



Construction Guide



Table of Contents

	Page
Introduction.....	2
Service Pipe Application.....	4
Important Terms.....	5
Air Requirements	11
Appliance Location.....	18
Venting	31
Calculations.....	37
Gas Distribution System.....	39
Gas Mains.....	40
Service Pipes	42
Meters.....	52
Service Regulators.....	56
Rehabs.....	61
Piping.....	63
Photos.....	72
Contact Information	84

Introduction

Published November 9, 2007

At Peoples Gas, we understand the importance of responding to your requests for gas facilities and providing safe, reliable and timely installation of service pipes and meters. This guide was created as a convenient resource as you plan your next project. It pertains only to sites within the city of Chicago. Illustrations and photographs are provided only for clarification and to facilitate understanding of the topics covered.

In the interest of customer safety, Peoples Gas will make modifications to the guide when necessary. As these are published, the latest electronic version will be available on our Web site. To ensure you are reading the current version, periodically visit peoplesgasdelivery.com.

Access the Construction Guide from peoplesgasdelivery.com:

1. Go to the Business Customers section.
2. Use the pull down tab to click on the Builders, Developers and Rehabs link.
3. Scroll down the page and click on the Construction Guide link.

The file may be downloaded in order to print copies. However, you must first register online with Peoples Gas, so we can notify you in the future of any updates. We have included information regarding Peoples Gas' policies and procedures that are compliant with the company's tariffs on file with the Illinois Commerce Commission and the Illinois Administrative Code. Please use this information in conjunction with the manufacturers' installation instructions provided with your appliances or piping. By following these rules, you can help ensure that your natural gas installations are safe and efficient.*

The principal focus of this guide is to provide information concerning the safe installation of gas appliances. Secondly, we have listed important safety policies concerning the installation of gas facilities, along with information concerning additional services Peoples Gas will provide at the customer's request. As building owners, architects and engineers, it is your responsibility to guarantee the safety and operation of the gas appliances installed by complying with all applicable codes and requirements set forth in this Construction Guide and appliance manufacturers' instructions.

***Peoples Gas has the right to deny or discontinue gas service for safety reasons. The policies published herein are required by Peoples Gas and apply to any new construction and rehabbed properties, as of the effective date of this Construction Guide and any subsequent editions.**

Getting Started

Customers should contact a Peoples Gas Construction Coordinator for information on available gas facilities or to request the installation of new gas facilities during the design phase of new construction or rehab projects. A map identifying each Construction Coordinator and his or her geographic territory is available at peoplesgasdelivery.com.

Your Peoples Gas Construction Coordinator will help you:

1. Identify available gas facilities for the project.
2. Identify applicable code and policy requirements relating to the installation of gas appliances.
3. Establish a new service.

Together, we can make your gas installations proceed smoothly and avoid costly change orders.

Find the Construction Coordinator in your area on peoplesgasdelivery.com:

1. Go to the Business Customers section.
2. Use the pull down tab to click on the Builders, Developers and Rehabs link.
3. Then click on New Service Process.
4. Finally, click on the Territory Map link.

Service Pipe Application

The Service Pipe Application is an agreement between the customer and Peoples Gas for the installation and maintenance of gas facilities, including mains, service pipes, service regulators, vent pipes and meters. The person or entity requesting the installation of new gas facilities will be responsible for all charges that accrue on the account.

When applying for gas service, the customer shall provide the following information:

1. The combined gas appliance loads (volume and pressure specifications are located on the appliance's capacity rating plate) are necessary for us to properly size the service pipe, meters and service regulators (if required).*
2. Site plans, architectural plans, utility plans and the plat of survey are needed to determine where to install gas facilities and to determine the location of other utilities.
3. The structure shall have an address approved by the city of Chicago.
4. A new residential account requires some form of personal or business identification, such as a driver's license or Social Security number.
5. A new commercial account requires a tax identification number, credit reference or a previous account with Peoples Gas.
6. When available, HVAC drawings should be provided in order to verify compliance with applicable codes.

** A load in excess of 3,000,000 Btus per hour shall require additional review by Peoples Gas to assure adequate gas supply.*

Important Terms

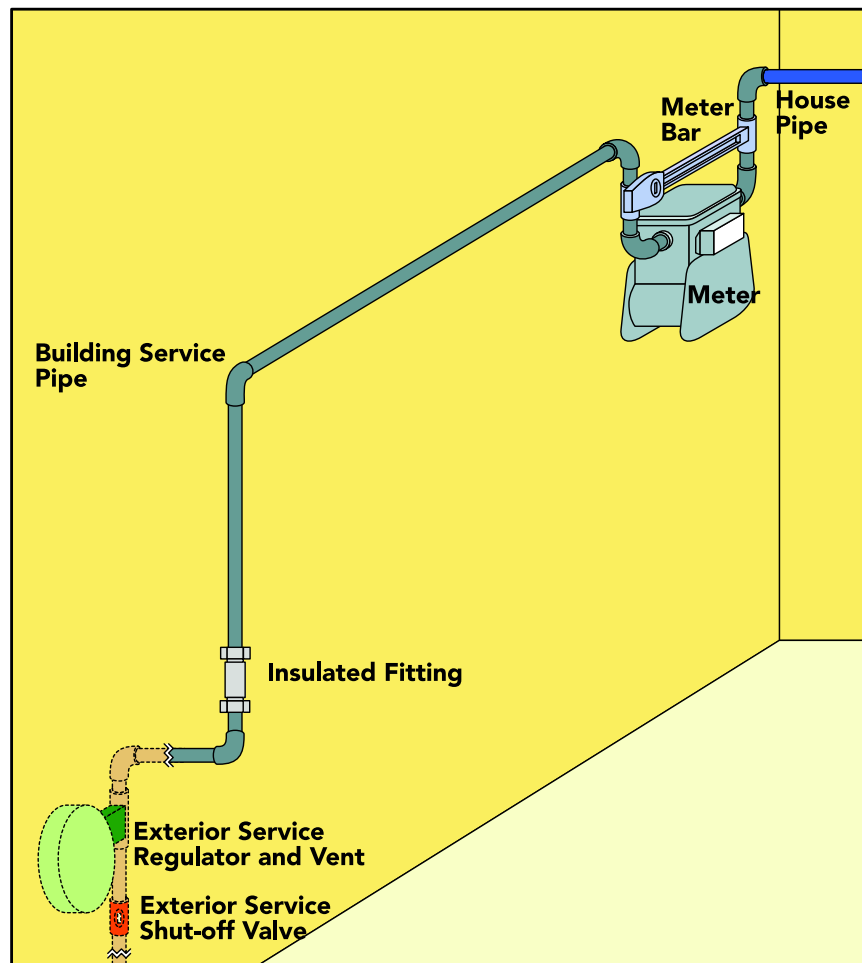
This Construction Guide contains information to help you design new construction or rehab projects. It contains information about Peoples Gas' facilities, requirements for gas appliance installations and identifying situations where charges from Peoples Gas may apply. The following terms will help you understand the rules and standards outlined on subsequent pages.


Accessible: Having access to, but which first requires the removal of a panel, door or similar covering of the item described.

Accessible, Readily: Having direct access without the need of removing or moving any panel, door or similar covering of the item described — in other words, visible to someone as they enter the room.

Figure 1

Building Service Pipe Installation





Billing and Price Book: A Peoples Gas document which contains a detailed list of Company-provided products and services, and the current prices associated with those products and services.

Billing Work Order: An agreement between a customer and Peoples Gas for modifications to Peoples Gas' main system, performed by Peoples Gas, in accordance with the customer's preferred design.

Building Service Pipe: Inside or outside gas piping between the termination of Peoples Gas' service pipe and the meter(s). *(See Figure 1 on Page 5.)*

Category I Appliance: An appliance that operates with a nonpositive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

Category III Appliance: An appliance that operates with a positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

Category IV Appliance: An appliance that operates with a positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

Company: Peoples Gas.

Concealed (Gas Piping and Fittings): Gas piping and fittings that, when in place in a finished building, would require removal of permanent construction to gain access.

Costs: Labor, material, restoration, overhead and contingencies.

Customer-owned Underground Pipe: Gas piping that is downstream of Peoples Gas' gas meter and is buried in the ground.

Direct Vent Appliances (Sealed Combustion Chamber Design Appliances): An appliance that is constructed and installed so that all air for combustion is derived directly from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

Specifically, this means: An appliance designed with a combustion chamber completely sealed from indoor air. All air for combustion is taken directly from the outdoors and products of combustion are vented directly to the outdoors using ducts or pipes directly connected to the appliance.

Easement: An agreement between the property owner and Peoples Gas. The agreement grants Peoples Gas use of the property for the installation and maintenance of gas facilities. (See Page 40.)

Free Area: When louvered openings or grilles are used to supply air for gas appliances, the free area of the opening is the actual area through which air can flow.

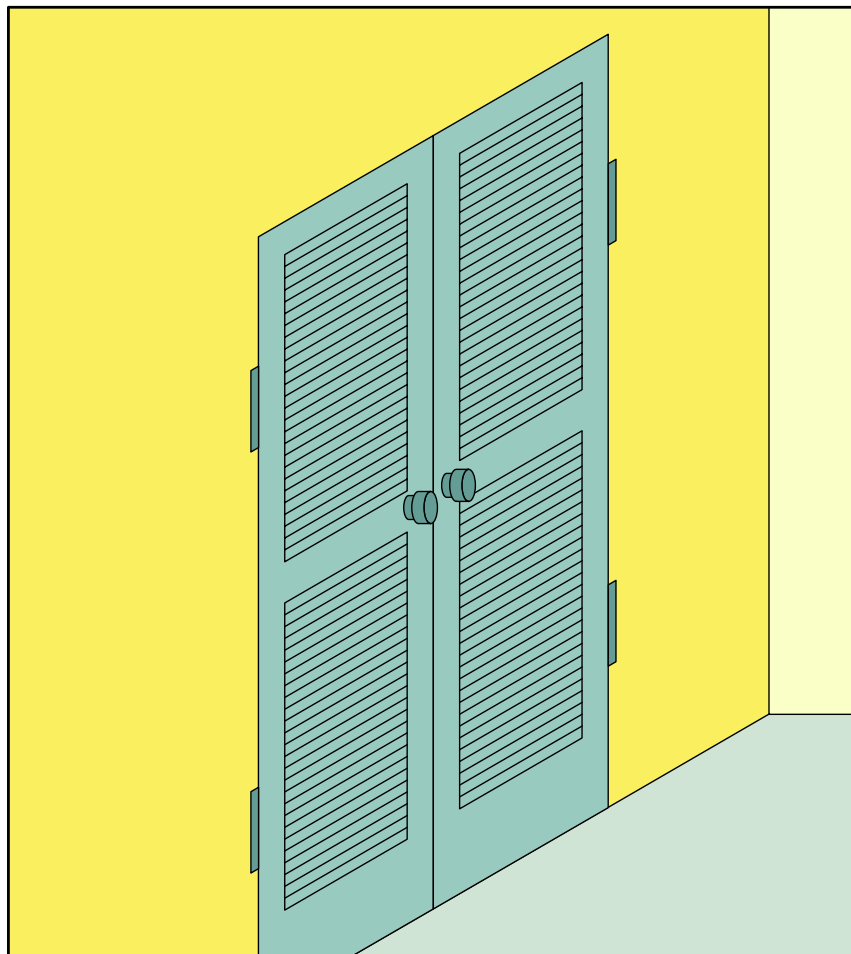
When the manufacturer does not specify the free area of louvers, grilles or screens, use the factors below to determine their free area when sizing combustion, ventilation and dilution air openings. (See Figure 2.)

Free Area, Wood - Comprises 25 percent of total area covered by louvers or grilles.

Free Area, Metal - Comprises 75 percent of total area covered by louvers or grilles.

Figure 2

Louvered Doors



Garage, Commercial: A building or room in which four or more self-propelled passenger vehicles may be stored and will not normally be used for other than minor service or repair on such stored vehicles. (See Page 22.)

Garage, Residential/Private: A building or room in which not more than three self-propelled passenger vehicles are or may be stored and that will not normally be used for other than minor service or repair on such stored vehicles. (See Page 21.)

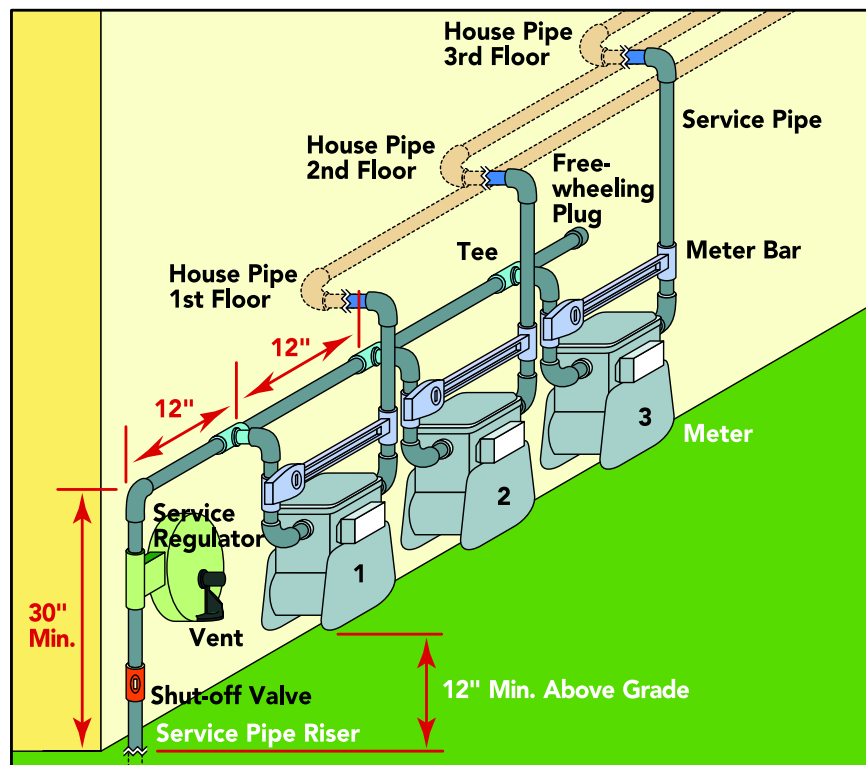
Header/Manifold: A section of pipe with branches and associated fittings that serves as a common source of gas supply to two or more meters. (See Figure 3.)

House Pipe: Any gas piping in a building that is located downstream from the meter. (See Figure 4 on Page 9.)

Jobbing Contract: An agreement between a customer and Peoples Gas for additional work concerning gas facilities (other than main work) performed by Peoples Gas, in accordance with the customer's preferred design.

Figure 3

Outside Regulator & Header/Manifold For 3 Separate Meters



Listed: Appliances included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products that maintains periodic inspection of production of listed appliances and whose listing states that appliances meet appropriate designated standards or have been tested and found suitable for a specified purpose.

Main: Peoples Gas-owned gas pipe that serves as a common source of gas supply for more than one service pipe.

Meter: A device that measures the volume of gas delivered to the customer's appliances. (See Figure 4.)

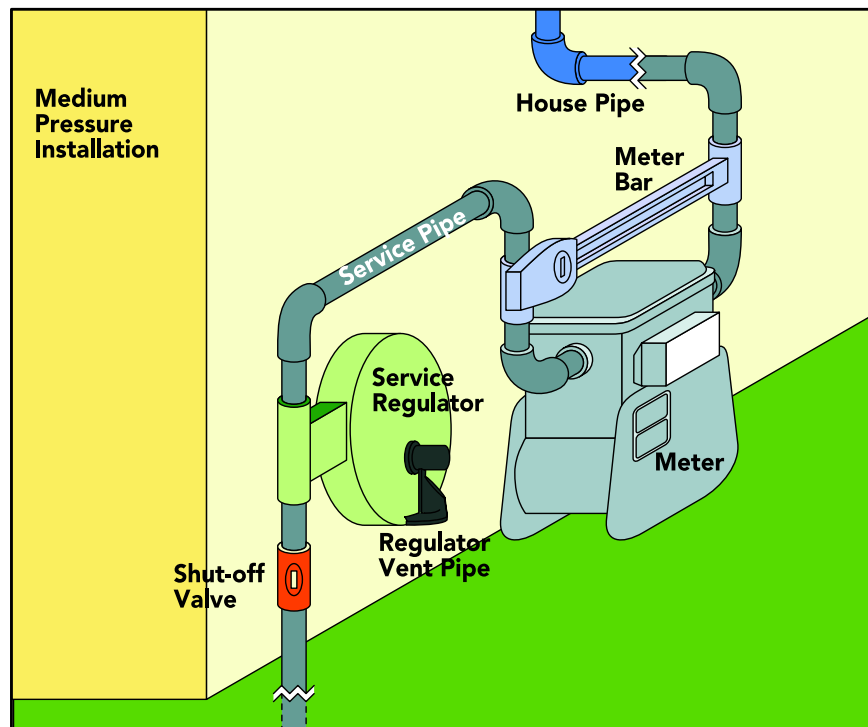
Meter Bar: A transition fitting that connects the service pipe to the inlet of a meter and the house pipe to the outlet of a meter. (See Figure 4.)


Plenum: An enclosed portion of the building structure that is designed to allow air movement and thereby serves as part of an air distribution system.

Regulator, Gas Appliance: A pressure regulator built into the appliance.

Figure 4

Typical Medium Pressure Installation





Regulator, Line Gas: A pressure regulator placed in the house piping between the outlet of the meter and the gas appliance regulator.

Regulator, Pressure: A mechanical device installed to reduce gas pressure.

Regulator, Service: A pressure regulator installed by Peoples Gas to reduce and limit the service line gas pressure to a specified delivery pressure. *(See Figure 4 on Page 9.)*

Regulator Vent Pipe: A pipe attached to the pressure regulator's vent opening. The vent pipe shall always lead to the outdoors and terminate with an approved insect screen. Note: The insect screen shall be a minimum of 12 inches above final grade. *(See Figure 4 on Page 9.)*

Rehab: Any remodeling project that includes the installation of new gas appliances or involves the modification of existing gas facilities.

Service Pipe: A gas pipe that serves as a source of gas supply from the main to one or more meters. *(See Figure 4 on Page 9.)*

Service Pipe Riser: Part of the service pipe that is above grade and attached to a structure's outside wall. The shutoff valve, regulator or meter may be attached to the service pipe riser. *(See Figure 3 on Page 8.)*

Space, Confined: A space in which: 1) the volume is less than 50 cubic feet (ft³) per 1,000 Btu per hour of total input for all appliances in that space; or 2) the total input of all appliances is greater than 20 Btu per hour per ft³ of space. *(See Calculations on Page 37.)*

Space, Unconfined: A space in which: 1) the volume is equal to or greater than 50 cubic feet (ft³) per 1,000 Btu per hour of total input for all appliances in that space; or 2) the total input of all appliances is equal to or less than 20 Btu per hour per ft³ of space. Rooms communicating air directly with the space in which the appliances are installed through properly sized openings are considered a part of the unconfined space. *(See Calculations on Page 37.)*

Town Homes: Fee-simple, residential, real estate units connected under a common roof.

Utility Room: A room that's primary use is for the location of appliances.

Air Requirements

Supplying an Adequate Amount of Air

The principal focus of this guide is to provide information on adequate air requirements for the safe operation of appliances, which are clearly stated in manufacturers' installation instructions. Gas appliances operating with insufficient air for combustion and dilution may produce carbon monoxide (CO). CO is a colorless, odorless gas that is poisonous. When CO levels build up indoors, it can be dangerous and potentially deadly.

Combustion and Dilution Air

Every room or space containing gas appliances shall be provided with combustion and dilution air. Direct vent appliances or appliances that do not draw combustion air from inside of the building, shall not be considered in the determination of the combustion and dilution air requirements. Combustion air requirements shall be determined based on the simultaneous operation of all gas appliances drawing combustion and dilution air from the room or space.

