

LUNCH AND LEARN | 1 HOUR



# Quiet Is Not Private

Speech Privacy and Sound Masking in Government Facilities

Presented by **ALEX VARGO, FOUNDER, THE OFFICE ACOUSTICS COMPANY**

The Office Acoustics Company | [theofficeacousticscompany.com](https://theofficeacousticscompany.com)

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## About the Numbers in This Course

Standards, research and regulations are cited on the slides so you can check them. Design targets are typical values, not a substitute for an acoustical consultant's design, testing or stamped recommendation. Nothing here is legal or security accreditation advice. Always confirm the code, guideline and standard editions that apply where you work.

# Course Description

Public buildings collect some of the most personal information any organization handles, and open counters, tall lobbies and quiet modern offices make it easy to overhear. This course explains speech privacy as a relationship between speech and background sound, introduces the Absorb, Block, Cover framework and its ratings, and applies them space by space to civilian government facilities. Participants will learn where speech leaks, how design supports Privacy Act and CUI safeguarding, how ICD 705 treats acoustics in SCIFs, and where fixed and adaptive sound masking help or do not belong.



**AUDIENCE**

Architects, interior designers,  
engineers, owners



**LEVEL**

Introductory to intermediate



**FOCUS**

Federal, state and municipal offices  
and secure suites

# Learning Objectives



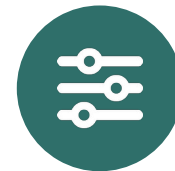
Explain why speech privacy depends on the relationship between speech level and background sound, and why quiet, modern spaces are often less private.



Apply the Absorb, Block, Cover framework and interpret the ratings behind it (NRC, AC, STC, SPC, Privacy Index) to protect occupant well-being.



Identify where personal and controlled information is overheard in government facilities, and select design strategies that support Privacy Act, CUI and SCIF acoustic requirements.



Evaluate where fixed and adaptive sound masking should and should not be used in government spaces, including hearing rooms, secure suites and life safety systems.

# Our Hour Together

## Part 1

### How Speech Privacy Works

Signal and background, the ABCs, the ratings, and how masking is tuned

25 min

## Part 2

### Government, Space by Space

CUI and SCIF rules, where speech leaks, and the quick fix for each space

25 min

## Wrap Up

### Takeaways and Questions

Design meeting questions and open Q&A

10 min

PART 1

# How Speech Privacy Works

The physics, the tools, and the numbers behind them

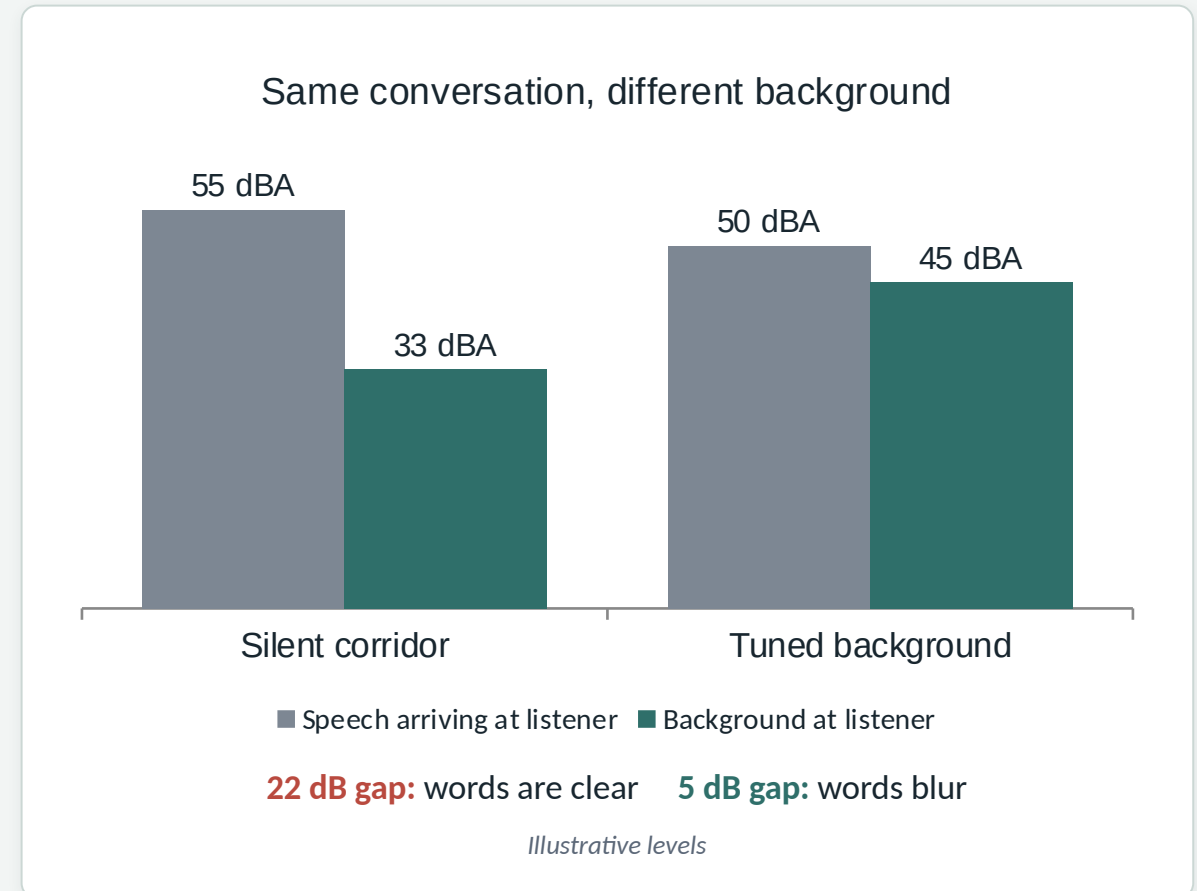
# Quiet Is Not Private

Privacy comes down to one relationship at the listener's ear:

- How loud is the conversation when it arrives?
- How loud is the background where the listener stands?

