KNAUF INSULATION

August 2008: Issue 1

Non - Residential New Build
4.6.2 Separating Floors

energy saving warmth quietness fire protection sustainability

Non-residential New Build

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Non-residential New Build

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Separating floors

Separating floor design

Many commercial and public buildings have areas of exposed upper floor whether it is above a car park or access way, or simply formed as a result of the design of the building. It is important that these floors are correctly insulated to ensure that the building meets with the appropriate Building Regulation requirements and the floor does not compromise the energy efficiency of the building.

Introduction

It is possible to achieve very high levels of insulation in exposed upper floors and the designer has the choice of where to position the insulation, either above, below or within the structural floor. If insulating below the structural floor, the insulation can be laminated to a robust construction board that will provide a finish to the soffit. This method allows for insulation and cladding in one process. When Knauf Insulation provide thermal insulation products that are suitable for timber and concrete upper floor constructions, giving a range of options that will comply with the Building Regulations.

Mineral wool products offer substantial advantages when used as both sound absorbent and resilient layers in floors that are required to provide sound insulation.

Mineral wool provides an alternative method of controlling airborne sound transmission through a floor as opposed to simply increasing the mass. The sound reduction performance of floors can be greatly increased by installing a layer of glass or rock mineral wool in floor voids to absorb energy from airborne sound waves.

The standards for 'Rooms for Residential Purposes' only exists in England and Wales, currently the building regulations in Scotland and Northern Ireland do not cover this type of building. Where a building contains both dwellings (or 'rooms for residential purposes' in England and Wales) and areas that are used for other purposes then the standard of protection offered to the dwelling or room for residential purposes will depend on the noise generated in the non domestic space, but would only have to offer protection from airborne sound and not impact sound transmissions.
It is likely that the minimum standard will be the same requirement as exists for separating dwellings.

A secondary benefit of glass or rock mineral wool is to provide thermal separation between floors so that buildings can be zoned independently for heating.

When used as a resilient layer to isolate the floor surface from the structural deck, appropriate glass or rock mineral wool products will substantially reduce the transmission of impact sound through a structure. Equally, extruded polyethylene offers a high level of performance when used as a resilient layer below a screed.

Building Regulations

Separating floors are required to provide protection from noise between adjoining rooms for residential purposes. They are also required in mixed developments where the same building contains dwellings and rooms for residential purposes and areas with other functions such as shops, offices etc.

To achieve the expected level of protection not only does the separating floor have to be designed and built correctly, but particular attention has to be paid to flanking transmission through the building elements adjoining the separating floor. It should be remembered that the performance levels required by Building Regulations and Standards measure the protection offered from noise transmissions between the areas being separated,, not just the performance of the separating element in isolation.

England and Wales

In England and Wales the Building Regulation Part E was revised in 2003 to ensure better performance of buildings in this respect. The changes require performance to be established by on-site testing before compliance can be achieved, and place emphasis on low frequency noise.

insulating between timber joists, the whole depth of the joists can be utilised as an insulation zone. If mineral wool insulation is installed between the joists, this method of construction achieves a very good insulation value without increasing the depth of the floor construction. Insulating above the structural floor reduces the thermal mass of the floor allowing for fast warm up. However, if only part of the floor on that storey is exposed it may cause problems with finished floor levels.

