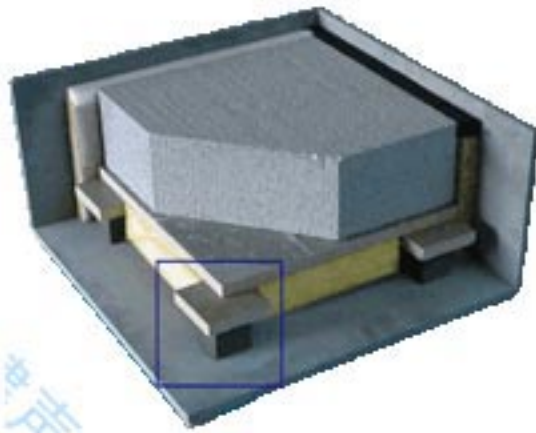
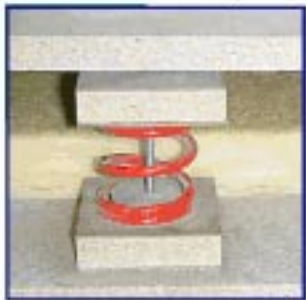


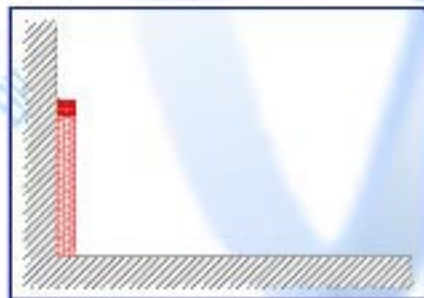
# CDM



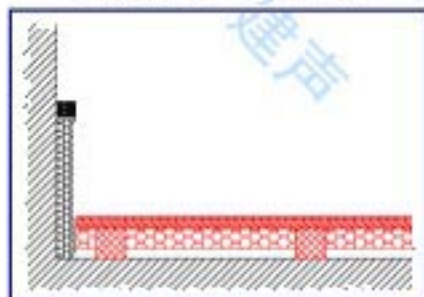
CDM-ISO-FLOAT build-up with springs or elastomer pads



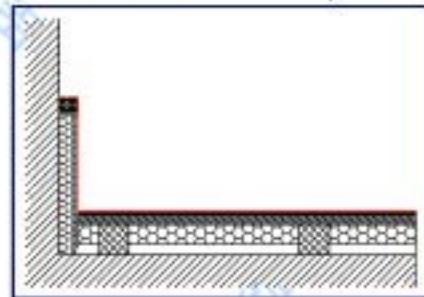
Installation



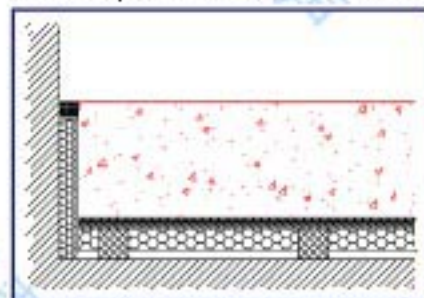
Lateral isolation



CDM-ISO-FLOAT panels



Waterproof membrane



Concrete slab + finishing



## CDM-ISO-FLOAT

CDM-ISO-FLOAT is a pre-manufactured, ready-to-install system for concrete floating floors. The system consists of springs or elastomer pads glued to the underside of formwork panels along with mineral fibre sound absorption, lateral isolation and a waterproof polythene membrane.

