

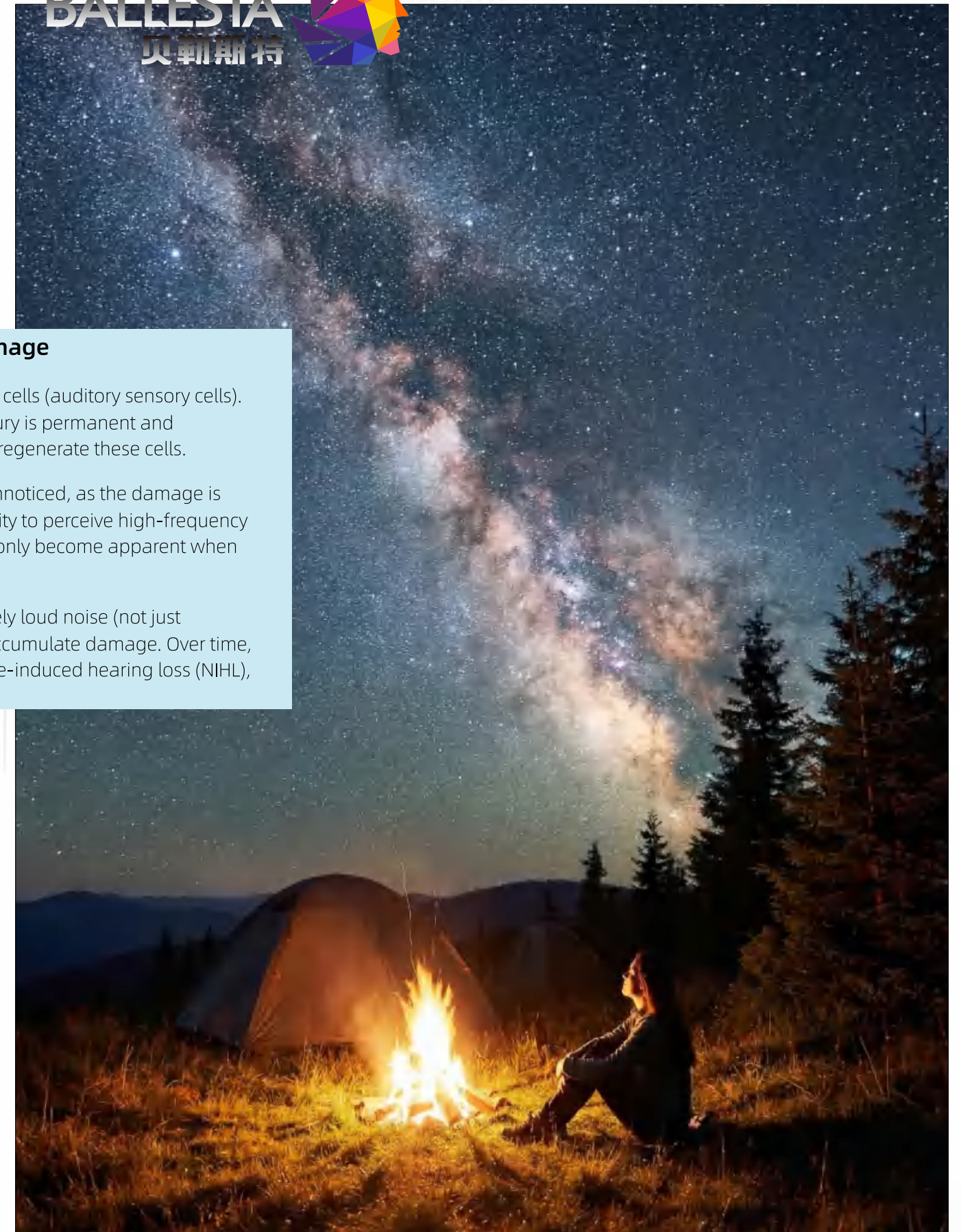
METAL CEILING | WALL PANEL | SUN-SHADE SYSTEM

Noise Hazards - Hearing Damage

Noise poses harm to the cochlear hair cells (auditory sensory cells). Once these cells are damaged, the injury is permanent and irreversible – the human body cannot regenerate these cells.

