

NOISE CONTROL REGULATION

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SECTION ONE

General Provisions

Purpose and Scope

Article 1 - The purpose of this regulation is to ensure the creation of an environment in which noise will not disturb the repose and peace, and the physical and mental health of human beings. In line with this purpose, the Regulation encompasses the definition of noise-related terms and the principles of establishing limits for noise control.

Legal Foundation

Article 2 - This regulation was formulated on the basis of article 14 of Environment Law no. 2872 of 9 August 1983.

Area of Implementation

Article 3 - This regulation shall be implemented within the boundaries of municipalities and the areas adjacent to them and in areas outside such boundaries.

Definitions

Article 4 - The terms used in this regulation and requiring explanation are defined as follows:

1) Sound: A physical phenomenon produced when waves caused by air pressure from a vibrating source stimulate a human being's sense of hearing

2) Noise: A sound spectrum with an arbitrary structure which is defined subjectively as unwanted sound.

3) Impact Noise: The noise produced by two masses striking each other.

4) Noise Effects: The effects of noise on human health and comfort, which may be divided into four groups: physical effects in the form of impaired hearing; physiological effects on bodily functions; psychological effects such as discomfort and irritability; and effects on performance such as reduced work efficiency and the inability to understand sounds heard.

5) Vibration: In general, low frequency, high amplitude mechanical vibrations which are propagated in solid media and experienced through the sense of touch.

6) Vibration Impact Threshold: The threshold of damage to structures due to the physiological and psychological effects of vibrations, such as motion sickness, which affect human health, performance and comfort, and the criteria of which are expressed in terms of the rate, acceleration, amplitude, frequency and duration of the vibration.

7) Sound pressure level or noise level: The difference between atmospheric pressure, which varies during transmission of sound, and equilibrium pressure. The decibel (dB) is the unit of sound pressure level proportional to the standard reference sound pressure level of 0.0002 Newton/m². The decibel is the unit of perceived sound intensity such that a given sound is said to be a number of decibels above the minimum audible intensity equal to ten times the logarithm to the base 10 of the intensity of that sound in absolute units divided by the minimum audible intensity. Ten decibels equal one bel.

Sound intensity level is defined in the following way:

$$L_p = 10 \log \left(\frac{P}{P_0} \right)^2 = 20 \log \left(\frac{P}{P_0} \right)$$

Here,

L_p = Level of sound intensity (dB)

P = Sound pressure (N/m²)

P_0 = Reference sound pressure (2×10^{-4} N/m² according to TS 187).

8) dBA: The unit of measuring sound with particular emphasis on the medium and high frequencies to which the human ear is the most

sensitive. The dBA unit, which is frequently used in noise reduction and control, is related to the subjective perception of sound.

9) Frequency: The Hertz is the unit of frequency, that is, the number of vibrations of a sound wave per unit time.

10) Frequency spectrum: The graph produced following the analysis of sound pressure levels pertaining to sound waves of different frequencies, as in noise.

11) Equivalent noise level (Leq): A noise criterion in dBA giving the average level of sound energy or sound pressure exhibiting continuity within a given period. It is represented by the symbol Leq and calculated as follows:

$$Leq = 10 \log \frac{1}{n} \sum_{i=1}^n 10^{L_i/10} \text{ dBA}$$

n : number of noises

Li: noise levels, dBA

12) Railroad Leq level: A noise criterion used in evaluating railroad line noise in which transportation density and the sound levels of the locomotive and the railroad cars are separately taken into account.

It is calculated in the following way:

$$Leq = NEL_T = 10 \log N - 49 \text{ dBA}$$

$$NEL_T = 10 \log (10^{NEL_C/10} + 10^{NEL_L/10})$$

$$NEL_C = L_{AC} \max = 10 \log 10 T_c$$

$$NEL_L = L_{AL} \max = 10 \log 10 T_L$$

$L_{AC} \max$ and $L_{AL} \max$: Point levels, dBA, during passage of locomotive and railroad cars.

T_c and T_L : Effective passage times of locomotives and railroad cars.

13) Maximum noise level = Peak level = Maximum level (L_{max}) : The highest level that sound, which fluctuates with time, has at any given moment.

