# SOUND MASKING OVERVIEW

## SOLUTIONS THAT DYNAMICALLY IMPROVE COMFORT AND COLLABORATION

LENCORE

COMFORT. PRIVACY. PRODUCTIVITY.

# Why Sound Masking?

People. Any organization's greatest asset is the people they employ. Therefore, giving the individual the ability to think and do their work is paramount to everything else.

Sound masking should deliver speech privacy and comfort within the designed environment to allow collaborative and individual work spaces to co-exist. Individuals will produce their best work in a non-stressful, comfortable environment and without proper acoustics this environment is unattainable.

Today's workplace design is creating more open, collaborative environments and is reducing the number of closed office and group work spaces. The trend is towards more energy efficient and greener materials such as reclaimed woods, metals and glass which, as hard surfaces, reflect sound. Sound absorption materials such as carpet, fabric partitions, and even acoustical ceiling tile are disappearing from workplace design. Sound masking is one of the few options for managing sound and helping to create more comfortable environments in which to work.

## What Is Sound Masking?

Sound masking, when properly designed, dynamically improves comfort and collaboration in the workspace by gently raising the ambient background sound uniformly with a clean, consistently random, broadband, non-intrusive sound. Sound masking changes the speech to noise ratio within a space.

The scientifically engineered sound is amplified through individual speakers installed above or in the ceiling throughout the space to create a uniform field of sound that ensures temporal and spatial uniformity. The sound masking system "fills" the plenum and filters down into the space below, without phasing, to gently raise the background sound level. This rise in sound level covers, or masks, unwanted office noise. As a result, noise from overheard speech becomes less intelligible.

## Types of Systems

**Three system types exist for sound masking:**

**Networked Systems** are engineered to meet a facility's specific needs while providing superior sound quality, extreme design flexibility, one point of control, virtually limitless zoning capabilities, easy expansion, and complete system access with the click of the remote or mouse, on site, off-site or around the world. See Lencore's Spectra i.NET® system.

**Non-Networked Systems** are typically described as "set it and forget it" systems. These self-contained systems provide superior sound quality - giving you comfort and speech privacy. Wall-mounted or Infra-Red (IR) controls are available within these systems for control flexibility. See Lencore's Spectra® Classic™ system.

**Self Contained Units** are desktop and under-counter systems available for individual work stations.

## Speaker Orientation

Most often design layouts allow for the preferred manner of **indirect firing** speakers which fill the plenum with sound and provide more efficient and uniform masking. Alternative designs sometimes create a need for **direct firing** or **in-floor** masking applications which, when designed properly, can achieve privacy and comfort.

# Key Criteria

The consumable for sound masking is the SOUND itself. There are two critical criteria for any sound masking system: Speech Privacy and Comfort. A quality sound masking system must achieve both to be effective for your space.

## Speech Privacy

The primary purpose for installing a sound masking system is to make conversations less intelligible and distracting. Intrusive noise is a common complaint and noise from overheard speech is a top concern for today's facilities, and sound masking addresses this need for speech privacy. There are a variety of industry tests, parameters and measurements for securing speech unintelligibility. Most notably, ASTM E-1130, the Standard Test Method for Objective Measurement of Speech Privacy in Open Plan Spaces Using Articulation Index, is the primary test to determine speech privacy. In essence this tests measures the percentage of a sentence that can be understood and is rated on the Articulation Index (AI). If the AI measures .20 or below then you have achieved speech privacy because effectively, an individual cannot make out more than 20% of a conversation. An AI of .05 or less achieves Confidential Speech Privacy.

## Comfort

A comfortable sound is just as important as achieving speech privacy. Most individuals would actually prefer comfort over privacy if given the choice. Fortunately, they do not need to choose. Lencore differentiates itself in the market by producing the most comfortable sound.

Following are the criteria to deliver a comfortable sound:

