

CASE STUDY-Acoustic Barriers for Chiller Noise Reduction in Dubai

THE BACK GROUND

The client faced significant noise intrusion on the top floors due to chillers located above the balcony, creating a need to effectively mitigate the high noise levels and ensure a quieter living environment for the residents.



THE CHALLENGE

The key challenges included:

- High Noise Levels: Noise levels from the chillers frequently surpassed the desired residential noise limit of 55 dBA, affecting the comfort of top-floor residents.
- Structural Constraints: The chillers were installed on rooftops above the balcony areas, necessitating a noise barrier that could seamlessly integrate into the existing structure without extensive modifications.
- Durability Requirements: Given the outdoor installation, the solution had to withstand Dubai's harsh weather conditions, including high temperatures, humidity, and occasional sandstorms.
- Rapid Installation Needs: Minimizing downtime and ensuring a quick resolution for the residents was critical.

AT A GLANCE

Location	Dubai, UAE
Kinetics Group Solutions	Acoustic Solutions
Turnaround Days	30 Days from Inception to handover

SOLUTION

Kinetics Group, through its subsidiary Kinetics Acoustics Technical Services, deployed the APMP-B Acoustic Barrier Wall System, a modular and high-performance noise control solution tailored to the project's needs.

Key Features of the APMP-B Acoustic Barrier Wall System:

1. High Acoustic Performance:

- Sound Transmission Class (STC) rating of 28+, verified through third-party testing.
- Achieves a Noise Reduction Coefficient (NRC) of 0.90, ensuring effective absorption and blocking of noise across a broad frequency range



2. Durable Construction:

- 0.9mm thick solid galvanized steel with a perforated 0.7mm BGT facing.
- 100mm high-density insulation core for superior acoustic performance and durability.

3. Customizable and Modular:

- Panels were tailored to fit the site's specific dimensions and design constraints.
- Z-Clip and L-Bottom Support Angle mounting systems allowed for quick and secure installation.

4. Weather Resistance:

- Engineered for long-term use in challenging environments, with optional powder-coated finishes for enhanced durability and aesthetics.



Installation Process

- **Assessment and Planning:** A thorough site assessment identified the optimal placement of the barriers to create an effective "sound shadow" zone, minimizing noise propagation to residential areas.
- **Rapid Deployment:** The modular nature of the APMP-B panels ensured swift assembly and installation with minimal disruption to residents.
- **Seamless Integration:** Custom-sized panels and the flexible mounting system allowed for a precise fit within the existing structure.

Results

- **Noise Reduction:** The APMP-B Acoustic Barrier Wall System successfully reduced noise levels to below 55 dBA, meeting and exceeding the client's expectations.
- **Enhanced Resident Comfort:** The top-floor apartments experienced a significant improvement in noise intrusion, restoring a quiet and pleasant living environment.
- **Durability and Longevity:** The robust materials and weather-resistant design ensured the solution would remain effective for years without requiring significant maintenance.

Conclusion

This project showcases Kinetics Group's expertise in delivering innovative noise control solutions tailored to complex challenges. The successful installation of the APMP-B Acoustic Barrier Wall System highlights our commitment to quality, performance, and client satisfaction, solidifying our reputation as leaders in acoustic and noise control engineering.