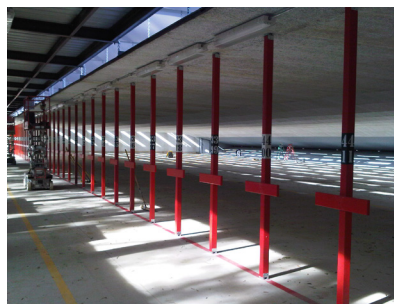
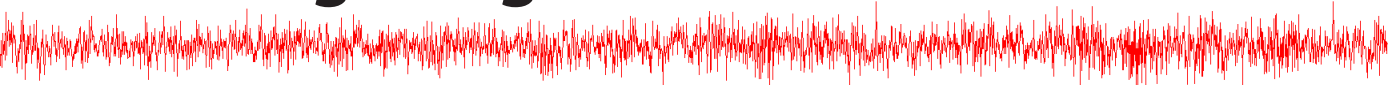


Troy Acoustics Corporation

Indoor & Outdoor Shooting Range Facilities



**The world's highest acoustical rating.
Engineering noise control. Guaranteed.**

Indoor Shooting Range Applications

Whether your indoor shooting range is in a free-standing building or located right next to multiple offices or classrooms, Troy Acoustics will develop a site-specific design that will meet OSHA noise exposure limits as well as local noise ordinances.

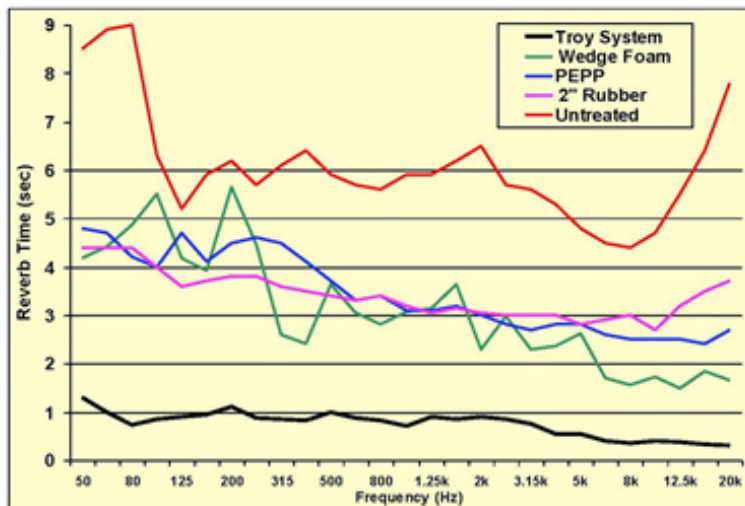


Georgia Gun Club

Home of Georgia's only 100 yard indoor gun range

The GA Gun Club approached us due to strict enforcement of their local noise ordinances. Other concerns included the use of a UL approved acoustic material. According to Wade Cummings, Sales and Marketing Mgr. at the Georgia Gun Club, "We almost made a big mistake by going with an inferior product because we perceived we were saving money. In the end what we bought was years of industry experience and you cannot place a value on that. Not only did Troy Acoustics deliver and install the perfect solution to our unique issues, they saw to it personally that we were well advised and consulted during every phase of the project and beyond. Bill, Brett and Troy are consummate professionals and we would never trust anyone else to have our backs."

Shooting range acoustic products must absorb noise across all frequencies from 125 Hz to 8000 Hz in order to be effective. Because the patented Troy System has the highest absorption across these frequencies, it is the only acoustic system that received an **EXCELLENT ACOUSTIC RATING** as a result of a major case study by the United States Army Corps of Engineers.



Comparison of RT60 – Troy System, Wedge Foam, PEPP, 2" Rubber, Untreated

Select the best for only \$7.75 per square foot*

When selecting a sound absorption and noise abatement system for a firing range there are critical cost benefits to consider. While one product may be less expensive initially you need to consider the long range savings.

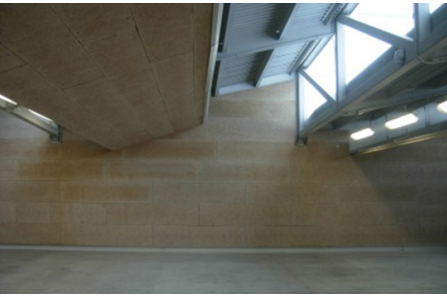
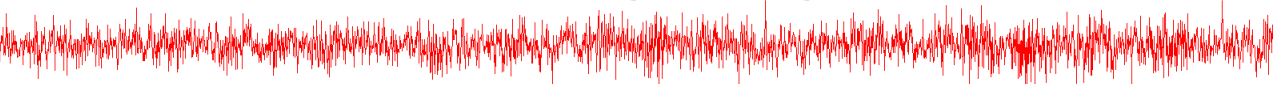
Ask yourself:

- Is the product guaranteed to meet OSHA CFR29?
- Will the design meet local noise ordinances?
- Is the product UL approved with a smoke developed (0) flame spread (0)?
- Does it meet the 2012 NFPA286 standard?
- Are you working with shooting range acoustics professionals?

The Troy System offers the added benefits of anti-ricochet and anti-splatter properties for errant 5.56 and 7.62 rounds.

**The \$7.75 pricing is based on materials ONLY and includes one layer of Troy Board (1" or 2") and one layer of Troy Wool (2" or 6"). All Troy System fasteners are included. Extras include installation, shop drawings, shipment, 2' x 2' commercial grid with hard lid and painting. We suggest that you paint the Troy System with four coats of acrylic latex paint with an airless sprayer.*

Outdoor Shooting Range Applications



Outdoor ranges are acoustically more challenging in that there are many more factors involved. When treating an outdoor range you must consider

- Meeting OSHA CFR 29 noise exposure limits
- Your local noise ordinances
- Your terrain and what impact it will have on reflecting noise
- Environmental noise impact
- The type of construction you will need to meet these acoustical demands



At Troy Acoustics we evaluate your design and make recommendations to meet your local requirements.

