

Elevate performance with
**Thermal & acoustic
solutions**
For BMU Systems

IntegralCradles GIND | UK

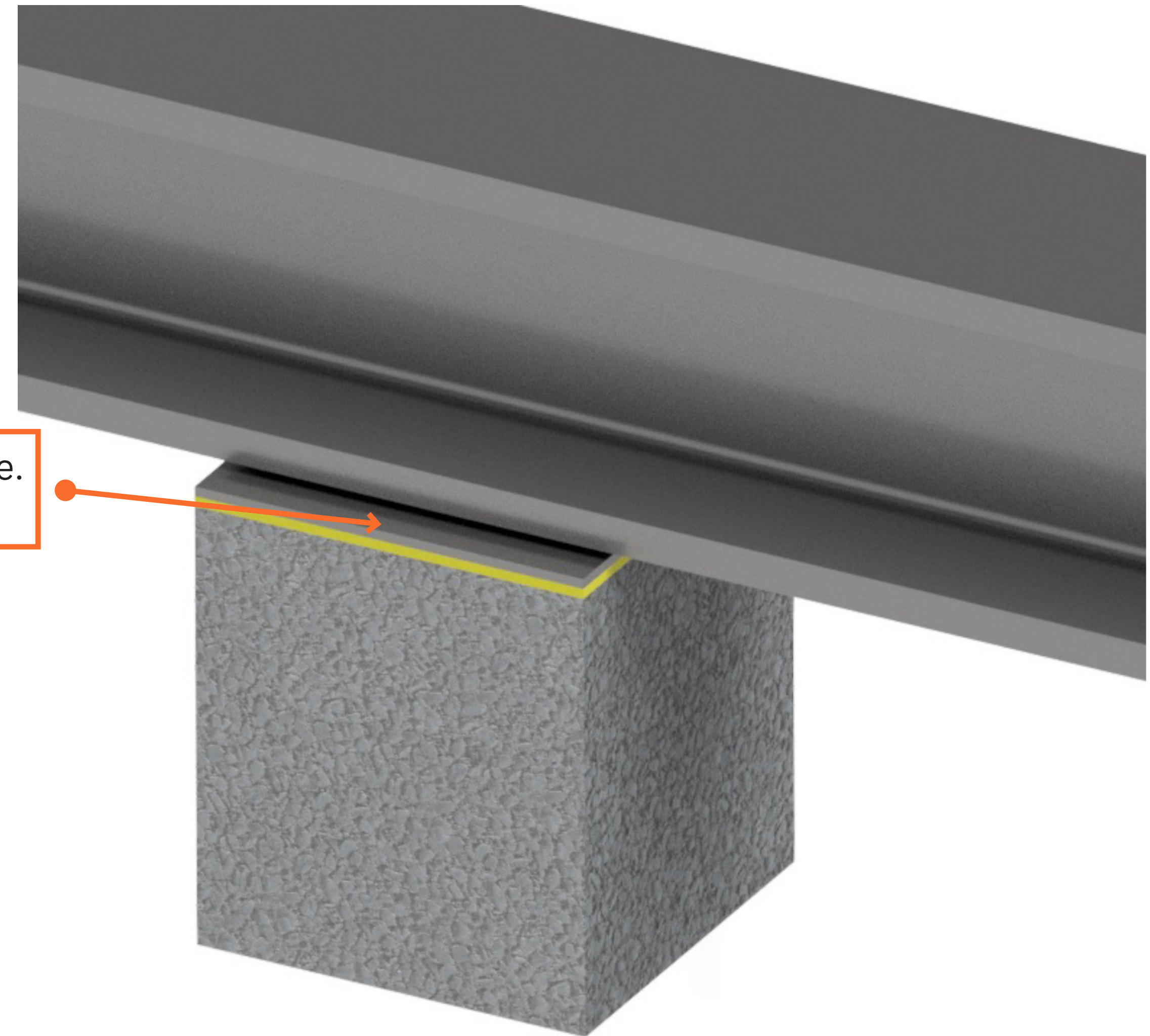
DESIGN • MANUFACTURE • INSTALLATION • MAINTENANCE

Thermal & Acoustic Solutions

Designed with premium components and backed by proven performance our advanced acoustic & thermal solutions for Building Maintenance Units are engineered to meet the demands of modern architecture – where performance, precision and discretion are essential.

