CineSTEEL
CineTIMBER
A COMPLETE RANGE OF SOLUTIONS FOR ISOLATING CINEMA RAKED SEATING
We’ve orchestrated the acoustic isolation of over 200 cinemas worldwide.

With over 60 years’ experience in acoustic isolation, we have developed the Farrat Cine range as the ultimate answer to the cinema market’s most demanding acoustic challenges.

From initial consultation, through to design, manufacture, supply, installation and inspection, we will ensure that the Farrat Cine system you select is the most effective solution for your project.

We work regularly with the most respected cinema brands and project teams currently leading the market, including Cineworld, VOX, VUE, REEL, Odeon and Empire.

We fully understand and continually meet each of their individual requirements with products in the Farrat Cine Range, delivering value throughout the project timeline and engineering the very best results.

You can therefore rest assured that your project is in safe hands with Farrat.

The Farrat Cine range:

- **CineFLOOR**  
  Acoustic Floating Floors

- **CineSTEEL**  
  Steel Frame Raked Seating Isolators

- **CineTIMBER**  
  Timber Frame Raked Seating Isolators

- **CineWALL**  
  Auditorium Partition Base Track Isolation
Adaptable, efficient and cost-effective design solutions

When designing an auditorium, it is critical that the acoustic performance of the cinema screen is not compromised by rigid connection to any surrounding structures.

Our CineSTEEL and CineTIMBER systems ensure that the most important secondary structure in a cinema, the raked seating, is kept totally independent of the main structure, the structural floor slab and any adjacent screens.

This keeps cinema sound where it belongs and prevents unwanted noise intrusion.

CineSTEEL is primarily intended for use with concrete stadia. It is widely compatible with a variety of steel frame type and baseplate/bolt combinations and will keep sound constrained to its source in auditoriums of all shapes and sizes.

For lightweight raked seating structures that incorporate timber and plasterboard stadia, our CineTIMBER range is most suitable. CineTIMBER maximises noise and vibration isolation while keeping live-load deflection and structural ‘liveliness’ to a minimum.

All CineSTEEL and CineTIMBER grades use acoustic isolators that are manufactured under an ISO: 9001 accredited quality management system.

Our performance test data is supplied from our in-house laboratory, which is regularly checked and referenced with UKAS accredited, independent laboratories.

Special care has also been taken to consider buildability, reliability and robustness in each design to ensure that both the installer’s and the operator’s key interests are upheld.

CineSTEEL & CineTIMBER Grade Performance Comparison:

![Graph showing performance comparison between CineSTEEL and CineTIMBER](graph.png)
CineSTEEL

The ultimate isolation grade for a new generation of 4DX cinema technologies

CineSTEEL MAX was developed following years of research into cinema motion technology and is our highest performing steelwork isolation system in the range.

Designed specifically for 4DX auditoria, CineSTEEL MAX incorporates high damping isolators to control and constrain vibration while still providing exceptionally high sound insulation.

The system is based on hot-rolled structural steel supporting 150 mm thick cast in-situ concrete stadia and is future-proofed using the most extreme calibration routines from 4DX suppliers.

CineSTEEL MAX not only isolates the vibration from adjacent auditoria, but also controls the inertial response in the structure that the 4DX seats are mounted to, offering superior motion feedback and a more immersive 4D experience.

Features:

- $f_n$ @ Operating Load: 12 Hz
- $f_n$ @ Dead Load: 14 Hz
- Isolator Thickness: 50 mm
- Max Pressure: 4.0 N/mm²
- Max Live Load: 4 × Dead Load
- Isolator Type: Point Load, Bespoke-Cut

CineSTEEL PRO is our most frequently specified grade of raked seating isolation. The system suffers no compromises from low mass or high stiffness isolators to achieve the highest ratio of acoustic isolation performance vs. price in the CineSTEEL range.

CineSTEEL PRO is the preferred choice of many of the world’s leading multiplex cinema brands, thanks to its proven and reliable isolation performance. The system is based on hot-rolled structural steel supporting 100 mm concrete stadia and can be used in both cast in-situ and pre-cast arrangements.

Designed specifically with program conscious contractors in mind, CineSTEEL PRO materials are all held in stock for rapid turnaround, however bespoke cutting is required.

Features:

- $f_n$ @ Operating Load: 12 Hz
- $f_n$ @ Dead Load: 14 Hz
- Isolator Thickness: 25 mm
- Max Pressure: 2.0 N/mm²
- Max Live Load: 3 × Dead Load
- Isolator Type: Point Load, Bespoke-Cut

Our acoustic isolators provide complete flexibility in terms of dynamic stiffness and damping. Where necessary we can design bespoke configurations to match your precise needs.
Maximised sound insulation with minimal imposed load

CineSTEEL LITE is designed for lightweight cold-rolled and SFS structures which impose line loading. It utilises high strain expanded polyurethane strips to extract maximum isolation performance despite low dynamic mass in the structure.

