

# The Design Guide to Office Acoustics

framery



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"We are on a mission to improve the lives of office workers around the world."

Samu Hällfors,  
Founder & CEO, Framery



# 1. The importance of office acoustics

# The importance of office acoustics

Through engineering, research, and real-world learning, we've come to understand one thing clearly: when you support your people, the work improves.

Today's workplaces are louder by design.

The shift toward more open, team-based work has made offices busier and louder. As workplaces prioritize quick communication, shared spaces, and seamless tech integration, sound has become an unavoidable byproduct.

Interruptions are the new normal.

The same tools and behaviors that drive innovation also flood the environment with noise, making focus harder to sustain. Without designated quiet zones and soundproof spaces, these hybrid dynamics make it difficult to focus, communicate, and maintain a productive rhythm.

The way we work has changed – but office design hasn't.

To create environments that truly support productivity, well-being, and focus, acoustic strategies must evolve. This means combining the best of traditional acoustic treatments, improving our understanding of layout design, and providing access to private spaces that support the way people work today.



We've spent over 15 years designing and manufacturing soundproof pods and acoustic office solutions.

That experience has given us deep insight into how office noise shapes the way people work — and how to design solutions that help them thrive.



Work has evolved.  
Offices must evolve  
with it.

Acoustic privacy is one of the biggest challenges in contemporary workplaces and has detrimental effects on productivity for both individual and collaborative dimensions of work.

Leesman (2022)

# Understanding office noise

## How sound behaves at work

Understanding how sound interacts with its environment and impacts the office is key to developing strategies to minimize the negative effects of noise on workers.

HIGH DECIBEL LEVELS overwhelm concentration and raise cognitive load.

REVERBERATION causes sound to bounce and linger, muddling speech and communication.

FREQUENCY CLASHES occur from overlapping noise sources like speech and equipment interfere with focus.

SOUND BLEED allows noise to travel between spaces, disrupting privacy and creating distraction.

## Where noise comes from at the office

Office noise stems from a mix of human activity, equipment, and building systems. Conversations, movement, HVAC systems, and office technology all contribute to the office soundscape.

### HUMAN ACTIVITY

MEETINGS & HYBRID CONFERENCES combine multiple voices and device sounds, adding layers of speech that increase distraction and reduce privacy.

CONVERSATIONS & PHONE CALLS generate intelligible speech that easily carries across open spaces, drawing attention away from work.

SPEECH OVERLAP from simultaneous conversations or verbal interruptions create competing voices that make it harder to follow or process speech.

BACKGROUND NOISE & SUDDEN IMPACTS from everyday movement generates a mix of ambient and sudden sounds that raise the noise floor and startle nearby workers.

### OFFICE EQUIPMENT

HVAC SYSTEMS emit a continuous low-frequency hum that raises the overall noise floor and contributes to fatigue.

PRINTERS & OFFICE EQUIPMENT create intermittent or constant mechanical noise that interferes with nearby conversations.

DEVICE NOTIFICATIONS produce high-frequency pings and chimes that disrupt concentration.

KEYBOARD & MICE CLICKS generate sharp, repetitive sounds that are especially noticeable in quiet or task-focused areas.





# A noisy office is a liability.

Noise and lack of privacy are the two most important disturbances in open-plan offices.

Radun et al. (2019)

# The impact of noise at the office

## Impact on people

Constant noise puts ongoing strain on employees, creating a work environment that fails to support its people.

According to Radun et al. (2019), irrelevant background speech can disrupt concentration and cause physiological stress, which over time may undermine employees' health and motivation.

Over time, difficulty recovering becomes a serious issue, as persistent noise keeps the brain in a heightened state, disrupts rest, and makes it harder for employees to reset between tasks.

Irrelevant background speech impairs cognitive performance and produces a physiological stress reaction. With time, these effects can be harmful for employees' health and motivation.

Radun et al. (2019)

## Impact on work

As noise levels rise, maintaining focus demands more effort, making it harder to deliver quality work and resulting in reduced output.

Even low-level noise leads to reduced focus, slowing task completion, and resulting in lower productivity as employees work harder just to maintain the same output.

Distractions from overlapping voices lead to disrupted collaboration, causing misunderstandings, disengagement, and a workforce that consistently underdelivers.

## Impact on business

Noise isn't just bad for people – it's bad for business. People avoid noisy offices. This creates wasted resources with unused desks and vacant meeting rooms, turning empty spaces into sunk costs.

