

Sonic-Shield Soundproofing Glossary of Terms

Absorption Panels: focused only on absorbing sound, as opposed to blocking it. Measured in NRC

Absorption - The dissipation of sound energy through absorbent materials.

ABSORPTION: A property of materials that allows a reduction in the amount of sound energy reflected. The introduction of an absorbent material into the surfaces of a room will reduce the sound pressure level in that room by not reflecting all of the sound energy striking the room's surfaces. The effect of absorption merely reduces the resultant sound level in the room produced by energy that has already entered the room.

ACOUSTIC TRAUMA: Damage to the hearing mechanism caused by a sudden burst of intense noise, or by a blast. The term usually implies a single traumatic event.

Acoustic Treatment - Controlling the behavior of sound waves through a variety of methods.

Acoustics - The science of the transmission of sound waves. Generally refers to the characteristics of auditoriums, theatres and studios with respect to their design.

ACOUSTICS: 1. The science of sound, including the generation, transmission, and effects of sound waves, both audible and inaudible. 2. The physical qualities of a room or other enclosure (such as size, shape, amount of noise) that determine the audibility and perception of speech and music within the room.

Active Circuitry - Electrical circuitry which requires power to operate, such as transistors.

AIRBORNE SOUND: Sound that reaches the point of interest by propagation through the air.

Ambience - Room acoustics or natural reverberation.

Ambient Noise: background noise that naturally occurs in your home. This is the reason that actual results typically do not match laboratory results. Even if you can diminish outside noise from 60dB to 30dB, the fan whirring overhead will now be loud enough to hear and somewhat increase the new noise level.

Amplitude: loudness of sound, measured in dB. The decibel scale is a logarithmic scale; every time the decibel level increases by 10, the amplitude of the sound doubles. For instance, if it increases by 20, the sound is 4x as loud, and if the dB level increases by 30, it is 8x as loud.

Analogue Recording - A means of recording audio whereby the recorded signal is a physical representation of the waveform of the original signal. Vinyl is an example of analogue recording.

Analogue - An electrical signal whose frequency and level vary continuously in direct relationship to the original electrical or acoustical signal.

ANECHOIC ROOM: A room in which the boundaries absorb nearly all the incident sound, thereby, effectively creating free field conditions.

ANSI: The American National Standards Institute.

ARTICULATION INDEX (AI): A numerically calculated measure of the intelligibility of transmitted or processed speech. It takes into account the limitations of the transmission path and the background noise. The articulation index can range in magnitude between 0 and 1.0. If the AI is less than 0.1, speech intelligibility is generally low. If it is above 0.6, speech intelligibility is generally high.

Attack - The initial part of a sound or the way something effects the initial part of a sound.

Attenuate - To reduce in level.
ATTENUATION: The reduction of sound intensity by various means (e.g., air, humidity, porous materials, etc).
Audio Chain - The series of interconnected audio equipment used for recording or PA.
AUDIO FREQUENCY: The frequency of oscillation of an audible sound wave. Any frequency between 20 and 20,000 hertz.
Audio Interface - A device that has numerous audio inputs and outputs.
AUDIOGRAM: A graph showing individual hearing acuity.
AUDIOMETER: An instrument for measuring individual hearing activity.
Audiophile - A person who is overly interested in sound reproduction.
Auditory Area - The sensory area lying between the threshold of hearing and the threshold of feeling or pain.
A-WEIGHTED SOUND LEVEL: A measure of sound pressure level designed to reflect the acuity of the human ear, which does not respond equally to all frequencies. The ear is less efficient at low and high frequencies than at medium or speech-range frequencies. Therefore, to describe a sound containing a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are dBA. The A-weighted sound level.
BACKGROUND NOISE: The total of all noise in a system or situation, independent of the presence of the desired signal. In acoustical measurements, strictly speaking, the term "background noise" means electrical noise in the measurement system. However, in popular usage the term "background noise" is often used to mean the noise in the environment, other than the noise from the source of interest.
Backplate - The solid conductive disk that forms the fixed half of a condenser element within a condenser microphone.
Baffle - Moveable barrier used to achieve separation of signals from different sources or the surface or board upon which a loudspeaker is mounted.
Balanced - A circuit that carries information by means of two equal but opposite polarity signals, on two conductors. Balanced cables reduce susceptibility to internal and external noise.
BAND PASS FILTER: A wave filter that has a single transmission band extending from a lower cutoff frequency greater than zero to a finite upper cutoff frequency spectrum.
BAND: Any segment of the frequency spectrum.
Bandwidth - The range of frequencies in a signal.
Bass Roll Off Filter - Rolls away low frequencies of a signal to achieve a more balanced sound.
Bass - The lower range of audible frequencies (60-250Hz).
Beats - Periodic fluctuations that are heard when sounds of slightly different frequencies are superimposed.
Bidirectional Microphone - A microphone that picks up equally from two opposite directions. The angle of best rejection is 90 deg. from the front (or rear) of the microphone, that is, directly at the sides.
Binary - Number system comprising of ones and zero (digital).
Binaural - A situation involving listening with two ears.
Bleed - Leakage of sound into other microphones.
Boomy - Listening term. Refers to an excessive bass response.
Boost - To increase, make louder or brighter; opposite of attenuate.

