

EMERGENCY VENTING

The requirements for emergency venting are derived from consideration of the rate of heat transfer per unit area, tank size and likely exposed area, time required to boil contents, time taken before the unwet portion loses strength, and the effects of drainage and fire fighting efforts in reducing fire exposure and heat transfer.

The wetted area of rectangular tanks is based upon the exposed surface area of the tank – excluding the top surface.

The wetted area of a vertical tank includes only the surface area of the first 30' of the shell. The bottom is only included if supported off the ground.

The wetted area of a horizontal cylindrical tank is based upon 75% of the total exposed surface of the tank.

The wetted area of a spherical tank is taken as 55% of the total exposed surface area.

Once the wetted area is determined, it will correspond to a required venting capacity as found in NFPA table 4.2.5.2.3 based on formula found in NFPA Annex B3. If the wetted area is over 2,800sqft, the formula or Table in 4.2.5.2.4 is used.

It will also correspond to a minimum emergency vent opening, as found directly from UL 142 Table 8.1

Reduction factors are permitted for tanks having remote impounding and those that are protected.

EMERGENCY VENT SIZES FOR HORIZONTAL CYLINDRICAL TANKS

Tank Diameter	Max. Tank Length	Emergency Vent min. Nominal Pipe Size
5	12'	5"
5	23'	6"
5	31'	8"
6	9'	5"
6	18'	6"
6	37'	8"
7	14'	6"
7	43'	8"
8	11'	6"
8	44'	8"