Whether retrofitting an existing system or specifying for a new project, our solutions reduce vibrations and sound transmission at the source.

Minimise noise/Thermal resistance.
Maximise comfort.



BMU Thermal Breaks

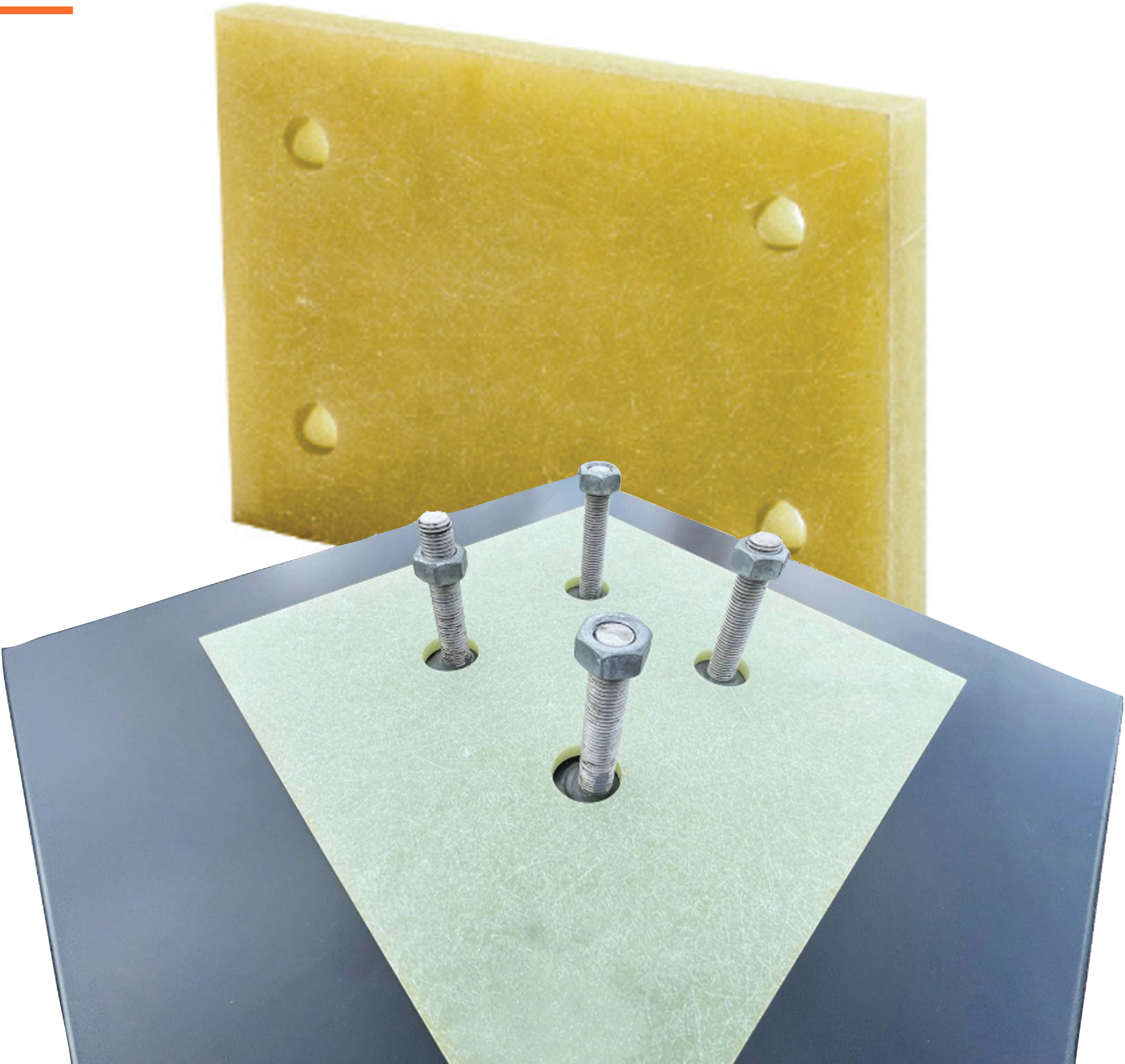
Thermal Bridging Solution

Integral Cradles most common solution to stop Thermal bridging are Structural Thermal Breaks, fully certified high performance thermal isolators used for BMU Plinths engineered to combine exceptional compressive strength with ultra-low thermal conductivity.