Boundary - The line or plane indicating the limit or extent of something.
Boundary/Surface Microphone - A microphone designed to be mounted on an acoustically reflective surface.
Boxy - Listening term. Refers to the excess upper-bass/lower-midrange response of cabinet-wall resonances.
Bright - Listening term. Usually refers to the upper frequency energy.
BROADBAND NOISE: Noise with components over a wide range of frequencies.
CAC (Ceiling Attenuation Class): the STC rating for ceiling tiles and products.
CALIBRATOR (ACOUSTICAL): A device that produces a known sound pressure on the microphone of a sound level measurement system, and is used to adjust the system to Standard specifications.
Capacitance - An electrical component's ability to store electrical charges.
Capacitor - An electronic device which stores energy and releases it when needed.
Cardioid Microphone - A unidirectional microphone with moderately wide front pickup (131 deg.). Angle of best rejection is 180 deg. from the front of the microphone, that is, directly at the rear.
Cartridge (Transducer) - The element in a microphone that converts acoustical energy (sound) into electrical energy (the signal).
Cavity - A space between two walls where insulation is typically installed.
Channel Strip - The physical representation of an audio channel on the front panel of a mixer; usually a long, vertical strip of controls.
Clipping - Refers to a type of distortion that occurs when an amplifier is driven into an overload condition. Usually the "clipped" waveform contains an excess of high-frequency energy. The sound becomes hard and edgy.
Close Pickup - Microphone placement within 1 meter of a sound source.
CNEL (Community Noise Equivalent Level): The average noise heard outside of a home in an industrial or noisy area, over the period of a year. Loud noises at night are penalized double. The concept is used to determine how loud areas around airports and busy highways become. Some communities will offer financial assistance for soundproofing homes if the CNEL goes above 65 dB, or a locally mandated limit.
COCHLEA: A spirally coiled organ located within the inner ear that contains the receptor organs essential to hearing.
Coloration - Listening term. A colored sound characteristic adds something not in the original sound. The coloration may be euphonically pleasant, but it is not as accurate as the original signal.
Comb Filtering - An interference effect in which the frequency response exhibits regular deep notches.
Compression - The reduction of a span of amplitudes done for the purpose of limiting the reproduction of those amplitudes.
Condenser Microphone - A microphone that generates an electrical signal when sound waves vary the spacing between two charged surfaces: the diaphragm and the backplate.
Constructive Interference - Addition of two or more waves when wave crests overlap to produce a resulting wave of increased amplitude.
Critical Distance - In acoustics, the distance from a sound source in a room at which the direct sound level is equal to the reverberant sound level.
Crossover Frequency - In a loudspeaker with multiple radiators, the crossover frequency is the 3dB point of the network dividing the signal energy.
Current - Charge flowing in an electrical circuit. Analogous to the amount of a fluid flowing in a pipe.

CUTOFF FREQUENCIES: The frequencies that mark the ends of a band, or the points at which the characteristic of a filter change from pass to no-pass.
CV - Abbreviation of Control Voltage. CV is used to control various modules in a synthesizer.
CYCLE: The complete sequence of values of a periodic quantity that occurs during one period.
Cycles Per Second - The frequency of an electrical signal or sound wave. Measured in Hertz (Hz).
CYCLES PER SECOND: A measure of frequency numerically equivalent to hertz.
CYLINDRICAL WAVE: A wave in which the surfaces of the constant phase are coaxial cylinders. A line of closely spaced sound sources radiating into an open space produces a free sound field of cylindrical waves.
Damping: The cycle-to-cycle energy loss that occurs between waves. Over time, the wave will diminish naturally, as a grandfather clock's pendulum slows naturally. You can add a destructive interference into the wave to make it decrease much more quickly (or almost instantaneously). This is done within a car's muffler, but having a length as a fraction of the sound wave from the exhaust. Then, the wave's crest interferes with its peak, to cancel out much of the noise that would otherwise exit the car into the environment.
DAW (Digital Audio Workstation) - A computer-based recording and editing machine used for manipulating sounds.
Day-Night Level (DNL): Average Annual Sound Levels that represent the sound levels over a 24-hour period, while taking into account quiet periods as well as aircraft over-flights. For flights that occur after 10 p.m. and before 7 a.m., these events are counted twice. The DNL noise exposure contours in the residential neighborhoods are DNL 65 up to DNL 70. This is similar to the CNEL described above.
dBa: Unit of sound level. The weighted sound pressure level by the use of the A metering characteristics and weighted specified in ANSI Specifications for Sound Level Meters. dBA is used as a measure of human response to sound.
Decay - The term used to describe the progression of reduction in amplitude of a sound or electrical signal over time.
Decibel (dB) - A number used to express relative output sensitivity. It is a logarithmic ratio.
DECIBEL: A unit of sound pressure level, abbreviated dB.
Destructive Interference - Combination of waves where crest parts of one wave overlap trough parts of another; resulting in a wave of decreased amplitude.
Diaphragm - The thin membrane in a microphone which moves in response to sound waves.
DIFFRACTION: A modification which sound waves undergo in passing by the edges of solid bodies.
Diffusion & Diffuser Panels: breaking sound waves apart by splitting them into different directions. The panel is shaped so that incident (incoming) sound waves bounce off in all directions. This splits them up, so that the sound you hear is not as loud.
Digital - A reference to a system whereby a continuously variable analog signal is reduced and encoded into discrete binary bits that establish a mathematical model of an original signal or other information.
Direct Sound - Sound which travels by a straight path from a sound source to a microphone or listener.
Directional Microphone - A microphone that detects and transmits sound from only a certain direction
DIRECTIVITY INDEX: A measure of the angular direction of the sound radiation from the noise source presented as a dB level either higher or lower than that which would be radiated by a spherical sound source.

