

# SOUND MASKING 101

Reduce Noise Distractions · Protect Speech Privacy · Increase Workplace Productivity



# What is Sound Masking?

*Sound Masking*  
/'saʊnd məs kɪŋ, / n.

*The process of adding to an environment a low level of unobtrusive background sound engineered to protect confidentiality and reduce distractions by reducing the intelligibility of speech, thus making the acoustical environment more comfortable.*

## Sound Masking is a Critical Component of Acoustic Design

When designing an optimal acoustic environment, architects consider a variety of elements to address noise control and speech privacy. Elements added either Absorb, Block, or Cover sound, and are collectively called the ABC's of acoustic design.

A

**Absorb:**

Acoustic wall panels, carpet, and ceiling tiles help absorb excess sound

B

**Block:**

Solid barriers, partitions, and walls help block excess sound

C

**Cover:**

Sound Masking helps cover up excess sound

All of the ABC's of acoustic design can be used together or individually to achieve the desired acoustic environment, but absorbing and blocking materials are costly and underused. Sound Masking, on the other hand, is a low-cost option for creating acoustical environments that both reduce noise distractions and increase speech privacy.

# Why Do You Need Sound Masking?

## Open Floor Plans are the New Normal

Most workplaces today feature more open spaces and smaller, and often shared, workstations. Less sound absorptive materials are being used such as lower or non-existent partitions, hard or glass surfaces, and thinner walls and doors. This creates acoustical challenges that negatively impact workplace satisfaction, productivity, and speech privacy.

### Why Should I Care About Poor Acoustics?



Noise distractions are driving your employees crazy (that's why they are wearing headphones)



The constant interruptions are making your employees less productive and costing you money

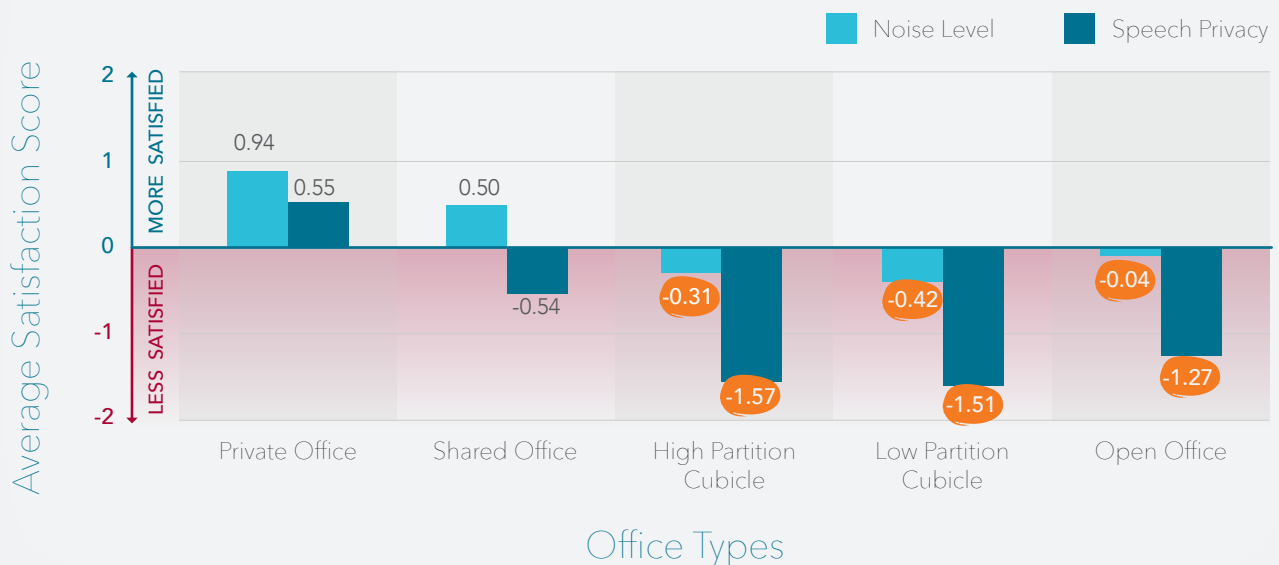


Sensitive data is being communicated and overheard in your work environment and you are legally bound to protect it

## Sound Masking Increases Worker Satisfaction

Approximately 24,000 office workers in private offices, shared offices, cubicles, and open offices were asked to rate their satisfaction with their noise and speech privacy levels. Those with private offices were the only ones satisfied with their speech privacy, and even they only rated them a .55 out of 3 on average.

