Sound Attenuating Curbs

An engineering concept that provides effective sound absorption with lower airflow interference than the center baffle sound attenuating curbs.

For use with Centri Master® and Skymaster® power roof exhausters on exceptionally quiet ventilating applications or where the specifications require sound attenuating curbs.

This Acme development utilizes a core of modular type sound absorbing cells that exposes a very large sound absorbing surface to the sound transmitted to the curb from the power roof ventilator.

The sound absorbing material consists of special acoustical-type glass fibers held in galvanized framework.

The Sone-Master® curb reduces the audible sound produced by the power roof ventilator by approximately 40%. In other words, it transmits approximately 60% of the sound entering the curb.

Therefore, when working with sones, use 0.60 as the sound transmission coefficient in attenuation calculations and to make the proper power roof ventilator selections.

The amount of attenuation in decibels of Lw(A) is dependent upon the eight octave band sound spectrum of the specific fan being used. The Centri Master® spectrum differs substantially from that of the Skymaster®. In addition, there are other dissimilarities in sound spectra due to differences in motor horsepower. The factory should be consulted when attenuation in Lw(A) is needed.

Low Airflow Interference

Since airflow is the first consideration in ventilation, a “low loss” sound curb is essential. The Sone-Master® sound curb provides a straight-through streamlined air passage that has an absolute airflow interference of only 2 to 4% for most all applications.

Sone-Master® Curb vs. Center Baffle Type

The Sone-Master® curbs, as previously explained, have a very low airflow interference. The center baffle type sound curbs, on the other hand, reduce the roof fan performance much more than their resistance charts show. A typical center baffle type curb resistance chart will indicate only 8 to 10% loss in roof fan performance.

The center baffle disturbs the airflow pattern at the fan wheel inlet in a manner similar to an elbow at a blower inlet. Wind tunnel tests repeatedly show this disturbance reduces fan performance by as much as 3 times that caused by the resistance. The result is a total fan performance loss of 20 to 35%. This total loss is called interference.
Construction

Heavy gauge galvanized steel sound curb has continuous welded watertight corners. Curb is available as Self-Flashing type (SF) or as Roofed-Over Flashing type with built-in cant strip (RF).

All acoustical and thermal insulation materials are fire resistant glass fiber. Internal sound absorbing cells have galvanized framework. SF curb includes foam rubber gasket for field installation to curb top. This gasket reduces the transmission of any vibration or metal-to-metal conducted noise. RF curb has a wood nailer as standard. When used, the backdraft damper may be installed in the mounting frame opening below the curb or attached to the sound curb with a damper box.

To select the proper power roof ventilator when using sones, divide the desired attenuated sone by the sound transmission factor (0.60) to determine the maximum allowable sone level of the ventilator to be selected. Then refer to the Acme catalog to select the model that fulfills the airflow requirements and that does not exceed the maximum allowable sone level just determined.

Example: Furnish a power roof ventilator providing 2800 CFM (1.321 m³/s) at .125" S.P. (31 Pa) that will not produce over 7.0 sones with a sound curb.

1. Maximum allowable ventilator sones =
   \[
   \frac{\text{desired sones}}{0.60} = \frac{7.0}{0.60} = 11.7 \text{ sones}
   \]

2. Since in most ventilating applications the Sone-Master® curb interference is about 4%, compensate for this by selecting an airflow capacity of 4% more than desired.

   Selected CFM = Required CFM x 1.04
   \[
   = 2800 \text{ CFM (1.321 m}^3/\text{s}) \times 1.04
   = 2912 \text{ CFM (1.374 m}^3/\text{s})
   \]

3. Refer to the appropriate Acme catalog and select an exhauster providing 2912 CFM (1.374 m³/s) at .125" S.P. (31 Pa) having no more than 11.7 sones. In catalog C14, PNN200E will meet the airflow requirements. The performance curve shows this model will produce 11.1 sones.

4. Desired sones = 0.60 x ventilator sones
   \[
   = 0.60 \times 11.1 = 6.7 \text{ sones}
   \]

Limited Warranty

The Sone-Master® curbs are subject to the same Warranty and Terms and Conditions as listed in Acme catalogs C14, C3, C23 and C13.

These are typical drawings for dimensional purposes only. They are correct within limits suitable for normal installation and do not necessarily show actual construction.