Distance Factor - The equivalent operating distance of a directional microphone compared to an omnidirectional microphone to achieve the same ratio of direct to reverberant sound.
Distant Pickup - Microphone placement farther than 2 feet from the sound source.
Distortion - Anything that alters the musical signal. There are many forms of distortion, some of which are more audible than others.
DOPPLER EFFECT (DOPPLER SHIFT): The apparent upward shift in frequency of a sound as a noise source approaches the listener or the apparent downward shift when the noise source recedes. The classic example is the change in pitch of a railroad whistle as the locomotive approaches and passes by.
DOSIMETER: A device worn by a worker for determining the worker's accumulated noise exposure with regard to level and time according to a pre-determined integration formula.
Dynamic Microphone - A microphone that generates an electrical signal when sound waves cause a conductor to vibrate in a magnetic field. In a moving-coil microphone, the conductor is a coil of wire attached to the diaphragm.
Dynamic Processor - A dynamic processor is a device that changes an audio signal by adjusting the dynamic content of the sound being worked on.
Dynamic Range - The difference in decibels between the loudest and quietest portions of audio.
ECHO: A wave that has been reflected or otherwise returned with sufficient magnitude and delay, so as to be detected as a wave distinct from that directly transmitted.
Electret - A material (such as Teflon) that can retain a permanent electric charge.
Ensemble - Musicians must hear each other to function properly, in other words, ensemble must prevail. Diffusing elements surrounding the stage area contribute greatly to ensemble.
Envelope - The shape of the graph as amplitude is plotted against time. A sound's envelope includes its attack, decay, sustain and release.
Equalization - Equalization or tone control to shape frequency response in some desired way.
Equalizer - Audio device with multiple frequency controls for adjusting sound tone quality.
EQUIVALENT A-WEIGHTED SOUND LEVEL (Leq): The constant sound level that, in a given time period, would convey the same sound energy as the actual time-varying A-weighted sound level.
FAR FIELD: Describes a sound source region in the free space where the sound pressure level obeys the inverse-square law (the sound pressure level decreases 6 dB with each doubling of distance from the source). Also, in this region the sound particle velocity is in phase with the sound pressure. Closer to the source where these two conditions do not hold constitutes the 'near field' region.
Feedback - Feedback is the ringing or howling sound caused by amplified sound from the
Fidelity - As applied to sound quality, the faithfulness to the original.
FILTER: A device for separating components of a signal on the basis of their frequency. It allows components in one or more frequency bands to pass relatively unattenuated, and it attenuates components in other frequency bands.
Flanking: The ability of sound to find the path of least resistance, passing around heavy, insulated areas into the adjacent rooms. When blocking sound, it is more like water than light – if there are any holes, the water will continue to flow until it has passed through the most easily.
Flat Response - A frequency response that is uniform and equal at all frequencies.
Fletcher-Munson Curve - Our sensitivity to sound depends on its frequency and volume. Human ears are most sensitive to sounds in the midrange. At lower volume levels humans are less sensitive to sounds away from the midrange, bass and treble sounds "seem" reduced in intensity at lower listening levels.

Flutter - A repetitive echo set up by parallel reflecting surfaces.
FREE SOUND FIELD (FREE FIELD): A sound field in which the effects of obstacles or boundaries on the sound propagated in that field is negligible.
Frequency Response Tailoring Switch - A switch on a microphone that affects the tone quality reproduced by the microphone by means of an equalization circuit. (Similar to a bass or treble control on a hi-fi receiver.)
Frequency Response - A graph showing how a microphone responds to various sound frequencies; It is a plot of electrical output (in decibels) vs. frequency (in Hertz).
Frequency - The number of times a signal vibrates each second as expressed in cycles per second (cps) or Hertz (Hz). The higher the frequency the higher the pitch.
Fundamental - The lowest frequency component of a complex waveform such as musical note. It establishes the basic pitch of the note.
Gain Before Feedback - The amount of gain that can be achieved in a sound system before feedback or ringing occurs.
Gain - The ratio of the signal level at the output of an audio device to the signal level at its input. Expressed in decibels (dB).
Grain - Listening term. A sort of "grittiness" added to the sound.
HAIR CELL: Sensory cells in the cochlea that transforms the mechanical energy of sound into nerve impulses.
Harmonic - Frequency components above the fundamental of a complex waveform. They are generally multiples of the fundamental which establish the timbre or tone of the note.
Headphone Mix - A separate mixed sound which is set up just for headphones.
Headroom - The ability of an amp to go beyond its rated power for short durations in order to reproduce musical peaks without distortion. This capability is often dependent on the power supply used in the design.
HEARING LEVEL: A measured threshold of hearing at a specified frequency, expressed in decibels relative to specified standard of normal hearing. The deviation in decibels of an individual's threshold from the zero reference of the audiometer.
HEARING LOSS: A term denoting an impairment of auditory acuity. The amount of hearing impairment, in decibels, measured as a set of hearing threshold levels at specified frequencies. Types of hearing loss are 1. Conductive: A loss originating in the conductive mechanism of the ear; 2. Sensor-neural: 3 A loss originating in the cochlea or the fibers of the auditory nerve; 3. Noise induced: A sensor-neural loss attributed to the effects of noise.
Hearing Sensitivity -The human ear is less sensitive at low frequencies than in the midrange. Turn your volume knob down and notice how the bass seems to "disappear". To hear low bass requires an adequate SPL level. To hear 25Hz requires a much higher SPL level than to hear 250Hz.
HEARING THRESHOLD LEVEL (HTL): Amount (in decibels) by which an individual's threshold of audibility differs from a standard audiometric threshold.
HEARING: The subjective human response to sound.
Hertz (Hz) - Unit for measuring frequency of d signal; formerly called "cycles per second."
High-Pass Filter - An electronic filter used in various audio circuits to attenuate all frequencies below a chosen frequency.
Hypercardioid - A hypercardioid is a unidirectional microphone with tighter front pickup (105 deg.) than a supercardioid, but with more rear pickup. Angle of best rejection is about 110 deg. from the front of the microphone.

