

**SECTION 7.0 - PERFORMANCE STANDARDS**

7.1 SPECIAL REGULATIONS IN MANUFACTURING DISTRICTS AS INDICATED

- A. The following uses are prohibited in all manufacturing districts whether or not they meet the performance standards: Crematories, fireworks or explosive manufacture or storage and dumping.
- B. No activities involving the storage, utilization, or manufacture of materials or products which decompose by detonation shall be permitted, except that those activities customarily incidental to the operation of permitted principal use may be permitted by a variation by the Zoning Board of Appeals. Such materials shall be stored, utilized, and manufactured in accordance with the applicable rules and regulations of the County and the State of Illinois.

Such materials shall include, but shall not be confined to, all primary explosives such as lead azide, lead styphnate, fulminates, and tetracens; all high explosives such as TNT, RDX, HMX, PETN, and picric acid; propellants and components thereof, such as dry nitrocellulose, black powder, boron hydrides, hydrazine, and its derivatives; pyrotechnics and fireworks such as magnesium powder, potassium chlorate, and potassium nitrate; blasting explosives such as dynamite, and nitroglycerine; unstable organic compounds such as acetylides, tetrazoles, and ozonides; strong oxidizing agents such as liquid oxygen, perchloric acid, perchlorates,, chlorates, and hydrogen peroxide in concentrations greater than thirty-five (35) percent; and nuclear fuels, fissionable materials, and products, and reactor elements such as Uranium 235 and Plutonium 239.

- C.
  - 1. M-1 Limited Manufacturing District
    - a. All processing shall be conducted within completely enclosed buildings.
    - b. Storage of materials, products, and goods is permitted within completely enclosed buildings.
    - c. Outdoor storage of uncontained bulk materials is prohibited.
  - 2. M-2 General Manufacturing District
    - a. Processing and storage of materials, products, and goods is permitted within completely enclosed buildings or outdoors, if screened properly from public view.
    - b. Outdoor storage of uncontained bulk materials is prohibited within twenty (20) feet of property lines.

- D. Any use established in a manufacturing district shall be operated in such a manner as to comply with the applicable performance standards as hereinafter set forth governing noise, vibration, smoke, toxic matter, odors, fire and explosive hazards, and glare. No use already established on the effective date of this ordinance shall be so altered or modified as to conflict with or further conflict with the applicable performance standards for the district in which such use is located.

## 7.2 NOISE

- A. In manufacturing districts, any use established after the effective date of this ordinance shall meet the performance standards for noise as described below.

For the purpose of measuring the intensity and frequency of sound, the sound level meter, the octave band analyzer and the impact analyzer shall be employed.

The flat network and the fast meter response of the sound level meter shall be used. Sounds of short duration as from forge hammers, punch presses, and metal shears which cannot be measured accurately with the sound level meter shall be measured with the impact noise analyzer.

Octave band analyzers calibrated in the Preferred Frequencies (American Standards Association S1.6-1960. Preferred Frequencies for Acoustical Measurements) shall be used with tables marked "Preferred Frequencies." Octave band analyzers calibrated with pre-1960 octave bands (American Standards Association 224, 10-1953, Octave Band Filter Set) shall use tables marked "pre-1960 Octave Bands."

The following uses and activities shall be exempt from the noise level regulations:

1. Noises not directly under the control of the property user.
  2. Noises emanating from construction and maintenance activities between 7:00 a.m. and 9:00 p.m.
  3. The noises of safety signals, warning devices, and emergency pressure relief valves.
  4. Transient noises of moving sources such as automobiles, trucks, airplanes, and railroads.
- B. At no point beyond a lot line of any lot in the M-1 Limited Manufacturing District shall the sound pressure level resulting from any use on that lot exceed the maximum permitted decibel levels for the designated octave bands, as set forth in Tables I and II below.

**TABLE I - PREFERRED FREQUENCIES**

<u>CENTER FREQUENCY CYCLES PER SECOND</u>	<u>MAXIMUM PERMITTED SOUND PRESSURE LEVEL, DECIBELS</u>
31.5	76
63	71
125	65
250	57
500	50
1,000	45
2,000	39
4,000	34
8,000	32

**TABLE II - PRE-1960 OCTAVE BANDS**

<u>OCTAVE BAND CYCLES PER SECOND</u>	<u>MAXIMUM PERMITTED SOUND PRESSURE LEVEL, DECIBELS</u>
20 - 75	72
75 - 150	67
150 - 300	59
300 - 600	52
600 - 1,200	46
1,200 - 2,400	40
2,400 - 4,800	34
4,800 - 10 KC	32

Impact noises, as measured on the impact noise analyzer, shall not exceed 80 decibels at any point beyond a lot line of any lot in the M-1 District.

Between the hours of 7:00 p.m. and 7:00 a.m., the decibel values tabulated above shall be reduced by six decibels when measured in a residence district.