CineSTEEL LITE’s wide load range allows use in all sorts of lightweight structures, without the requirement for precise load capacity or isolation performance balancing calculations.

Features:

- $f_n$ @ Operating Load: 14 Hz
- $f_n$ @ Dead Load: 20 Hz
- Isolator Thickness: 12.5 mm
- Max Pressure: 0.05 N/mm²
- Max Live Load: 2 x Dead Load
- Isolator Type: Standard Strip

Suitability:

<table>
<thead>
<tr>
<th>CineSTEEL Grade</th>
<th>Home Cinemas</th>
<th>Lecture Theatres</th>
<th>Existing Structures</th>
<th>TV Studios</th>
<th>Theatres &amp; Concert Halls</th>
<th>Commercial Cinemas</th>
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For lightweight structures or where structural load capacity is limited, we recommend CineTIMBER.

See Pages 7-8.

Market-leading sound insulation performance for cost-constrained projects

Our 100% recycled CineSTEEL NEO raked seating isolation system can be used without precise design calculations. CineSTEEL NEO sheets can be cut to size and drilled on site, facilitating very fast delivery and installation.

High levels of both sound insulation and load bearing capacity can be achieved thanks to the engineered cork filler of the CineSTEEL NEO isolation material, however there are compromises in isolation performance at the lowest frequencies.

Features:

- $f_n$ @ Operating Load: 22 Hz
- $f_n$ @ Dead Load: 30 Hz
- Isolator Thickness: 20 mm
- Max Pressure: 1.25 N/mm²
- Max Live Load: 2 x Dead Load
- Isolator Type: Point Load, Cut On-Site

Specification sheets for each grade can be found in brochure sleeve.
For structural and architectural reasons, it is important for secondary steel or timber structures to deflect at a minimal and constant rate. This can be very difficult to achieve in typical cinema raked seating designs if the structure is mounted on low stiffness isolators with eccentric or variable load distribution.

CineSTEEL and CineTIMBER grades overcome this problem delivering controlled live load deflection at low natural frequencies. For point loaded isolation bearings, high-performance acoustic isolators are sized to match the baseplate profile to eliminate the risk of debris bridging the cavity. This bespoke sizing, along with individually designed tuning holes, provide a consistent rate of deflection across the whole structure, despite varying load profiles.

For line-loaded isolation strips, variable stiffness response and pre-compression are used to achieve the same goals.

CineSTEEL and CineTIMBER systems are also designed with ease of installation and follow-on trades in mind. Careful consideration has been given to durability, interfaces and thresholds to ensure longevity, even under very heavy loads and while isolating very low frequencies.

Our systems do not require any ongoing maintenance and will last for the entire lifetime of a building. We are so confident of this that we offer performance warranties up to 25 years – the longest in the industry.

Ordering from Farrat:

Acoustic performance of a rubber isolator is proportional to the load applied to it, therefore it is not possible to take the worst-case load as a basis as the design for all isolators within a project. To design a full-structure isolation system, we would require all of the information as shown in the table:

<table>
<thead>
<tr>
<th>PAD/PLATE DETAILS</th>
<th>BASEPLATE DIMENSIONS</th>
<th>UNFACTORED LOADS</th>
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Please note that production cannot commence until approved drawings are received. Lead time commences when both order and approved fabrication drawings are received.
Key Design Considerations:

No Shear Loads/Moments:
- Acoustic isolators cannot transfer significant shear loads.
- Nominal shear loads should be limited to 5kN per bolt.
- Where there are beam to column connections, a corbel should be provided to ensure the isolator is compressed.
- Moments should be avoided where possible and where unavoidable, resolved as a compression pressure and counted within the max load limit.

Full Support:
- Acoustic isolators must be fully supported from below and presented with a uniformly distributed load over their entire upper surface.
- If height levelling is required, full area shim plates that match the profile of the base plate must be used.
- Rotational levelling is provided by the compressibility of the acoustic isolator.

Acoustic Washers:
- Acoustic washers or bushes must be used with all bolts that pass through an acoustic isolator.
- Ensure to allow oversized holes in the baseplate to incorporate the bush element of acoustic washers.
- See the Farrat AWTH Washer Datasheet for precise washer dimensions.

Protection:
- Acoustic isolators must be protected from sources of heat and sparks.
- Ensure to protect the isolators from flying sparks associated with cutting/grinding steel and do not carry out welding or hot-melt operations near to the acoustic isolators.
- Acoustic isolators may be coated with intrumescent paint, however note that this does not protect them in event of fire.
- Visit www.farrat.com/cinesteel-fire for further advice creating fire protected isolated structures.