IMPACT INSULATION CLASS (IIC): A single-figure rating that compares the impact sound insulating capabilities of floor-ceiling assemblies to a reference contour.
IMPACT SOUND: The sound produced by the collision of two solid objects. Typical sources are footsteps, dropped objects, etc. on an interior surface (wall, floor, ceiling) of a building.
Impedance - In an electrical circuit, opposition to the flow of alternating current, measured in ohms. A high impedance microphone has an impedance of 10,000 ohms or more. A low impedance microphone has an impedance of 50 to 600 ohms.
IMPULSIVE NOISE: A) Either a single sound pressure peak (with either a rise time less than 200 milliseconds or total duration less than 200 milliseconds) or multiple sound pressure peaks (with either rise time less than 200 milliseconds or total duration less than 200 milliseconds) spaced at least by 200 millisecond pauses, B) A sharp sound pressure peak occurring in a short interval of time.
Inertia - The tendency of an object at rest to remain at rest, and of an object in motion to remain in motion.
INFRASONIC: Sounds of a frequency lower than 20 hertz.
INTENSITY: The sound energy flow through a unit area in a unit of time.
Interference - Destructive combining of sound waves or electrical signals due to phase differences. - States that direct sound levels increase (or decrease) by an amount proportional to the square of the change in distance.
Internationally, experts use the SRI (Sound Reduction Index) and OITC (Outdoor-Indoor Transmission Classification), based on the ASTM E-1332 Standard Classification for the Determination of Outdoor-Indoor Transmission Class.
Inverse Square Law - States that direct sound levels increase (or decrease) by an amount proportional to the square of the change in distance; the sound pressure level decreases 6 dB for each doubling of the distance.
ISO: The International Organization for Standardization.
Isolation - Freedom from leakage; ability to reject unwanted sounds.
Latency - Delay that occurs between a MIDI keyboard being played and the sound appearing at the output soundcard or interface.
Leakage - Pickup of an instrument by a microphone intended to pick up another instrument. Creative leakage is artistically favourable leakage that adds a "loose" or "live" feel to a recording.
Level - The ratio of an acoustic quantity to a reference quantity. A measurement of amplitude in decibels.
Listening Fatigue - A psychoacoustic phenomenon from prolonged listening to sound whose distortion content is too low to be audible as such but is high enough to be perceived subliminally.
LOGARITHM: The exponent that indicates the power to which a number must be raised to produce a given number. For example, for the base 10 logarithm, used in acoustics, 2 is the logarithm of 100.
LOUDNESS LEVEL: Measured in phons it is numerically equal to the median sound pressure level (dB) of a free progressive 1000 Hz wave presented to listeners facing the source, which in a number of trials is judged by the listeners to be equally loud.
LOUDNESS: The subjective judgment of intensity of a sound by humans. Loudness depends upon the sound pressure and frequency of the stimulus. Over much of the frequency range it takes about a threefold increase in sound pressure (a tenfold increase in acoustical energy, or, 10 dB) to produce a doubling of loudness.
Loudspeaker - An electroacoustical transducer that changes electrical energy to acoustical energy.

