stravifloor
by CDM Stravitec

HIGH-PERFORMANCE FLOATING FLOORS

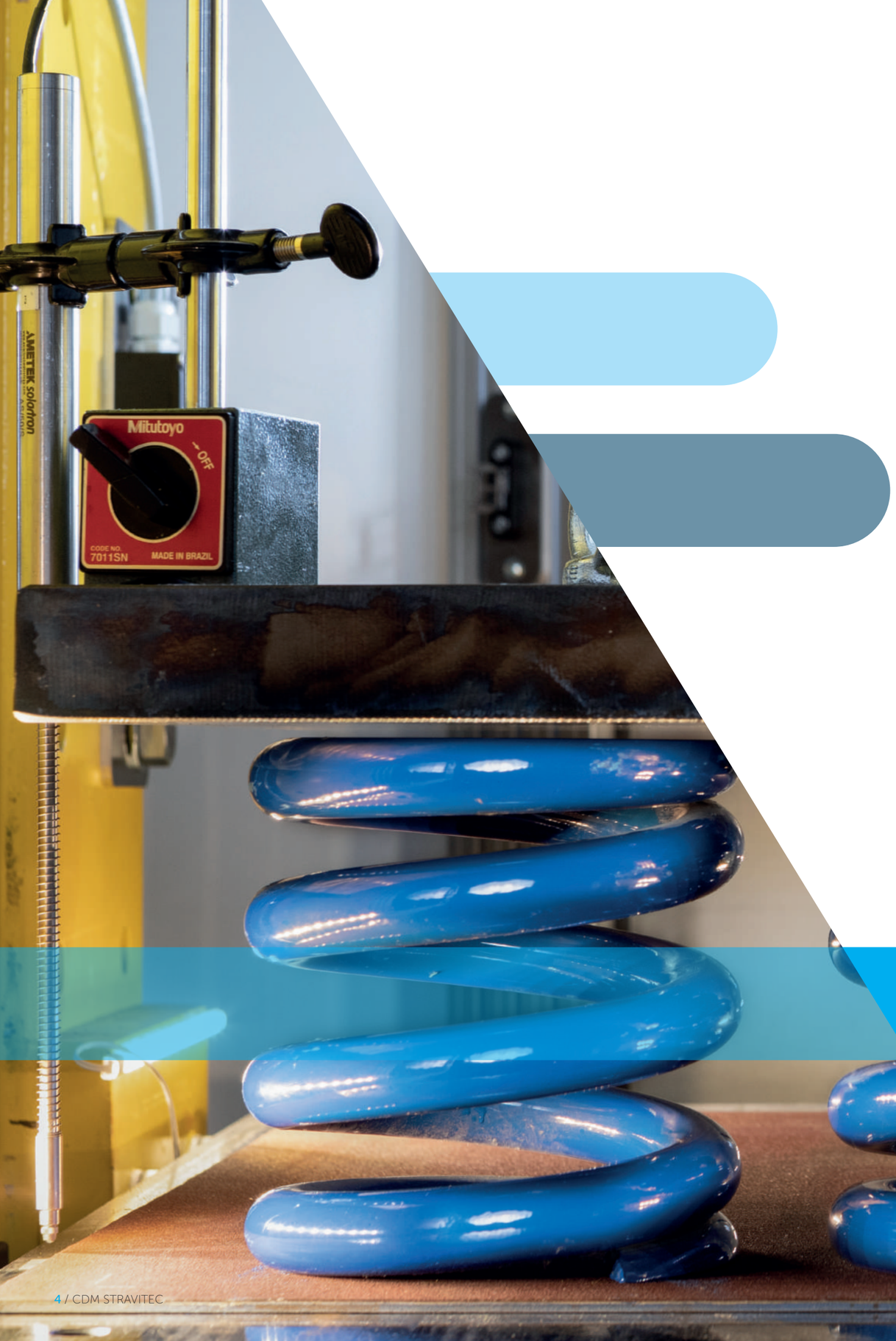
ACOUSTIC SOLUTIONS FOR EFFICIENT IMPACT & AIRBORNE NOISE ISOLATION

Why CDM Stravitec?

We take pride in our heritage of noise and vibration expertise and our ability to integrate acoustics with modern construction methods. Our holistic design approach and extensive knowledge of materials set us apart. Using this approach, we deliver high-performing acoustic isolation solutions to the world's largest and most discerning clients.