### How Satisfied Are You With Your Office's Acoustics?



Source: U.S. General Services Administration Study

As you can see, cubicle and open office employees were notably dissatisfied with their office's levels of speech privacy.

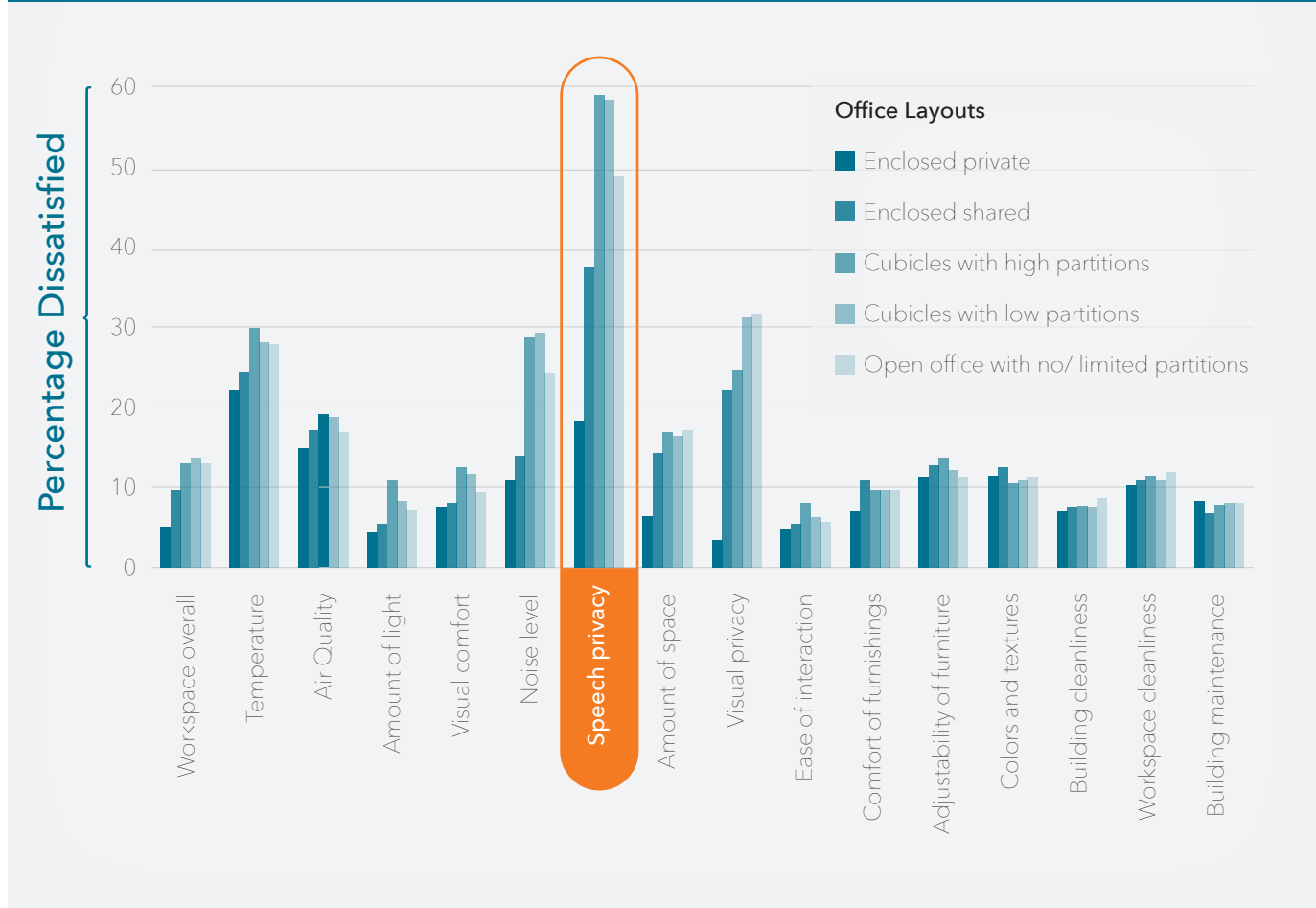
# Why Do You Need Sound Masking?