Low Frequency Oscillator - An oscillator used as a modulation source. The most common LFO wave shape is the sine wave.
Low Frequency - The lower range of audible frequencies.
Low pass Filter/Low Frequency Roll Off Switch - A filter that attenuates frequencies above a specified frequency and allows those below that point to pass.
MASKING NOISE: A noise that is intense enough to render inaudible or unintelligible another sound that is also present.
Masking - The amount (or the process) by which the threshold of audibility for one sound is raised by the presence of another (masking) sound.
MEDIUM: A substance carrying a sound wave.
microphone diaphragm. Occurs most often with "p," "t," and "b" sounds.
Microphone - An acoustical-electrical transducer by which sound waves in air may be converted to electrical signals.
MIDI - Musical Instrument Digital Interface. A machine protocol that allows synthesizers, computers, drum machines and other processors to communicate with and/or control one another.
Midrange - A speaker, (driver), used to reproduce the middle range of frequencies. A midrange is combined with a woofer for low frequencies and a tweeter for high frequencies to form a complete, full-range system
Millisecond - One thousandth of a second, abbreviated ms or msec
Mixer - A mixer is a device that allows several different audio sources to be combined. It provides independent control over each signal's loudness, tone and stereo position.
Modulation - The process of sending a control signal to a sound source so as to change the character of the sound.
Monitor - Loudspeaker used in the control of a recording studio.
Monophonic - Single channel/note sound.
Muddy - Listening term. A sound that is poorly defined, sloppy or vague. For example, a "muddy" bass is often boomy with all the notes tending to run together.
Muting - To greatly decrease the volume level. Many receivers and pre-amplifiers have a muting control which allows the volume level to be cut way down without changing the master volume control. Great for when the phone rings.
NAG - Needed Acoustic Gain is the amount of gain that a sound system must provide for a distant listener to hear as if he or she was close to the unamplified sound source.
NEAR FIELD: The sound field very near to the source, where the sound pressure does not obey the inverse-square law and the particle velocity is not in phase with the sound pressure.
NIOSH: The National Institute for Occupational Safety and Health.
Noise Canceling - A microphone that rejects ambient or distant sound.
NOISE ISOLATION CLASS: (NIC) A single number rating derived in a prescribed manner from the measured values of noise reduction between two areas or rooms. It provides an evaluation of the sound isolation between two enclosed spaces that are acoustically connected by one or more paths.
NOISE LEVEL: For airborne sound, unless specified to the contrary, it is the A-weighted sound level.
NOISE REDUCTION (NR): The numerical difference, in decibels, of the average sound pressure levels in two areas or rooms after treatment. A measurement of "noise reduction" combines the effect of the sound transmission loss performance of structures separating the two areas or rooms, plus the effect of acoustic absorption present in the receiving room.

Noise - In audio systems, noise is the electrical interference or other unwanted sound introduced into the system (i.e. hiss, hum, rumble, crosstalk, etc).
NOISE: 1. Unwanted sound. 2. Any sound not occurring in the natural environment, such as sounds emanating from aircraft, highways, industrial, commercial and residential sources. 3. An erratic, intermittent, or statistically random oscillation.
NON-IMPULSIVE NOISE: All noise not include in the definition of impulsive noise.
<u>NRC (Noise Reduction Coefficient):</u> ability to absorb sound, measured from 0-1. NRC is used to measure the ratio of sound absorbed to reflected. If a panel has an NRC of 1, then it absorbs 100% of the sound that comes into it, and reflects 0%. Sound can (and mostly does) still pass through the material, so it may bounce of the wall behind the panel. In general, this is important for loud noisy areas, like auditoriums and gyms, where an echo needs to be absorbed in order to hear the speaker.
OCTAVE BAND LEVEL: The integrated sound pressure level of only those sine-wave components in a specified octave band.
OCTAVE BAND: A segment of the frequency spectrum separated by an octave.
Octave Bands - Frequency ranges in which the upper limit of each band is twice the lower limit.
Octave - An octave is a doubling or halving of frequency. 20Hz-40Hz is often considered the bottom octave. Each octave you add on the bottom requires that your speakers move four times as much air.
Omnidirectional Microphone - A microphone that picks up sound equally well from all directions.
OSCILLATION: The variation with the time, alternately increasing and decreasing, of (a) some feature of an audible sound, such as the sound pressure, or (b) some feature of a vibrating solid object, such as the displacement of its surface.
Oscillator - Circuit designed to generate a periodic electrical waveform.
OSHA: The Occupational Safety and Health Administration.
Overload - Exceeding the signal level capability of a microphone or electrical circuit.
Overtone - Tones of higher pitch that are present in every musical sound and whose presence determines the quality of the musical sound.
PAG - Potential Acoustic Gain is the calculated gain that a sound system can achieve at or just below the point of feedback.
Particle - A body having finite mass and internal structure but negligible dimensions
PEAK SOUND PRESSURE: The maximum absolute value of the instantaneous sound pressure in a specific time interval. Note: in case of a periodic wave, if the time interval considered is a complete period, the peak sound pressure becomes identical with the maximum sound pressure.
PERIOD: The duration of time it takes for a periodic wave form (like a sine wave) to repeat itself.
PERMANENT THRESHOLD SHIFT (PTS): A permanent decrease of the acuity of the ear at a specified frequency as compared to a previously established reference level. The amount of permanent threshold shift is customarily expressed in decibels.
Phantom Power - A method of providing power to the electronics of a condenser microphone through the microphone cable.
Phase Cancellation - Undesirable dips and peaks in frequency response caused by mixing the outputs of two microphones which are picking up the same sound but with different arrival times.
Phase - The "time" relationship between cycles of different waves.
Phasing - The hollow sound that occurs when two identical waves combine.
PHON: The unit of measurement for loudness level.

