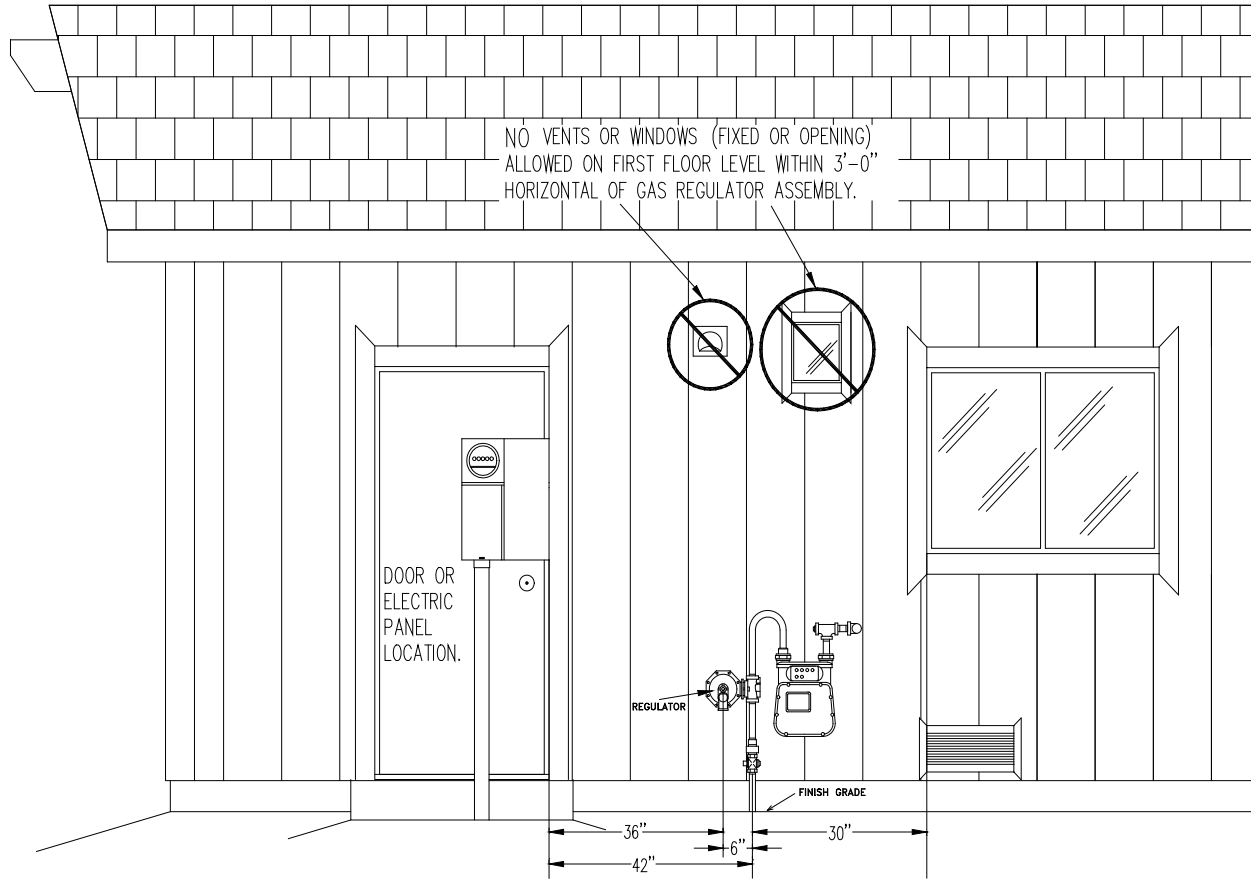
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5. Have a minimum obstacle clearance of one (1) foot on each side and three (3) feet directly in front of the assembly. Shrubs, bushes, trees, etc., shall not be planted where they will interfere with access to the assembly.
6. Have a minimum of three (3) feet horizontal distance from the regulator vent to any opening into a building, such as opening, doors, foundation vents, crawl spaces, etc., located within the first floor of a building. See sheet 5 of 21 for specific clearance requirements.
7. Have a minimum of three (3) feet horizontal distance from any electric meter panel.
8. Have a minimum of three (3) feet horizontal 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 Drawing #GM0040G of this Section 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 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.

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15. Have no surfacing material such as concrete, asphalt, brick etc., within a two (2) inch radial distance of the gas service riser.
16. It is the customer's responsibility to prevent the meter set from becoming a hazard to pedestrian traffic.
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 rise 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. NVEnergy will provide a lock box if doors are to be locked.
  - E. Obstructions such as dumpsters, recycling bins, etc., shall not block recessed meter set assemblies.


