



## BUILDING AND SAFETY DEPARTMENT

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[www.comptoncity.org](http://www.comptoncity.org)

## RESIDENTIAL GAS LOAD SIZING

### **DETERMINE PROPER SIZE**

Proper sizing of the pipe is important so that each gas appliance receives enough gas to perform properly. Each appliance has a minimum input demand in BTUs per hour. Each type of pipe material also has a different flow rate. The chart below gives some examples of typical BTU demands from table 12-1. To properly determining the pipe size for your job, consult the 2016 CPC, Chapter 12. When providing gas load calculations, the current codes and tables must be documented in your submittal.

To convert from BTUs to cubic feet per hour divide BTU/1100 (example: 50,000 BTU by 1100 = 45.5 cubic feet of gas per hour). See the example on page 2 to help further illustrate this. To get BTU from cubic feet, multiply cubic feet x 1100 (example: 45.5 cubic feet x 1100 = 50,000 BTU.)

### **APPROVED GAS PIPING FITTING MATERIALS**

Approved materials are described in section CPC 2019 Section 1208. Metallic pipe, metallic tubing, plastic tubing, and fittings are samples of approved materials. Copper, brass and aluminum alloy piping shall not be used except under certain conditions as outlined in Section 1208.6 will require the submittal of an alternate materials request and Building Official approval.

### **CUTTING PIPE**

If you are cutting metallic pipe or tubing, you must ream the cut of your pipe so that you maintain the full inside diameter of the pipe and be clear of cutting burrs and defects in the structure and/or threading per section 1208.6.8.

### **SPECIAL INSTRUCTIONS**

All installation shall be in compliance with Section 1210.0 for underground, covering, protection against corrosion.

### **TESTING**

A pressure test, provided by applicant, is required per the 2019 CPC, section 1213. Test pressure shall be measured with a manometer or with a pressure-measuring device designed and calibrated to read, record, or indicate a pressure loss due to leakage during the pressure test period. The source of pressure shall be isolated before the pressure tests are made. Mechanical gauges used to measure test pressures shall have a range such that the highest end of the scale is not greater than five times the test pressure.

### **INSPECTION**

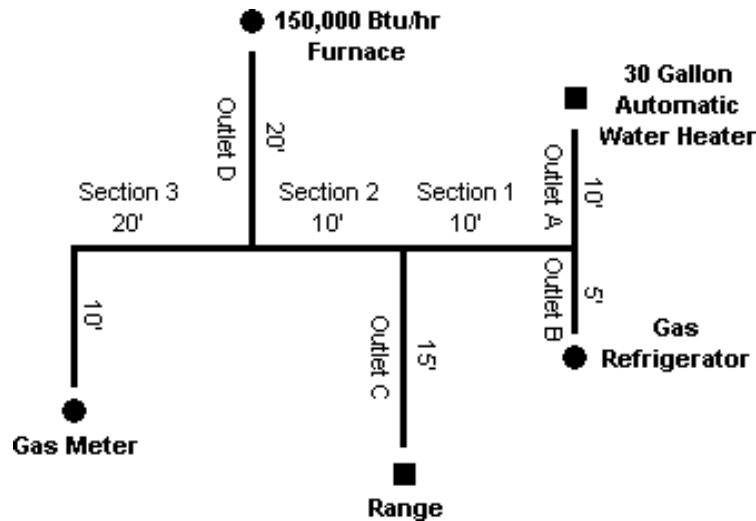
When the installation and testing of your system for leaks is complete, please schedule your inspection accordingly. The inspector will need to see the complete system being tested. You must supply the test gauge as described above. The system must be under testing when the inspector arrives. (Sections 1213.3 and Section 318.0)

**Minimum Demand of Typical Gas Appliances in BTUs Per Hour, per table 1208.4.1**

Appliance	Demand in BTU/hour
Barbecue (residential)	40,000
Domestic Clothes dryer	35,000
Domestic Gas Range	65,000
Domestic Recessed Oven Section Fireplace Log	25,000
Lighter (residential) Instantaneous (4 gal/minute)	80,000
Storage Water Heater up to 30 gallon tank Storage	285,000
Water Heater, 40 to 50 gallon tank	35,000
	50,000

> **Example: (See figure 1215.1.1)**

**Problem:** Determine the required pipe size of each section and outlet of the piping system shown.



> **Solution: (See TABLE 1215.2(1), SCHEDULES BY PIPE TYPE)**

- Maximum gas demand of outlet A-30,000 BTU per hour/1100 BTU per cubic foot = 27 cubic feet per hour.  
Maximum gas demand of outlet B-3,000 BTU per hour/1100 BTU per cubic foot = 3 cubic feet per hour.  
Maximum gas demand of outlet C-65,000 BTU per hour/1100 BTU per cubic foot = 59 cubic feet per hour.  
Maximum gas demand of outlet D-150,000 BTU per hour/1100 BTU per cubic foot = 136 cubic feet per hour.
- The length of pipe from the gas meter to the most remote outlet (outlet A) is 60 feet.
- Using the column marked 60 feet on the size of gas pipe charge:  
Outlet A, supplying 27 cubic feet per hour, requires one-half inch pipe. Section 1, supplying outlets A and B, or 30 cubic feet per hour requires one-half inch pipe. Section 2, supplying outlet A, B and C, or 89 cubic feet per hour requires three-quarter inch pipe. Section 3, supplying outlets A, B, C, and D, or 225 cubic feet per hour, requires one-inch pipe.
- Using the column marked 60 feet: Outlet B supplying 3 cubic feet per hour requires one-half inch pipe. Outlet C, supplying 59 cubic feet per hour, requires one-half inch pipe.
- Using the column marked 50 feet: Outlet D, supplying 136 cubic feet per hour, requires three-quarter inch pipe.