



Monarflex Acoustic Systems



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| CI/SfB | December 2003 | | |
| | (43) | (Y) | (P2) |

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Monarflex Acoustic Systems

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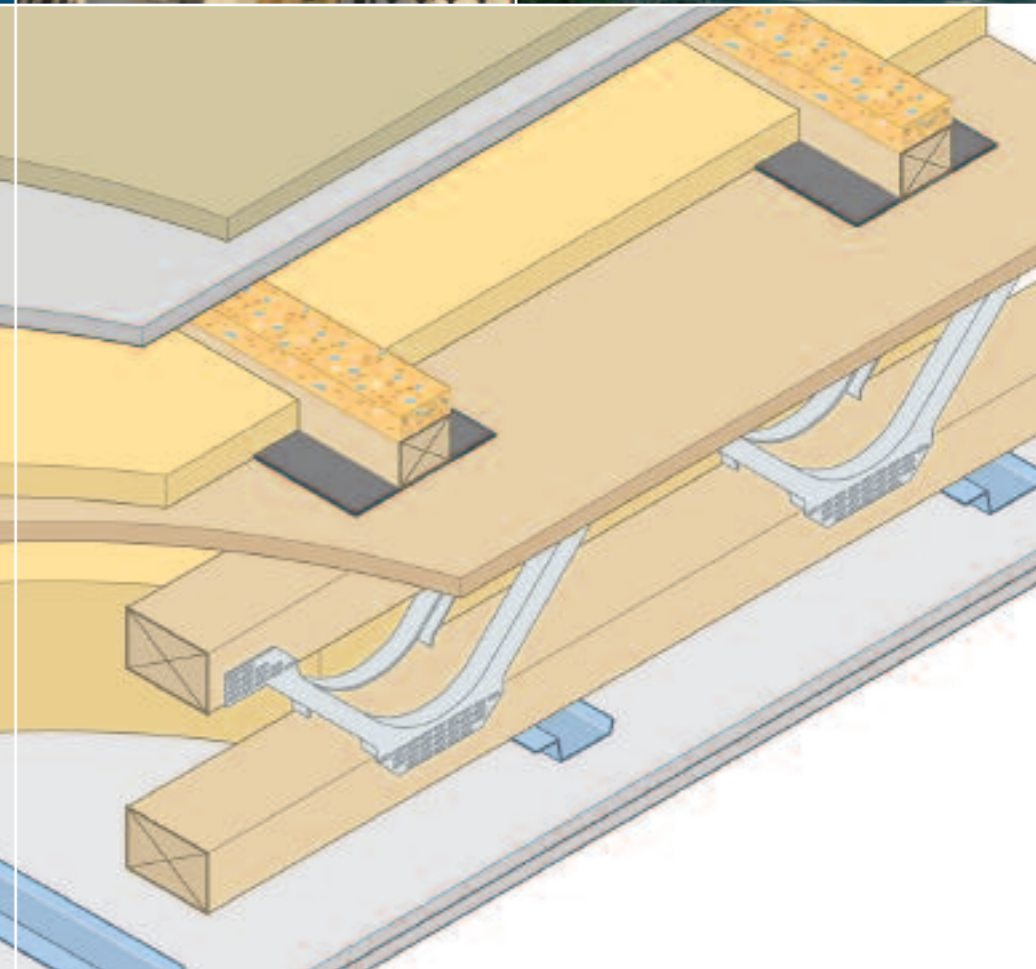
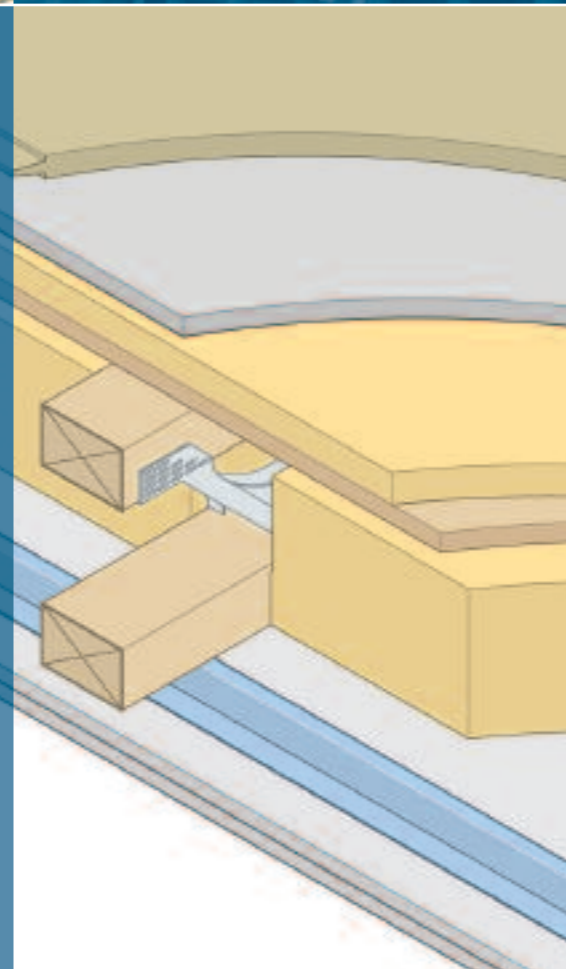
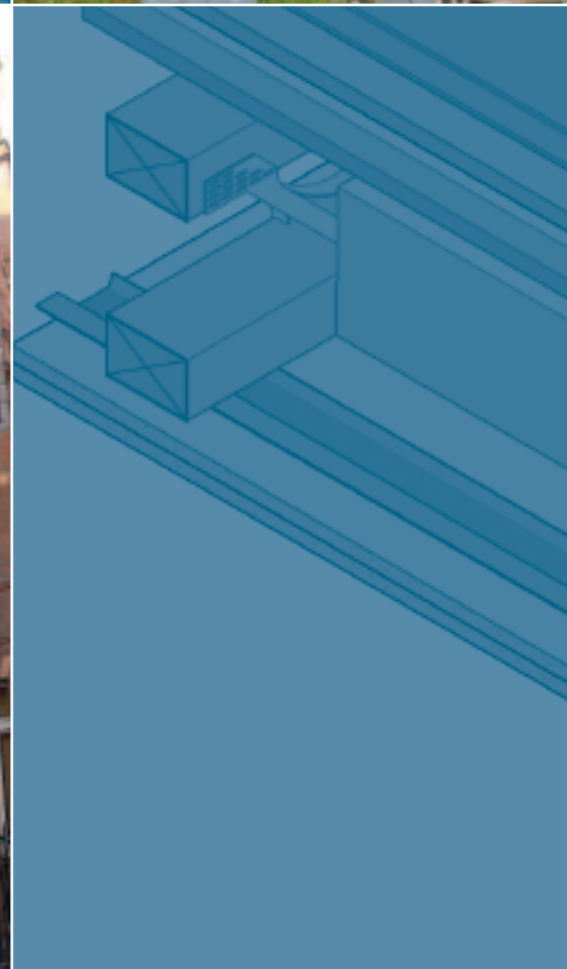
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MARKET LEADING ACOUSTIC SYSTEMS