14) Noise Index: (WECPNL) A unit envisaged by the International Civil Aviation Organization (ICAO) for use in evaluating the noise of aircraft at, and in the immediate vicinity of, airports. As a calculation it includes the type of airplane, the frequency spectrum of the noise, the duration of the flyover, and daily flight intensity.

$$WECPNL : 10 \log \left[\frac{5}{8} \text{antilog} \frac{ECPNLD}{10} + \frac{3}{8} \text{antilog} \frac{ECPNLD+10}{10} \right] + S$$

ECPNLD : Day ECPNL (07-22)

ECPNLN : Night ECPNL (22-07)

S : Seasonal adjustment factor (between -5 and +5 dB)

$$ECPNL : 10 \log \sum_{i=1}^n \text{antilog} \frac{EPNL(n)}{10} + 10 \log \frac{T_o}{t_o} - 10 \log \frac{T}{t_o}$$

EPNL : Effective perceived noise level; n : Number of noise incidents; T : Evaluation time; T_o , t_o : Constants determined by the characteristics of the measurement.

15) Noise sensitive areas and uses. Buildings on public or privately owned property which, owing to the activities taking place inside them, must be protected from excessive noise either because their acoustics necessitate it, or because discomfort from outdoor noise is at a maximum, or in order that desirable sounds can be heard optimally. Such places as residences, hospitals, schools, motels, pensions, rest facilities, recreational parks and cemeteries, for example, can be divided into areas of extreme and normal noise sensitivity.

16) Outdoor Noise Levels: Noise levels measured or calculated outdoors at a distance of 1.00 meter from the exterior walls of buildings.

17) Indoor Noise Levels: Noise levels measured or calculated in spaces where various activities take place indoors.

18) Noise Control: The process of eliminating altogether or reducing to a reasonable level sounds in the nature of noise emitted from a sound source of any kind by reducing them to an acceptable level, modifying their acoustic properties, shortening their effective duration, or masking them with a pleasant or less annoying sound. Noise control may be effected either at the noise source, in the environment where the noise is propagated, or at the user affected by the noise.

19) Environmental Measures: Noise control of all kinds that can be undertaken in an environment where sounds arising from indoor or outdoor noise sources are propagated until they reach buildings or users inside them.

20) Measures at the Noise Source: Measures that may be implemented in connection with the structure of the noise producing source of sound, the mode of operation, the ground where it is situated, the way it is mounted, or similar measures relating directly to the source itself.

21) Noise Certificate: A certificate regarding the noise produced by aircraft issued by the International Civil Aviation Organization and confirming their compliance with the criteria.

22) Reverberating Courtyard: A form of courtyard which causes multiple reflection of sounds off perpendicular surfaces, such as opposite walls, giving rise to an echo and an increased amount of noise.

23) Background Noise: A continuous background noise created simultaneously by sources of noise other than the noise source being examined in an environment.

24) Sound Transmission Coefficient: The basic unit of measuring the sound insulation of a structural element; sound intensities reaching the surface of a structural element are different from those transmitted to the back of it; when this difference is determined by a logarithmic criterion, it is called sound conductivity loss = sound transmission loss. The unit is the decibel. Transmission losses vary depending on the characteristics of the structural element and the frequencies of the sounds.

25) Sound Absorption: Conversion of the energy in a sound wave striking the surface of a structural element into heat energy due to friction in the element's pores and, therefore, a reduction in the sound energy reflected from that surface.

26) Sound Insulation: Measures of all kinds that can be taken in the construction of the structural elements and in the materials and components used in order to reduce the amount of sound transmitted by the structural elements; in other words, to increase their sound conductivity loss.

27) Physical Environment Factors: Noise-enhancing or -reducing elements of all kinds which are found in the physical environment through which the sound passes as it is transmitted from the source to the user, building or affected persons and which affect the propagation of the sound.

28) Acoustic Shadow Zone: An area in which sound levels are reduced by up to 10-15 dBA; this is achieved when the sound waves propagated in an environment undergo blocking or diffraction as a result of such external effects as obstacles, wind, and daily temperature fluctuations.

29) Noise Reduction Coefficient (NRC): A unit which is important in the perception of speech and which gives average sound absorption coefficients of materials in a frequency range between 250 and 2000 Hz:

$$NRC = \frac{\alpha_{250} + \alpha_{500} + \alpha_{1000} + \alpha_{2000}}{4}$$

α : sound absorption coefficient (0.0 - 1.0)

30) Reverberation Time: A criterion for determining the acoustical properties of a space; the period of time in seconds that elapses from the cessation of a source of sound within a space until the sound level falls to 60 dB.