- C. At no point beyond a lot line of any lot in the M-2 General Manufacturing District shall the sound pressure level resulting from any use on that lot exceed the maximum permitted decibel levels for the designated octave bands, as set forth in Tables I and II on the following page.

TABLE I - PREFERRED FREQUENCIES

<u>CENTER FREQUENCY CYCLES PER SECOND</u>	<u>MAXIMUM PERMITTED SOUND PRESSURE LEVEL, DECIBELS</u>
31.5	83
63	78
125	72
250	64
500	57
1,000	51
2,000	46
4,000	41
8,000	38

TABLE II - PRE-1960 OCTAVE BANDS

<u>OCTAVE BAND CYCLES PER SECOND</u>	<u>MAXIMUM PERMITTED SOUND PRESSURE LEVEL, DECIBELS</u>
20 - 75	79
75 - 150	74
150 - 300	66
300 - 600	59
600 - 1,200	53
1,200 - 2,400	47
2,400 - 4,800	41
4,800 - 10 KC	39

Impact noises, as measured on the impact noise analyzer, shall not exceed 86 decibels at any point beyond a lot line of any lot in the M-2 District.

Between the hours of 7:00 p.m. and 7:00 a.m., the decibel values tabulated above shall be reduced by 12 decibels when measured in a residence district.

7.3 EARTHBORN VIBRATION

- A. In any industrial district, no use shall cause or create earthborn vibrations in excess of the displacement values given on the following page.

Measurements shall be made at or beyond the adjacent line or the nearest residence district boundary line, as described. Vibration displacements shall be measured with an instrument or complement of instruments capable of simultaneously measuring in three mutually perpendicular directions.

The maximum permitted displacements shall be determined in each district by the following formula:

$$D = \frac{K}{f}$$

Where D = displacement in inches

K = a constant to be determined by reference to the tables which follow.

f = the frequency of the vibration transmitted through the ground, cycles per second.

B. M-1 Limited Manufacturing District

The maximum earth displacement permitted at the points described below shall be determined by use of the formula in Paragraph A and the appropriate K constant shown in Table I.

TABLE I

Values of K to be Used in Vibration Formula

<u>LOCATION</u>	<u>K</u>
On or beyond any adjacent lot line	
a. Continuous	0.008
b. Impulsive	0.015
c. Less than 8 pulses per 24-hour period	0.037
<u>LOCATION</u>	<u>K</u>
On or beyond any residence district boundary line	
a. Continuous	0.003
b. Impulsive	0.006
c. Less than 8 pulses per 24-hour period	0.015

- C. M-2 General Manufacturing District  
 The maximum earth displacement permitted at the points described on the following page shall be determined by the use of the formula in Paragraph A on Page 58, and the appropriate K constant shown in Table II.

TABLE II

Values of K to be Used in Vibration Formula

<u>LOCATION</u>	<u>K</u>
On or beyond any adjacent lot line	
a. Continuous	0.015
b. Impulsive	0.030
c. Less than 8 pulses per 24-hour period	0.075
<u>LOCATION</u>	<u>K</u>
On or beyond any residence district boundary line	
a. Continuous	0.003
b. Impulsive	0.006
c. Less than 8 pulses per 24-hour period	0.015

7.4 SMOKE AND PARTICULATE MATTER

- A. The emission of smoke or particulate matter in such manner or quantity as to endanger or be detrimental to the public health, safety, comfort, or welfare is hereby declared to be a public nuisance, and shall not be permitted in any manufacturing district.

For the purpose of grading the density or equivalent opacity of smoke, the Ringelmann Chart described in the U.S. Bureau of Mines Information circular 6888 shall be employed. The emission of smoke or particulate matter of a density or equivalent opacity greater than No. 1 on the Ringelmann Chart is prohibited at all times, except as otherwise provided hereinafter.

Dust and other types of air pollution borne by the wind from such sources as storage areas, yards, roads, and the like within lot boundaries shall be kept to a minimum by appropriate landscaping, paving, oiling, fencing, wetting, or other acceptable means.

The open burning of refuse, paint, oil, debris, and any other combustible material is prohibited in all industrial districts.

No operation shall result in the emission into the open air from any process or control equipment or in the measurement at any convenient measuring point in a breeching or stack of particulate matter in the gases that exceeds 0.60 pound per thousand pounds of gases during any one hour.

Particulate matter loadings in pounds per acre described below shall be determined by selecting a continuous four-hour period which will result in the highest average emission rate.

B. M-1 Limited Manufacturing District

The emission of smoke having a density or equivalent opacity in excess of Ringelmann No. 1 is prohibited. However, for two minutes in any four-hour period, smoke up to and including Ringelmann No. 2 shall be permitted.

The rate of emission of particulate matter from all vents and stacks within the boundaries of any lot shall not exceed 0.2 pounds per acre of lot area during any one hour.