When you work with the team at CDM Stravitec, you are working with some of the most knowledgeable and experienced staff in the industry. Our commitment to effectively manage noise levels shines through in everything we do. From conception to completion, we are a client-focused and full-service solution provider that designs, manufactures, delivers, and installs market-leading noise and vibration isolation solutions - making your world a quieter place.

Q&E Management
CDM Stravitec nv operates ISO 9001:2015 and ISO 14001:2015 approved quality & environment management systems.



EXPERIENCE

Established in 1951, CDM Stravitec's reputation is built on a passion for solving noise and vibration problems, a professional approach, technical excellence, customer service, and, most of all, our people. Our clients rely on decades of experience and trust us to bring the right solution to every project we undertake.

WORLDWIDE PRESENCE

With locations in North America, Europe, and Asia, CDM Stravitec is well-positioned to handle projects globally. No matter where you are, CDM Stravitec provides great customer service, engineered solutions, and on-site performance. The diversity of our multilingual staff provides an ideal creative source for understanding technical, practical, local, and cultural considerations. Hundreds of completed projects in more than 50 countries are testimony of our customer satisfaction.

ENGINEERING & CUSTOMIZATION CAPABILITIES

Our highly qualified team of engineers has a thorough understanding of the properties of sound generation, propagation, and its effect, it uses sophisticated calculation software (FEM, SOLIDS, BIM, etc.) to predict system performance, and provide detailed drawings and installation plans for each project. Because of this, clients welcome us working closely with them and their project teams.

RESEARCH AND DEVELOPMENT

CDM Stravitec's ongoing R&D program continuously expands the understanding of raw materials, allowing us to proprose always the best solution independently of the type of elastomer used. Continuous investment into acoustical and mechanical property testing (in-house testing) allows us to provide material science and test reports for many applications. Collaboration with leading international universities and testing institutes enables us to develop high-performing acoustical solutions for tomorrow.

INSTALLATION ASSISTANCE

How well an acoustic floating floor performs largely depends on the quality and care taken during installation (eliminating possible mechanical bridging and noise flanking). By overseeing installation and addressing any issues that may occur, we can provide the necessary warranties, giving you complete peace of mind.

Why
High-performance Floating Floors?

Increasing populations density and urbanization is making the standard for low noise and vibration ever more stringent. This is causing an increase in demand for high-quality and efficient noise and vibration isolation systems following the need to build faster, lighter, and with bigger spans.

These trends pose new challenges to the design of high-performance floating floor systems aimed at mitigating vibration, and reducing impact and airborne noise. Stiffening the structure to change its dynamic performance is a suitable but costly measure.

Today, floating floor systems are part of state-of-the-art modern building technology. They are a cost-effective and efficient option to improve the acoustical performance of our buildings and are commonly part of box-in-box systems installed in high-performance spaces. Floating floors are usually made of poured-in-place concrete or of lightweight panel systems, supported by resilient elements that transfer the loads from the floating floor to the subfloor.

A floating floor system can have three functions, or a combination thereof, depending on the final objective in the building design:

AIRBORNE NOISE ISOLATION

An increase of the airborne isolation properties of the floor structure. E.g.: floors of mechanical equipment rooms, musical/ rehearsal spaces, recording studios, bowling alleys, etc.

VIBRATION ISOLATION

An increase of vibration isolation properties of the structural floor, supporting vibration generating machines. E.g.: floors underneath generators, air-handling units, transformers, pumps, and other building service equipment.

IMPACT NOISE ISOLATION

An increase of the impact noise isolation properties of the floor structure. E.g.: floors of rooftop bars, ballrooms, classrooms, hallways, etc.

STRAVIFLOOR SOLUTIONS ...

