BUILDING DIVISION
Development Services
100 N Wilcox Street
Castle Rock, CO 80104

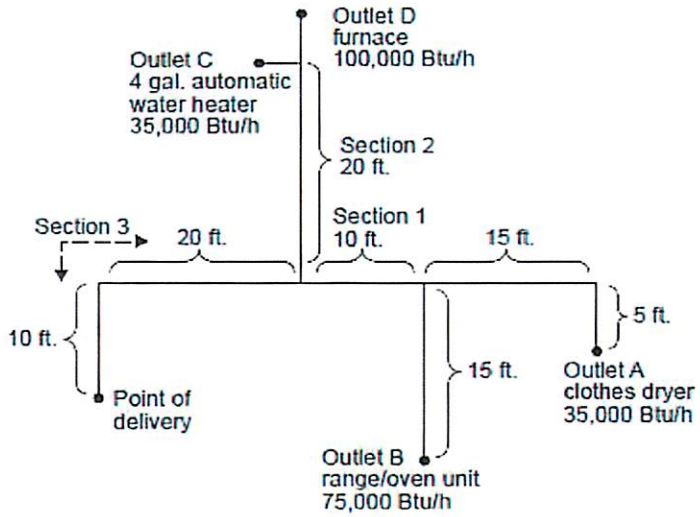
RESIDENTIAL GAS PIPING and FUEL FIRED APPLIANCES 2012 IRC

- **Electronic Permit Submittal** etrakit.crgov.com –
  - All online application fields completely filled out.
  - Fuel fired appliances (Permanent) require gas calculations, reference gas pipe permit record number if separate.
  - Required documents in PDF format
  - Contractors must be registered with the Town of Castle Rock prior to permit issuance.
- **Site Plan**- For exterior gas pipe and appliances, may require a zoning review
  - Include the address of the project; a footprint of the home, other buildings, decks and buildouts, with dimensions and distances to property lines.
  - Existing/new gas pipe layout, location of the proposed appliances, distances and clearances from combustibles.
- **Gas Pipe Plan**
  - Include the address of the project.
  - Indicate the meter delivery pressure.
  - Drawing of the gas system
    - If **connecting onto an existing system**, show the entire piping schematic of the existing system.
    - If run is a separate feed **from the meter** (connection within 1 foot of gas meter), only the new line needs to be shown in its entirety. Indicate where the branch to the existing portion of the gas pipe system ties in and note the existing house system.
  - Provide the input Btu/h data of each appliance that is connected to the same distribution system as the new appliance, and note this value on the plan adjacent to each appliance location.
    - Where an appliance input rating is not indicated by the gas supplier, appliance manufacturer or qualified agency the rating from Table G2413.2 may be used for estimating the volumetric flow rate of gas to be supplied.
  - Provide the lengths of each pipe segment; a pipe segment is the pipe that runs from the meter to the first branch point, or from branch point to branch point, or from branch point to appliance shut-off valve. As an alternative, identify the total developed length from the meter to each and every appliance.
  - Gas piping details
    - Type of pipe (include manufacturer for CSST).
    - Size of pipe
    - Length of pipe
- **Appliance Cut Sheets**
  - Manufacturer's specifications and listing information, indicate the specific appliance.
  - Installation instructions, must be available on site for inspections.
- **Framing Details**- Appliance surrounds or build-outs. Note- Any structural changes may require an Engineer's approval.
- **Electrical Details**- If applicable

- Call 811 Before You Dig *-for utility locate services*
- *Permanently fixed-in-place outdoor decorative appliances shall be tested in accordance with ANSI Z21.97 and shall be installed in accordance with the manufacturer's instructions. 2012 IRC G2454.1*
- *Provide a minimum of 10' clearance for all open-flame fixed outdoor fuel fired appliances. Residential open flame, fire and burning shall comply with the requirements of Sections 308.1 through 308.1.6.2 2012 IFC 308.4*
- *The Town of Castle Rock Fire Department enforces the 2012 International Fire Code.*
- *Please contact the Building Counter at buildingcounter@crgov.com or by phone 720-733-3527 for alternate submittal methods.*

Department Mission: "Implementing Community Vision through Development Activities"

Longest length method. Determine the required pipe size of each section and *outlet* of the *piping* system shown in Figure A.6.1, with a designated pressure drop of 0.5-inch w.c. (125 Pa) using the Longest Length Method. The gas to be used has 0.60 specific gravity and a heating value of 1,000 Btu/ft$_3$ (37.5 MJ/m$_3$).



Solution:

(1) Maximum gas demand for *Outlet* A:

$$\frac{\text{Consumption (rating plate input) or Table 402.2 if necessary}}{\text{Btu of gas}} =$$

$$\frac{35{,}000 \text{ Btu per hour rating}}{1{,}000 \text{ Btu per cubic foot}} = 35 \text{ cubic feet per hour} = 35 \text{ cfh}$$

Maximum gas demand for *Outlet* B:

$$\frac{\text{Consumption}}{\text{Btu of gas}} = \frac{75{,}000}{1{,}000} = 75 \text{ cfh}$$

Maximum gas demand for *Outlet* C:

$$\frac{\text{Consumption}}{\text{Btu of gas}} = \frac{35{,}000}{1{,}000} = 35 \text{ cfh}$$

Maximum gas demand for *Outlet* D:

$$\frac{\text{Consumption}}{\text{Btu of gas}} = \frac{100{,}000}{1{,}000} = 100 \text{ cfh}$$

The length of pipe from the *point of delivery* to the most remote *outlet* (A) is 60 feet (18 288 mm). This is the only distance used. Using the row marked 60 feet (18 288 mm) in Table 402.4(2):

(a) *Outlet* A, supplying 35 cfh (0.99 m$_3$/hr), requires 1/2-inch pipe.

(b) *Outlet* B, supplying 75 cfh (2.12 m$_3$/hr), requires 3/4-inch pipe.

(c) Section 1, supplying *Outlets* A and B, or 110 cfh (3.11 m$_3$/hr), requires 3/4-inch pipe.

(d) Section 2, supplying *Outlets* C and D, or 135 cfh (3.82 m$_3$/hr), requires 3/4-inch pipe.

(e) Section 3, supplying *Outlets* A, B, C and D, or 245 cfh (6.94 m$_3$/hr), requires 1-inch pipe.