Monarflex Acoustic System Range

To meet requirements of Approved Document E and Technical Standard H (Scotland)



Introduction

Monarflex Acoustic Systems - part of the Icopal group - specialises in the development of advanced acoustic flooring systems for the treatment of party floors within new build and conversion projects. This brochure describes our range of acoustic flooring systems designed to attain the sound insulation performance levels set out in **Approved Document E 2003**.

New Requirements for Acoustic Insulation

The recent revisions to Part E of the Building Regulations 2003 (applicable to England and Wales - Technical Standard H in Scotland remains unchanged) address the noise levels suffered by occupants within multi storey dwellings, which result from inadequate sound insulation. The problem has increased in recent years through a combination of heightened expectations on the part of occupiers, more sound producing equipment and above all the poor success rate in achieving the sound insulation standards already in place.

Part E of the Building Regulations has been revised to address those issues by:

- Extending the types of constructions covered by the regulations;
- Setting new performance levels for those constructions;
- Introducing pre-completion acoustic testing for separating walls and floors.

The range of constructions and the performance standards are shown in Table 1. Requirements for Scotland are shown in table 2. Although the required performance has increased only a couple of decibels from the previous regulations, the introduction of the adaption term C_{tr} to the measurement of airborne sound performance has made it more difficult to achieve the required standard at low frequencies.

Table 1: Approved Document E Performance Requirements

| Element | Airborne sound – site test $D_{nT,w} + C_{tr}$ (100 to 3150Hz) | Impact sound – site test $L'_{nT,w}$ |
|---|--|--------------------------------------|
| Separating floors between dwellings and rooms for residential purpose | Equal to or higher than 45dB | Equal to or lower than 62dB |
| Separating floors between rooms created by a change of use | Equal to or higher than 43dB | Equal to or lower than 64dB |

Table 2: Technical Standard H Performance Requirements

| | Floors |
|-----------------------------|-------------------|
| Airborne sound - $D_{nT,w}$ | Greater than 52dB |
| Impact sound - $L'_{nT,w}$ | Less than 61dB |

Pre-Completion Testing

To ensure buildings meet the acoustic insulation standards defined in Approved Document E pre-completion acoustic testing is now mandatory for separating walls and floors within a development that is undergoing a change of use. Monarfloor systems have recently been put through a comprehensive program of testing that enhances our testing library to further qualify our advise on a given application.

Monarfloor is one of the founder members of PASM (Proprietary Acoustic Systems Manufacturers) and has put forward a large percentage of its systems to contribute towards the concept of standard details for new build construction. It is anticipated that if adopted numerous contractors will use these details to avoid the need for pre-completion testing.

Monarfloor Solutions

The traditional solution to forming floors to provide high standards of sound insulation has been to use constructions with high mass, e.g. dense concrete slabs, or to add mass to the floor (heavy pugging between timber joists), so absorbing sound energy and damping sound transmission.



However, it is rarely practical to have sufficient mass to give the level of sound insulation required by regulations. The alternative is to isolate the different layers which make up the floor so as to prevent sound waves passing from one to another (a process known as decoupling).

The challenge is to combine resistance with stability to produce a floor construction, which significantly reduces airborne and impact sound transmission while forming a firm and stable walking surface.

LRAC Foam

Research has shown that reconstituted foams, particularly Low Resonance Acoustic Chip (LRAC), have lower natural frequencies than virgin open or closed cell foams, resulting in a balance of excellent impact improvement characteristics and superior stability within a single layer.

Monarflex have used foam to create floating floor systems, which transfer the loading from the wearing surface to the floor structure but also give decoupling characteristics. These constructions achieve sound reduction indices, which comply with current legislation.

Product Selectors



Product Selector

Monarfloor is our range of acoustic insulation systems; use the tables to identify the construction you have to insulate and the Monarfloor solution, then turn to the page shown for full details. Suitable for most types of construction.

New Build

| | | Deck 9 | Deck 18 | Deck 22 | Impact 18 | Acoustic Strip | Structure Deck | Tri-Deck | Acoustic Batten | Acoustic Cradle | Tri-Batten | Impact Mat |
|-------------------------|--|--------|---------|---------|-----------|----------------|----------------|----------|-----------------|-----------------|------------|------------|
| Timber Frame | | | | | | | | | P10 | | P10 | |
| Timber + Masonry Facade | Supported by a sub-floor (decking ply or equivalent) height critical | P6 | P6 | | | | | | | | | |
| | Supported by a sub-floor (decking ply or equivalent) not height critical | | | P6 | | | | | P10 | | | |
| | Treatment to be applied direct to joists | | | | | P7 | P8 | P9 | | | | |
| Concrete | planks, in situ-slab, slab + shutter | N/A | | | P14 | | | | P12 | P13 | | P15 |
| Steel Joists | | | P11 | | | | | | | | | |



Conversion

| | | Deck 9 | Deck 18 | Deck 22 | Impact 18 | Acoustic Strip | Structure Deck | Tri-Deck | Acoustic Batten | Acoustic Cradle | Tri-Batten | Impact Mat |
|----------|--|--------|---------|---------|-----------|----------------|----------------|----------|-----------------|-----------------|------------|------------|
| Timber | Floor to remain, height critical | P6 | P6 | | | | | | | | | |
| | Floor to remain, height not critical | | | P6 | | | | | | P10 | | |
| | Floor to be removed | | | | | P7 | P8 | P9 | | | | |
| Concrete | Planks, slab, slab + shutter, beam + block | N/A | | | P14 | | | | | P12 | P13 | P15 |

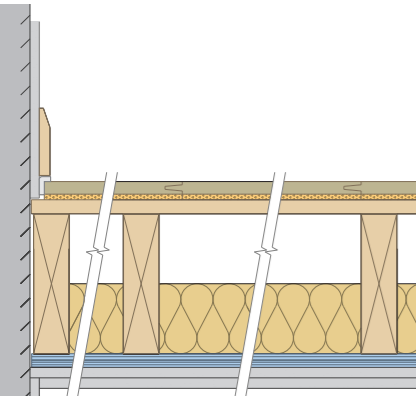
Understanding Performance Results

Airborne sound insulation provided by a floor is measured as the reduction in loudness of sound transmitted through the floor and expressed as $D_{nT,w}$ (weighted standardised sound level difference - see BS EN ISO 717-1:1997). The weighting factor C_r is applied in order to reflect the importance of low frequency sound in noise control and is added to $D_{nT,w}$. The higher this value is the better the floor performs.

