



# CONDENSATION POTENTIAL

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## MECHANICAL PIPING SYSTEMS

In general, PVC pipe will sweat much less than metal pipe due to its inherent property of low thermal conductivity. PVC makes an excellent insulator. However, condensation may possibly form on PVC pipe if a number of conditions occur simultaneously. The steps below will help determine the condensation potential for System 15 and other PVC pipes.

### Steps

**1** Determine the wall thickness of the System 15 pipe being used by referring to Table 1.

**2** With the wall thickness value from Table 1, estimate a curve between the existing curves for the next highest and lowest wall thickness on Figure 1. For example, 3" System 15 pipe with a wall thickness of 0.22" would be approximated by a curve halfway between the existing curves for 0.1 and 0.3".

**3** Determine the highest relative humidity condition that will occur. When outdoor temperatures are above 0°C (32°F), indoor humidity is generally between 34% to 40%. As outdoor temperatures drop, so does the required indoor humidity. Draw a horizontal line in Figure 1 at the relative humidity that is representative of the building when occupied.

**4** The coldest temperature of the fluid that will flow through the pipe must be determined. In most parts of Canada, it is reasonable to assume that the lowest fluid temperature would be 1°C (34°F). Extend a vertical line in Figure 1 from the chosen temperature value on the bottom axis.

The point where the horizontal line (from Step #3) and the vertical line (from Step 4) intersect will indicate the point at which condensation will occur. For design, ensure the condensation point is below the wall thickness curve estimated in Step 2. If it is not, a thicker PVC pipe must be chosen or pipe insulation must be used.

By following these steps, the condensation point can be determined for any interior System 15 or System XFR installations. For any further design assistance on System 15 or System XFR, please feel free to contact IPEX.

Figure 1

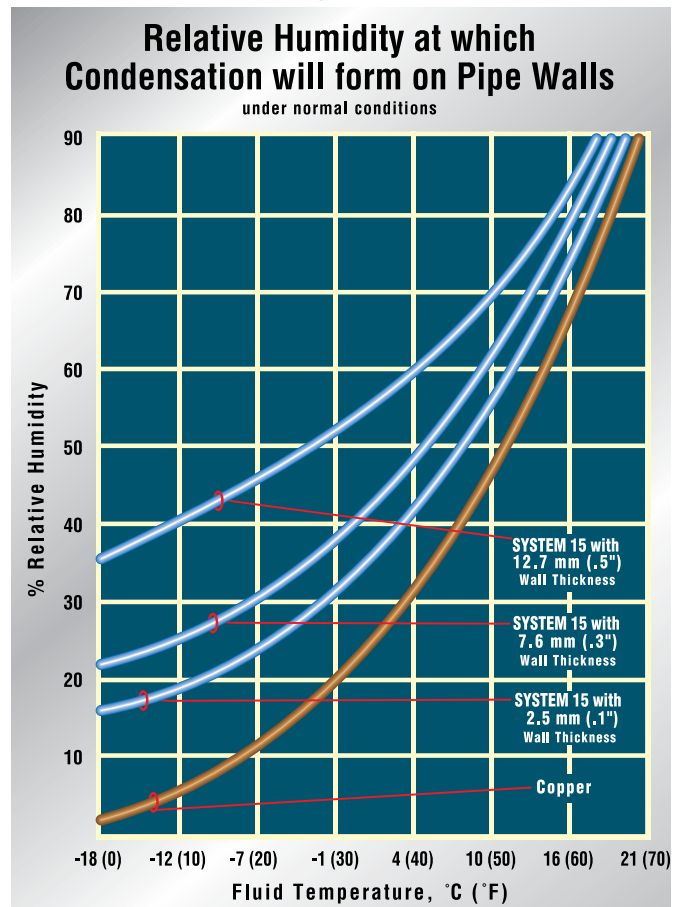


Table 1 - Pipe Dimensions

System 15 Wall Thickness (in)	
Size (in)	1½ 2 3 4 6 8 10 12 14 16 18 20 24
Wall Thickness	.15 .15 .22 .24 .28 .32 .37 .41 .44 .50 .56 .59 .69