When speech rises well above the background, the listener understands it. When the background is close to the speech, the words blur into sound the brain stops decoding.

**Two ways to improve privacy: reduce the speech that arrives, or raise the background in a controlled, comfortable way.**



# What Changed in the Buildings We Design



## Open plans

Fewer walls, more shared and flexible space.



## More glass

Visual connection, with acoustic leaks at joints and doors.



## Quieter buildings

Efficient HVAC and equipment removed the old background sound.



## Higher expectations

The public expects personal matters to stay at the counter.

Each is a good design decision. Together, they let speech travel further and stand out more.

# Conversations Are Information

The question is not "Can someone hear something?"

**It is "Can someone understand something they were never meant to hear?"**



## Government

Benefits, taxes, permits,  
case files, CUI



## Legal

Investigations and legal  
matters



## Public health

Health program  
information



## Personnel

HR, security clearances,  
discipline

## What the Research Shows

**~50% vs 18%**

**of open-plan occupants dissatisfied with sound privacy, compared with people in private offices**

42,764 survey responses from 303 office buildings. The "ease of interaction" open plans promise did not make up for the lost privacy.

*Kim and de Dear, Journal of Environmental Psychology, 2013*

**40% fewer**

**attempts at an unsolvable puzzle after three hours of low-level open-office noise**

Stress hormone levels rose. The workers did not report feeling more stressed. The noise cost them without their noticing.

*Evans and Johnson, Cornell University, Journal of Applied Psychology, 2000*

# Speaking the Language of Sound



## Decibel

A logarithmic scale. About +10 dB sounds twice as loud. A 3 dB change is just noticeable.



## A-weighted level

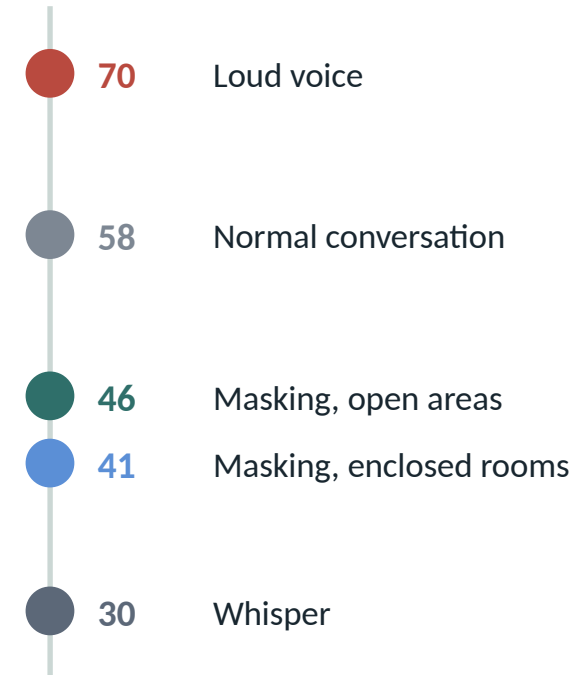
One number weighted the way human hearing responds. Masking is specified in dBA.



## One-third octave bands

The frequency slices of a sound. One dBA number can hide a harsh or rumble spectrum.

## Typical levels (dBA)



*Masking values from GSA Sound Matters targets. Conversation and whisper levels are typical approximations and vary with distance and effort.*

# Privacy Is Not One Thing

## Freedom from distraction

Nearby conversations stop pulling attention. Some speech may still be understood.

*Open work areas, lobbies*

## Normal privacy

You can tell someone is talking and may catch a word, but can't follow it without effort.

*Offices, service points*

## Confidential privacy

Conversations are essentially unintelligible to anyone outside the group.

*Closed consult rooms*

## Speech security

Information is protected by regulation or contract; a motivated listener may try to overhear.

*Secure and accredited spaces*

# How Privacy Is Measured

## Open plan spaces: ASTM E1130

| Rating       | Articulation Index | Privacy Index |
|--------------|--------------------|---------------|
| Confidential | 0.05 or less       | 95% or more   |
| Normal       | 0.20 or less       | 80% or more   |
| Poor         | Above 0.20         | Below 80%     |



A Privacy Index of 80% is normal privacy, not confidential. That distinction trips up a lot of marketing material.

## Closed rooms: ASTM E2638, Speech Privacy Class

| SPC | Category           | A listener outside can expect         |
|-----|--------------------|---------------------------------------|
| 70  | Minimal privacy    | Speech frequently intelligible        |
| 75  | Standard privacy   | Occasionally intelligible             |
| 80  | Speech security    | Very rarely intelligible              |
| 85  | High security      | Essentially unintelligible            |
| 90  | Very high security | Unintelligible, essentially inaudible |

SPC adds the room's level reduction to the background outside, so it captures the speech-to-background idea directly.