A noisy, overstimulating environment leaves employees disengaged, draining motivation, fueling burnout, leading to more sickness-related absences, and making it difficult to retain top talent.

An office that feels chaotic or unsupportive leads to a damaged reputation, weakening employee branding and complicating recruitment efforts.





Most offices  
aren't designed  
to address the  
acoustic demands  
of modern work.

Early-stage acoustic planning and layout strategies can effectively reduce workplace noise exposure.

ISO 11690-1:2020

## 2. Acoustic solutions

# Effective acoustic design

An effective acoustic design strategy combines traditional acoustic treatments with an acoustically optimized layout, and provides sufficient access to private spaces that support the way we work today.

## 1 | Traditional acoustic treatments

Absorptive and diffusive materials that manage sound at the surface level.

## 2 | Layout optimization

Office design that minimizes noise transfer and support task-appropriate acoustic zones.

## 3 | Private workspaces

Enclosed spaces that support focus, speech privacy, and recovery.



# Traditional acoustic treatments

The foundation of a balanced and functional workspace lies in the use of materials that absorb, diffuse, and soften sound. These time-tested solutions have helped manage sound and support day-to-day work for generations.

## Absorptive treatment

Sound absorbing materials like acoustic wall panels, ceiling baffles, and soft flooring play a key role in reducing echo, reverberation, and ambient noise in active office areas.

## Sound shaping elements

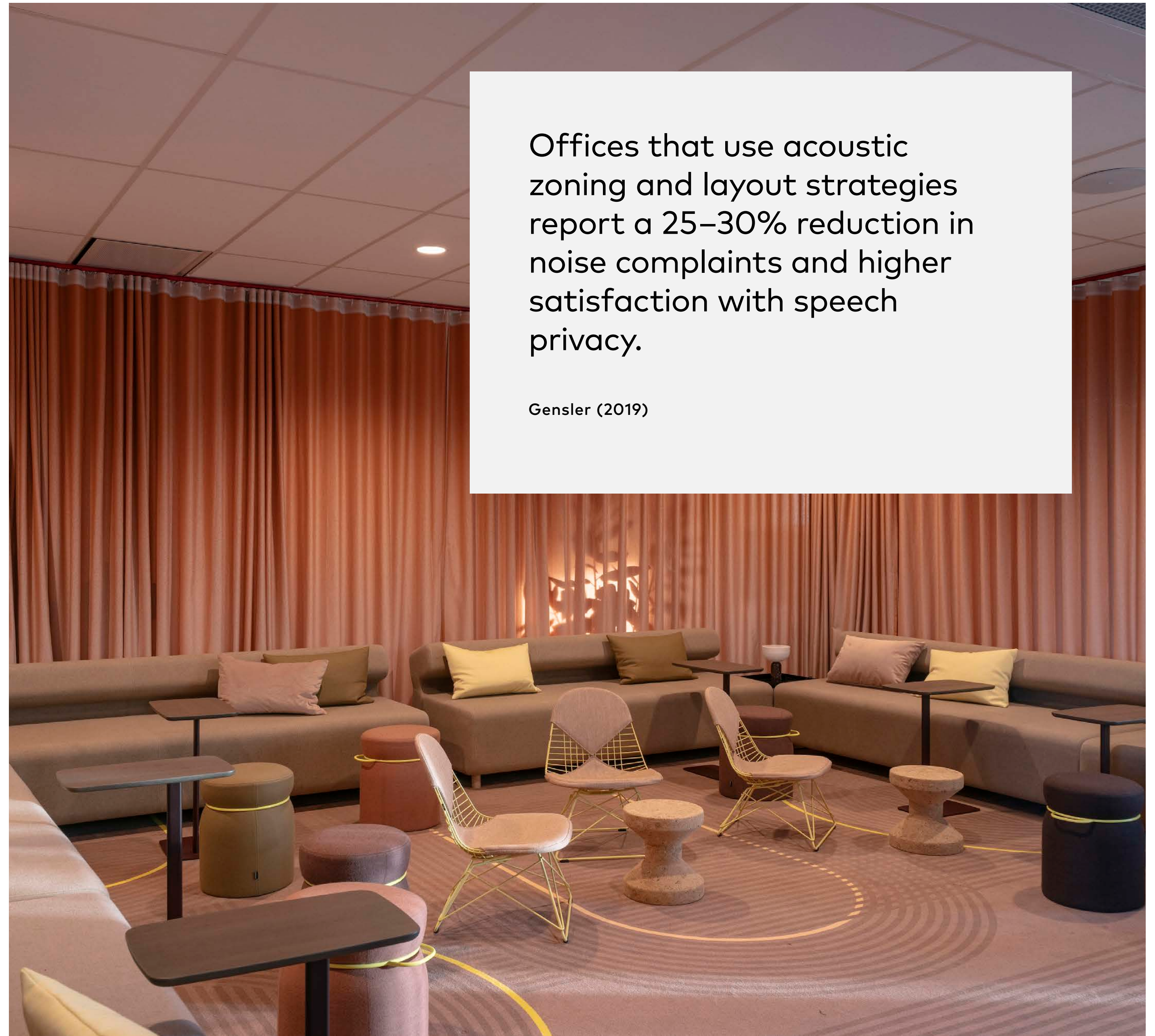
Specialized sound control tools, like diffusers, bass traps, and acoustic dividers, scatter reflections and blocking sound transmission between zones.

