CMSDANSKIN ACOUSTICS

REFLEX BEARERS (TIMBER SUBFLOOR)

DESIGN CONSIDERATIONS FOR THE CMS DANSKIN REFLEX BEARER ON A TIMBER JOISTED FLOOR

Introduction

Danskin Reflex Bearers are designed for installation on decked subfloors in a timber frame construction. The purpose of the flooring system is the reduction of sound and is not intended to provide further structural support or thermal insulation. The Reflex Bearers are designed to deflect vertically to absorb impact sound - therefore increased loading of the acoustic floor may result in some localised additional deflection. The capacity of the structural joists to carry the weight of the Danskin Reflex Bearers and associated panels must be checked prior to installation.

Storage

All components should be kept inside, under cover and in dry conditions at all times. Materials should be located into the environment in which they are to be fixed at least 24hours prior to fixing. Do not place large quantities of material such as chipboard or plasterboard on top of laid flooring as this extreme loading can damage the resilient layers.

Preparation

The building must be weatherproof and completely dried out before commencing installation of the flooring system. Any decking on which Reflex Bearers are to be laid should be flat and dry. It is most important for the reduction of airborne sound to block any air passage in the structural floor, at the perimeter of the floor and wherever the floor is penetrated. Any flooring components exposed to wet conditions such as ingress of rain or plumbing leaks should be discarded and replaced.

Services

Services can be accommodated in the void and should be planned at an early stage. Services should be kept at least 150mm away from walls to allow space for perimeter support bearers. It is recommended to allow at least 10mm clearance above the height of the services to prevent acoustic bridging.

DESIGN RECOMMENDATIONS

(a) Bearer Centres

Reflex Bearer centres must not exceed 400mm for 18mm thick Chipboard or 600mm for 22mm chipboard. It is essential that the structural floor adequately supports the Reflex Bearers. Bearer centres are based on a maximum UDL of 1.5kN/m2 and a Concentrated Load of 1.4kN as specified for self – contained single family dwellings in accordance with BS6399-1: 1996.

It may be necessary to reduce bearer centres in certain areas – see Areas of Increased Loading

(b) Partitions

i. Load Bearing Partitions must only be constructed from the structural floor prior to the installation of the acoustic floor.

ii. Lightweight non-loadbearing partitions can be constructed from the acoustic floor and should be fully supported along the entire length by a double row of Reflex Bearers. Ensure sole plate fixings do not pierce the resilient layer of the Reflex Bearers.

The structural joists should be designed to provide adequate support for the Reflex Bearers and any loads carried by the acoustic floor.

The structural performance and location of partitions should be in accordance with the recommendations of the timber kit supplier.

(c) Areas of Increased Loading

It is permissible to install kitchen units and appliances along with bathroom sanitary fittings directly onto the sub floor construction (Ref: Appendix A, Robust Detail manual – third edition). Where the kitchen and bathroom fittings are to be installed off the floating floor, Reflex Bearer centres should be reduced to 300mm centres to provide additional support as increased loading may result in some localised additional deflection in the floating floor. Alternatively, High Load Bearers which include a 13mm thick , more rigid foam layer on the underside, can be supplied to provide additional support and minimise deflection.

High Load Bearers should be used for isolated support only and not laid in general areas, as they do not provide equivalent acoustic insulation to Reflex Bearers.

(d) Storage Heaters and other Extraordinary Loads

Items of extraordinary loading, for example storage heaters, certain granite or marble worktops, kitchen island units and large home entertainment systems may require support direct from the subfloor, independent of the floating flooring system. Danskin's Sales Department are available to provide advice where required.

(e) Intermediate Expansion Gaps in Flooring

The need for intermediate expansion gaps between sheets of chipboard must be considered where there are uninterrupted runs of flooring more than 5 metres in length. Expansion provision should be calculated at a rate of 2mm per metre run.

(f) Communal Areas in Flats

BS6399-1: 1996 imposes more onerous load bearing requirements for communal areas in certain designs of flatted developments. Danskin Reflex Bearers should not be used in communal areas as they are designed to operate under normal domestic loading conditions. Specifiers should be aware that the maximum concentrated load capacity of 22mm chipboard at reduced span centres is limited to 2.7kN.

