CITY OF DOWNEY

COMMUNITY DEVELOPMENT, BUILDING AND SAFETY
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(www.downeyca.org)

INSTALL GAS		
B SECTION	043 FORM NUMBER	2013 CPC CODE CYCLE
01/01/2011 EFFECTIVE DATE	01/01/2014 REVISION DATE	

INSTALLING GAS PIPE PER THE 2013 CPC

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 rates. 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 2013 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 x feet 1100 (45.5 cubic feet x 1100 = 50,000 BTU.)

APPROVED GAS PIPING FITTING MATERIALS

Approved materials are described in section 1209.5. Metallic pipe, metallic tubing and plastic pipe, 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 1209.5.2.3 and section 1209.5.2.4. Use of materials under section 1209.5.2.3 or 1209.5.2.4 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 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 1209.5.5.

SPECIAL INSTRUCTIONS

Joints, fittings, and unions shall comply with section 1209.5.8 and 1209.5. When concealed within the building connections shall comply with section 1211.3. Each gas appliance must have an accessible, approved manual gas shut off with a non-displaceable valve member per section 1212.5.

TESTING

A pressure test, provided by applicant, is required per the 2013 CPC, section 1214.3.1. 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.

The City of Downey currently allows, in lieu of the above test device, a minimum 10-PSI test for 15 minutes, with no drop in pressure. Pressure test is required to be performed with gauges with 1/10 pound increments and a pressure range not to exceed 15 pounds.

INSPECTION

When the installation and testing your system for leaks is complete, call the inspection request line at (562) 904-7141 to schedule an inspection. 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 test when the inspector arrives.

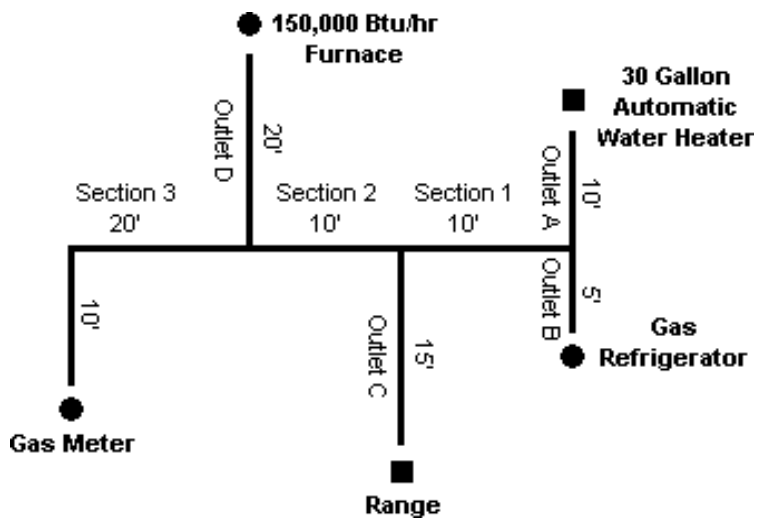
The example shown on the next page is based on metallic gas pipe, sized per table 12-8 for natural gas. Your calculations must be based on the applicable pipe materials and available gas pressures. Consult your gas company for additional information on your site specific gas supply pressures.

See tables 12-8 through 12-41 as noted in the 2013 CPC for all pipe sizes, materials, and supply pressures.

Minimum Demand of Typical Gas Appliances in BTU's per hour, per table 12-1	
Appliance	**Demand in BTU/hour**
Barbecue (residential)	40,000
Domestic Clothes dryer	35,000
Domestic Gas Range	65,000
Domestic Recessed Oven Section	25,000
Fireplace Log Lighter (residential)	80,000
Instantaneous (4 gal/minute)	285,000
Storage Water Heater up to 30 gallon tank	35,000
Storage Water Heater, 40 to 50 gallon tank	50,000

Example: (See figure 12-2)

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



> Solution: (See Figure 12-2 and Table 12-1 and 12-8)

1. 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-30,000 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-15,000 BTU per hour/1100 BTU per cubic foot = 136 cubic feet per hour.

2. The length of pipe from the gas meter to the most remote outlet (outlet A) is 60 feet.

3. 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.

4. Using the column market 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.

5. Using the column marked 50 feet: Outlet D, supplying 136 cubic feet per hour, requires three-quarter inch pipe.