## Soft furnishings

Practical and decorative furnishings, like rugs, upholstered furniture, curtains, and mobile dividers passively reduce noise, soften reflections, and enhance comfort in shared office spaces.

Offices that use acoustic zoning and layout strategies report a 25–30% reduction in noise complaints and higher satisfaction with speech privacy.

Gensler (2019)



# Layout optimization

How a workspace is arranged directly shapes the way sound moves through it. Strategic layout decisions help reduce noise spillover, protect quiet areas, and create an environment where focus and collaboration can coexist.

## Space planning

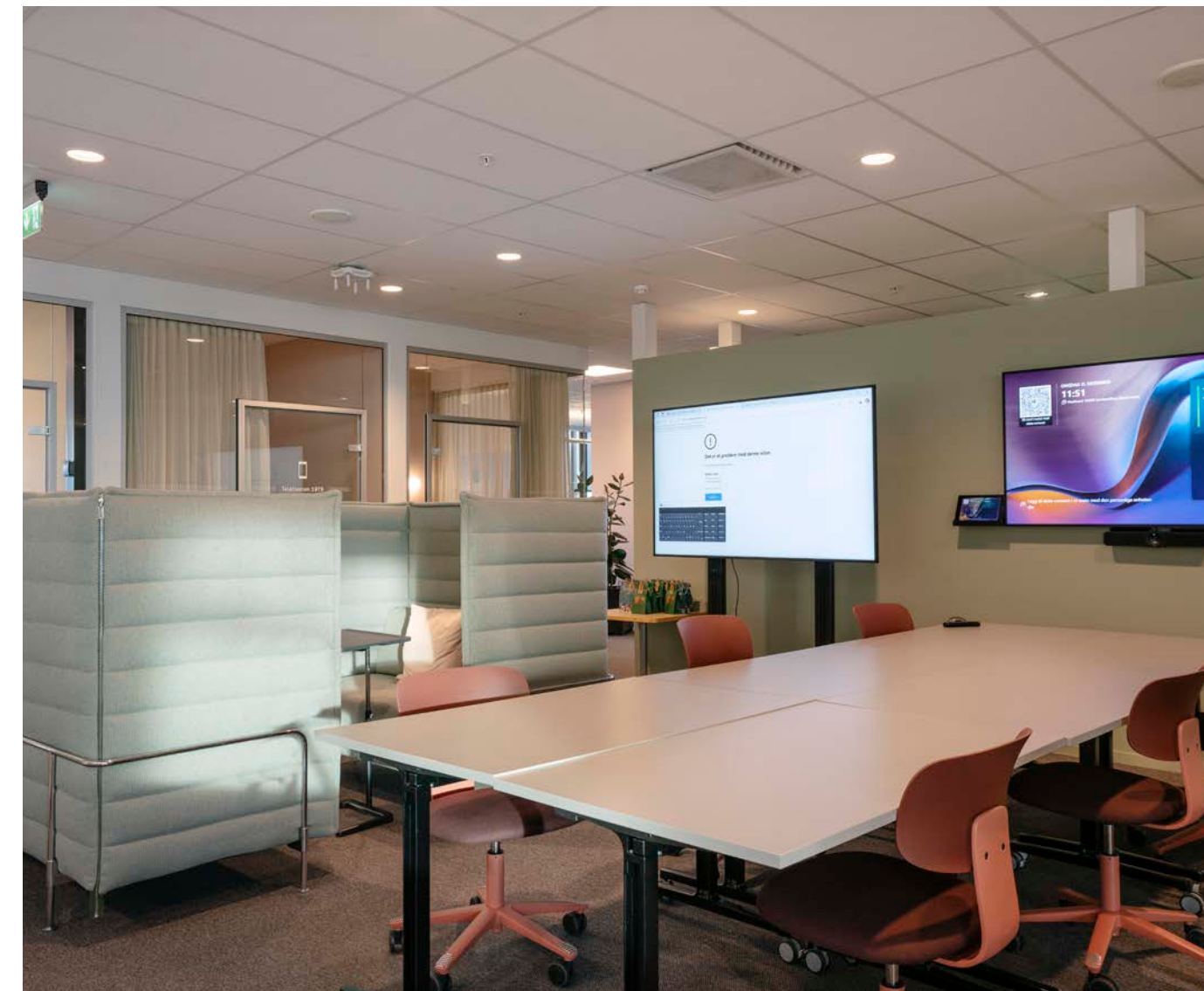
A strategically designed office layout features activity-based zones that are separated by buffers areas to help manage sound flow and maintain a balanced acoustic environment.