Function, Authority and Responsibilities

Article 5

1) The highest official of the central government, the municipalities, and the legal entities in the villages shall be responsible for implementation of this Regulation in the areas under their jurisdiction. The local representative of the central government, the municipalities, and the legal entities of the villages may solicit the views and request the assistance of the Local Environment Boards. The Local Environment Boards are obligated to grant these requests.

2) The Prime Ministry General Directorate of Environment is responsible for ensuring coordination among the relevant agencies on the subject of noise control.

SECTION TWO

Sources of Noise: Highways, Aircraft, and Industrial, Road Building and Construction Machinery

Article 6 - Industrial, Road Building and Construction Machinery

1) The various noise sources and the maximum noise levels permitted from these sources are given in Annex 1. It is unlawful to operate, put into service or use machines that produce noise in excess of these levels without taking the necessary measures.

2) Construction Site Noise Levels: When these exceed the acceptable levels given in Table 4 at a distance of one meter from noise sensitive structures in the environment, measures shall be taken by the officials specified in this regulation to reduce the working hours of the site or to halt the construction.

Article 7 - Highway Vehicles

1) It is unlawful to operate, or cause to be operated, a motorized land vehicle without a muffler or other sound silencing parts. The muffler or other silencing part on a motor vehicle or motorcycle may not be removed or rendered inoperable except for maintenance, repair or other purposes of modification.

2) The noise produced by motor vehicles operated in public places may not exceed the limits given in Annex 1.

3) It is unlawful for sound not of a warning nature to be produced by a horn or other sound-producing device either on or inside a motor vehicle. Vehicle warning horns must be 105-118 dBA at a distance of 2 meters from, and a height of 1.20 m above, the vehicle and within a frequency spectrum of 1800-3550 Hz in measurements made in accordance with TS 1875 and TS 2214. Article 157 of the Highway Traffic Regulation shall apply to vehicles having right-of-way.

Article 8 - Interior noise levels of vehicles must not exceed the limits in Table 1.

Article 9 - Aircraft and Railroads

1) Aircraft operated by Turkish and foreign airlines must have a noise certificate in order to make takeoffs and landings at Turkish airports open to domestic and foreign traffic. Turkish and foreign aircraft not possessing such noise certificates may make takeoffs and landings at Turkish airports open to domestic and foreign traffic by paying noise compensation. The principles governing such compensation shall be determined by the Ministry of Transport and published in the form of communiqués.

2) Noise produced by suburban and inter-city trains and by light and heavy subway systems may not exceed the limits given in Annex 1.

Article 10 - Minimum noise takeoff and landing patterns for aircraft shall be determined by the Ministry of Transport at airports where deemed appropriate by the Ministry and where deemed necessary by the Prime Ministry General Directorate of Environment in accordance with the formulation of airport noise plans.

Article 11 - Noise at Workplaces

1) The maximum noise levels acceptable with respect to auditory health shall be based on the values given in Table 2.

2) In the inspections conducted by the officials indicated in article 5 of this Regulation, owners of workplaces and managers of publicly owned workplaces who have been determined to have set up a work pattern which exceeds the limits given in Annex 1 and article 11 shall be requested by the highest official of the central government in the area to rectify the situation within one month. Noise control shall be undertaken bearing in mind that the sounds propagated by the bodies and exhaust gases of industrial machinery and equipment depend on the structural characteristics of the equipment, the position and connections of the source inside the building, and the other sound reflecting surfaces in the environment, and that the impact sounds and mechanical vibrations propagated by the structural elements depend on the structure of the equipment, the way it is mounted, its mode of operation, the work being done, maintenance and the number of pieces of equipment used. The activities of factories and workplaces that fail partially or completely to fulfill this requirement shall be temporarily or permanently suspended.

3) When the noise levels recommended at workplaces are exceeded, or when the technical capacity for reducing noise and vibrations at the source is inadequate, the employer is obligated to provide workers with the protective clothing and equipment specified in Labor Law no. 1475.