Scotland and Ireland

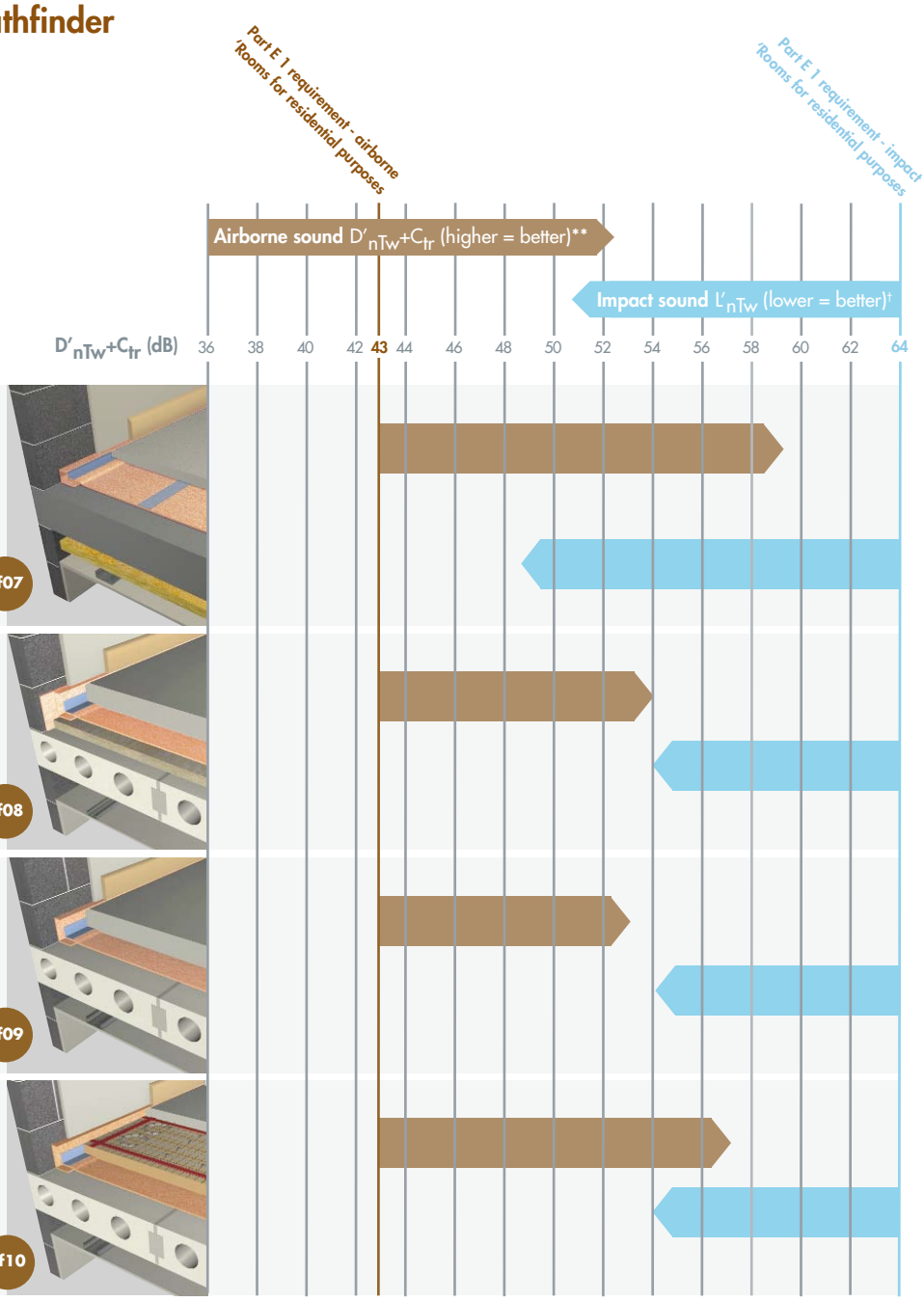
In Technical Handbook 5 of the Technical Standards in Scotland, Technical Booklet G in Northern Ireland and Part E of the Irish Regulations, compliance can be achieved either by adopting specified constructions or by testing to show that non-specified constructions meet the Performance Standards set out in the tables below.

Note that Scotland, Northern Ireland and Ireland have not adopted the $D_{nT,w}+C_{tr}$ sound spectrum for testing that must be used in England and Wales. The performance standards are therefore not directly comparable.

Separating floors

Solution optimiser and pathfinder

Internal separating floors



Concrete floor with liquid screed and polyethylene resilient layer
Products*: Floorfoam 10, Floorfoam Easy Edge Strip
Description: Cast in-situ solid concrete floor slab with a 40mm liquid concrete screed separated by a 10mm polyethylene foam resilient layer
Page No: 668

Sf07

Concrete floor with screed and two resilient layers
Products*: Rocksilk Acoustic Floor Slab Plus, Floorfoam 5, Floorfoam Easy Edge Strip
Description: Resilient XPE layer and rock mineral wool floor slab under screed, resilient XPE edge strip at perimeter
Page No: 670