## Workstation layout

A well-arranged work area creates a spacious configuration with thoughtful desk placement, using furniture as physical dividers to minimize noise transfer.

## Acoustic dividers

An acoustically effective office layout applies layered sound isolation through architectural barriers, movable walls, and glass partitions that contain sound and control noise transfer between spaces.



Workstation arrangements with staggered or back-to-back desks and acoustic panels can reduce direct speech transmission by 30–40%.

Haapakangas et al. (2017)



# Private workspaces

Incorporating quiet, enclosed spaces is essential for combating noise in the modern office. Modular solutions like Framery soundproof pods, offer superior flexibility, acoustic performance, and ease of integration without the need for costly construction or renovation.

## Built rooms

Constructed as part of the office's permanent layout, built rooms provide enclosed spaces for meetings, calls, or focused work when designed with proper acoustic treatment. These constructed spaces offer little flexibility, and can be costly to modify as workplace needs change.

## Framery soundproof pods

Framery smart pods are enclosed, high-performing workspaces with unparalleled soundproofing and interior acoustics that offer a flexible, scalable solution for focused work, calls, or meetings. Freestanding and modular, they can be rearranged as needed to bring private spaces wherever they're needed.



Access to private workspaces is directly linked to higher employee satisfaction, retention, and performance.

Gensler (2019)





Integrating soundproof pods into open offices has been shown to improve overall workplace satisfaction and perceived productivity by 20–25%.

Gensler (2022)

Framery soundproof pods are a foundational part of acoustic design in modern offices.

# Acoustic solutions from Framery

Framery pods improve the acoustics of any office.

Built for flexibility, Framery pods offer quiet, private spaces for focused work, meetings, and calls - so conversations happen inside the pod, not across the office.

Conversations stay contained - even in open spaces.

Framery pods can be placed directly in working areas without adding noise to the office - making privacy and focus possible anywhere they're needed.

A precision-engineered acoustic working environment.