Impact sound insulation provided by a floor is measured as the level of sound transmitted through the floor and is expressed as $L'_{nT,w}$ (weighted standardised impact sound pressure level - see BS EN ISO 717-2:1997). The lower this value is the better the floor performs.

The effectiveness of the floating floor treatment is affected by the whole floor structure. Results are therefore given for the whole floor construction.

Overlay Treatments for Timber Floors



Monarfloor Deck overlay system on a timber sub-floor.

Timber Floors

Timber decks require solutions, which will control the transmission of airborne and impact sound. Monarfloor's range of solutions include acoustic deck systems 9, 18 and 22, which are designed to be laid over existing floors.

Deck Overlay Systems for Timber Sub-Floors

The simplest way of improving the airborne and impact sound performance of an existing timber floor is to overlay the floor with an isolating layer and a new wearing surface. Monarfloor offers three deck overlay systems for such applications:

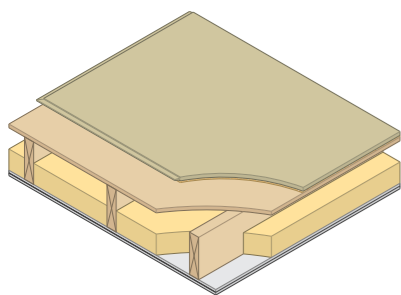
- **Monarfloor Deck 9** - designed for projects where the increase in floor level has to be kept to a minimum. Deck 9 consists of 8mm of LRAC foam bonded to 9mm thick moisture resistant MDF, giving an increase in floor level of only 17mm.
- **Monarfloor Deck 18** - designed for domestic timber floors where the existing timber deck remains. Deck 18 consists of a layer of LRAC foam bonded to 18mm V313 P5 moisture resistant chipboard.
- **Monarfloor Deck 22** - designed for projects where heavy domestic are anticipated. Deck 22 consists of a layer of LRAC foam bonded to 22mm V313 P5 moisture resistant chipboard.

Monarfloor Deck overlay systems may be used in newbuild or refurbishment projects, over 18mm chipboard, OSB board or a decking ply sub floor.

| | Deck 9 | Deck 18 | Deck 22 |
|--|---|-----------------------|-----------------------|
| Components | 9mm moisture resistant MDF | 18mm V313 chipboard | 22mm V313 chipboard |
| | 8mm LRAC foam type II | 8mm LRAC foam type II | 8mm LRAC foam type II |
| Thickness | 17mm | 26mm | 30mm |
| Board size | 1200mm x 600mm | 240mm x 600mm | 2400 x 600mm |
| Board weight | 5.10kg | 22.20kg | 26.90kg |
| Weight/m ² | 7.08kg | 14.41kg | 18.68kg |
| Construction | Monarfloor Deck system on 18mm chipboard deck on 200 x 50mm timber joints, 100mm 45kg/m ³ insulation, 20kg/m ² double boarded plasterboard ceiling on resilient bars perpendicular to joist direction | | |
| D _{nT,w} (Part H) | 57dB | 58dB | 58dB |
| D _{nT,w} + C _{tr} (Approved Doc E) | 48dB | 49dB | 50dB |
| L' _{nT,w} | 48dB | 49dB | 50dB |

Monarfloor Deck overlay systems should be installed directly onto the sub-floor, in broken bond with all joints glued.

For information on flanking transmission and treatment of services see page 16.



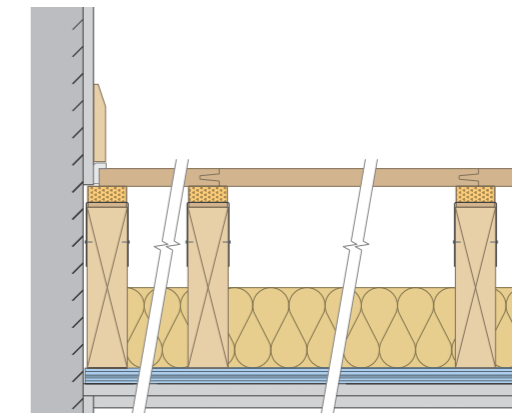
Installation of a Monarfloor Deck overlay system onto a timber sub-floor.

Direct to Joist Treatments

Monarfloor Acoustic Strip

Monarfloor Acoustic Strip system is designed to reduce sound transmission through timber floors in new build or refurbishment projects where the existing flooring will be removed. When installed as part of a complete sound reduction specification it enables a timber floor to meet Part E 2003 of the building regulations.

Acoustic Strip consists of a layer of LRAC foam bonded to a securing geotextile membrane and reinforced with a plywood backing. Acoustic strip is available in 45mm and 75mm widths to fit a range of different joist widths.

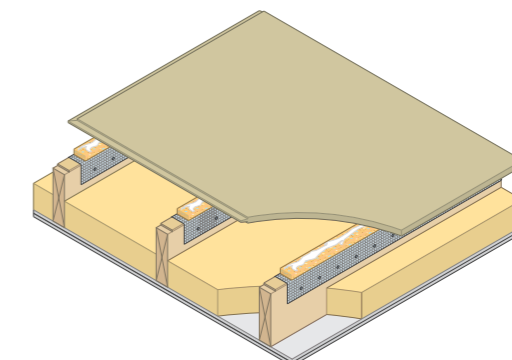


Monarfloor Acoustic Strip on timber joist.

| | |
|---|---|
| Components | 15mm LRAC foam type II securing fibrous membrane 6mm ply strip |
| Thickness | 21mm |
| Length | 2400mm |
| Width | 45mm or 75mm |
| Construction | Floor construction: 22mm chipboard on Monarfloor Acoustic Strip fixed to joists at 450mm centres and packed with 100mm of 45kg/m ³ insulation, with 20kg/m ² double boarded ceiling on resilient bars perpendicular to joist direction. |
| D _{nT,w} (Part H) D _{nT,w} + C _{tr} | 57dB 48dB |
| L' _{nT,w} | 48dB |

The Acoustic strip is fitted to the top of the exposed floor joists and fixed in place by nailing or stapling the securing membrane to the side of the joists. 22mm tongued and grooved chipboard is then laid onto the acoustic strip, in broken bond with all joints glued.