*SPC categories per Gover and Bradley, National Research Council Canada. Other SPC tables use different listener assumptions; name the table you cite.*

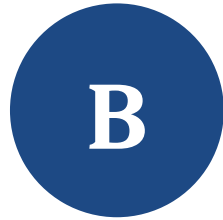
# The ABCs of Speech Privacy



## Absorb

Reduce the speech that reflects off ceilings and hard surfaces toward a neighbor.

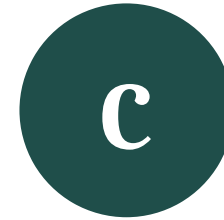
**Ceilings, wall panels, soft finishes**



## Block

Stop sound from passing between spaces, and seal the paths around the barrier.

**Walls, doors, glass, plenum barriers, seals**



## Cover

Raise the background at the listener with a tuned, comfortable masking sound.

**Engineered sound masking**

*Take away any one and privacy drops, because each tool covers a gap the others leave. (The framework behind GSA's Sound Matters guidance.)*

# Absorb: Start With the Ceiling



## Where absorption does the most good

**The ceiling first.** It is the largest surface and the main reflection path. GSA calls for NRC 0.90 or higher over open office ceilings.

**Ask for AC in open plans.** Articulation Class describes how well a ceiling limits speech reflected between workstations.

**Walls at speaking height** in meeting rooms, glass offices and corridors.

**Tall public lobbies:** renovated historic buildings need absorption overhead and near counters, or every voice builds up.



## Absorption traps

**Treating NRC as the whole story.** Ask for the full coefficient table.

**Foam finishes without fire testing.** Foam plastics typically need NFPA 286 room-corner testing under the IBC.

**Expecting it to stop sound through walls.** That is blocking.

**Over-treating.** A room that is too dead makes people raise their voices.

# Block: The Weak Links Decide



**Doors**  
Undercut or ungasketed doors are often the weakest element in the room.



**Walls that stop at the ceiling**  
Sound goes up, across the plenum, and down next door.



**Ducts and transfer grilles**  
Shared returns act like speaking tubes.



**Glass and mullions**  
Gaps at joints and doors rarely match the adjoining wall.

STC is a lab number. Rooms perform in the field.

| Partition STC | Typical experience next door    |
|---------------|---------------------------------|
| 25 to 30      | Speech easily understood        |
| 35 to 45      | Loud speech audible, less clear |
| 50 to 55      | Normal speech generally private |
| 60 to 65      | Loud sounds barely audible      |

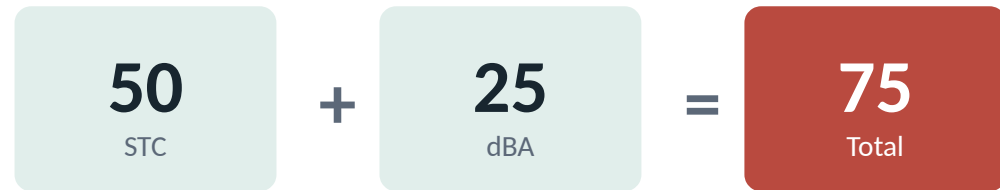
Descriptions assume a quiet background and a well-built room. Field ratings (ASTC, NIC) often land several points below lab STC once flanking paths are included.

STC descriptions adapted from Riverbank Acoustical Laboratories guidance. STC per ASTM E90 and E413; field ratings per ASTM E336.

# Why Blocking and Covering Work as a Team

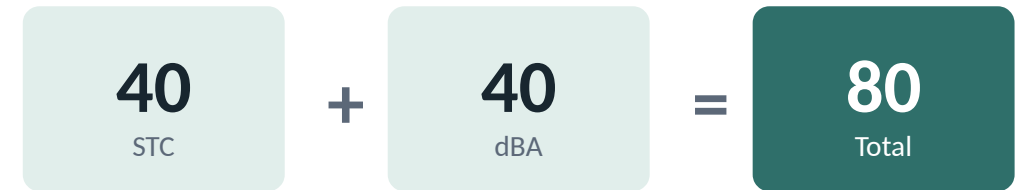
**Wall STC + Background dBA at the listener  $\approx 75$  for basic speech privacy**

## An expensive wall, a silent corridor



Barely reaches the target. Any leak at the door or plenum and it falls short.

## A standard wall, a tuned background



Beats the heavier wall, and the corridor background protects every room along it.

*A consultant rule of thumb for screening, not a design method. It ignores flanking paths; critical rooms need a design and field test.*