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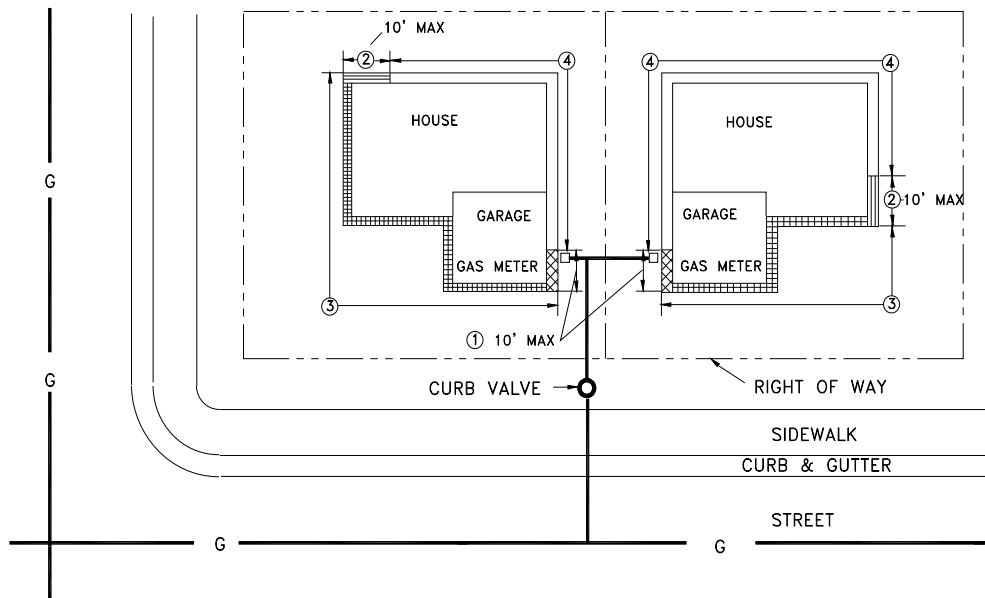
IN APPLYING DIMENSIONS AS SPECIFIED, THE REGULATOR VENT SHALL BE 36" FROM ANY OPENING INTO A BUILDING.

HAVE A MINIMUM OF (3) THREE FEET HORIZONTAL DISTANCE FROM ANY OPENING INTO A BUILDING SUCH AS OPENING AND NON-OPENING WINDOWS, DOORS, FOUNDATION VENTS, CRAWL SPACES, ELECTRIC PANELS, ELECTRIC OUTLETS, PHONE AND CATV CONDUITS, ETC., LOCATED WITHIN THE FIRST FLOOR OF A BUILDING.

REFER TO SPPCO. VOLUME 15 STANDARDS GM0010G FOR FURTHER CLARIFICATION OF GUIDELINES.

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# RESIDENTIAL




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  
 AREA ④ - UNSUITABLE GAS METER LOCATION
- B) REFER TO GM0010G FOR GENERAL GUIDELINES
- C) ANY REQUEST FOR A METER LOCATION IN A NON-STANDARD LOCATION MUST RECEIVE PRIOR APPROVAL FROM CUSTOMER SERVICE ENGINEERING, GAS OPERATIONS, AND THE 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 Designer should run the gas service 30" off property line on the property of the long run and then branch where needed. In cases where this cannot or has not happened and the service has been run in on the shorter side, 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 long run.

# COMMERCIAL

Commercial gas meter locations must be coordinated through one of NVE's Utility Designers 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 NVE's service line will be run around one corner of a building only, and the length of that service line shall be minimized. Commercial gas service lines that parallel a building must maintain a minimum five foot clearance from the structure.

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GAS METER LOCATIONS				

## METER CAPACITIES (CFH) REGULATOR UPSTREAM OF METER

**Meter Selection Table**

Model	AC250	AL425	AC630	AL1000	2M	3M	5M	7M	11M
CU#	GMI01G-15G	GMI17G	GMI19G	GMI25G	GMI28G	GMI29G	GMI33G	GMI34G	GMI36G
Metering Pressure (PSIG)	Maximum Load (SCFH)								
0.25 (7" w.c.)	Max*	Max*	Max*	Max*	Max	Max	Max	Max	Max
0.25 (7" w.c.)	302	513	776	1,207	1,724	2,587	4,311	6,035	9,484
1	320	543	822	1,278	1,826	2,739	4,566	6,392	10,044
2	343	584	883	1,373	1,962	2,943	4,905	6,867	10,791
3	367	624	944	1,468	2,098	3,147	5,244	7,342	11,538
5	415	705	1,066	1,659	2,369	3,554	5,923	8,293	13,031

Non-standard pressure request form must be completed and approved for any gas meter installations requiring pressure greater than 7" w.c. Any flow range requested outside of the table above requires assistance by gas engineering.

\*(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. Consider the diversity of the connected load when sizing meters. The total load of those appliances that might be expected to frequently operate at the same time should not exceed the maximum continuous capacity of the meter. Infrequent loads up to 40% above the maximum continuous capacity are permitted. Normally, the total connected load should not exceed the maximum continuous capacity by more than 40%.

Updated 11/2015

\*\* GAS DESIGN ENGINEERS AND/OR SERVICE CENTER SUPERVISORY PERSONNEL SHOULD USE THE ABOVE CHART TO SELECT AN APPROPRIATE METER WHEN POUNDS PRESSURE HAVE BEEN REQUESTED AND APPROVED.


