

April 15, 2005

Richard Drury
Adams Broadwell Joseph & Cardozo
651 Gateway Blvd., Suite 900
South San Francisco, CA 94080

RE: Issues Related to CPVC Plastic Pipe

Dear Mr. Drury:

I am a certified plumbing instructor with UA Plumbers' and Steamfitters Local 159, located at 1308 Roman Way, Martinez, CA 94553. I have personal knowledge of the matters set forth in this letter from many years of working in the plumbing industry.

1. I am a certified plumbing inspector. I have over 31 years of experience as a plumber and 11 years of experience as a general superintendent. I have also been a plumbing instructor at the apprenticeship school for over 20 years.
2. Plumbers almost always use more cement, primer and solvents than suggested by manufacturers when installing CPVC pipe. This is because it is expedient, (there is no bonus for saving and there is a large penalty for leaks). Additionally, manufacturer-supplied daubers used to apply solvent and cement are substantially larger than the inside diameter of most in-house fittings leading to a large amount of waste. It would be common to waste as much as 50% of the cement and solvents due to these factors, which would result in use of twice as much material than specified by manufacturers.
3. Our office conducted an informal survey of professional plumbers in Contra Costa County to determine common fuels used when installing copper. Our survey indicated that most plumbers in this area use MAPP gas (10 of 14 surveyed, or 71%); the next most common fuel is acetylene (3 of 14 surveyed, or 21%); while propane is used by some plumbers (1 of 14 surveyed, or 7%). MAPP gas is C_3H_4 . MAPP gas is made by combining liquefied petroleum gas with methylacetylene-propadiene. The neutral oxy-MAPP gas flame produces 2405 BTUs/cf with a 5301° F (2927° C) flame temperature.
(<http://www.corpbrothers.com/productcgc/mapp.htm>)
4. Professional plumbers waste very little gas prior to lighting the torch, since wasting fuel results in a loss of profits. A minimum amount of gas is vented to atmosphere. The torch is turned on and immediately lit within one to two seconds. The torch is then used to join numerous joints which are set ahead of time. The result is a loss to the atmosphere of less than 1% of fuel.

- RESERVA 4718-03, 3.30PM, U.A. LOCAL 159
5. One 7.5 lb. MAPP gas cylinder is typically adequate to plumb 4-5 houses, although this of course will vary with the size of the house and the complexity of the job.
6. The number of joints per house will be identical whether the house is plumbed with copper or CPVC. The number of joints in a typical house will range from 225-250, although this will, of course, vary with the size of the house and the complexity of the job.
7. Construction activity varies month by month due to rain. We have experienced a 20% reduction this winter.
8. Plumbers generally work 5-days a week, 8 hours a day by contract, and when work is available. Overtime work on residential construction is unusual.
9. Plumbers generally do not work on Federal holidays, except for emergencies or rush jobs.
10. It is typical to use one pound of solder and two ounces of flux to plumb a typical house with copper pipe.
11. We conducted a survey of professional plumbers in Contra Costa County to determine the flux brands that are typically used. Our survey indicated that No Korod flux is the most common (used by 8 of 16 surveyed, or 50%); No Korod Aqua is the next most common (used by 6 of 16 surveyed, or 37%), while Oatey #5 and Laco were each used less frequently (1 each of 16 surveyed, or 6% each).

Thank you. Feel free to contact me with any questions.

Sincerely,

Robert A. Calone 4/18/05

Robert Calone
Certified Inspector #016380
UA Local 159