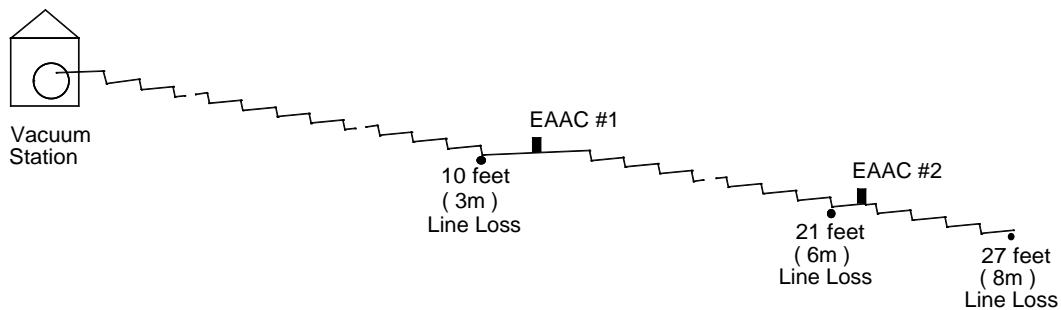# AIRVAC®
EAAC SYSTEM DESIGN EXAMPLE

AIRVAC system design is based upon the ultimate lift capability of the minimum vacuum level present in the system. Typically the vacuum station is set to operate over a vacuum level of 16 - 20 inHg. The minimum level being 16 inHg is equivalent to a negative 18 feet of H2O head. The system therefore has the capability of lifting a full vertical column of liquid 18 feet tall. In actual application we have found much more efficient liquid transport techniques so we never try to lift large vertical columns.

We must reserve 5 inHg to be able to actuate the AIRVAC valve, so subtracting this from the 18 feet lift capability leaves 13 feet of possible system lift. AIRVAC has specific calculation formulas that are used to calculate the losses in a particular piping layout. Please consult AIRVAC design manual for these formulas.

In general practice a system having over 16 ft. (5 m) of loss should have an AIRVAC Electric Air Admission Control (EAAC) installed. The first EAAC should be installed near the 10 ft. (3 m) line loss point (#1). This EAAC would typically be set to maintain a minimum vacuum level of 14 inHg at its location. Through its operation it will admit air to clear any line loss when the vacuum falls below its set point of 14 inHg. Therefore insuring that 14 inHg is always available at location #1.

If we then insure that there is 14 inHg at location #1 then we now have a new minimum vacuum level for this location. This minimum level of 14 inHg is equivalent to a negative 16 feet of H2O head. We still require 5 inHg to be able to actuate the AIRVAC valve, so subtracting this from the 16 feet lift capability leaves 11 feet of possible system lift. The result is that we now have a system which has 10 feet of line loss between the vacuum station and EAAC #1, plus another 11 feet of line loss possible giving a total line loss of 21 feet.

It is also possible to install a second EAAC at location #2 with a set point of 10 inHg. This would allow us to have 6 feet of additional lift after EAAC #2. In this example we would have 10 feet of line loss from the vacuum station to EAAC #1, plus 11 feet of line loss between EAAC #1 and EAAC #2, plus another 6 feet of line loss after EAAC #2. The total would be a line having 27 feet of line loss.