## METER CAPACITIES (MCFH) REGULATOR DOWNSTREAM OF METER

\*\* METER SELECTION FOR PRESSURE REGULATION DOWNSTREAM OF THE METER SHALL BE PERFORMED BY A GAS DESIGN ENGINEER, SERVICE CENTER SUPERVISORY PERSONNEL, OR THE GAS METER SHOP.

TURBINE METERS (4GT, 6GT, & 8GT) ARE DESIGNED FOR CUSTOMERS REQUIRING A CONSTANT HEAVY LOAD. CONSULT GAS METER SHOP.

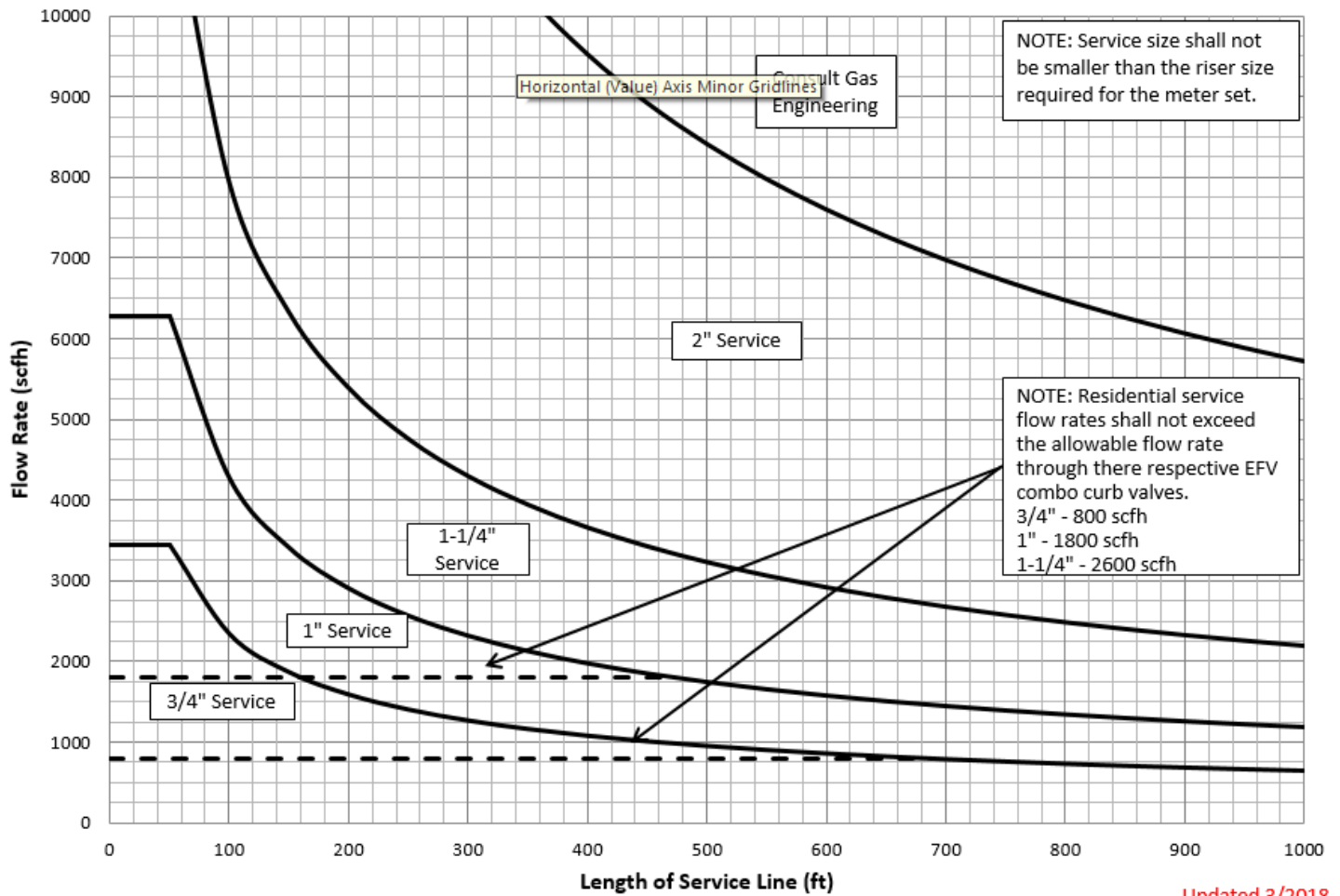
MCFH = THOUSANDS OF CUBIC FEET PER HOUR

PSIG = POUNDS PER SQUARE INCH GAUGE

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<b>GAS SERVICE CAPACITY TABLE</b>				



## GAS SERVICE CAPACITY Service Size Selection Chart



Updated 3/2018

CAPACITY DETERMINED BY THE MUELLER FLOW EQUATION FOR SMOOTH WALL PIPE AT PRESSURES GREATER THAN 1 PSIG. SET MINIMUM 5 PSIG OPERATING PRESSURE AT THE REGULATOR, ALLOW A MAXIMUM PRESSURE DROP IN THE SERVICE LINE OF 2 PSIG, AND SET THE SERVICE LENGTH AT 150'.