SECTION THREE

Residential Areas, Construction, Materials

Article 12 - Basic Criteria for Residential Areas:

- 1) The basic criterion for traffic noise shall be 35-45 dBA. The revisions given in Table 3 may be implemented depending on the location of the residential area and the time of day.
- 2) For other noise sources, noise levels at a distance of 1.00 m from buildings may not exceed the limits given in Table 4.
- 3) The values given in Table 5 shall be used for acceptable indoor space noise pressure levels depending on the types of buildings found in the residential area.
- 4) Designs for architectural projects should be based on the noise sensitive areas of activity and noise source areas inside buildings given in Table 6.

Article 13 - Basic Criteria for Highways, Railroads, and Building Plans

- 1) Within the framework of the principles laid down in this Regulation measures shall be taken to ensure that noise plans are drawn up by the municipalities showing levels of noises emanating from existing highways and main arteries within cities and from beltline roads around them within a minimum distance of 300 m from the noise source, and to ensure noise reduction in building plans.
- 2) Bearing in mind the problem of noise when planning in-city and inter-city roads, the Ministry of Building and Public Works, the Ministry of Transport and the Municipalities shall carry out the projects required in such areas as removing heavily travelled roads from noise sensitive areas, reducing the elevation of roads with a traffic density of more than 10,000 vehicles/hour that must pass through settled areas and situating them in

ravines or declivities, choosing types of pavement for certain segments of road that will produce a minimum of noise, arranging for road education, reducing noise by ensuring the smooth flow of traffic by means of traffic lights at corners and intersections, designating appropriate stops, constructing noise barriers along the sides of roads, taking measures to shift new roads and heavy traffic outside of residential areas, restricting heavy vehicles to certain roads and setting speed limits. Such efforts will be coordinated by the Prime Ministry General Directorate of Environment.

3) Coordination among the Ministry of Building and Public Works, the Ministry of Transport and the Provincial Governors Offices shall ensure that noise measurements are taken of all trains and locomotives, that locomotives are fitted with silencers for controlling noise on non-standard trains, that brakes are modified to accommodate disk brakes, that modifications are introduced in engine structure, that the wheels of locomotives and railroad cars are properly adjusted and lubricated and that sound absorbing materials are used in their construction, that rails are frequently ground and polished, that rubber wedges are placed at regular intervals on the tracks, that rail connections are properly welded, that railroad turnabouts are appropriately shaped, that shoulders are covered with a material that does not transmit vibrations, that railroad codes are adjusted for the environment, and that the sound absorbency of the internal surfaces of railroad embankments are enhanced.

4) For Subways

. The Municipalities shall take measures in line with the following principles to control urban subway noise and vibrations in subways themselves, at stations and on the lines through which the trains pass.

. Permissible noise levels at arrival, departure and waiting platforms and for ventilation shafts are given in Table 7.

. Acoustical measures shall be implemented on walls and ceilings to control reflected sound in underground stations. Reverberation time at 500 Hz must be 1.2-1.4 seconds when the station is empty, and the noise reduction coefficient (NRC) of the acoustic material to be used inside shall be assumed to be a minimum of 0.60 and the minimum absorbency coefficient to be 0.60 at 500 Hz. The wall and ceiling area panelled with absorbent material may not constitute more than 35% of the total and not more than 50% of the ceiling.

Noise barriers shall be constructed in noise sensitive areas through which subways pass both inside and outside of cities.

Areas where fans and other noisy equipment is operated shall be removed from spaces for general use; if this is impossible, wall partitions and doors shall be soundproofed.

5) The relevant agencies shall bear in mind the noise factor in the construction of new airports and the expansion of existing ones.

6) Noisy and noise sensitive areas in the pattern of settlement shall be taken into consideration by the municipalities within the scope of the building plan. This shall be done by the local representatives of the central government in residential areas with less than 10,000 population where no need is felt for a building plan.

7) Among the characteristics of noise sources, the following shall be borne in mind in planning decisions: the percentage of heavy vehicles in the volume of traffic, daily frequency of trains, type of brakes, airport capacity and areas to be allocated for their facilities, types and areas of industry, and preliminary specifications for permanent or temporary construction sites, and the future developments envisaged in these noise sources. The following shall be reviewed: the purposes for which lots are to be used, service areas, and how the relationship among them will be affected by environmental noise in areas where dense population is envisaged. Among physical environmental factors, acoustic shadow zones created by climate-related components such as land topography, the plant cover and groups of trees, wind and temperature fluctuations, and natural and artificial obstacles shall be used as noise control elements in planning.