# Cover: What Sound Masking Is, and Is Not



## Sound masking is

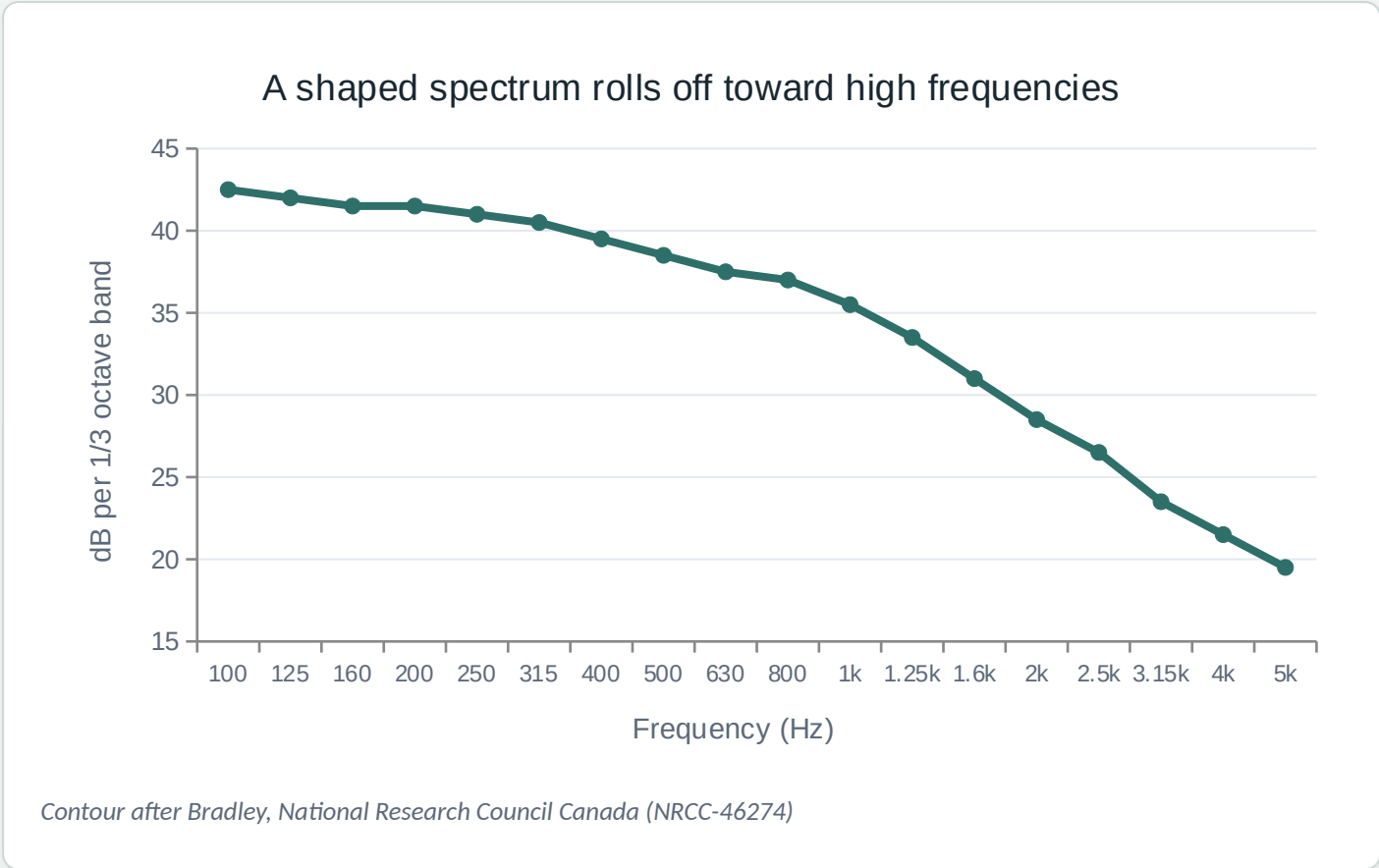
- An engineered background sound played through a network of speakers
- Shaped across frequency bands to cover the sounds that carry speech
- Tuned zone by zone and measured (ASTM E1573)
- Heard as soft, even airflow when done well
- A way to shrink the distance at which speech is understood



## Sound masking is not

- White noise, which is harsh and hissy at privacy levels
- A way to reduce echo or reverberation (it adds sound)
- A replacement for walls, doors and seals
- A fix for loud or tonal HVAC noise
- A substitute for accredited secure construction

# Tuned, Not Just Turned On



## Typical design targets

- 45 to 48 dBA**

Open work areas
- 40 to 42 dBA**

Enclosed offices
- Tuned on site**

Counters, waiting areas and corridors outside interview rooms

Specify tolerances for overall level and each band, zone by zone, and verify by measurement. An average that hides quiet spots leaves privacy holes.

Open and enclosed targets from GSA Sound Matters. Measurement and reporting per ASTM E1573.

# Where Masking Should Not Go, or Needs Great Care



## Classrooms and lecture rooms

ANSI/ASA S12.60 limits classroom background noise to 35 dBA so students can hear. Mask the offices instead.



## Hearing rooms, chambers and secure suites

Recorded proceedings need clear speech; accredited spaces need AO approval for any device.



## Conference, video and courtrooms

People inside need clear speech and microphones pick up masking. Mask the corridor outside.



## Anywhere life safety depends on hearing

Masking, music and paging should mute when the fire alarm or mass notification activates.



## Spaces for people with hearing loss

Added background sound can make conversation harder: senior living common areas, audiology suites.

**Rule of thumb: put masking where the listener is, not inside the room you are trying to protect.**

# Design It, Tune It, Measure It

## Plenum-mounted

Speakers above a suspended ceiling; the plenum and tiles diffuse the sound. Hardware stays hidden, but results depend on plenum depth, obstructions and tile performance.