It prevents thermal bridging in critical structural connections – supporting both energy efficiency and building performance.

Material Properties:

PROPERTIES	FARRATTBK		NOTES
Compressive strength	Characteristic f_{ck}	312 MPa	BS EN 1990 Equation {D.1}
	Design, f_{cd}	250 MPa	BS EN 1993-1-8 ($\gamma_{M2} = 1.25$)(UK NA)
Elastic modulus		5178 MPa	
Thermal conductivity/ Resistance		0,187W/mK	
Density		1465 kg/m3	
Water Absorption		0.14%	
Long term creep		20%	Increase of initial strain (Serviceability Limit State)



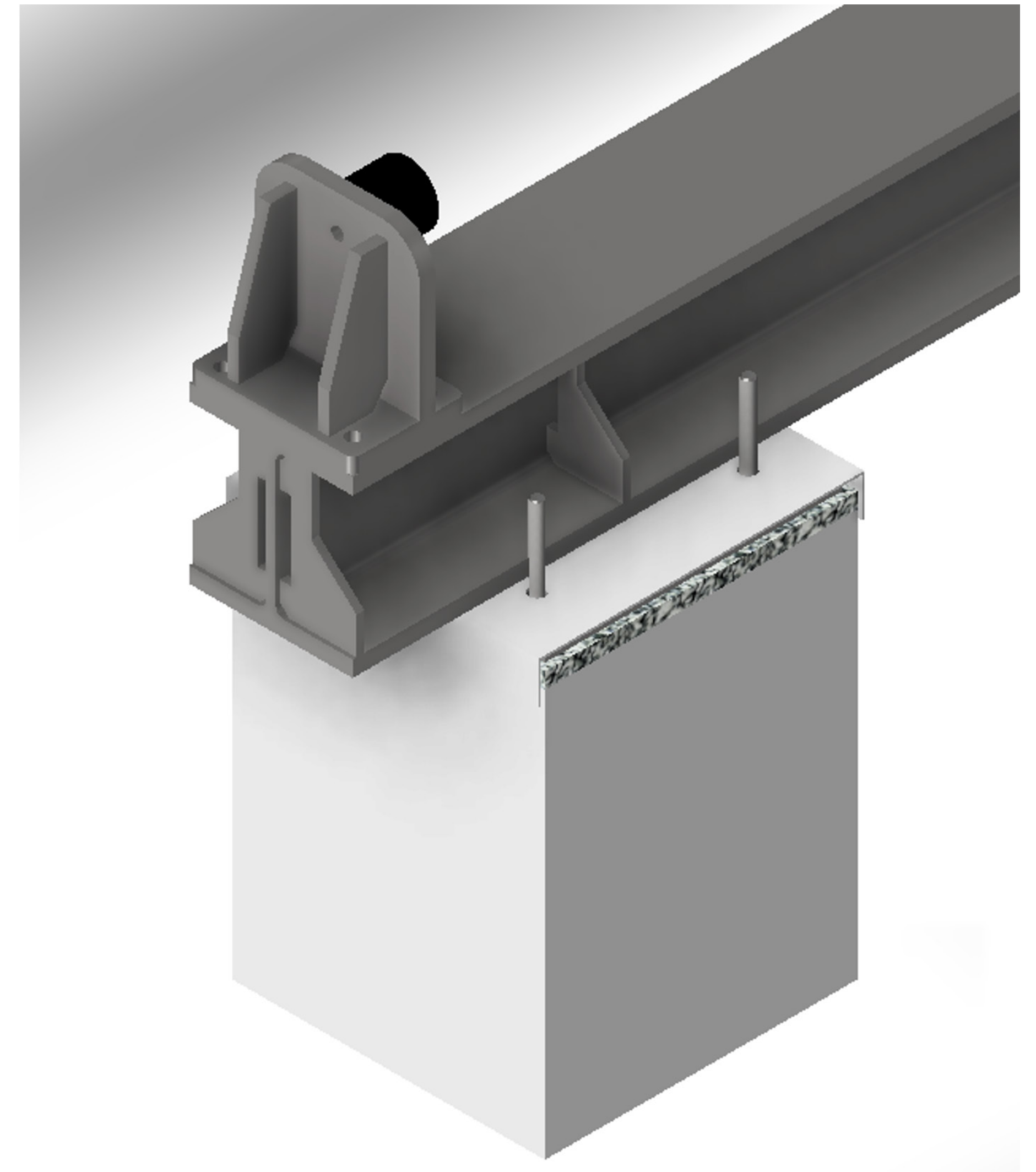
BMU Track Stiffeners

ANTI-VIBRATION SOLUTION

Track stiffeners provide enhanced rigidity and support to BMU rail systems, effectively minimising flex and resonance that contribute to noise transmission.

