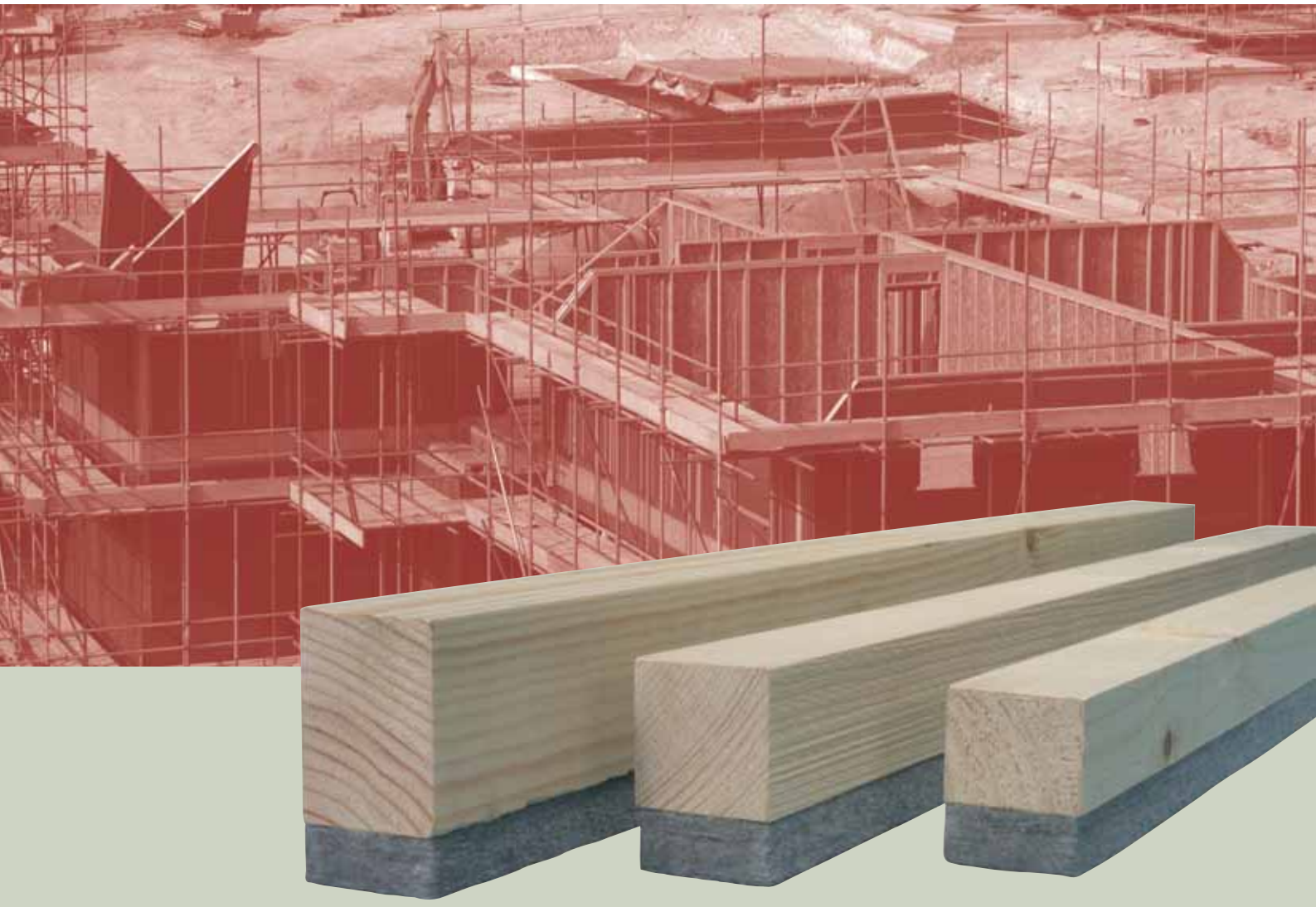
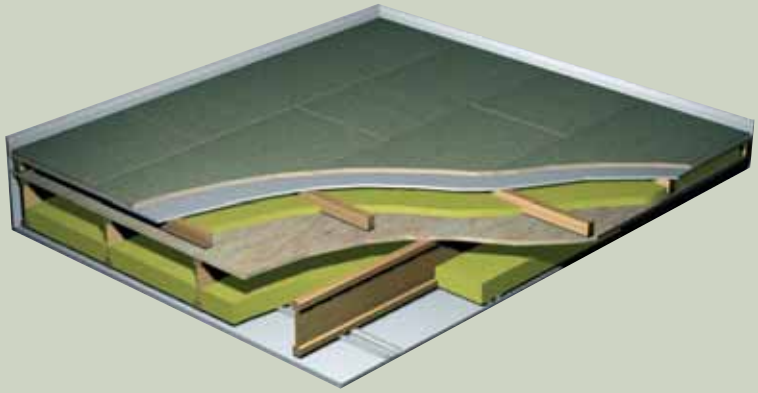
CMSDANSKIN
ACOUSTICS