## Direct-field

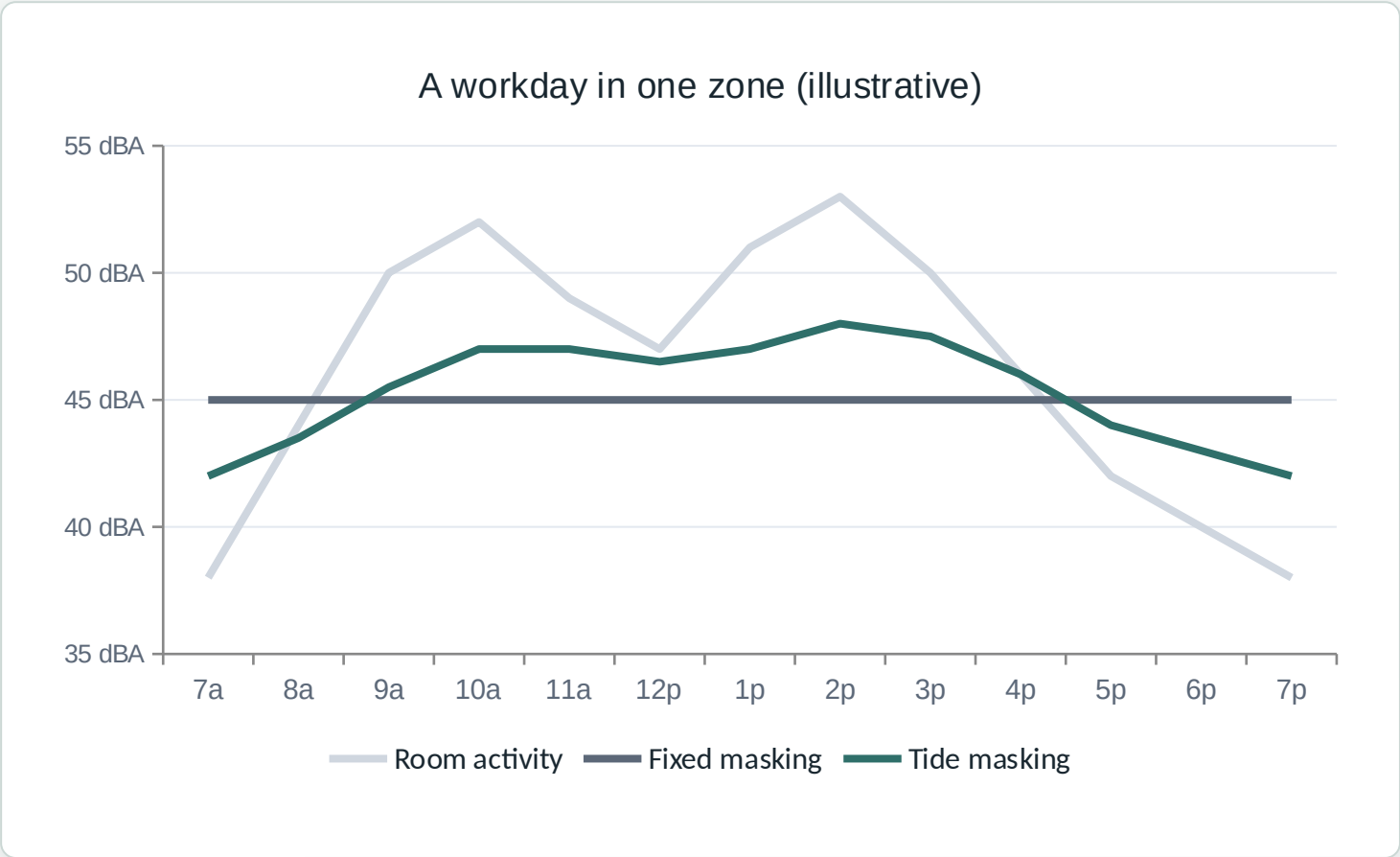
Small speakers in or on the ceiling plane facing into the space. Generally more uniform and controllable, and works with open ceilings, with visible devices.

*The right choice depends on the ceiling, architecture, budget and the uniformity required.*

## Commissioning checklist

- ✓ Measure the background with masking off, so everyone knows what HVAC contributes
- ✓ Tune each zone to the target spectrum, not just the dBA number
- ✓ Check uniformity near walls, columns and transitions
- ✓ Listen: if you can locate a speaker by ear, adjust
- ✓ Ramp up gradually over days or weeks in occupied spaces
- ✓ Document by zone and revisit after occupancy

# The Tide Principle





**Quiet morning**  
Settles low, so no one notices it.



**Busy afternoon**  
Rises so conversations stay covered.



**Always in bounds**  
Inside set limits, changing too slowly to hear.

# Getting the Tide Right



## **Sense each zone**

Sensors measure ambient conditions where people actually are, not one reading for the whole floor.



## **Set the shoreline**

A floor and a ceiling around the design target, for example 42 to 48 dBA around 45.



## **Move slowly**

Changes of a small fraction of a decibel per second, so occupants never hear a shift.



## **Verify and log**

Measure it like any fixed system, and keep a history to see how zones behave over time.



Sensors listen to the room. In accredited secure spaces any sensor or network device needs AO approval, so fixed perimeter masking is the norm there.

# The Most Expensive Myths



**"Quiet is private."**



Silence makes speech easier to understand.



**"Masking is just white noise."**



It is a shaped, tuned, measured spectrum.



**"Masking reduces echo."**



Reverberation is controlled with absorption.



**"We'll just use the HVAC."**



It varies with load, has the wrong spectrum and often tones.



**"STC 50 walls guarantee privacy."**



Not with an undercut door, a shared plenum and a silent corridor.



**"Privacy Index 80% is confidential."**



Under ASTM E1130, 80% is normal. Confidential is 95%.

## PART 2

# Government, Space by Space

Federal, state and municipal buildings: what is at stake, the CUI and SCIF rules, and the quick fix

# Two Jobs: Protect Personal Information, Protect Public Trust



## Privacy

### Privacy Act of 1974

Governs how federal agencies collect, maintain and disclose records about individuals. Many states and cities have their own privacy laws.