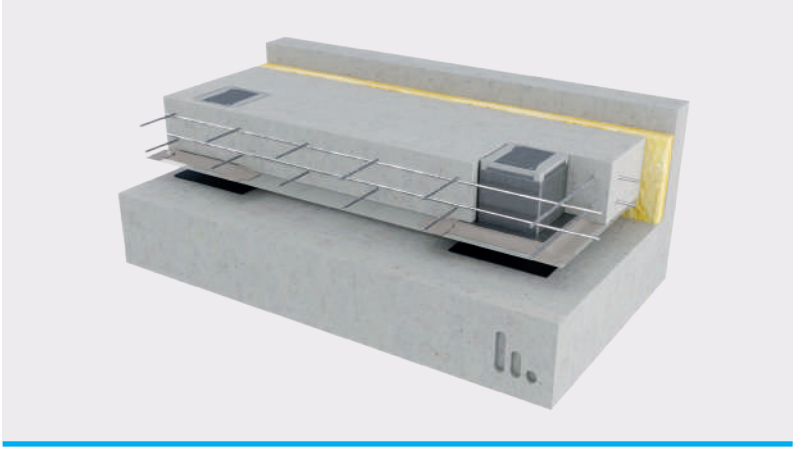
- have an outstanding dynamic to static stiffness (K_{dyn}/K_{stat}) ratio, allowing a low resonant frequency at minimal deflection;
- use elastomeric isolators with low stiffness and high resilience, achieving a natural frequency of $\geq$ 6 Hz or springs achieving a natural frequency of $\geq$ 2.5 Hz;
- use resilient elements that offer extremely low and constant resonant frequency over a wide load range;
- are durable and have an exceptionally low creep rate;
- are compatible with thermal isolation and waterproofing systems;
- incorporate an air void to maximize airborne noise isolation (excl. Stravifloor Mat);
- allow for an extremely low-profile floating floor system;
- use isolators that remain accessible and replaceable even after installation and concrete pour (jack-up systems);
- provide the least amount of contact points, reducing the potential for acoustical bridging.

Note: to limit the floating floor system deformations in the load window without jeopardizing the noise and vibration integrity, it is important that the ratio of dynamic to static stiffness, the so-called r-factor, is limited to < 2. Having a lower r-factor, CDM Stravitec elastomers have a high performance with a low deformation.

Where to Use
Stravifloor Solutions?

Application	Stravifloor Jackup-R	Stravifloor Prefab	Stravifloor Channel	Stravifloor Deck	Stravifloor Mat
Main Benefit	Few Contact Points; Guaranteed Separation from Subfloor	Pre-manufactured; Discrete Solution	Discrete Solution with Enhanced Stability	Low-profile Floating; Concrete Deck System	Roll-out Solution
Natural Frequency (f_n)	Elast. ≥ 6 Hz Springs ≥ 2.5 Hz	Elast. ≥ 6 Hz Springs ≥ 2.5 Hz	≥ 6 Hz	Elast. ≥ 6 Hz Springs ≥ 2.5 Hz	≥ 15 Hz
ΔL_w		≥ 35 dB			18-34 dB
R_w		> 70 dB			≤ 70 dB
Cinema & Theater	●●	●●●	●	●●	NR[2]
Recording Studio & Radio Station	●●●	●●	●●	●	NR
Music Practice & Rehearsal Room	●●	●●	●●●	●●●	NR
Mechanical Equipment Rooms	●●	●●●	●●●	●●	NR
Event Space	●●	●●	●●	●●●	●●
Swimming Pool	●	●●●	●●	●●	●●●
Basketball Court & Sports	●●●	●●	●●	●	NR
Bowling Alley	●●●	●●	●●	●●●	●
Residential	●	●●	●●●	●●	●●●
Parking Garage	●	●●	●●	●●●	●●●
Medical Laboratory	●●●	●●	●●	●●●	NR
Rooftop Heliports	●●●	●●	●●	●	●
Timber Construction (WFC[3]/CLT[4])	●	●●	●●●	●●●	●
Fitness Floating Floor (concrete)[1]	●●●	●	●●	●●	●

[1]For more information about lightweight fitness floating floors please refer to our brochure Fitness & Gym Isolated Floating Floors.
[2]NR: Not Recommended. [3]Wood frame construction. [4]Cross-laminated timber structures.