Pickup Angle / Coverage Angle - The effective arc of coverage of a microphone, usually taken to be within the 3dB down points in its directional response.
PINK NOISE: Noise with constant energy per octave band width.
Pitch Blend - A control message designed to produce a change in pitch in response to the movement of a special wheel.
PITCH: The attributes of auditory sensation that orders sounds on a scale extending from low to high. Pitch depends primarily upon the frequency of the sound stimulus, but it also depends upon the sound pressure and waveform of the stimulus.
PLANE WAVE: A wave whose wave fronts are parallel and perpendicular to the direction in which the wave is traveling.
Plug In - A piece of software designed to add capabilities and features to a host system.
Polar Pattern (Directional Pattern, Polar Response) - A graph showing how the sensitivity of a microphone varies with the angle of the sound source, at a particular frequency. Examples of polar patterns are unidirectional and omnidirectional. in an electrical circuit. It is analogous to the friction of fluid flowing in a pipe.
Polarization - The charge or voltage on a condenser microphone element.
Polyphony - Term to describe the ability of an instrument to play two or more notes simultaneously.
Pop Filter/Shield - An acoustically transparent shield around a microphone cartridge that reduces popping sounds. Often a ball-shaped grille, foam cover or fabric barrier.
Pop - A thump of explosive breath sound produced when a puff of air from the mouth strikes the
Portamento - Gliding effect that allows a sound to change pitch at a gradual rate rather than abruptly when a new pitch is pressed.
Preamplifier - An electronic device that boosts extremely weak signal voltages, such as those from microphones, to a level that is usable by power amplifiers.
PRESBYCUSIS: The decline in hearing acuity that is attributed to the aging process.
Presence Peak - An increase in microphone output in the "presence" frequency range of 2000 Hz to 10,000 Hz. A presence peak increases clarity, articulation, apparent closeness, and "punch."
Proximity Effect - The increase in bass occurring with most unidirectional microphones when they are placed close to an instrument or vocalist (within 1 ft.). Does not occur with omnidirectional microphones.
PURE TONE: A sound for which the sound pressure is a simple sinusoidal function of the time, and characterized by its singleness of pitch.
Q - Measure of the resonant properties of a filter. The higher the Q, the more resonant the filter and the narrow the range of frequencies that are allowed to pass.
Quantize - The term used to describe the facility present on sequences that allows notes to be snapped to a user defined subdivision of a bar of music - for example, 8th notes. Quantize is usually used to correct timing errors.
RANDOM NOISE: An oscillation whose instantaneous magnitude is not specified for any given instant of time. It can be described statistically by probability distribution functions giving the traction of the total time that the magnitude of the noise lies within a specified range.
Rarefaction - The opposite of an area of compression in a longitudinal wave; the reduction of a airs density.
Rear Lobe - A region of pickup at the rear of a supercardioid or hypercardioid microphone polar
Reflection/ Reflected Sound - The bouncing of sound waves back from an object or surface which is physically larger than the wavelength of the sound.

REFLECTION: The return of a sound wave from a surface.
Refraction - The bending of sound waves by a change in the density of the transmission medium, such as temperature gradients in air due to wind.
REFRACTION: The bending of a sound wave from its original path, either because it is passing from one medium to another or by changes in the physical properties of the medium, e.g. a temperature or wind gradient in the air.
Release - Rate at which a signal amplitude decays once a key has been released.
Resistance - The opposition to the flow of current in an electrical circuit. It is analogous to the friction of fluid flowing in a pipe.
Resonance:-
RESONANCE: The relatively large amplitude of vibration produced when the frequency of some source of sound or vibration “matches” the natural frequency of vibration of some object, component, or system.
Resonant Frequency: A specific frequency where the waves amplitude increases due to room geometry. At this state, the system is able to store vibrational energy. This is what happens when the perfect pitch is able to shatter a wine glass, because the wave hit at just the exact resonant frequency of the glass. Resonance is combatted by adding filters into instruments, or in the case of residential acoustics, by adding dampers or sound absorbers to disrupt transmission of resonant frequencies.
RESONATOR: A device that resounds or vibrates in sympathy with a source of sound or vibration.
REVERBERANT FIELD: The region in a room where the reflected sound dominates, as opposed to the region close to the noise source where the direct sound dominates.
REVERBERATION ROOM: A room having a long reverberation time, especially designed to make the sound field inside it as diffuse (homogeneous) as possible.
REVERBERATION TIME (RT): The reverberation time of a room is the time taken for the sound pressure level to decrease 60 dB from its steady-state value when the source of sound energy, is suddenly interrupted. It is a measure of the persistence of an impulsive sound in a room as well as of the amount of acoustical absorption present inside the room. Rooms with long reverberation times are called live rooms.
Reverberation - The reflection of a sound a sufficient number of times that it becomes non-directional and persists for some time after the source has stopped. The amount of reverberation depends on the relative amount of sound reflection and absorption in the room.
Rhythm - The regular or ordered repetition of dominant and subordinate elements within music.
RMS SOUND PRESSURE: The square root of the time-averaged square of the sound pressure.
Roll-off - A gradual decrease in response below or above some specified frequency.
ROOT-MEAN SQUARE (RMS): 1. The root-mean-square value of a time-varying quantity is obtained by squaring the function at each instant, obtaining the average of the squared values over the interval of interest, and then taking the square root of this average. For a sine wave, if you multiply the RMS value by the square root of 2, or about 1.41, you get the peak value of the wave. The RMS value, also called the effective value of the sound pressure, is the best measure of ordinary continuous sound, but the peak value is necessary for assessment of impulsive noises. 2. A term describing the mathematical process of determining an ‘average’ value of a complex signal.