Early-stage hearing loss often goes unnoticed, as the damage is gradual. It typically first affects the ability to perceive high-frequency sounds (e.g., 400kHz), and symptoms only become apparent when the damage has already occurred.

Prolonged exposure to even moderately loud noise (not just extremely high-decibel sounds) can accumulate damage. Over time, this cumulative exposure leads to noise-induced hearing loss (NIHL), which is also permanent.





DESCRIPTION

Our homes and workspaces are far more than just physical structures; they are the sanctuaries where our lives unfold. Yet, in our increasingly vibrant world, the sounds that truly matter—the steady rhythm of your breath, a shared confidence, or the clarity of a creative thought—are often drowned out by the invisible intrusion of unwanted noise.

At Ballesta®, we believe that acoustic comfort is a fundamental form of care. This belief led to the creation of Hushtal™, an acoustic solution designed to act as a gentle shield for your environment.

The soul of Hushtal™ is rooted in scientific heritage, drawing inspiration from the pioneering microporous sound absorption theory of the renowned academician Ma Dayou. We have translated this rigorous science into a "living" surface. Hushtal's micro-wave structure, with its rhythmic ribs and grooves, does not simply block sound; it gracefully redirects and softens the impact of air particles.

As sound travels into the wave troughs, it encounters a hidden landscape of oblique micropores. Here, through a natural process of friction and impedance, harsh noise is quietly dissipated into harmless kinetic energy. Beneath the surface, the engineering becomes even more profound: every square meter houses 500,000 precision-curved geometric surfaces. These microscopic "cavities" create a resonant dance that diffuses interference, achieving a level of quiet that feels natural rather than artificial.

Hushtal™ is where scientific ingenuity meets the warmth of human-centric design. It is our invitation to you to reclaim your space—to transform a room into a haven where silence is comfortable, and every meaningful sound is heard with crystal clarity. Welcome to the quiet you deserve.