Reflex Bearers

PEFC

Reflex Bearers



Introduction

An extensive process of research and development over many years has enabled CMS Danskin Acoustics to produce an innovative flooring bearer with an exceptional level of acoustic performance. The CMS Danskin Reflex Bearer can be used on level timber or lightweight steel joist constructions and on concrete subfloors in new build and refurbishment applications.

Innovative Design

The Danskin Reflex Bearer incorporates a unique double-density resilient fibre layer which provides a high degree of impact sound reduction. This polymer-based, man made fibre layer eliminates the need to use an acoustic quilt beneath the bearer, speeding up installation times and avoiding the handling problems associated with mineral wool.

In the past, effective impact sound reduction was achieved by combining a soft flexible material (such as quilt or open cell foam) which could provide vertical deflection with a second more rigid protective layer (such as closed cell foam). These separate materials were then placed on top of each other or glued together. In an innovative patented design CMS Danskin have achieved the combined function of these two separate elements in one resilient layer. By an ingenious manufacturing process the top half of the fibre is produced to a high density while the bottom half is made to a lower, softer density. This "double density" resilient layer has excellent impact and airborne sound reduction properties.

Compliance with Building Regulations

The sound insulation of party floors is a necessary requirement of the Building Regulations. Methods of satisfying the Regulations are set out in Approved Document E in England and Wales, Section 5 of the Technical Handbook in Scotland and Technical Booklet G in Northern Ireland. In addition the construction of Robust Details can provide a method of compliance in England and Wales.

The Reflex Bearer contributes significantly to the reduction of impact and airborne sound through party floors. When used with appropriate structural floor and ceiling constructions it has been independently demonstrated to meet the performance standards of the Building Regulations in Scotland, Northern Ireland, England and Wales. In addition it has been approved for use as an FFT1 and FFT3 bearer in many Robust Detail constructions.

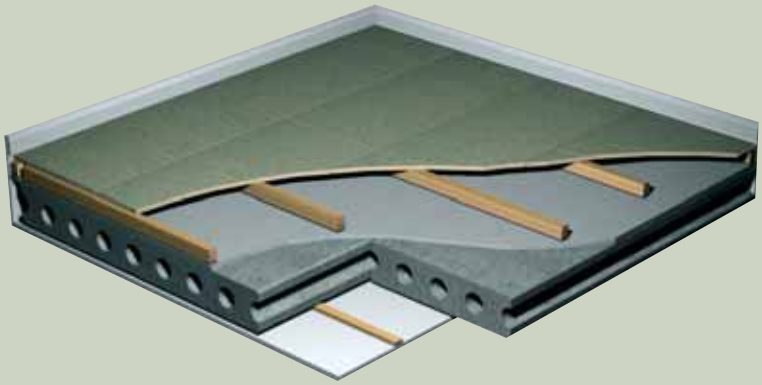
Performance

Laboratory values for Reflex Bearers are stated in Table 1. Please refer to specific CMS Danskin Acoustics Performance Data Sheets for site test information on the Reflex Bearer with different structural floor and ceiling combinations. CMS Danskin Acoustics also provide a Specification Questionnaire which can help ensure that, where available, appropriate test certification can be provided.