8) In drawing parcelling plans and maps, buildings shall be shaped and placed in such a way as to protect from noise all areas of activity within building environments and noise sensitive spaces among blocks of buildings.

9) For noise control in the construction of large-scale building projects and in the drafting of architectural projects, factors such as the type of construction, arrangements of building groups, number of stories, spaces between buildings, orientation of buildings, types of buildings, architectural plans, geometric shapes and dimensions of masses and sound reflecting properties of outer walls shall be borne in mind. Buildings and areas of activity shall be appropriately oriented according to the noise source. Care

shall be exercised so that narrow facades with few windows will face noise sources or noisy areas whereas broad facades with many windows will face the quiet part of the lot. To ensure similar conditions on two sides of a block of buildings having equivalent functions on only one facade, the buildings shall be situated perpendicular to the noise source. In the parcelling of land for courtyards, front and back yards, terraces, shared outdoor recreational spaces and parks, and in the arrangements required in crowded areas, walls with few windows and non-sensitive spaces shall be created on the broad, non-reverberating and quiet exterior facades in the middle of the lot. The buildings to be situated on either side of a highway shall be arranged in such a way as to avoid mutual sound reflection. To protect noise sensitive buildings and sensitive areas inside buildings, mounds of earth planted with grass and curtain walls covered with greenery may be incorporated at a sufficient distance between the building and the noise source. The ground cover between the noise source and the building should consist of soft grass or earth, and hard surfaces should be avoided.

10) To prevent discomfort and deterioration of health from noise inside buildings in residential areas, sound insulation shall be used by property owners in the structural elements, the interior and exterior wall coverings, the ceilings and the roof in the construction of new buildings and in major repairs of old buildings.

11) An appropriate type of construction shall be selected depending on the difference between the maximum permissible noise levels given in Table 4 based on the existing noise levels 100 m from the exterior walls and the estimates of future noise levels and types of spaces involved. For a given coefficient the following characteristics of the surface shall be borne in mind: the smoothness or porousness of the surface, whether it is in layers or solid, the space between the layers and the way the layers of insulation material are connected to each other and to the other structural elements, the number of such connections, the total area of the windows, their placement in the wall, the thickness and type of glass, details of the woodwork and wall connections, and the total area of the structural elements.

12) TSI standards shall be used to determine the sound transmission losses of structural elements, such as building, wall and ceiling coverings, depending on the type of construction materials used.

13) In buildings where they deem it necessary, the Municipalities may

request acoustical reports in order to control indoor or outdoor environmental noise.

14) Insulation against such sounds as water pumps, elevators, household appliances, garbage chutes, plumbing, radios and televisions, which are transmitted by means of floors, ceilings and common walls in attached buildings, shall be incorporated in such a way as to ensure compliance with the standards published by the Turkish Standards Institute, and the adequacy of such insulation shall be checked by the municipalities using the measuring methods envisaged in the same standards.

15) In existing buildings, measures shall be taken against sounds which arise from activities in the building or in spaces used for purposes other than those designated and which are transmitted to other parts of the building by the persons engaging in such noise-producing activities.

SECTION FOUR

Other Noise Prohibitions

Article 14 - When obtaining permission to open, owners of industrial buildings or workplaces are obligated to take measures against the propagation of noise in the environment within the bounds of their own facilities. Such measures include appropriately positioning their machinery and other equipment inside and outside the building, and appropriately determining the locations of openings in the building's exterior walls. They are obligated to report these measures to the authorities specified in article 5.

Article 15 - The noise-producing tools and machinery specified in Annex 1 and used in construction in residential areas and in other noise sensitive areas in their immediate environment may only be used outside the hours of 20:00-8:00 on weekdays and only for the periods permitted by the municipalities on holidays.

Article 16 - The measures required to control noise caused during the construction and repair of in-city roads and highways passing through residential areas and during building demolition operations shall be taken by the producers of the noise and the companies concerned. The use of noisy machinery shall be restricted accordingly.

