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Agrément Certificate
99/3600
Product Sheet 2

MONARFLOOR ACOUSTIC SYSTEMS

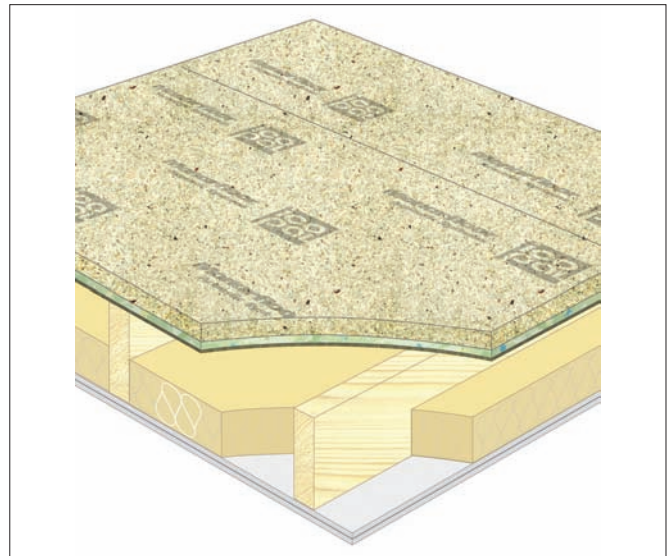
MONARFLOOR TRI DECK SYSTEM

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Monarfloor Tri Deck System, for use in separating timber floors to reduce sound transmission in conversions and renovations of dwellings and flats.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Acoustic performance — the system can be used to improve sound insulation in separating floors (see section 5).

Floor loading — the system can support the design loading for self-contained dwelling units (see section 6).

Durability — the system will perform satisfactorily and provide impact sound insulation for the life of the flooring (see section 8).

The BBA has awarded this Agrément Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Chris Hunt
Head of Approvals — Physics

Greg Cooper
Chief Executive

Date of First issue: 4 September 2009

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Monarfloor Tri Deck System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	A1	Loading
Comment:		Floors incorporating the system can meet this Requirement. See section 6.1 of this Certificate.
Requirement:	E1	Protection against sound from other parts of the building and adjoining buildings
Comment:		When installed on a suitable floor, the system can contribute to satisfying this Requirement. See sections 5.1, 5.2 and 5.4 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The system is acceptable. See section 8 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction satisfying this Regulation. See section 8 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	1.1(a)(b)	Structure
Comment:		Floors incorporating the system can satisfy this Standard, with reference to clause 1.1.1 ⁽¹⁾ . See section 6.1 of this Certificate.
Standard:	5.1	Resisting sound transmission to dwellings using appropriate constructions
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 5.1.1 ⁽¹⁾ , 5.1.2 ⁽¹⁾ and 5.1.12 ⁽¹⁾ . See sections 5.1, 5.3 and 5.4 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for the product under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾ and Schedule 6 ⁽¹⁾ . (1) Technical Handbook (Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See section 8 and the <i>Installation</i> part of this Certificate.
Regulation:	D1	Stability
Comment:		Floors incorporating the system can meet this Regulation. See section 6.1 of this Certificate.
Regulation:	G2(2)	Separating walls and separating floors
Regulation:	G3(2)	Existing walls and floors which become separating walls and separating floors
Comment:		When installed on a suitable floor construction, the system can contribute to satisfying these Regulations. See sections 5.1 and 5.4 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 1 *Description* (1.1).

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of the Monarfloor Tri Deck System, when installed and used in accordance with this Certificate, in relation to *NHBC Standards for Conversions and renovations, Clause C18, Upper floors*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, the Monarfloor Tri Deck System, when installed and used in accordance with this Certificate, satisfies the requirements of the *Zurich Building Guarantee Technical Manual, Section 4 Superstructure, Sub-section Sound insulation*.

General

The Monarfloor Tri Deck System is for use in timber floors for reducing impact and airborne sound transmission in conversions and renovations of dwellings and flats.

Technical Specification

1 Description

1.1 The Monarfloor Tri Deck System consists of 22 mm V313 P5 moisture-resistant tongue-and-groove chipboard bonded to 8 mm layer of polyurethane foam, type 1 (density 64 kgm^{-3}) bonded to a further 5 mm foam rubber. The nominal characteristics of the board are:

Thickness (mm)	35
Board size (mm)	2400 x 600
Weight (kg)	30.5
Weight per m^2 (kg)	21.18

1.2 The moisture-resistant V313 P5 chipboard satisfies the minimum relevant requirements of BS EN 312 : 2003.

1.3 Ancillary materials include Monarfloor Acoustic Flanking Band, for use between skirting, flooring and around pipes and Monarfloor Adhesive.

2 Delivery and site handling

2.1 The system is delivered to site shrink-wrapped in polythene on pallets. The corners are reinforced and cardboard plates protect where straps run around the consignment. Details of installation instructions are also enclosed.