For information on control of flanking transmission and treatment of services see page 16.



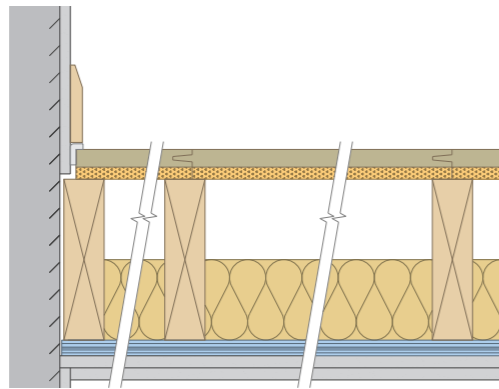
Installation of Monarflex Acoustic Strip on timber joists.

Direct to Joist Treatments

Monarfloor Structure Deck

Monarfloor Structure Deck is designed to reduce sound transmission through timber floors in newbuild or refurbishment projects where the existing flooring will be removed. When installed as part of a complete sound reduction specification it enables a timber floor to meet Part E 2003 of the building regulations.

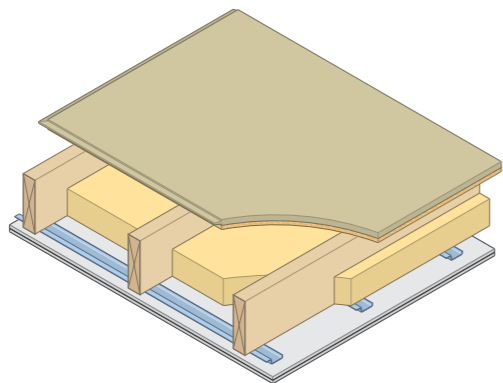
Structure Deck on timber joists.



Structure Deck consists of a 15mm layer of LRAC foam bonded to 22mm V313 P5 moisture resistant chipboard.

| | |
|-------------------------------------|--|
| Components | 22mm P5 moisture resistant chipboard 15mm LRAC foam type III foam |
| Thickness | 37mm |
| Board size | 2400mm x 600mm |
| Board weight | 27.1kg |
| Weight/m ² | 18.81kg |
| Construction | Monarfloor Structure Deck on 200 x 50mm timber joists at 300mm centres packed with 100mm of 45kg/m ³ insulation with 20kg/m ² double boarded ceiling on resilient bars perpendicular to the joist direction. |
| D _{nT,w} (Part H) | 57dB |
| D _{nT,w} + C _{tr} | 48dB |
| L' _{nT,w} | 49dB |

Installation of Monarfloor Structure Deck on timber joists.



Monarfloor Structure Deck should be laid directly onto the joists in broken bond with all joints glued.

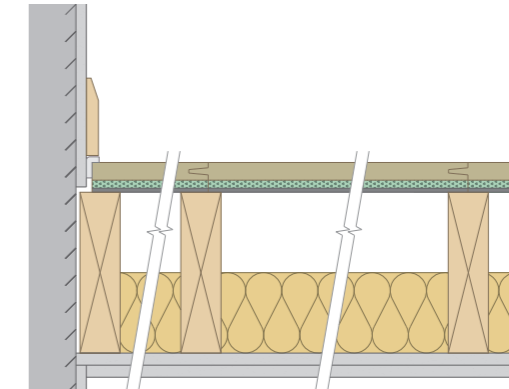
For information on flanking transmission and treatment of services see page 16.

Direct to Joist Treatments

Monarfloor Tri-Deck

Monarfloor Tri-Deck* is designed to reduce sound transmission through timber floors in conversion or refurb projects where the existing timber floor will be removed but access to work on the ceilings below are restricted. When installed as part of a complete sound reduction specification it enables a timber floor to meet Part E 2003 of the building regulations.

Tri-Deck consists of 22mm P5 moisture resistant chipboard bonded to 8mm layer of LRAC foam bonded to a further 5mm foam rubber.



Tri-Deck over timber joists.

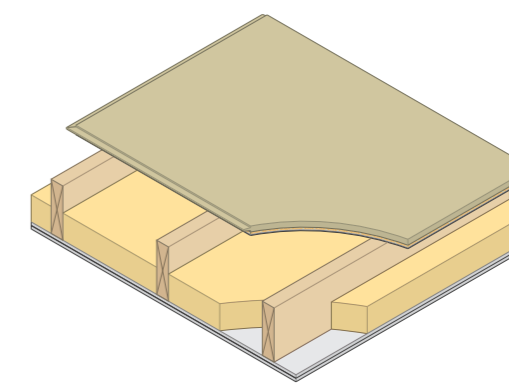
| | |
|-------------------------------------|--|
| Components | 22mm P5 moisture resistant chipboard 8mm LRAC foam type I foam 5mm foam rubber |
| Thickness | 35mm |
| Board size | 2400mm x 600mm |
| Board weight | 30.5kg |
| Weight/m ² | 21.18kg |
| Construction | Monarfloor Tri-Deck on 200 x 50mm timber joists at 300mm centres packed with 100mm of 45kg/m ³ insulation with a 28mm double boarded ceiling. |
| D _{nT,w} (Part H) | 55dB |
| D _{nT,w} + C _{tr} | 46dB |
| L' _{nT,w} | 56dB |

Monarfloor Tri-Deck should be laid directly onto the joists, in broken bond with all joints glued. Guidance should be sought if you are in any doubt as to the quality or density of the surrounding structural elements before proceeding.

For information on flanking transmission and treatment of services see page 16.

* formerly Structure deck HP.

Installation of Monarfloor Tri-Deck on timber joists.



Systems for Timber Frame Structures

Monarfloor Standard Batten and Tri-Batten

Timber frame systems present a challenge for acoustic treatment because of the structures inherent low mass. In recognition of the variety of components within this type of construction we are continually testing.

Acoustic Tri-Batten

Monarfloor Acoustic Tri-Batten is designed to reduce sound transmission through timber floors within a timber-framed structure. When installed as part of a complete sound reduction specification it enables a timber floor to meet Part E 2003 of the building regulations.

