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Air vent

2-3 minutes

To prevent corrosion and problems with operation, heating and air-conditioning systems must be constructed so that air can be removed both when the system is filled and during subsequent operation.

Air can still be present in a system filled with water even after the system has been vented using air vent screws and air vents. This is because the water contains a certain volume of air, depending on ambient pressure and temperature at the time the system is filled.

The air is released when the water is heated in the boiler or heat exchanger and in low pressure areas in the system, such as at the highest point in the system or on the suction side of a pump. The released air consists of oxygen and nitrogen. The oxygen binds to any iron materials in the system. The microbubbles of the remaining nitrogen gasses must be removed by another means.

The following are commonly used components and methods to remove air:

- Air vent screws mounted on radiators and convectors, etc
- Air pots which are placed at high points in the system, often where the pipe goes from horizontal to a vertical drop
- Automatic air vents placed in the same way as air pots
- Micro-bubble air vents located in front of main pumps where the pressure is lowest
- Degassing using a pressure reduction technique where a portion of the system water is diverted to a pressureless diaphragm tank in the system's pressure-holding and expansion system

Air that is not removed from the system will collect at high points in the heating system and create air pockets. Worst case is that circulation in the heating system comes to a standstill, and the system loses its ability to heat the building.