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$$Q_h = \frac{2826}{G^{0.425}} \left[ \frac{P_1^2 - P_2^2}{l} \right]^{0.575} \times d^{2.725}$$

$Q_h$  = GAS FLOW RATE (STD. CU. FT. PER HOUR)


$G$  = SPECIFIC GRAVITY OF GAS (AIR=1.0, NAT GAS=0.585)

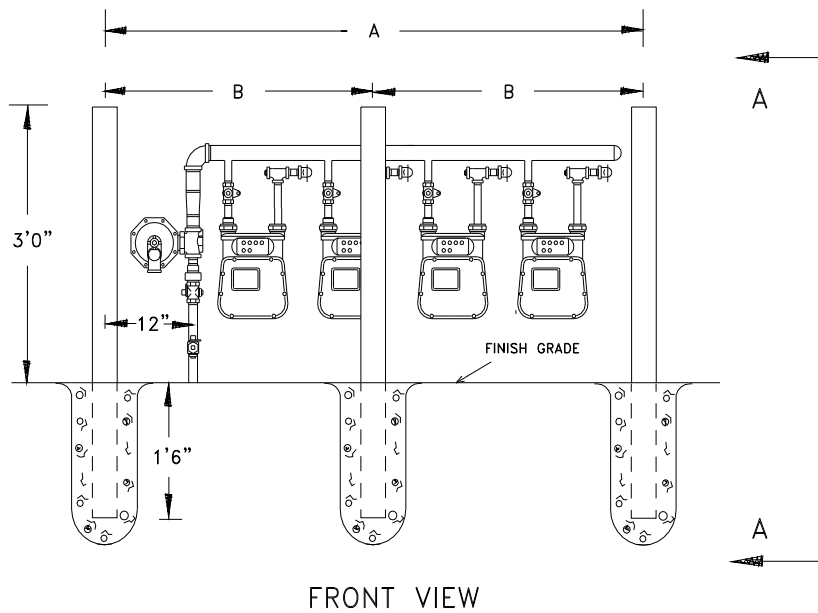
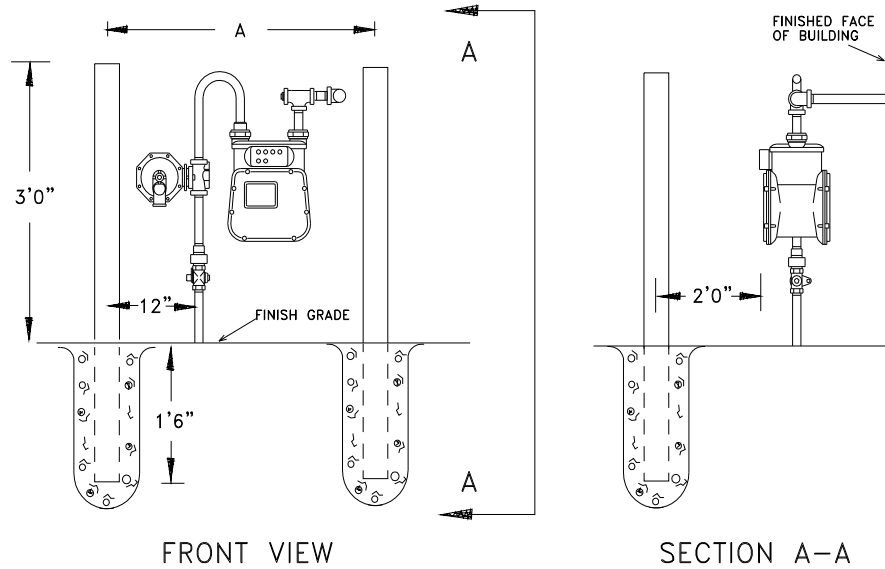
$P_1$  = INLET PRESSURE (PSIA)

$P_2$  = OUTLET PRESSURE (PSIA)

$l$  = LENGTH OF PIPE (FEET)

$d$  = PIPE INTERNAL DIAMETER (INCHES)

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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.

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<b>GAS METER GUARD POST DETAIL</b>				

**RESIDENTIAL METERING - 250 CFH METERS**

COMPATIBLE UNIT NUMBER	# OF METERS	DIMENSION		# OF POSTS
		A	B	
GMI01G	1	3' 0"		2
GMI02G	2	4' 0"		2
GMI03G	3	5' 0"	2' 6"	3
GMI04G	4	6' 0"	3' 0"	3
GMI05G	4 STACKED	4' 0"		2
GMI06G	5	7' 0"	3' 6"	3
GMI07G	6	8' 0"	4' 0"	3
GMI08G	6 STACKED	5' 0"	2' 6"	3
GMI09G	7	9' 0"	3' 0"	4
GMI10G	8	10' 0"	3' 4"	4
GMI11G	8 STACKED	6' 0"	3' 0"	3
GMI12G	10 STACKED	7' 0"	3' 6"	3
GMI13G	12 STACKED	8' 0"	4' 0"	3
GMI14G	14 STACKED	9' 0"	3' 0"	4
GMI15G	16 STACKED	10' 0"	3' 4"	4

