

XVI. PERFORMANCE STANDARDS

A. Purpose

The requirements herein are intended to provide a basis for determining the compatibility of land uses that may produce measurable adverse environmental effects on their surroundings.

B. Applicability

The Performance Standards herein shall apply as follows:

<u>Performance Standard For</u>	<u>Applies To</u>
1. Industrial Uses	Conditional Uses in I-1 and I-2
2. Other Uses	Conditional Uses in All Districts Except I-1 and I-2 Permitted Uses in All Districts
3. (Unspecified)	Permitted Uses in All Districts Conditional Uses in All Districts

C. Noise

1. **Maximum Sound Levels:** No operation or activity shall cause or create noise above the sound pressure levels established in Tables 15 and 16 at the locations specified therein.
2. **Measurement:** A sound-level meter and associated octave band analyzer shall be employed to measure the intensity and frequency of sound. The flat network slow meter response of the sound level meter shall be used.
3. **Exemptions:** The following shall be exempt from noise performance standards:
 - a. Noises of construction or maintenance activities from 7 AM to 7 PM.
 - b. Noises of safety signals, warning devices, and emergency pressure relief valves.
 - c. Transient noises of moving sources such as transportation vehicles.
 - d. Noises associated with snow plowing, street sweeping, and mosquito abatement.
 - e. Church bells, chimes, and carillons.
 - f. Other noises not under the direct control of the property user.

Table 15: Permitted Sound Levels

Preferred Center Frequency in Hertz	Maximum Permitted Sound Pressure Level in Decibels at Boundaries of Nearest Residentially Zoned Lot
31.5	75
63	74
125	69
250	64
500	58
1,000	52
2,000	47
4,000	43
8,000	40

Above figures for octave band analyzers calibrated with Preferred Frequencies (American Standards Association S1.6-1960, Preferred Frequencies for Acoustical Measurement)

Sound levels above shall be modified where applicable by the adjustments in Table 16.

Table 16: Adjustments to Permitted Sound Levels**Adjustment in Decibels**

1. **Duration of noise in any one-hour period (use one adjustment only):**
 - (a) under 12 minutes Add 5 dB
 - (b) under 3 minutes Add 10 dB
 - (c) under 1/2 minute Add 15 dB
2. **At boundaries of nearest Office or Business zoned lot** Add 5 dB
3. **Noise is impulsive in character (e.g., hammering)** Subtract 5 dB
4. **Noise is periodic in character (e.g., hum, screech)** Subtract 5 dB
5. **Noise may be heard between hours of 7:00 PM and 7:00 AM** Subtract 5 dB

D. Vibration

1. **Maximum Vibration:** Ground-transmitted vibration shall not exceed the maximum permitted Ground Transmitted Vibration in Table 17 at the locations specified therein.
2. **Measurement:** A seismograph or other three-component measuring system capable of simultaneous measurement of vibration in three mutually perpendicular directions shall be used to measure vibration.

Particle Velocity may be measured directly or computed by the following formula:

$$PV = 6.28 \times F \times D$$

PV: Particle Velocity in inches per second

F: Vibration frequency in cycles per second

D: Single amplitude displacement of the vibration in inches

The maximum Particle Velocity shall be the maximum vector sum of the three mutually perpendicular components recorded simultaneously.

**Table 17: Maximum Ground Transmitted Vibration
(Maximum Permitted Particle Velocity *)**

<u>At Nearest Residential Use</u>	<u>At Adjacent Lot Line</u>	<u>Zoned Lot Boundary **</u>
Heavy Industrial	0.2	0.02
Other	0.1	0.02

* Where vibration is produced as discrete impulses (impact vibrations) not exceeding 100 per minute, maximum permitted velocities may be doubled.

** Between 7:00 AM and 7:00 PM, maximum permitted velocity at residentially zoned lot boundaries shall be reduced 50 percent.

E. Smoke

1. **Maximum Emissions:** Emissions of smoke shall not exceed the maximum permitted smoke units as defined herein and Ringelmann Number ratings in Table 18

Table 18: Maximum Smoke Emissions

	During 1 Hour			
	Per 24-Hour Day *		All Other Times	
	Industrial	Other	Industrial	Other
Maximum Permitted Smoke Units ***				
Per Hour Per Stack	32	16	16	8
Highest Ringelmann Number Permitted	3 **	2 **	2	1

* When blowing soot or cleaning fires

** For a maximum duration of three (3) minutes

*** The number of Smoke Units is the product of the Ringelmann Number and the number of minutes the smoke is visible.

F. Particulate Matter

1. **Maximum Emissions:** Particulate matter is fine solid or liquid particles small enough to be carried in the air, including products of combustion such as soot and fly ash, industrial dust, and products of wind erosion. The rate of emission of particulate matter from all sources within the boundaries of any lot shall not exceed the values in Table 19 as adjusted by the factors in Table 20.