By reinforcing the track structure, these components reduce structural vibration and dampen the impact of BMU movement.

Their integration not only improves acoustic performance but also enhances safety, stability, and long-term operational smoothness. Ideal for projects where track-induced noise must be minimised without compromising system integrity.



Double Wheel BMU Configuration

ENHANCED ACOUSTIC PERFORMANCE

Our advanced BMU designs feature a double-wheel configuration that significantly reduces acoustic impact during operation. By distributing the load across two wheels per corner, vibration and point-load noise are minimised-ensuring a smoother, quieter traverse along the track system. This solution is ideal for buildings where acoustic comfort is essential. The double-wheel setup not only enhances noise control but also contributes to greater stability.



Cutting Tracks At 10° Angle

ENHANCED ACOUSTIC & REDUCED VIBRATION PERFORMANCE

Vibration Reduction

Angled joints help soften transitions between track sections, compared to abrupt 90° or straight cuts.

This minimises impact forces and reduces the chance of wheel bounce or vibrations as the BMU travels, especially over joints.

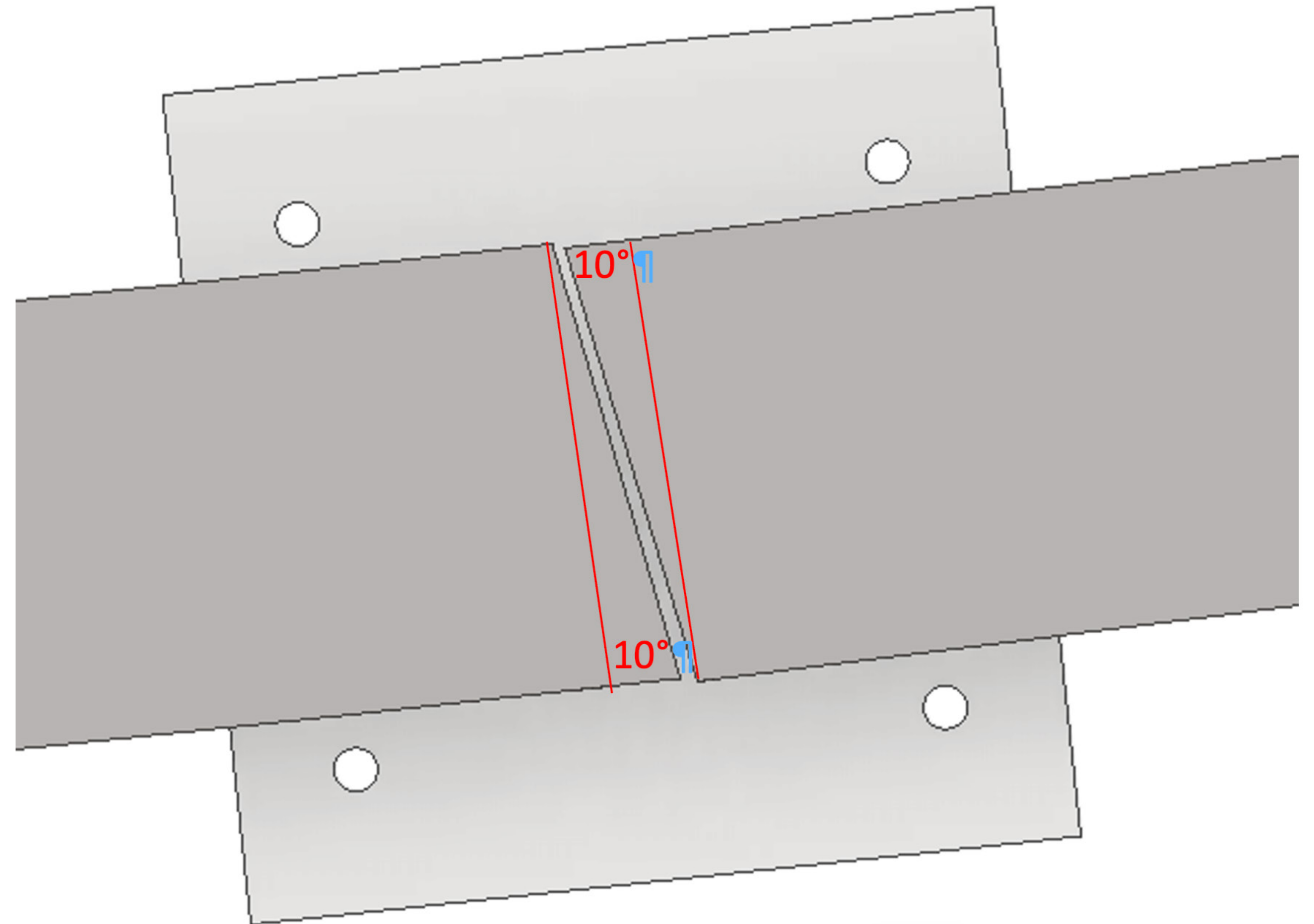
The smoother transition reduces dynamic loading, which contributes to less vibration transferred into the structure.