Monarfloor Tri-Batten consists of a LRAC foam bonded to a softwood batten, with a geotextile fibrous mat to improve impact sound performance and enable easy but secure fixing to the sub-floor.

| | |
|-------------------------------------|---|
| Composition | 15mm LRAC foam type III 35mm batten 3mm fibrous mat |
| Height | 53mm |
| Dimensions | 1800mm x 45mm wide |
| Floor construction | 18mm chipboard flooring and 19mm plasterboard plank on Monarfloor Tri-Batten system on SOB timber sub-floor, pressed web steel joists, with 11kg/m ³ insulation between the tri-battens. Ceiling - one layer 19mm plank plasterboard plus one layer 15mm sound block (min 24kg/m ²) on resilient bars. |
| D _{nT,w} (Part H) | 60dB |
| D _{nT,w} + C _{tr} | 48dB |
| L' _{nT,w} | 55dB |

Monarfloor Tri-Batten should be positioned on the existing sub-floor and stapled in place through the geotextile mat. It should then be overlaid with the plasterboard plank and chipboard flooring laid in broken bond.

For information on flanking transmission and treatment of services see page 16.

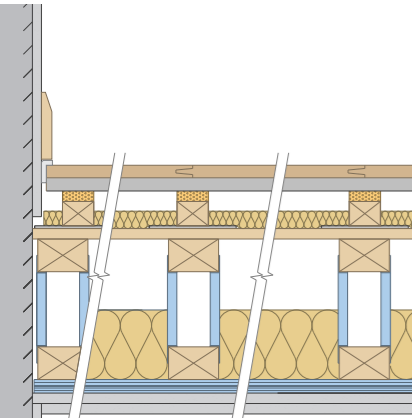
Acoustic Batten

Monarfloor Acoustic Batten is also designed for use on timber frame construction. It consists of LRAC foam bonded to a softwood batten. The Acoustic Batten can be overlaid directly with an 18mm or 22mm chipboard deck. The recommended batten centres for 18mm chipboard are 400mm max and for 22mm chipboard 550mm max in accordance with our installation instructions.

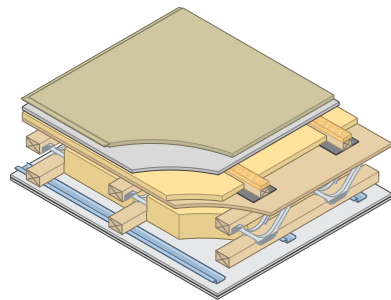
| | |
|---|---|
| Composition | 15mm LRAC foam type III Softwood timber batten |
| Standard Height | 75mm although alternative size battens are also available to order |
| Dimensions | 1800mm x 45mm wide |
| Construction | 18mm chipboard flooring and 19 plasterboard plank on Monarfloor 75mm acoustic batten system on SOB timber sub-floor, TJI joists, with 100mm of 10kg/m ³ insulation between the joists and 36kg/m ³ insulation 25mm thick between the tri-battens. Ceiling - one layer 19mm plank plasterboard plus one layer 15mm sound block (min 24kg/m ²) on resilient bars perpendicular to the joists. |
| D _{nT,w} (Part H) | 58dB |
| D _{nT,w} + C _{tr} (mean 50dB) | Complies with proposed RSD TF2 performance |
| L' _{nT,w} (mean 53dB) | |

Monarfloor Acoustic Batten in this example is laid foam side down at the appropriate centres with a continuous run of batten 50mm in from all perimeter walls. It should then be overlaid with 18mm or 22mm tongue and grooved chipboard in broken bond, with all joints glued.

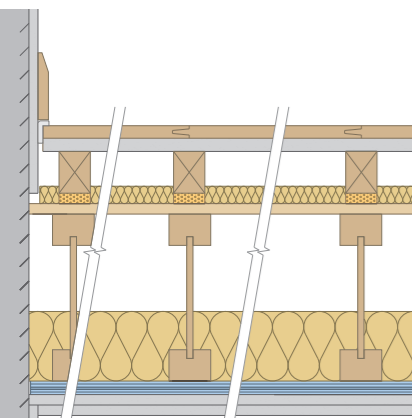
For information on flanking transmission and treatment of services see page 16.



Monarfloor Tri-Batten on timber joists.



Installation of Monarfloor Tri-Batten on a timber sub-floor.



Monarfloor Standard Acoustic Batten on a timber frame construction.

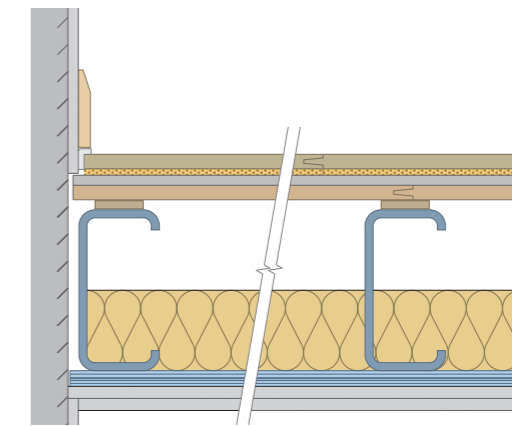
Systems for Steel Frame Structures

Monarfloor Deck 18

Steel constructions can be demanding applications for controlling sound transmission because of the ease with which steel conducts sound. However, a Monarfloor Deck 18 acoustic system can reduce airborne and impact sound transmission to acceptable levels.

Deck 18

Monarfloor Deck 18 is a deck overlay system that can be used on steel frame floors over a sub-floor of chipboard and plasterboard. Deck 18 consists of a layer of LRAC foam bonded to 18mm V313 P5 moisture resistant chipboard.

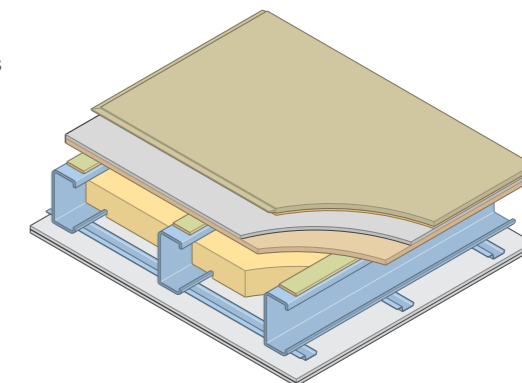


Deck 18 over a sub-floor on steel joists.

| | |
|-------------------------------------|--|
| Composition | 18mm V313 chipboard 8mm LRAC foam type II |
| Thickness | 26mm |
| Board size | 2400mm x 600mm |
| Board weight | 22.20kg |
| Weight/m ² | 14.41kg |
| Construction | Steel joists at 450mm centres packed with 100mm of 45kg/m ³ insulation between with Monarfloor 6mm isolation flanking band, 18mm chipboard deck, 12.5mm plasterboard and then overlaid with Monarfloor Deck 18, with a 30mm (24kg/m ²) double-boarded ceiling on resilient bars perpendicular to the joist direction below. |
| D _{nT,w} (Part H) | 54dB |
| D _{nT,w} + C _{tr} | 47dB |
| L' _{nT,w} | 56dB |

Monarfloor 6mm isolation flanking band should be laid along the tops of the steel joists and overlaid with an 18mm chipboard deck and 12.5mm plasterboard. Monarfloor Deck 18 should then be laid over the plasterboard in broken bond with all joints glued.