Circulation of Air

The gas appliances within every room or space shall be installed, so as to allow free circulation of air. Provisions shall be made to allow for the simultaneous operation of mechanical exhaust systems, fireplaces and other equipment or appliances operating in the same room or space, from which combustion and dilution air is being drawn.

Crawl Space and Attic Space

An opening to a naturally vented crawl space or attic space shall be considered equivalent to an opening to the outdoors.

Crawl Space

Where combustion air openings to the outdoors connect with crawl spaces, such openings shall be permanent and at least twice the required size of nominal, outdoor combustion air openings. The crawl space shall be without obstruction to the free flow of air. In addition, the lowest side of the combustion air openings shall be a minimum of 12 inches above the adjoining grade level.

Attic Space

Where combustion air is obtained from attic spaces, the attic ventilation openings shall not be subject to ice or snow blockage and the attic shall have not less than 30 inches vertical clear height at its maximum point. Attic ventilation openings shall be large enough to provide both the required volume of combustion air and the required volume of ventilation, as required by the city of Chicago. The combustion air openings shall be provided with a sleeve of not less than 0.019 inches (No. 26 Gauge) galvanized steel or other approved material, extending from the confined space containing the appliance, to at least 6 inches above the top of the ceiling joists and insulation. The sleeve shall not be screened.

Prohibited Sources

1. Combustion air openings and ducts shall not connect spaces containing appliances with spaces in which the operation of a fan will adversely affect the flow of combustion air. Combustion air shall not be taken from a hazardous location, such as refrigeration machinery rooms or spaces containing corrosive atmospheres.
2. The remaining space surrounding a chimney liner, gas vent, special gas vent or plastic piping installed within a masonry, metal or factory built chimney, shall not be used to supply combustion air.

Exception: Direct vent gas appliances designed for installation in a solid, fuel-burning fireplace, installed in accordance with the manufacturer's installation instructions.

3. The combined use of indoor and outdoor air for combustion and dilution is prohibited.

Unconfined Spaces

Space heating and/or water heating appliances drawing combustion air from the same area, with a combined input rating greater than 150,000 Btu/hr, shall use outdoor air for combustion and dilution. *(See Air Supplied from Outdoors on Page 16.)*

Exception: Single-family and two-family structures (including town homes) are not required to use outdoor air for combustion and dilution.

Space heating and/or water heating appliances drawing combustion air from the same area, with a combined input rating less than or equal to 150,000 Btu/hr, are not required to use outdoor air for combustion and dilution. However, the air volume within the space, shall comply with the unconfined space definition, for the aggregate input rating of all space heating and/or water heating appliances located within the space.

Gas appliances typically used on an intermittent basis, such as clothes dryers, residential cooking appliances and fireplaces, are not required to use outdoor air for combustion and dilution. However, the combined air volume within the adjacent, communicating living spaces (not including bedrooms, bathrooms and toilet rooms) shall comply with the unconfined space definition, for the aggregate input rating of all gas appliances located in those living spaces.

Confined Spaces

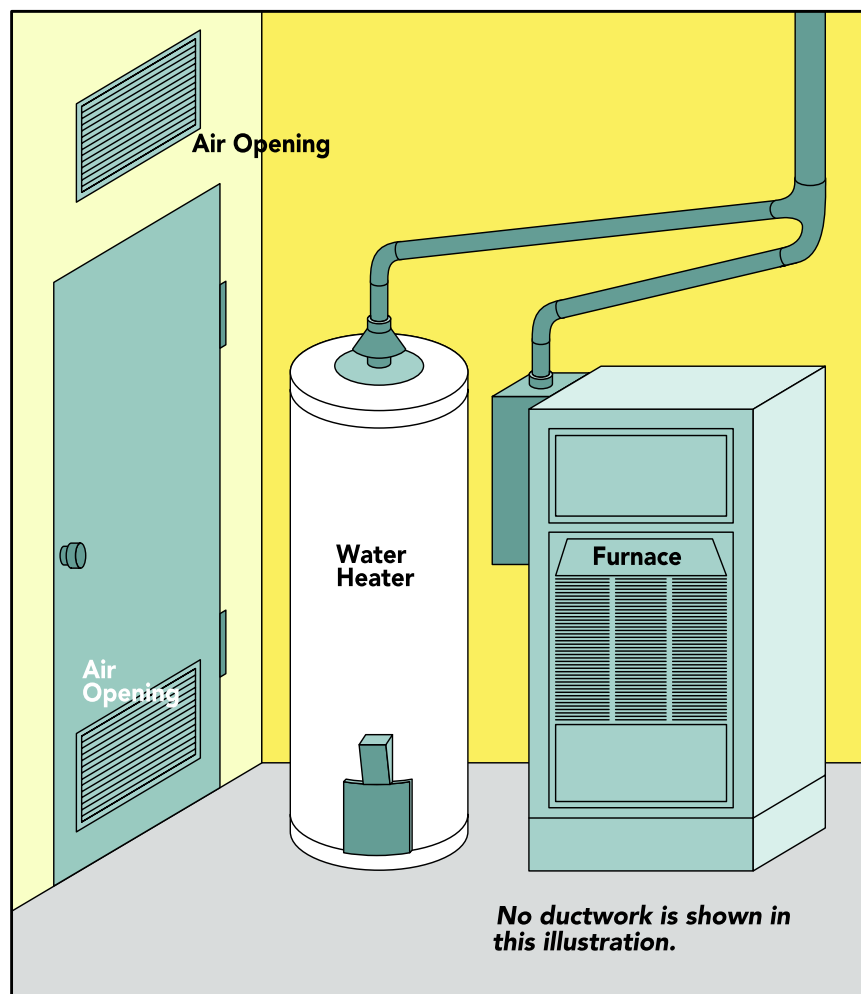
Space heating and/or water heating appliances drawing combustion air from the same area, with a combined input rating greater than 150,000 Btu/hr, shall use outdoor air for combustion and dilution. (See *Air Supplied from Outdoors* on Page 16.)

Exception: Single-family and two-family structures (including town homes) are not required to use outdoor air for combustion and dilution.

Space heating and/or water heating appliances drawing combustion air from the same area, with a combined input rating less than or equal to 150,000 Btu/hr, shall use either indoor air or outdoor air for combustion and dilution. Gas appliances typically used on an intermittent basis, such as clothes dryers, residential cooking appliances and fireplaces are not required to use outdoor air for combustion and dilution.

Figure 5

Air Openings for Indoor Combustion



Air Supplied from Indoors

The confined space shall be provided with two permanent openings, communicating directly with other spaces of sufficient volume, so that the combined volume of all such spaces complies with the unconfined space definition. The total input of all gas appliances installed in the combined spaces shall be used to calculate the required minimum volume.

Each opening shall have a minimum free area of not less than $1 \text{ inch}^2/1,000 \text{ Btu/hr}$, of the total input rating of all gas appliances in the confined space, but not less than 100 inches^2 . One opening shall be located within 12 inches of the top of the confined space and one opening shall be located within 12 inches of the bottom of the confined space. The minimum dimension of air openings shall be not less than 3 inches. (See Figure 5 on Page 13 and Figure 6 on Page 15.)

In specific confined space applications, such as furnaces installed above bathrooms, bedrooms or dropped ceilings, where there are vertical and/or horizontal space limitations, it may be permissible for the two permanent openings to abut one another. However, such installations shall be reviewed by your Construction Coordinator prior to installation.

Louvered Doors

A fully-louvered, wooden door, designed with louvered sections above and below the center brace, is an acceptable substitute for the two transfer grilles, provided that the smallest louvered section has a free area equal to that of each properly-sized transfer grille. (See Figure 2 on Page 7.)

Example: A 36" x 80" fully-louvered, wooden door has the following dimensions: The top louvered section is 37" tall and 27" wide, while the bottom louvered section is 26" tall and 27" wide.

Top louvered section = $(37 \times 27) = 999 \text{ inch}^2$ of louvered area

Bottom louvered section = $(26 \times 27) = 702 \text{ inch}^2$ of louvered area

The two louvered sections shall be (at least) equally sized. Therefore, the smaller (bottom) louvered section must be used as the basis for combustion air calculations.

$$(702 \text{ inch}^2) \times \frac{(1,000 \text{ Btu/hr})}{(1 \text{ inch}^2)} \times (25\% \text{ wood louver free area factor}) = 175,500 \text{ Btu/hr}$$

175,500 Btu/hr = Maximum allowable, combined total Btu/hr input, of all appliances located in a confined space, behind a typical 36" x 80" fully-louvered, wooden door.

Builders must be aware that a utility room (confined space) located behind a 36" x 80" fully-louvered, wooden door, may only contain one 125,000 Btu/hr furnace and one 50,000 Btu/hr water heater or a similar combination of appliances, with a total Btu/hr input less than 175,500 Btu/hr!

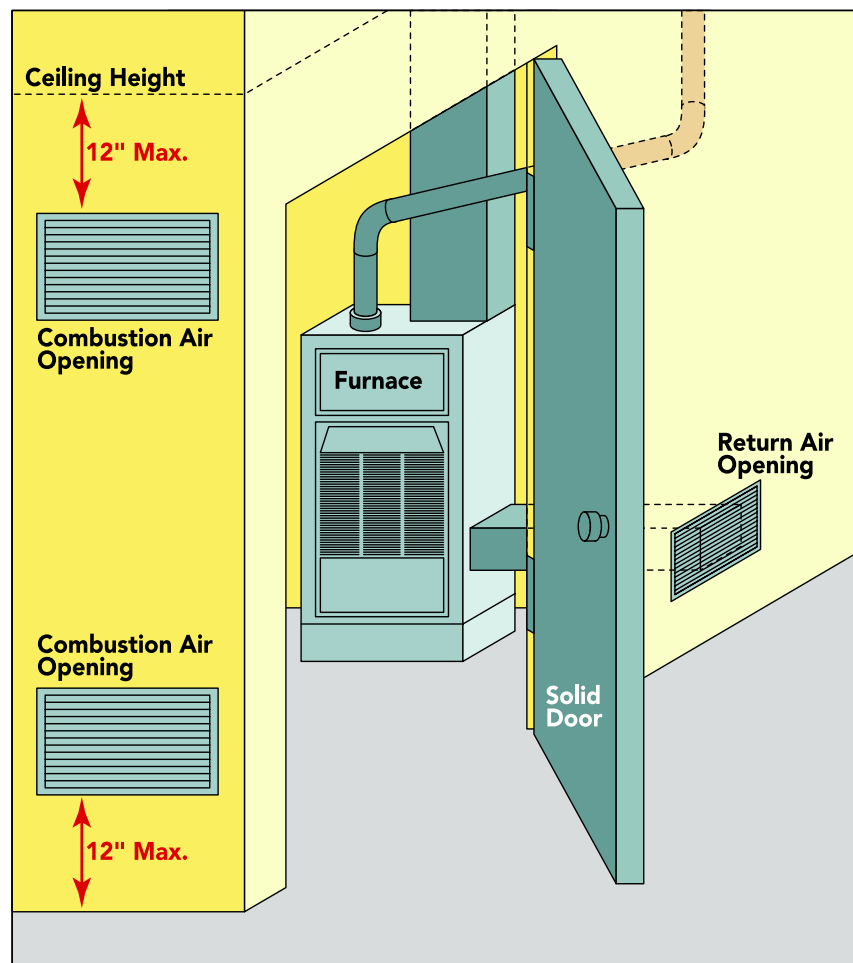
Louvered doors shall not be installed as bedroom and bathroom entrance doors, for the purpose of supplying necessary combustion, makeup and dilution air for gas appliances located inside those rooms.

Combining Spaces in Different Floors

The volumes of spaces in different floors shall be considered as communicating spaces, where such spaces are connected by one or more openings in doors or floors, having a total minimum free area of 2 inches² per 1,000 Btu/hr of total input rating of all gas appliances.

Figure 6

Suggested Location of Return Air Opening



Air Supplied from Outdoors

When air is supplied solely from the outdoors, Peoples Gas allows three options; each option requiring a different air supply factor.

The confined space shall communicate with the outdoors in accordance with methods 1 or 2, which follow. The minimum dimension of air openings shall not be less than 3 inches. If ducts are used, the ducts shall be of the same cross-sectional area as the free area of the openings to which they connect, shall only serve a single confined space and shall not slope downward toward the source of combustion air. In addition, ducts connected to the outdoors, supplying air to Category I, II or III appliances equipped with atmospheric burners, shall not be constructed with any elbows or bends. However, ducts connected to the outdoors, supplying Category IV appliances equipped with fan inducers, may be constructed with elbows and bends, provided they are constructed in accordance with manufacturers' installation instructions.

Confined spaces supplied with outdoor air shall be constructed with a solid, weather-stripped door, equipped with a self-closing device, to prevent air communication with living spaces.

1. The confined space shall be provided with two permanent openings, one located within 12 inches of the top of the confined space and one located within 12 inches of the bottom of the confined space. The openings shall communicate directly (transfer grilles) or by ducts with the outdoors or with spaces that freely communicate with the outdoors. If ducts are used, a single duct shall not serve two openings; separation between ducts serving two openings shall be maintained to the source of combustion air.
 - (a) If directly communicating with the outdoors or if communicating to the outdoors through vertical ducts, each opening shall have a minimum free area of 1 inch² per 4,000 Btu/hr of the total input rating of all appliances in the confined space.
 - (b) If directly communicating with the outdoors or if communicating with the outdoors through horizontal ducts, each opening shall have a minimum free area of 1 inch² per 2,000 Btu/hr of the total input rating of all appliances in the confined space.
2. One permanent opening, located within 12 inches of the top of the confined space, shall be permitted, if the appliances have clearances of at least 1 inch from the sides and back and 6 inches from the front. The opening shall directly communicate with the outdoors or with space that freely communicate with the outdoors, through a vertical or horizontal duct. The opening shall have a minimum free area that complies with both the following criteria:

- (a) 1 inch per 3,000 Btu/hr of the total input rating of all appliances in the confined space.
- (b) Not less than the sum of the areas of all vent connectors in the confined space.

Mechanical Combustion Air Supply

Where all combustion air is provided by a mechanical air supply system, the combustion air shall be supplied from outdoors at the minimum rate of 0.35 feet³/minute per 1,000 Btu/hr for all appliances located within the space. The mechanical air supply shall also comply with the following criteria:

1. Where exhaust fans are installed, additional air shall be provided to replace the exhausted air.
2. Each of the appliances served shall be interlocked to the mechanical air supply system to prevent main burner operation when the mechanical air supply system is not in operation.
3. Where combustion air is provided by the building's mechanical ventilation system, the system shall provide the specified combustion air rate, in addition to the required ventilation air.

Engineered Installations

Any type of combustion air system not designed in accordance with the Air Requirements listed above, shall be considered an Engineered Installation. Engineered Installations, designed for specific applications, shall be allowed only if approved in writing by the city of Chicago.

Appliance Location

All gas appliances shall be installed in locations that are accessible for normal service and maintenance activities.

Warm Air Furnaces

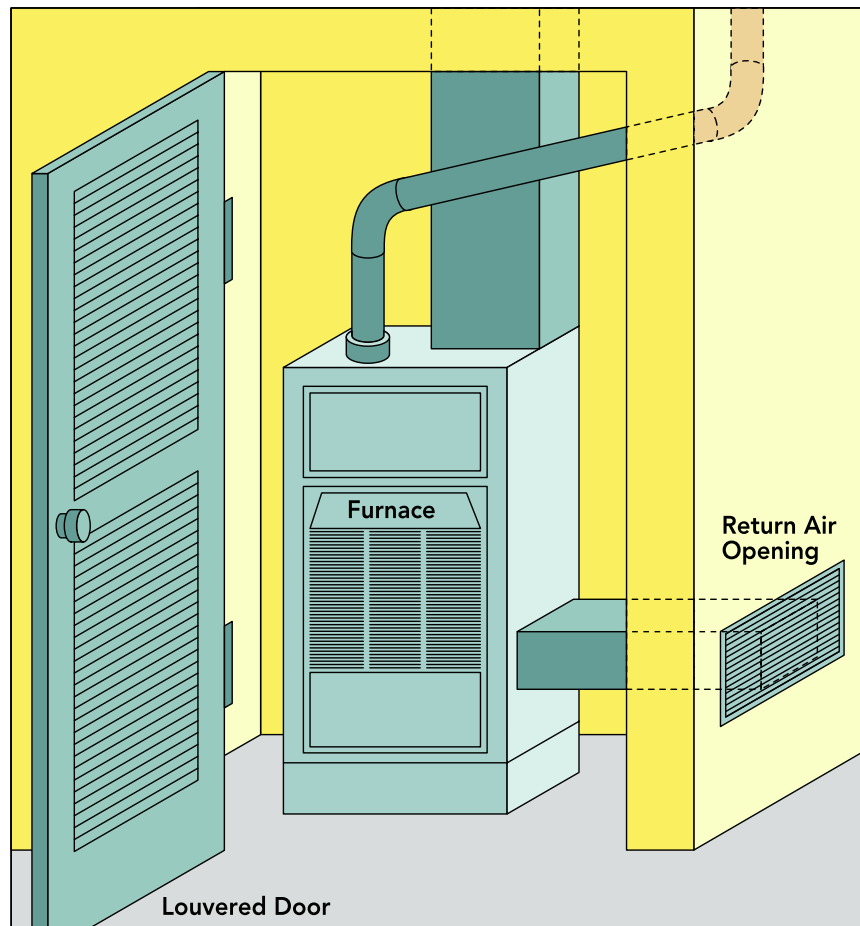
Due to safety and health considerations, a warm air furnace shall only supply heated air to a single residential living unit. Warm air furnaces shall **not** be installed in bedrooms, bathrooms or toilet rooms unless the furnace is of direct vent design.

Warm air furnaces may be installed in utility rooms located in bedrooms, bathrooms and toilet rooms provided that:

1. The utility room has a solid, weather-stripped door that is equipped with a self-closing device.

Figure 7

Suggested Location of Return Air Opening



2. All air for combustion and dilution is obtained from the **outdoors**. (See Figure 10 on Page 24 and Figure 11 on Page 25.)

Note: When a warm air furnace is installed in a utility room located in a bedroom, bathroom or toilet room **with other gas appliances**, all air for combustion and dilution shall be obtained from the outdoors, unless the warm air furnace is of direct vent design.

Requirements for Return Air Ductwork

1. Conditioned air circulated by a furnace shall be handled by ducts, which are sealed to the furnace casing and terminate outside the space containing the furnace.
2. A return air opening cannot be installed in the same room as the furnace. Return air ducts and combustion air openings are to be installed so that they do not interfere with each other's function.
3. Residential units designed with a single, large return air opening: The return air opening shall not terminate in rooms where entrance doors are often closed, such as bedrooms, bathrooms, home offices, etc. It may terminate in the interior hallway of a condo or town home, provided the interior hallway has no entrance or exit doors and is permanently open to adjoining rooms.
4. Return air openings located in family rooms and living rooms shall be located a minimum of 10 feet away from any unvented fireplace or other unvented appliance, such as a gas-fired wall sconce.
5. Return air openings shall not be located in kitchens, due to the presence of unvented gas-fired ovens and ranges. In addition, the intake of odors into the return air distribution system is unwise.
6. 90 Degree Rule.
Special attention shall be given to the location of return air openings. Standard efficiency (80%) furnaces using indoor air are equipped with blower motors (inside the furnace) that draw a significant volume of air into the return air grille. This may adversely affect the flow of combustion air to burners and/or the operation of venting systems. For this reason, "best practice" design guidelines specify that the return air grille be located 90 degrees from the combustion air intake. (See Figure 6 on Page 15 and Figure 7 on Page 18.)
7. 3 Foot Rule.
In cases where the "best practice" design guideline cannot be followed and the return air grille is located on the same wall as the combustion air openings, the return air grille shall be installed so that the nearest edge is a minimum of 3 feet away from the edge of any combustion air opening.

