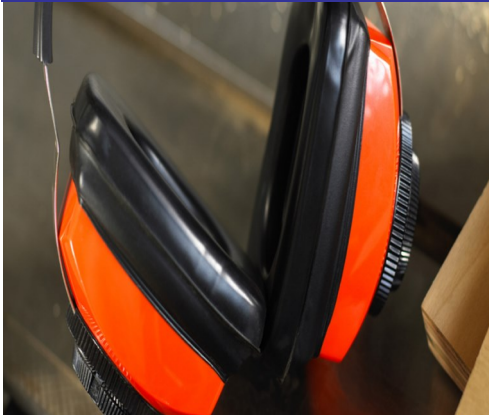


Improved Noise Management at MCAS Miramar's Hathcock Range



Recent Acoustic Abatement Plan Proved Successful in Mitigating Firing Range Noise for Outdoor Shooters and Instructors

By Aprill Walden, Communications Specialist for CMC(SD)



In 2013, the Naval Medical Center performed an Industrial Hygiene survey at Hathcock Range that indicated unacceptable impulse noise exposure (greater than 165 decibels), which was a potential health hazard to both instructors and shooters alike using the range.

After concerns surfaced from that survey, the Marine Corps Range and Training Area Management funded the Engineering/Remediation Resources Group, Inc. (ERRG) to perform abatement on behalf of the Department of the Navy, Marine Corps. The abatement work plan included pretesting (to further assess how to mitigate problems) and post-testing (to re-test to see if the problems were fixed).

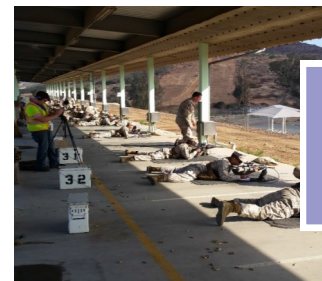
The acoustic abatement objective was to reduce the unacceptable noise exposures during firing activities at Hathcock Range by collecting information through the following tests (in accordance with the Marine Corps Performance Work Statement):

⇒ Reverberation time measurements at different locations along the range;

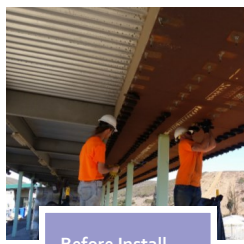
⇒ Single-shooter noise levels at different locations along the range;

⇒ Multiple-shooter noise levels at different locations along the range; and

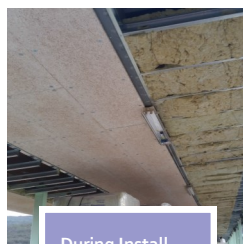
⇒ Multiple-shooter noise levels at different locations in the control room.



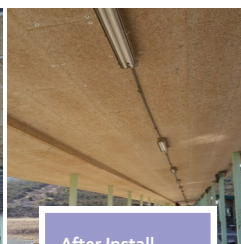
Hathcock Range



Before Install



During Install



After Install

Installation Improvement Process at Hathcock Rifle Range

Surprising evidence from the pre-testing exercise showed that the old metal canopy and acoustic baffling didn't provide adequate energy absorption and severely multiplied acoustic force. For example, firing a pistol generates approximately 110 decibels and a rifle shot generates approximately 120 decibels in an open field without obstructions.

However, if this sound is generated in a reverberant (concrete floor and steel roof), the noise could amplify resulting in greater risks of hearing loss to individuals using the outdoor range.

Resolutions

Ultimately, the acoustical conditions at the firing range were improved. Significant improvement was reported after removing existing outdoor canopy baffling and installing acoustic insulation materials and TROY® Board panels to address firing range noise. Post-abatement acoustic testing after installing the TROY® Board panels at Hathcock Range also lowered the average sound pressure levels (3-6 dB for single shot, 3-6 dB for multiple shots).

