

The boiler heating system

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Boiler is the common residential heating system, It used the burner to heat the water in the other side of heat exchanger, which was circulated to the living space through pipe and pump. The room was warmed up either by baseboard installed under the windows or in the hall way or by the pipe buried in floor. The whole system was comprised of gas fuel delivery, exhaust, water supply and circulation as well as operation control and safety control. Clients often got confused in between boiler and water heater. Please be advised these are 2 facilities which function, application and life expectancy are quite different.



There were some advantages of boiler which was quiet, clean and provided even and mild heat. It did not have the noise as that of force air furnace, no draft, no cooking smell widespread in the whole house. This is important to the building with multiple-independent suites, which virus cross infection could be a health hazard. It was quite easy for boiler system to separate into various control zones in the building. This was not only economical but environmental friendly. If the pipe was buried in the floor, it would be easy to arrange the room and no worry to block the hot air registers or baseboards. The heat came up from feet, which made people feel comfortable.

Certainly the disadvantages were apparent. Because the water was only 85 F in the buried floor, it slowly warmed room up. People would not be comfortable with the higher temperature under their feet. Also, once the pipe has blockage or blast, the cost of remedy was outstanding. Moreover, it was not as easily add AC to boiler heating system as that of Furnace system.

During our regular home inspection, first, we had to make sure the burner working properly, no abnormality on the flame. There were no burn around burner opening and enough refreshing combustible air supply, also the right connection of the exhaust vent. It was hard to watch the heat exchanger but not hard tell once it failed for the leaking visible. The life expectancy of boiler was about 25 years. The pressure reduce valve and backflow preventer should be in place on the water supply pipe. The former reduced normal water circulating pressure to 12-15 psi. The rear kept circulation water not to go back to and contaminate building water supply once the water supply lost its regular pressure 60 psi. In addition, the expansion tank and pressure relief valve had to be installed. They were safety control which the former offset the pressure generated from heating and the rear would open to release the pressure once it was over 30 psi. Some systems were installed air vent valves which improved heat transfer and protected water pump for air pocket. They were often leaking and rusty. Zone valves worked together with thermostats in different rooms to control the heat supply. Copper and Pex were the regular adopted heating pipe. We paid attention to Poly-B pipes. Theoretically, there was no air barrier on this pipe. The oxygen can get into the pipe can cause the metal corrosion. This was not a good installation but there were some remedy for the system. We had found some system working over 20 years with Poly-B pipe. The regular maintenance was necessary