Noise Reduction

Lower vibration means less structure-borne noise.

Angled cuts can also reduce impact noise.

When combined with double wheels or isolation pads, angled tracks enhance acoustic comfort in buildings.



BMU Factory Acoustic & Vibration Test

THE KNIGHTSBRIDE, LONDON

As per Client request, Integral Cradles have conducted a noise and vibration test assisted by the manufacturer in the factory.

The purpose was to establish noise and vibration levels produced by the BMU system ensuring these are in line with project criteria.

Measurements for noise levels were taken of A-weighted (dBA) L90, Leq and Lmax sound pressure levels.

Measurements were undertaken of continued vibration acceleration levels (m/s²) over a frequency range from 1Hz to 1kHz.



BMU Track Design with Acoustic Properties

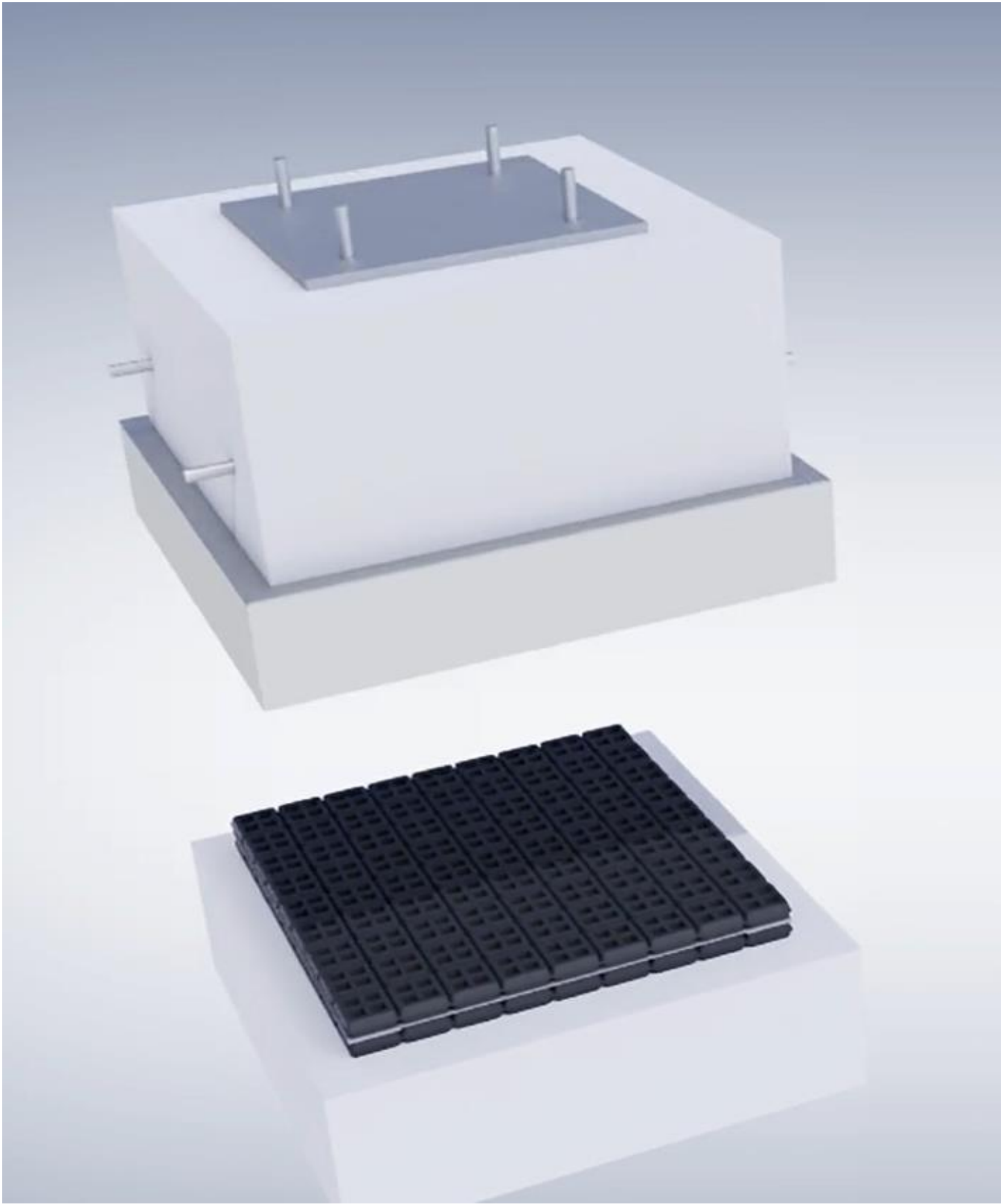
ST GEORGE TOWER, NINE ELMS