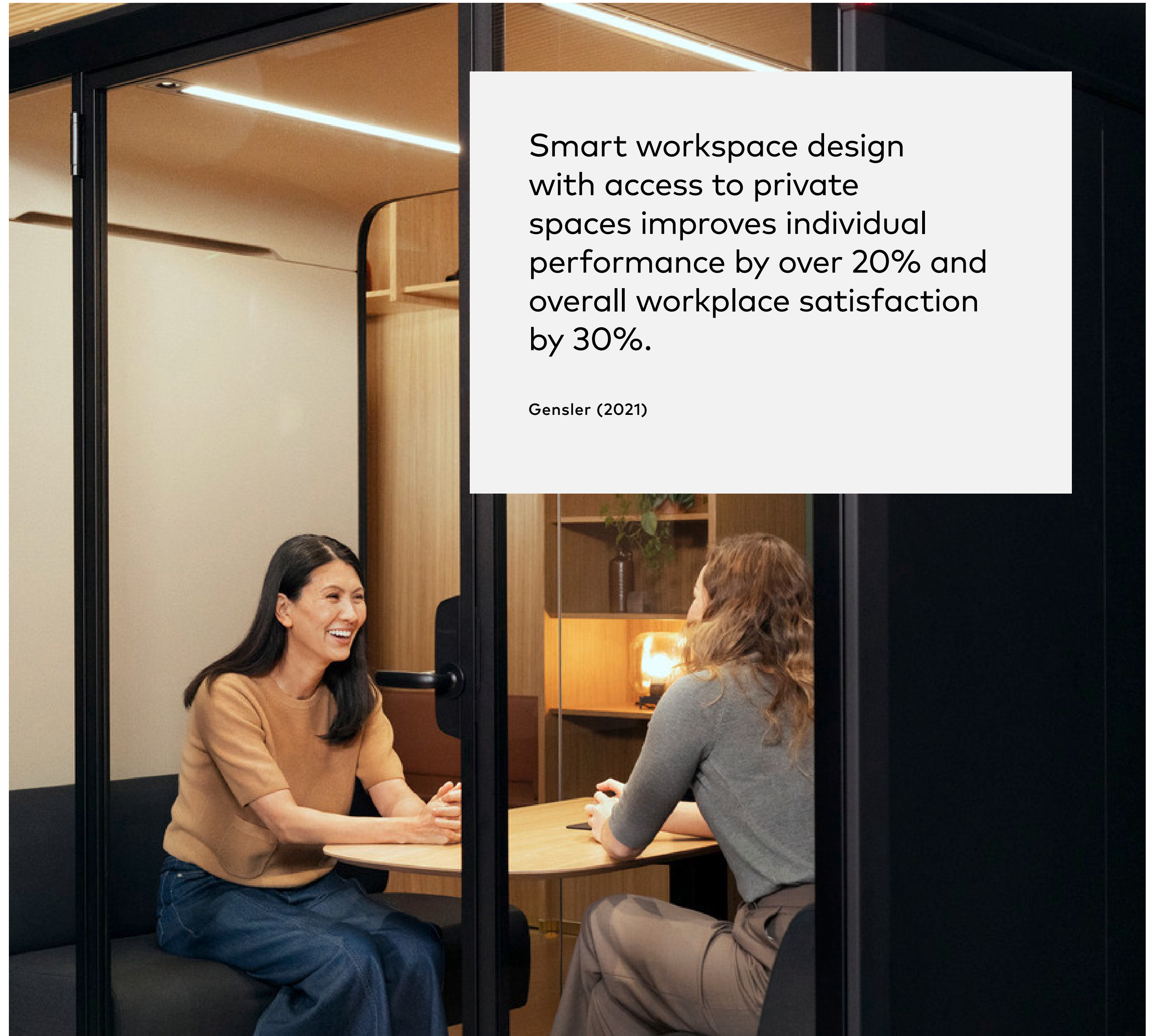
Every surface in Framery pods is thoughtfully designed to absorb sound, reduce reverberation, eliminate echo, and enhance speech clarity.

Technology that enhances the entire office soundscape.

An embedded sound masking system helps manage ambient noise outside the pod - improving privacy and reducing distractions across open spaces.

Smart workspace design with access to private spaces improves individual performance by over 20% and overall workplace satisfaction by 30%.

Gensler (2021)



# Acoustic solutions from Framery

Framery has revolutionized office acoustics in the modern era of work. With Framery, offices become more than just places to work - they become environments where people can focus, connect, and thrive.

## Reduced noise for office workers

A-class soundproofing in Framery smart pods helps to minimize the amount of sound transference through the pod - so conversations and activities inside the pod do not disrupt the surrounding workspace.

- ✓ Noise isolation
- ✓ Focus & connection
- ✓ Optimized interior acoustics
- ✓ Relief from office noise

## Soundproof spaces to get work done

Dedicated soundproof spaces offer employees the ideal environment to concentrate on individual tasks, participate in virtual meetings, or conduct confidential conversations without distractions - so there's always a space to find your focus.

- ✓ Phone & video calls
- ✓ In-person and hybrid meetings
- ✓ Brainstorming sessions
- ✓ Ad-hoc chats

## Integrated office sound masking system

An integrated sound masking system in Framery smart pods improves the working atmosphere outside the pods - reducing noise distractions, protecting speech privacy, and enhancing the overall acoustic environment of the office.