## Lack of Speech Privacy is the Number One Concern of Employees

What's speech privacy? Simply put, it's the inability of an unintended listener to understand outside conversations. So someone with a lack of speech privacy is overhearing lots of conversations they shouldn't be and is also concerned that their conversation is being overheard by others.

The chart below says it all. The Center for the Built Environment in Berkeley, California surveyed more than 25,000 workers in more than 2,000 buildings to determine what the key environmental issues were for workers. Of all of the factors workers encountered in their environment speech privacy was far and away the factor they were the most dissatisfied with.

### Drivers of Office Worker Dissatisfaction



Source: Analysis of data from the center on the built environment by Jungsoo Kim and Richard de Dear, University of Sydney

# Why Do You Need Sound Masking?

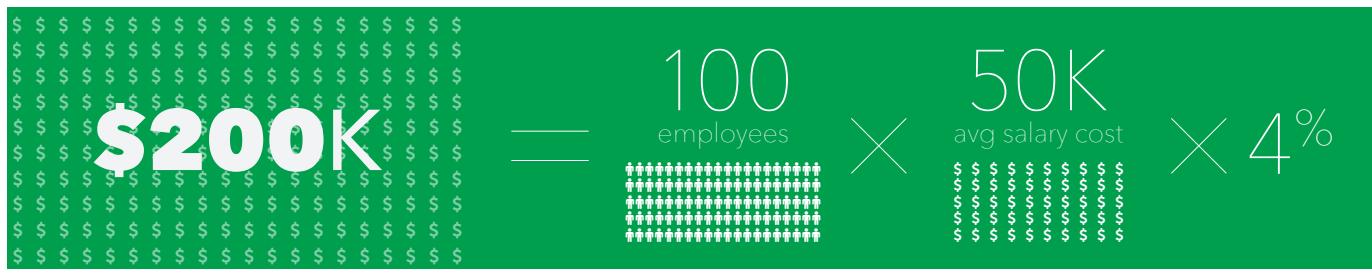
## Distractions Make Your Employees Less Productive

Employees are interrupted once every 11 minutes according to research from UC Irvine, and it takes them up to 23 minutes to get back into the flow of what they were doing before they were interrupted.

## These Distractions Cost Money

In a recent study presented to the International Congress of Noise as a Public Health Problem, researchers found that on average employees wasted 21.5 minutes per day due to conversational distractions, making lack of speech privacy the number one cause of reduced productivity. An additional 2014 Steelcase/Ipsos study found that employees lost as much as 86 minutes per day due to noise distractions.

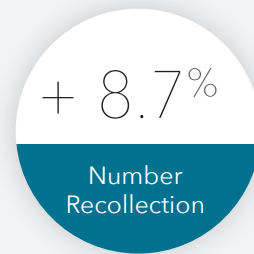
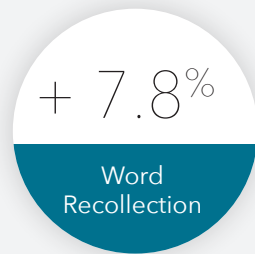
Even using conservative estimates, this loss of productivity adds up to big monetary losses for companies. 21.5 minutes daily is roughly 4% of an average employee's work day (based on an 8 hour day). Some quick math shows that a company with 100 employees and an average employee salary cost of \$50,000 is losing \$200,000 a year in lost productivity.



## Sound Masking Helps Your Employees Concentrate and Work More Efficiently

Researchers examined the effect of speech privacy on task performance in an open office environment without Sound Masking and with Sound Masking. Participants in offices with Sound Masking had better short-term memory recall than those without it.

Increase of word and number recollection with Sound Masking



# Why Do You Need Sound Masking?

## Sound Masking Protects Confidentiality and Reduces Liability

- Closing the door to an office no longer guarantees speech privacy, in fact, it's probably worse because closing that door provides the illusion of privacy.
- Many private conversations could be HR nightmares if overheard by the wrong people.
- **Providing speech privacy is often encouraged, or outright mandated, by the legal and regulatory environment:**



HIPAA - Mandates that all employers (not just hospitals) "take reasonable safeguards to protect the privacy of protected health information."

# GLBA

GLBA - In many ways, the Gramm-Leach-Bliley Act (GLBA) is the HIPAA equivalent for the finance industry. GLBA requires financial institutions to protect their client's non-public financial information.