### Controlled Unclassified Information

Federal CUI rules require reasonable precautions so unauthorized people cannot overhear conversations discussing CUI (32 CFR 2002.14).



## Public trust

### Trust is built at the counter

Residents share housing, benefits, tax and legal matters in public view. What the next person in line hears shapes how they see the agency.

### A clear federal playbook

GSA's Sound Matters guidance organizes workplace acoustics around Absorb, Block, Cover, one of the clearest public references available.

*Privacy Act of 1974 (5 U.S.C. 552a); 32 CFR Part 2002; GSA Sound Matters (2011).*

# Government Privacy Rules and Acoustics: The Straight Facts



## What the rules do

- Require reasonable precautions so CUI conversations are not overheard by unauthorized people
- Require controlled environments and physical barriers for CUI
- Set construction and acoustic Sound Groups for accredited SCIFs (ICD 705)



## What they do not do

- Set decibel levels or wall ratings for ordinary unclassified offices
- Require SCIF construction for CUI or Privacy Act information
- Let masking replace accredited construction in a secure space

**Match the tool to the information: good design and masking for CUI and PII, accredited construction for classified.**

# The Rule That Mentions Overheard Conversations

32 CFR 2002.14(c): authorized holders must take reasonable precautions against unauthorized disclosure, including:

- (c)(1) Establish controlled environments to protect CUI from unauthorized access or disclosure.
- (c)(2) **Reasonably ensure unauthorized individuals cannot access or observe CUI, or overhear conversations discussing CUI.**
- (c)(3) Keep CUI under direct control or protect it with at least one physical barrier outside a controlled environment.



## Who it reaches

Federal agencies, and contractors and other non-federal holders through their agreements.



## What it covers

Unclassified information that law, regulation or policy requires to be safeguarded: privacy, law enforcement, legal, export control and more.



## What it does not set

No decibel levels or wall ratings. Design supports the "reasonably ensure" standard.

**Most sensitive government conversation is unclassified. That is where ordinary design, and masking, do the most good.**

*32 CFR Part 2002, Controlled Unclassified Information. Confirm agency CUI policy and contract clauses for your project.*

# Secure Suites: What ICD 705 Says About Sound

## Acoustic protection: the Sound Groups

| Sound Group | Rating           | What it means outside the perimeter                                                              |
|-------------|------------------|--------------------------------------------------------------------------------------------------|
| Group 3     | STC 45 or better | Loud speech from inside can be faintly heard but not understood                                  |
| Group 4     | STC 50 or better | Very loud sounds (loud singing, brass music, a radio at full volume) heard faintly or not at all |

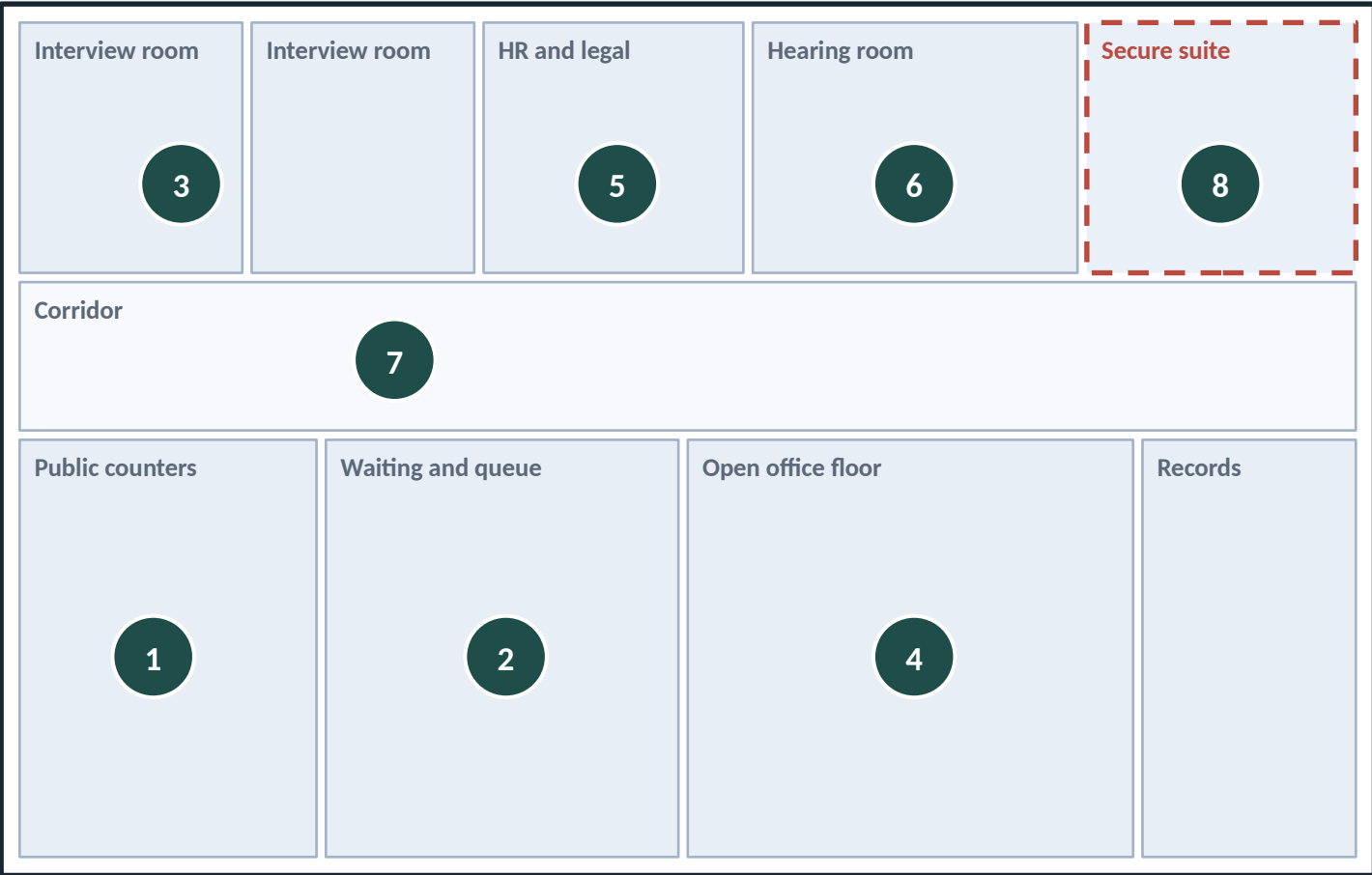
Group 4 applies where amplified audio, conferencing or higher risk is present. The rating covers the whole perimeter: walls, doors, ceilings, floors, ducts and every penetration.