Information required by CDM to carry out the design of the CDM-ISO-FLOAT system:  
Imposed dead and live loads on the floor

Performance requirements, eg. natural frequency or sound insulation criteria

The advantages of the CDM-ISO-FLOAT system are as follows:

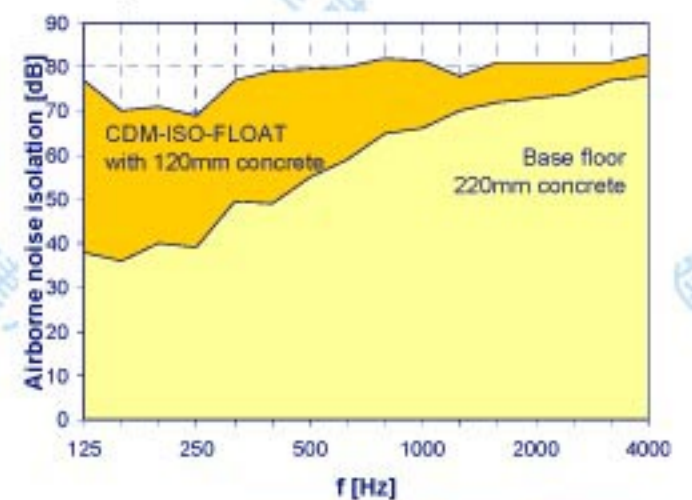
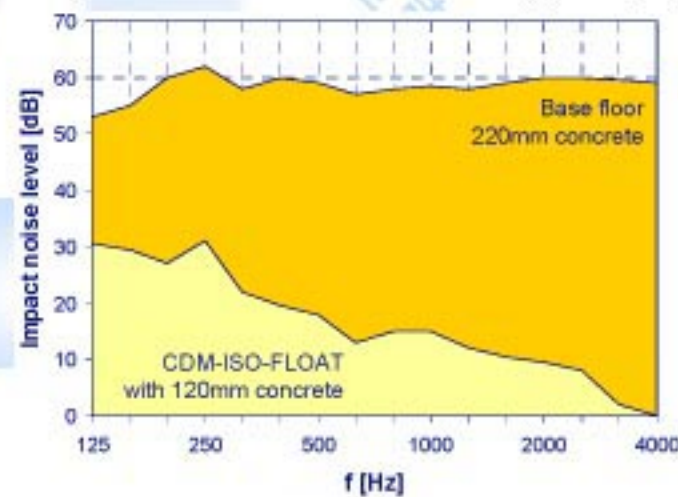
System comes with full design drawings and is extremely quick and easy to install

Optimises sound insulation

The air void beneath the floor can be varied to tune the system natural frequency

Available with CDM-ISO-CHR springs (3-5Hz) or CDM-ISO-CDM elastomer pads (6-15Hz)

Example: 120mm concrete floating floor, spring isolators, 220mm base concrete floor



Construction of the National Theatre in Budapest was started in September 2000. Functionally, the theatre is composed of three parts: there's a central circular area (with the house and studio stage), surrounded by the areas with spectator facilities, and the third structural part is the service wing built in a U-shape around the main stage. The total area of the building is 20.844 m<sup>2</sup> including the open-air stage.

CDM has delivered the system CDM-ISO-FLOAT for the big stage room (approx. 211,0m<sup>2</sup>) and the stock room (approx. 54,4m<sup>2</sup>) of the National Theatre. The CDM-ISO-FLOAT system consists of the following:

Formwork panel in high-quality fibercement board of 28mm thick, onto which elastic bearings in CDM-HR (microcellular composite material, based on natural rubber and small cork grains) are glued according to the static and dynamic loads to be taken up. Unloaded dimensions of these bearings = 60x60x60mm<sup>3</sup>. An overheight plate in fibercement with dim. 90x90x12mm<sup>3</sup> is glued in-between the elastic bearing and the formwork plate, in order to create a higher acoustic void. In-between the bearings a layer of mineral wool is glued (40mm thick, density approx. 20kg/m<sup>3</sup>) to provide some absorption in the acoustic void. Lateral surfaces (columns, walls) have been treated with a rockwool-based package in order to create total decoupling of the suspended structure.

Acoustic measurements after completion of the building confirmed the high performance of the system

Installation on site





# CDM

## CDM-ISO-MONT

Jack-Up Floating Floor System guarantees acoustic de-coupling of floating floors with spring and elastomer isolator performances ranging from 3-7Hz. Due to the unique design the system allows for the bearings to be fully replaceable.