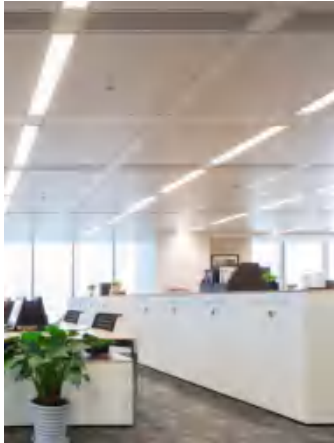
China A1



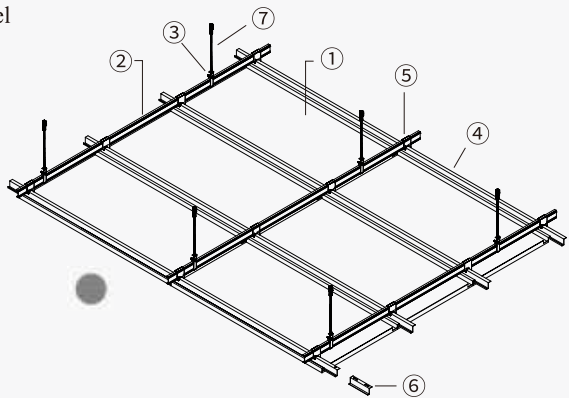
NRC up to 0.95



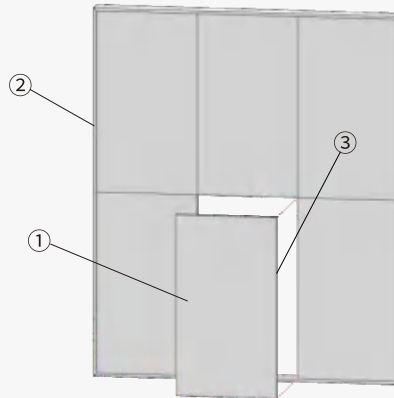
APPLICATIONS



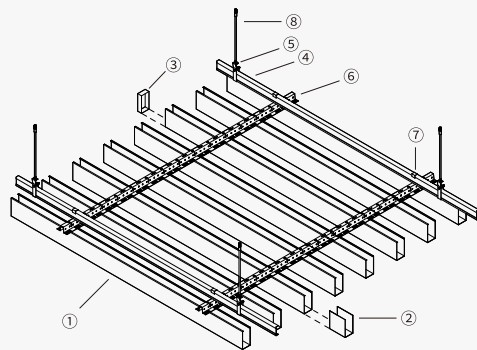
- ① Perforated Aluminum Panel
- ② H50 Main Runner
- ③ Hanger for Main Runner
- ④ H50 Hook-on Carrier
- ⑤ Hanger for Carrier
- ⑥ Carrier Splice
- ⑦ Rod Bar



- ① Aluminum Honeycomb Panel
- ② Square Stell
- ③ Hanger



- ① U-shape Aluminum Baffle Ceiling
- ② Panel Splice
- ③ End Cap
- ④ H50 Main Runner
- ⑤ Hanger for Main Runner
- ⑥ Carrier
- ⑦ Hanger for Carrier
- ⑧ Rod Bar



PRODUCT DATA

Material: Aluminum Alloy

Specifications

Aluminum Alloy

Thickness: 1.0mm, 1.2mm

Width: 1000 -1300mm

Length: ≤4000mm

KEY PRODUCT HIGHLIGHTS



Sound Absorption & Noise Reduction

Featuring special craftsmanship, ultra-micropores with diameters of $\leq 0.2\text{mm}$ are punched into thin metal sheets. No additional porous materials are required, delivering excellent sound energy absorption performance with a Noise Reduction Coefficient (NRC) of up to 0.7 or higher. Complies with the national building sound insulation design standard GB50118-2010.



Clean & Dust-Free

Crafted from pure metal, this decorative material contains no additional components such as minerals, glass fiber, or non-woven fabric (sound-absorbing paper). During installation and use, it generates no pollutants like dust or fibers, nor does it absorb moisture or develop mold—issues that could compromise indoor air quality. It ensures a clean, fresh environment and is environmentally friendly.



Aesthetic & Customizable Design

Offering a variety of professional surface treatment processes, the product features a unique and delicate texture that combines tactile and visual appeal. With a wide range of soft, rich color options and customizable matching services—it seamlessly complements the design styles of various architectural spaces, including commercial areas, office buildings, hospitals, and high-end residences.



Durable & Non-Degrading

The product system achieves sound absorption through its own ultra-micropores, requiring no additional materials such as non-woven fabric (sound-absorbing paper), rock wool, or glass fiber. It eliminates sound absorption performance degradation caused by issues like material moisture absorption, boasting a long service life of over 20 years.



Excellent Fire Resistance

As a pure metal product with a systematic structure, it features a Class A fire rating and contains no additional porous materials. When burned, it produces no harmful gases, fully complying with the national standard GB8624-2012 Classification of Burning Behavior of Building Materials and Products.



Green & Eco-Friendly

The product has obtained national environmental certification. No glue or adhesives are required during installation, making it green and eco-friendly.

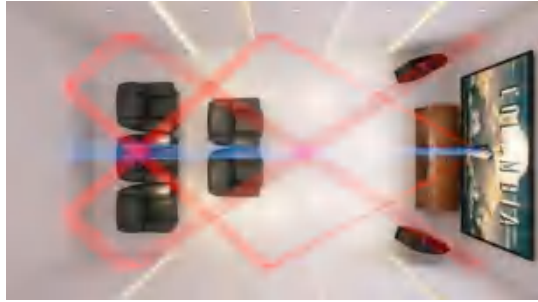
MATERIAL PERFORMANCE PARAMETERS OVERVIEW

Performance Comparison of Sound-Absorbing Materials							
Material Type	Non-Toxic	Durable	Acoustic Absorption	Fire Resistant	Moisture Resistant	Dust Resistant	Thermal Insulation
Perforated Aluminum Acoustic Panel	⊙	⊙	⊙	⊙	⊙	⊙	×
Soundproof Composite Wall Panel	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Starry Sky Series	⊙	⊙	⊙	⊙	⊙	⊙	×
Acoustic Paper	⊙	○	⊙	○	×	○	×
Mineral Wool	○	○	⊙	⊙	×	×	⊙
Fiberglass Board	○	○	⊙	⊙	○	○	⊙
Polyester Fiber	⊙	○	⊙	○	○	○	○
Polyurethane Foam	×	○	⊙	×	×	×	⊙

