CITY OF DANA POINT

COMMUNITY DEVELOPMENT, BUILDING AND SAFETY

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B029-GAS LOADS

2019 CALIFORNIA CODES
CODE CYCLE

01/02/2020
EFFECTIVE DATE

CALCULATION GAS LOADS

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 2019 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/1000 (example: 50,000 BTU by 1000 = 50 cubic feet of gas per hour). See the example on page 2 to help further illustrate this.

APPROVED GAS PIPING FITTING MATERIALS

Approved materials are described in section 1208. 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 sections 1208.6.3.2 and 1208.6.3.3. Use of materials under 1208.6.3.2 or 1208.6.3.3 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 1208.6.8.

SPECIAL INSTRUCTIONS

Joints, fittings, and unions shall comply with sections 1208.6.11 and 1208.6.11.1. When concealed within the building, connections shall comply with section 1210.3. Each gas appliance must have an accessible, approved manual gas shut off with a non-displaceable valve member, per section 1212.6.

TESTING

A pressure test, provided by applicant, is required per the 2019 CPC, sections 318 and 1213.3.

INSPECTION

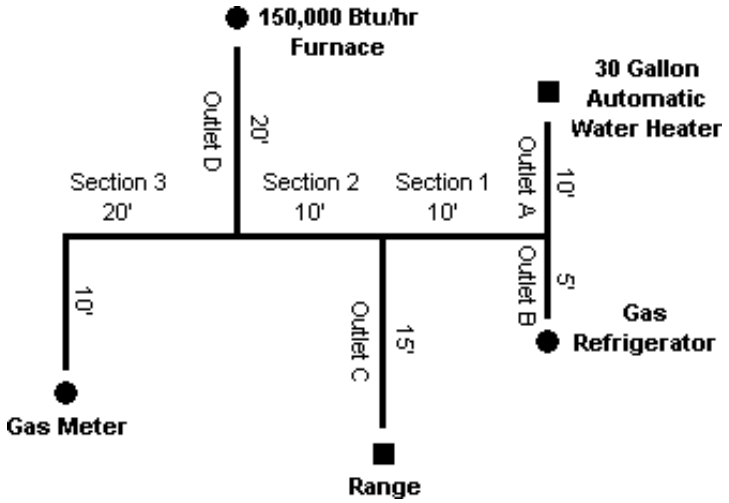
When the installation and testing your system for leaks is complete, call the inspection request line at (949) 248-3590 to schedule an inspection. The inspector will need to see the complete system being tested. You must supply the test gauge as described above. The system must be under test when the inspector arrives.

The following tables and graphs are presented as examples only. Always use the tables and calculation methods prescribed within the plumbing codes.

MINIMUM DEMAND OF TYPICAL GAS APPLIANCES IN BTUS PER HOUR, 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	25,000
Fireplace Log Lighter (residential)	80,000
Instantaneous (4 gal/minute)	200,000 min or by unit demand
Storage Water Heater 30 to 40 gallon tank	35,000
Storage Water Heater, 40 to 50 gallon tank	50,000

EXAMPLE: (SEE FIGURE 1216.1.1)

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



SOLUTION: (SEE TABLE 1216.2, SCHEDULES BY PIPE TYPE)

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-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.

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 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.

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