



Patent No.
3,219,143

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 $L_w(A)$ 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 $L_w(A)$ is needed.

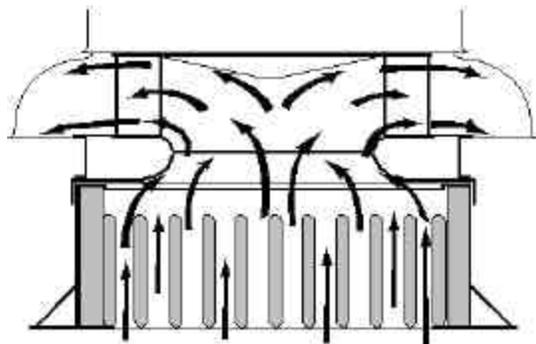
Low Airflow Interference

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.

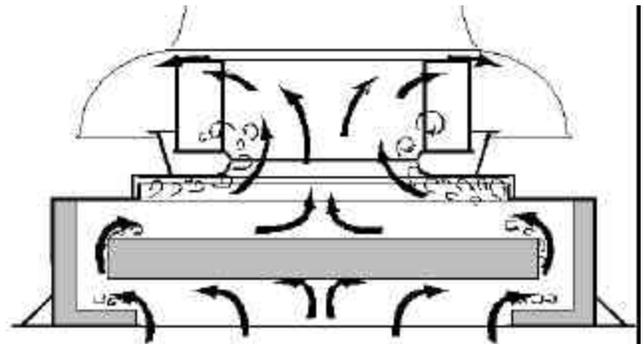
Sone-Master® Curb vs. Center Baffle Type

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.



Sone-Master® Curb



Center Baffle Type

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.

Curb Model	Dimensions						Fan Size	
	H		J		K			
	IN	mm	IN	mm	IN	mm		
CS14.5	11.00	279	22.50	572	14.50	368	Direct Drive	PRN100-110
CS19.5	16.00	406	27.50	699	19.50	495		PRN118-145
CS22.5	16.00	406	30.50	775	22.50	572		PRN163-171
CS19.5	16.00	406	27.50	699	19.50	495	Bell Drive	PNN100-135
CS22.5	16.00	406	30.50	775	22.50	572		PL & PU135-145; PNN163
CS26.5	20.00	508	34.50	876	26.50	673		PL & PU163-171-200-223; PNN200
CS32.5	26.00	660	40.50	1029	32.50	826		ECH24; PL & PU245-270; PNN245
CS38.5	32.00	813	46.50	1181	38.50	978		EC30; PL & PU300-330; PNN300
CS44.5	38.00	965	52.50	1334	44.50	1130		PL & PU365-403; PNN365; EC & ECH36
CS52.5	46.00	1168	60.50	1537	52.50	1334		EC & ECH42
CS58.5	52.00	1321	66.50	1689	58.50	1486		PNN425; PNN, PL & PU440-543; EC & ECH48

To select the proper power roof ventilator when using sound curbs, 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 m/s) at .125" S.P. (31 Pa) that will not produce over 7.0 sones with a sound curb.

- Maximum allowable ventilator sones =

$$\frac{\text{desired sones}}{0.60} = \frac{7.0}{0.60} = 11.7 \text{ sones}$$

- 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.

$$\begin{aligned} \text{Selected CFM} &= \text{Required CFM} \times 1.04 \\ &= 2800 \text{ CFM (1.321 m/s)} \times 1.04 \\ &= 2912 \text{ CFM (1.374 m/s)} \end{aligned}$$

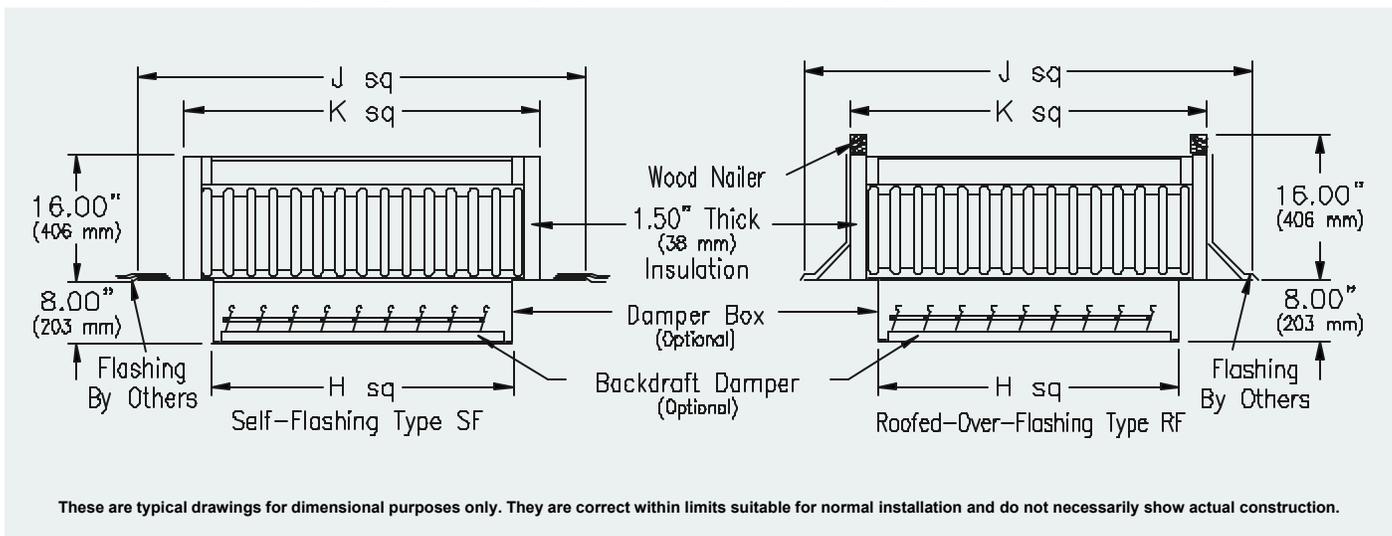
- Refer to the appropriate Acme catalog and select an exhaustor providing 2912 CFM (1.374 m/s) at .125" S.P. (31 Pa) having no more than 11.7 sones. In catalog C14, PNN200E will meet the airflow requirements. The performance curve shows this model will produce 11.1 sones.

- Desired sones = 0.60 x ventilator sones
= 0.60 x 11.1
= 6.7 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.

Acme Engineering & Manufacturing Corporation reserves the right to change specifications without notice.



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