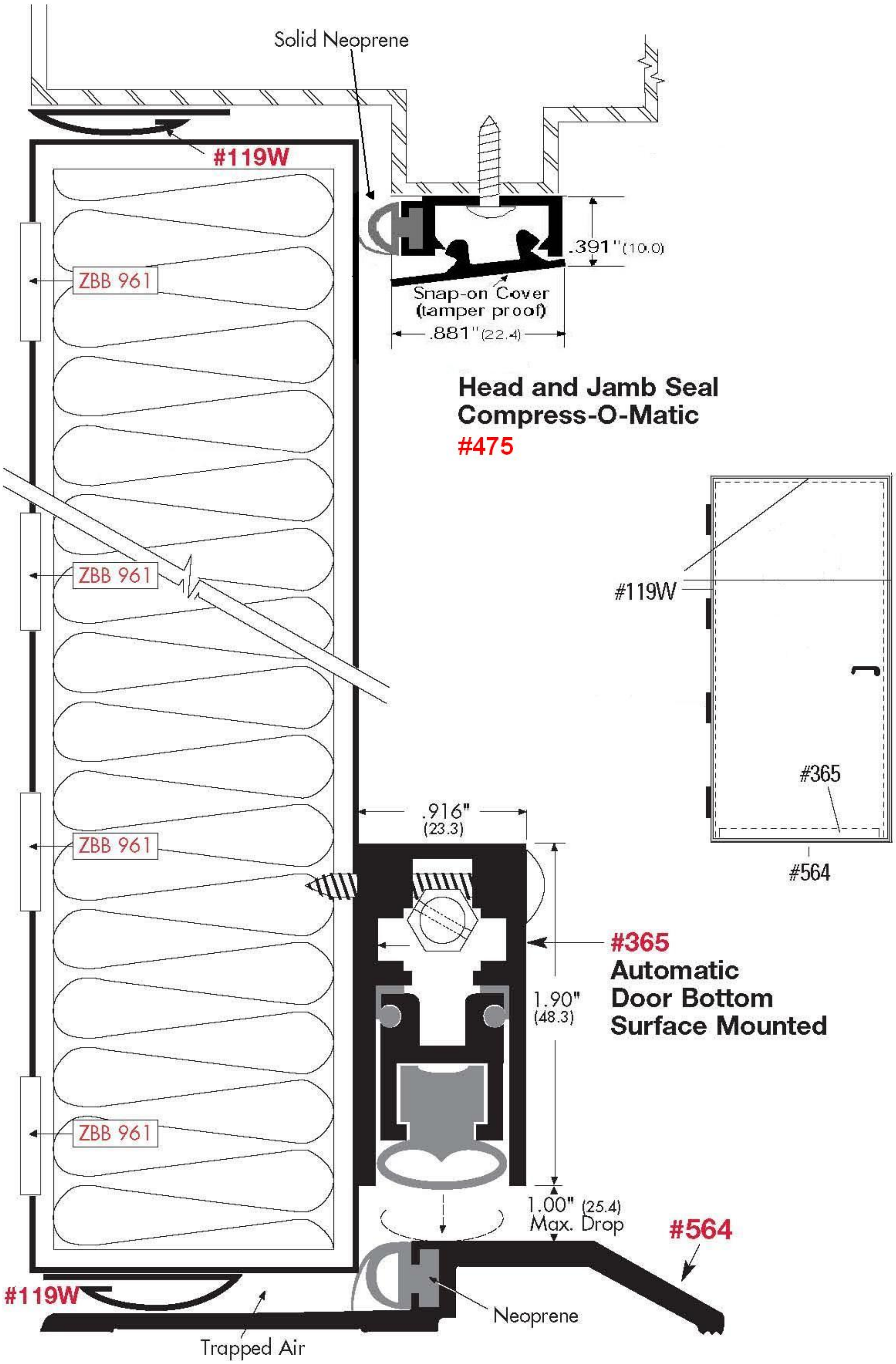
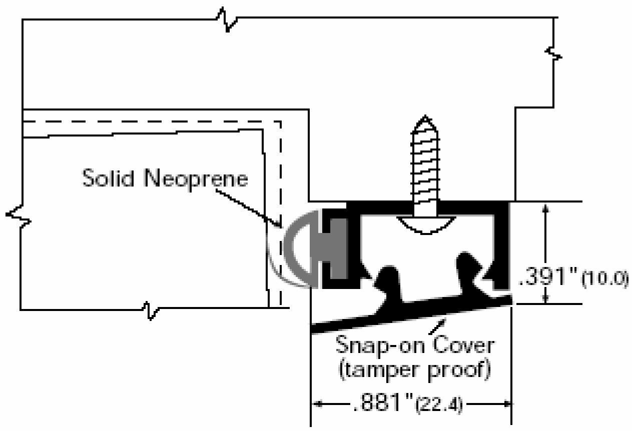
Door Seal Kit