LEED - Ensuring proper speech privacy and sound isolation is a component of LEED certification. LEED is a set of rating systems for the design, construction, operation, and maintenance of green buildings, homes and neighborhoods. Many U.S. federal agencies and state and local governments require buildings to attain LEED certification.

# HCAHPS

Hospital Consumer Assessment of  
Healthcare Providers and Systems

HCAHPS - In the healthcare industry, the Hospital Consumer Assessment of Healthcare Providers and Systems Survey (HCAHPS) provides scores to hospitals based on a variety of criteria, including "quietness of patient environment." Hospitals with low HCAHPS scores risk loss of government funding and damaged reputation.

# FERPA

FERPA -In the education industry, the Family Educational Rights and Privacy Act (FERPA) mandates that colleges and universities take all reasonable efforts to safeguard student information including how the information is collected and disseminated.

# Who Benefits from Sound Masking?



## Business Owners

Protect speech privacy and increase productivity by reducing noise distractions



## Facility Managers

Help increase worker satisfaction and reduce operating costs



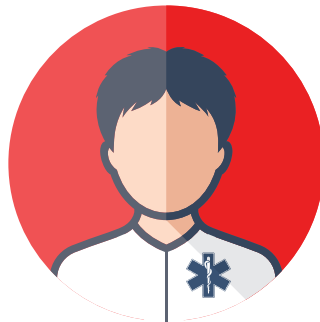
## Property Managers

Increase the value of your space



## HR Managers and Privacy and Compliance Managers

Comply with the speech privacy requirements of HIPAA and GLBA regulations



## Healthcare Administrators

Increase HCAHPS scores and HIPAA compliance



## Employees

A more comfortable work environment with fewer distractions



## Architects

Improve the acoustical environment of new or retrofitted spaces



## General Consultants

Create a collaborative work environment without sacrificing acoustics



## Contractors

Improve speech privacy and lessen the level of distraction without adding further absorptive and blocking materials