As per requirements, Integral Cradles developed a noise reducing freely laid track system.

This was required to satisfy reduced noise levels due to the installation being in close proximity to the Penthouse.

The following results were recorded at the factory test over a 30 second period for each of the activities:

Activity	L90 (30 sec) Noise Level at 1m	Laq (30 sec) Noise level at at 1m
Traversing	52dBA	54dBA
Slewing	44dBA	47dBA I
Luffing	54dBA	57dBA
Hoisting	61dBA	67dBA
Cradle movement	45dBA	49dBA
Telescoping	54dBA	57dBA
Alert/Buzzer	73dBA	74dBA



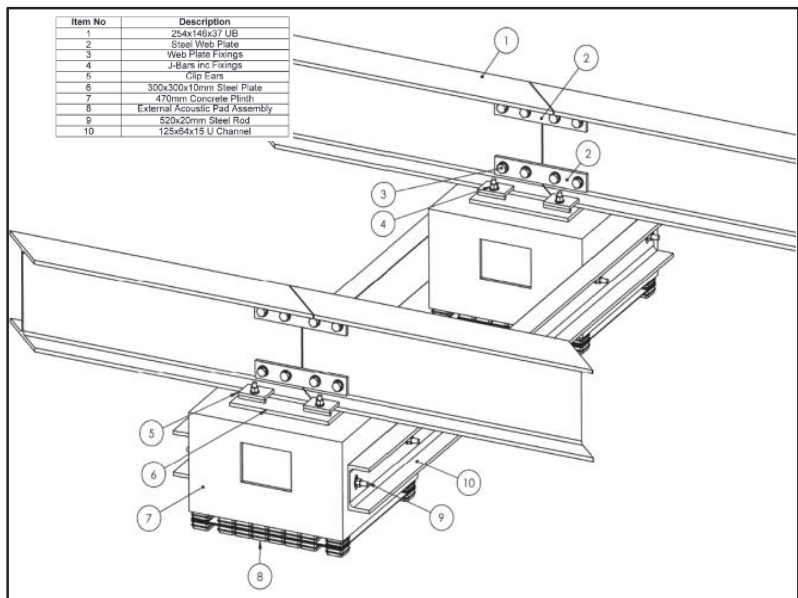
Pre-pour set up of HDUs & fixing bolts



Post-pour concrete blocks ready of transport to site



Complete installation of Hold Down Unit & Track



Full component design detail



Noise-reducing pad inspection at factory



Noise-reducing pads installed on concrete plinths (by others)

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