Model #475

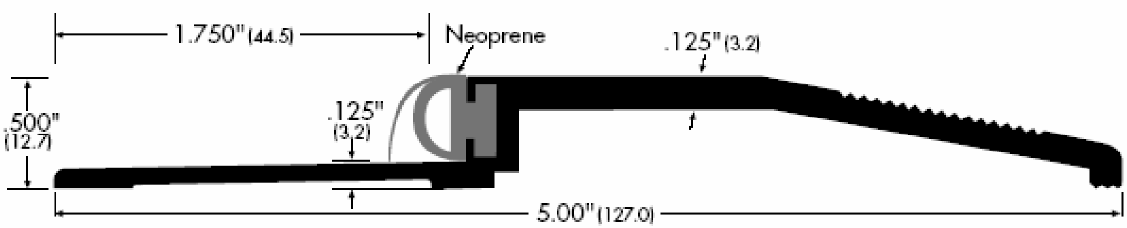
Head and jam seal model #475 incorporates a solid neoprene Bulb with an extra “finger” that helps compensate for misalignment in the door. As the finger compresses against the rubber bulb, it is also compressed by the door itself. Tamper-proof design featuring a snap-on cover protects the gasket from impact.



Saddles

To achieve the highest sound ratings, our automatic door bottoms should be combined with sound-rated saddles.

Model #566



This saddle has a one-half inch rise, allowing a 1/8 inch clearance under the door. Similar to the #564, it is a good option for those who prefer the more aesthetic look of a wider ramp.

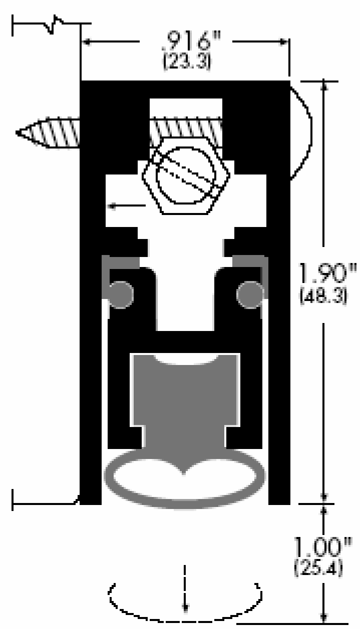
Automatic Door Bottoms

The advanced technology common to all of our automatic door bottoms utilizes a concealed flat spring mechanism, which activates when the door is closed, lowering a neoprene seal insert firmly against the floor or saddle. Triggered by a protruding, hinge-side "plunger" that is compressed by the frame as the door closes, the spring activates, dropping the seal in a patented scissor-like motion from the hinge side and adjusting to the floor from a pivoting point. This motion ensures a smooth drop without drag and a tight seal, even on an uneven floor. As the neoprene seal compresses, it forms a tight, secure bond against the saddle or floor. The seal retracts automatically as the door is opened.

These door bottoms have been tested through 5 million cycles. We designed and built them to last.

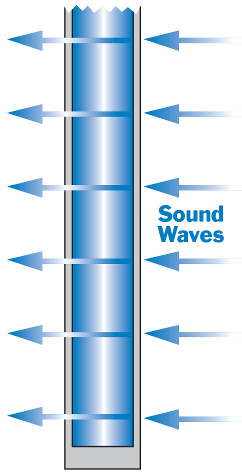
Model #365

The compression seal in this door bottom is a neoprene bulb. This model can be surface mounted. For semi-mortised installation, model #366 is available.