**COMMERCIAL METERING - REGULATED UPSTREAM OF METER**

COMPATIBLE UNIT NUMBER	METER SIZE	DIMENSION		# OF POSTS
		A	B	
GMI17G	425 CFH	3' 6"		2
GMI19G	630 CFH	3' 6"		2
GMI21G	8 C	3' 0"		2
GMI23G	1.5 M	3' 6"		2
GMI25G	1000 CFH	3' 6"		2
GMI27G	1400 CFH	5' 0"	2' 6"	3
GMI29G	3 M	4' 0"		2
GMI31G	2300 CFH	7' 0"	3' 6"	3
GMI33G	5 M	7' 0"	3' 6"	3
GMI35G	5000 CFH	7' 6"	3' 9"	3

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<b>GAS METER GUARD POST DETAIL</b>				

## MOBILE HOME SERVICE REQUIREMENTS ELECTRIC & GAS

### 1.0 INDEX


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- 2.0 Purpose
- 3.0 General
- 4.0 Reference Material
- 5.0 Typical Underground Utility Layout
- 6.0 Meter Pad Details
- 7.0 General Installation Procedures
- 8.0 Meter Pedestal Specifications

### 2.0 PURPOSE


The purpose of this standard is to outline methods of providing underground utility service to mobile homes within the service territory of NVEnergy (NVE).

### 3.0 GENERAL

- 3.1 In the application of this standard, a mobile home development shall be considered either a mobile home subdivision or mobile home park.
  - A. A mobile home subdivision consists of lots for private ownership, where the lot is owned by an individual.
  - B. A mobile home park consists of spaces for rent, where the mobile home owner rents space for his mobile home.
- 3.2 The developer is responsible for the overall design and installation coordination of the various underground facilities of his project.
- 3.3 The developer shall be responsible to contact NVE during the design phase of his project to ensure compliance with this standard.
- 3.4 The developer must follow local codes and ordinances for requirements applicable to customer facilities from the meter pedestal to the distribution panel board within the mobile home.
- 3.5 Main and service layout of electric and other utilities shown in this standard are to illustrate overall design and installation coordination requirements.
- 3.6 The developer is responsible to establish finish grade on property prior to start of construction of NVE's facilities.

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- 3.7 Developer shall provide all main trenching, excavation, and backfill in accordance with NVE’s standards and specifications. The developer shall provide, install, and maintain service conduits, meter pads and meter pedestals in accordance with NVE’s specifications. In mobile home subdivisions, the owner shall provide, install, and maintain his service conduits, conductor, meter pad, and meter pedestal.
- 3.8 The developer shall provide a permanent and clearly marked identification mark showing address or space number on each meter pedestal and gas house line.
- 3.9 For feeder facilities, the developer will provide trenching, backfill, and provide and install other material required under applicable extension rules of Nevada and/or California.
- 3.10 NVE will furnish, install, and connect service cables and meters.
- 3.11 Within its gas service area, NVE will furnish and install gas meters.
- 3.12 Meter pads in the immediate vicinity of driveways must be protected by steel posts as detailed on NVE Dwg. PE0009U, “Padmounted Apparatus Barrier Posts”.(Volume 17)
- 3.13 Meter pad and utility island are defined as follows:
  - A. Meter Pad - The meter pad is where electric meter pedestals and gas meters are to be installed. It shall be located in accordance with this standard and at a location so as to prevent damage to meters resulting from placement of mobile homes.
    - 1. The developer is responsible to stake locations of meter pads. Locations shall be approved by NVE.
    - 2. Adjustments of meter pads and meters due to grade or staking errors shall be made by the developer or owner at his expense. Work required by NVE to adjust our facilities will be charged to the developer.
    - 3. In lot sale developments, the individual owner shall own and maintain the meter pad and pedestal and all the electrical and gas facilities from the meter pad to the mobile home.
  - B. Utility Island - The utility island is a central location for all customer facilities (electric, gas, water, sewer, telephone, TV, etc.) at the mobile home which allows the mobile home to be connected to those facilities.
    - 1. Local city/county codes apply to the utility island and to the electric and gas facilities from the load (customer) side of the meter pad to the utility island. The developer or owner should consult local city/county building departments for applicable requirements.

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- 3.14 When certain conditions are met, a mobile home is no longer classified as mobile, but considered a modular or permanent building, and treated in accordance with NVE’s Residential Service Standards. The following conditions make it a fixed, permanent residence:
  - A. It is built in accordance with the National Construction and Safety Standards.
  - B. It is placed on a permanent foundation.
  - C. Its owner also owns the land on which it stands.

