

# ANSI/AHRI STANDARD 880-2011 UPDATE



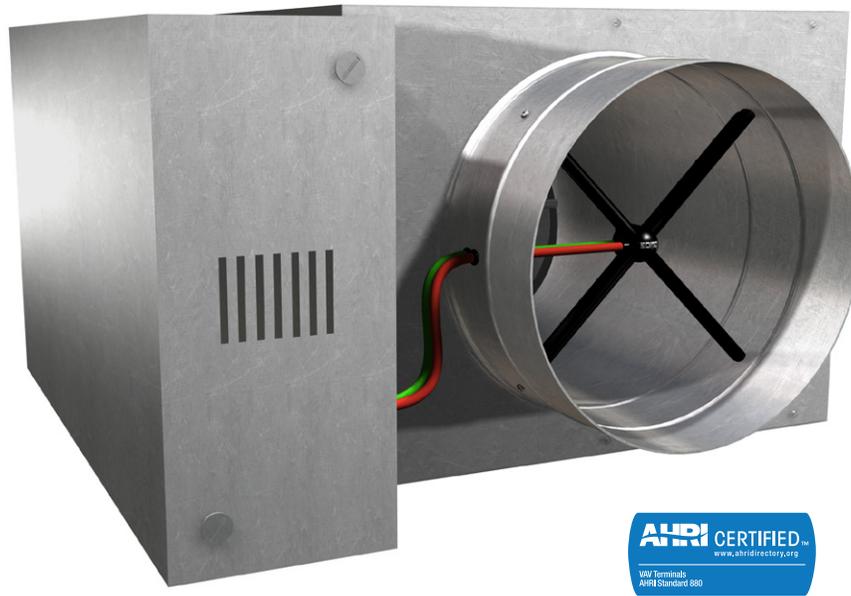
**Jerry Sipes, Ph.D., P.E.**

*Price Industries*

*Vice President, Engineering*

Discharge sound power levels of all Price terminals have been updated to include duct end reflection corrections to comply with the 2011 version of ANSI/AHRI Standard 880 – Performance Rating of Air Terminals.

ANSI/AHRI Standard 880-2011 requires that duct end reflection corrections be added to terminal unit discharge sound power levels. AHRI Standard 885 defines end reflection as follows – “When plane wave sound passes from a small space such as a duct into a large space the size of a room, a certain amount of sound is reflected back into the duct, significantly reducing low frequency sound.” When terminals are tested for discharge sound in accordance with Standard 880, end reflection occurs due to the test setup. The new 2011 calculation procedure takes this into account by adding duct end reflection corrections to the measured sound power level. This will be consistent with how sound power levels are calculated in other product programs.



## **Discharge Sound Power Levels**

Duct end reflection is a calculated value that is dependent on octave band center frequency and equivalent discharge duct diameter. The correction is highest at low frequencies and small discharge duct sizes. As a result, the new published discharge sound power levels will be higher than they previously were, particularly for small terminals in low octave bands. See Table 1 for duct end reflection corrections for Price single duct terminal model SDV. The updated catalog sound power levels will be higher than prior published values, due to the addition of the end reflection sound power to the total terminal sound power levels.

## **Discharge NC Levels**

The resultant catalog discharge Noise Criteria (NC) levels will also increase in most cases. This does not mean that actual room noise levels will be affected; the actual terminal sound output has not changed and field measurements are not affected by this new calculation procedure. HVAC designers may find, however, that certain terminal model sizes at certain flow rates may no longer meet their room NC specification. Remember that the terminal is not actually any louder than before and the same noise level will be heard or measured in the field. Relaxing the room NC specification may be the best option. Another option is selecting a quieter terminal, but this usually carries a cost premium. **Table 2** compares the updated Price SDV NC values to previous cataloged values. Note that the small size units increase the most.

## **Comparing Data**

According to the deadline imposed by AHRI, manufacturers have until January 1, 2013 to catalog discharge sound power levels with

duct end reflection corrections. Until that time, it will be important to understand if catalog discharge performance data includes duct end reflection corrections or not. Discharge sound power level or NC level comparisons cannot be made between manufacturers unless both are based on the same calculation procedure.

New Price All-In-One Catalog Data Adheres to New ANSI/AHRI Standard 880 - 2011

As stated above, the new All-In-One catalog provides discharge sound data with duct end reflection corrections applied for all Price terminals.

**Table 1 - Duct End Correction Factors**

Duct End Correction Factors						
Unit Size	Octave Band Center Frequency					
	125	250	500	1000	2000	4000
4	8	3	1	0	0	0
5	8	3	1	0	0	0
6	8	3	1	0	0	0
7	7	3	1	0	0	0
8	7	3	1	0	0	0
9	6	2	1	0	0	0
10	6	2	1	0	0	0
12	5	2	0	0	0	0
14	4	1	0	0	0	0
16	3	1	0	0	0	0
24x16	2	1	0	0	0	0

**Table 2 - NC Table**

NC Table			
Size	cfm	Old NC	New NC
4	225	27	34
6	400	23	27
8	700	24	28
10	1100	24	26
12	1800	27	31
14	2500	29	31
16	3500	30	33
24x16	6000	39	41