The system can be designed to take heavy loads and can be jacked up before or after these loads are applied. Installation

The system allows three standard concrete slab thicknesses, 100mm, 150mm and 200mm (other thicknesses available on request), and also any air void beneath the slab.



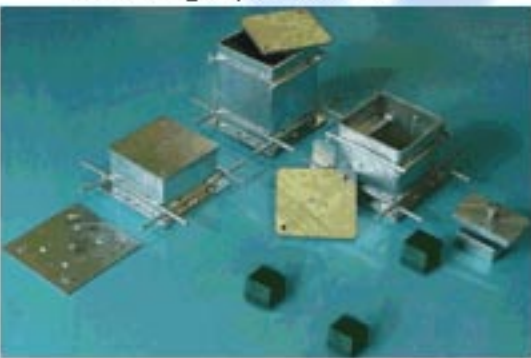
The boxes with reinforcement



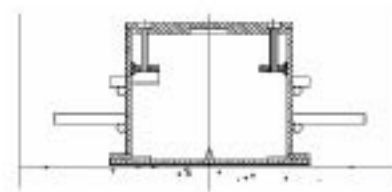
Ready for jacking



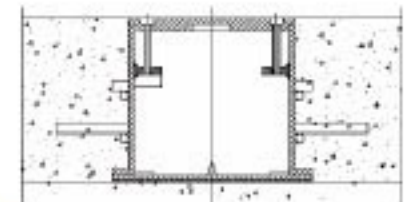
Jacking up the slab



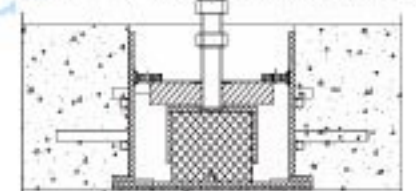
Exploded 3D view of ISO-MONT-LF-150 box



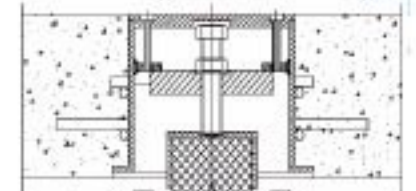
Installation of the boxes



Pouring of the concrete



Inserting the bearings



Lifting the floor slab and closing the boxes

For this purpose CDM also built a Bowling test set-up

In January 2000 CDM was contacted by the customer for a floating floor solution for the bowling of Umraniye. The impact of the bowlingballs on the steel-concrete structural floor caused the important transmissions of structure-borne noise to the cinema complex below, making a complete decoupling of the bowling floor necessary.

Acoustical objectives:  
bearing resonance frequency = 5 Hz  
maximum load (G+Q) = 1000 kg/m<sup>2</sup>

Type of bearing incorporated in the box:  
CDM-81/82

Dimensions of the bearing incorporated in the box (LxWxH): 110x70x58mm

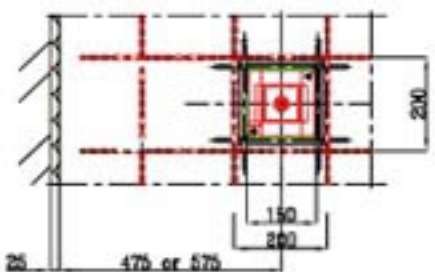
About 700 CDM-ISO-MONT 100/12 boxes were installed in this project.