Boilers

Boilers shall not be installed in bedrooms, bathrooms or toilet rooms unless the boiler is of direct vent design.

Boilers may be installed in utility rooms located in bedrooms, bathrooms and toilet rooms provided that:

1. The utility room has a solid, weather-stripped door that is equipped with a self-closing device.
2. All air for combustion and dilution is obtained from the outdoors. *(See Figure 10 on Page 24 and Figure 11 on Page 25.)*

Note: When a boiler is installed in a utility room located in a bedroom, bathroom or toilet room **with other gas appliances**, all air for combustion and dilution shall be obtained from the outdoors, unless the boiler is of direct vent design.

Residential Gas Clothes Dryer

Residential gas clothes dryers may be installed in any room, except residential garages, provided that:

1. The room is an unconfined space or the requirements listed in 6) are satisfied.
2. The gas clothes dryer is listed.
3. The gas clothes dryer is exhausted to the outdoors.
4. The exhaust duct is constructed of rigid, metallic material and has a minimum nominal size of 4 inches in diameter.
5. The maximum length of the exhaust duct does not exceed 25 feet from the dryer location to the outlet terminal. The maximum length shall be reduced 2.5 feet for each 45-degree bend and 5 feet for each 90-degree bend. Transition ducts used to connect the dryer to the exhaust duct system, shall not be considered in the maximum length calculation.
6. Adequate makeup air is provided in accordance with manufacturers' installation instructions. Dryers located in confined spaces shall have the minimum amount of makeup air supplied by a permanent opening, having a minimum free area of 1 inch²/1,000 Btu/hr. The necessary volume of combustion air will also be supplied using this calculation. If the dryer is the only gas-fired appliance in the confined space, one permanent opening is permissible.

Example: A typical residential gas clothes dryer has an input rating of 30,000 Btu/hr.

$$(30,000 \text{ Btu/hr}) \times \left(\frac{1 \text{ inch}^2}{1,000 \text{ Btu/hr}} \right) = 30 \text{ inch}^2 = \text{Minimum free area of permanent opening}$$

Transition ducts, used to connect the dryer to the exhaust duct system, may be constructed of semi-rigid, corrugated, metallic material, but shall not be aluminum foil or plastic. However, transition ducts shall be limited to single lengths not to exceed 8 feet, shall be listed and labeled for the application and shall not be concealed.

Residential Electric Clothes Dryer

All residential electric clothes dryers installed in rooms with gas-burning appliances shall be exhausted to the outdoors. Lint accumulation may have an adverse effect on the operation of the gas-burning appliances.

Residential/Private Garages

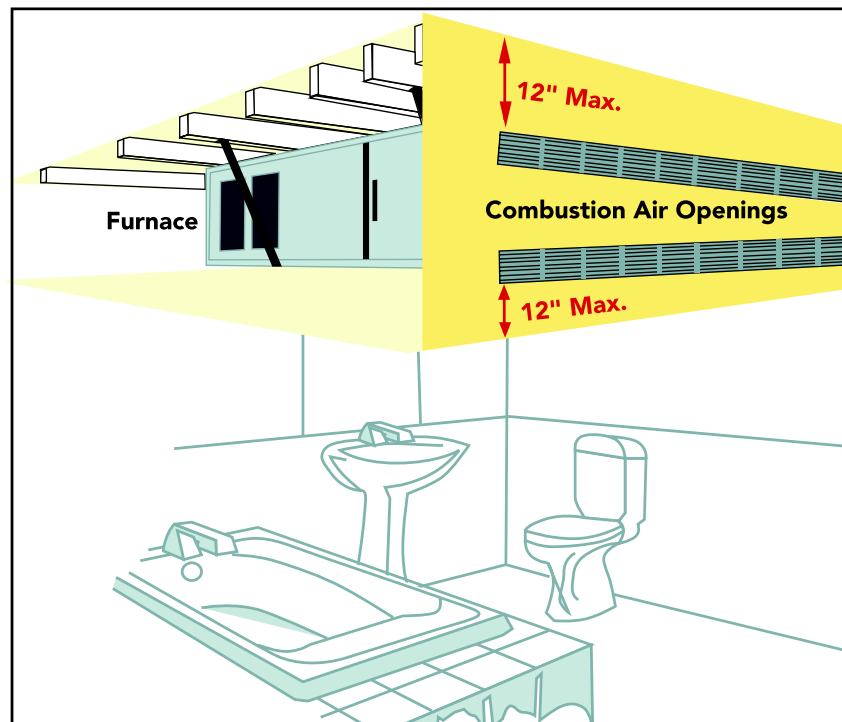
Gas appliances shall not be installed in residential/private garages.



Exceptions:

1. Gas appliance installed to heat the garage space: The gas appliance is a direct vent heater intended to heat only the garage space and does not communicate its heated air to the rest of the building. The heater shall be installed so that all burner and ignition devices are greater than 18 inches above the garage floor. The heater shall also be located or protected so it is not subject to vehicular damage.

Figure 8

Gas Equipment Above a Dropped Ceiling



- 
- 
2. Gas appliances serving the attached habitable space: A separate utility room is constructed in the garage with one means of access and:
 - (a) The appliances shall be installed on a non-combustible surface and all burner and burner ignition devices are located 18 inches above the garage floor.
 - (b) The utility room shall be constructed with one-hour fire-resistant walls and a one-hour fire-resistant ceiling.
 - (c) The entry door to the utility room shall be a 45-minute, Class C, weather-stripped door that is equipped with a self-closing device.
 - (d) All air for combustion and dilution shall be taken from an area other than the garage in accordance with the Air Requirements section of this Construction Guide.
 - (e) The entry door to the utility room shall be clearly marked: DANGER-KEEP DOOR CLOSED.
 - (f) All openings in the utility room for pipes, conduit or ducts shall be sealed airtight.
 - (g) No portion of the return air ductwork shall be readily accessible (visible) or accessible from the garage.

Note:

- 1) The garage shall not be heated by the same forced air system that heats the habitable space.
- 2) Direct vent, warm air furnaces used to heat the habitable space, shall also be installed inside separate utility rooms that are constructed in accordance with number 2 above.

Commercial Garages

Unit heaters that hang from the ceiling and use indoor air for combustion may be installed in commercial garages, provided that the bottom of the unit heater is a minimum of 8 feet above the garage floor.

Gas Furnaces Above a Dropped Ceiling

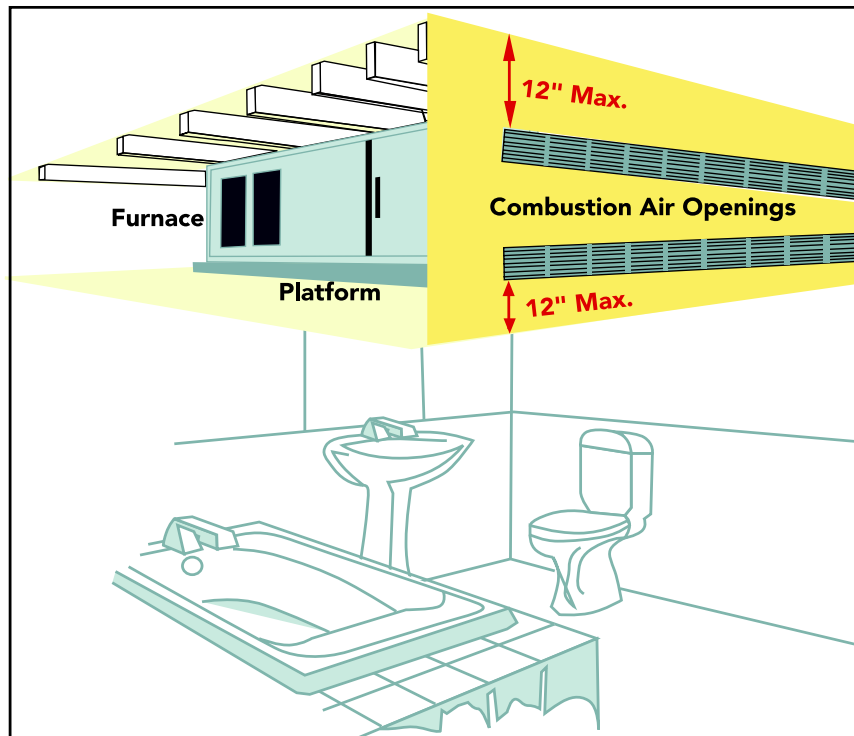
1. Space above the dropped ceiling does not have free air communication with the space below.
2. Horizontal furnaces may be installed above dropped ceilings provided that:
 - (a) The horizontal furnace is listed.
 - (b) The horizontal furnace is installed in accordance with manufacturers' instructions.

- (c) The space above the dropped ceiling is itself unconfined or directly communicates with a horizontally adjacent space through two permanent openings, such that the combined volume of the two spaces is unconfined. The two permanent openings shall be installed on the same wall. One opening shall be located within 12 inches of the top of the space above the dropped ceiling and the second opening shall be located within 12 inches of the bottom of the space above the dropped ceiling. (See Figure 8 on Page 21.)

Note: The two openings shall not be installed in the dropped ceiling itself and the use of outdoor air to supply combustion air to spaces above dropped ceilings is not allowed.

Figure 9

**Gas Equipment Resting on a Platform
Above a Dropped Ceiling**



Gas Furnaces Located Above Bedrooms, Bathrooms or Toilet Rooms

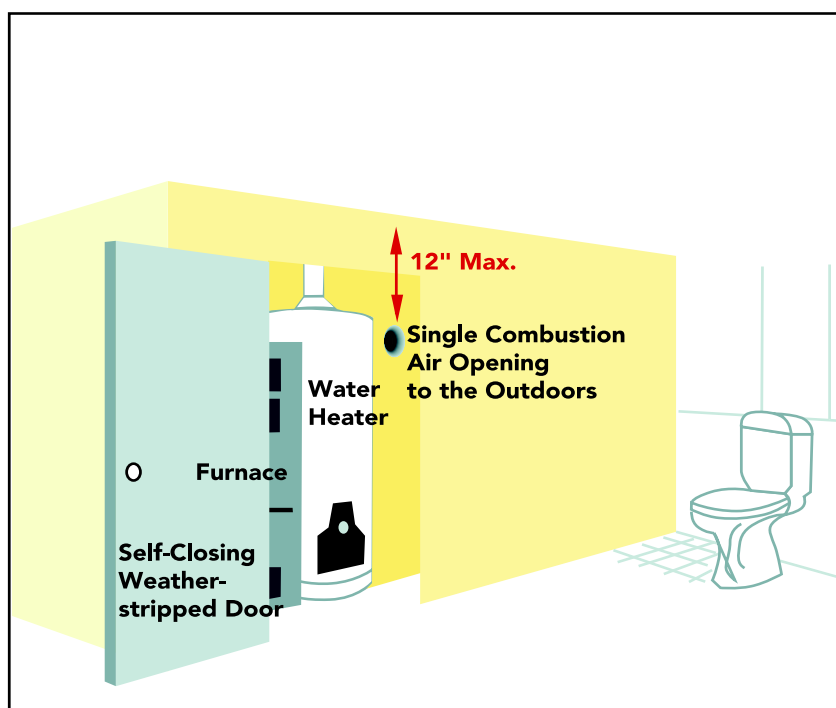
If a gas furnace is located on a platform above a solid ceiling of a bedroom, bathroom or toilet room, the space above such rooms shall be subject to the same conditions as a closet accessed directly from those rooms (if access is provided from those rooms and the space is enclosed by walls and a ceiling).

Gas furnaces shall meet the following criteria when installed in this space
(See Figure 9 on Page 23.):

1. The platform shall be designed to support the weight of the gas furnace.
2. The gas furnace shall be specifically designed for above-ceiling applications.
3. Gas furnaces shall be installed in accordance with the manufacturers' installation instructions and shall be installed on a floor of noncombustible construction, with noncombustible flooring and surface finish and with no combustible material against the underside of the gas furnace. In addition, gas furnaces can be installed on fire-resistive slabs or arches with no combustible material against the underside of the gas furnace.

Figure 10

Gas Appliances in a Closet Located in a Bathroom



Water Heaters

Water heaters shall **not** be installed in a bedroom, bathroom or toilet room unless the water heater is of direct vent design. In addition, water heaters shall not be installed in attic spaces or above any ceiling.

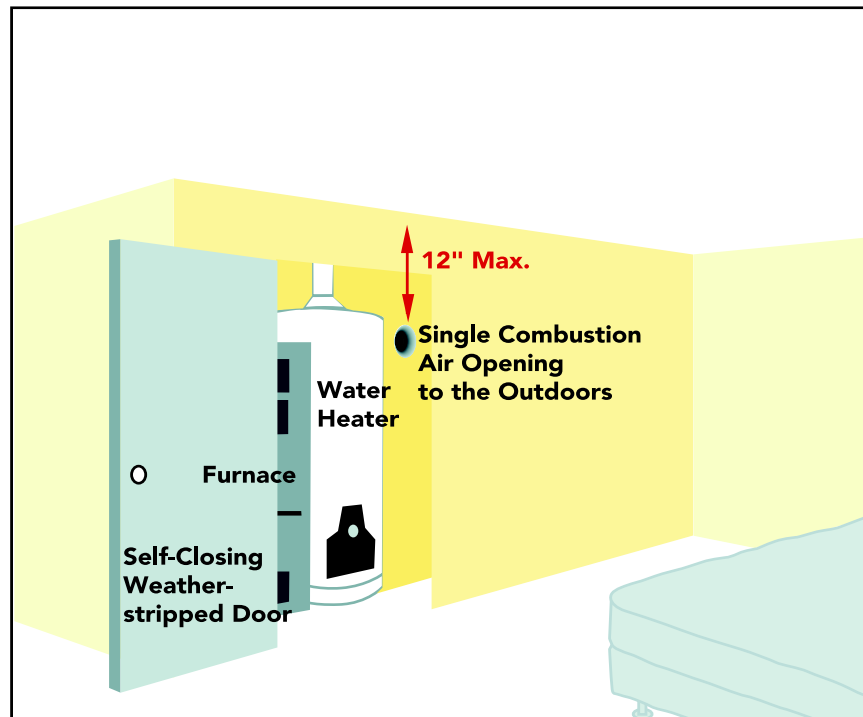
Water heaters may be installed in **utility rooms** located in a bedroom, bathroom or toilet room provided that:

1. The utility room has a solid, weather-stripped door that is equipped with a self-closing device.
2. All air for combustion and dilution is obtained from the **outdoors**. (See [Figure 10 on Page 24](#) and [Figure 11](#).)

Note: When a water heater is installed in a utility room located in a bedroom, bathroom or toilet room **with other gas appliances**, all air for combustion and dilution shall be obtained from the outdoors, unless the water heater is of direct vent design.

Figure 11

Gas Appliances in a Closet Located in a Bedroom



Swimming Pool and Hot Tub Heaters

Swimming pool and hot tub heaters shall not be installed in residential or commercial garages. "Best practice" design guidelines specify that they be installed outdoors. However, they may be installed in dedicated sheds, designed solely for the purpose of storing equipment and supplies. In such cases, combustion and dilution air shall be provided in accordance with Air Supplied from Outdoors on page 16.

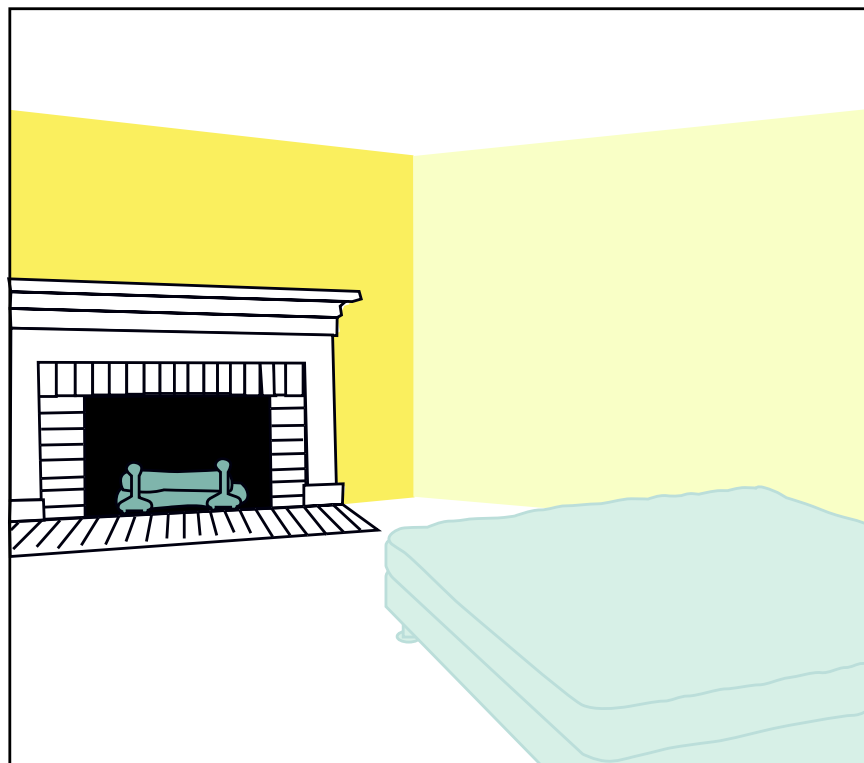
Utility Rooms Containing Multiple Appliances Accessed Directly from Bedrooms, Bathrooms or Toilet Rooms

In new or rehab construction, utility rooms are often located in bedrooms, bathrooms or toilet rooms. When considering combustion air requirements for the gas appliances installed in these utility rooms, the most important factor is whether or not a warm air furnace, boiler or water heater is one of the gas appliances.

1. If a warm air furnace, boiler or water heater is present in the utility room, all air for combustion and dilution shall be obtained from the outdoors.
(See Figure 10 on Page 24 and Figure 11 on Page 25.)

Figure 12

Fireplace in a Bedroom



2. If the utility room does not contain a warm air furnace, boiler or water heater, combustion and dilution air may be obtained from the bedroom, bathroom or toilet room provided that:
 - (a) The bedroom, bathroom or toilet room is an unconfined space.
 - (b) All air for combustion and dilution is provided in accordance with the sections entitled Air Supplied from Indoors on page 14 and Air Supplied from Outdoors on pages 16.