For information on flanking transmission and treatment of services see page 16.



Installation of Monarfloor Deck 18 over steel joists.

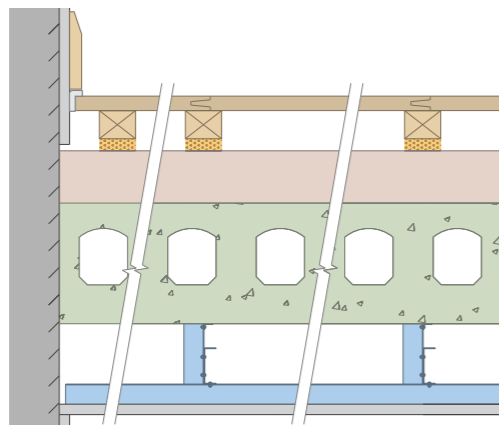
Systems to Treat Concrete Sub-Floors

Monarfloor Acoustic Batten

The development of lighter concrete decks, particularly those composed of separate elements, has resulted in a need for systems, which will reduce airborne and impact sound. Monarfloor's batten and cradle systems offers straightforward solutions to that requirement.

Some concrete applications may not require a service void within the floors build up. These systems are described on page 14.

Monarfloor Acoustic Batten on hollow core plank floor.



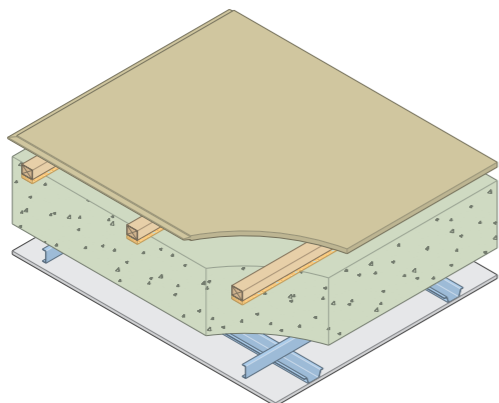
Acoustic Batten

Monarfloor Acoustic Batten is designed for use on concrete floors. It consists of LRAC foam bonded to a softwood batten. The Acoustic Batten can be overlaid directly with an 18mm or 22mm chipboard deck. The recommended batten centres for 18mm chipboard are 400mm max and for 22mm chipboard 550mm max in accordance with our installation instructions.

| | |
|---|---|
| Components | 15mm LRAC foam type III Softwood timber batten |
| Standard Height | 50 or 75mm although alternative size battens are also available to order |
| Dimensions | 1800mm x 45mm wide |
| Construction | 18mm chipboard on Monarfloor Acoustic Batten at 400mm centres over minimum 150mm hollow core plank with min. 80kg/m ² bonded screed, metal frame suspended ceiling min. 100mm void supporting 10kg/m ² plasterboard |
| D _{nT,w} (Part H) D _{nT,w} + C _{tr} (54dB mean) | 58dB Complies with proposed RSD MF1 performance |
| L' _{nT,w} (48dB mean) | Complies with proposed RSD MF1 performance |

**alternative size battens available to order.*

Installation of Monarflex Acoustic Batten on hollow concrete plank floor.



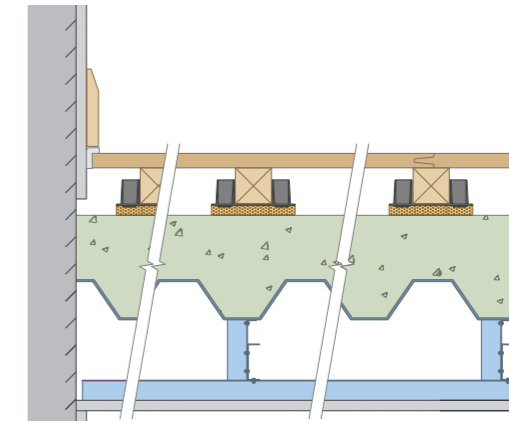
Monarfloor Acoustic Batten in this example is laid foam side down at the appropriate centres with a continuous run of batten 50mm from all the perimeters. The chipboard flooring should be laid in broken bond with all joints glued.

For information on flanking transmission and treatment of services see page 16.

Monarfloor Acoustic Cradle

Monarfloor Acoustic Cradle system is designed to reduce sound transmission through concrete floors, which are uneven or have a camber. When installed as part of a complete sound reduction specification it enables the floor to meet Part E 2003 of the building regulations.

Acoustic cradle consists of a layer of LRAC foam bonded to an injection moulded plastic cradle, sized to accept 45 x 45mm softwood battens onto which the chipboard flooring is secured.

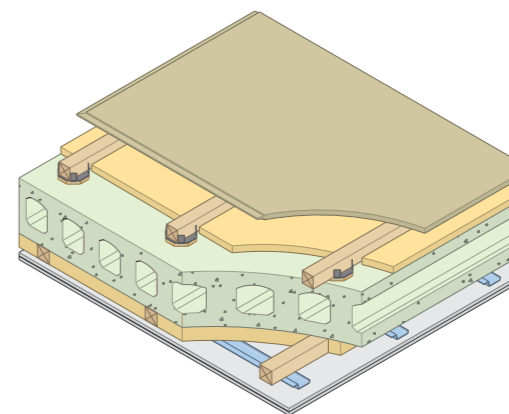


Monarfloor Acoustic Cradle on profiled metal deck/concrete floor.

| | |
|---|---|
| Components | 10mm LRAC foam IV Injection moulded plastic cradle |
| Height | 60mm minimum includes timber batten |
| Dimensions | 105mm x 105mm |
| Construction (to comply with proposed RSD SF2 performance) | 18mm chipboard floor on 45x45mm battens at 450mm centres on Monarfloor Acoustic Cradle system, on 130mm max/80mm min. in-situ concrete fully supported on profiled metal deck, 100mm min. Metal frame suspended ceiling, 10kg/m ² boards |
| D _{nT,w} + C _{tr} mean (56dB SF2), (54dB MF1) L' _{nT,w} mean (38dB SF2), (48dB MF1) | Complies with proposed RSD MF1 & SF2 performance |

The Acoustic Cradles are commonly set out at 450 to 600mm centres on the sub-floor. 45mm x 45mm softwood battens should then be fitted into each run of Acoustic Cradles. Monarfloor packing shims should be used to level the battens on each cradle. The battens should be overlaid with 18mm or 22mm chipboard laid in broken bond with all joints supported and glued.

