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Noise Exposure Assessment at Faculty of Engineering Laboratory

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Structured Abstract

Background: Noise exposure is a common occurrence that harms human health. The noise produced by operating machinery is considered to be one of the main ergonomic factors that endangers the workers and those nearby. This research will enable identification of the source of noise and the level of noise exposure. Awareness can be raised among workers or lab assistants with students to implement safety measures when exposed to noise.

Methods: The location selected for this study was located in the Faculty of Mechanical Engineering, UiTM Shah Alam. The noise assessment was conducted at General Manufacturing Laboratory and Aerospace Laboratory. The activities that were carried out during the noise measurement were cutting steel by using waterjet machine and usage of Aeronautical Wind Tunnel Machine. Data were gathered three times at each measurement point and then averaged

Results: It was found that the both of the machine produce high level of noise which is 105.53 for Aeronautical Wind Tunnel and 101.40 for Waterjet Cutting Machine. There is a consistent pattern in the relationship between sound intensity and distance where the sound gets quieter when the subject farther from the source of noise. The reason for this phenomenon is that sound waves transmit as they move through a medium, dispersing their energy over a greater area. The landscape itself plays a crucial role in modulating the transmission of noise such as obstacles and substances that can absorb, reflect or scatter the sound's travel such as walls, buildings and irregular particles in the air.

Conclusion: In summary, the study effectively determined that the primary goal was the excessive noise in the aerospace and general manufacturing labs. Both machines were considered dangerous and hazardous because their recorded data exceeded the noise exposure limit. The sampling results show significance decrease in noise levels as the distance from the noise source increases. Using barriers or obstacles to enhance the distance between workers and noisy machines can successfully limit noise exposure.

Keywords: Waterjet cutting machine, noise, noise level, engineering

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