Article 17 - Sound levels of electronically amplified music at public places such as outdoor nightclubs, coffeehouses, discotheques, dance halls, amusement parks, picnic grounds, outdoor movie theaters, clubs, restaurants, bars and shops and in special residential areas such as courtyards or the yards or balconies of houses may not exceed 90 dBA in the immediate vicinity. The levels of such sounds in environments with houses, recreational facilities such as hotels, or other noise sensitive buildings in residential areas shall be controlled in such a way as not to exceed existing background noise levels by more than 5 dBA.

Article 18 - There shall be no restriction on noise levels if warning signs stating "Attention! The noise level inside may cause permanent hearing loss" are hung at the entrances to enclosed places of entertainment in accordance with article 17.

Article 19 - It is unlawful to advertise by shouting or by using loudspeakers in residential and commercial areas outside the areas and hours designated by the authorized agencies.

Article 20 - It is unlawful to play radios, televisions, stereos and similar equipment that could cause noise discomfort in residential areas and their immediate vicinity or in noise sensitive zones between the hours of 24:00 and 7:00, or on vessels on public waters, or in other public places or public thoroughfares in such a way as to cause noise discomfort even at a distance of 15 meters, or in such a way as to cause discomfort on public transport vehicles.

Article 21 - It is unlawful to play, or to allow to be played, on private property or within its boundaries or adjacent to it, or in public places or on public thoroughfares any instruments that will produce vibrations exceeding the threshold of undesirable effects on human beings and buildings.

Article 22 - It is unlawful to manufacture, modify or conduct test runs of motorboats, motorcycles or any other motorized vehicles in such a way as to cause discomfort in residential areas and their immediate environment or in other noise sensitive zones.

Article 23 - It is unlawful to operate, or to allow to be operated, within 15 meters of the shore on lakes, rivers, streams and other waterways motorboats that will produce a noise level in excess of 80 dBA (Leq) on boats or 70 dBA along the nearest coast.

Article 24 - It is unlawful to operate, or to allow to be operated, model vehicles, such as model ships or airplanes, which are motor-driven and which cause noise discomfort in residential areas and their immediate environment or in noise sensitive zones and public places between the hours of 20:00 and 8:00.

Article 25 - It is unlawful to operate, or to allow to be operated, mechanically-driven sewing machines, drills, saws, grinders, lawn mowers, or similar equipment inside or outside buildings in residential areas between the hours of 20:00 and 8:00.

Article 26 - It is unlawful to use or fire explosives, firecrackers and similar items and thereby to produce high-level noise in such a way as to cause noise discomfort in public places, on roads or in residential areas without permission from the authorized agency for the licensed use of such items.

Article 27 - Apart from necessity and emergencies such as fires, air attacks and burglaries, it is unlawful intentionally to operate, or to allow to be operated, fire alarms, burglar alarms or civil defense warnings, sirens, whistles or similar emergency signals. Emergency warning systems shall be tested at the same time of day each time, provided this is not before 10:00 hours or after 20:00 hours. Such testing may not be conducted more than once a month. Burglar and fire alarms used outside buildings and motor vehicle burglar alarms may not be used unless they are automatically adjusted for five minutes.

Article 28 - Animals which cause noise discomfort by producing frequent sounds or sounds at regular intervals may not be kept in residential areas or noise sensitive zones. This provision shall not apply to public zoos.

SECTION FIVE

Miscellaneous Provisions

Article 29 - For reasons of national defense or when it is a matter of fulfilling international obligations, the provisions of this regulation may not be implemented at facilities attached to the Ministry of Defense

Obligation to Provide Noise Data and to Be Prepared for Inspection

Article 30 - Manufacturers, dealers, users and operators of the machines, equipment, and transport vehicles specified as noise sources and published in the form of a list in this Regulation are required to conduct and document regular noise measurements to facilitate checks on whether or not they are exceeding the maximum noise levels stated in the Regulation.

Inspection

Article 31 - Inspections to determine compliance with the restrictions and prohibitions introduced by this Regulation and issuing of the necessary permits shall be in accordance with the provisions of the building legislation of the Ministry of Building and Public Works, the Statute on Worker Health and Work Safety, Public Health Law no. 1593, Provincial Administration Law no. 5442, Municipalities Law no. 1580 and Law no. 3030 on Metropolitan Administration. Such inspections shall be conducted by the highest official of the central government in the area and by the municipalities and village legal entities authorized by such officials.