Table 19: Particulates Standards

Use	Maximum Pounds Per Acre of Net Site Area Per Hour		Maximum Tonnage Per Acre of Net Site Acre Per Year
Heavy Industrial	5	10	
Other		1	5

2. **Measurement:** The emission rate in pounds per hour from any single stack shall be determined by selecting the continuous four-hour period which will result in the highest average emission rate.

Control of Wind Erosion: Emission of particulate matter from materials, products, or surfaces subject to wind erosion shall be minimized by paving, oiling, wetting, covering, landscaping, fencing, or other means. This shall apply to vacant lots; unpaved roads; yards and storage piles of bulk materials such as coal, sand, cinders, slag, and sulfur; and similar sources of windborne particulates.

Table 20: Adjustments to Particulates Standards

User should interpolate for values not listed. Minus sign indicates value is to be subtracted from particulate standard.

Height of Emission Above Grade in Feet	Height of Emission Adjustment in Lbs./Hour/Acre	Velocity of Emission Exit Velocity in Feet Per Second	Adjustment in Lbs./Hour/Acre
50	-0.01	0	-
100	-0.06	20	-0.03
150	-0.1	40	-0.09
200	-0.16	60	-0.16
300	-0.3	80	-0.24
400	-0.5	100	-0.5

4. Temperature of Emission:

Temperature in Degrees Fahrenheit	Adjustment in Lbs./Hour/Acre
200	-
300	-0.001
400	-0.002
500	-0.003
1,000	-0.01
1,500	-0.04
2,000	-0.1

G. Toxic Matter

1. Maximum Emissions:

Release of any airborne toxic matter shall not exceed the following permitted standards:

Table 21: Permitted Emission of Toxic Matter

Maximum Fraction of Use	Location Where Threshold Limit Value*	Applicable
Heavy Industrial	1/30	At district boundary
Other	1/30	At lot lines

* Threshold Limit Value adopted by American Conference of Government and Industrial Hygienists

2. **Measurement:** Measurement of toxic matter shall be at ground level or habitable elevation and shall be the average of any 24-hour sampling period.

H. Odor

1. **Maximum Emissions:** Odorous material released shall not exceed the Odor Threshold Concentration at the following locations:

<u>Heavy Industrial Uses</u>	<u>Other Uses</u>
At Boundaries of Nearest Residentially Zoned Lot	At Lot Lines

2. **Measurement:** Odor shall be measured by Odor Threshold Concentrations with the American Society for Testing and Materials Method D1391-57, Standard Method for Measurement of Odor in Atmospheres (Dilution Method), or its equivalent.

Odor shall be measured at ground level or habitable elevation.

I. Fire and Explosion

1. **Other Regulations Applicable:** In addition to the requirements herein, all materials regulated in this section shall be utilized, stored, manufactured, and handled in accordance with the Village Fire Protection Code in the Buildings and Building Regulations Ordinance and the standards of the National Fire Protection Association.
2. **Detonable Materials:** Detonable materials are all materials or products that decompose by detonation, including, among other materials:
 - a. All primary explosives such as lead azide, lead styphnate, fulminates, and tetracene
 - b. All high explosives such as TNT, RDX, HMX, PETN, and picric acid
 - c. Propellants and components thereof such as dry nitrocellulose, black powder, boron hydrides, and hydrazine and its derivatives
 - d. Pyrotechnics and fireworks such as magnesium powder, potassium chlorate, and potassium nitrate
 - e. Blasting explosives such as dynamite and nitroglycerine
 - f. Unstable organic compounds such as acetylides, tetrazoles, and ozonides
 - g. Strong unstable oxidizing agents such as perchloric acid, perchlorates, and hydrogen peroxide in concentrations greater than thirty-five (35) percent
 - h. Nuclear fuels, fissionable materials and products, and reactor elements such as Uranium 235 and Plutonium 239.

The storage, utilization, or manufacture of detonable materials shall be permitted only as licensed by the Village or as incidental to a Principal Use subject to requirements of Table 22.