2.2 The system must be stored flat, under cover, in dry, well-ventilated conditions similar to those they may experience in service. The boards should be stored away from naked flames.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Monarfloor Tri Deck System.

Design Considerations

3 Use

3.1 The Monarfloor Tri Deck System is for use in timber floors in conversion or renovation projects where the existing timber floor will be removed but access to work on the ceiling below is restricted.

3.2 The system reduces airborne and impact sound transmission through separating floors of dwellings and flats. The system has not been assessed for use on exposed, semi-exposed and ground floors, or on steel floors.

3.3 Mechanical fixings must not be used.

4 Practicability of installation

The system is designed to be installed by a competent general builder, or a contractor, experienced with this type of system.

5 Acoustic performance


 5.1 Test data to BS EN ISO 140-4 : 1998 and BS EN ISO 140-7 : 1998, calculated in accordance with BS EN ISO 717-1 : 1997 and BS EN ISO 717-2 : 1997 respectively indicate that the separating floor construction shown in Figure 1 can provide satisfactory resistance to airborne and impact sound transmission, when used in conjunction with suitable flanking elements in conversions (see also Tables 1 to 3 and section 5.4).

Figure 1 Section through floor used for impact and airborne sound insulation tests

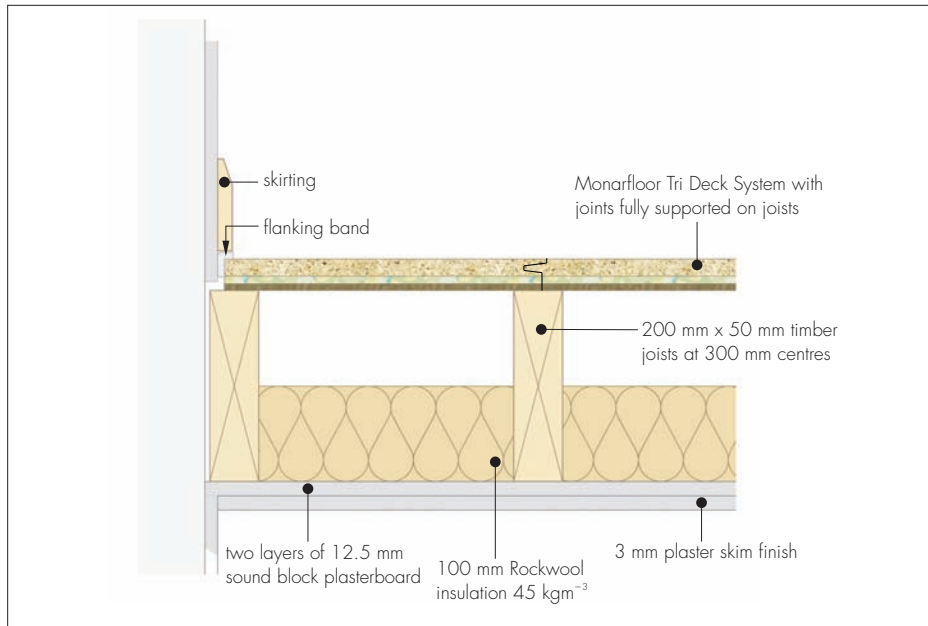


Table 1 Sound insulation (dB) – pre-completion test results

Airborne $D_{nT,w}(C:C_{tr})$	Impact $L'_{nT,w}(C_I)$
55(-2:-9)	56(1)

Table 2 Sound insulation (dB). Deemed to satisfy – England and Wales

Construction	Airborne $D_{nT,w}+C_{tr}$	Impact $L'_{nT,w}$
Purpose built dwelling-houses and flats	≥ 45	≤ 62
Dwelling-houses and flats formed by material change of use	≥ 43	≤ 64

Table 3 Sound insulation (dB). Deemed to satisfy – Scotland and Northern Ireland

	Airborne $D_{nT,w}$	Impact $L'_{nT,w}$
<i>Scotland and Northern Ireland (new constructions)</i>		
Mean value	≥ 52	≤ 61
Individual value	≥ 48	≤ 65
<i>Northern Ireland (conversions)</i>		
Individual value	≥ 48	≤ 65



5.2 In England and Wales, separating floors incorporating the product are subject to pre-completion testing in accordance with Section 1 of Approved Document E.



5.3 Separating floors incorporating the system may be subject to pre-completion testing to demonstrate satisfactory sound insulation in accordance with clause 5.1.12⁽¹⁾ and Annex 5C⁽¹⁾ if a verifier is not satisfied that a specific construction has not been built in accordance with the warrant and Mandatory Standard 5.1.

(1) Technical Handbook (Domestic).