(⊙ Good, ○ Average, × Poor)

Applicable Scenarios

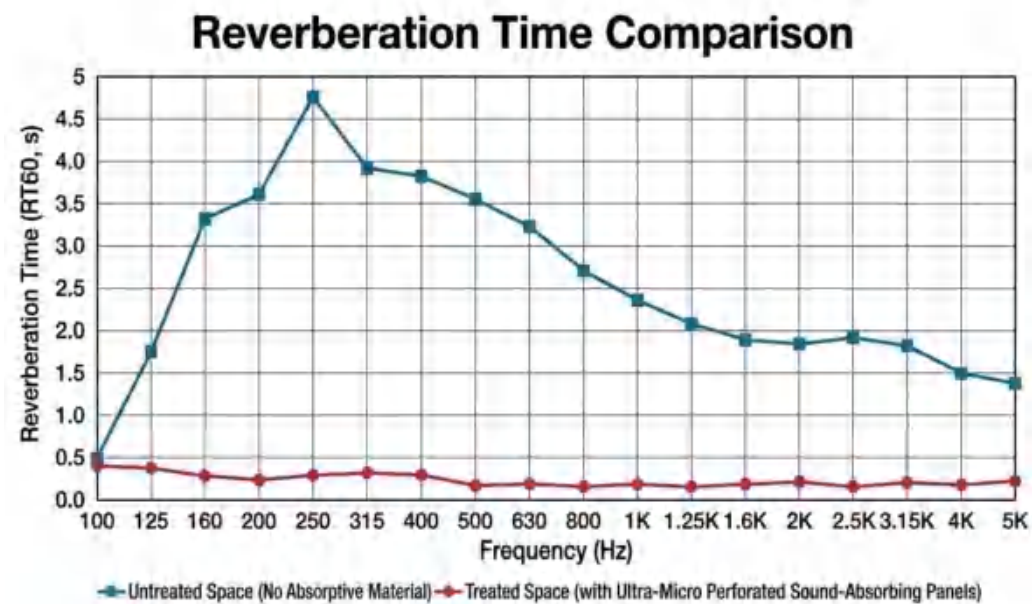
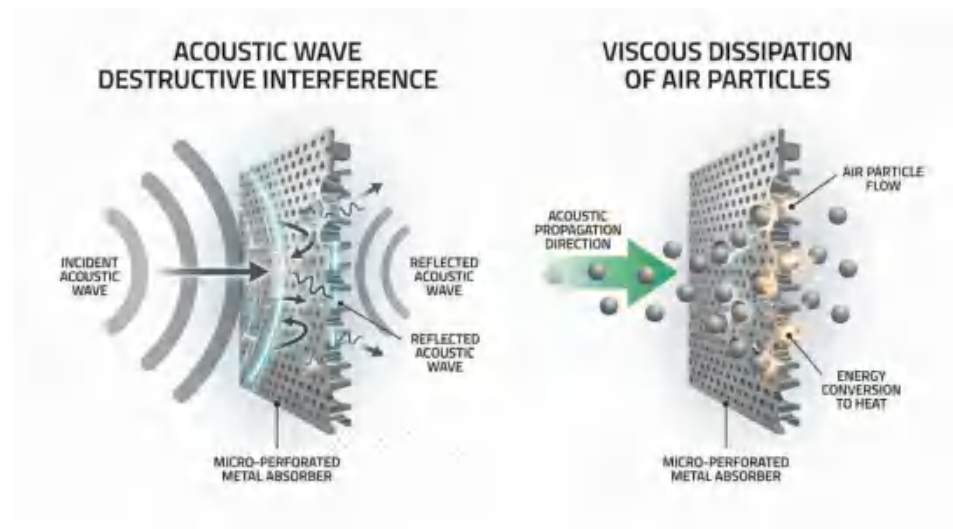
- Spaces requiring both high sound absorption performance and aesthetic appeal, such as cinemas, concert halls, stadiums, bank lobbies, hospitals, high-end office buildings, libraries, art galleries, exhibition halls, and lecture halls—all for ceiling applications.
- High-traffic public spaces, including airport terminals, subway stations, railway stations, and ship interiors—ideal for ceiling installations.
- Spaces with strict cleanliness requirements, such as precision electronics workshops, pharmaceutical and biochemical workshops, tobacco processing and packaging workshops, and food processing workshops—suitable for ceiling use.