Advantages

- Approved FFT1 and FFT3 bearer in many Robust Detail Constructions
- Approved for new Scottish Example Constructions
- Exceptional impact sound reduction in party floors
- Can eliminate wet trades
- Provides void for services and underfloor heating
- Proven durability of resilient polymer based fibre layer
- Proven acoustic performance

Components and Accessories

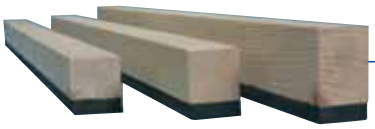


Reflex Bearers

Reflex Bearers comprise softwood timber 45mm wide by 2400mm long with the unique "double density" fibre resilient layer adhered to the underside. They can be preservative treated if required and the standard uncompressed heights are 53mm (Nom.), 62mm (Nom.) and 78mm (Nom.) Other sizes are available as a special order. On average it is expected that the resilient layer will compress by around 4mm under normal loading.

'L' Shaped Flanking Strip

6mm thick preformed 'L' shaped acoustic foam supplied in strips 1.8m long packed in bags containing 100 linear metres. The innovative 'L' shape makes it easy to fit and one size fits all floors. It is lightly trapped between the bottom of the skirting and the top of the flooring board with the excess neatly trimmed off.



High Load Bearers

It is an essential feature of effective floating floors that they deflect vertically in order to absorb impact energy and therefore reduce sound transmission. However excessive deflection under areas of high load such as kitchen and bathroom furniture is not desirable. While this can sometimes be lessened by reducing batten centres or using double rows of Reflex bearers, limited numbers of high density foam battens can sometimes be used in these local areas. On concrete subfloors High Load Bearers are also recommended for use at room perimeters. As High Load Bearers have a lesser acoustic performance than Reflex Bearers a warning message regarding excessive use is printed on the top surface. Danskin High Load Bearers are manufactured to a similar height as compressed Danskin Reflex Bearers and provide superior support.

Design Approach	Performance Requirement	Measured Performance
Example Constructions		
Scotland Technical Handbook Section 5:		
Floor Type 1B and 2B	Minimum △Lw22dB and Minimum △Rw5dB on Annex 5.B concrete floor.	24dB for 53mm high Reflex Bearer 5dB for 53mm high Reflex Bearer
Floor Type 3A and 3B	Minimum △Lw16dB Minimum △Rw+Ctr 13dB and Minimum △Rw 17dB on Annex 5.B timber floor.	20dB for 78mm high Reflex Bearer 16dB for 78mm high Reflex Bearer 19dB for 78mm high Reflex Bearer
Robust Detail Constructions		
E-FC-1 E-FC-2 E-FC-7 E-FS-1	Minimum rd △Lw17dB on Appendix D floor	27dB for FFT 1 bearer (78 mm high) 24dB for FFT 3 bearer (53 mm high)
E-FT-1 E-FT-2 E-FT-3 E-FS-2	Minimum rd △Lw15dB and Minimum rd △Rw + Ctr 13dB on Appendix C Floor	20dB for FFT 1 bearer (78mm high) 16dB for FFT 1 bearer (78mm high)
Own Design		
	Minimum Impact and Airborne site measurements	Where available, refer to Performance Data Sheets for test results on similar constructions

Key: △Lw = Impact Sound Improvement - Laboratory Test
△Rw + Ctr = Airborne Sound Improvement - Laboratory Test