5.4 The measures to be taken in design and during installation to avoid direct paths for airborne sound and to minimise flanking sound transmission are given in section 9 and the relevant documents supporting the national Building Regulations thus:

England and Wales — Approved Document E

Scotland — Mandatory Standard 5.1, clause 5.1.1⁽¹⁾, 5.1.2⁽¹⁾ and 5.1.12⁽¹⁾

(1) Technical Handbook (Domestic).

Northern Ireland — Technical Booklets G and G1.

5.5 When undertaking refurbishing, improvements in airborne and impact sound insulation can be achieved with a construction, as detailed in section 5.

6 Floor loading



6.1 The system is suitable for occupancies defined in this Certificate (see section 3.1 and 3.2) and is capable of resisting a uniformly distributed load of <math>< 1.5 \text{ kNm}^{-2}</math> and a concentrated load of <math>< 1.4 \text{ kN}</math> for category A1 and type A situations for domestic and residential activities as defined in NA to BS EN 1991-1-1 : 2002 Table NA.2 and BS 6399-1 : 1996, Table 1. The system can support these design load without undue deflection (6 mm maximum).

6.2 Before installation, the existing floor structure should be checked for the additional loading to be applied as a consequence of using the product.

7 Maintenance

The system has suitable durability (see section 8) and, therefore, maintenance is not required.

8 Durability



The system will perform satisfactorily and provide sound insulation for the life of the flooring.

Installation

9 General

9.1 Installation of Monarfloor Tri Deck System should not commence until the building is weatherproof and wet trades completed and dried out.

9.2 Installation of the product should be in accordance with the Certificate holder's instructions.

9.3 Mechanical fixings must not be used.

9.4 To minimise wastage, careful planning of the floor area is necessary.

9.5 To minimise sound transmission paths through the floor assembly, and the flanking elements, the following points should be observed:

- junctions between the flanking elements and the sub-floor deck are suitably sealed
- junctions in cavity walls flanking the floor should be stopped
- junctions with internal non-loadbearing walls should be sealed
- Joints should be staggered, supported on timber joists and glued
- junctions between ceiling and wall linings should be filled and taped
- service risers penetrating the floor should be fire collared, wrapped with quilt and boxed with two layers of suitable gypsum-based board
- the floor constructions are as shown in Figure 1
- the floor incorporates a minimum of 100 mm thick mineral fibre quilt (density 45 kgm^{-3}) in the cavity
- fixings or services must not bridge the resilient layers of the product
- the flanking band should be located at all perimeter junctions between the product and flanking elements, to isolate them (see Figure 1)
- resilient ceiling bars should be mounted at right angles to the joist direction.

10 Procedure

10.1 An expansion gap between the flooring boards and the perimeter walls should be provided at the rate of 2 mm per metre run or a minimum of 10 mm, whichever is the greater.

10.2 Where there are long, uninterrupted lengths of floor, eg corridors, proprietary expansion joints should be installed at intervals on the basis of a 2 mm gap per metre run of board.

10.3 A protective layer should be laid immediately after boards are installed to protect the surface and prevent damage by any subsequent trades.

10.4 Where there is a likelihood of regular water spillage, in rooms such as kitchens, bathrooms, shower and utility rooms, protection should be considered, eg by the use of flexible vinyl sheet flooring with welded joints and cove skirtings.

10.5 Monarfloor Adhesive is applied to the tongue-and-groove joints of the boards before butting them together.

10.6 When fitting skirting over the product, it must be isolated using the flanking band located around the perimeter junctions.

Technical Investigations

11 Tests

Tests were carried out on the Monarfloor TriDeck System to establish:

- deflection under concentrated load
- effect of humidity
- dimensional accuracy
- creep under distributed load.

12 Investigations

12.1 The acoustic performance of the product was assessed from test reports.

12.2 An assessment was made of data relating to practicability of installation.

12.3 The manufacturing process was assessed, including the methods adopted for quality control. Details were obtained of the quality and composition of the materials used.

Bibliography

BS 6399-1 : 1996 *Loading for buildings — Code of practice for dead and imposed loads*

BS EN 312 : 2003 *Particleboards — Specifications*

BS EN 1991-1-1 : 2002 *UK National Annex to Eurocode 1 : Actions on structures — General actions— Densities, self-weight, imposed loads for buildings*

BS EN ISO 140-4 : 1998 *Acoustics — Measurement of sound insulation in buildings and of building elements — Field measurements of airborne sound insulation between rooms*

BS EN ISO 140-7 : 1998 *Acoustics — Measurement of sound insulation in buildings and of building elements — Field measurements of impact sound insulation of floors*

BS EN ISO 717-1 : 1997 *Acoustics — Rating of sound insulation in buildings and of building elements — Airborne sound insulation*

BS EN ISO 717-2 : 1997 *Acoustics — Rating of sound insulation in buildings and of building elements — Impact sound insulation*

13 Conditions

13.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

13.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

13.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

13.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

13.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.