TPR Drain Lines

Not long ago, at three inspections in a row, I found TPR drain lines that were improperly installed. By improperly installed, I mean that they were routed up. In some cases there were other defects as well — the TPR drain was routed into flex tubing, the line terminated in the crawl space or too high off the ground outside.

One homeowner claimed that his drain line, being routed uphill, was not a problem because pressurized water is involved. He is wrong. This arrangement is not allowed by any of the professional plumbing standards.

What the fellow says, if one knows nothing about the science, seems logical. You envision water coming out of the TPR valve under high pressure and as steam. The fact is, this valve may discharge water periodically, as part of it doing it's job. That is especially true if there is what is called a closed system and if there is no thermal expansion tank for the water heater.

These valves are factory set at 150 PSI. I have seen municipal water pressure to homes that was too high — over 140 PSI. 80 PSI is the very top of the normal range. In high pressure situations like that, where the water heater is under stress to begin with, these valves usually discharge water. In the average situation, as the tank heats and pressure hits 150 PSI, anywhere from a few drops to a cup or so of water comes out the valve. That relieves the pressure for awhile, then it may build up again and discharge more water. The water coming out the TPR drain is NOT superheated. It is the same temperature as the normal hot water in the tank. About the only way the discharge water will be superheated is if the thermostat should fail and lock in the "on" position. If that should happen, things could get very hot.

If the TPR drain line is routed up, and any amount from a few drops to a cup of water is discharged, that water would stay in the pipe — up tight to the valve. Overtime, that can lead to corrosion, a mineral plug and failure of the TPR valve. If that happens, then there is a big safety concern as a result of a faulty installation in the first place.

Thanks for stopping by,

Steven L. Smith

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