- Full Broad Band Sound – the origin of the sound should cover the full spectrum from 65 hz to 13 Khz. Systems that only deliver a portion of the spectrum cause fatigue and discomfort. Comfort quality comes from a full broad band spectrum.
- Wrap Around – Sound masking should be non-repetitive. If something has a pattern or a repeat, like a flickering light, our brains pick it up as information which in turn fatigues us.
- Multiple Noise Sources – multiple noise sources create randomness which, in turn, creates comfort to our minds and bodies.
- Uniformity – a sound must be consistent and level throughout a space. Hot and cold spots make sound masking noticeable and distracting. A sound masking system must have a tolerance of +/- 1 dB.
- Tuning Flexibility – a sound masking system should allow you the flexibility to adjust it in order to meet the criteria of privacy and comfort. Individuals have preferences and therefore a system should allow both volume and contour adjustments to be made easily.
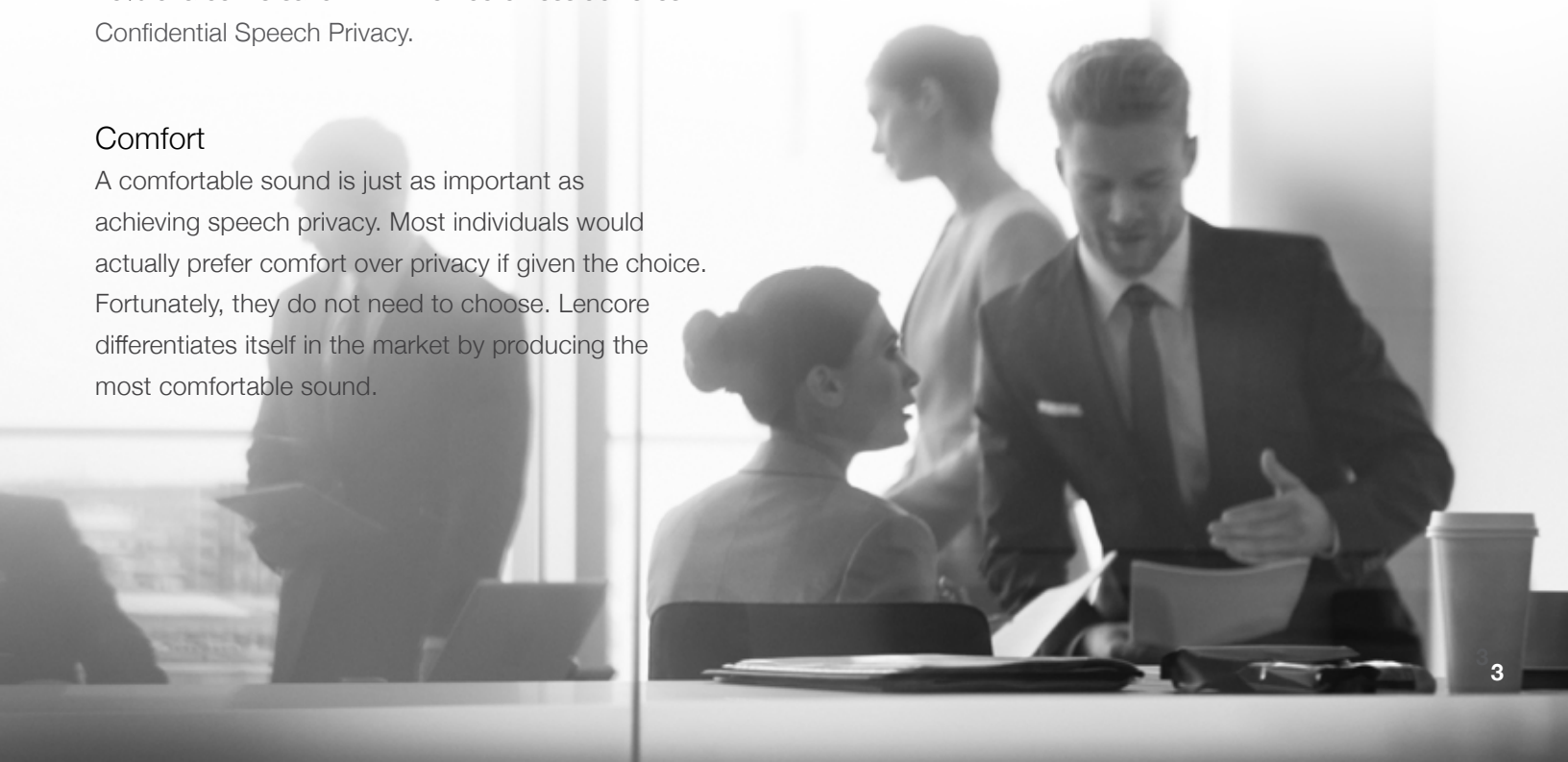
At Lencore we believe that PEOPLE MATTER. Our systems transform environments that change people's lives by providing more privacy, greater comfort and improved safety. Our advancements in sound quality, audio distribution, speaker design and software networking solutions have established Lencore as an industry leader.

Founded in 1990, Lencore has installed sound masking, paging, audio and mass notification systems for thousands of companies in over hundreds of millions of square feet across the United States and around the world.

As the premier manufacturer of global solutions for speech privacy and emergency communication systems, Lencore does not believe in one size fits all solutions. We offer clients the choice of networked, in-plenum, direct fired, centralized, decentralized and remote masking, paging and audio systems.

With the most advanced technology and by offering more choices with proven results, Lencore is in the position to meet the challenges and demands that affect your facility.

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