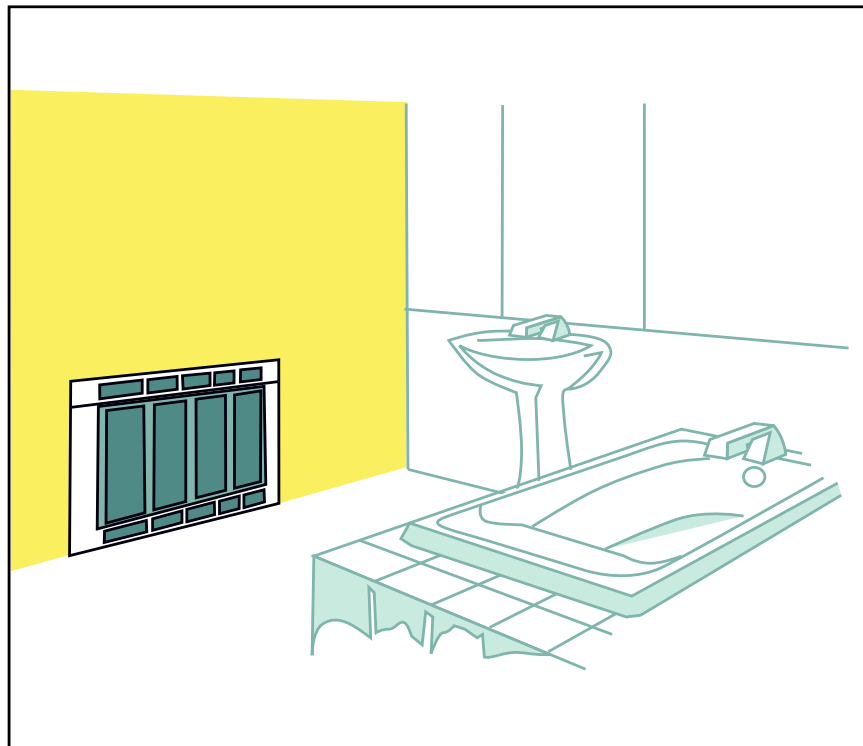
Vented Gas Fireplaces (Not Including Direct Vent)

Vented gas fireplaces may be installed in habitable rooms, not including bedrooms, bathrooms and toilet rooms provided that:

1. The fireplace is listed.
2. The habitable room is an unconfined space.
3. The fireplace is installed in accordance with manufacturers' instructions. *(See Figure 12 on Page 26.)*

Figure 13

Fireplace in a Bathroom



Vented gas fireplaces may be installed in bedrooms, bathrooms and toilet rooms provided that:

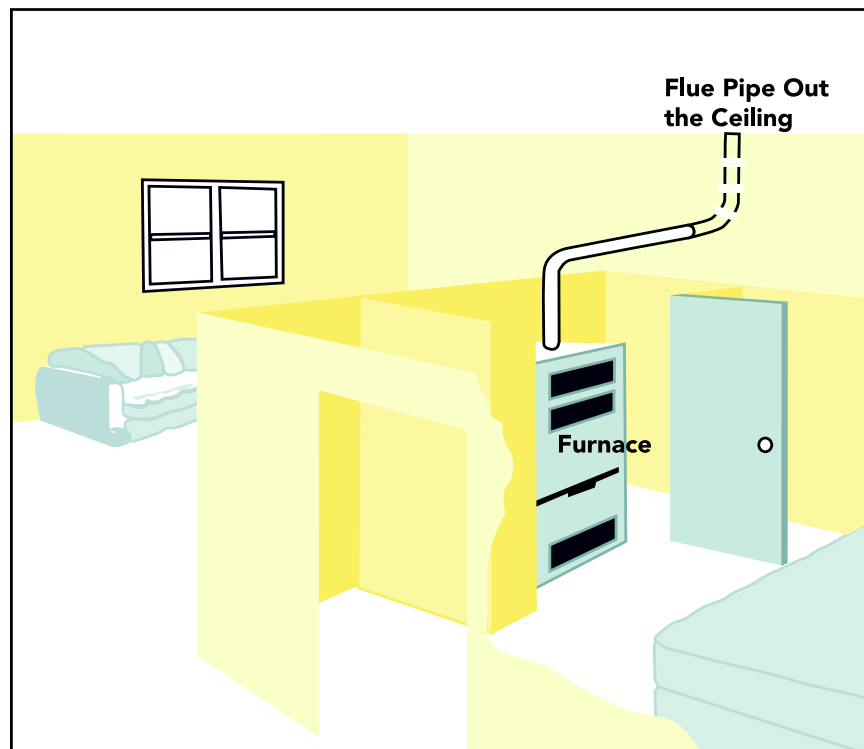
1. The fireplace is listed.
2. The bedroom, bathroom or toilet room is an unconfined space.
3. The fireplace is installed in accordance with manufacturers' instructions.
4. An approved carbon monoxide detector is installed inside the bedroom, bathroom or toilet room and is energized by the permanent electrical wiring present inside the bedroom, bathroom or toilet room. (See Figure 13 on Page 27.)

Direct Vent Gas Fireplaces and Direct Vent Room Heaters

Listed, direct vent gas fireplaces and direct vent room heaters may be installed in all habitable rooms. Listed direct vent gas fireplaces and room heaters shall be installed in accordance with manufacturers' instructions.

Figure 14

Borrowed Light Concept



Unvented Gas Fireplaces and Unvented Gas Room Heaters

Unvented gas fireplaces and unvented gas room heaters shall not be used as the primary heat source in any structure. Such appliances are designed to be used as supplemental heat sources only or for decorative purposes. Unvented gas fireplaces and unvented room heaters shall be provided with additional ventilation air in accordance with manufacturers' installation instructions.

1. Unvented gas fireplaces and unvented gas room heaters may be installed in habitable rooms other than bedrooms, bathrooms and toilet rooms provided that:
 - (a) The appliance is listed.
 - (b) The habitable room is an unconfined space.
 - (c) The appliance is installed in accordance with manufacturers' instructions.
2. Unvented gas fireplaces and unvented gas room heaters may be installed in bedrooms provided that:
 - (a) The bedroom is an unconfined space.
 - (b) The unvented gas fireplace is set in the wall and the unvented gas room heater is wall-mounted.
 - (c) The appliance is equipped with an oxygen depletion safety shut-off system.
 - (d) The input rating of the appliance does not exceed 10,000 Btu/hr.
 - (e) The appliance is installed in accordance with manufacturers' instructions.
 - (f) An approved carbon monoxide detector is installed inside the bedroom and is energized by the permanent electrical wiring present inside the bedroom.
3. Unvented gas fireplaces and unvented gas room heaters may be installed in bathrooms and toilet rooms provided that:
 - (a) The bathroom or powder room is an unconfined space.
 - (b) The unvented gas fireplace is set in the wall and the unvented gas room heater is wall-mounted.
 - (c) The appliance is equipped with an oxygen depletion safety shut-off system.
 - (d) The input rating of the appliance does not exceed 6,000 Btu/hr.
 - (e) The appliance is installed in accordance with manufacturers' instructions.
(See Figure 14 on Page 28.)
 - (f) An approved carbon monoxide detector is installed inside the bathroom or toilet room and is energized by the permanent electrical wiring present inside the bathroom or toilet room.



Log Lighters

Log lighters shall not be installed in bedrooms, bathrooms or toilet rooms.

Barbecue Grills

Natural gas barbecue grills may be installed on balconies of buildings with multiple units. However, the gas shall be hard piped out to the balcony and a readily accessible (visible) shut-off valve shall be located outside on the wall at the point where the pipe protrudes out from the wall. A readily accessible (visible) gas convenience outlet, which includes a shut-off valve as an integral part of its design, may be used as an alternative to a standard shut-off valve. Manufacturers' installation instructions regarding clearances shall be followed when installing barbecue grills.

Borrowed Light Concept

Gas appliances may be installed in the bedroom area of a residential loft unit constructed in accordance with the borrowed light concept, as long as the following conditions are met:

1. The walls surrounding the bedroom area do not extend to the ceiling.
2. The combined air volume of the bedroom area and the habitable space complies with the unconfined space definition. *(See Figure 14 on Page 28.)*

Venting

Category I appliances, i.e., appliances equipped with a draft hood having efficiencies of 83% or less, shall be vented up and out the rooftop of all buildings.

No portion of a venting system shall extend into or pass through a circulating air duct or plenum.

Side Wall Vent Locations for Gas Appliances

The following requirements apply for the side wall venting of flue gases from Category III and Category IV gas appliances that are power vented with a fan: (See Figure 15 on Page 32.)

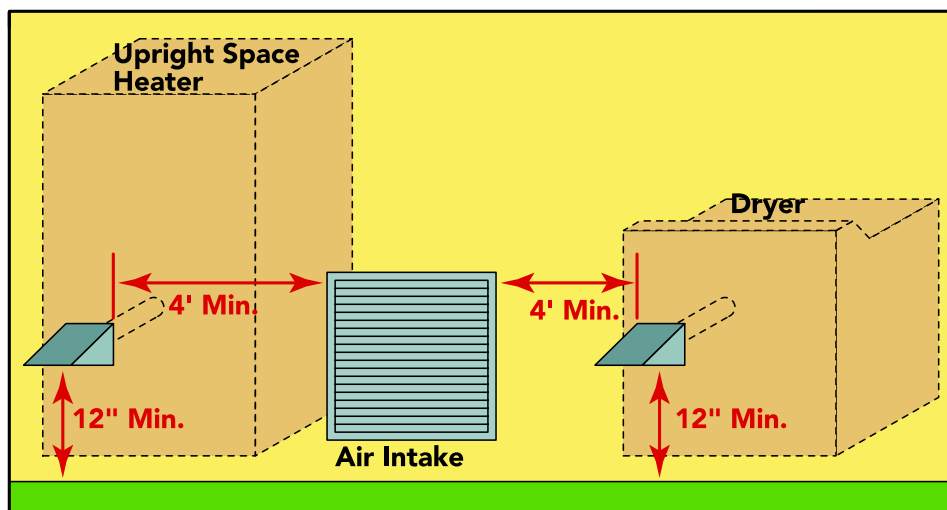
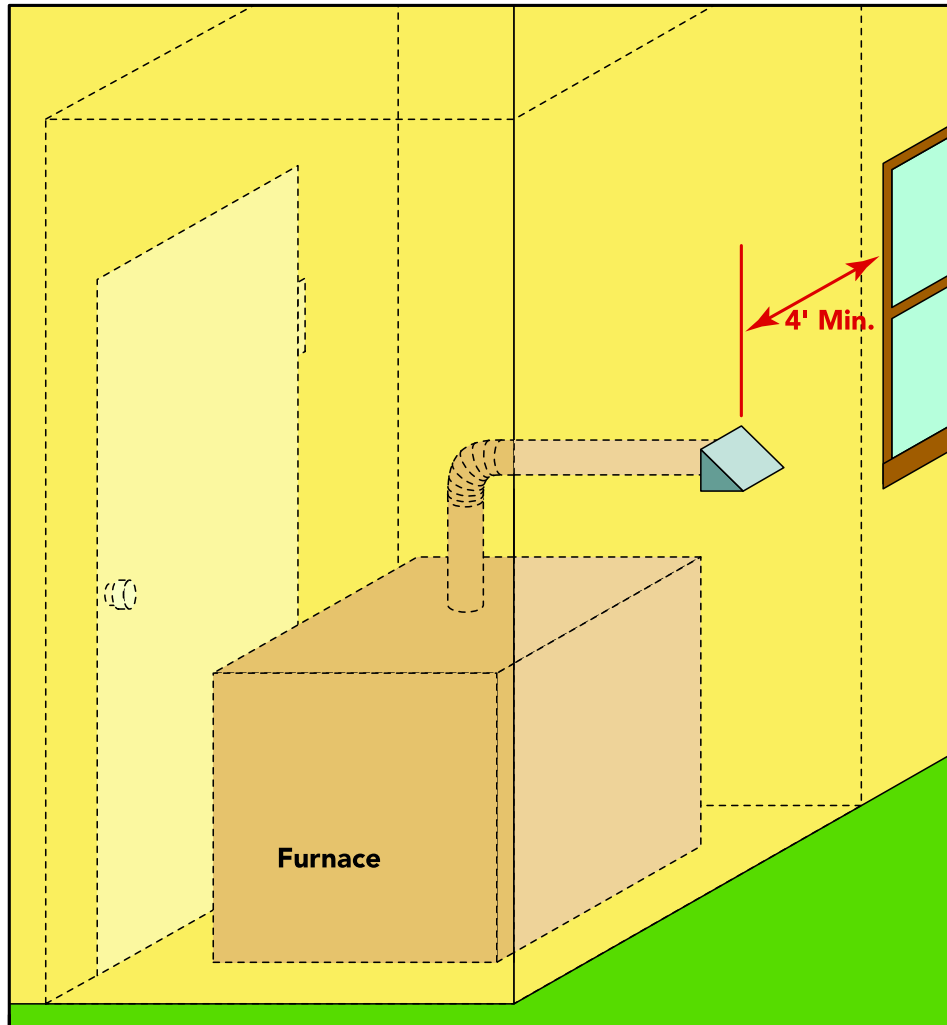
1. The vent shall not be installed in an inner court or light well that is enclosed on all four sides.
2. The vent shall not be installed in an outer court or any other similarly restricted area (e.g., gangway) unless there is a minimum distance of 10 feet from the nearest building.
3. A mechanical draft venting system shall terminate at least 3 feet above any forced-air inlet located within 10 feet.

Exceptions: (a) This requirement shall not apply to the combustion air intake of a **direct vent** appliance. (b) This requirement shall not apply to the separation of the integral outdoor air inlet and flue gas discharge of listed outdoor appliances.

4. A mechanical draft venting system, **excluding direct vent appliances**, shall terminate at least 4 feet below, 4 feet horizontally from or 1 foot above any door, window or gravity air inlet into any building. The bottom of the vent terminal shall be located at least 12 inches above grade.
5. The vent terminal of a **direct vent** appliance with an input of 10,000 Btu/hr or less shall be located at least 6 inches from any air opening into a building. The vent terminal of a **direct vent** appliance with an input over 10,000 Btu/hr, but not over 50,000 Btu/hr shall be located at least 9 inches from any air opening into a building. The vent terminal of a **direct vent** appliance with an input over 50,000 Btu/hr, shall be located at least 12 inches from any air opening into a building. The bottom of the vent terminal and the air intake shall be located at least 12 inches above grade.

Figure 15

Sidewall Vent Locations for Gas Appliances



6. Side wall vents shall not terminate over public walkways or over an area where condensate or vapor could create a nuisance, hazard or could be detrimental to the operation of regulators, relief valves or other equipment.

Exception to Requirements 1-6 Listed Above: Category III and Category IV fireplaces designed to vent out the side wall shall be vented in accordance with manufacturers' installation instructions.

The Seven Times Rule

Category I venting systems shall be sized in accordance with approved Vent Sizing Tables. Additionally, for proper sizing of a venting system, the Seven Times Rule, as stated below, shall be applied as a double check against over sizing.

When two or more appliances are connected to a chimney, the flow area of the largest section of that chimney cannot exceed seven times the smallest flue collar area or draft hood outlet area unless designed with approved engineering methods.

Rationale

If the chimney is too large, the appliances connected will not be able to vent properly. This situation often occurs in the warmer months, when water heaters are used, but not the furnaces. It is important that a single water heater will vent properly, even if no other appliances are operating. The example on this page illustrates the application of this standard.

Application of the Seven Times Rule

With a typical 3-inch diameter draft hood of a water heater connected to a chimney, calculate the largest permissible diameter of this chimney: *(See Figure 16 on Page 36 and Table 1 on Page 34.)*

Step 1. To calculate the flow area, determine the area of a 3-inch circle

$$\{3.14 \times (\text{diameter}^2/4) = \text{flow area}\}: \\ 3.14 \times (3'' \times 3'') / 4 = 7.065 \text{ in}^2$$

Step 2. Applying the Seven Times Rule to identify the maximum flow area of the largest section:

$$7 \times (7.065 \text{ in}^2) = 49.455 \text{ in}^2$$

Step 3. Referring to Table 1, the flow area for the 8-inch vent pipe of 50.24 in² is more than the maximum calculated flow area of 49.455 in². As a result, the 8-inch chimney is too large. The 7-inch vent pipe with a flow area of 38.456 in² is the proper size, since this flow area is less than seven times the flow area of the 3-inch diameter draft hood (49.455 in²).

Table 1 Calculation of Flow Area for Draft Hoods or Flue Collars	
Diameter of Draft Hood Outlet or Flue Collar	Flow Area (in ²)
3"	7.065
4"	12.560
5"	19.625
6"	28.260
7"	38.465
8"	50.240
9"	63.585
10"	78.500

Table 2 The Seven Times Rule Table	
Smallest Draft Hood Outlet or Flue Collar of an Appliance Connected to a Multistory Common Chimney	Largest Section of Vertical Vent or Chimney
3"	7"
4"	10"
5"	13"
6"	15"
7"	18"
8"	21"
9"	23"
10"	26"
11"	29"
12"	31"
13"	34"

The Seven Times Rule applies to fan-assisted and/or natural-draft equipment vented to a common chimney.



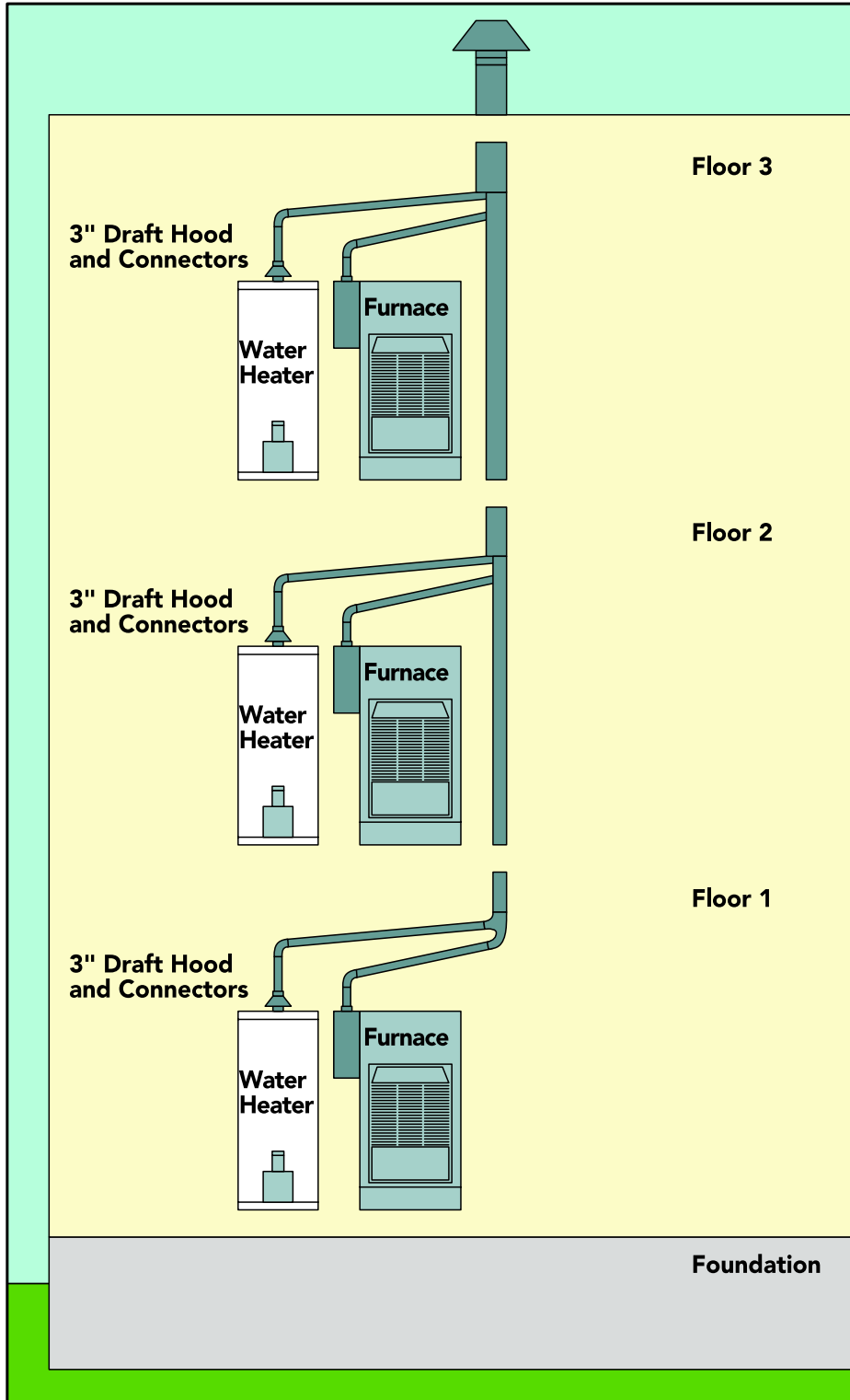
Multistory Common Venting

Using a common flue pipe to vent Category I appliances located in multiple units in a multistory building, presents an increased risk of flue products spilling into a living space. This spillage will occur below the point of a chimney blockage, collapse or where the chimney has been damaged by outside forces or altered from its original design. Common flue pipe installations involving multiple units are allowed, provided that all the gas appliances connected to the common vent are located in rooms that have no air communication with the habitable space and are supplied with the proper volume of combustion and dilution air from outdoors. The "Seven Times Rule" shall be applied as a double check against oversizing the flue pipe.