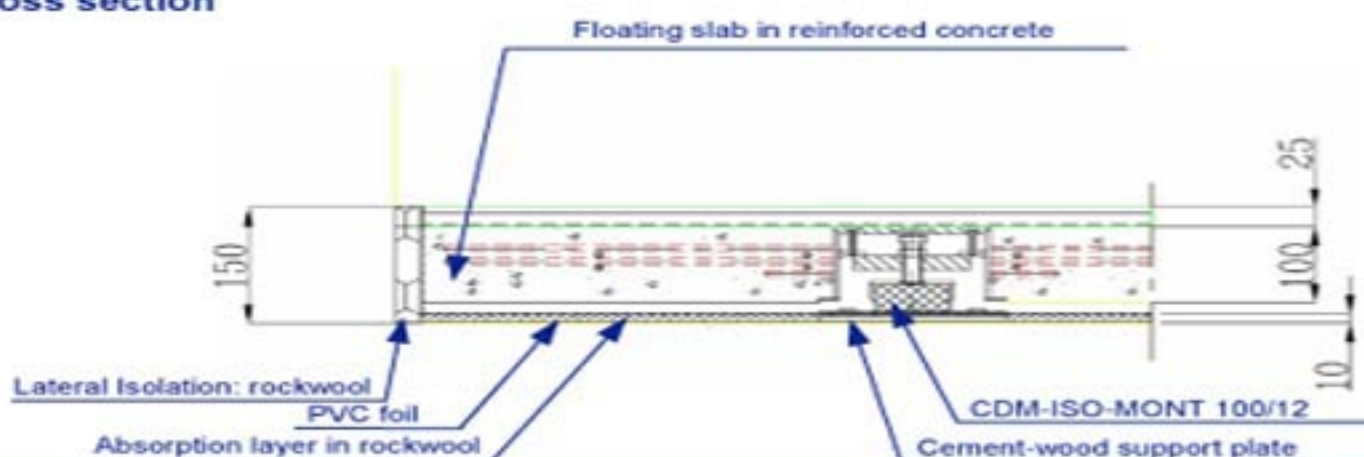
Installation on site



Dimensions (view from above)



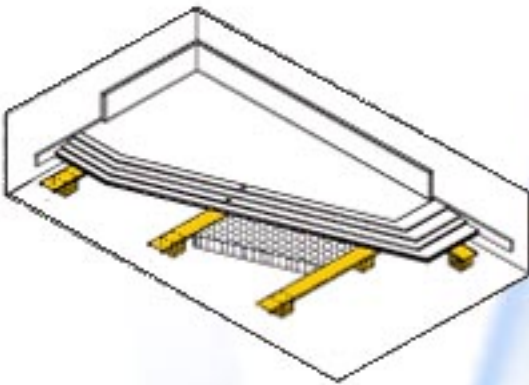
Cross section





# CDM

## CDM-ISO-LAT



CDM-ISO-LAT Battens are designed to optimise sound insulation and impact isolation of floor constructions. They are used in both wet and dry floating floor constructions and achieve resonant frequencies of 6 to 10Hz.

CDM-ISO-LAT battens come in 3m lengths, have three standard stiffnesses, each in three different thicknesses (30, 40 and 50mm). The three different stiffness rails in increasing stiffness are:

- CDM-ISO-LAT-L
- CDM-ISO-LAT-M
- CDM-ISO-LAT-H

Information required by CDM to carry out the design of the CDM-ISO-LAT floating floor system:

- 1 Type of floating floor, eg. concrete or timber etc...
- 2 Imposed dead and live loads on the floor
- 3 Performance requirements, eg. natural frequency or sound insulation criteria

### Installation Guidelines

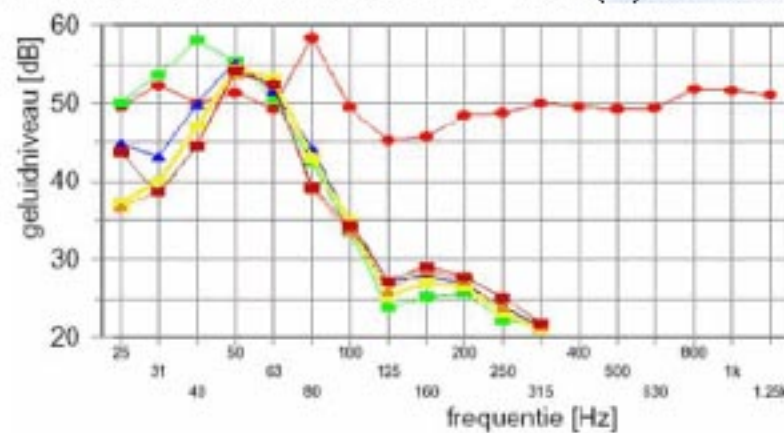
- 1 Install CDM Perimeter Isolation Strips around the perimeter of the floating floor to de-couple the floating floor from the adjacent structure
- 2 Install the CDM-ISO-LAT rails according to CDM's design
- 3 Lay low density mineral fibre between the CDM-ISO-LAT rails (the thickness of the mineral fibre sound absorption must be less than the deflected void under the floating floor)
- 4 Screw in formwork panels into the CDM-ISO-LAT rails
- 5 Follow any other site specific installation requirements given by CDM



