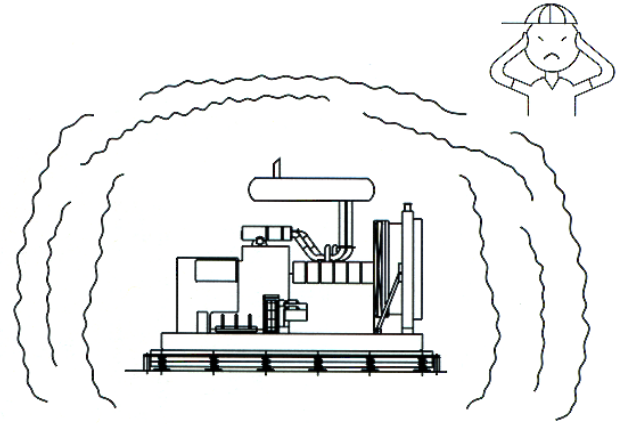


# EnGen **NOISE** A PROBLEM? IT NEEDN'T BE...



## RECIP – TURBINE / DIESEL – STEAM : 2KW to 600MW



Acoustic/Aerodynamic testing to ASTM & new ISO Standards in our acoustically controlled environment or on location



Noise control systems for new installations in fabricated enclosures and architectural buildings



Noise control systems for rehabilitation of existing installations



Acoustics guaranteed to meet aerodynamic and thermodynamic criteria



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In-house test facilities include turbulent/laminar flow wind tunnel, acoustic reverberant & semi-reverberant test chambers and semi-anechoic/landscape hardstand



**FREE** phone consultation and estimates

## FOR ASSISTANCE IN SOLVING YOUR NOISE PROBLEMS, CONTACT:



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# ABSTRACT OF NOISE REGULATIONS/CRITERIA/DATA

## PREAMBLE

Noise standards promulgated by the U.S. Federal Government are authorized by the "Noise Control Act of 1972". The "Supremacy Clause" of the U.S. Constitution: Article VI, sec. 2, states that where there is conflict, federal law prevails. However, courts have mainly ruled that more stringent regulations can be imposed by state or local government.

Federal Occupational Safety and Health Agency (OSHA) will typically regulate workplace standards including all worker exposures. Federal Environmental Protection Agency (EPA) will generally regulate outdoor standards including air, water and noise. Noise may be subject to two or more simultaneous jurisdictions.

The following synopsis of criteria may be incorporated, modified or superseded by pending ISO regulations. In any event, the reader is advised to contact the cognizant regulatory agency to determine what criteria are pertinent to their location and project.

## OSHA 8-HOUR TWA

85 to 90 dBA, Hearing Conservation program; 90 dBA and higher, Engineering Controls.

## TYPICAL EPA

NAC	Day (0700-2200 hrs)		Night (2200-0700 hrs)		L10 & L50 in dBA
	L50	L10	L50	L10	
1	60	65	50	55	
2	65	70	65	70	
3	75	80	75	80	

Acceptable sound levels for the receiver are a function of the intended activity in that land area. The following noise area classifications are grouped and defined by the SLUCM numerical codes and descriptions.

Noise Area Classifications (NAC) include the following land activities.

**NAC-1:** Household/Residential/Medical/Religious/Educational/Recreational/Transient Lodgings/Cultural/Correctional Institutions...etc.

**NAC-2:** Transit Terminals (Passenger & Freight)/Airport/Marine/Auto Parking/Restaurants/Wholesale & Retail Trade...etc.

**NAC-3:** Manufacturing/Utilities/Printing/Chemicals/Petroleum Refining/Primary Metals/Paper...etc.

## THE COUNCIL OF EUROPEAN COMMUNITIES, EEC/536

100 dBA maximum sound power (Re 1 pW) for engine-generators 2KVA and larger at 75% rated load in KW under designated measuring conditions.

## ISO NOISE RATING (NR) CURVES

### ISO (INTERNATIONAL ORGANIZATION FOR STANDARDIZATION)

NR	OCTAVE BAND FREQUENCY – Hz									dBA Equivalent
	31.5	63	125	250	500	1K	2K	4K	8K	
20	69	51.3	39.4	30.6	24.3	20	16.8	14.4	12.6	30
25	72.4	55.2	43.7	35.2	29.2	25	21.9	19.5	17.7	35
30	75.8	59.2	48.1	39.9	34.0	30	26.9	24.7	22.9	39
35	79.2	63.1	52.4	44.5	38.9	35	32.0	29.8	28.0	44
40	82.6	67.1	56.8	49.2	43.8	40	37.1	34.9	33.2	48
45	86	71	61.1	53.6	48.6	45	42.2	40	38.3	53
50	89.4	75	65.5	58.5	53.5	50	47.2	45.2	43.5	58
55	92.9	78.9	69.8	63.1	58.4	55	52.3	50.3	48.6	62
60	96.3	82.9	74.2	67.8	63.2	60	57.4	55.4	53.8	67
65	99.7	86.8	78.5	72.4	68.1	65	62.5	60.5	58.9	72
70	103.1	90.8	82.9	77.1	73	70	67.5	65.7	64.1	77
75	106.5	94.7	87.2	81.7	77.9	75	72.6	70.8	69.2	82

### TYPICAL AMBIENT NOISE LEVELS AT NIGHT (2200 to 0700 HOURS)

Area Descriptions	Sound Levels
Quiet, urban residential, open space park, suburban residential or recreational area. No nearby highways or boulevards.	30-45 dBA
Average urban residential, quiet apartments and hotels, open space, suburban residential, or occupied outdoor area near busy streets.	45-55 dBA
Busy urban residential, average semi-residential/commercial area.	50-60 dBA
Commercial areas with office buildings, retail stores, etc., with daytime occupancy only. Open space, parks and suburban areas near highway or high speed boulevards with distant residential buildings.	Over 60 dBA
Industrial or freeway and highway corridors with either residential or commercial areas adjacent.	Over 65 dBA

## NEMA (NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION)

NEMA-Criteria (See Code Key Below)	OCTAVE BAND CENTER FREQUENCY – Hz								Approximate dBA Equivalent
	63	125	250	500	1K	2K	4K	8K	
	SOUND PRESSURE LEVELS, Lp								
A	58	44	37	32	28	25	22	20	37
B	63	50	43	37	34	31	28	25	42
C	67	56	48	43	39	36	33	31	47
D	71	60	53	47	44	41	38	35	52
E	75	65	58	53	49	46	43	41	57
F	79	70	62	57	54	51	48	45	62
G	83	74	68	63	59	55	52	50	67
H	87	79	72	67	64	61	57	55	72

### Urban-Residential

Peaking-daytime only F  
Peaking-nighttime only D  
Continuous-daytime only E  
Continuous-day & night C

### Suburban-Residential

Peaking-daytime only E  
Peaking-nighttime only C  
Continuous-daytime only D  
Continuous-day & night B

### Urban-Nearby Industry

Peaking-daytime only G  
Peaking-nighttime only E  
Continuous-daytime only F  
Continuous-day & night D

### Very Quiet Suburban or Rural Residential

Peaking-daytime only D  
Peaking-nighttime only B  
Continuous-daytime only C  
Continuous-day & night A

### Area of Heavy Industry

Peaking-daytime only H  
Peaking-nighttime only F  
Continuous-daytime only G  
Continuous-day & night E

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