

VACC Recent Key Projects: Workplace noise control and OSHA regulatory compliance

Noise and vibration are concerns in nearly any industrial setting. Workplace noise limits imposed by OSHA and other regulatory agencies are intended to provide protection against long-term hearing damage due to exposure to loud sounds. While no formal rules exist for vibration, Hand-Arm Vibration Syndrome ([HAVS](#)) is on the regulatory horizon in both the US and Europe. Regardless of the regulatory situation, however, good workplace environments promote employee morale and improve productivity. *Below we discuss some of our recent projects involving workplace noise and vibration; names of facilities and Owners are obscured for confidentiality.*



Photovoltaics Fab (alternative energy manufacturing): noise control for a startup solar energy collector manufacturer. New fab space for the manufacturer was uncomfortably loud. While not quite breaching OSHA noise regulations, levels at the factory floor were uncomfortably high. Since the process lines were first-of-their-kind, little work had been done to manage workplace noise. We performed factory-wide [noise surveys](#) of the new tools and helped design compatible and affordable *in-situ* mitigations to reduce noise levels.

Continuous Process Line / Air Knife (alternative energy manufacturing): OSHA noise analyses for a continuous process line that included an extremely loud air knife. Noise levels in the area exceeded OSHA noise requirements. We developed a two-pronged mitigation approach that separated the process line from the main factory floor and implemented an administrative control. By isolating the line from the rest of the factory, we reduced greatly the number of workers exposed to high noise levels. The administrative remedy involved restrictions on the time that workers could stay in the room, therefore avoiding the costly requirements of a formal [hearing conservation program](#).



Custom Metal Works (shop): OSHA noise analyses for a noisy metal shop. The Owner had been cited by OSHA during a workplace evaluation. Due to the highly-customized work in the shop, the Owner believed that the citation was unjustified: the OSHA evaluator had inappropriately extrapolated noise levels from a short visit. We performed workstation-based surveys and interviewed the employees to generate defensible estimates of time spent at each workstation by each employee. Detailed calculations of noise dose and time-weighted averages (TWA) revealed that the shop was actually slightly below – rather than slightly above – the regulatory limit. While the Owner still provided hearing protection (and encouraged its use) to workers, the shop avoided more-expensive regulatory burdens.

Ballistic Press (pharmaceutical manufacturing): vibration exposure calculations for new drug delivery manufacturing system. When installing a new impact-based press, the Owner asked us to determine whether the vibrations created by the press would create health problems for workers. We measured vibrations from a prototype machine and performed calculations that revealed that the vibrations – while perceptible – posed no health risk.