



## Rough In Guide

(To be given to the Plumber and Electrician prior to Rough In)

### Plumbing

**1. Gas Plumbing Pipe Size.** The size of the gas line providing gas to your fire features is determined by three factors; the gas consumption rate (btu/hr) of the appliance (fire ring), the length of the gas line run and the pressure at which the gas is being delivered. In most natural gas applications you have little to no control of the gas pressure due to the fact this is set at the meter and cannot be changed. In most LP (propane) applications however you do have control of the pressure. For the purposes of this guide we will not discuss gas pressures – this is best left up to the plumber working on the project. We will however look at Gas Consumption rate of fire rings and gas line length.

**Gas Consumption for Fire Rings:** For planning purposes use the information in the table below to determine the amount of gas required for each of the fire features you have planned for your project.

Fire Ring Size	Gas Consumption (Btu/hr)
6"/VFM/Tiki*	25,000
12"	45,000
18"	75,000
24"	125,000
30"	150,000
30" HC	175,000
36" HC	250,000
48" HC	300,000

\*Gas Consumption for Vulcan Fire Module and Tiki torches same as a 6" Fire Ring

**Gas Line Length:** The table below shows the amount of gas (btu/hr) a gas line can deliver over a specified distance. As an example if you look in the row corresponding with "3/4" (meaning 3/4" pipe) and follow it to the right to the column corresponding with "150" (meaning a 150' gas line run) you see the number "77K". This means a 3/4" pipe that is 150' long will deliver 77,000 Btu/hr.

**Gas Capacity of Pipe (Btu/hr)**

Pipe Size (in)	Pipe Length (ft)					
	10	20	40	80	150	300
1/2	132K	93K	66K	46K	34K	24K
3/4	300K	210K	150K	105K	77K	55K
1	600K	425K	300K	210K	155K	110K
1 1/4	1320K	934K	660K	466K	340K	240K
1 1/2	2045K	1445K	1020K	720K	525K	375K
2	4130K	2920K	2060K	1460K	1060K	750K

**2. Manual Gas Shutoff.** Code requires a manual gas shutoff within 6' of the fire feature whether electronic ignition is used or not.

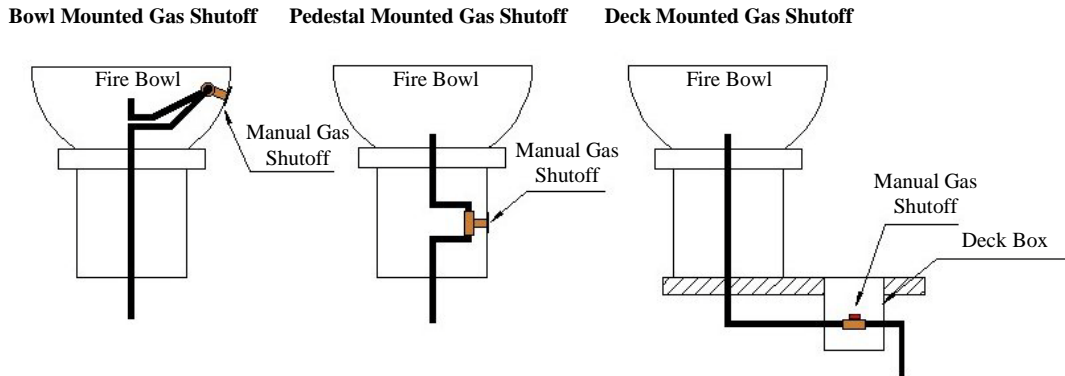
#### Types of Manual Gas Shutoff Valves:

1. Ball Valve
2. 1/4 Turn Key Valve (Identical to a ball valve with a Key Stem on it)
3. Key Valve (Gate Style Valve)



We **HIGHLY** recommend using either a Ball Valve or ¼ Turn Key Valve (available through Fire by Design) for your Manual Gas Shutoff. The Gate Valve Style of Key Valve (available in local hardware stores) gives you very little control over flame height and greatly restricts the flow of gas when compared to the first two options above.