<p>RWAR (Room within a Room): effectively creating a separate room within the room you are trying to isolate. This may be done around noisy machinery, as a small enclosure that essentially doubles the sound blocking. Additionally, if you need to soundproof further, you can apply the more expensive, soundproofing materials around the smaller room, which will reduce cost and save time.</p>
<p>SABIN: A measure of the sound absorption of a surface; it is the equivalent of one square foot of a perfectly absorptive surface.</p>
<p>Sawtooth wave - Waveform that resembles the teeth of a saw, containing only even harmonics.</p>
<p>Sensitivity - The electrical output that a microphone produces for a given sound pressure level.</p>
<p>Sequencer - A program that records and plays back user-determined sets of audio and MIDI data. Most sequencers also allow the data to be edited in various ways, and stored on disk.</p>
<p>Shaped Response - A frequency response that exhibits significant variation from flat within its range. It is usually designed to enhance the sound for a particular application.</p>
<p>SHIELDING: The attenuation of a sound, achieved by placing barriers between a sound source and the receiver.</p>
<p>Sibilance - An exaggerated hissing in voice patterns.</p>
<p>Signal-To-Noise Ratio - The range or distance between the noise floor (the lowest audible level) and the music signal.</p>
<p>Sine Wave - Waveform of a pure tone which contains no harmonics.</p>
<p>Slap Back - A discrete reflection from a nearby surface.</p>
<p>SOCIOCUSIS: Loss of hearing caused by noise exposures that are part of the social environment, exclusive of occupational-noise exposure, physiological changes with age, and disease.</p>
<p>SONE: The unit of measurement for loudness. One sone is the loudness of a sound whose loudness level is 40 phons. Loudness is proportional to the sound's loudness rating, e.g. two sones are twice as loud as one sone.</p>
<p>Sound Chain - The series of interconnected audio equipment used for recording or PA.</p>
<p>SOUND LEVEL METER: An instrument comprised of a microphone, amplifier, output meter, and frequency weighting networks which is used for the measurement of noise and sound levels.</p>
<p>SOUND LEVEL: The weighted sound pressure level obtained by the use of a sound level meter and frequency weighting network, such as A, B, or C as specified in ANSI specifications for sound level meters (ANSI S1.4-1971, or the latest revision). If the frequency weighting employed is not indicated, the A-weighted is implied.</p>
<p>SOUND POWER: The total sound energy radiated by a source per unit time. The unit of measurement is the watt.</p>
<p>SOUND PRESSURE LEVEL (SPL): 20 times the logarithm, to the base 10, of the ratio of the pressure of the sound measure to the reference pressure, which is 20 micronewtons per square meter. In equation form, sound pressure level in units of decibels is expressed as $SPL (dB)=20 \log p/p_0$.</p>
<p>SOUND PRESSURE: The instantaneous difference between the actual pressure produced by a sound wave and the average or barometric pressure at a given point in space.</p>
<p>Sound Proofing - Building materials that makes structures impervious to sound or insulates against sound.</p>
<p>Sound Reinforcement - Amplification of live sound sources.</p>
<p>SOUND TRANSMISSION CLASS (STC): The preferred single figure rating system designed to give an estimate of the sound isolation properties of a structure or a rank order series of structures.</p>
<p>SOUND TRANSMISSION COEFFICIENT (STC): The average amount of decibels of sound reflected away from a partition by a particular reflective barrier material.</p>

SOUND TRANSMISSION LOSS (STL): A measure of sound insulation provided by a structural configuration. Expressed in decibels, it is 10 times the logarithm to the base 10 of the reciprocal of the sound transmission coefficient of the configuration.

SOUND: 1. An oscillation in pressure, stress, particle displacement, particle velocity, etc. in an elastic or partially elastic medium, or the superposition of such propagated alterations. 2. An auditory sensation evoked by the oscillation described above. Not all sound waves can evoke an auditory sensation; e.g. ultrasound.

Spaced Pair - Two separate microphones that are placed some distance apart, aiming straight ahead toward the sound source. The greater the spacing between mics, the greater the stereo spread.

Sparkle - Listening term, refers to the brilliance/high frequency content of a sound.

Spectral Balance - Balance across the entire frequency spectrum of the audio range.

Spectrum -The distribution of energy as a function of frequency for a particular sound source

Specular Reflections - Mirrorlike reflections of sound (angle of incidence equals angle of reflection) from a flat surface. Reflections that do not spread out.

SPEECH-INTERFERENCE LEVEL (SIL): A calculated quantity providing a guide to the interference of a noise with the reception of speech. The speech-interference level is the arithmetic average of the octave band levels of the interfering noise in the most important part of the speech frequency range. The levels in the octave bands centered at 500, 1000 and 2000 Hz are commonly averaged to determine the speech-interference level.

SPEED (VELOCITY) OF SOUND IN AIR: 344 m/sec (128 ft/sec) at 70 degrees Fahrenheit in air at seal level.

Speed of Sound - The speed of sound waves, about 1130 feet per second in air.

SPHERICAL DIVERGENCE: The condition of propagation of spherical waves relates to the regular decrease in intensity of a spherical sound wave at progressively greater distances from the source. Under this condition the sound pressure level decreases 6 decibels with each doubling of distance from source.

SPHERICAL WAVE: A sound wave in which the surfaces of constant phase are concentric spheres. A small (point) source radiating into an open space produces a free sound field of spherical waves.

Spill - Acoustic interference from unwanted source sounds.

SPL - Sound Pressure Level is the loudness of sound relative to a reference level of 0.0002 microbars.

Square Wave - Symmetrical, rectangular waveform which contains a series of odd harmonics.