Unlike an indoor range you may require sound testing prior to developing an acoustic design to establish a baseline. Most local ordinances require sound testing at or near your property line vs. in the neighborhood or areas where people work or live.

Outdoor Shooting Range Challenges



Most outdoor ranges are located away from densely populated areas thus the belief that no acoustics are required. Not true.

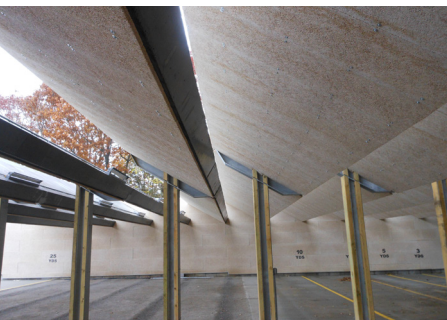
In all cases you need to consider the noise levels for the shooters and in many cases the concerns of your neighbors.

Canopied ranges: require acoustics under the canopy to reduce reverberation for the shooters. Canopy designs typically allow the shooter to stand at the canopy edge such that the muzzle is outside the canopy. This creates loud noise for your neighbors.



Recommended solution: Extend out your canopy roof 40' and add side walls. Cover the entire canopy and side walls with the Troy System.

Side walls only: Cover the side walls in their entirety with the Troy System as in the case of Monmouth County where they were able to reduce noise 10 dB or half the noise level to meet a court-ordered 3 dB reduction using the Troy System.



Baffled ranges designed to meet local noise ordinances: require acoustical materials on all the baffles and side walls.

Unlike most acoustic materials, the patented Troy System (which is Portland cement based wood fiber board) is waterproof and doesn't support mold and mildew. You can also paint the system with four coats of acrylic latex paint.

Troy System Performance Criteria

SHOOTING RANGE TYPICAL WALL DESIGN

Sound Absorption Coefficients: Type A mounting ASTM C423-09A and E795-05
RAL™ A11-206 Riverbank Acoustical Laboratories dated Nov 8 2011

Typical wall installation consisting of 2" thick patented Troy Board™ and 2" Troy Wool:

Frequencies (Hz)	125	250	500	1,000	2,000	4,000	NRC	SAA (Sound Absorption Average)
2" thick board/ 2" wool	0.35	0.72	1.05	0.66	.88	.95	0.85	.86

SHOOTING RANGE TYPICAL Baffle AND SAFETY CEILING DESIGN

Sound Absorption Coefficients: Type A mounting ASTM C423-09A and E795-05
RAL™ A11-205 Riverbank Acoustical Laboratories dated Nov 8 2011

Typical wall installation consisting of 1" thick patented Troy Board™ and 2" Troy Wool:

Frequencies (Hz)	125	250	500	1,000	2,000	4,000	NRC	SAA (Sound Absorption Average)
1" thick board/ 2" wool	0.44	0.64	1.17	0.91	.71	.99	0.85	.89

UL Fire-Test-Response Characteristics: UL Approved surface-burning characteristics noncombustible per ASTM C 136 and complies with ASTM C 665 Type I. Surface burn characteristics per UL report R27255

Zero (0) Flame Spread
Zero (0) Smoke Developed

Meets NFPA National Fire Protection Association 2012 NFPA 286: STANDARD METHODS OF FIRE TESTS FOR EVALUATING CONTRIBUTION OF WALL AND CEILING INTERIOR FINISH TO ROOM FIRE GROWTH. It is critical that you meet these fire standards; especially in a shooting range where you are subjected to accelerants such as gun powder. This requirement has been adopted in many jurisdictions and may be enforced by your local Fire Marshal

Guaranteed Reverberation time for the Troy engineered site specific designs is 1.3 seconds or less across all octaves from 125 Hz to 8000 Hz (Testing available to verify ASTM RT60 method)

Clientele

- American Shooting Center (CA)
- Chula Vista Police Department, Chula Vista (CA)
- LAPD, Los Angeles (CA)
- Los Angeles Port Authority (CA)
- San Diego County Sheriff's (CA)
- San Joaquin County Sheriff's (CA)
- San Diego Firearms Training (CA)
- Denver Crime Lab (CO)
- Loveland/Fort Collins Regional Training Facility (CO)
- Cos Cob Gun Club (CT)
- Miami Police Academy (FL)
- Georgia Gun Club (GA)
- Ankeny Police Department (IA)
- Southwest Iowa Law Enforcement Facility (IA)
- Council Bluffs (IA)
- Aurora Police Department (IL)
- Cicero Police Department (IL)
- Sykesville MD Dept. of Public Safety (MD)
- US Secret Service (MD)
- Denver Defense (NC)
- Monmouth County Police (NJ)
- Nassau County Police (NY)
- Niagara Falls Police Department (NY)
- NYPD Rodman's Neck Bronx (NY)
- Rockland County Sheriffs (NY)
- Lewisville Police Department (TX)
- Rockwall Police Department (TX)
- Shady Oaks Gun Range (TX)
- Wichita Falls Police Department (TX)
- Fairfax County Sheriff's Dept. (VA)
- Harper's Ferry (WV)
- US Customs and Border Patrol (WV)
- FBI Headquarters, J Edgar Hoover Bldg. (DC)
- Montreal RCMP (Canada)