Penal Provisions

Article 32 - Persons who commit the following acts either intentionally or as a result of negligence shall be regarded as having violated this Regulation:

A- Who fail to comply with the noise standards established for construction sites or with the prohibitions concerning the operation and use of industrial, road building and construction machinery in accordance with article 6;

B- Who fail to comply with the measures, noise standards and prohibitions governing highway vehicles in accordance with article 7;

C- Who exceed the limits stated for interior noise levels of vehicles in accordance with article 8;

D- Who violate paragraph 1 of article 9;

E- Who exceed the noise standards given for suburban and inter-city trains and subway trains in accordance with paragraph 2 of article 9,

F- Who do not comply with the arrangements for auditory health at workplaces in accordance with article 11;

G- Who do not take the measures and comply with the prohibitions stated in articles 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 and 28.

H- Who do not fulfill the obligation to provide noise data and to be prepared for inspection in accordance with article 30.

In such cases, the relevant provisions of Environment Law no. 2872 and the relevant provisions of Law no. 3301 to Amend Certain Articles of Law no. 2872 shall be applied. Owners of factories, workshops, workplaces and places of entertainment shall be given one month in which to remedy the situation by the highest official of the central government in the area. If they fail to do so within the period granted, their installations may be partly or completely closed down either temporarily or permanently.

Temporary Article 1

The companies concerned shall be given a period of two years from the publication date of this Regulation to determine whether or not the vehicles (equipment) whose noise limits are stated herein and the machinery listed as noise sources exceed the envisaged standards and, if they do, to take the required measures, and, furthermore, to comply with the provisions of this Regulation on points which require such a period in order to allow the other necessary arrangements to be effected in line with this Regulation.

Effectiveness

Article 33 - This Regulation shall become effective on publication in the Official Gazette.

Enforcement

Article 34 - The Prime Minister shall enforce the provisions of this Regulation.

Table 1

Type of Vehicle	Maximum Noise Level (dBA)
Automobile	75
Bus (in city) (outside city)	85 80
Heavy vehicles (in driver's cabin) and Trucks (at 80 km/h)	85
Locomotive interiors (Diesel-engine, operating at full power, and load at 80 km/h with windows closed)	85
Electrical train locomotives	80
Railroad car interiors	70

Table 2

Period of Exposure to Noise (hour/day)	Maximum Noise Level (dBA)
7.5	80
4	90
2	95
1	100
0.5	105
0.25	110
1/8	115

The maximum level of impact noise may not exceed 140 dBA.

Table 3

	Zone Definition	Basic Criterion (Leq: 35-45 dBA)
Zone I	Residential area outside city (far from traffic)	0
Zone II	Dwellings at city's edge	+ 5
	Urban residential area (100 m from traffic flow)	+10
	Urban residential area, main roads, workplaces (60 m from traffic flow)	+15
Zone III	City-center residential area, main roads, workplaces (20 m from traffic flow)	+20
Zone IV	Industrial zone or main roads where heavy vehicles and buses pass	+25
	Time of Day	
	Daytime (06:00-19:00)	0
	Evening (19:00-22:00)	- 5
	Night (22:00-6:00)	-10

Note: The basic criterion for noise sensitive areas and future planning is 35 dBA.

Table 4

Source of Noise	Leq (dBA)	
	Daytime (06:00-22:00)	Night (22:00-06:00)
Railroad Noise	65	55
Industrial Noise	Continuous	65
	Sudden	70
	60	60
Construction Site Noise	Building Construction (continuous)	70
	Road Construction (temporary)	75
	Impact Noise	100(L _{max})
	60	60
Airports (or equivalent WECPNL values)	70	60

Table 5

Area of Use	Acceptable sound pressure level: Leq(dBA)
Rest and recreational areas	
- Theaters	25
- Conference halls	30
- Hotel rooms	30
- Hotel restaurants	35
Medical institutions	
- Hospitals	35
Residences	
- Bedrooms (city)	35
- Living rooms (outside city)	40
- Living rooms (edge of city)	45
- Living rooms (city)	60
- Service areas (kitchen, bathroom)	70
Educational Institutions	
- Schools, laboratories	45
- Gymnasiums, cafeterias	60
Commercial Buildings	
- Private offices	50
- General offices (clerical and accounting departments, shops)	60
Industrial Buildings	
- Factories (small)	70
- Factories (large)	80