Standing Wave - A stationary sound wave that is reinforced by reflection between two parallel surfaces that are spaced a wavelength apart.

STC (Sound Transmission Classification): This is a rating of how much sound is blocked by a material, averaged over a number of frequencies. Sound at high frequencies is easier to block, since it has shorter wavelengths. The material is tested at 8 different frequencies, and the average decibel loss over all 8 is the STC rating. A rough approximation is that STC rating is equivalent to the # of decibels that will be reduced by the curtain. Here are the STC calculations for the Acoustic Curtain.

STEADY-STATE SOUNDS: Sounds whose average characteristics remain relatively constant in time. A practical example of a steady-state sound source is an air conditioning unit.

Stereo Image - The spread of sound received from two speakers.

Stereophonic - From the Greek meaning solid. Audio split on two physical tracks, one on the right and one on the left. The purpose of stereo is not to give you separate right and left channels, but to provide the illusion of a three-dimensional, holographic image between the speakers.

Subwoofer - A speaker designed exclusively for low-frequency reproduction. A true subwoofer should be able to at least reach into the bottom octave (20-40Hz). There are many "subwoofers" on the market that would be more accurately termed "woofers".
Super Cardioid Microphone - A unidirectional microphone with tighter front pickup angle (115 deg.) than a cardioid, but with some rear pickup. Angle of best rejection is 126 deg. from the front of the microphone, that is, 54 deg. from the rear.
Tempo (Italian for "time") - Tempo is the speed or pace of a given piece.
TEMPORARY THRESHOLD SHIFT (TTS): A temporary threshold impairment of hearing acuity as indicated by a change in the threshold of audibility.
THIRD-OCTAVE BAND: A frequency band whose cutoff frequencies have a ratio of 2 to the one-third power, which is approximately 1.26. The cutoff frequencies of 891 Hz and 1112 Hz define the 1000 Hz third-octave band in common use.
Three to One Rule - When using multiple microphones, the distance between microphones should be at least 3 times the distance from each microphone to its intended sound source.
THRESHOLD OF AUDIBILITY (THRESHOLD OF DETECTABILITY): The minimum sound pressure level at which a person can hear a specified frequency of sound over a specified number of trials.
THRESHOLD OF PAIN: The minimum sound pressure level of a sound outside the ear that will produce a transition from discomfort to definite pain.
THRESHOLD SHIFT: A change in the threshold audibility at a specified frequency from a threshold previously established. The amount of threshold shift is customarily expressed in decibels.
TIMBRE: An attribute of auditory sensation allowing a subject to judge that two sound similarly presented and having the same loudness and pitch are dissimilar, e.g. trumpet vs. violin.
TINNITUS: Ringing in the ears or noise sensed in the head. Onset may be due to an acoustic trauma and persist in the absence of acoustical stimulation (in which case it may indicate a lesion of the auditory system).
Tone - A tone results in an auditory sensation of pitch.
Transducer - A device that converts one form of energy to another. A microphone transducer (cartridge) converts acoustical energy (sound) into electrical energy (the audio signal).
Transient Response - The ability of a device to respond to a rapidly changing input.
Transients - Instantaneous changes in dynamics, producing steep wave fronts.
Transparency - Listening term. An analog that can be best "pictured" in photography. The more "transparent" the sound, the clearer the auditory picture.
Treble - The highest part, voice, instrument, or range.
Tremolo - Modulation of the amplitude of a sound carried out by an LFO.
ULTRASONIC: Sounds or frequency higher than 20,000 hertz.
Unbalanced - A circuit that carries information by means of one signal on a single conductor.
Unidirectional Microphone - A microphone that is most sensitive to sound coming from a single direction-in front of the microphone. Cardioid, supercardioid, and hypercardioid microphones are examples of unidirectional microphones.
Velocity - Term used to describe the rate at which a key is depressed.
VIBRATION ISOLATOR: A resilient support for vibrating equipment designed to reduce the amount of vibration transmitted to the other structures.
VIBRATION: An oscillatory motion of solid bodies described by displacement, velocity, or acceleration with respect to a given reference point.
Vibrato - Pitch modulation performed by an LFO to control a VCO.

Voltage - The potential difference in an electric circuit. Analogous to the pressure on fluid flowing in a pipe.
Volume - Colloquial equivalent of sound level.
VU Meter - A meter designed to measure audio level in volume units which generally correspond to perceived loudness.
Warmth - A listening term. The opposite of cool or cold. In terms of frequency, generally considered the range from approx
Wave - A regular variation in electrical signal level or sound pressure level.
Waveform - A graphic representation of the shape of a sound wave. The waveform determines some of the physical characteristics of the sound.
Wavelength - The physical distance between the start and end of one cycle of a soundwave.
WEIGHTING: Prescribed frequency filtering provided in a sound level meter.
WHITE NOISE: Noise with energy is uniform over wide range of frequencies, being analogous in spectrum characteristics to white light.
WINDSCREEN: A porous device used to cover the microphone of a sound level measurement system that is designed to minimize the effects of winds and wind gusts on the sound levels being measured. Typically made of open cell polyurethane foam and spherically shaped.
XLR - One of several varieties of sound connectors having three or more conductors plus an outer shell which shields the connectors and locks the connectors into place
X-Y Pattern - A pair of cardioid microphones or elements aimed in crossed directions which feed two channels for stereo pickup.