## Where sound masking fits

- ✓ A supplemental measure, not a substitute for required construction
- ✓ Transducers placed close to or on the paths audio can leave: doors, windows, vents, ducts
- ✓ Sound source generators located within the SCIF; wires and transducers inside the perimeter to the greatest extent possible
- ✓ Any cable leaving the SCIF in rigid conduit; no AM/FM receivers; recording functions disabled
- ✓ Subject to inspection during TSCM evaluations, under the Accrediting Official's direction

IC Tech Spec for ICD/ICS 705, Version 1.5.1 (July 2021); DoD SCIF design per UFC 4-010-05 (2023). Confirm the current version and all requirements with your Accrediting Official.

# Anatomy of a Public Building: Where Speech Leaks



*Simplified composite plan for discussion*

- 1 Public service counters
- 2 Waiting area and queue
- 3 Caseworker interview rooms
- 4 Open office floor
- 5 HR, legal and IG offices
- 6 Hearing rooms and chambers
- 7 Corridors outside interview rooms
- 8 Secure suite perimeter (SCIF)

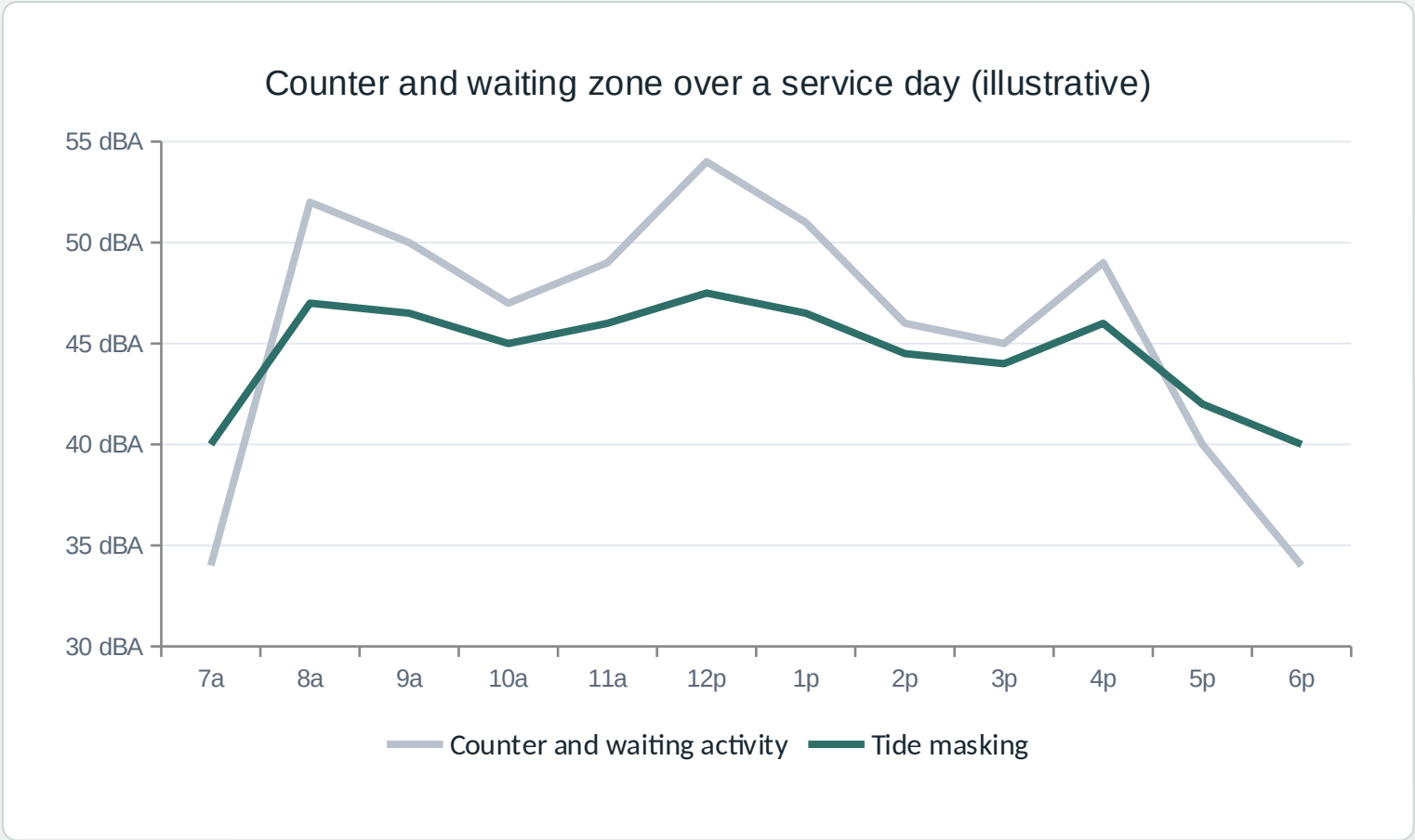
# Character, Flaw and Quick Fix

| Space                        | Character                                                              | The flaw                                                       | Quick fix                                                                                        |
|------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1 Public service counters    | Residents share benefits, tax, permit and legal details in public view | The next person in line hears everything                       | Staggered positions or partial barriers, absorption overhead, masking over the counter and queue |
| 2 Waiting area and queue     | Tall, hard lobbies full of people waiting                              | Reverberant space builds up; a quiet moment exposes every word | Absorption overhead and on walls, masking over seating, queue set back from counters             |
| 3 Caseworker interview rooms | Long, emotional conversations about personal crises                    | Walls to the ceiling only and undercut doors                   | Walls to deck, gasketed doors, sealed penetrations, masking in the corridor                      |
| 4 Open office floor          | Multi-agency cubicles handling case files and CUI                      | Calls about cases carry across the floor                       | High-AC ceiling, panel absorption, masking tuned to open-plan targets                            |

# Character, Flaw and Quick Fix

| Space                                      | Character                                          | The flaw                                                                 | Quick fix                                                                              |
|--------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>5 HR, legal and IG offices</b>          | Personnel actions, investigations and legal advice | Share a corridor with everyone else                                      | Closed-room construction, solid doors, masking outside, located away from public paths |
| <b>6 Hearing rooms and chambers</b>        | Public proceedings, recordings and livestreams     | Masking inside interferes with recordings and the public's right to hear | No masking inside; absorption for clarity; mask adjacent corridors and offices         |
| <b>7 Corridors outside interview rooms</b> | Where clients and staff wait between meetings      | Silent corridors are the listening side of every interview room          | Masking in the corridor raises the background outside every door                       |
| <b>8 Secure suite perimeter</b>            | Accredited SCIF or other secure space              | Doors, ducts and penetrations carry speech out                           | Built to ICD 705 Sound Group; supplemental perimeter masking only as the AO directs    |