The Mechanics of Sound Transmission

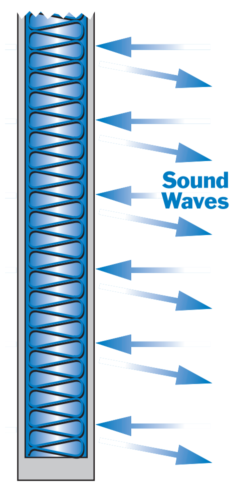
When sound comes in contact with a barrier, such as a door, some of the energy from the vibrations transfers to the door. The resulting vibrations in the door itself then set the air in motion on the other side of the door—creating more sound vibrations.



without sound core

The mass, damping and stiffness of the barrier determine its resistance to the passage of sound waves. The greater the ***mass***, the less sound is transmitted through the barrier. Mass is especially important for blocking sound at lower frequencies.

Sound vibrations can be reduced using ***damping*** materials, which are typically limp-mass materials. Damping material is sometimes used as core material in doors designed to provide the highest levels of sound control.

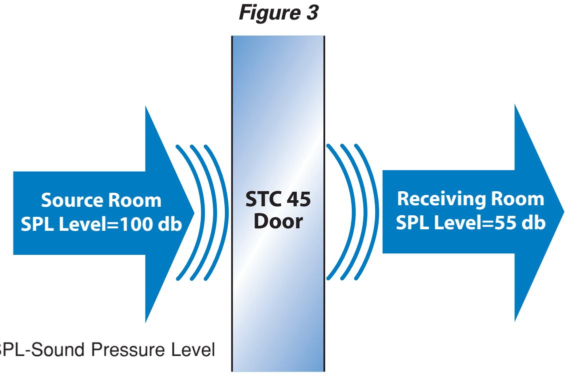


with sound core

The ***stiffness*** of the barrier is also a factor in sound transmission. Although more flexible barriers transmit less sound, for practical reasons sound-control doors are generally made from very dense, stiff materials. Unless they contain inner layers of damping material, some sound will inevitably be transmitted through the door. On the other hand, those dense, stiff materials also work well at reflecting sound back to its source. Most acoustical doors are constructed of wood or steel with stiffness and barrier batts added to any hollow cavity inside the door.

Naturally, the effectiveness of sound-control doors varies with different combinations of materials. With so many variables, how can we determine how well a particular door will block sound? And how can we compare the effectiveness of different doors?

Figure 3



SPL-Sound Pressure Level

Sound Transmission Loss (TL)

A door's ability to reduce noise is called its sound transmission loss (TL) effectiveness. TL is a value given in decibels, which is determined by measuring sound pressure levels at a given certain frequency in the source and receiving rooms. The calculation also factors in the area of the partition shared by the two rooms, and adjusts for the receiving room's acoustic "liveness" (known as "reverberation time"). The adjusted difference between the two levels is the TL of the door. The higher the TL, the better the result.

Leaving out the adjustments to illustrate using a simple example, if the source room measurement is 100 dB at 300 Hz and the receiving room measurement is 60 dB at 300 Hz, the TL of the barrier is 40 dB at 300 Hz.

TL is measured in test laboratories according to ASTM E90 "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions."

Sound Transmission Class (STC)

TL measurements for a door are taken across a range of frequencies, which makes it difficult to compare the effectiveness of different doors. ***Sound transmission class*** (STC) ratings solve that problem by giving a single value to acoustical performance for a door. STC is determined by a weighted average of TL values taken over 16 frequencies, which are fitted to a curve in a method defined by the ASTM E413 Classification Standard for Rating Sound Insulation. The higher the STC value, the better the rating—and the better the performance, as shown in Figure 2.

SOUND TRANSMISSION CLASS (STC) TABLE

STC	PERFORMANCE	DESCRIPTION
50 -60	Excellent	Loud sounds heard faintly or not at all.
40 - 50	Very Good but not understood.	Loud speech heard faintly
35 - 40	Good	Loud speech heard but hardly intelligible.
30 - 35	Fair	Loud speech understood fairly well.
25 - 30	Poor	Normal speech understood easily and distinctly.
20 - 25	Very Poor	Low speech audible.

Figure 2

STC values are used to define the performance requirements for achieving a specified reduction in sound transmission from a source room to a receiving room. The STC rating of an installed door also determines how much noise reduction is possible between a given source room and receiving room. (See Figure 3)