# Where Should Sound Masking Be Used?



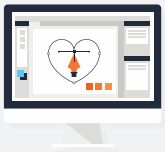
## Corporate

Open Office  
Private Office  
Conference Rooms



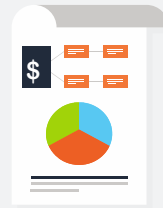
## Healthcare

Hospitals  
Private Clinics  
Pharmacies



## Technology

Engineering Labs  
Co-share Spaces  
Huddle Rooms



## Financial Services

Retail Banks  
Call Centers  
Board Rooms



## Education

Libraries  
Research Labs  
Testing Centers



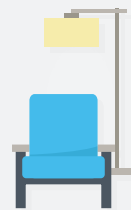
## Government & Law

Secured Facilities  
Courtrooms  
Law Offices



## Hospitality

Hotel Rooms  
Reception Areas  
Spas



## Venues

Airport Lounges  
Houses of Worship  
Conference Centers

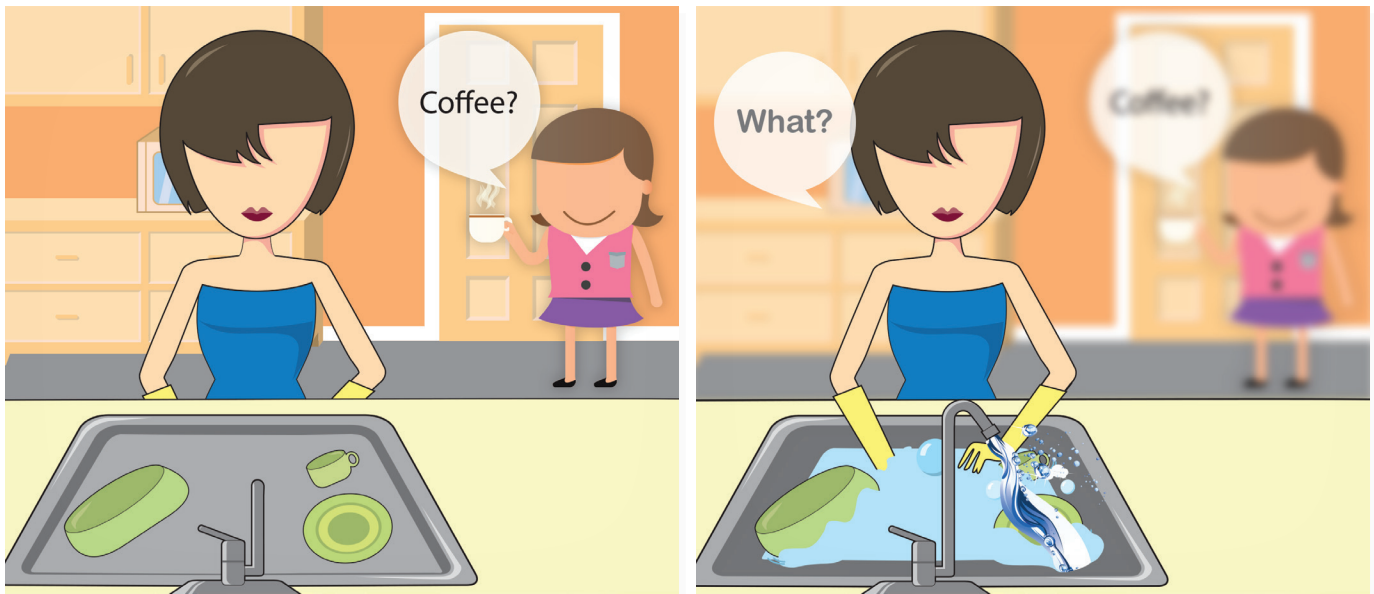


# How Does Sound Masking Work?

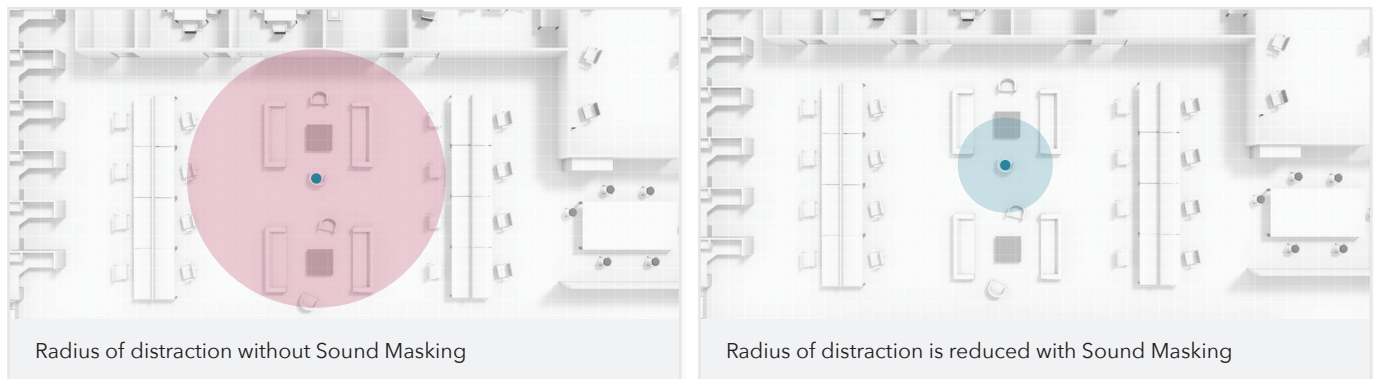
## Adding Sound Makes Speech Less Intelligible

Adding sound to a space actually makes the space seem quieter. It sounds counter-intuitive but it's true. This is because the added sound reduces the intelligibility of human speech. When you can't understand what someone is saying, their words are less distracting – in fact, you probably don't even notice them.

Here's an example of Sound Masking in everyday life. Have you ever had a conversation with someone while you are washing dishes and they are on the other side of the kitchen? When the water isn't running, you can hear the other person's words perfectly. When you turn the water on it becomes much harder to hear them and understand what they are saying. The person isn't speaking more softly, but they sound as if they are. This is because the noise of the running water is "masking" the sound of the person speaking to you.



Sound Masking mimics this phenomenon on a much more sophisticated and effective scale. By adding ambient sound to an environment (such as professionally engineered sounds that sound similar to water flowing or airflow) you help mask the other noises in the environment, making them less distracting. Sound Masking doesn't eliminate all noises in an environment; it simply reduces the area where human speech is intelligible and distracting. We call this area the radius of distraction.



Once masking is added, it becomes more challenging to understand conversations from across the room, and thus makes it less likely that conversations will distract you.