Key features:
- Easy installation
- Fire resistance*
- Low natural frequency & low live-load deflection
- No maintenance required
- Common Installation Defects have been designed out
- Recycled & recyclable options
- Simple to specify with NBS Plus

*CineSTEEL only
Commercial cinema specification performance without concrete

CineTIMBER PRO utilises composite stadia decking made from plywood, dense plasterboard and in some cases cement particle board to achieve very high levels of sound insulation without using concrete.

It is designed to achieve similar levels of sound insulation and vibration isolation as typical concrete tiered seating structures by inducing additional mass. This can be achieved by hanging undercroft ceilings from the structure and/or pre-compressing the CineTIMBER PRO isolators.

While CineTIMBER PRO is based on a timber frame it does not require one and is used regularly as a lightweight steel frame/timber stadia hybrid.

Features:

- $f_n$ @ Operating Load: 12 Hz
- $f_n$ @ Dead Load: 14 Hz
- Isolator Thickness: 25 mm
- Max Pressure: 0.8 N/mm²
- Max Live Load: 4 × Dead Load
- Isolator Type: Point Load, Bespoke-Cut

Our acoustic isolators provide complete flexibility in terms of dynamic stiffness and damping. Where necessary we can design bespoke configurations to match your precise needs.

4DX Retro-Fitting Pitfalls to Avoid:

Double-Spring
Where an existing raked seating structure is already isolated, incorporating a second layer of isolation can create an unpredictable double-spring system that has just as much chance of increasing low-frequency vibration levels, as it does of reducing it.

Low Dynamic Mass
Regardless of which isolator grade you choose, the most important principle when isolating 4DX seating is to have as much mass as possible (concrete) above the isolator.

Changing the profile of the tiering to accommodate the 4DX seat pitch is fine, however it is usually more beneficial to rely on the existing isolators, or replace them entirely, rather than adding further to the isolation system in place.
CineTIMBER LITE

Extreme low-frequency isolation for the very lowest structural masses

CineTIMBER LITE is one of the most innovative and lightweight stadia seating isolation systems in the market. It takes advantage of high-deflection acoustic washers that pre-compress the load bearing isolation strips to achieve very low natural frequencies with almost no dead load.

This pre-compression means that an evenly distributed load is presented to the CineTIMBER LITE isolation strips, allowing the same strips to be used for all load cases.

Features:

- $f_n$ @ Operating Load: 10 Hz
- $f_n$ @ Dead Load: 14 Hz
- Isolator Thickness: 25 mm [pre-compressed to 20 mm]
- Max Pressure: 0.05 N/mm²
- Max Live Load: 4 × Dead Load
- Isolator Type: Standard Strip

CineTIMBER NEO

Market-leading sound insulation for cost-constrained projects

CineTIMBER NEO utilises 100% recycled and recyclable acoustic isolators that benefit from variable stiffness response, to provide high levels of sound insulation in lightweight structures.

This system is suitable for projects where material supply and/or cost are significantly constrained. However, there are compromises in acoustic isolation performance at the lowest frequencies.

Features:

- $f_n$ @ Operating Load: 20 Hz
- $f_n$ @ Dead Load: 24 Hz
- Isolator Thickness: 17 mm
- Max Pressure: 0.05 N/mm²
- Max Live Load: 4 × Dead Load
- Isolator Type: Standard Strip

Suitability:

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For high traffic/heavyweight constructions, we recommend CineSTEEL.

See Pages 3-4.

Specification sheets for each grade can be found in brochure sleeve.
On-going support from Farrat experts

Regardless of the CineSTEEL or CineTIMBER grade you choose, you’ll have the comfort of knowing that our expert engineers will be on hand to advise you every step of the way.

From system selection, design, planning, production, delivery, installation and testing through to post-construction customer service.

We provide our customers with the best technical solutions to their engineering challenges and we always uphold client interest to make sure that the project is delivered successfully.

We can deliver this service worldwide and with over 200 successful cinema projects to our credit – plus regular repeat orders from some of the biggest names in the industry – you can rest assured your project is in safe hands with Farrat.

Vue Cinema | Newbury

Farrat were instrumental in providing a comprehensive project solution within very tight deadlines

Martin Schute
Design Manager
John Sisk & Son
About Farrat
Farrat is a privately-owned specialist engineering company that designs and manufactures solutions for vibration control, thermal isolation and precision levelling applications in the global construction, industrial and power generation sectors.

Our highly skilled engineers have earned a unique reputation for providing expert technical advice and support to project teams and clients throughout the entire construction cycle, by developing creative solutions designed to provide long term and reliable performance, build-ability and value.

This customer focus drives the innovation and continuous development of our comprehensive, versatile and cutting edge product portfolio, which is rigorously tested and accredited to the latest standards and supported by responsive customer support, product availability, and a rapidly expanding global distribution network.

Learn more about us online at: www.farrat.com