Extreme Performance

Jack-up System

Replaceable & Inspectable

Low Risk of Acoustical Bridging

Stravifloor Jackup-R

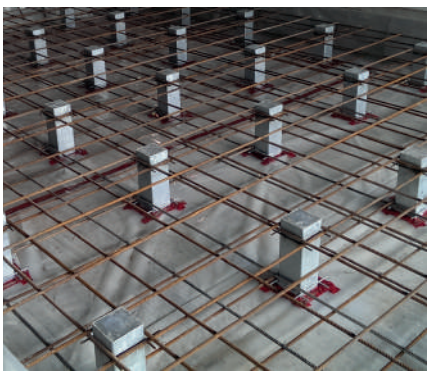
Jack-Up System

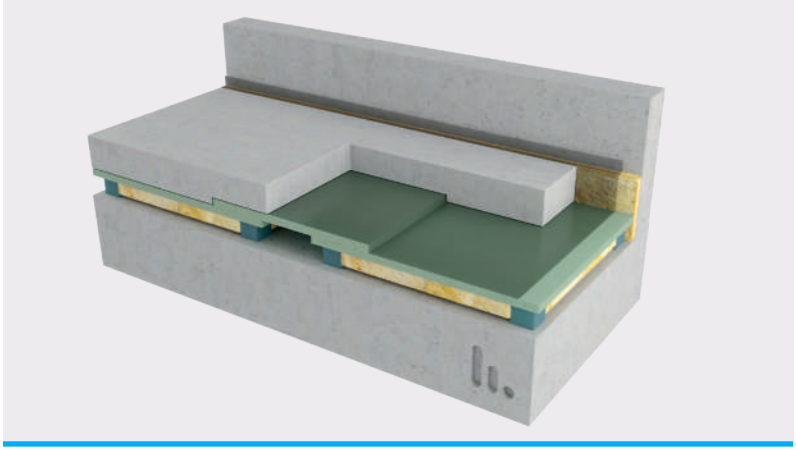
Stravifloor Jackup-R is a jack-up floating floor system with **reinforced steel boxes** cast into concrete. Once the concrete has cured, the isolated slab is raised off the structure to the required void depth. Stravifloor Jackup-R boxes allow for easy adjustment of the final floor height as well as replacement of isolators, should the use of the room or load conditions change in the future.

Special, insulation material can be installed in the void to avoid a standing wave in the air void (which may cause noise breakthrough at high frequencies).

Stravifloor Jackup-R boxes have an extremely high load capacity and, therefore, allow for larger spans and fewer support points than traditional jack-up systems, to provide a cost-effective solution. Stravifloor Jackup-R reduces the risk of acoustic bridging between the floating floor slab and the subfloor.

Natural Frequency	Elastomeric Pads	≥ 6 Hz
	Springs	≥ 2.5 Hz
Standard Product Height	Box	100 mm 150 mm 200 mm
Minimum System Height	Elastomeric Pads	110 mm
	Springs	105 mm
Minimum Air Gap	Elastomeric Pads	10 mm
	Springs	5 mm





High Performance

Discrete System

Low Risk of Installation Errors

Easy & Quick Installation

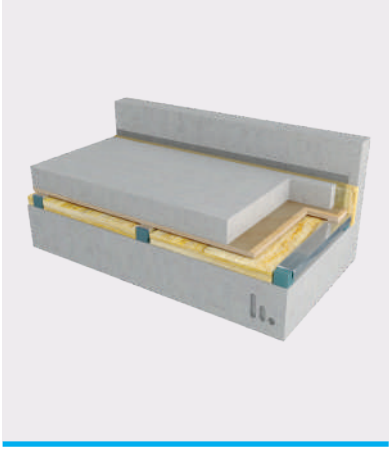
Stravifloor Prefab

Modular System

Stravifloor Prefab is a pre-manufactured modular floating floor solution that is delivered on site with detailed installation drawings making it exceptionally easy to install whilst minimizing the risk of installation errors.

The CDM Stravitec elastomeric bearings or springs ensure this high-performance floating floor system provides excellent structure-borne and airborne noise isolation.

Natural Frequency	Elastomeric Pads	≥ 6 Hz
	Springs	≥ 2.5 Hz
Standard Product Height	Elastomeric Pads	30 mm, 50 mm
	Springs	89 mm
Minimum Build-up Height	Wet (Concrete/Screed)	130 mm
	Dry (Timber/Cement Boards)	70 mm
Minimum Air Gap		30 mm