# The QtPro™ Sound Masking System

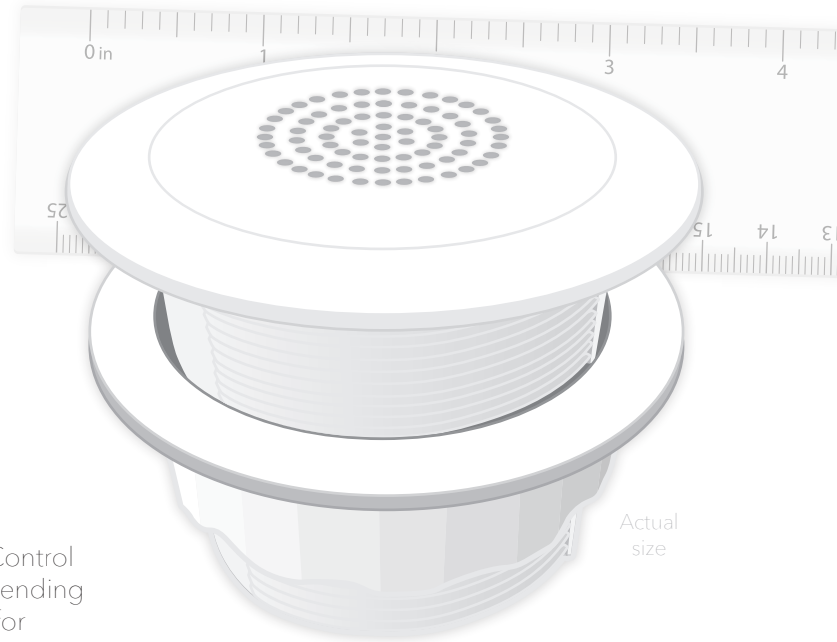
## A Cost-effective Solution to the Noise Problem

The patented QtPro system is a cost-effective solution to protecting speech privacy and reducing distractions.

It consists of three simple components; **emitters** (i.e. loudspeakers), **control modules**, and **cables** that connect the emitters to the control modules. The Qt® control modules come in three different sizes depending on the size of the space they cover.

## Qt® Emitters

Qt Emitters are the backbone of the Qt Quiet Technology Sound Masking System. Qt emitters are wide dispersion direct-field speakers with 1.25" (3.17 cm) drivers and are smaller than a coffee mug. These emitters deliver four uncorrelated audio channels, which provide uniform, unobtrusive Sound Masking. This feature, along with easy configuration capability, makes QtPro the most intelligently engineered and most effective Sound Masking system available.



Actual size

## Control Modules

Qt Emitters are powered and controlled by intuitive Qt Control Modules. The modules come in three different sizes depending on the size of the space being masked. A single Qt 600 for example can connect to up to 720 emitters – covering up to 72,000 square feet (6,690 m<sup>2</sup>) of space.



Modules can be wall or rack mounted and are made in the USA.



## Cables

Qt Emitters connect to Control Modules via pre-terminated, pre-test, plenum-rated category cables.



# The QtPro™ Sound Masking System

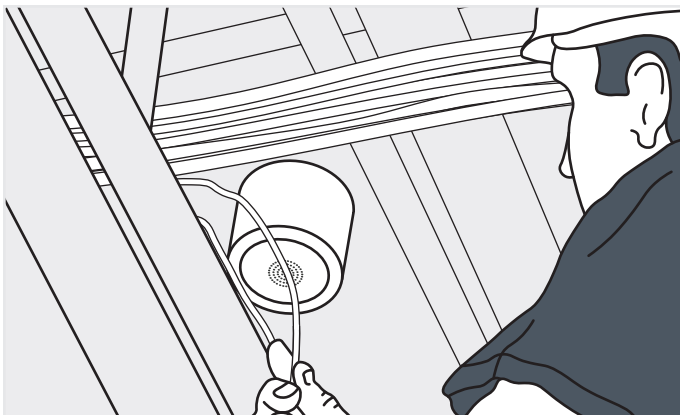
## Simple Layout, Zoning, and Installation

The QtPro system is designed to meet the unique acoustic requirements of a space, whether large or small.

Qt emitters are easily installed by certified masking professionals in a simple grid pattern, determined by ceiling height. During the layout and design phase, the space is divided into zones based on acoustic requirements of the space. Zones can range from 100 square feet (9.3 m<sup>2</sup>) to 12,000 square feet (1,115 m<sup>2</sup>). In the example below, the office space is separated into six zones, allowing for different volume levels for each unique space.