Carbon Monoxide detectors shall be installed in accordance with both state of Illinois and city of Chicago requirements.

Figure 16

Multistory Venting



Calculations

Confined vs. Unconfined Space

In new or rehab construction, the **most important factor** governing the installation of gas appliances is whether the room is classified as a **confined** or **unconfined** space. The **only** way to determine whether a room is a confined or unconfined space is to perform a **room volume calculation** using:

1. The dimensions of that specific room.
2. The total Btu/hr input rating of the appliance(s) to be installed in the room.
3. Method #1, Method #2 or Method #3. (See pages 37-38).

Note: An adequate amount of air is required for safe gas appliance operation. The use of exhaust fans, kitchen ventilation systems, clothes dryers, bathroom fans, fireplaces and other fan-assisted devices may adversely affect the safe operation of gas-burning appliances. Consequently, extra air may be required when calculating air requirements for combustion and dilution when fan-assisted devices are present.

Sample Volume Calculation

Room: 8' H x 33' L x 25' W

Room Volume = 6,600 ft³

Appliances: Gas Furnace-Input Rating of 100,000 Btu/hr
Gas Hot Water Heater-Input Rating of 32,000 Btu/hr
Total Btu input rating = 132,000 Btu/hr

Method #1

(Total Btu/hr input of all appliances) x (50 ft³) Minimum room (1,000 Btu/hr) volume to be classified as an unconfined space.

$(132,000 \text{ Btu/hr}) \times (50 \text{ ft}^3) = (1,000 \text{ Btu/hr})$

A room containing a 100,000 Btu/hr gas furnace and a 32,000 Btu/hr gas hot water heater shall have a minimum room volume of 6,600 ft³ in order to be classified as an unconfined space.

A room containing a 100,000 Btu/hr gas furnace and a 32,000 Btu/hr gas hot water heater that has a volume **less than** 6,600 ft³ is classified as a **confined space**.

Method #2

(Room volume in ft³) x (20 Btu) = Maximum total Btu/hr input of all appliances that this room volume will support. (6,600 ft³) x (20 Btu) = 132,000 Btu/hr.

A 6,600 ft³ room (8' H x 33' L x 25' W) is large enough and has sufficient air volume to support gas appliances with a maximum total Btu/hr input rating of 132,000 Btu/hr.

A 6,600 ft³ room (8' H x 33' L x 25' W) containing gas appliances with a maximum total Btu/hr input rating of 132,000 Btu/hr is classified as an unconfined space.

A 6,600 ft³ room (8' H x 33' L x 25' W) containing gas appliances with a total Btu/hr input rating greater than 132,000 Btu/hr is classified as a confined space.

Method #3

(Room volume in ft³) x 1,000 = Maximum total Btu/hr input (50 ft³/Btu) of all appliances that this room volume will support.

$$(6,600 \text{ ft}^3) \times 1,000 = 132,000 \text{ Btu} = (50 \text{ ft}^3/\text{Btu})$$

A 6,600 ft³ room (8' H x 33' L x 25' W) is large enough and has sufficient air volume to support gas appliances with a maximum total Btu/hr input rating of 132,000.

A 6,600 ft³ room (8' H x 33' L x 25' W) containing gas appliances with a maximum total Btu/hr input rating of 132,000 is classified as an unconfined space.

A 6,600 ft³ room (8' H x 33' L x 25' W) containing gas appliances with a total Btu/hr input rating greater than 132,000 is classified as a confined space.

Most appliance rooms in residential construction are confined spaces. There are special air requirements for the appliances contained in these rooms. *(For more details, see Air Requirements on page 11.)*



Gas Distribution System

Peoples Gas' distribution system consists primarily of medium-and low-pressure gas mains and service pipes. The majority of our customers' service pipes are connected to the low-pressure system. *(See Figure 19 on Page 45.)*

Service pipes attached to low-pressure mains do not require a service regulator.

All service pipes supplied by medium-pressure mains (typically 10-20 psig) require pressure regulators to reduce the delivery pressure to a safe level for appliances inside the building. In areas supplied by medium-pressure gas mains, Peoples Gas shall supply gas to a building at one delivery pressure: 6-inches water column, 2-psig or line pressure. When supplying gas at 6-inches water column or 2-psig, Peoples Gas shall install a maximum of one pair of service regulators. When supplying gas at line pressure, Peoples Gas shall not install any service regulators. The customer is responsible for specifying, installing and maintaining pressure regulators in accordance with the customer's preferred design.

The typical service regulator reduces gas delivery pressure to 6-inches water column (approximately $\frac{1}{4}$ psig). Residential gas appliances such as furnaces, ranges, dryers and fireplaces generally require 3-to 6-inches water column pressure to operate.

Gas Mains

Easements

An easement is an agreement between the property owner and Peoples Gas that gives us the right to use the property for installation and maintenance of gas facilities. Easements are required when gas facilities are installed through private property, vacated streets or beneath railroad tracks.

Requests for gas facilities installations that require an easement should be made during the design phase of the project. Obtaining permits or complicated easement agreements may take several weeks or months.

The following minimum information is needed to obtain an easement:

1. An easement drawing, plat of survey and a utility site plan.
2. The names of the property owner and the name, telephone, fax and address of the property owner's attorney.
3. The utility site plan shall show that the gas main has a minimum of 3 feet clearance on both sides from other utilities.

Charges for Gas Mains


Two types of charges for a gas main installation, a Main Deposit and a Billing Work Order, are described below.

Main Deposit

When a customer or group of customers requests that new gas facilities be installed in a location where no gas main exists, Peoples Gas may require a Main Deposit. A Main Deposit is only required when new main will be installed to supply a customer or group of customers whose expected gas revenues do not cover the company's cost of installing the new main.

The Main Deposit, calculated by Peoples Gas, is based on three factors: 1) the free allowance of new main, as described in Rider 4, Extension of Mains, of the company's schedule of rates, on file with the Illinois Commerce Commission, as revised from time to time; 2) the estimated revenue, and 3) the company's estimated installation cost.

1. Free allowance: When gas mains are not available to support Peoples Gas' specified service pipe location, Peoples Gas will extend, at no cost to a new customer, up to 100-feet of low pressure main or 200-feet of medium-pressure main.

- 
2. Estimated revenue: The income expected to be generated from the customer or group of customers' specified gas-burning appliances.
 3. Company's estimated installation cost: The estimated cost of installing the new gas main, including labor, material, restoration, overhead and contingencies.

The Main Deposit amount is the revenue shortfall from a calculation, which utilizes the free allowance, estimated revenue and company's estimated installation cost. Portions of the Main Deposit(s) may, in the future, be refunded to the customer or group of customers, if additional customers are supplied from the new main.

Billing Work Order

When main work is performed at the customer's request, the customer shall pay for all costs associated with the work through a Billing Work Order. Peoples Gas issues a Billing Work Order in the following situations:

1. The customer plans to or has built over an existing gas main (in a public street or an easement on private property). The customer shall pay for all costs associated with the relocation and/or retirement of the main.
2. The customer wants higher-pressure gas delivered to a building, even though adequate gas supply is available by way of an existing low-pressure main. The customer shall pay for all costs associated with this new main installation.
3. Where existing, adequate gas main facilities are available and the customer requests that new gas main(s) be installed to a specific location or that Peoples Gas extend the existing gas main in accordance with the customer's preferred design, the customer shall pay for all costs associated with the new main installation or extension.
4. For developments with multiple buildings, including town home developments, rowhouse developments and commercial developments, the customer may request that additional gas mains, over and above Peoples Gas' specified location, be installed in accordance with the customer's preferred design. In such cases, the customer shall pay for all costs associated with the installation of additional gas mains installed at the customer's preferred location.

Note: For items 1-4 listed above, billing work orders will be calculated based on the scope of the project, as determined by reviewing detailed blueprints and meeting at the site to evaluate installation issues. Costs may vary greatly depending on location and scope of work. The billing work order is presented to the customer for signature.

Service Pipes

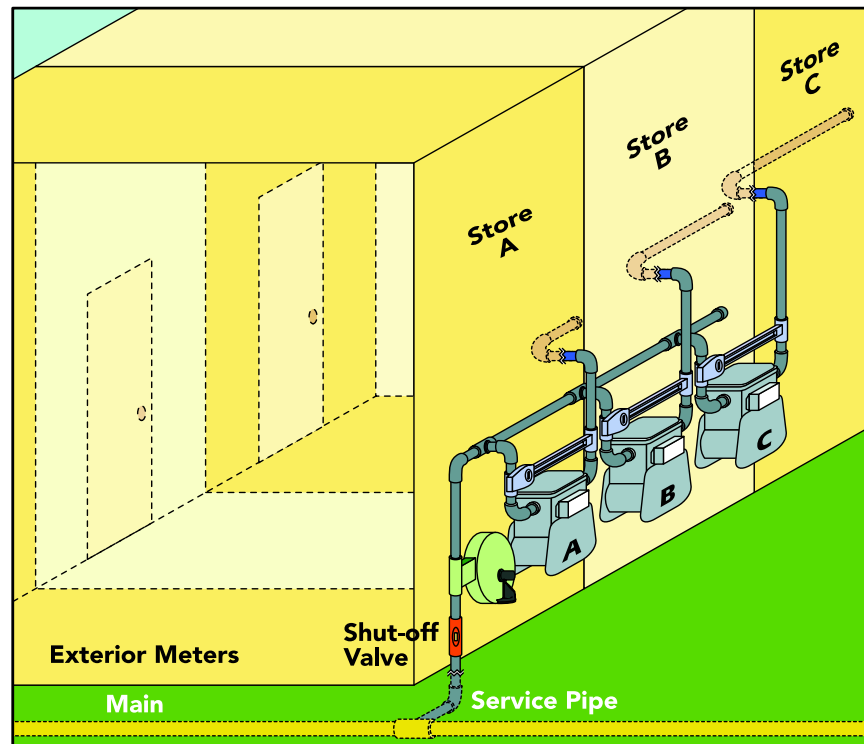
Buildings with multiple units, including condominium buildings, apartment buildings and commercial buildings, will be limited to a single service pipe, installed by Peoples Gas, to serve multiple meters. A single service assures the immediate “shutdown” of gas service to a building with multiple units in case of an emergency. The following schematic illustrates a single service for multiple meters. (See Figure 17.)

Exception: Town homes.

In Figure 17, the building has a single service pipe serving a properly sized meter header installed by the customer/contractor for three or more meters. The service pipe has been installed to the wall that is closest to the gas main. The meters are located along the outside wall. The house pipe or customer-owned underground pipe shall be installed from the meter header to each individual condominium, apartment or commercial tenant space by the customer.

Figure 17

Outside Meter Installation for a Multiple Unit Building



For outside meter locations, Peoples Gas shall install a service pipe from a company-specified gas main to a point not exceeding 5-feet beyond the corner of the building wall nearest to the main. When Peoples Gas specifies an indoor meter location, the company shall install a service pipe from a company-specified gas main to a point not exceeding 10-feet inside the building wall.

Note: Wherever practical, Peoples Gas shall install all gas meters and regulators outside. In all cases, Peoples Gas shall have final approval concerning the location of gas meters and regulators.

After the gas service application process has been completed, Peoples Gas will order a permit from the city of Chicago to install the service pipe. Peoples Gas cannot perform any work until a city of Chicago permit is obtained. Please remember to allow a minimum of two weeks for the issuance of the permit. The application process should be completed as far in advance as possible to assure that the service pipe is installed before paving or landscaping.

Acceptable Service Pipe Locations

1. The service pipe is normally installed to the front or side of a building at a location closest to the nearest gas main. However, Peoples Gas may specify to install the service pipe at a different location, from a different gas main. **Builders should always contact Peoples Gas to verify service pipe location, prior to installing house piping and stubbing out to a location in accordance with the customer's preferred design.** (See *Figure 18 on Page 44.*)

Prohibited Service Pipe Locations

1. Crawl spaces. (See *Rehab section on page 61.*)
2. Inaccessible locations, such as those underneath building slabs. (See *Rehab section on page 61.*)

Exception: Casing pipe services. (See *Casing Pipe Gas Services on page 50.*)

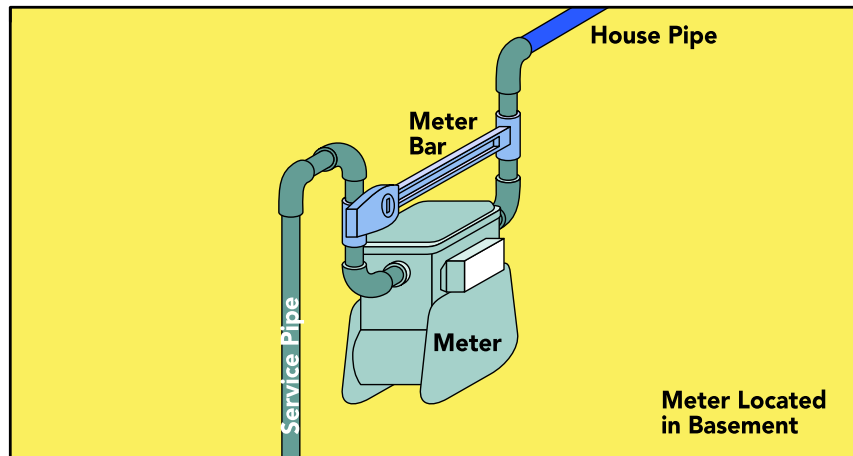
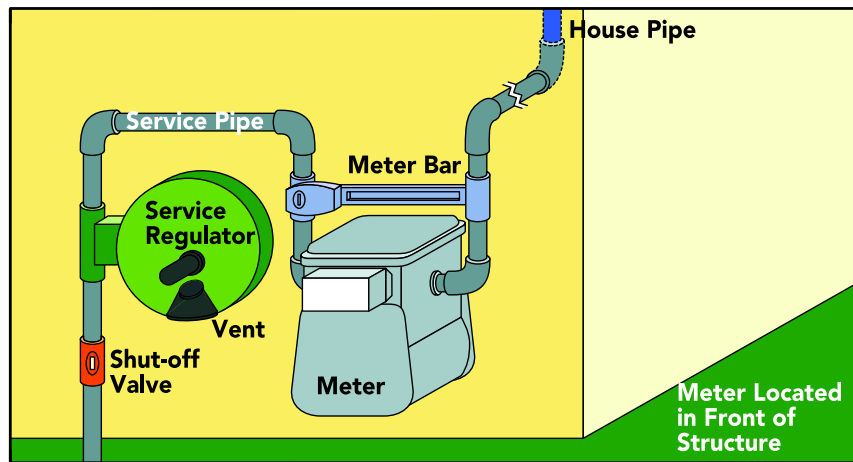
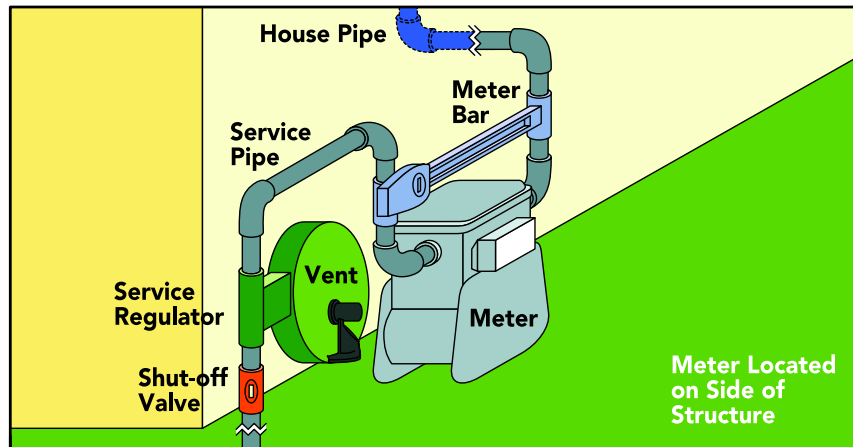
3. Locations located on or encroaching upon adjacent properties.
4. Locations where walkways (both public and private) or access to walkways would be obstructed.

To Facilitate Service Pipe Installation

1. The service pipe path shall be cleared by the customer of debris or obstructions such as trees, landscaping, old foundations, scaffolding, vehicles or dumpsters before installation begins.
2. The final grade is identified prior to installation. The gas service pipe shall be installed a minimum of 18 inches below final grade in private property and 36 inches below final grade in the public way. (See *Figure 19 on Page 45.*)

Figure 18

Acceptable Meter Locations



Jobbing Contract

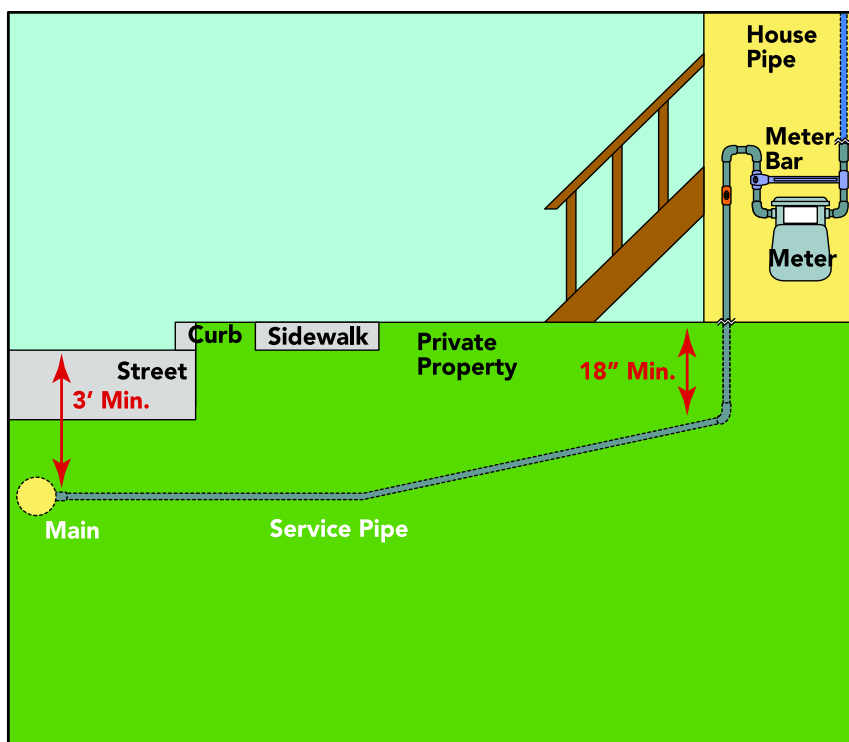
A Jobbing Contract is an agreement between a customer and Peoples Gas for additional work concerning gas facilities (other than main work), performed by Peoples Gas, in accordance with the customer's preferred design.

Peoples Gas does not Charge the Customer for Service Pipe Installations in the Following Instances

1. Peoples Gas initiated upgrades to existing gas facilities.
2. The customer's gas load increases and Peoples Gas determines that the existing gas service is not large enough to meet the demand requirements of the increased gas load. This policy does not apply to new buildings where the same customer rebuilt on the location of the original structure, which had an existing service pipe that was cut off in the last two years. In such cases customers will, at a minimum, be charged a reconnection fee as listed in the current Peoples Gas Billing and Price Book. (See the **Cut Off, Reconnection and Relocation of Service Pipes** section on Page 47.)