High Performance

Discrete System

Enhanced Stiffness

Suitable for Lightweight Systems

Stravifloor Channel

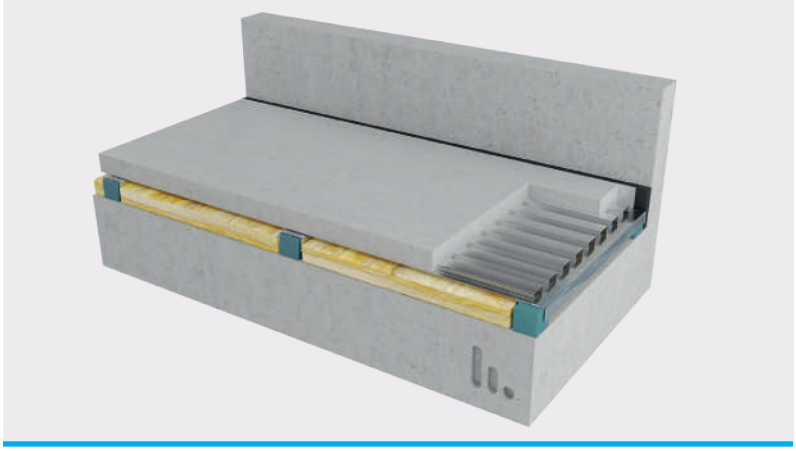
Channel System

Stravifloor Channel is an isolated steel floor batten system for the support of concrete or timber floating floors and sprung-floor applications.

Stravifloor Channel improves the structural stability of the floating floor and provides lower differential deflection resulting from live load or concentrated loads. It also allows for larger isolation pad spacing, which reduces material and installation costs, and increases acoustical performance through optimization of pad loading and fewer contact points (transmission paths) to the subfloor.

Stravifloor Channel is the ideal choice to maximize noise insulation when an existing structure cannot support a heavyweight floating concrete slab.

Natural Frequency	Elastomeric Pads	≥ 6 Hz
Standard Product Height	Elastomeric Pads	30 mm, 50 mm
Minimum Build-up Height	Wet (Concrete/Screed)	130 mm
	Dry (Timber/Cement Boards)	70 mm
Minimum Air Gap		30 mm



High Performance

Discrete System

Reduced Build-up Height

Lightweight

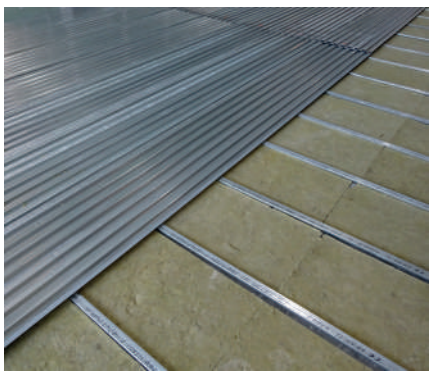
Stravifloor Deck

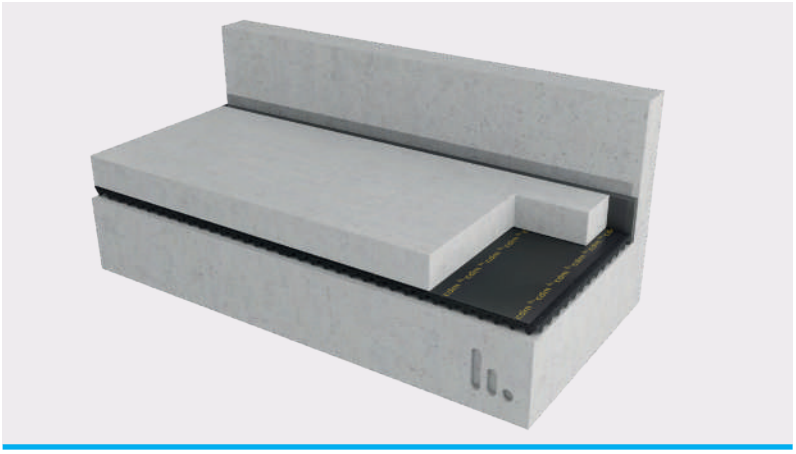
Floating Deck System

Stravifloor Deck is a low-profile floating floor system using a proprietary dovetailed metal deck for thin concrete pours. The system's high bending stiffness allows for concrete toppings as thin as 50 mm, making this system a great solution for projects that require a low-profile or lightweight concrete floating floor. It is also suitable for areas with high live loads.

This system provides a high-performance floating floor system for excellent structure-borne and airborne noise isolation, while minimizing any impact on the available floor-ceiling height.