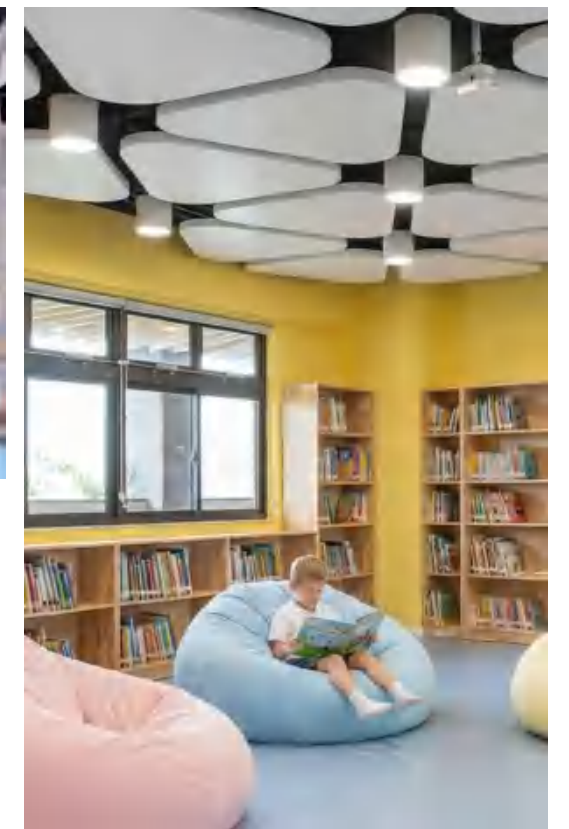
Without **Hushtal™** ultra-microporous sound absorption panels suffer from excessive reverberation



Installing **Hushtal™** ultra-microporous sound absorption panels significantly reduces reverberation



APPLICATIONS



Hushtal™ for Campuses

Hushtal™ effectively reduces indoor reverberation and noise, turning classrooms, laboratories, and libraries into quiet, focused learning spaces for students. With diverse product combinations, customizable colors and surface finishes, and coordinated ceiling-wall designs, it offers ample creative flexibility for architects and designers.

