THE ISOLATOR
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INSIDE THIS ISSUE

THE ISOLATOR

Hello December! As the year winds down, the energy at KGC continues to rise — driven by innovation, engineering excellence, and projects that push acoustic performance to new heights.

This month, our spotlight turns to an iconic Hotel Ras Al Khaimah, where we delivered a premium acoustic louver solution engineered to protect luxury spaces from mechanical and outdoor noise.

In our technical discussion, we explore how blade orientation within acoustic louvers influences sound attenuation — revealing the science behind airflow paths, angle geometry, and frequency control.

Our product highlight this month features the Kinetics Acoustic Louvers — built to balance airflow, durability, and high-performance noise reduction across the most demanding façade applications.

As we close another impactful month, we're reminded that precision, passion, and purpose continue to shape every solution we engineer. Let's keep the momentum strong — advancing quietly, performing powerfully.

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PROJECT HIGHLIGHT

Premium Acoustic Louver Solution Delivered for Hotel Ras Al Khaimah

The Hotel Ras Al Khaimah development required premium-grade acoustic control to reduce mechanical noise affecting guest rooms, outdoor lounges, and beachfront areas. With strict façade noise criteria of NC-30 to NC-35, the project demanded a high-performance solution that would safeguard the hotel's luxury ambience.

To achieve this, the project team turned to Kinetics Engineering for a reliable acoustic louver system capable of meeting several critical requirements:

- Strong noise attenuation without reducing airflow
- High durability and corrosion resistance for coastal conditions
- Architectural compatibility with the designer's façade standards
- Compliance with frequency-based acoustic performance targets

Kinetics' Engineered Solution

Our engineers carried out a full analysis of the mechanical noise sources and designed a custom 300 mm double-bank acoustic louver, specifically developed to meet the project's stringent performance expectations.

Key features of the solution included:

- Optimized blade orientation (45–50°) for enhanced noise reduction
- Double-bank configur**ation** to increase sound path and block direct line-of-sight
- 48 kg/m³ rockwool with black BGT lining for superior absorption
- Aluminium aerofoil blades with perforated backing to maintain airflow efficiency
- Modular panel construction for large façade openings and strong structural integrity

This engineered design achieved an additional 4–6 dB improvement compared to standard louvers—helping the hotel meet its acoustic targets without increasing the installation depth or restricting airflow.

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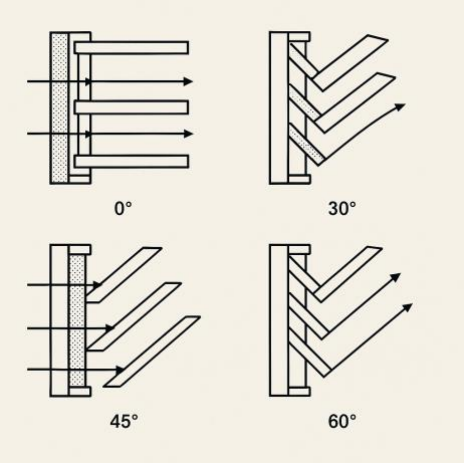
TECHNICAL DISCUSSION

HOW BLADE ORIENTATION IMPROVES ACOUSTIC ATTENUATION

Understanding the Science Behind Acoustic Louvers

Blade orientation is one of the most influential design factors in an acoustic louver. It determines how effectively the louver can block and absorb noise—especially in sensitive applications like hotels, mixed-use developments, and coastal installations.



The blade angle directly affects:

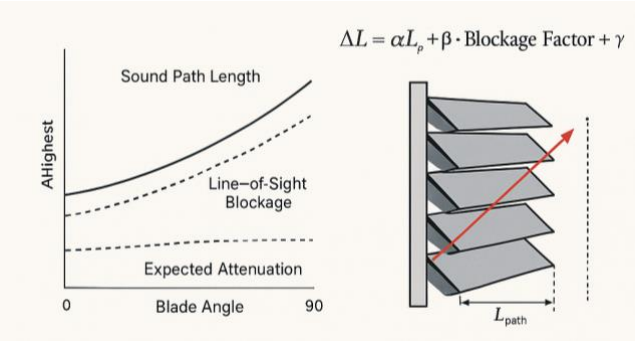
- Sound path length inside the louver
- How well the louver blocks direct line-of-sight noise
- The angle at which sound waves strike the perforated sheet and insulation
- Airflow performance and pressure drop

Even with a double-bank configuration (already known for superior attenuation), the right blade angle can significantly enhance low- and mid-frequency noise control.

The acoustic principle behind it

In simple terms, acoustic attenuation increases when:

- The sound path becomes longer
- More of the direct sound line is obstructed
- Sound waves hit the absorption material at an optimal angle



Each of these factors is influenced by blade orientation. Engineers use empirical constants—based on insulation density, perforation pattern, and blade geometry—to predict the overall attenuation.

Why blade angle matters

The angle of the blades changes how sound travels through the louver. Here is a simplified interpretation:

Effect of Blade Angle on Performance

Blade Angle	Sound Path Length	Line-of-Sight Blockage	Expected Attenuation
0°	Very Short	Very Low	Very Low
30°	Medium	Moderate	Moderate
45°	Long	High	High
60°	Longer	Very High	Very High
90°	Maximum	Complete Blockage	Highest (but airflow drops)

What This Means in Practice

- Increasing the blade angle from 30° to 60° typically adds 3–6 dB of attenuation across key frequency bands.
- The most notable improvement occurs at mid-frequencies, where human hearing is most sensitive and where hotels, residences, and offices demand the most control.