Table 1

Design Recommendations

Design Recommendations - All Subfloors

General

Reflex Bearers are designed for installation on generally even subfloors. The surfaces of decks, screeds or concrete subfloors must be sufficiently level to meet relevant Codes of Practice.(Equivalent to SR1: BS8204-1: 2003)

Services

The provision of access to services is most successful if the location of services is detailed at an early stage. Services should be kept at least 150mm away from walls to allow space for perimeter bearers. The height of bearers must be adequate to provide clearance for services. It is recommended to allow at least 10mm above the height of the services to allow for clearance and the deflection of the resilient layer. Do not notch bearers where services cross. Place bearers on either side of the services leaving a gap of 25mm on either side. Service runs should not be more than 350mm wide. Gaps where services penetrate the floor should be filled with an acoustic sealant.

Spacings and Loadings

Bearer centres must not exceed 400mm for 18mm chipboard or 600mm for 22mm chipboard. Bearer centres are based on a Uniformly distributed load of 1.5kN/m2 and Concentrated load of 1.4kN as specified for self contained, single family dwelling units in accordance with BS6399-1 : 1996.

Expansion Provision

Perimeter gaps of a minimum of 10mm should be provided between the chipboard edge and any rigid upstand such as walls or columns. Perimeter gaps for large floor areas should be based on a gap at each end of 2mm per metre run of floor. For floors over 5m in length, additional intermediate expansion joints should be considered.

Communal Areas in Flats

BS6399 : 1996 imposes more onerous load bearing requirements for communal areas in certain designs of flatted developments. Concentrated load requirements over the long term can be as high as 4.5kN. The maximum capacity of 22mm chipboard at reduced centres is 2.7kN. If it is intended to lay Reflex Bearers in communal areas in flats such as common corridors, hallways, stairs and landings it is essential to contact CMS Danskin for specific advice regarding the floor boarding and component centres.

Ceramic Tiles

In accordance with BS 5268 base floors require to be stiff to carry ceramic tiles. However acoustic floors are designed to deflect vertically in order to absorb impact sound. Please contact the Technical Department for advice on measures to minimise the risk of cracking.

Storage Heaters

Storage heaters are considered to be an extraordinary loading and will require support direct from the sub-floor, independent of the flooring system. Our Technical Department is available to provide advice where required.

Additional Design Recommendations - Timber or Steel Joist Construction

Perimeter Detail - Timber Frame

Staggering of Reflex Bearers

Support of Non-Loadbearing Partitions

Design Recommendations (cont.)

Additional Recommendations - Timber or Steel Joist Construction (Cont/d.)

Subfloor Preparation

The building must be weatherproof and completely dried out before commencing installation of flooring.
In a timber joisted floor Reflex Bearers must be supported by the structural joists to maintain the strength of the floor. They may run either directly above or perpendicular to the joists. The surface on which the bearers rest must be flat and level. The capacity of existing joists to carry the weight of a secondary floating floor system must be checked prior to installation.

Areas of Heavy Loading

In areas where heavy loadings are anticipated (such as kitchens and bathrooms) centres should be reduced to 300mm between the Reflex Bearers to provide additional support. On areas of concentrated loads such as beneath baths, W.C.'s and kitchen appliances CMS Danskin High Load Bearers can be supplied to provide additional support. High Load Bearers should only be used for isolated support and not laid in general areas as they do not provide acoustic insulation.

Partitions

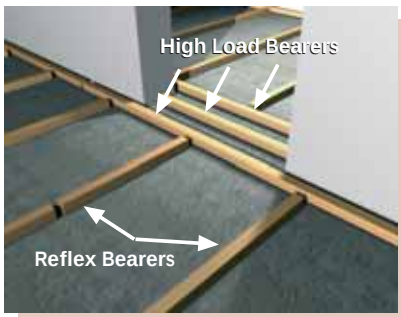
Where lightweight non loadbearing partitions are built from the top of the floating floor a double row of Reflex Bearers should be placed beneath the partitions. If the line of a partition does not fall above a structural joist a supporting ladder frame of Reflex Bearers should be created.

