

NOISE AND VIBRATION STANDARD

1) Community Noise Standard

- (1) **Maximum L_{max} is less than 115 dB(A) for Steady Noise by Calculation Method**
- (2) **Leq 24 hr is less than 70 dB(A) for Fluctuation Noise by Calculation Method**

Source : Notification of the National Environment Board, No.15, B.E.2540 (1997), dated March 12, B.E.2540 (1997), which was published in the Royal Government Gazette, Vol.114, Part 27D dated April 3, B.E.2540 (1997).

2) Annoyance Noise Standard

- (1) **The sound pressure level of annoyed sound is set at 10 dB(A).**
- (2) **The sound is indicated to be annoyance provided that the calculated annoyance level is higher than 10 dB(A).**

Sources: - Notification of the National Environment Board, No.29, B.E.2550 (2007), dated June 29, B.E.2550 (2007), which was published in the Royal Government Gazette, Vol.124, Part 98D dated August, B.E.2550 (2007).

- Notification of the Pollution Control Committee, dated August 31, B.E.2550 (2007), which was published in the Royal Government Gazette Vol.124, Special Part 145D dated September 28, B.E.2550 (2007).

3) Noise from Mining and Quarry

- (1) **Maximum sound pressure level shall not exceed 115 dB(A).**
- (2) **Weighted Equivalent Continuous Sound Level (Leq) for 8 hours shall not exceed 75 dB(A).**
- (3) **Weighted Equivalent Continuous Sound Level (Leq) for 24 hours shall not exceed 70 dB(A).**

Source : Notification of the Ministry of Natural Resources and Environment, B.E.2548 (2005) dated November 7, B.E.2548 (2005), which was published in the Royal Government Gazette, Vol. 122, Part 125D dated December 29, B.E.2548 (2005).

4) Noise from Plant Operation

- (1) Annoyance sound level generated from plant operation shall not exceed 10 dB(A).**
- (2) Leq 24 hr (24 hour A-weighted Equivalent Continuous Sound Level) generated from plant operation shall not exceed 70 dB(A).**
- (3) Maximum sound pressure level (L_{max}) generated from plant operation shall not exceed 115 dB(A).**
- (4) Measurement methods of annoyance noise level , 24 hour A-weighted equivalent continuous sound level (Leq 24 hr), and Maximum sound level (L_{max}) generated from plant operation are specified by the Department of Industrial Works.**

- Remarks:**
- (1) “Annoyance Noise” means noise levels being measured outside the plant are generated from the operation of the plant with interference. The noise level is higher than the background noise level, and exceeds the value specified in this notification.
 - (2) “Background Noise Level” means sound level measured in the existing environment without interference from plant operation. It is 90 Percentile Level (L_{90}).
 - (3) “90 Percentile Level (L_{90})” means the sound level which is exceeded for 90% of measurement time.
 - (4) “Specific Noise Level” means the sound level being measured or calculated from the operation of the plant during interference.
 - (5) “Level of interference” means the difference of specific noise level with background noise level.
 - (6) “24-hour average sound level” means the consistent sound level outside the plant with energy equivalent to the actual sound level which is varied as time during 24 hours (24 hour A-weighted Equivalent Continuous Sound Level).It is abbreviated as Leq 24 hr with the unit of decibels A or dB (A).
 - (7) “Maximum sound level” means the maximum noise level outside the plant, which occurs at any time during the measurement. It is measured as dB(A).
 - (8) “Sound level meter” means a sound level meter conforming with IEC 60804 or IEC 61672 standard of International Electrotechnical Commission (IEC).

- Sources :**
- Notification of the Ministry of Industry, B.E.2548 (2005) dated December 27, B.E.2548 (2005), which was published in the Royal Government Gazette, Vol.123, Part 11D dated January 25, B.E.2549 (2005).
 - : Notification of the Department of Industrial Works, B.E.2553 (2010) dated December 20, B.E.2553 (2010), which was published in the Royal Government Gazette, Vol.128, Special Part 1D dated January 7, B.E.2554 (2011).