Figure 19

Service Pipe Depth



Peoples Gas Charges the Customer for Service Pipe Installations in the Following Instances

1. The customer needs temporary gas service for construction heat or some other application, but will not have a permanent gas load. The customer shall pay for the installation and removal of the entire service pipe. The charges will be billed on a jobbing contract basis.
2. The customer will have a small permanent gas load and a larger temporary gas load. In such cases, the customer shall pay the incremental difference between the cost of installing the permanent gas service and the temporary gas service. The charges will be billed on a jobbing contract basis.
3. The customer plans to or has built over an existing gas service pipe. The gas service pipe must be relocated. The customer shall pay for all costs associated with the relocation. The charges will be billed on a jobbing contract basis.
4. The customer requests current gas facilities to be relocated or modified in accordance with the customer's preferred design. The customer shall pay any incremental costs associated with such relocation or modification. The charges will be billed on a jobbing contract basis.
5. In accordance with the customer's preferred design, the customer requests that the gas service pipe be installed to a location more than five-feet beyond either corner of the building wall, nearest to Peoples Gas' specified gas main. The customer shall pay only for the additional service pipe that extends more than five-feet beyond either corner of the building wall. (See Figure 20 on Page 47.)

Notes: For buildings with sunken patios or light wells located in the front of the building, the front of the sunken patio or light well shall be considered to be the front of the building. The charges will be billed on a jobbing contract basis.

For items 1-5 listed above, jobbing contracts will be calculated based on the scope of the project as determined by reviewing detailed blueprints and meeting at the site to evaluate installation issues. Costs may vary greatly depending on location and scope of work. The jobbing contract is presented to the customer for signature.

Excess Service Pipe

Peoples Gas may charge the customer for service pipe installations if the service pipe extends beyond 100 feet inside the lot line of the customer. In such cases, Peoples Gas shall consider the service pipe installation cost, revenues derived from its use and all other relevant circumstances. Peoples Gas shall pay for the first 100 feet and any length of service pipe that can provide an adequate return. The customer shall pay for any additional footage of the service pipe that cannot provide an adequate return. The charges will be billed on a jobbing contract basis.

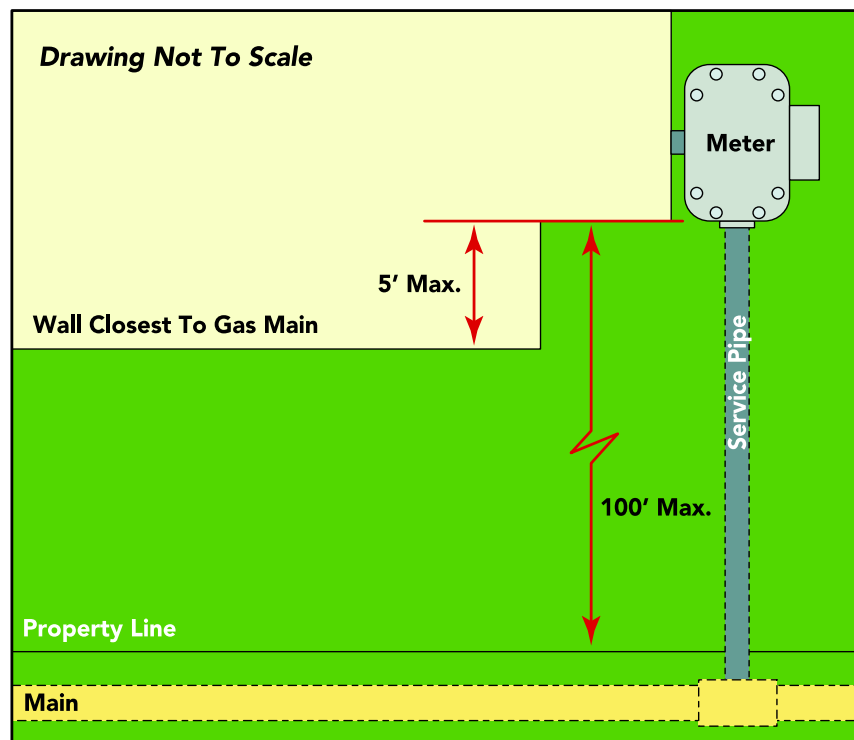
Cut Off, Reconnection and Relocation of Service Pipes

Cut Off: The customer shall pay to have an existing gas service pipe cut-off prior to demolition of an existing building. Peoples Gas charges a flat fee as is listed in the Peoples Gas Billing and Price Book.

Reconnection or Relocation: When the same customer demolishes a building and builds a new building on the same property within two years of the date that the old gas service pipe was cut off, the customer shall pay for either a reconnection or relocation. Following demolition, in accordance with the customer's preferred design, Peoples Gas will reconnect the gas service pipe to the customer's new building for a flat fee as is listed in the Peoples Gas Billing and Price Book, if the existing gas service pipe can be reused. Customers should contact the local Peoples Gas Construction Coordinator early in the planning process, to determine whether the existing gas service pipe can be used to supply the new building. If the gas service pipe must be relocated, in accordance with the customer's preferred design, the customer shall be charged the entire cost to relocate the gas service. The charges will be billed on a jobbing contract basis.

Figure 20

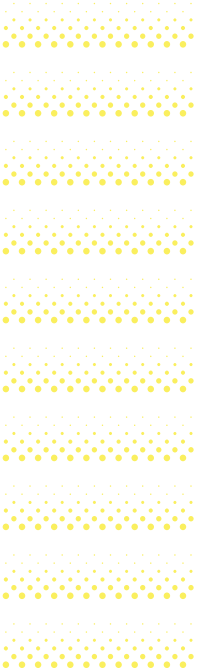
Service Pipe Allowances





Unique Designs Town Home Developments

Developments consisting of buildings constructed with multiple town homes under one roof shall have gas service specified under this policy.

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1. Each town home is entitled to its own service pipe from Peoples Gas' specified gas main, provided that the developer's design includes safe, accessible, outdoor meter locations.
 2. Developers whose designs do not include safe, accessible, outdoor meter locations from Peoples Gas' specified gas main, may request the installation of additional mains and service pipes to accommodate their preferred designs. Peoples Gas will consider such requests, provided that the alternative locations include safe, accessible, outdoor meter locations. If Peoples Gas approves the alternative locations, the developer will be charged for all additional mains and any excess footage included in the service pipes installed in accordance with the customer's preferred design.
 3. Developers whose designs do not include any safe, accessible, outdoor meter locations, may request a single service pipe to supply multiple town homes under one roof. However, Peoples Gas shall first approve the location of the single service pipe and the developer must provide adequate space for multiple meters to be located in a safe, accessible, outdoor location. Developers utilizing this design and installing underground, customer-owned piping, downstream of the gas meters to individual town homes, shall install polyethylene gas piping. The polyethylene gas piping and fittings shall be manufactured in accordance with the requirements listed in American Society of Testing Materials (ASTM) D 2513 and shall be buried at a minimum depth of 18 inches. For safety and locating purposes, tracer wire shall be installed alongside the entire length of pipe, up to and including a point 12 inches above grade on the outside riser. The tracer wire shall be, at a minimum, AWG 14 insulated copper wire and the outside riser shall contain an approved shutoff valve. Non-biodegradable CAUTION tape shall be laid at a depth of 12 inches in the ditch, prior to backfilling. Contractors installing polyethylene gas piping underground shall be properly trained and qualified.

Demolition of an Existing Building to Construct Two New Buildings

Developers who demolish an existing building located on a double-lot, intending to construct two new buildings (one on each lot), have three options when requesting gas service:

1. One service shall be installed as a **Reconnection**, in the same location as the old gas service and the second service shall be free of charge. (See **Cut Off, Reconnection and Relocation of Service Pipes** on page 47.)
2. One service shall be **Relocated** and the second service shall be free of charge. (See **Cut Off, Reconnection and Relocation of Service Pipes** on page 47.)
3. Two service pipes shall be installed in a single, wide trench located between the buildings. The trench will straddle the property line between the buildings and each service pipe shall be located on the property of the building it supplies. A gas meter will be installed for each building in a safe, accessible, outdoor location nearby the service pipe. One service shall be installed for the same price as a **Reconnection** and the second service shall be free of charge.

Decentralization

Decentralization refers to any situation where adequate, existing gas facilities are in place and an existing owner, new owner or tenant requests that the existing gas facilities be modified, relocated or duplicated, in accordance with their preferred design. Such designs include, but are not limited to:

1. Universities, colleges, hospitals, institutions and housing developments heated by central steam plants, where steam is piped to outlying buildings. Owners of such properties, requesting new, individual gas services be installed for each building, shall be charged for all additional service pipes.

Coach Houses or Rear Structures

Customers having coach houses or rear structures on their property have two options when requesting gas service:

1. Peoples Gas will install a single gas service to the front building and install two gas meters, one for the front building and one for the rear structure. The customer is responsible for piping to the rear structure. However, customers choosing to install underground, customer-owned piping, downstream of the gas meter installed for the rear structure, shall install polyethylene gas piping. The polyethylene gas piping and fittings shall be manufactured in accordance with the requirements listed in American Society of Testing Materials (ASTM) D 2513 and shall be buried at a minimum depth of 18 inches. For safety and locating purposes, tracer wire shall be installed alongside the entire length of pipe, up to and including a point 12 inches above grade on the outside riser. The tracer wire shall be, at a minimum, AWG 14 insulated copper wire and the outside riser shall contain an approved shutoff valve. Non-biodegradable CAUTION tape shall be laid at a depth of 12 inches in the ditch, prior to backfilling. Contractors installing polyethylene gas piping underground shall be properly trained and qualified.

2. In accordance with the customer's preferred design, at the customer's request, Peoples Gas will install a separate gas service to supply the rear structure, provided that a safe path exists, to a safe, accessible, outdoor meter location. The customer will be billed on a jobbing contract basis for the second gas service.

Casing Pipe Gas Services


Casing pipe gas services are service pipes constructed of welded steel within welded steel. The outer sleeve or casing pipe traps any possible gas leaks from the inner pipe and is vented to the outdoors. These service pipes are only installed when installation of an outside gas riser (above grade) is impractical. High rise buildings constructed on slabs, with partial basements set back from the front of the building, may require such service pipes. Developers may request the installation of a casing pipe gas service for a specific project, but such installations must first be approved by a Peoples Gas' Operations Supervisor. In all cases, the length of the casing pipe service shall not exceed 20 feet. Only Peoples Gas may design, fabricate and install casing pipe gas services. Developers will be charged on a jobbing contract basis for these custom-fabricated service pipes.

Trailer Parks

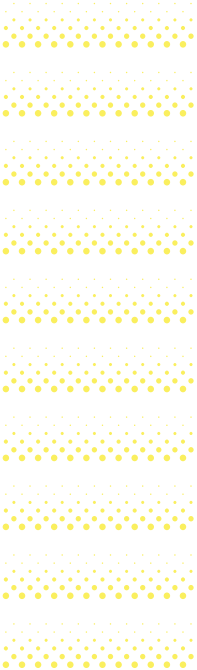
Semi-portable trailers used as dwelling units in trailer parks shall have gas service specified under this policy.

1. The owner of the trailer park or trailer shall provide adequate support and protection for the new service stub (riser) prior to installation. The protection shall be in the form of bollards- steel pipes, filled with concrete, which shall be inserted vertically into the ground. The bollards shall be constructed with 4 inch steel pipe, extend 42 inches below ground level and 4 feet above ground level. A minimum of two bollards shall be set in place for each new service stub. The bollards shall have a steel frame member attached horizontally between them and shall be set in place so that the steel frame member will be directly adjacent to the new service stub. Peoples Gas will use a bracket to attach the service stub to the steel frame member, when installing the gas meter.

Note: In cases where the meter will not be installed directly adjacent to the trailer and underground gas piping will be installed between the meter and the trailer, the owner of the trailer park or trailer shall only install polyethylene pipe. The polyethylene gas piping and fittings shall be manufactured in accordance with the requirements listed in American Society of Testing Materials (ASTM) D 2513 and shall be buried at a minimum depth of 18 inches. For safety and locating purposes, tracer wire shall be installed alongside the length of pipe, up to and including a point 12 inches above grade on the outside riser. The tracer wire shall be, at a minimum, AWG 14 insulated copper wire and the outside riser shall contain an approved shutoff valve.



Non-biodegradable CAUTION tape shall be laid at a depth of 12 inches in the ditch, prior to backfilling. Contractors installing polyethylene gas piping underground shall be properly trained and qualified. (See *Customer-Owned Gas Lines on page 64.*)

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2. If trailers are newly purchased or brought to the trailer park from another trailer park and placed on sites that previously had a gas stub service, Peoples Gas will reconnect to the existing old stub service for the current price, in effect at that time, in accordance with the Peoples Gas Billing and Price Book.
 3. If trailers are newly purchased or brought to the trailer park from another trailer park and placed on sites adjacent to existing gas mains, which previously had no gas services, Peoples Gas will install a new gas service free of charge up to the limits allowed by Peoples Gas' published Rider 5.
 4. If trailers are newly purchased or brought to the trailer park from another trailer park and placed on sites where there are no existing gas mains, Peoples Gas will charge the owner of the trailer park a Gas Main Deposit, in accordance with its published Riders.

Meters

Meter Installation Requirements

Wherever practical, Peoples Gas shall install all gas meters outside. In all cases, Peoples Gas shall have final approval concerning the location of gas meters.

An outside installation makes it easier for Peoples Gas to maintain meters, while freeing up interior space for customer use.

Gas Meters shall be Located:

1. In a ventilated area that may be accessed by Peoples Gas personnel.
2. At least 3 feet from sources of ignition (including electrical circuit breaker boxes, meters and receptacles) or any sources of heat that may damage the meter for inside installations.
3. A minimum of 12 inches above ground for outside meter installations. *(See Figure 3 on Page 8.)*
4. Away from obstructions, such as downspouts and windows.

Meters will be Installed Only After the Following:

1. All inside piping (house piping and building service pipe) has been pressure tested for tightness and approved by Peoples Gas Field Operations personnel.
2. House piping is properly supported, sized and capped (or plugged) and floor (or unit) locations are identified.

Gas Meters shall not be Installed in these Instances:

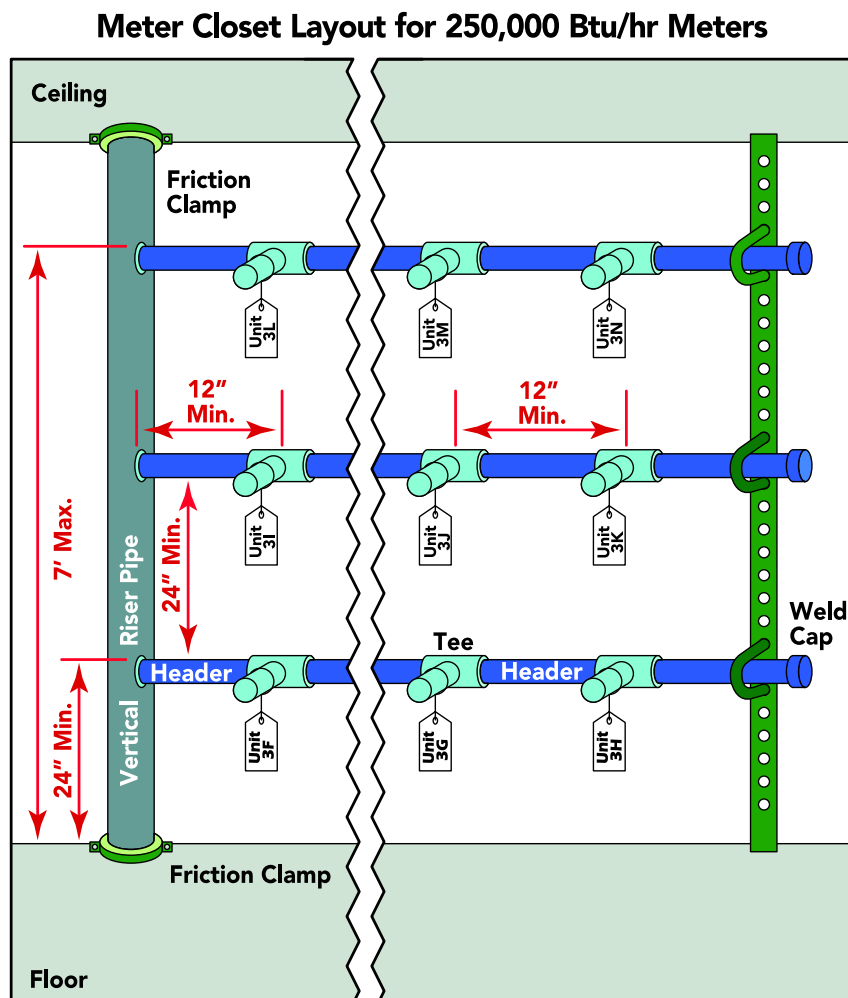
1. In locations that interfere with pedestrian or vehicular traffic flow.
2. In hazardous locations where meters could sustain physical damage.
3. In gangways or walkways that separate two structures, unless previously reviewed by your Construction Coordinator prior to installation.
4. Under an interior or exterior wooden stairway.
5. Under fire escapes.
6. Directly above or below an operable window.

7. Where the top of the meter will be higher than 7 feet, to ensure meters can be easily read and maintained. (See Figure 21.)
8. In a space occupied by another owner or tenant.
9. In bedrooms or bathrooms.

Meter Closets in Multistory Buildings with Multiple Units

Wherever practical, buildings having three stories or less with multiple units shall have all gas meters installed outdoors. In all cases, Peoples Gas shall have final approval concerning the location of gas meters. Buildings having four stories or more with multiple units may be designed with gas meter closets on upper level floors. Meter closets shall be designed as follows: (See Figure 21.)

Figure 21



1. The bottom of the meters shall be set a minimum of 1 foot from the floor.
2. The top of the meters shall be set a maximum of 7 feet from the floor.
3. Meters shall be a minimum of 3 feet from sources of ignition (including electrical circuit breaker boxes, meters and receptacles) or any sources of heat that may damage the meter.
4. The meter closet shall be ventilated to a common area.

The customer is responsible for pressure testing customer installed piping prior to meter installation. Meters will not be set nor will the account be activated if the house piping is leaking.

Specifications for Installation of Meter Bars and Headers

Structures with multiple units shall have the house piping installed in a common area near the service pipe riser. Each pipe shall be correctly identified with the floor and unit number. Where three or more meters are to be installed, it is the customer's responsibility to have meter bars and a meter header (manifold) installed. *(See Figure 3 on Page 8.)*

Installation of Meter Bars:

The customer/contractor should contact a Peoples Gas Field Service Supervisor to request meter bars at least two weeks prior to meter installation. Peoples Gas will provide meter bars for contractor installation when three or more meters are to be set. Please allow two weeks notice to either pick up the meter bars or have them delivered at customer's expense by a private carrier.

The customer/contractor may pick up the meter bars at the Peoples Gas Division Street Warehouse (1036 N. Elston, Chicago). Please follow these instructions when planning to pick up meter bars:

1. Phone 773-395-7492 or 773-395-7493 and make an appointment to pick up the meter bars.
2. Provide the address of the structure and the number of meter bars needed.
3. We need the name, address and telephone number of the customer/contractor installing the meter bars.
4. Upon arrival, phone 773-395-7492 or 773-395-7493 for pickup service.
5. Proper identification, i.e., a driver's license or plumber's license and signature, are required in order to obtain meter bars.



Installation of Meter Headers: *(See Figure 3 on Page 8 and Figure 21 on Page 53.)*

1. A minimum of one foot between meter bar inlets is required for meter installation, removal and maintenance.
2. Meter headers shall be properly sized based on gas loads.
3. Meter headers shall be properly supported to avoid strain on meters and piping.
4. All house piping shall be properly identified with floor and unit numbers.