# The Tide at the Counter: A Public Service Day



- 

**8 am doors open**  
A line forms before opening; masking rises as the lobby fills.
- 

**Lunch-hour rush**  
Holds near its upper limit when residents come in on their break.
- 

**After hours**  
Settles to its floor for staff working late on case files.

# The Quick Recipe for Government Speech Privacy



## Classify the conversations

Public, PII, CUI or classified: each level needs a different tool.



## Absorb

Overhead absorption in lobbies, counters and open offices.



## Block

Interview, HR and legal rooms: walls to deck and sealed doors. SCIFs: the Sound Group.



## Cover

Masking at counters, waiting areas, open offices and corridors outside interview rooms.



## Let it tide

Adaptive masking with set limits in public zones; fixed perimeter masking in secure suites.



## Integrate and verify

Mute on fire alarm and mass notification, keep hearing rooms clear, measure per ASTM E1573.

# Traps We See in Government Projects



## **Treating masking as a secure-space shortcut**

In SCIFs it is supplemental, designed and approved under the Tech Spec and the AO.



## **Masking hearing rooms and chambers**

Recorded public proceedings need clear speech. Mask the corridor outside.



## **Ignoring the counter because it is "public"**

Residents share their most personal information there. CUI rules mention overheard conversations.



## **Skipping life safety integration**

Masking, music and paging must mute on fire alarm and mass notification.

## From the Field: A Multi-Agency Federal Space



### The situation

A multi-agency space at the Denver Federal Center had a large atrium and an open work area full of cubicles. The goal was speech privacy without making the space feel closed in.

### The change

A direct-field masking system with sensors and zone-by-zone adjustment was installed and tied to the building fire alarm, so masking pauses automatically during an alarm.

### The result

*"The client said the speakers were practically invisible, while the space finally felt private."*

### WORTH KNOWING

## Coordinate security from day one

On any project with a secure suite, the Site Security Manager's Construction Security Plan and the Accrediting Official's review shape what can be installed, where wiring can run, and who can be on site.

*Bring security in before equipment is selected.*

# Questions for Your Next Government Design Meeting



What does the next person in line hear at every counter?



Which spaces handle PII, CUI or classified information, and is each designed for its level?



Are interview, HR and legal rooms built as closed rooms with sealed doors?



Are hearing rooms and chambers excluded from masking?



For secure suites, what Sound Group applies, and has the AO reviewed any masking?



Is all audio integrated with fire alarm and mass notification, and who verifies results?

# Key Takeaways



## Quiet is not private

Privacy is the relationship between the speech that arrives and the background at the listener.



## Use all three tools

Absorb, Block and Cover work as a system, and the ratings tell you whether they are working.



## Match the tool to the information

Design and masking for PII and CUI; accredited construction, with supplemental masking, for classified.



## Mask where the public listens, and let it tide

Counters, waiting areas and corridors, rising and settling with the service day.

# Questions?

Thank you for spending the hour with us.

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LET'S TALK

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Book a lunch and learn for your team.