



## Indoor Firing Ranges Application Profile

The sound produced by gunfire is deafening outdoors, but when the acoustical energy it produces is confined to a small indoor space as in a firing range, it gets even louder. The noise can reach levels as much as ten times greater than those experienced in outdoor ranges.

SONEX® Panels help eliminate this indoor “range effect” by absorbing sound waves that would otherwise build up to dangerous levels causing serious discomfort and even hearing damage. Additionally, they are relatively inexpensive and easy to install.

### Choosing the correct acoustical foam product

Made with pinta’s willtec® foam, SONEX Panels are ideal for indoor firing ranges because they are Class 1 fire-rated and have excellent sound absorption at 500 and 1000 Hertz (Hz), the most common frequencies produced by gunfire. The sound absorption coefficient of most 2” thick panels are between 0.73 and 1.05 at 500 and 1000 Hz. This means that the panels absorb between 73% and 100% of the acoustical energy at 500 Hz and 1000 Hz, depending upon the exact pattern.

SONEX Panels are available in a variety of patterns and surface

treatments to meet almost every firing range need. Recommended patterns are SONEX One, SONEX Valueline and SONEX Classic. All are available in natural white and natural grey. SONEX Classic Panels are also available in pinta’s proprietary colortec, a charcoal grey dye which permeates the entire thickness of the panel. This conveniently camouflages marring and damage to the surface of the foam panel. Hypalon®-coating available on SONEX One Panels can be easily vacuumed or wiped, making this an attractive option for long-term good looks. None of the panels or coating hamper the acoustical properties of the foam.

### SONEX One Panels used in new shooting range and training facility

The South Metro Public Safety Training Facility in Minnesota is a joint project of three neighboring suburbs and the Metropolitan Airports Commission and is used to train local law enforcement and firefighters. The 28,000 square foot building is completely modern, with a number of well-equipped classrooms and two state-of-the-art shooting ranges for scenario-based training used by today’s law enforcement professionals.

The larger of the two ranges is equipped with high-tech sound equipment that can simulate a variety

of situations, including the sounds of planes taking off and landing. With so much gunfire and other sounds happening at once, architects were keenly aware of the need to control the noise in both ranges, especially the larger one where echo and reverberation would likely be excessive. Not only were architects concerned with protecting the hearing of the officers while they were training in the gun ranges, they also wanted to make sure the surrounding classrooms and offices in the building were not disturbed by ongoing gunfire.

After considering several options, architects opted for SONEX One Panels, which were Hypalon-coated in black, for the project. Installed on the walls and ceilings of the vestibules, or “sound locks,” leading into the each shooting range, as well as the area where the officers stand to fire their weapons, the panels dramatically reduce airborne sound energy. The Hypalon coating is not only an excellent cosmetic option for the panels, it is also functional, as it protects them from dust and allows them to be easily wiped clean.

South Metro staff are very pleased with the acoustic on the new range. “We run a public-safety training campus that includes two ranges, two classrooms, and defensive tactics

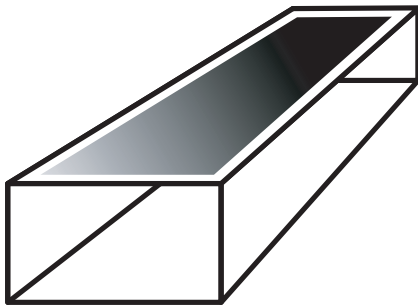
gym, all under the same roof," says South Metro coordinator Kevin Kelleher. "SONEX® keeps range noise from being heard in neighboring classrooms. We actually have to go into the range area to see if anyone is shooting."

### How much foam?

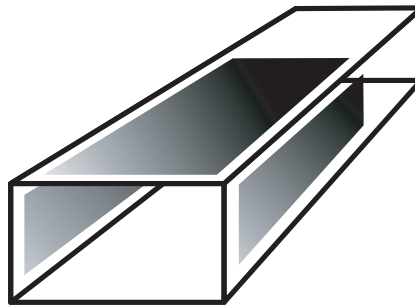
A surprisingly small amount of foam goes a long way in most ranges. Typically, a range requires an amount of foam equal to the square footage of its ceiling. The foam is divided, however, between the ceiling and the walls for the most efficient sound absorption. This will normally reduce the amount of acoustical energy within the range by an amazing 85%.

- Measure the square footage of the ceiling as if you were covering it completely. Order this amount of SONEX Panels.

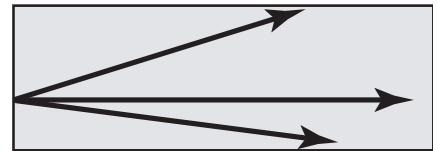
- Attach two-thirds of the panels ordered to the ceiling in one large block or in several bands starting directly above the firing positions and extending downrange to where the first signs of bullet damage begin to show on the ceiling.
- Attach the remaining one-third of foam to the walls, once again extending downrange from the firing stations to the first signs of bullet damage. Leave one to two feet clear above the floor to avoid damage to the foam panels by floor cleaning equipment. Also, avoid areas near switches and control panels to eliminate damage done by users and personnel.



*Use this much foam...*



*but divide it up between the walls and ceiling.*



*Avoid side walls downrange close to targets which are more likely to be hit by gunfire.*