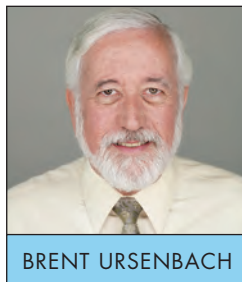


MECHANICAL CODE DISCUSSION

Fuel Gas Code — Gas Connectors



BRENT URSENBACH

BRENT URSENBACH

HVAC EDUCATOR/
EXPERT WITNESS

bursenbach@gmail.com
801-381-1449

I REGULARLY RECEIVE ‘wall of shame’ photos from several of you, from inspectors, general contractors, and family. Some provide a good laugh, others showing a lack of experience/knowledge, and others quite troubling, even dangerous. Please continue sharing, as these give me ideas for my next code discussion and other training. The reason for selecting this discussion topic hopefully is obvious.

Definitions:

PIPING SYSTEM. The fuel *pip*ing, valves, and fittings from



the outlet of the *point of delivery* to the outlets of the *appliance* shutoff valves.

CONNECTOR, APPLIANCE (Fuel). Rigid metallic *pipe* and fittings, semirigid metallic *tubing* and fittings or a *listed* and *labeled* device that connects an *appliance* to the *gas piping system*.

Remember the *pip*ing *system* size must extend to the shut off valve, while the shut-off valve does not need to be the size of the piping system, rather the size of the properly sized connector. (IRC G2422.1.2.2.) This is a common occurrence where 1" 'or 3/4" is required to the appliance location, with a smaller, properly sized 1/2 gas shut-off and gas connector. Simply ensure the system piping size extends to 6' or closer of the appliance.

Gas Connectors

2015 IRC 2422 and IFGC411 Appliances Connections

provides detailed direction for virtually every type of connector recognized by the code, each with the applicable ANSI listing. I'll summarize the most common connectors here. Please refer to the code for less common connectors like quick disconnect and commercial cooking appliance connectors.

Appliance connector requirements include:

1. Connection with rigid metal pipe and fitting.
2. Connection with CSST in accordance with the manufacturer's instructions.
3. Connection with listed and labeled appliance connectors located entirely in the same room as the appliance.
4. Connectors shall be protected from damage.
5. Installed per the manufacturer's instructions.
6. Have an over length NOT exceeding 6'.
7. Use only ONE listed flexible connector. Never couple two listed flexible connectors together.

☛ (Continues top of next page)

8. Sized for the total demand of the appliance – read the attached label.

entire length when the installation is complete. foundation walls, etc. in place.

Nominal Connector Series (ID, inches)	Straight Length Capacity-Btu Per Hr (W30-64Sp Gc, 1000 Btu Per Cu Ft (K) 5MJ Per Cu Meter) Gas @ 160.5 inch Water Column (124Pa) Pressure Drop							
	12"	18"	24"	30"	36"	48"	60"	72"
1/4	48,000	43,800	40,000	36,400	33,400	28,300	24,900	23,100
3/8	102,000	93,100	85,000	77,100	71,100	60,500	53,200	49,100
1/2	180,000	164,200	150,000	136,000	125,000	106,000	93,200	86,000
3/4	---	---	290,900	270,500	255,900	215,000	197,400	173,900
1	---	---	551,500	---	515,900	442,700	398,900	347,800

NOTE: When Using 0.2 inch Water Column Pressure Drop, Capacity Can Be Determined By Multiplying The Figures Above By 0.632.

DO NOT REMOVE THIS LABEL

Crown Industries LLC

MADE IN CHINA

10. Semirigid tubing and listed connectors may penetrate a housing where protected is provided against damage.

Referring to the first two photos (see opposite page), notice the 3/4" or 1" gas drops down to the tee with a 1/2" sediment trap and shut-off, which is compliant; however, running the connector into the wall then back out is not code compliant. The HVAC contractor argued he provided access to the connector with a return grill on the other side of the wall, which the building inspector and builder did not accept. It really is easier to do it right the first time!

Closing Definition:

WORKMANSHIP. The degree of skill with which a product is made, or a job done.

9. Do not conceal or extend connectors through a wall, floor or partition, or appliance housing, with the exception for rigid pipe connectors extending through the housing.

Thanks again for your suggestions, questions, and comments.
— Brent ■

FREQUENTLY CITED OSHA VIOLATIONS

1. Fall Protection
2. Respiratory Protection
3. Ladders
4. Hazard Communication
5. Scaffolding
6. Fall Protection Training
7. Control of Hazardous Energy
8. Eye and Face Protection
9. Powered Industrial Trucks
10. Machinery and Machine Guarding



Does your workplace need support in these areas? If so, take advantage of Federated's Risk Management Resource Center by calling 1-888-333-4949, or go to the mySHIELD® Training and Resources page by logging in at: <https://myshield.federatedinsurance.com/>