**4.0 REFERENCES**

- 4.1 **NVE Standards: Standard Reference**  
 Trench Excavation Standards TE0001U  
 Typical Trench Details TE0003U to TE0027U  
 Trench Bedding & Backfill SUB01X  
 Conduit Installation Guide CD0001U
- 4.2 **Other Codes & Rules:**  
 National Electrical Code (NEC)  
 National Electric Safety Code (NESC)  
 Mobile Home Setup Guide, Washoe County  
 Occupational Safety & Health Administration (OSHA)  
 Uniform Plumbing Code (UPC)  
 Underwriters Laboratory (UL)

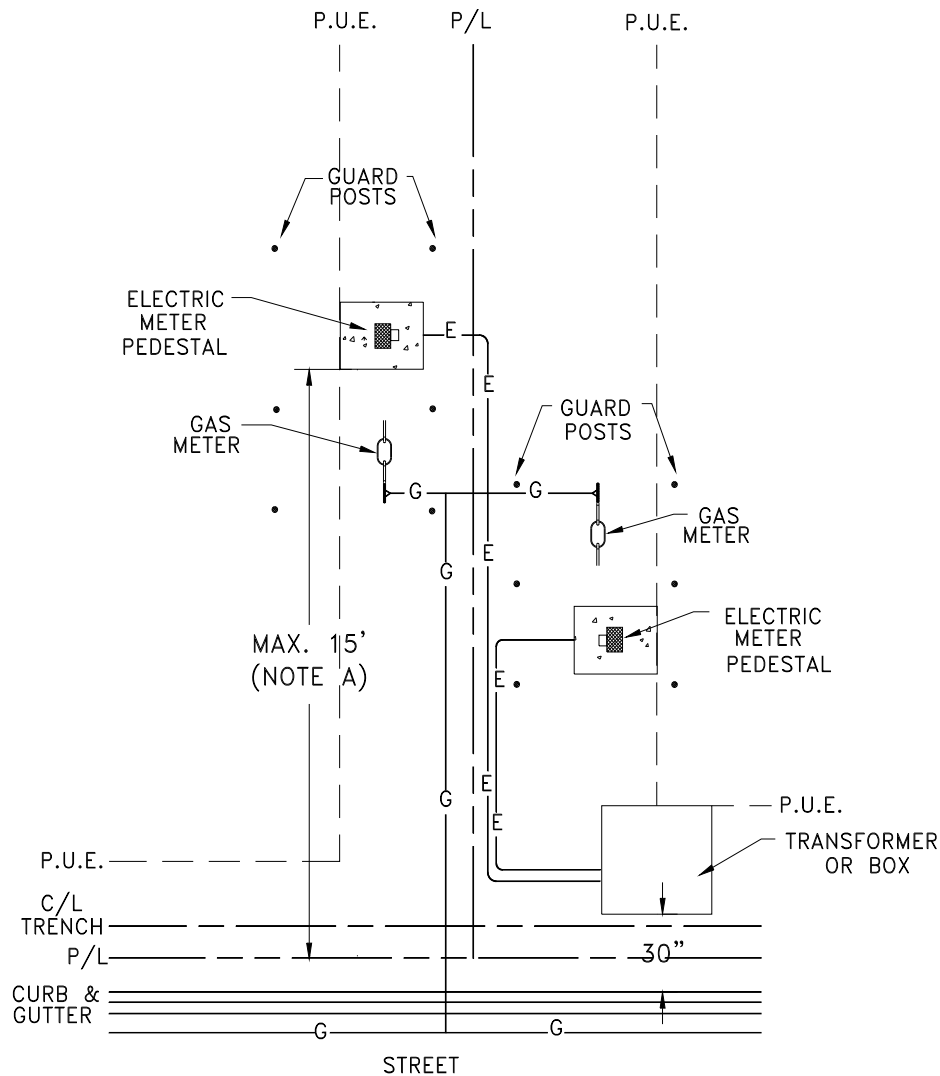
**5.0 TYPICAL UNDERGROUND UTILITY LAYOUT**


- 5.1 Electric primary and secondary cables will be installed in conduit in joint trench with telephone and cable TV. The facilities will be within the public utility easement (PUE) along the front of the lots, with street crossings as required.
- 5.2 Electric services shall be installed from the nearest electric box or transformer to the meter pad alongside the property line within a 5 ft. PUE, see Detail #5A.
- 5.3 Mobile home parks can install either:
  - A. One electric meter pad with double meters, see Detail #5C.  
For gas meter location, refer to Detail #6C.
  - B. Two electric meter pads with single meter, see Detail #5B.  
For gas meter location, refer to Detail #6B.
- 5.4 Mobile home subdivisions shall install single electric meter pads for each lot. The pads may be on common lot lines, see Detail #5B. For gas meter location, refer to Detail #6B.

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- 5.5 Quadruple electric meter pads may be used in mobile home parks. Approval must be received from NVE prior to construction for correct wire sizing, see Detail #5D. For gas meter location, refer to Detail #6D.
- 5.6 Gas services shall be installed from the main located in the street. Common service trench for electric and gas shall be used to the meter pad location. See Detail #5A.
- 5.7 Any exceptions in the layout of electric and gas facilities must be approved by NVE prior to construction.

DETAIL #5A




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**NOTES:**

- A. Maximum 15 ft. setback from property line for metering pads. Approval from NVE must be received prior to construction for alternate meter pad locations.
- B. Trench centerline to be 30” from back of curb for electric trenches, transformers, boxes or vaults. If sidewalk is present, trench centerline to be 24” behind sidewalk.
- C. Service trench centerline to be 30” from side property line.
- D. Meter pads to be 30” from side property line.
- E. Guard posts to be 4" standard steel primed and painted yellow. Posts to be five feet long, buried two feet in concrete and filled with concrete.