The versatile Qt Emitters are capable of being mounted in any ceiling type.



Universal Bracket



Beam Bracket



Conduit Mount



Drywall Mount



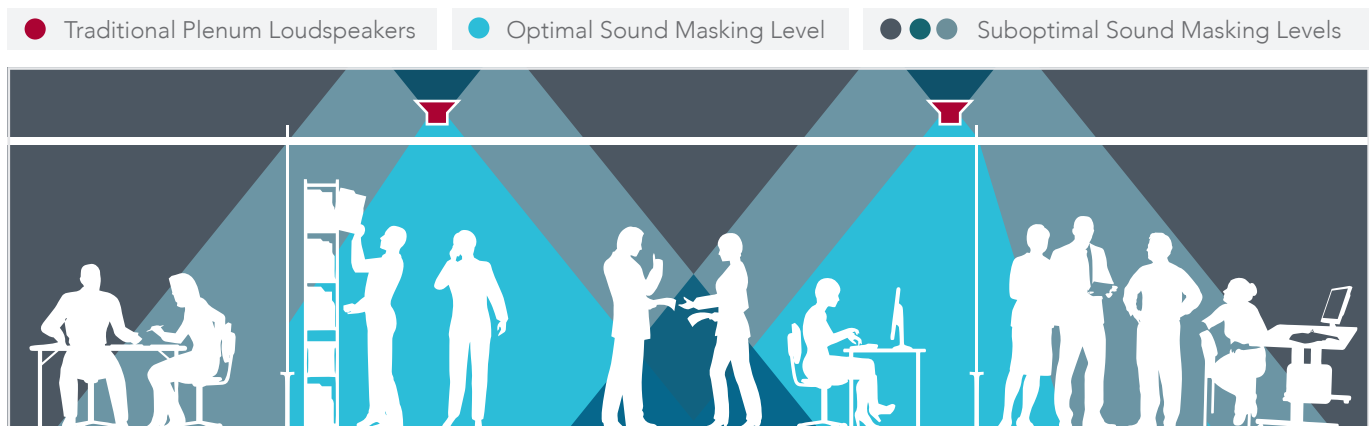
Plenum Back Can

# The QtPro™ Sound Masking System

## Indirect vs. Direct-field Sound Masking

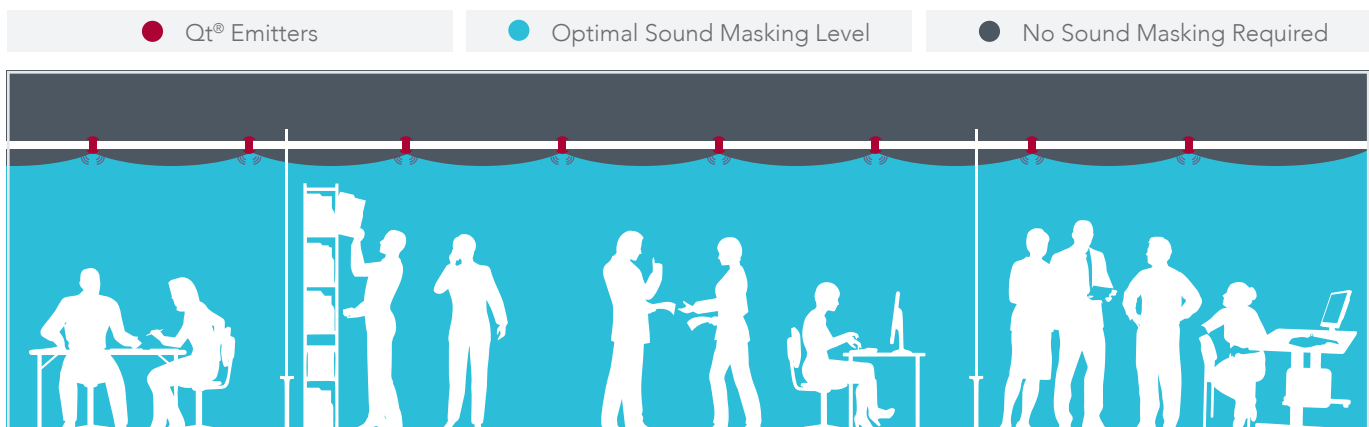
### Indirect Sound Masking

Before QtPro, Sound Masking was done using “in-plenum” or “indirect” systems. Large paint can-like speakers were installed above the ceiling tiles. The speakers pointed upwards, towards the ceiling deck. The masking noise emitted hit the deck and then reverberated back down through the ceiling material **indirectly** into the workplace below. Indirect Sound Masking systems are still manufactured today. The sound emitted from these systems can be unpredictable and creates “hot” and “cold” spots. Additionally, installing and tuning these systems is invasive, time-consuming, and rarely done correctly.