- ✓ Speech privacy
- ✓ Rest & recovery
- ✓ Reduced stimulation
- ✓ Autonomy in ways of working

30 DB  
SPEECH-LEVEL  
REDUCTION

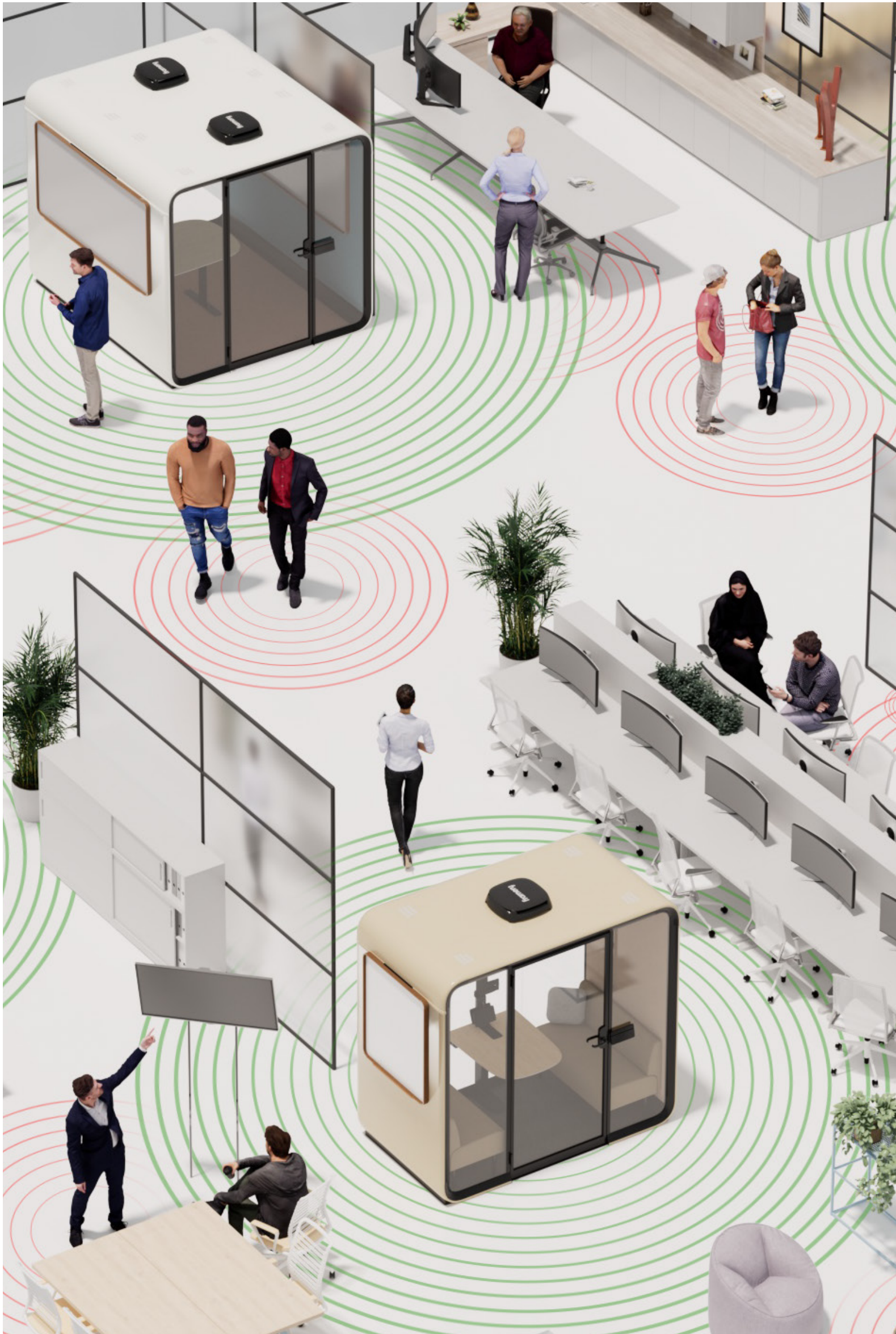
A-CLASS  
SOUNDPROOFING

ISO 23351-1  
CERTIFIED PRIVACY

ECHO-FREE  
INTERIORS

REVERBERATION  
CONTROL

DUAL-DIRECTION  
SOUND INSULATION





Better acoustics  
support better work.  
Framery helps you  
get it done.



### 3. Acoustic design guide

# How to design an acoustically sound workplace

Even the noisiest office environments can be transformed into spaces that support focus, collaboration, and well-being.

By applying proven acoustic treatments, optimizing layouts, and integrating private workspaces, it's possible to reduce distractions, protect comfort, and create a more productive and comfortable workplace.

Use these strategies to design workspaces where people can do their best work — free from noise and distraction.



# Traditional acoustic treatment

Use materials to manage office sound by targeting the surfaces where noise builds up most.

## Sound-absorbing materials

Apply acoustic treatment to walls, ceilings, and floors to reduce reverberation and control noise in open or high-traffic areas.