Service Regulators

Service Regulator Installation Requirements

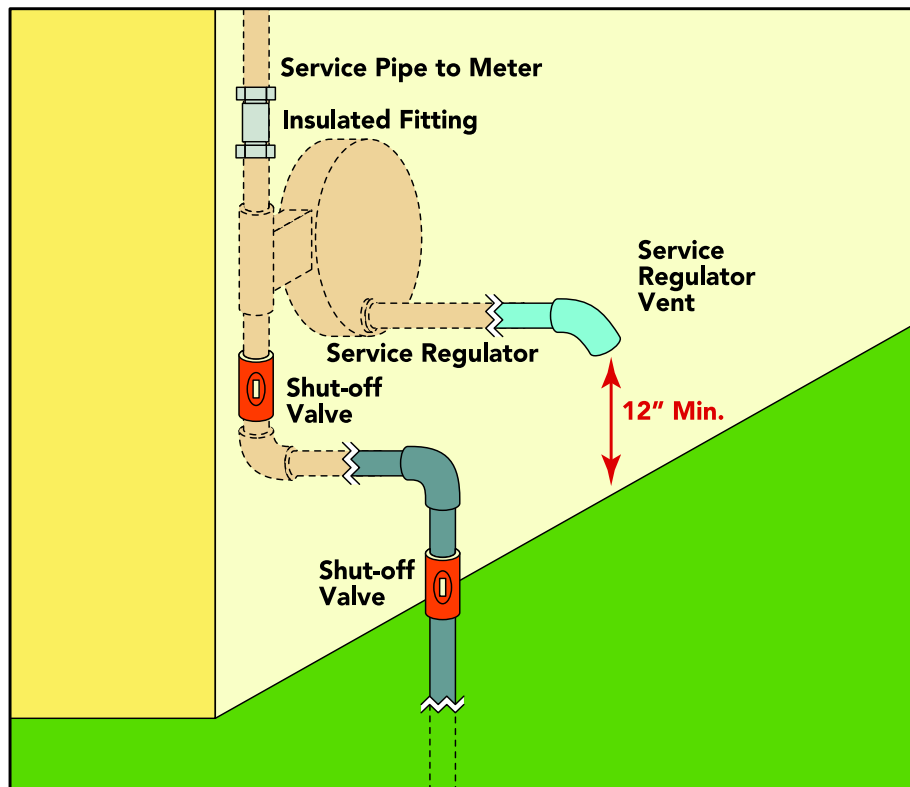
Some areas of Chicago have gas mains that operate at pressures requiring a service regulator on the service pipe. In these areas, Peoples Gas shall supply gas to a building at one delivery pressure: 6-inches water column, 2-psig or line pressure (typically 10-20-psig). When supplying gas at 6-inches water column or 2-psig, Peoples Gas shall install a maximum of one pair of service regulators. Wherever practical, Peoples Gas shall install all service regulators outside. In all cases, Peoples Gas shall have final approval concerning the location of its service regulators.

When supplying gas at line pressure, Peoples Gas shall not install any service regulators. The customer is responsible for specifying, installing and maintaining pressure regulators in accordance with the customer's preferred design.

Service regulator installations shall meet the following standards, which shall be incorporated in the customer's designs and plans:

Figure 22

Outside Riser with Inside Regulator and Meter



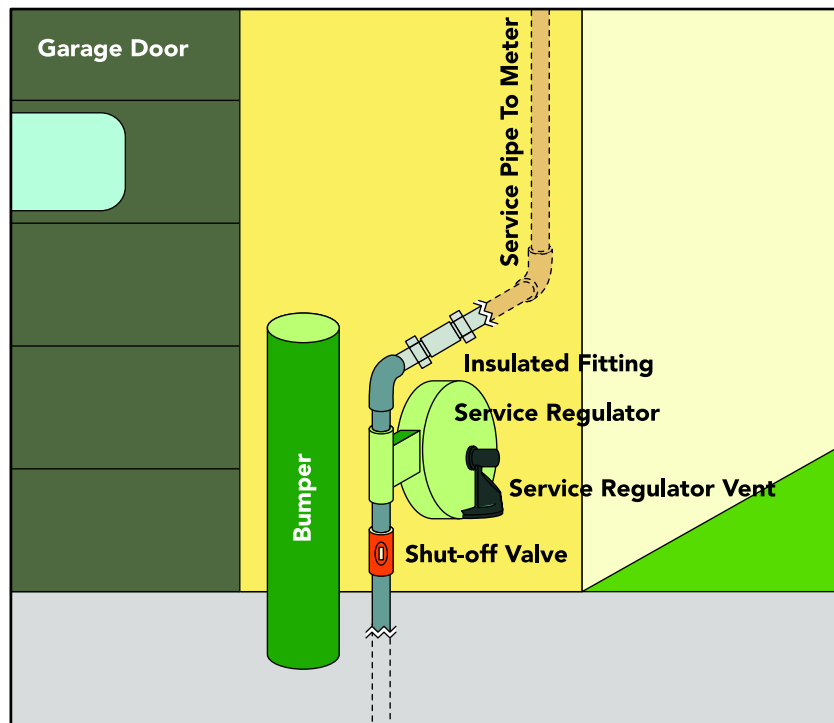
1. Service regulators shall be located in a ventilated and accessible area.
2. Service regulator vent pipes, if necessary, shall terminate a minimum of 12 inches above final grade to avoid interruption of service during winter conditions. (See Figure 22 on Page 56.)
3. Service regulator vent pipes shall remain open to the outside atmosphere to ensure proper operation. (See Figure 22 on Page 56.)

Service Regulators are Subject to the Following Conditions:

1. Service regulators exposed to vehicular traffic shall be adequately protected by concrete filled pipes or guard rails. (See Figure 23.)
2. Service regulator installations with security/safety concerns shall be enclosed in a locked cyclone fence cage.
3. Service regulator installations for loads in excess of 10,000,000 Btu/hr may require a concrete pad installed by the customer. Peoples Gas shall determine the need and specifications for the concrete pad. (See Figure 24 on Page 58.)

Figure 23

Safety Protection "Bumper" for Gas Facilities Near Vehicular Traffic

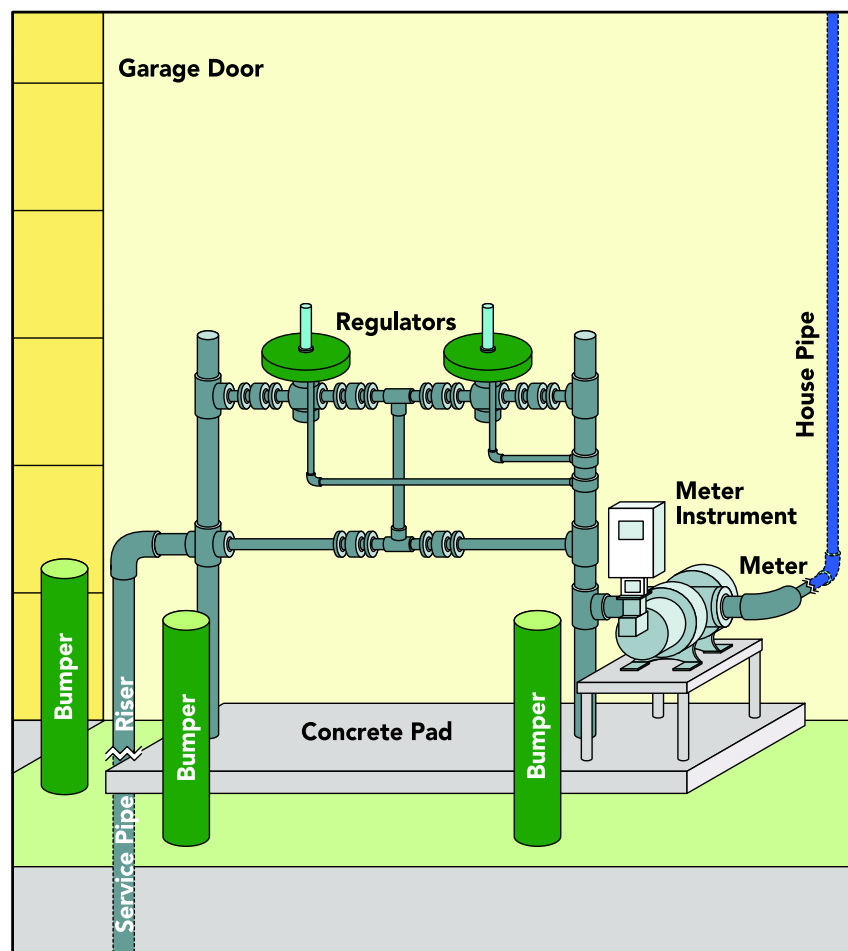


Service Regulators will not be Installed

1. In locations where dripping water may freeze and cause damage or hinder safe operation of the regulator(s).
2. Less than 3 feet from a source of ignition (including electrical circuit breaker boxes, meters and receptacles) or any source of heat that may damage the regulator for inside installations.
3. Where the regulator vent opening is less than 12 inches above final grade.
4. In locations that interfere with pedestrian or vehicular traffic flow.
5. Directly above or below an operable window.

Figure 24

Large Volume Regulator Station



6. Under fire escapes.
7. Near an air intake.

If it is Necessary for the Service Regulator to be Installed inside the Building, the Following Standards shall be met

1. Service regulators shall be in a ventilated and accessible location.
2. The service regulator shall be located immediately inside the wall of service pipe entry.
3. Each service regulator shall be individually vented to the outdoors, terminating a minimum of 12 inches above final grade.
4. Service regulator(s) shall not be located:
 - a) Less than 3 feet from a source of ignition (including electrical circuit breaker boxes, meters and receptacles) or any source of heat that may damage the regulator.
 - b) Under an interior stairway that is the sole exit or is designated as an emergency exit.
 - c) Under a fire escape exit.
 - d) Directly above or below an operable window.
 - e) In a space occupied by another tenant.
 - f) In locations that interfere with pedestrian or vehicular traffic.

Specially Engineered Indoor Regulator Rooms

In cases where Peoples Gas agrees to an indoor installation of regulators and meters, but Peoples Gas' Engineering Department or Field Operations personnel conclude that the interior atmosphere at the customer's preferred location is excessively damp or corrosive, the customer shall construct a dedicated room for the regulators and meters. The room shall be designed in accordance with the following criteria:

1. The room shall be located in the lower level or ground floor along the outside building wall where the service pipe enters the building. All piping upstream of the regulators shall be located in this room. Room dimensions shall be determined by Peoples Gas based on the gas regulators to be installed. Room construction material shall be non-flammable, such as cinder block.
2. No floor drains shall be permitted in the room.
3. Door(s) shall open outward.

4. All lighting and other electrical devices in the room shall comply with Class 1, Division 1, Group D of the National Electrical Code.
5. The room shall contain two (2) gravity vents that communicate with the outdoors, each with a minimum of 144-square inches of free area. One shall be located near the ceiling and the other near the floor. The customer shall install appropriately sized regulator vents terminating outside the building.

Elevated Pressure

Elevated pressure is pressure greater than 6-inches water column. Peoples Gas shall provide elevated pressure, where available, for commercial and industrial gas appliances as well as Corrugated Stainless Steel Tubing (CSST) systems that require more than 6-inches water column pressure to operate. However, in all cases Peoples Gas shall supply elevated pressure to a building at only one delivery pressure: 2-psig or line pressure (typically 10-20-psig). Elevated pressure is not intended for the sole purpose of installing a smaller diameter interior piping system.

If a customer has at least one appliance that requires elevated pressure and medium pressure gas is available, Peoples Gas shall supply gas at a delivery pressure of 2-psig. In such cases, Peoples Gas shall install a maximum of one pair of service regulators. The customer is responsible for installing line regulators, as necessary, in buildings that are equipped with residential appliances or appliances that operate at low pressure (3-6-inches water column). Line regulators shall be individually vented to the outdoors.

In some cases, a regulator equipped with a vent limiter may be used. However, regulators equipped with vent limiters shall be readily accessible (visible). **Note:** most residential appliance regulators are rated for a maximum continuous pressure of 12-inches water column.

Customers designing or operating buildings with unique gas appliances, in areas where medium pressure is available, may request that gas be supplied at line pressure. Such requests will be considered on a case-by-case basis. Customers shall submit a letter describing their unique application along with a manufacturer's specification sheet for each unique appliance. The letter shall be submitted to the local Peoples Gas Construction Coordinator or Major Accounts Representative. When supplying gas at line pressure, Peoples Gas shall not install any service regulators. The customer is responsible for specifying, installing and maintaining pressure regulators in accordance with the customer's preferred design.

In areas where medium pressure gas is not available, the customer may install a booster at the customer's expense. The use of a booster requires the installation of a "back pressure" valve immediately downstream of the meter. The customer shall install the "back pressure" valve in order to prevent the return of higher-pressure gas to Peoples Gas' facilities.

Rehabs

Rehabs are remodeling projects that include the installation of new gas appliances or involve the modification of existing gas facilities. Developers are strongly advised to contact Peoples Gas, prior to beginning their new design. Developers contacting Peoples Gas after construction is underway, often incur costly change orders associated with previous uninformed decisions.

Existing Gas Meters

Existing gas meters are owned and maintained by Peoples Gas. Peoples Gas often reconditions and reuses them. Demolition crews shall not disconnect or remove them. **Tampering with Peoples Gas' facilities is a violation of Federal Law and can be extremely dangerous. Developers will be charged for all costs associated with tampering with or damaging Peoples Gas' meters.** Developers wanting meters removed, should contact email rehabbers@peoplesgasdelivery.com.

Existing Gas Service Pipes

Existing gas service pipes shut off by Peoples Gas at the valve box (street, parkway or sidewalk), on the outside riser or inside the building may be reused. However, existing gas service pipes damaged by previous owners or new owners shall not be reused. Service pipes previously cut off for collection or at the owner's request may only be reconnected if specified by Peoples Gas. If the service pipe has been cut off, Peoples Gas will specify how gas will be supplied to the building, similar to new construction projects.

Existing Gas Service Pipes Routed Through Crawl Spaces

Buildings with existing gas service pipes routed through crawl spaces, undergoing rehab, shall not be allowed to reuse the existing gas service. Peoples Gas will cut off the existing gas service, install an outside riser and install the gas meter outside. Developers are responsible for stubbing house piping through the wall, to the outside, in order to connect to the new gas meter. Developers will be charged on a jobbing contract basis for all associated work.

Existing Gas Service Pipes Routed Underneath Slabs

Buildings with existing gas service pipes routed underneath slabs, undergoing rehab, shall not be allowed to reuse the existing gas service. Peoples Gas will cut off the existing gas service, install an outside riser and install the gas meter outside. Developers are responsible for stubbing house piping through the wall, to the outside, in order to connect to the new gas meter. Developers will be charged on a jobbing contract basis for all associated work.

In and Out Gas Service Pipes (Unauthorized relocated meters)

Basements are often remodeled to create additional dwelling units or living space. In the process, the existing, indoor gas meter is often relocated to the outside, by cutting the gas service and rerouting the pipe outside and then back inside, to connect to existing house piping. Such actions are tampering with Peoples Gas' facilities, which is illegal and very dangerous. Gas piping rerouted outside and back inside is subject to condensate forming inside the pipe, which can lead to multiple problems. Developers will be charged on a jobbing contract basis to correct such situations. Corrections can be very costly, as they often require the installation of a new gas service at a different location.

Developers wanting existing meters moved outside should visit the business customers section at peoplesgasdelivery.com and look under builders, developers and rehabbers for new construction rehab process. A Gas Operations Supervisor will meet at the site to discuss safe, legal options.

U-Shaped Buildings with Center Courtyards

Many U-Shaped buildings were originally constructed with large, space heating boilers in the center of the building. Typically, Peoples Gas used to install a gas service down the center of the courtyard and any number of branch services to supply the gas ranges. The gas services in the courtyard are constantly damaged by landscape contractors and other tradesmen, resulting in dangerous conditions and outages. Today these buildings are being rehabbed into condo buildings with individual furnaces. Developers rehabbing U-Shaped buildings have two options:

1. If the existing gas services have been shut off by Peoples Gas, the developer has the option of having meters installed at the end of the existing service pipes, either outside or just inside the building wall. However, the developer shall not install new gas piping to transport unmetered gas to remote meter rooms located inside the building. **Building service pipe is not allowed in new construction or rehab.**
2. If the existing gas services are cut off, Peoples Gas will specify how gas will be supplied to the building. The developer does not have the option of having the old gas services reconnected and Peoples Gas will not install new gas services in the courtyard. Peoples Gas will specify one free service to either front wall, i.e., to the front wall on either side of the courtyard. In such cases, all meters shall be located outside, in a safe, accessible location, at the end of the free service. **Building service pipe is not allowed in new construction or rehab.**

In accordance with their preferred design, developers may request a second gas service pipe, in order to have a gas service at both of the front walls, on either side of the courtyard. In such cases, Peoples Gas will install a second gas service, provided that a safe path exists, to a safe, accessible, outdoor meter location. Developers will be charged for the second gas service on a jobbing contract basis.

Piping

Materials

Inside structures, customers shall install three types of piping systems: black steel pipe, corrugated stainless steel tubing (CSST) or a hybrid system, consisting of black steel pipe and CSST. In addition, copper tubing/piping, aluminum tubing and flexible gas appliance connectors may be used only as final connections to supply gas appliances.

Customers installing underground gas piping shall only install polyethylene pipe. The polyethylene gas piping and fittings shall be manufactured in accordance with the requirements listed in American Society of Testing Materials (ASTM) D 2513 and shall be buried at a minimum depth of 18 inches. For safety and locating purposes, tracer wire shall be installed alongside the entire length of pipe, up to and including a point 12 inches above grade on the outside riser. The tracer wire shall be, at a minimum, AWG 14 insulated copper wire and the outside riser shall contain an approved shutoff valve. Non-biodegradable CAUTION tape shall be laid at a depth of 12 inches in the ditch, prior to backfilling. Contractors installing polyethylene gas piping underground shall be properly trained and qualified. (*See Customer-Owned Gas Lines on page 64.*)

Prohibited Locations

Gas piping inside any structure shall not be installed in or through a crawl space, chimney or gas vent, air duct, plenum space used as an air duct, elevator shaft, dumbwaiter or clothes chute.

Prohibited Routing

Gas piping shall not enter a building and then exit a building upstream of gas meters and gas appliances. If gas piping enters heated space and is then routed to the outdoors, condensation will occur inside the gas piping. The condensation may freeze and adversely affect the operation of gas meters and gas appliances. In addition, condensation inside the gas piping may speed up the corrosion process, which could result in a gas leak from the piping.

Exception: Gas piping routed through a heated building and later routed to the outdoors, to supply gas appliances listed for outdoor applications, such as rooftop units, barbecue grilles and patio heaters.

Concealed Locations

Where gas piping is concealed (only accessible by removing permanent construction), unions, tubing fittings, right and left couplings, bushings, swing joints and compression couplings made by combinations of fittings shall not be used.

Piping in Solid Floors

Gas piping in solid floors shall be laid in channels in the floor and covered in a manner that will allow access to the piping. Where such piping is subject to exposure to excessive moisture or corrosive substances, the piping shall be protected in an approved manner. As an alternative to installation in channels, the piping shall be installed in a casing of Schedule 40 steel, wrought iron, PVC or ABS pipe with tightly sealed ends and joints. Both ends of such casing shall extend not less than 2-inches beyond the point where the pipe emerges from the floor.

Shut-off Valves

Gas appliances connected to a piping system shall have an accessible, approved, manual shut-off valve or a listed gas convenience outlet installed in the same room as the appliance within 6-feet of the appliance. Where a flexible gas appliance connector is used, the shut-off valve shall be installed upstream of the connector.

Sediment Traps or Drip Legs

Sediment traps or drip legs shall be installed as close to the inlet of gas appliances as practical. The sediment trap shall be a tee fitting with a capped nipple in the bottom outlet or other device recognized as an effective sediment trap. Illuminating appliances, ranges, clothes dryers, decorative vented appliances for installation in vented fireplaces, gas fireplaces and outdoor grills shall not be required to be so equipped.