For information on flanking transmission and treatment of services see page 16.



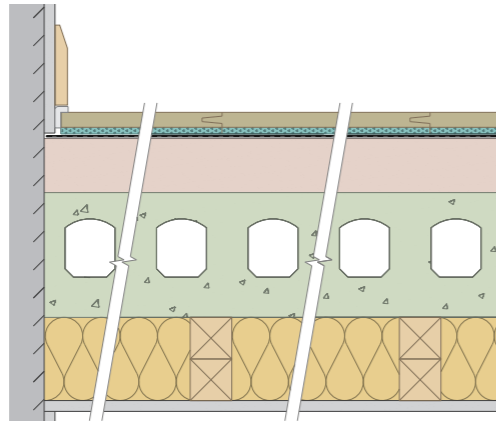
Installation of Monarfloor Acoustic cradle on concrete floor.

Overlay Treatments to Concrete Sub-Floors

Monarfloor Impact 18

Concrete decks with a mass in excess of 350kg/m² are inherently resistant to the transmission of airborne sound, making the control of impact sound the principle objective. Monarflex Acoustic Systems offers a V313 grade P5 chipboard finished solution for improving the impact sound performance of concrete decks where a service void is not required.

Impact 18 on concrete deck.

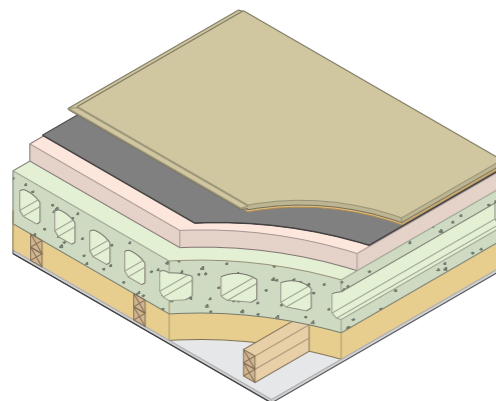


Impact 18

Impact 18 is a deck system consisting of a layer of resilient LRAC foam bonded to 18mm thick moisture resistant V313 P5 chipboard. When installed over a levelling screed Impact 18 will substantially reduce the transmission of impact sound.

| | |
|---|---|
| Composition | 18mm V313 chipboard 8mm LRAC foam type I |
| Thickness | 26mm |
| Board size | 2400mm x 600mm |
| Board weight | 22.10kg |
| Weight/m | 15.35kg |
| Construction | Hollow core plank with 65mm cement/sand screed and Monarfloor Impact 18 over, gypsum board ceiling $\geq 10\text{kg/m}^2$, below 100mm batten space, (can optionally filled with 10kg/m^2 mineral wool quilt). Overall construction exceeded 365kg/m^2 |
| $D_{nT,w}$ (Part H) $D_{nT,w} + C_{tr}$ (mean 54dB) $L'_{nT,w}$ (mean 48dB) | 58dB Complies with proposed RSD MF1 performance |

Installation of Monarfloor deck systems on a concrete deck.

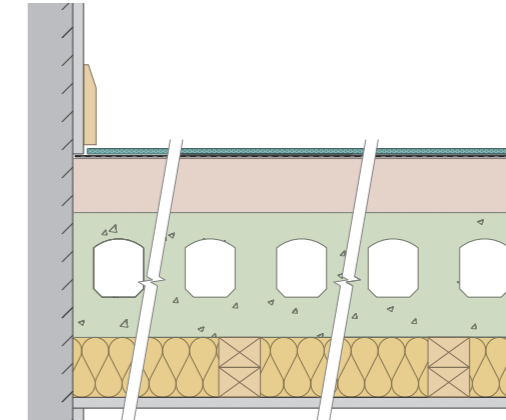


Impact 18 should be installed in broken bond with adhesive applied to all tongue and grooved joints.

For information on flanking transmission and treatment of services see page 16.

Monarfloor Impact Mat

Monarfloor Impact Mat is a 6.5mm thick sheet of resilient rubber crumb with synthetic reinforced top surface to receive a soft floor covering such as carpet. This product is normally used where airborne transmission of sound to the untreated floor is satisfactory.



Monarfloor Impact Mat on concrete deck.

| | |
|--------------------------|---|
| Composition | Rubber crumb foam Synthetic reinforcement top surface |
| Thickness | 6.5mm |
| Dimensions | 1370mm x 11m |
| A Common Construction | Hollow core plank with 65mm cement/sand screed, overlaid with Monarfloor Impact Mat and floor, gypsum board ceiling $\geq 10\text{kg/m}^2$, below 100mm batten space, optionally filled with 10kg/m^2 mineral wool quilt. |
| Performance ΔL_w | 29dB |

Impact Mat should be bonded to the screed with a tackifier and then overlaid with a selected soft floor covering.

Design Considerations



Loading

BS 6339-1: 1996 defines the design loading for floors of self-contained dwellings as:

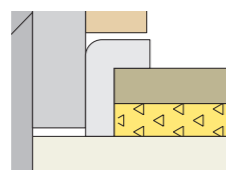
- Intensity of distributed load 1.5 (kPa)
- Concentrated load 1.4 (kN)

All Monarfloor acoustic-flooring systems can support those loadings without undue deflection. Consult our technical department for advice on using Monarfloor systems in conjunction with partitions or service entries.

Flanking Transmission

The acoustic performance of a floor can be compromised by the passage of sound through walls and ducts, which adjoin or penetrate a floor, a phenomenon known as flanking transmission. To reduce flanking transmission the acoustic flooring must be isolated from walls and other structural elements.

Monarflex Acoustic Flanking Band is a flexible foam strip designed to form and seal a 5mm isolation gap between the flooring and the wall. Acoustic Flanking Band is fixed against the perimeter wall before the flooring system is laid, thus preventing it from touching the wall. When the skirting is installed Acoustic Band is folded under the skirting to isolate it from the floor.



Pipes and ducts which penetrate separating floors must be boxed in enclosures of 15kg/m² mass, with 25mm of mineral wool either lining the enclosure or wrapped around the pipes or duct*. The boxing must be isolated from the floor by a 3mm sealed gap formed, for example, with Monarfloor Acoustic Flanking Band. Fire stopping around penetrations must conform to Building Regulations Part B, but must be flexible, to avoid a rigid connection with the floor.



