

MECHANICAL CODE DISCUSSION

Vent Piping: Plastic Pipe, Glues and Primers



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LAST WEEK, AS THE RMGA Board met virtually, we discussed PVC appliance venting, including the use of **one-step glues**, products not requiring the use of a primer. I committed to research the subject, and to report here in The Pipeline. Please consider the following:

Summarizing:

- Several on the Board including myself shared we like these products, which save time and when properly applied have performed well. Additionally, with primer's extremely low viscosity, purple primer drips and runs everywhere, often creating a less than attractive vent installation.
- **IFGC 503.4.1.1** and **IRC G2427.4.1.1** state: **Plastic vent joints.** *Plastic pipe and fittings used to vent appliances shall be installed in accordance with the appliance manufacturer's instructions. Plastic pipe venting materials listed and labeled in accordance with UL 1738 shall be installed in accordance with the vent manufacturer's instructions. Where a primer is required, it shall be of a contrasting color.*
- The contrasting color allows simple visual confirmation of primer use.
- Past ICC Code Development proposals on the subject discussed the health hazards created with vent systems failures and water/corrosion damage from dripping condensate. Do your service techs encounter dripping vent systems and the damage that occurred within the

appliance and to the building?

- **IPC 705.10.2** provides an exception for solvent cements certified as conforming to ASTM D2564 and for use *only on plumbing DWV systems.* Christy's is listed to this ASTM Standard.
- Research into furnace manufacturer's installation instruction, including Lennox, Carrier, Goodman, Tempstar, Trane, and York, shows all require primer, with several also referring the PVC manufacturer's instructions.
- The two largest manufacturers of PVC, Charlotte, and JM Eagle both require a primer with the glue.
- This one-step glue manufacturer's instructions include: *Can be used without a primer for non-pressure systems up to 6" and pressure systems below 4" if local codes permit.*



In summary, while this glue manufacturer is confident their product provides a strong connection and tight seal, they defer to the local code. Additionally, gas appliance manufacturers, and PVC pipe manufacturers appear unified in requiring primer and solvent cements for all PVC joints.

Lastly, lets review a couple of other plastic vent issues:

- PVC pipe and fittings are code approved for use based on the gas appliance manufacturer's installation instructions. PVC pipe manufacturers do not recommend the use of their products for gas appliance venting. The issue is the 140° F maximum temperature rating for PVC pipe and fitting.
- There are applications where the vent gas temperatures will exceed 140° F, specifically, appliances with high water or air return temperatures as found in specific boiler and furnace applications. This may be a boiler operating at a 180° F+ or a furnace used in a drying application. In these applications, stainless steel or high temperature plastic vent systems are often required. Please refer to the appliance manufacturer's installation instructions. There is a state amendment to the IFGC, limiting the use of PVC pipe as a gas appliance vent, to installation where the temperature does not exceed 140° F.
- High temperature polypropylene systems rated for 230° F exhaust temperatures must comply with UL 1738 and installed in accordance with the manufacturer's requirements, which includes NOT gluing or solvent cementing joints.

Thanks again for your comments, questions, and suggestions. Be safe and stay healthy. —Brent ■