(g) Ceramic Tiles/ Laminate/Wood flooring

In accordance with BS5268 base floors require to be stiff to carry ceramic tiles. However, acoustic floors are designed to deflect vertically in order to absorb impact sound. Contact CMS Danskin Acoustics` sales department for advice on measures to minimise the risk of cracking.

Laminate flooring can be installed on the completed floating floor but should include a resilient underlay with sufficient impact sound reduction that the acoustic performance of the floating floor is not compromised. At perimeters, ensure that the laminate flooring is isolated from the wall and skirting.

DETAILED FIXING INSTRUCTIONS

1) Lay Perimeter Bearers

Lay Danskin Reflex Bearers (or High Load Bearers if desired) around the perimeter of the room with the resilient layer downwards - approximately 50mm from the wall.

2) Lay Remaining Bearers

Mark the desired location of any non-loadbearing partitions and any areas where increased loadings are expected (ie kitchens etc) before starting to lay Reflex Bearers.Reflex Bearers should be laid at 400mm centres for 18mm chipboard , or 600mm centers for 22mm chipboard under normal domestic loading (maximum UDL 1.5Kn/m2 , maximum Concentrated load 1.4 Kn)Lay Reflex Bearers fibre side down leaving a small gap between bearer ends. Commence each alternate row of Reflex Bearers with a cut length so that joints are staggered. Where services run across bearers – do not notch. Cut bearers and place approximately 25mm either side of the pipe.

Place High Load Bearers (if using) at 300mm centres directly below isolated heavy loads such as bathroom and kitchen fittings and appliances. Do not overuse as they have lower acoustic performance than Reflex Bearers.

3) Thresholds and Partitions

Place a High Load Bearer across each doorway to provide extra support. Ensure that a gap is left between the bottom of doorframes and the top of chipboard flooring. Place a double row of Reflex Bearers below the line of all non-loadbearing partitions constructed off the floating floor

4) Acoustic Quilt

Where specified cut acoustic quilt into strips and place between (not below) bearers.

5) Plasterboard Plank Overlay

Lay the plank across the Danskin Reflex Bearers in a brick-bonded method ensuring that all short edges of plank rest centrally on a bearer. Butt edges tightly together. Leave a clear 10mm gap at the perimeter. Fix the plank to prevent slipping. Mechanical fixings must not penetrate the resilient layer on the bottom of the batten.

6) Chipboard Flooring Overlay

Select the correct thickness of chipboard flooring to suit the specified bearer centers: 18mm thick at maximum 400mm centres or 22mm thick at maximum 600mm centres – **Do not exceed these centres.**

Chipboard flooring should be installed in accordance with the manufacturer's instructions. Stagger joints between layers. Ensure that a 10mm expansion gap is left at the perimeter. Where mechanical fixings are used care should be taken to ensure that the resilient layer on the bottom of the bearer is not pierced. All tongue and grooved joints must be glued continuously with PVA adhesive to prevent movement that may lead to squeaking. Spot gluing is not sufficient to prevent squeaking. All joints must be tightly butted and excess glue removed with a damp cloth. Ensure that gaps where services come through the flooring are sealed with acoustic sealant to prevent airborne sound leakage.

7) Danskin Flanking Strip

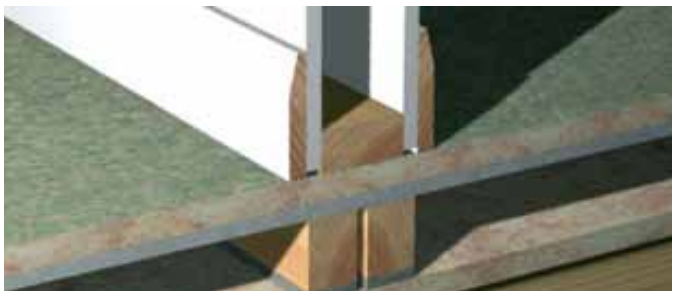
Position the Danskin Flanking Strip in the perimeter gap adjacent to the perimeter wall. The preformed `L` shape will prevent it from falling down the gap.

8) Trim Flanking Strip

Fix the skirting board, lightly trapping the strip between the bottom of the skirting board and the flooring. Remove any excess flanking strip with a sharp knife. It is essential to isolate the skirting from the floor to prevent impact sound flanking transmission.

Timber frame perimeter detail

Staggering of Reflex Bearers



New support of non load bearings partitions

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