5) Vibration from Mining and Quarry Plants

Frequency (Hertz)	Velocity (mm/s)	Displacement (mm)
1	≤4.7	0.75
2	≤9.4	0.75
3	≤12.7	0.67
4	≤12.7	0.51
5	≤12.7	0.40
6	≤12.7	0.34
7	≤12.7	0.29
8	≤12.7	0.25
9	≤12.7	0.23
10	≤12.7	0.20
11	≤13.8	0.20
12	≤15.1	0.20
13	≤16.3	0.20
14	≤17.6	0.20
15	≤18.8	0.20
16	≤20.1	0.20
17	≤21.4	0.20
18	≤22.6	0.20
19	≤23.9	0.20
20	≤25.1	0.20

Frequency (Hertz)	Velocity (mm/s)	Displacement (mm)
21	≤26.4	0.20
22	≤27.6	0.20
23	≤28.9	0.20
24	≤30.2	0.20
25	≤31.4	0.20
26	≤32.7	0.20
27	≤33.9	0.20
28	≤35.2	0.20
29	≤36.4	0.20
30	≤37.7	0.20
31	≤39.0	0.20
32	≤40.2	0.20
33	≤41.5	0.20
34	≤42.7	0.20
35	≤44.0	0.20
36	≤45.2	0.20
37	≤46.5	0.20
38	≤47.8	0.20
39	≤49.0	0.20
40 and up	≤50.8	0.20

Source : Notification of the Ministry of Natural Resources and Environment B.E.2548 (2005) dated November 7, B.E.2548 (2005), which was published in the Royal Government Gazette, Vol. 122, Part 125D dated December 29, B.E.2548 (2005).

6) Vibration Standard for Protect impact on Building

Building Type	Area	Frequency (Hertz)	Velocity (mm/s)	
			Vibration Case 1	Vibration Case 2
1	1.1 Foundation or ground floor of building	$f \leq 10$	20	-
		$10 < f \leq 50$	$0.5f + 15$	
		$50 < f \leq 100$	$0.2f + 30$	
		$f > 100$	50	
	1.2 Top floor of building	Every	40*	10*
	1.3 Each building floor	Every	20**	10**
2	2.1 Foundation or ground floor of building	$f \leq 10$	5	-
		$10 < f \leq 50$	$0.25f + 2.5$	
		$50 < f \leq 100$	$0.1f + 10$	
		$f > 100$	20	
	2.2 Top floor of building	Every	15*	5*
	2.3 Each building floor	Every	20**	10**
3	3.1 Foundation or ground floor of building	$f \leq 10$	3	-
		$10 < f \leq 50$	$0.125f + 1.75$	
		$50 < f \leq 100$	$0.04f + 6$	
		$f > 100$	10	
	3.2 Top floor of building	Every	8*	2.5*
	3.3 Each building floor	Every	20**	10**

- Remarks :**
1. f = Frequency of vibration at the time of peak particle velocity is expressed as hertz.
 2. * = Standards specified for peak particle velocity on the horizontal axis.
 3. ** = Standards specified for peak particle velocity on the vertical axis.
 4. Measurement of the maximum vibration of the second case according to article 1.2, 2.2 and 3.2 shall be conducted at the top floor of building or another floor experiencing the maximum vibration.
 5. Measurement of vibration in each building according to article 1.3, 2.3 and 3.3 shall be conducted at each building floor, Except the foundation or the ground floor of the building.
 6. "Building Type 1" means
 - 6.1 Building as factory by factory Regulation.

- 6.2 Commercial building, Office building, Warehouse building, Special building and large building by Building Control Law.
- 6.3 Other buildings for the same use as those under 6.1 and 6.2.
- 7. “Building Type 2” means
 - 7.1 Residential building, Apartment, Row house, Commercial building, Town house, Twin house by Building Control Law.
 - 7.2 Condominiums by Condominiums Regulation.
 - 7.3 Dormitory by dormitory Law.
 - 7.4 Building used as a hospital by the law on hospital and buildings used as governmental hospitals.
 - 7.5 Buildings used as academic places by the law on Private school, Buildings used as governmental schools, Buildings used as private university by the law on private universitie and buildings used as governmental universities.
 - 7.6 Building used for religious activities.
 - 7.7 Other buildings for the same uses as those under the 7.1, 7.2, 7.3, 7.4, 7.5 and 7.6
- 8. “Building Type 3” means
 - 8.1 Historic site by the Regulation on Historic Site, Antiquities, Artifact and National Museum.
 - 8.2 Buildings or any construction work which are not so strong but have cultural value.
- 9. “Vibration Case 1” means the vibration not causing fatigue or resonance of the building.
- 10. “Vibration Case 2” means the vibration causing fatigue and resonance of the building.

Source : Notification of the National Environment Board, No.37, B.E.2553 (2010), dated April 26, B.E.2553 (2010), which was published in the Royal Government Gazette Vol.127 Special Part 69D dated June 2, B.E.2553 (2010).