Perimeter Bearers

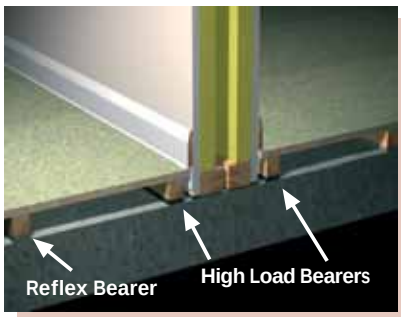
Place Reflex Bearers around the perimeter of the room approximately 50mm away from the wall.

Additional Design Recommendations - Masonry Construction

Perimeter Detail - Masonry



Threshold Detail



Partition Detail

Subfloor Preparation

The building must be weatherproofed and wet trades completely dried out before commencing installation of flooring components. Isolated high points, mortar spillages and other debris should be removed from the area. All joints between concrete units and at perimeter walls must be grouted. Excessive moisture from cast insitu slabs and screeds which have not dried out can have adverse effects on flooring materials and timber components. BS 8201 : 1987 states that "it is reasonable to recommend that the concrete be considered dry when the relative humidity falls to 75% or less" (when tested by use of a hygrometer). Where the dryness of concrete cannot be guaranteed it is recommended that a damp proof membrane is installed (minimum 1000 gauge).

Areas of Heavy Loading

In areas where heavy loadings are anticipated (such as kitchens and bathrooms) centres should be reduced to 300mm between the Reflex Bearers to provide additional support. On areas of concentrated loads such as beneath baths, W.C.'s and kitchen appliances High Load Bearers can be supplied to provide additional support. High Load Bearers should only be used for isolated support and not laid in general areas as they do not provide acoustic insulation.

Partitions

Partitions should normally be erected from the subfloor. Where lightweight non-loadbearing partitions are built from the top of the floating floor a double row of Reflex Bearers should be placed directly below.

Perimeter Bearers

Place High Load Bearers around the perimeter of the room approximately 50mm away from the wall.

General Information

NBS Specification Clauses

NBS Specification Clauses can be provided for Reflex Bearers when used in combination with timber or concrete subfloors.

Installation

To ensure correct installation of Reflex Bearers the detailed fixing instructions must be followed carefully. Copies of these instructions should be obtained from the manufacturer. The installation of the Bearers is simple and can be undertaken by competent carpenters. Alternatively, experienced fixing contractors can be recommended who can undertake to supply and fix the product in most areas of the United Kingdom.

Storage

All components should be stored inside, under cover and in dry conditions at all times. Materials should be located in the environment in which they are to be fixed at least 24 hours prior to fixing.

Delivery

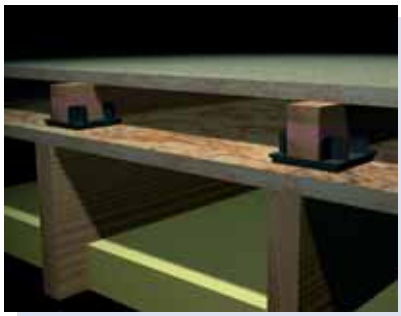
Reflex Bearers are generally supplied on curtainside vehicles ready for forklift unloading by site.

Other Products

The company also supplies the CMS Danskin Saddle System - a range of acoustic and thermally enhanced floor levelling systems suitable for a wide range of subfloors. To request a brochure, please contact the Sales Department or visit www.cmsdanskin.co.uk.

Saddle System for Insulated Ground Floors

Saddle System for Floor Levelling



The Trisonic Support Bearer for Uneven Timber Floors

Every care has been taken to ensure that all descriptions and specifications are correct at date of publication. The policy of CMS Danskin Acoustics is one of continuous improvement and product development, and the right is reserved to alter the product specifications and detailed fixing instructions without notice.

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