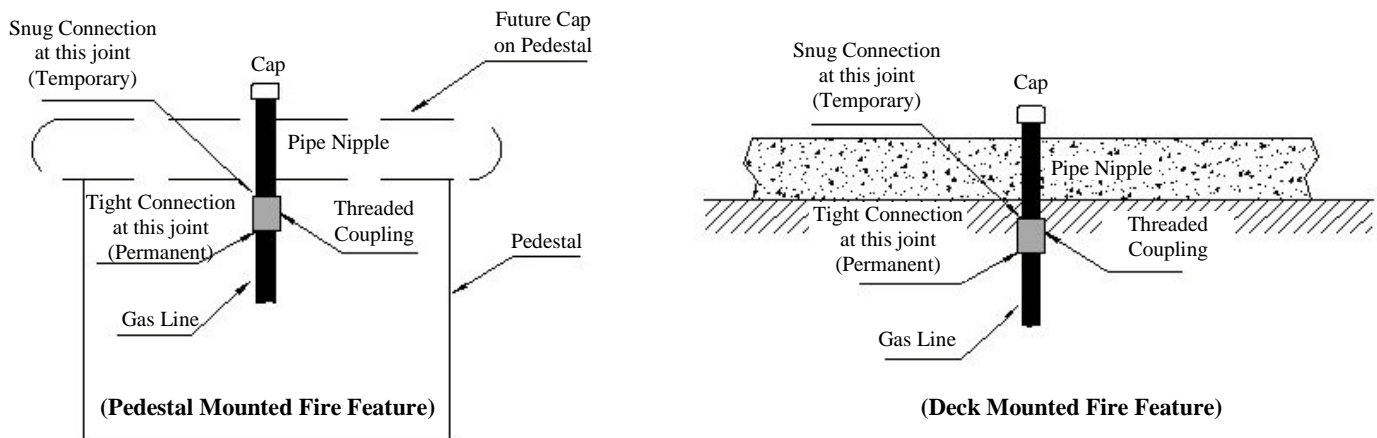
**Location of Manual Gas Shutoff Valve:** The diagram below shows you three of the most common options for the location of the manual gas shutoff valve.



3. **Drainage.** Drainage must be planned for in all fire features, regardless whether electronic ignition is used or not. A drain line in the form of plumbing is one option. Another option could simply be holes (larger than ½”) drilled toward the bottom of bowl (preferably on a lower side as opposed to on the bottom). Regardless which method used, some sort of drainage must be planned.

4. **End Game Plumbing.** When it comes to fire features – the last couple of feet of gas plumbing can make all the difference in the ease of installation of fire features. When installed in accordance with our recommendations, installation is simple. Otherwise it can become a nightmare.

The illustration below shows a pedestal mounted fire feature and a deck level mounted fire feature.



In the illustrations above you see a gas line coming up through both a pedestal and/or up through the grade below. Just prior to arriving at the top of the pedestal / grade a coupling is added to the gas line. Following the coupling is a short nipple with a cap on it that is installed to be snug NOT tight. By plumbing the gas line this way it allows the future installer to remove the last pipe nipple



in the gas plumbing fairly simply and change it to a different length pipe nipple if needed to make installation go easier. This simple change to way the last couple of feet of plumbing is installed makes future installation of the subsequent fire features much easier.

### **DO NOT USE FLEXIBLE GAS LINE**

The problem you will experience when using flexible gas line is the fact you will hear a loud ‘whistling’ sound when the fire feature is turned on. If you cannot hard pipe the plumbing, use “Type L” or “Refrigerant” Copper tubing.

### **Electrical**

1. **Wire Gauge** – For all wiring of future Fire by Design Fire Features the minimum gauge wire to be used is 12 gauge wire.
2. **Daisy Chaining** – No more than 3 Fire by Design fire features shall be daisy chained on the same home run. If the home run exceeds 100’ for any daisy chained features, minimum wire gauge to be used is 10 gauge wire.
3. **Transformers for AWEIS** – No less than one supplied transformer (24 volt by 50 VA) shall be used for each AWEIS system to be installed. When daisy chaining fire features, transformers are to be wired in parallel to the home run wires.
4. **Transformers for Tiki Torches / Vulcan Fire Module** – No less than one supplied transformer (24 volt by 75 VA) shall be used for each TWO Tiki Torches / Vulcan Fire Module.