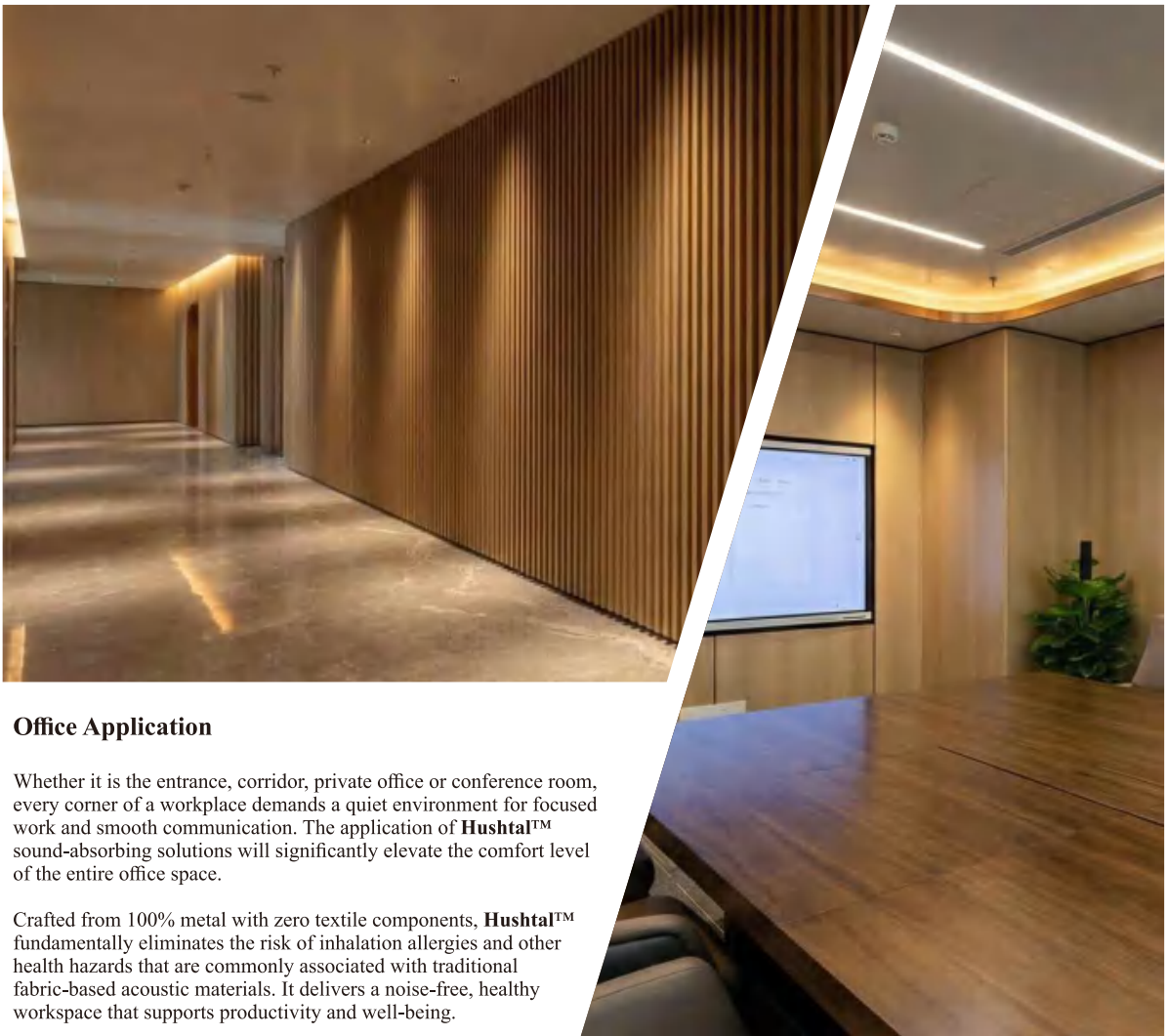
APPLICATIONS



Swimming Pool Application

Enclosed public spaces like swimming pools generate significant indoor noise. Poor sound control can severely compromise user experience. Traditional textile-based sound-absorbing products are incompatible with such humid environments. At this point, sound-absorbing materials made of all metal (textile-free) offer a perfect solution. What's more, these metal sound-absorbing materials feature excellent maintenance-friendliness—they can be easily cleaned with water or a simple wipe, requiring no complex maintenance procedures. Even in long-term humid environments, they will not suffer from mold, deformation or aging, ensuring that the sound-absorbing performance remains stable and uncompromised, providing a durable and reliable acoustic solution for swimming pools.

APPLICATIONS



Office Application

Whether it is the entrance, corridor, private office or conference room, every corner of a workplace demands a quiet environment for focused work and smooth communication. The application of **Hushtal™** sound-absorbing solutions will significantly elevate the comfort level of the entire office space.

Crafted from 100% metal with zero textile components, **Hushtal™** fundamentally eliminates the risk of inhalation allergies and other health hazards that are commonly associated with traditional fabric-based acoustic materials. It delivers a noise-free, healthy workspace that supports productivity and well-being.

PROJECT CASES



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