### The Direct-field Difference

QtPro uniformly disperses a pre-tuned Sound Masking signal **directly** into the workspace. The result is a consistent sound throughout the space that is easily achievable without the complex tuning required by indirect systems.



# The QtPro™ Sound Masking System

## Advantages of QtPro Sound Masking Systems

- QtPro is the most effective, least expensive, and fastest to install Sound Masking system
- Powered by patented, direct-field Quiet Technology developed to reduce acoustic interference
- Patented four channel distribution ensures uniform spatial coverage and eliminates the need for complicated design and tuning
- Offers a completely scalable solution that's suitable for any size space
- Modules can be networked for easy control and system integration
- Delivers uniform Sound Masking by projecting sound *from not through* the ceiling
- Reduces the need for expensive construction or sound blocking materials
- The only Sound Masking system that can be installed in existing space and in hard ceilings
- Deployed in hundreds of millions of square feet and trusted by over 40% of the Fortune 100
- GreenSpec listed and the most energy efficient Sound Masking system available, consuming less than 27 watts of power per 72,000 square feet (6,690 m<sup>2</sup>) of space
- Helps contribute to LEED Certifications



# The QtPro™ Sound Masking System

## How Do I Get QtPro?

Design, quotation, and installation of QtPro is handled by Cambridge Sound Management staff and our international network of certified Sound Masking professionals.

Certified Sound Masking professionals include service providers your business may have already used before, such as:

 Data, voice, and video cabling	 Low-voltage cabling
 Audiovisual integrators	 Security integrators
 Telecom integrators	 Office furniture dealers
 Acoustical consultants	 Architects and designers

To learn more about QtPro or to request a free quote, call **800.219.8199** or visit [www.cambridgesound.com](http://www.cambridgesound.com)

Have a favorite service provider? Ask them for QtPro Sound Masking from Cambridge Sound Management.

# The QtPro™ Sound Masking System

## Praise for QtPro

“ The employees were being distracted by conversations 60 feet away. When the system's on, speech becomes unintelligible at a distance of about 20 feet. ”

Steve Shanks, Manager of Audio, Video, Surveillance and Security  
Denbury Resources, Inc.



“ With CSM's Qt 600 in place, there is less distraction from unwanted sounds and conversations. Patients and staff can now experience the positive ambiance we wanted to achieve through the open design concept, and we gained a greater level of patient satisfaction. ”

Alison Brisson, Plant Operations Manager  
Wentworth-Douglass Hospital



“ Libraries are supposed to be quiet, but whispers could be heard 40 feet away. With the help of Cambridge Sound Management, we now have a library that seems quieter and is still beautiful. We are delighted. ”

Bob Jarvis, Buildings and Grounds Manager  
Williams College



“ Utilizing Sound Masking from Cambridge Sound Management keeps the cross talk between the offices and corridors down so you don't hear inter-office conversations. I highly recommend Sound Masking as a solution for open-concept office spaces. ”

Charles Rechtsteiner, Regional Facilities Manager  
Autodesk



“ The Bank of America National Helpline site in Boston houses over 200 associates. Even with all that talking, our work environment is private and productive, thanks to Sound Masking from Cambridge Sound Management. Their solution is straightforward and effective. I wouldn't open a call center without it. ”

Edward Klemm, Vice President  
Bank of America National Helpline



“ We installed QtPro in one of our branches years ago to cut down on overheard cross-talk and also to prevent conversations in private offices from being heard in the open office area. We've been so impressed with the results that QtPro is now installed every time we renovate or relocate a branch. It's now in most of our locations. ”

Ron Rivet, Network Operations Section Manager  
Amica Mutual Insurance Company



Learn how Sound Masking can benefit your facility, workforce, and customers by reducing noise distractions, protecting speech privacy, and increasing workplace productivity.

Visit [cambridgesound.com](http://cambridgesound.com) or call 800.219.8199 and request a quote today.



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