Flanking transmission can present significant problems in refurbishment projects, as flanking walls may run through separating floors. Additional advice should be sought if there is any doubt as to the correct detail required.

** gas pipes must either be enclosed in a separate duct, ventilated at every floor, or left unenclosed. Consult The Gas Safety (Installation and Use) Regulations 1998.*

Ceiling Treatments

With some floors additional measures will be required to achieve the performance levels specified in Approved Document E; those can include:

- Increasing the mass and absorption of the floor by laying mineral wool between the joists (a technique known as 'pugging'). The mineral wool should be selected given due consideration to the overall floor construction.
- Installing the ceiling on resilient bars to supplement the performance of floating floor. The bars should be fixed at right angles to the joists and around the perimeter of the ceiling.
- Forming the ceiling of a minimum of two layers of 10kg/m² plasterboard and two layers totalling 24kg/m² specifically for timber frame construction.

Finishes

Most types of floor finish are suitable for use with Monarfloor Acoustic systems. Advice should be sought from Monarflex to ensure the correct preparation.

Services, Fixtures and Fittings

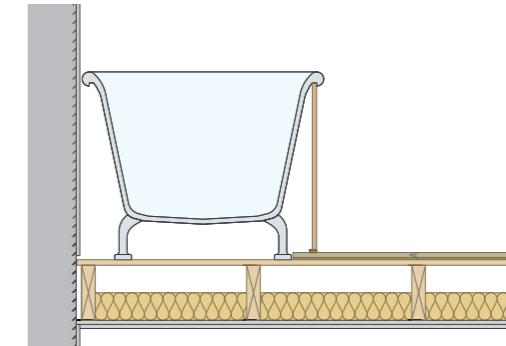
The voids formed by batten and cradle systems may be used to accommodate services, such as heating pipes. Contact our technical department for further advice.

To minimise the risk of flanking transmission, sanitary ware such as toilet pans and baths should be adequately isolated. With Monarfloor deck systems sanitary ware should be mounted on the existing floor to prevent movement at joints in pipework.

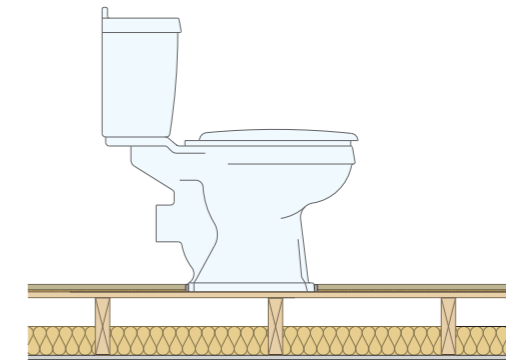
For Monarfloor batten systems mount sanitary ware on timber packing, and lay the batten and chipboard deck to within 5mm of the base and seal with flexible sealant. Support the edge of the acoustic flooring with Acoustic Batten (for concrete sub-floors) or Acoustic Strip mounted on additional cross-noggins (for timber sub-floors).

Kitchen units may also be installed independently of the acoustic flooring. Recessed light fittings must be boxed in to preserve the continuity of ceiling mass. The boxing must be to the same thickness as the rest of the ceiling and properly sealed. It must also be large enough to allow airflow around the light to prevent overheating.

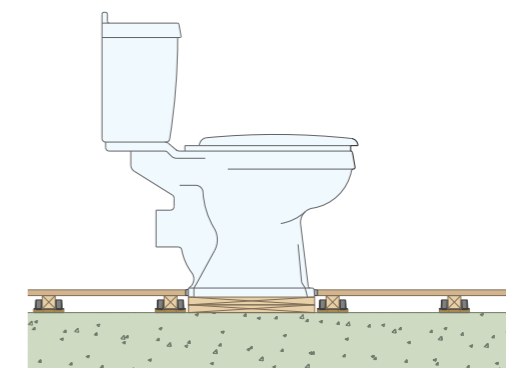
Avoid the use of floor-mounted or sunken loudspeaker systems as they compromise the sound insulation performance of the floor.



Bath Timber



Toilet Timber



Toilet Concrete



Technical Services



Monarflex Acoustic Systems is part of Icopal, the world leader in building protection from the roof right down to the basement. From our UK headquarters in Manchester and through our national network of over 2,000 stockists we offer you the UK's most complete range of construction membranes, support services with, in some cases, insurance-backed guarantees.

Technical Support

Monarflex Acoustic Systems' technical staff are experienced in a wide range of flooring applications and can advise on all aspects of acoustic flooring design and specification. We can undertake site visits to provide contractors with advice and assistance at every stage of a project from concept to completion. The solutions we offer are the most appropriate from a cost and performance point of view.

Research and Development

To maintain our position at the forefront of acoustic flooring technology Monarflex Acoustic Systems has an on-going programme of research and product development, with tests carried out by independent laboratories.

Technical References

Approved Documents to the Building Regulations

E – Resistance to the passage of sound
2003 edition

Technical standards to Building Standards (Scotland) Regulations

H – Resistance to transmission of sound

BS EN ISO 140: Acoustics. Measurement of sound insulation in buildings and of building elements

- 140-3:1995 Laboratory measurement of airborne sound insulation of building elements
- 140-4:1998 Field measurements of airborne sound insulation between rooms
- 140-6:1998 Laboratory measurements of impact sound insulation of floors
- 140-7:1998 Field measurements of impact sound insulation of floors



BS EN ISO 717: Acoustics. Rating sound insulation in buildings and of building elements
717-1:1997 Airborne sound insulation
717-2:1997 Impact sound insulation

BS 8233:1999 Sound insulation and noise reduction for buildings. Code of practice

Quality Assurance

All Monarfloor products are manufactured under strict quality guidelines. As part of our commitment to the highest standard of quality and service, Monarflex Acoustic Systems is registered to BS EN ISO 9001:2000.



Availability

The Monarfloor acoustic flooring range is available from our nation-wide network of distributors & stockists. Please contact Icopal for details of the one nearest you.

Packaging, Delivery, Storage and Handling

Monarfloor deck systems are delivered to site shrink-wrapped on pallets. Corners are protected together with the edges by cardboard plates in the areas where banding strips are positioned. Batten and strip systems are shrink-wrapped on polythene and also palletised.

Store all Monarfloor systems flat and under cover, in a well-ventilated environment (not sheeted outside). All Monarfloor products are supplied with full installation instructions.