C. M-2 General Manufacturing District

The emission of smoke having a density or equivalent opacity in excess of Ringelmann No. 2 is prohibited. However, for two minutes in any four-hour period, smoke up to and including Ringelmann No. 3 shall be permitted.

The rate of emission of particulate matter from all stacks and vents within the boundaries of any lot shall not exceed one pound per acre of lot area during any one hour.

## 7.5 TOXIC MATTER

A. M-1 Limited Manufacturing District and M-2 General Manufacturing District

The release of airborne toxic matter (including radioactive matter) shall not exceed 1/30th of the maximum permissible concentration allowed an industrial worker when measured at any point beyond the lot line, either at ground level or habitable elevation, whichever is more restrictive. Concentrations shall be measured and calculated as the highest average that will occur over a continuous 24-hour period.

If a toxic substance is not contained in the most recent listing of threshold limit values published by the American Conference of Governmental Industrial Hygienists, the applicant shall satisfy the County Health Department that the proposed levels will be safe to the general population.

7.6 ODOROUS MATTER

- A. The release of materials capable of becoming odorous, either by bacterial decomposition or chemical reaction, shall meet the standards of the district in which the odor is created.
- B. M-1 Limited Manufacturing District  
When odorous matter is released from any operation, activity, or use in the M-1 Limited Manufacturing District, the concentration of such odorous materials shall not exceed the odor threshold when measured beyond the lot line, either at ground level or habitable elevation.

7.7 FIRE AND EXPLOSION HAZARDS

- A. In all manufacturing districts, the storage, utilization, or manufacture of solid materials or products ranging from incombustible to moderate burning is permitted.

The storage, utilization, or manufacture of solid materials or products ranging from free or active burning to intense burning is permitted, provided either of the following conditions is met:

- 1. Said materials or products shall be stored, utilized, or manufactured within completely enclosed buildings having incombustible exterior walls and protected with an automatic fire extinguishing system.
  - 2. Said material, if stored outdoors, will be no less than fifty (50) feet to the nearest lot line.
- B. M-1 Limited Manufacturing District  
The storage, utilization, or manufacture of flammable liquids shall be permitted in accordance with the following table, exclusion of storage of finished products in original sealed containers, which shall be unrestricted. Flammable liquid and gas storage tanks shall be unrestricted. Flammable liquid and gas storage tanks shall not be less than fifty (50) feet from all lot lines.

**TOTAL CAPACITY OF FLAMMABLE MATERIALS PERMITTED  
 (IN GALLONS)**

	<u>ABOVE</u>	<u>UNDERGROUND</u>
Materials having a closed cup flash point over 187 °, but less than 300°F	20,000	100,000
From and including 105°F. to and including 187°F	10,000	100,000
Materials having a closed cup flash point of less than 105°F	3,000	100,000

When flammable gases are stored, utilized, or manufactured and measured in cubic feet, the quantity in cubic feet at standard temperature and pressure shall not exceed 30 times the quantities listed above.

- C. M-2 General Manufacturing District  
 The storage, utilization, or manufacture of flammable liquids shall be permitted in accordance with the following table, exclusive of storage of finished products in original sealed containers, which shall be unrestricted. Flammable liquid and gas storage tanks shall not be less than fifty (50) feet from all lot lines.

**TOTAL CAPACITY OF FLAMMABLE MATERIALS PERMITTED  
 (IN GALLONS)**

	<u>ABOVE</u>	<u>UNDERGROUND</u>
Materials having a closed cup flash point over 187 °, but less than 300°F	200,000	Unrestricted
From and including 105°F. to and including 187°F	100,000	Unrestricted
Materials having a closed cup flash point of less than 105°F	50,000	Unrestricted

When flammable gases are stored, utilized, or manufactured and measured in cubic feet, and the quantity in cubic feet at standard temperature and pressure shall not exceed thirty (30) times the quantities listed above.

SOURCE: Polytechnic Inc. Chicago, Illinois

7.8 PERFORMANCE REQUIREMENTS AND ENFORCEMENT

- A. Any use established in a manufacturing district shall be operated in such a manner as to comply with the applicable performance standards as set forth governing noise, vibration, smoke, toxic matter, odors, fire and explosive hazards, glare, radio and electrical interference, air pollution, and water pollution. No use already established on the effective date of this ordinance shall be so altered or modified as to conflict with or further conflict with the applicable performance standards for the district in which such use is located.
- B. The application for a zoning permit for a use subject to performance requirements shall be accompanied by a plan of the proposed construction or development; a description of the proposed machinery, processes and products; and specifications for the mechanisms and techniques to be used in meeting the Performance Requirements.
- C. The County Board may refer the application to one or more expert consultants qualified to advise as to whether a proposed use will conform to the performance requirements. The costs of such services shall be borne by the applicant, and a copy of any reports shall be furnished the applicant.
- D. Established uses found to be in noncompliance will be liable for inspection fees and costs. In the event no due cause is found, the challenger will be liable for the fees and costs.