Table 22: Standards for Detonable Materials

<u>Storage, Utilization or Manufacture of 5 Lbs. or Less</u>	<u>Storage or Utilization of Over 5 Lbs.</u>	<u>Manufacture of Over 5 Pounds</u>
Permitted Use	Conditional Use	Prohibited

3. **Flammable Solid Materials:** The utilization, storage, and manufacture of flammable solid materials are permitted subject to the following restrictions:

<u>Rating</u>	<u>Restrictions</u>
Incombustible to Moderate Burning	None
Free to Active Burning to Intense Burning	Only in completely enclosed buildings minimum 2-hour fire- resistive construction that are either protected with an automatic fire extinguishing system, or located at least 40 feet from all lot lines.

4. **Flammable Liquids and Gases:** The storage, utilization, and manufacture of flammable liquids or gases that produces flammable or explosive vapors shall be limited to the quantities specified in table 23:

Table 23: Standards for Flammable Liquids and Gases
Maximum Gallons

Open Cup Flash Point in Degrees Fahrenheit	Above Ground		Below Ground	
	Heavy Industrial	Other	Heavy Industrial	Other
Under 100	62,000	3,000	No Maximum	100,000
100-139	100,000	10,000	No Maximum	100,000
140 & Over	200,000	20,000	No Maximum	100,000

Storage of finished products in original sealed containers of fifty-five (55) gallons or less is exempt from above standards.

Maximum cubic feet of flammable gases at standard temperature and pressure shall be thirty (30) times the gallonage figures above.

J. Glare

No operation shall produce direct or indirect illumination greater than 0.5 foot-candles in any Residential District.

K. Heat

No heat from operations or processes shall be sensed at any lot line to the extent of raising the temperature of air or materials more than five (5) degrees Fahrenheit.

L. Radioactive Radiation

No operation shall be permitted that causes any individual outside of the lot lines to be exposed to any radiation exceeding the lowest concentration permitted for the general population by federal and state laws and regulations in effect as of the day of application for a Certificate of Occupancy.

Radioactive materials shall be contained in a fireproof container at or below ground level if they are stored, utilized, or manufactured in a quantity exceeding 100,000 times the quantity listed in Section 3, paragraph b, of the Radiation Installation Registration Law of the State of Illinois or any amendment thereto.

M. Administration

The procedures herein are intended to enforce the Performance Standards herein, to protect businesses from arbitrary enforcement, and to protect the public from unnecessary enforcement costs.

- 1. New Uses:** An application for a Conditional Use Permit or a Building Permit for an

industrial use within the I-2 Industrial District shall include a certification by a licensed engineer, licensed architect, or scientific laboratory that the use involved in the application is able to meet all applicable Performance Standards to the extent that this can be judged based on the submitted building plans and other information available prior to construction.

This certification shall be accompanied by copies of all data or information supplied by the applicant and used as the basis of the certification. The Village President, or his designee, may refer the certification and data to the Village Engineer for review.

The Village President, or his designee, may also require such certification for a land use in any other zoning district when in his or her judgment the use has potential to exceed any Performance Standard herein. Such certification may include all Performance Standards or only individual Standards specified by the Village President, or his designee.

2. **Existing Uses:** In enforcing Performance Standards on existing uses, the Village President, or his designee, may issue a written Notice of Violation to an alleged violator.

The Village President, or his designee, shall, before issuing such Notice, make technical determinations of violation when such determinations can be made using equipment and trained personnel normally available to the Village or obtainable without extraordinary expense.

In other cases, however, technical complexity or extraordinary expense may make it unreasonable for the Village to maintain personnel or equipment for making determinations of violation prior to issuing a Notice of Violation. In such cases, a Notice of Violation may be issued when the Village President, or his designee, has other reason to believe there is probable violation.

The Village President, or his designee, shall give Notice of Violation by any means that ensures a signed receipt for such notice to the party responsible for the alleged violation.

The notice shall describe the alleged violation and the results of technical determinations or the other reasons why the Village President, or his designee, believes there is a violation. The notice shall require either an answer or correction of the alleged violation to the satisfaction of the Village President, or his designee, and within a time limit he or she shall specify in the Notice.

The Notice shall also state that failure to provide an answer or correct the alleged violation within this time limit shall constitute admission of a violation.

The Notice shall further state that, if technical determinations have not already been made, upon request of the alleged violator such determinations will be made. If a

violation is found as a result of such determinations, the cost of the determinations will be assessed against the properties or parties responsible in addition to any other penalties provided for. If no violation is found, the Village will pay the cost of the determinations.