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General Performance Standards – Additional Detail

This document is to provide additional detail on sound and vibration items that are suggested for the General Performance Standards. This detail supports the recommended standard and presents the measurement methods for these parameters. It also translates the vibration standard from a displacement basis to a velocity basis to be consistent with the recommendations of the Bureau of Mines studies on avoiding adverse effects and providing a simple, direct measurement of vibration.

Sound - Fixed source and/or operational noise from industrial land uses shall not exceed the sound pressure levels set forth below. The limits depend on the use of the adjacent property and the time of day. The sound pressure level shall be measured at the lot line of the property on which the sound is generated by a trained operator using a sound level meter having an A-weighted filter and constructed in accordance with specifications of the American National Standards Institute. When a noise source can be identified and measured in more than one adjacent land use category, the limits of the most restrictive use shall apply at the boundaries between different land use categories.

		Noise Level Not 7 AM to 10 PM (Daytime)	to be Exceeded 10 PM to 7 AM (Nighttime)
Adjacent Land Use	Noise Metric		
Residential or other			
Sensitive Use	Leq (10 minute)	55 dBA	50 dBA
Commercial	Leq (10 minute)	60 dBA	55 dBA
Industrial	Leq (10 minute)	70 dBA	70 dBA

The noise limit shall be raised to the measured ambient noise level if the ambient noise level is higher than the limit. The ambient noise level shall be measured when the alleged noise violation source is not operating, or in a similar ambient environment that is not affected by the source. The “equivalent noise level” or “Leq” is the average noise level on an energy basis for any specified time period. The Leq for ten minutes is the level of a continuous noise that has the same energy content as a fluctuating noise level over the ten-minute test period.

It shall be a violation of these rules and regulations for any person to operate or permit the operation of any stationary source of sound within any land use district that creates a tenth percentile sound pressure level (L10) of 5 dB(A) greater than the levels set forth for the receiving land use districts in the preceding Section for any measurement period. Such period shall not be less than 10 minutes.

Vibration - No use shall at any time create earth-born vibration which when measured at the boundary property line of the source operation exceeds the maximum allowable peak particle velocity set forth below. Ground vibration shall be measured as particle velocity using accelerometers. Particle velocity shall be recorded in three mutually perpendicular directions. The maximum allowable peak particle velocity shall apply to each of the three measurements.

Frequency (Cycles per Second)	Maximum Peak Particle Velocity (Inches per Second)
0 to 10	0.05
10 to 19	0.50
20 to 29	1.00
30 to 39	1.50
40 and over	2.00