For double-bank acoustic louvers, the **optimal range is 45° to 60°**, providing the ideal balance between airflow and acoustic performance.

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PRODUCT HIGHLIGHTS – Acoustic Louvers

The 300 mm double-bank acoustic louver is engineered to deliver high noise attenuation, strong airflow performance, and long-term durability, making it ideal for premium projects like hotels and high-rise buildings. With optimized blade angles, rockwool acoustic infill, aerodynamic aluminium construction, and weather-resistant design, it provides an effective solution for controlling mechanical noise while maintaining architectural aesthetics.

Smart Construction for High Performance

The 300 mm double-bank acoustic louver installed for the hotel project is designed to deliver strong noise control while maintaining efficient airflow.

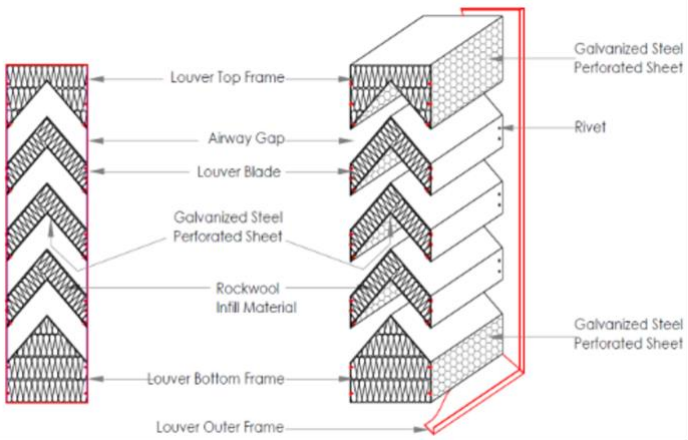
Key Construction Features

- Aluminium casing & frame with coastal-grade powder coating
- Aerofoil aluminium blades set at 45–50° for higher attenuation
- Double-bank arrangement to block direct sound paths
- Rockwool infill (48 kg/m³) with black BGT and perforated GI liner
- Modular design with weather-resistant sealing and vibration-free assembly

Where It's Used

Ideal for applications needing airflow + noise reduction:

- Hotels & resorts
- Mechanical rooms & AHU intakes
- Industrial and utility plants
- Hospitals, schools, and high-rise towers



Why It Matters

The louver provides:

- Reliable noise attenuation meeting NC/RC criteria
- Smooth airflow with 45–55% free area
- Weather protection from rain and debris
- Durability suited for UAE coastal environments

Product Variants

- Single bank for moderate attenuation
- Double bank (as used in this project) for higher noise reduction
- Available in 150 mm, 200 mm, 300 mm, and 450 mm depth options

Why It Fit the Hotel Project Perfectly

- Met acoustic targets without increasing façade depth
- Maintained architectural aesthetics
- Delivered reliable performance in beachfront conditions
- Optimized blade angle improved overall attenuation

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KINETICS YOUTUBE & TESTIMONIALS

Discover Kinetics Duct Silencers—engineered to deliver high acoustic performance and effective noise reduction in HVAC and mechanical ventilation systems. Designed in rectangular, elbow, and circular configurations, they provide superior control of airborne noise in ducts, equipment rooms, and building openings.

Available in multiple constructions and sizes, Kinetics silencers are built for durability, efficiency, and seamless integration into any airflow system. From HVAC ducts to fan inlet/discharge, AHUs, and cooling towers, they embody Kinetics' commitment to precision engineering and advanced acoustic solutions.

YouTube Video Link: https://youtu.be/EzoJWEGzfhM?si=ABUqWoy3ir8Fd5ul

YouTube Channel: https://lnkd.in/dtwpwyqw

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Website: www.kineticsgroup.ae

What our Customers ARE SAYING

"The clarity and accuracy of Kinetics' communication made the process seamless."
KAREN ROSE PENA
The One Electromechanical Installation L.L.C.

"Kinetics made the entire process easy with their clear and timely communication."
ENG. BINARAJ
Shahid Technical Contracting Co LLC

"Kinetics ensured that all our concerns were heard and addressed with efficiency on-site."
ENG. ALAN RAJAN
International Electromechanical Services Co. L.L.C.

"The responsiveness of Kinetics gave us peace of mind during our project."
ENG. REFAT ZIDAN
Menasco Mech. Contracting, L.L.C.

"The Kinetics site supervisor demonstrated exceptional communication skills with both our team and theirs."
AKHIL VIJAYAN
Al Futtaim Engineering and Technologies

"We truly appreciate Kinetics' professionalism and attention to detail."
RAGUVARAN
Rakaz Electromechanical Works

"Kinetics proved to be a reliable partner with outstanding site supervision and problem-solving."
JAMAL ALMAHAINY
Alaska Electromechanical Services L.L.C.

"Kinetics' attention to our needs made them a trusted partner for our business."
ENG. ABDUL RAHEEM
I Zone Electromechanical Contractors L.L.C.

"We were highly satisfied with Kinetics' ability to explain the inspection findings in a clear and professional manner."
AZHAR JAMAL
Aerocool HVAC System Air Solutions L.L.C.

"Excellent coordination and responsiveness from Kinetics Group throughout the process."
BINOY P
MACS Al Muthathawerah AC Systems ind. Center L.L.C.

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