**UPDATE PICTURE**

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				<b>SECTION 6: GAS METERING GUIDELINES MOBILE HOME SERVICE REQUIREMENTS FOR ELECTRIC &amp; GAS</b>		
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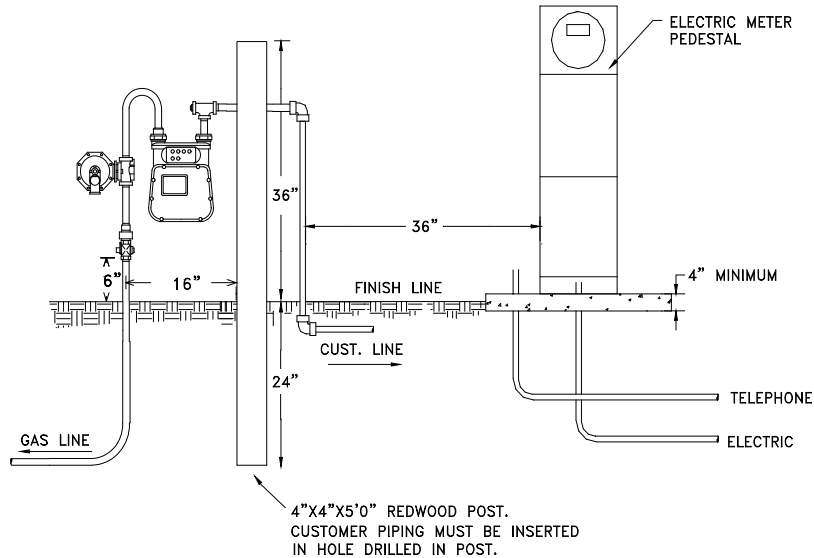
**6.0 METER PAD DETAILS**

6.1 See Details #6A, 6B, 6C, and 6D for pad layout and dimensions.

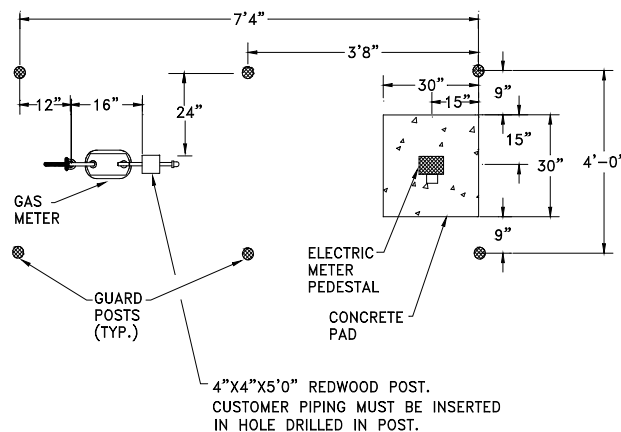
6.2 6" x 6" 10/10 steel mesh shall be used for reinforcing of all pads. Pads shall have a minimum thickness of four inches.


6.3 For multiple meters, gas house lines shall be offset six inches from service riser.

**DETAIL #6A  
METER PAD PROFILE**




**DETAIL #6B  
SINGLE METERS**



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**7.0 GENERAL INSTALLATION PROCEDURES**

- 7.1 This section outlines the general procedures to follow in installing the electric and/or gas service, meter pedestals and pads.
- 7.2 The developer/owner obtains NVE’s approval on utility layout prior to construction.
- 7.3 The developer/owner provides all trenching, excavation and backfill in accordance with NVE’s standards.
- 7.4 Any service conduit/pipe is provided and installed by developer/owner as specified by NVE
- 7.5 The developer/owner backfills trench to the level of joint utility before joint facilities are installed.
- 7.6 The developer/owner in the general sequence listed below, will then install the electrical grounding system at the meter pad, the meter pedestal and the electric line from the meter pad to the mobile home.
  - A. Install the electrical ground and bare copper grounding conductor. The grounding conductor shall not be connected to the gas pipe system.
  - B. Install the customer electric line (or conduit) from meter pad location to mobile home connection point (Utility Island).
  - C. Install the gas service house line.
  - D. Remove and pull section panel of meter pedestal to allow service cable to extend through pedestal. Carefully place pedestal over NVE’s electric conduit and customer’s electric conduit. Position meter pedestal as required and plumb and level pedestal. See Details #6A, 6B, 6C, and 6D.
  - E. Backfill the installation and compact meter pad subgrade to 90%. Form and pour the concrete pad. The concrete pad should extend approximately two inches above finish grade.
  - F. Connect the grounding conductor to the accessible grounding lug inside the pedestal. Ground the pedestal by connecting the accessible grounding lug to the neutral service terminal landing lug.
  - G. Connect the customer’s electric line.
  - H. Call for city/county inspection of electric and gas installation, as required.
- 7.7 Upon approval by inspecting authority, NVE will connect the electric service conductors to the landing lugs in the meter pedestal, install and seal the pull section panel, and blank off and seal the meter socket ring.
- 7.8 NVE will set the electric and gas meter upon application for service.