In this schoolbuilding of Wijkerpoort, Maastricht, with the gymroom on the top floor of the building, there were complaints about noise in the classrooms coming from sportactivities. The original design was a 150mm concrete floating floor on 50mm mineral wool. During the construction however the 50mm mineral wool layer was reduced to 30mm, and measurements indicated contact between the decoupled floor and the construction floor. It was then decided to have the decoupled floor removed and to design a good floating floor.



In order to design a good floating floor, several tests were done on floors with different air voids. Based on the measurements and the lack of height, the client decided to use a 120mm air gap by using timber as overhead. After installation a transmission loss of 12dB(A) was measured.



Results of noise measurements (Delta-L)



Installation of the floor



Execution of tests:  
CDM-ISO-LAT-79050 with 2 layers of Cetris 18mm

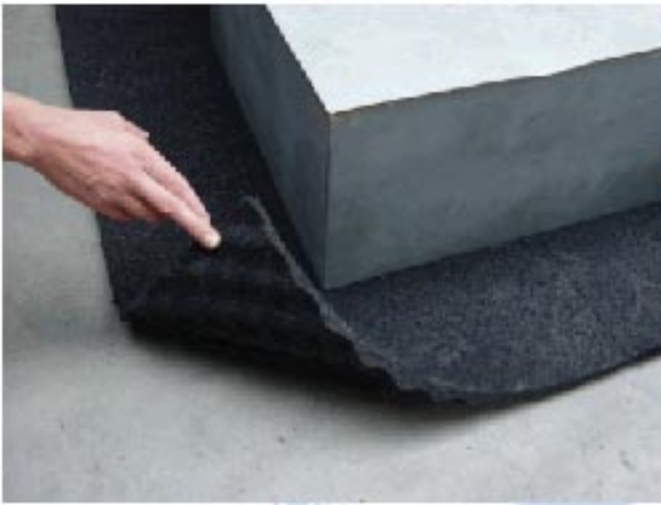


Finished floor



## CDM

### CDM-ISO-MAT



CDM-ISO-MAT is a continuous mat treatment that is used to float wet and dry floor constructions.

The following information is required for CDM to select the correct CDM-ISO-MAT product:

- 1 The type and weight of the floating floor
- 2 The imposed and dead loads
- 3 Any sound insulation and/or impact isolation specifications

The correct CDM-ISO-MAT product will then be selected by CDM from the wide range of CDM elastomer materials available (CR, RC, RR, MF, PF) – please refer to Material Data Sheets.

The most common types of CDM-ISO-MAT are:

1 CDM-ISO-MAT-RR – this is a bobbly resin-bonded rubber product that comes in standard 10mm, 17mm and 20mm thicknesses (other thicknesses available on request)

2 CDM-ISO-MAT-RC – this is usually used in 3mm thickness for basic de-coupling applications (other thicknesses available on request)

As an indication the following isolation improvements (between 100 and 500Hz) can be obtained when compared to the non-isolated case:

Thickness	Impact noise	Airborne noise
3mm	8-10dB	6-10dB
5mm	12-15dB	8-12dB
10mm	16-20dB	11-15dB
20mm	20-25dB	14-18dB