- ✓ Install absorptive panels on flat surfaces to capture mid-to-high frequency sound and reduce reflections.
- ✓ Add ceiling baffles in open or tall spaces to absorb overhead sound and minimize echo.
- ✓ Apply soft flooring with acoustic underlayment to reduce footfall noise and limit sound reflections.

## Sound shaping elements

Use targeted acoustic tools to manage how sound moves through a space - scattering reflections and absorbing buildup.

- ✓ Use sound diffusers to scatter sound waves evenly and reduce harsh reflections or hotspots.
- ✓ Place bass traps in key areas to absorb low-frequency rumble and vibration often caused by HVAC systems.
- ✓ Incorporate acoustic screens to block direct sound paths and absorb mid-to-high frequencies.

## Soft furnishings

Decorate with practical materials to create a balanced and comfortable environment without specialized installation.

- ✓ Include upholstered furniture and decorative cushions to passively absorb mid-frequency noise.
- ✓ Layer in curtains & area rugs from heavy textiles to reduce echo, soften harsh reflections, and improve room acoustics.
- ✓ Integrate space dividers and moveable barriers to provide visual and acoustic separation between zones.



# Layout optimization

Control how sound moves through the office by structuring space around activities and behavior.

## Space planning

Use zoning and thoughtful layout to separate quiet areas from loud ones within the office.

### CREATE ACOUSTIC ZONES

Group quiet and active work areas separately, and reinforce boundaries using materials like carpeting, ceiling panels, or acoustic wall treatments.

### POSITION NOISY SPACES INTENTIONALLY

Locate meeting rooms, break areas, and equipment zones away from focused workstations to minimize sound spillover.

### INTEGRATE BUFFER AREAS

Designate hallways, lounges, or casual seating zones between work areas to absorb and diffuse sound across zones.

## Workstation layout

Arrange desks, furniture, and shared areas to control to minimize noise transfer in work areas.

### DIVIDE SPACE WITH FURNITURE

Use shelving, pods, or tall-backed seating to break up open areas and block direct sound paths between workstations.

### ORIENT DESKS TO REDUCE NOISE SPREAD

Position desks back-to-back or use staggered layouts and acoustic screens to limit voice projection and improve concentration.

### MANAGE SPATIAL DENSITY

Avoid clustering too many desks together - allow space between workstations to reduce ambient noise and create acoustic breathing room.

## Acoustic isolation

Incorporate physical barriers to help control noise transfer between spaces throughout the workplace.

### INSTALL ACOUSTIC BARRIERS

Use screens, upholstered panels, or textile dividers to interrupt direct sound paths and define acoustic zones..

### ADD MOVABLE WALLS

Use foldable or rolling partitions to flexibly isolate noise as team needs and layouts change.

### INCLUDE GLASS PARTITIONS

Use laminated or double-glazed glass to contain sound while maintaining openness and visibility between spaces.



## Get help from the experts

Our team has helped improve the acoustics in offices around the globe - with representatives and showrooms in major cities everywhere. Whether you're improving an existing space or designing for flexibility, we can help you apply the strategies in this guide to your unique workplace.

Visit [framery.com](https://framery.com) to learn more about our revolutionary workplace solutions - or to find a showroom near you where you can try any of the Framery smart pods for yourself.

# Sources

## Academic & peer-reviewed research

CHATZIGEORGIOU ET AL.  
Chatzigeorgiou, C., Christopoulou, P., & Papagiannakis, A. (2021). Effects of acoustic design on employee productivity in open-plan offices. *Applied Acoustics*, 172, 107638. <https://doi.org/10.1016/j.apacoust.2020.107638>

COX & D'ANTONIO  
Cox, T. J., & D'Antonio, P. (2009). *Acoustic Absorbers and Diffusers: Theory, Design and Application* (2nd ed.). CRC Press.

EVANS & JOHNSON  
Evans, G. W., & Johnson, D. (2000). Effects of acoustical conditions on cognitive stress and task performance. *Journal of Sound and Vibration*, 231(3), 429–441. <https://doi.org/10.1006/jsvi.1999.2671>

FOROUGHİ ET AL.  
Foroughi, C. K., Werner, N. E., Nelson, J. T., & Boehm-Davis, D. A. (2014). Do interruptions affect quality of work? *Human Factors*, 56(7), 1262–1271. <https://doi.org/10.1177/0018720814531786>