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**8.0 METER PEDESTAL SPECIFICATIONS**

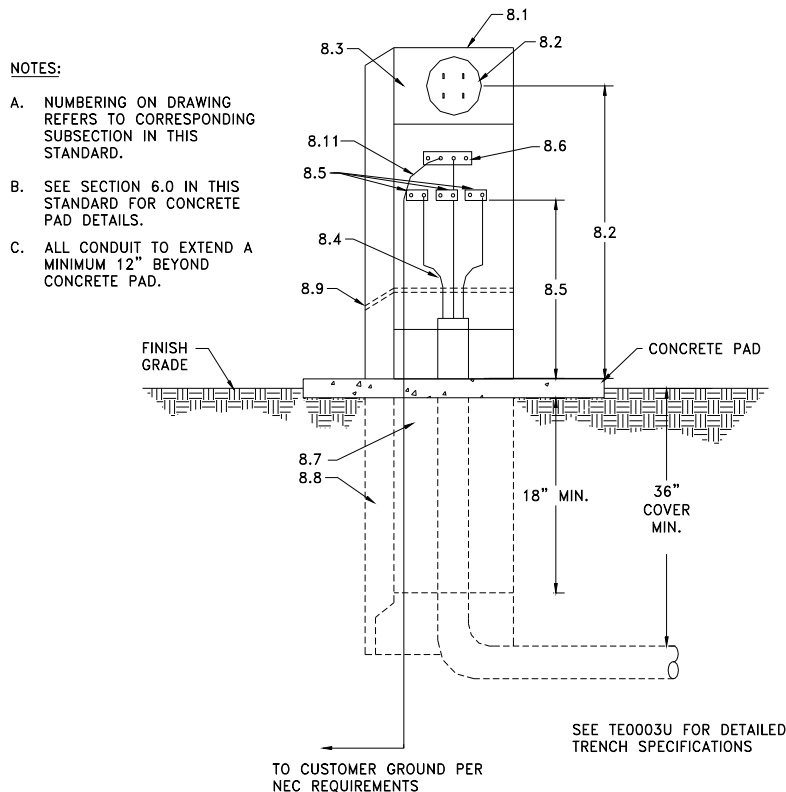
- 8.1 The meter pedestal shall have a minimum rating of 100 amperes. Construction, material, corrosive-resistant finish shall be approved by UL.
- 8.2 The meter socket base shall be UL recognized and provided with a sealing ring. The socket shall be factory-wired with the conductors in a separate or barriered raceway from the utility’s terminating lugs to the meter socket. These conductors shall be inaccessible from the main disconnect and power outlet section. The conductors which extend to the meter socket shall be connected at the utility’s terminating lugs independently of the connection for the customer’s conductors. The minimum meter height is 36” above grade line when the meter is enclosed, or 48” minimum if exposed.
- 8.3 The customer’s main disconnect and power outlet section shall have barriers installed to prevent access to the utility’s cable pull and terminating section and to unmetered conductors which connect to the socket.
- 8.4 The utility’s cable pull and terminating section shall be covered with a sealable and removable panel or panels, extending from two inches to six inches above grade, and when removed, give full access to the utility’s terminating lugs. Access to the terminating lugs may be from either the front or the rear of the post. Access shall not be restricted by load conduits or raceways.
- 8.5 A minimum 12” opening shall be maintained from the terminating lugs to any fixed panel below the lugs. The minimum lug height is 18” above grade line; the maximum is 48”. The terminating lugs shall be twin No. 2 to 350 MCM aluminum bodied pressure type for connection of the service lateral conductors. The space between terminating lugs, from lugs to sides of post, or from lugs to panel above shall be one and one half inch minimum. Rigid insulating barriers are required and shall project one quarter inch minimum beyond any energized parts if this space is less than one and one half inch. Terminating lugs may be positioned either in-line or staggered. The neutral terminating lug shall be bondable to the post.
- 8.6 An accessible grounding lug shall be provided for a minimum #6 to 1/0 AWG grounding conductor.
- 8.7 The post shall have a minimum cross sectional dimension of 4” x 8” inside diameter. A fixed panel shall extend two inch minimum and five inch maximum above grade, and 18” minimum below grade.
- 8.8 The minimum depth of the post in the ground shall be 24” with openings at the base to permit the service lateral conduit or conductors to sweep into the post.
- 8.9 A moisture barrier, located below all terminals and other live parts, or adequate ventilation, shall be provided to inhibit the condensation of moisture.

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8.10 For authorization to attach telephone and cable TV termination facilities, consult NVE.

8.11 Local codes must be followed for grounding requirements which may exceed those stated in this standard. A minimum ground shall consist of a continuous bare copper grounding conductor extending from the neutral service terminal landing lug to a grounding electrode, which may be either:

- A. Ufer type ground as per National Electric Code, Article 250-66.
- B. Metallic underground water piping system (not gas) with a minimum buried portion of ten feet. If the buried portion of the metallic water piping system is less than ten feet in length, it shall be supplemented with a 5/8" x 8' copper clad ground rod.



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