Natural Frequency	Elastomeric Pads	≥ 6 Hz
	Springs	≥ 2.5 Hz
Standard Product Height	Elastomeric Pads	50 mm
	Springs	64 mm
Minimum Build-up Height	Wet (Concrete/Screed)	100 mm
Minimum Air Gap		50 mm





Medium Performance

Roll-out System

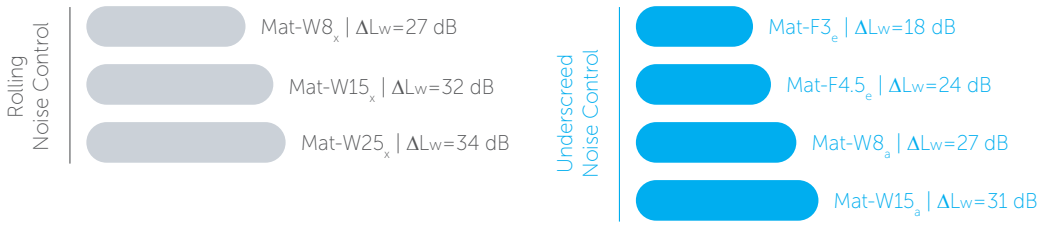
Cost-effective

Reduced Build-up Height

Stravifloor Mat
Full-Surface System

Stravifloor Mat products are a low-profile roll-out isolation solution made of recycled materials, providing economic structure-borne noise protection. Stravifloor Mat can be used with gypsum, lightweight, or normal weight concrete without the need for formwork, and can also be installed with panelized rafts.

Available in various thicknesses, Stravifloor Mat provides a great level of impact noise reduction with **minimal system thickness** and is a cost-effective solution to achieve building code requirements for floor-ceiling assemblies. The wavy form (dimples) on the underside of the mat reduces the contact area to the subfloor and reduces the dynamic stiffness of the material to maximize its performance.



Natural Frequency	Mat	≥ 15 Hz
Standard Product Height	Flat	3 mm 4.5 mm
	Wavy	8 mm 15 mm 25 mm
Minimum Build-up Height	Dry (Timber/Cement Boards)	40 mm
	Wet (Concrete/Screed)	60 mm

Related Applications

Fitness & Gym

Our high-performance floating floor range is our standard range of full-surface and discrete isolated floating floor systems; however, gym and fitness areas often have special requirements, that is why we have designed a bespoke range of Stravigym engineered lightweight floating floors.

For more information about lightweight fitness floating floors please refer to our Stravigym brochure.

Timber Construction

Wood construction is gaining popularity in various parts of the world for its sustainable, fast, lightweight, and inexpensive construction methodology. Historically, this construction method has offered poor acoustical performance due to the lack of mass and stiffness; particularly at lower frequencies where lightweight walls and ceilings transmit low frequency noise very efficiently and make it impossible to comply with local building regulations.

CDM Stravitec have participated in several projects to research and develop sustainable, cost-effective and environmentally responsible isolation solutions for wooden framed and cross-laminated timber structures.

References

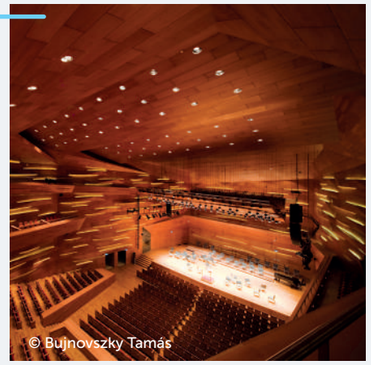
At CDM Stravitec, we take pride in the quality of work that we produce. Our extensive resume is comprised of over 10,000 projects completed since 1951. Our diverse project list includes commercial and residential buildings, manufacturing plants, medical facilities, schools, hotels, gyms, and more.

During that time, we have made many contributions to the intelligent design and noise mitigation of buildings with our engineered products. Take a look at some of our latest projects carried out with well-known brands and reputable acoustical consultants.

© George Clerk Photography

MediaCityUK
Studio Block
Salford
(UK)

Kodály Center
Pécs
(HU)


© Bujnovszky Tamás


© Claude Almodovar

La Joliette EuropaCorp
Marseille
(FR)

MYRIAD by SANA Hotels
Lisbon
(PT)


© DVDWPhotography


© Hyatt Corporation

Grand Hyatt Hotel
Kuala Lumpur
(MY)

Making your world a quieter place

We have qualified engineers in noise and vibration based at different locations around the world – they are only a phone call away. For general enquiries please contact our head office or visit our website.

CDM Stravitec
Reutenbeek 9-11
3090 Overijse
Belgium
T +32 2 687 79 07
info@cdm-stravitec.com
www.cdm-stravitec.com

DISCLAIMER