Table 6

Type of Building	Noise Sensitive Area of Activity	Noise Source Area of Activity
Residences	Bedrooms, living rooms, dining rooms, studies, music rooms, examining rooms in doctors' homes, balconies and yards	Circulation, heating and plumbing areas, carparks, garages, laundry rooms, elevators, water pumps, stairs, home workshops, music practice rooms, playgrounds, sports grounds
Schools	Classrooms, reading rooms, lecture halls, administrative offices, infirmaries and maintenance rooms, laboratories, sleeping spaces in nursery schools	Yards and playgrounds, gymnasiums, workshops, music studios, kitchens, heating and plumbing areas, carparks
Hospitals	Patients' rooms, waiting areas, operating room, intensive care units, rest areas, corridors and administrative offices	Heating and plumbing plants, elevators, kitchen and service areas, carparks
Administrative Buildings	Special work areas	Noisy work areas, computer centers, heating and plumbing plants, circulation areas, cafeterias, kitchen and other service areas, garages and carparks
Commercial	Special offices, sales areas, childcare centers, display areas and restaurants	Noisy sales areas, play areas, cafeterias, carparks and garages, other services
Hotels	Bedrooms, lobbies, dining rooms, conference halls, administrative spaces, observation decks, courtyards and gardens	Heating and plumbing plants, kitchen and service areas, carparks and garages, open air restaurants, discotheques, dance halls, and other noisy entertainment and sports areas

Table 7

	Leq(dBA)		Leq(dBA)
Underground Stations		Street level stations	
. Ticket windows, stairs, corridors	55	. Platforms (at 1.8 m from edge)	70
. Platforms (at 1.8 m from edge)		. Stopping-departing trains	75
. For stopping and departing trains	80	. Trains waiting while running	65
. For passing trains	85		
. For trains waiting while running	65		
. Ventilation system in station	55		
. Ventilation shafts on street at 9.00 m)	55		
. Emergency ventilation fans in enclosed spaces inside stations (at 22.5 m)	80		

ANNEX 1

NOISE SOURCES	Noise Level Leq dBA
Trucks (at 7.5 m)	85
Passenger vehicles (at 7.5 m)	85
Motorcycles (at 7.5 m)	80
Locomotives (at 30 m)	90
Diesel-powered scrapers and bulldozers (100-450 kw)	120
Diesel-powered shovels with caterpillar treads (40-60 kw)	110
Diesel-powered excavators (45-80 kw)	105
Pneumatic concrete crushers (36 kg)	110
Diesel-powered cranes with caterpillar treads	105
Diesel-powered dump trucks (1.2-2.5 tons)	100
Diesel-powered vibrating cylinders (2-75 kw)	110
Cement mixers	115
Cement pumps	115
Graders	120
Rock drilling guns	125
Compressors (stationary)	115
Tractors	120
Loaders	115
Gears	95

Electric motors (300 hp, 1200 rev/sec)	105
Pumps (300 hp > 1600 rev/sec)	120

NOISE SOURCES	Noise Level Leq dBA
Fans (Axial and radial, 1 m ³ /s 4cm H ₂ O)	85
(Canal Profile, 1 m ³ /s 4 cm H ₂ O)	70
Automatic lathes	85
Arc welders	85
Punch presses	95
Pneumatic drills	95
Wood planing machines	95
Lathe benches	95
Steel plate honers	95
Pig iron or steel slitters	95
Routers	95
Rivet pitching machines	95
Groove cutting machines	95
Wood polishing machines	95
Automatic gear cutting machines	95
Steel plate cutters	95
Electrical flat welders	95
Pipe welding machines	95
Electric, gas or oil furnaces	105
Impact hammers	105
Pneumatic hammers	105
Steel wire hooping machines	105
Compressors	105
Air presses	105
Pneumatic riveting guns	105
Riveting hammers	105
Circular saws for cutting metal or wood	105
Pneumatic wrenches	105
Air chisels for casting	115
Internal combustion saws	115
Nailing machines	115
Textile looms	95

* Average values have been given for noise levels. This list shall be expanded by communiqués to be issued by the Prime Ministry General Directorate of Environment. Noise levels shall be determined in accordance with the methods recommended in the standards of the TSI.