Minimum Pipe Size for Appliance Installation


1. Contractors installing ceiling drops to supply multiple appliances shall install $\frac{3}{4}$ " or larger pipe drops. In all cases, the ceiling drop shall be sized in accordance with the total, combined, maximum Btu/hr input rating of all appliances located downstream.
2. Contractors shall install $\frac{1}{2}$ " pipe or larger to supply individual appliances. In all cases, the pipe shall be sized in accordance with the maximum Btu/hr input rating of the appliance.

Minimum Manifold Size for Multiple Meter Installation

1. Manifolds supplying multiple meters shall be constructed with 1" or larger pipe. In all cases, the manifold shall be sized in accordance with the total, combined, diversified Btu/hr input rating of all units located downstream.

Customer-Owned Gas Lines

Peoples Gas regularly checks its distribution system through a maintenance program. This program covers gas mains and service lines up to and including our gas meter. However, gas piping after the meter-including any buried piping is customer owned and should be owner monitored and maintained.



Maintenance and repair of buried gas piping beyond the meter to town homes, row houses, coach houses, garages, yard lights, barbecue grills and pool heaters are the customer's responsibility. Buried piping that is not maintained may be subject to leakage.

Customer-Owned Buried Piping Should be Maintained by the Customer as Follows:

1. Survey for leaks periodically.
2. Periodically inspect for damage.
3. Repair if any unsafe conditions are discovered.
4. Protect from damage due to underground excavation by locating it in advance and hand digging near it. Customers shall always call "DIGGER" (Office of Underground Coordination) at 312-744-7000, no less than 48 hours (exclusive of Saturday, Sunday and holidays), but no more than 14 calendar days prior to the start of excavation, demolition or landscaping work.

Plumbers and heating contractors can assist in locating, inspecting and repairing buried, customer-owned gas piping.

Customers are also responsible for house piping leading to appliances, such as furnaces, water heaters, ranges, clothes dryers, etc.

Customer-Owned Piping Underground, Beneath Buildings

Where the installation of gas piping underground, beneath buildings is unavoidable, black steel pipe shall be encased in a black steel pipe sleeve, designed to withstand the superimposed loads and installed in accordance with the following criteria:

Sleeve with one end terminating outdoors

The black steel sleeve shall extend into an accessible portion of the building. At a point where the black steel sleeve terminates in the building, the space between the black steel sleeve and the black steel piping, shall be welded to prevent the possible entrance of any gas leakage. The black steel sleeve shall extend at least four inches outside the building, be vented outdoors at least twelve inches above grade and be installed so as to prevent the entrance of water and insects.

Sleeve with both ends terminating indoors

Where the black steel sleeve originates and terminates within the same building, the black steel sleeve shall originate and terminate in an accessible portion of the building and shall not be sealed.

Corrugated Stainless Steel Tubing

Corrugated Stainless Steel Tubing (CSST) is allowed for new construction, remodeling and retrofitting applications in residential and light commercial structures. CSST shall meet the design and installation requirements set forth in ANSI/AGA LC 1-1993 along with Peoples Gas' requirements set forth below. Contractors installing CSST shall be certified by the manufacturer of the CSST brand being installed.

Protection

1. There shall be no exposed CSST. Exposed CSST is vulnerable to chemicals containing acids and chlorides. CSST temporarily exposed because the plastic jacket has been removed for fitting attachment, shall be recovered with tape as specified by the CSST manufacturer.
2. All CSST systems shall be electrically grounded in accordance with manufacturers' installation instructions.

Concealed Fittings

While the brass mechanical attachment fittings in the CSST system are listed for concealed use in accordance with the ANSI/AGA LC1-1993 standard, concealed fittings shall not be installed in the city of Chicago, except for connection of CSST to the through-the-wall black steel pipe connected to the gas meter and appliance stub-outs.

If there is a leak in CSST located in a concealed location and the leak is repaired with a splice fitting, the fitting shall be accessible via a 6-inch by 10-inch (minimum size) access panel. CSST splice fittings shall be located directly behind and within 16 inches of the access panel. The CSST splice fitting shall also be centered behind the access panel.

Manifolds/Regulators

Shutoff valves and regulators used in CSST applications shall be rated for a minimum of 10 psig. Distribution manifolds and regulators shall be located at a maximum height of 7 feet and shall not be concealed. Manifolds may be installed behind an access panel. If the regulator is equipped with a vent limiter, the regulator shall be readily accessible (visible). If the regulator is vented to the outdoors, the regulator may be installed behind an access panel. A sediment trap (drip leg) shall be installed on the inlet side of the regulator.

Note: Most residential appliance regulators are rated for a maximum continuous pressure of 12-inches water column. Contractors installing 2-psig and ½-psig CSST systems, shall use caution when adjusting CSST system regulators installed upstream of residential gas appliances.

An accessible, lever-handle, shut off valve shall be installed upstream of the customer's regulator, which shall be located upstream of the manifold. A union shall be installed downstream of the customer's regulator and upstream of the manifold in order to pressure test all piping and fittings downstream of the customer's regulator. The manifold shall be equipped with shut off valves, in order that the CSST fuel runs to individual appliances may be isolated.

CSST is not designed to be used as a flexible gas appliance connector and shall not be used as a substitute. The use of CSST as a final connection for permanently installed appliances, such as water heaters, furnaces and boilers is allowed. CSST shall terminate outside of the appliance jacket where the excessive heat may ignite or damage the protective coating. The use of CSST as a final connection of movable gas appliances, such as ranges and clothes dryers, is not allowed. Per manufacturers' installation instructions, striker plates shall be installed for protection where CSST passes through structural members and is restricted from moving.

With the exception of rooftop applications, CSST shall not be installed outdoors and shall not be run underground unless installed in a sleeve or conduit.

Minimum Pipe Sizes for Building Stub-Outs

Contractors installing transition pipes for CSST applications, stubbed out the wall, for tie-in to Peoples Gas' meters, shall install the following minimum pipe sizes:

1. 1 inch pipe for low pressure applications (6 inches W.C.)
2. 3/4" pipe for 2 psig applications.

A Corrugated Stainless Steel Tubing System Utilizing a 2-psig or 1/2-psig System has the Following Requirements:

1. 2-psig or 1/2-psig CSST systems can only be installed if a medium-pressure gas main is available. For such installations, Peoples Gas shall supply gas at a pressure of 2-psig. Customers installing a 1/2-psig CSST system are responsible for installing an additional line regulator, downstream of their gas meter, to reduce the gas pressure to 1/2-psig. The line regulator shall be vented to the outdoors unless a regulator equipped with a vent limiter is suitable for the application.
2. Residential and commercial construction, including single family homes, town homes, row houses, condominiums, apartments, offices and retail space, utilizing a 2-psig or 1/2-psig CSST system, to supply gas appliances operating at 3 to 6-inches water column, shall have a single load center within each living/working space. A shutoff valve shall be located upstream of the load center, which shall include a single regulator and a single manifold, both located upstream of all gas appliances. At the load center, the gas pressure shall be reduced to a maximum of 12-inches water column.

3. When regulator(s) and meter(s) are outside, CSST shall transition to black pipe at the inside wall and the black pipe shall extend outside the wall for "tie-in."
4. CSST shall be installed in accordance with manufacturers' installation instructions
5. In commercial applications, where the equipment requires elevated pressure and the equipment's minimum required gas inlet pressure is equal to the delivery pressure of the CSST system, a regulator is not required.

A CSST System Utilizing 6-Inches Water Column Pressure has the Following Requirements:

1. This system may be used in any residential or light commercial application, but shall be sized accordingly.
2. CSST shall transition to black pipe at the inside wall for "tie-in" by Peoples Gas.
3. CSST manifolds and regulators are not required.

Gas Riser Applications

2-inch diameter (and larger) CSST used in gas riser applications shall only be installed in a dedicated pipe chase that is not directly adjacent to habitable space.

Hybrid Systems (Black Steel Pipe /CSST)

A hybrid system, consisting of black steel pipe and CSST, may be installed. However, the black steel pipe must be upstream of the CSST and once CSST is used, the customer shall not transition back to black steel pipe. An accessible, approved, manual shut-off valve shall be installed at the point where the black steel pipe transitions to CSST. CSST transition fittings shall not be concealed and shall be accessible via a 6-inch by 10-inch (minimum size) access panel. CSST transition fittings shall be located directly behind and within 16 inches of the access panel. The transition fitting shall also be centered behind the access panel. Finally, the CSST shall extend to a termination fitting or a permanently mounted appliance.

Exception: CSST used in gas riser applications may transition to black steel pipe, when the black steel pipe is a manifold used in meter closet applications. In addition, CSST may transition to black steel pipe when gas piping is being installed to supply gas to outdoor appliances, such as barbecue grills and patio heaters.

Rooftop Applications

CSST may be used in outdoor rooftop applications. CSST used in rooftop applications shall be installed in accordance with the manufacturers' installation instructions. However, CSST shall not be used along side a structure.

Copper and Aluminum Tubing/Piping

Copper and aluminum tubing/piping shall only be used as final connections to supply gas appliances. Copper tubing shall be standard type K or L and aluminum tubing shall be standard type A or B. Copper and aluminum tubing/piping connections shall not exceed 10 feet in length and the entire length of fuel run shall be located in the same room as the gas appliance. Copper and aluminum tubing/piping shall be readily accessible (visible) and shall not pass through floors, walls and ceilings. Copper and aluminum connections shall not be soldered or brazed as only threaded fittings and approved compression fittings are allowed.

Gas service shall not be supplied to any structure using copper and aluminum tubing/piping in any other part of the customer's gas piping system.

Flexible Gas Appliance Connectors

Flexible gas connectors are corrugated metal tubing used to bring gas from supply pipes to movable appliances such as stoves, ranges, clothes dryers and portable room heaters. Currently, these connectors are made of stainless steel or plastic-coated brass. In the past, however, most of these connectors were made of uncoated brass.

Uncoated brass flexible connectors are dangerous and shall not be used under any circumstances.

Only new stainless steel and coated brass flexible gas appliance connectors certified by the Canadian Standards Association (CSA) and manufactured in compliance with American National Standards Institute (ANSI) Z21.24, Connectors for Gas Appliances shall be used.

Flexible gas appliance connectors shall be used to connect all movable appliances such as stoves, ranges, clothes dryers and portable room heaters. Movable appliances shall not be connected with rigid pipe or tubing.

Peoples Gas recommends that non-movable appliances, such as furnaces and water heaters be connected with rigid pipe.

Flexible gas appliance connectors shall not exceed 6 feet in length and the entire connector shall be located in the same room as the gas appliance. In addition, flexible gas appliance connectors shall not be linked in series. Only one flexible gas appliance connector shall be used to supply gas to a single appliance. Per manufacturers' installation instructions, flexible gas appliance connectors shall only be installed once, as they are not designed for reconnection.

Flexible gas appliance connectors shall be readily accessible (visible) and shall not pass through floors, walls, ceilings and appliance jackets or housings.

Exception: Stainless steel flexible gas appliance connectors designed to be located within the jacket or housing of gas fireplaces or wall heaters shall also be allowed, provided such connectors are rated for such applications and are either supplied by the Original Equipment Manufacturer (OEM) or, if provided separately, are approved and rated by the Canadian Standards Association (CSA)/American National Standards Institute (ANSI), for such applications.

Pressure Testing Requirements for House Piping

All house piping downstream of the meter shall be tested for tightness by the customer/contractor before meters are installed. Only air or nitrogen (for welded pipe) shall be used for pressure testing. **Oxygen shall not be used for pressure testing.**

For House Piping Supplied by a Low-Pressure Service up to ¼-psig:

1. House piping smaller than 3-inches in diameter shall be tested by Peoples Gas personnel before meter installation.
2. House piping 3-inches in diameter or larger shall be tested by the customer/contractor and witnessed by a Peoples Gas Field Service Supervisor.
3. Testing pressure shall be measured with an approved pressure gauge and shall not be tested while appliances, boosters, shutoff valves, line regulators or meters are connected. All lines shall be capped/plugged prior to the pressure test.
4. The piping shall be tested at 3-psig for the specified period of time listed below.
(See Table 3 on Page 71.)

For House Piping Supplied by More than ¼-psig:

The pressure test shall be conducted using an appropriately sized gauge where the test pressure is near the midpoint of the gauge. The pressure test shall be no less than 3-psig for 30 minutes where appliance regulators are provided.

TABLE 3
Pressure Test Duration
for Various Pipe Sizes and Lengths for Screwed Piping

Pipe Size (Inches)	Length (Feet)	Test Period (Minutes)
½" through 5"	0 – 75	10 Minutes
	75 – 5000*	30 Minutes
6" through 8"	0 – 25	10 Minutes
	25 – 1400*	30 Minutes
10" through 12"	0 – 10	10 Minutes
	10 – 650*	30 Minutes

Where the operating pressure is 2-psig or greater and protective devices are used to limit the customer's house piping to a maximum of 2-psig over the set pressure, the pressure test shall be a minimum of 1½ times the operating pressure, but not less than 6-psig for 30 minutes. The pressure test shall be conducted using an appropriately sized gauge where the test pressure is near the midpoint of the gauge.

House pipe supplied by a medium-pressure or high-pressure service pipe shall have the pressure test conducted by the customer/contractor, according to Peoples Gas Engineering Department specifications.

Note: All welded piping shall be tested at 50-psig minimum for no less than 30 minutes for each 500 ft³ of pipe volume or fraction thereof. Test shall be witnessed and approved by a Peoples Gas Field Service Supervisor.

Photos

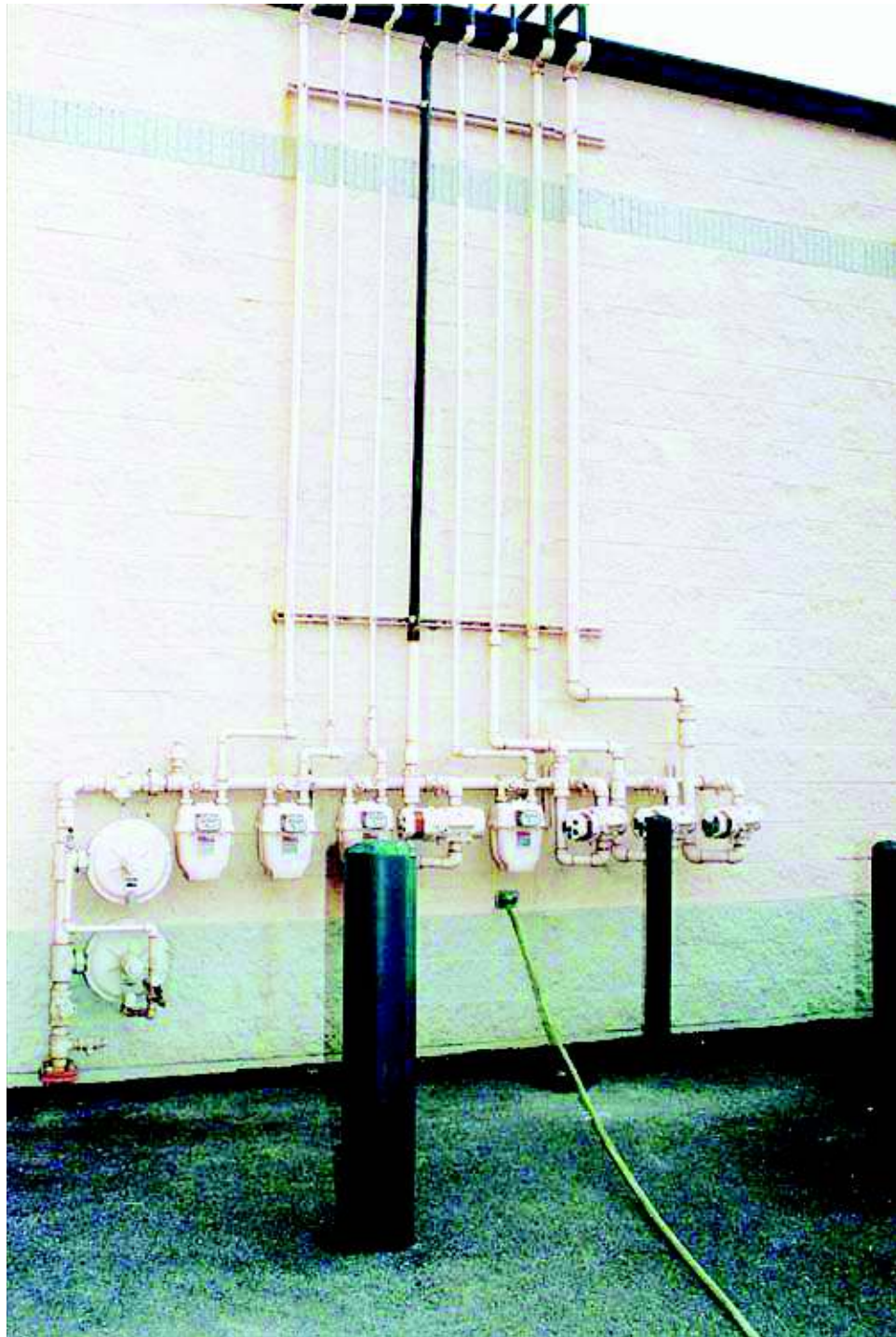


Photo 1. Single Medium-Pressure Service for Multiple Meters

NOTE: A single service and regulator set is being used to deliver gas to eight individual meters. The gas facilities are located near a loading dock and are protected from vehicular traffic with steel concrete filled "bumpers".



Photo 2. Medium-Pressure Service with Protected Outside Riser
NOTE: The service has an outside riser and pressure regulator with a steel "bumper" facing vehicular traffic for protection.



Photo 3. Medium-Pressure Service with Protected Outside Riser and Vents NOTE: The large u-shaped steel “bumper” is used to protect the riser from parking ramp traffic.



Photo 4. Medium-Pressure Service with Hidden Riser, Regulator and Meter NOTE: The entire service has been installed at the front of the building and has been hidden from view by the installation of small bush.



Photo 5. Low-Pressure Service with Outside Riser and Meters

NOTE: The meters have been installed underneath a steel stairway in an open and ventilated area.



Photo 6. Medium-Pressure Service for Large Volume

NOTE: A concrete pad has been used for the regulator station and meter. The regulator station has been installed with clearance all around to facilitate inspections and maintenance.



Photo 7. Low-Pressure Service with Outside Riser and Meters

NOTE: The riser and meters have been installed along the side of the building. This installation does not encroach on the adjacent property and has sufficient room for future inspections and maintenance.



Photo 8. Low-Pressure Service with Outside Riser and Meters Near Alley

NOTE: A guardrail has been installed to protect the riser and meters.



Photo 9. Medium-Pressure Service for Large Volume Installation
NOTE: A fence has been erected to protect the large volume regulator station and meter.



Photo 10. Medium-Pressure Service for Large Volume Installation
NOTE: Regulator station and meter have been installed inside within a "Regulator Room".



Photo 11. Small Meter Closet

NOTE: Building has been designed with a meter closet on every floor. Notice that the meters have been staggered to facilitate the installation of the house piping.



Photo 12. Large Meter Closet

NOTE: Building has been designed with a meter closet on alternate floors. The meters have been tagged to facilitate the installation of house piping. The header/manifold on the bottom serve units to the floor below and the header/manifold on top serves units on the same floor.



Contact Information

For more information contact:

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Builders Hotline
(312) 240-4300

www.peoplesgasdelivery.com

Important Phone Numbers

Peoples Gas
Customer Service
1-866-556-6001

Emergency Services
1-866-556-6002

Spanish Line
1-866-556-6003

TDD Line
(For Speech or Hearing Impaired)
1-866-556-6007

Call Before You Dig
DIGGER
1-312-744-7000