HAAPAKANGAS ET AL.  
Haapakangas, A., Hongisto, V., Eerola, M., & Kuusisto, T. (2017). Distraction distance and perceived disturbance by noise - An analysis of 21 open-plan offices. *The Journal of the Acoustical Society of America*, 141(1), 127–136. <https://doi.org/10.1121/1.4973208>

HODGSON  
Hodgson, M. (1999). Experimental investigation of the acoustical characteristics of university classrooms. *The Journal of the Acoustical Society of America*, 106(4), 1810–1819. <https://doi.org/10.1121/1.427932>

HODGSON ET AL.  
Hodgson, M., Rempel, R., & Kennedy, S. (2007). Measurement and prediction of speech and noise levels and the Lombard effect in meeting rooms. *The Journal of the Acoustical Society of America*, 121(1), 202–211. <https://doi.org/10.1121/1.2390673>

HYGGE, EVANS & BULLINGER  
Hygge, S., Evans, G. W., & Bullinger, M. (2002). A prospective study of some effects of aircraft noise on cognitive performance in schoolchildren. *Psychological Science*, 13(5), 469–474. <https://doi.org/10.1111/1467-9280.00483>

KUO & MORGAN  
Kuo, S. M., & Morgan, D. R. (1999). *Active Noise Control Systems: Algorithms and DSP Implementations*. Wiley-IEEE Press.

RADUN ET AL.  
Radun J., Hongisto V., Maula H., Rajala V., Al-Ramahi D., Scheinin M. (2019) Physiological, psychological, and performance effects of office noise. <https://doi.org/10.18154/RWTH-CONV-239288>

SALAMÉ & BADDELEY  
Salamé, P., & Baddeley, A. D. (1982). Irrelevant speech effects on serial recall of visually presented digits: Acoustical confusions or rehearsal disruption? *The Quarterly Journal of Experimental Psychology*, 34(1), 47–53. <https://doi.org/10.1080/14640748208400847>

STANSFELD & MATHESON  
Stansfeld, S. A., & Matheson, M. P. (2003). Noise pollution: Non-auditory effects on health. *British Medical Bulletin*, 68(1), 243–257. <https://doi.org/10.1093/bmb/ldg033>

SULLIVAN & O'CONNELL  
Sullivan, L. K., & O'Connell, R. (2011). Acoustical performance of glazing systems: Effects of laminated glass and airspace. *The Journal of the Acoustical Society of America*, 130(4), 2480. <https://doi.org/10.1121/1.3652934>

SUNDSTROM ET AL.  
Sundstrom, E., Town, J. P., Rice, R. W., Osborn, D. P., & Brill, M. (1994). Office noise, satisfaction, and performance. *Environment and Behavior*, 26(2), 195–222. <https://doi.org/10.1177/0013916594262004>

VEITCH & GALINDO  
Veitch, J. A., & Galindo, M. (2005). Performance and mood in open-plan offices: The role of personal control over acoustics. *National Research Council Canada*. <https://doi.org/10.4224/20337984>

## Industry reports

GENSLER  
Gensler. (2019). U.S. Workplace Survey 2019. Gensler Research Institute. <https://www.gensler.com/research-insight/gensler-research-institute/us-workplace-survey-2019>

Gensler. (2021). *Designing for the Human Experience: U.S. Workplace Survey 2021*. Gensler Research Institute. <https://www.gensler.com/research-insight/gensler-research-institute/us-workplace-survey-2021>

Gensler. (2022). *Workplace Performance Index (WPI) 2022 Report*. Gensler Research Institute. <https://www.gensler.com/research-insight/gensler-research-institute/workplace-performance-index>

HARVARD BUSINESS REVIEW  
Austin, R. D., Pisano, G. P., & King, D. (2021). Designing work for neurodiverse talent. *Harvard Business Review*. <https://hbr.org/2021/03/designing-work-for-neurodiverse-talent>

LEESMAN  
Rothe, P., & Hanc, M. (2022) *A new workplace is no guarantee: Leesman Index 2022*. <https://www.leesmanindex.com/articles/a-new-workplace-is-no-guarantee/>

U.S. GENERAL SERVICES ADMINISTRATION  
U.S. General Services Administration. (2011). *Sound Matters: How to achieve acoustic comfort in the contemporary office*. Public Buildings Service.

WORLD HEALTH ORGANIZATION  
World Health Organization. (1999). *Guidelines for Community Noise*. Edited by Birgitta Berglund, Thomas Lindvall, and Dietrich H. Schwela. WHO Regional Office for Europe. <https://www.who.int/docstore/peh/noise/guidelines2.html>

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