

**ANSI** – American National Standards Institute

**Articulation Class (AC)** – Rates the listener’s ability to understand the spoken word within a space, expressed as a decimal with 1.0 being perfectly understandable. The Privacy Index is derived from the AI calculation. Lower AI ratings (less than 0.2) indicate that adjacent spoken words are less intelligible, therefore less distracting. The sum of the weighted sound attenuations in a series of 15 test bands. Note: AC has replaced Noise Isolation Class (NIC) as the accepted industry standard performance Value. NIC is based on hearing sensitivity rather than discernment of actual speech, which is the primary concern in open office layouts prevalent in acoustical design work. Verify the rating methodology with manufacturer’s published data.

**Articulation Index (AI)** – Measure of speech intelligibility in a room. A Numerical Value ranging from 0 to 1. In an open-plan office, an AI of 0.1 is low, indicating that little, if any, of a conversation will be intelligible on the other side of a screen. An AI of 0.6 would make for speech privacy.

**ASTM** – (American Society for Testing and Materials) – a non-profit corporation that publishes standard test methods, specifications and practices for testing.

**Attenuation**– In acoustics, the diluting or holding back of sound energy as it passes through a material. Materials are rated for their ability to prevent sound from traveling through them.

**Ceiling Attenuation Class (CAC)** – Rates a ceiling’s efficiency as a barrier to airborne sound transmission between adjacent closed rooms. Shown as a minimum value, previously expressed as CSTC (Ceiling Sound Transmission Class). A single-figure rating derived from the normalized ceiling attenuation values in accordance with classification ASTM E 413, except that the resultant rating shall be designated ceiling attenuation class. (Defined in ASTM E 1414.) An acoustical unit with a high CAC may have a low NRC.

**dB** (A-weighted decibel) – A single number measurement based on the decibel but weighted to approximate the responses of the human ear with respect to frequencies.

**Decibel (dB)** – A unit to express relative difference in power or intensity. In acoustics, equal to ten times the common logarithm of a ratio of one power to a lower-intensity reference value. One decibel indicates a difference of about 26% and is about the smallest change the ear can detect. The dB is a logarithm quality, the maximum normal level is approximately 120dB

**Field Sound Transmission Class (FSTC)** – The same as STC, but measured in a “real world” setting. FSTC ratings are usually significantly lower than STC ratings for the same construction, but this difference is not strictly predictable.

**Frequency** – The wavelength produced by a sound, often referred to as “pitch” usually expressed in hertz (Hz). The frequencies of audible speech lie in the range of 400-2000 Hz. One hertz is one cycle per second.

**Hz (Hertz)** – One cycle per second.

**IFMA** – International Facility Management Association

**Intelligibility** – The amount of speech that can be both detected and understood.

**Normal Voice** – The voice level used in normal conversation. (Voice level of 58dBA.)

**NRC - Noise Reduction Coefficient** – Average sound absorption coefficient measured at four frequencies: 250, 500, 1,000 and 2,000Hz expressed to the nearest integral multiple of 0.05. Rates the ability of a ceiling or wall panel or other construction to absorb sound. NRC is the fraction of sound energy, over all angles of direction and from low to high sound frequencies that is absorbed and not reflected.

**NVLAP – National Voluntary Laboratory Accreditation Program**

**Privacy Index (PI)** – Measure of speech privacy in a room. Derived from Articulation Index (AI), where  $PI = (1-AI) \times 100\%$ . A numerical value ranging from 0% to 100%. Values above 95% are considered to represent confidential privacy, where not enough speech can be understood by a listener to establish conversational content.

**Raised Voice** – A voice level often used when addressing more than one person or with a person hard of hearing. (Voice level of 64dBA.)

**Sound Attenuation Baffle** – A box made of the same material as the ceiling tiles and placed over return air grilles to allow for unrestricted air return but limiting room-to-room sound transfer. [See Drawing.](#)

**Sound Masking** – The phenomenon where speech sounds are not audible above the ambient sound level. Electronic Sound Masking systems use this effect by creating a controlled, specifically tuned sound through electronic means to reduce distraction of open-plan office workers due to nearby conversation, and to improve speech privacy for closed-room occupants.

**Spectra** – In the context of background sound levels, spectra is the sound energy level at the range of frequencies significant to speech privacy.

**Speech and Frequency** – Frequency refers to the wavelength produced by a sound, and is often referred to as “pitch”. The frequency of speech which is significant to intelligibility ranges from 500 to 4000 Hz.

Vowels are sounded at lower frequencies and transmit little speech content. Consonants, by contrast, are sounded at higher frequencies and transmit more speech content. Higher frequencies (above 1600 Hz) contribute more to speech intelligibility.

Additionally, the human ear is more sensitive to higher frequency sounds. Whether a person can hear a sound depends on the intensity (measured in decibels, or “dB”) of the sound and its frequency. A sound of high intensity, for example, may be imperceptible at a low frequency, but perceptible at a higher frequency of the same intensity.

**STC – (Sound Transmission Class)**– A single number rating of a structure’s (typically a wall’s) efficiency as a barrier to airborne sound at 16 speech frequencies from 125Hz to 4000 Hz. (See ASTM procedure E 1414 for rating method.) Rates the ability of a wall or other construction to block sound. STC is a decimal measure of the difference between the sound energy striking the panel or construction on one side and the sound energy transmitted from the other side. This includes sound from all angles of direction and from low and high sound frequencies.