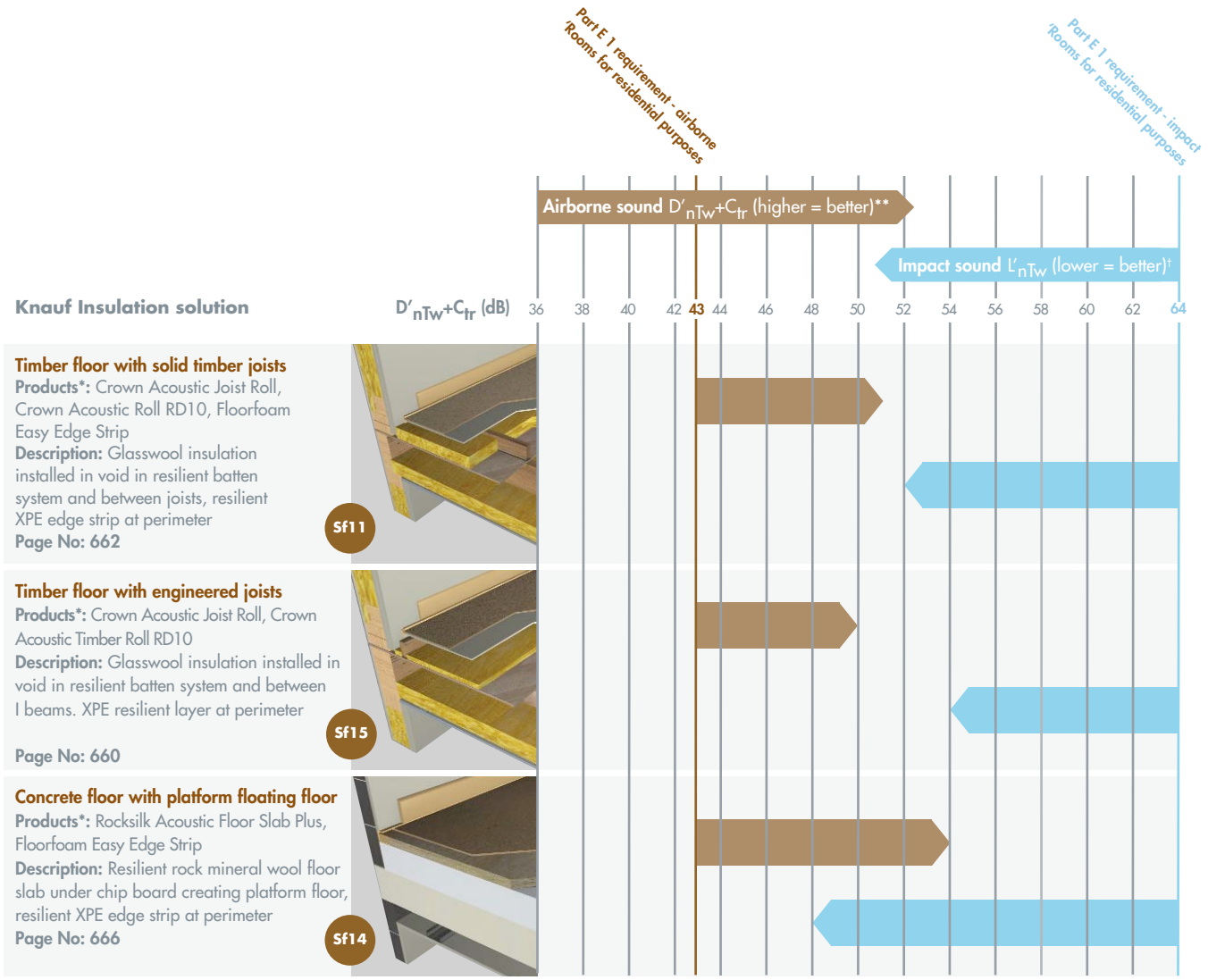
Sf08

Concrete floor with screed and resilient layer
Product*: Floorfoam 10, Floorfoam Easy Edge Strip
Description: Resilient XPE layer under screed and resilient XPE edge strip at perimeter
Page No: 672

Sf09

Concrete floor with underfloor heating
Products*: Polyfoam Floorboard, Floorfoam 5, Floorfoam Easy Edge Strip
Description: XPS underfloor heating board and resilient XPE layer under screed, resilient XPE edge strip at perimeter
Page No: 674

Sf10



Key

Sound insulation achievable by constructions within this document

* Recommended Knauf Insulation product(s). Other products may be applicable.

Pb01 Find online. Visit www.knaufinsulation.co.uk and key in construction code to find the most up to date information on your chosen solution.

** higher value = greater protection from airborne sound

† lower value = greater protection from impact sound transmission

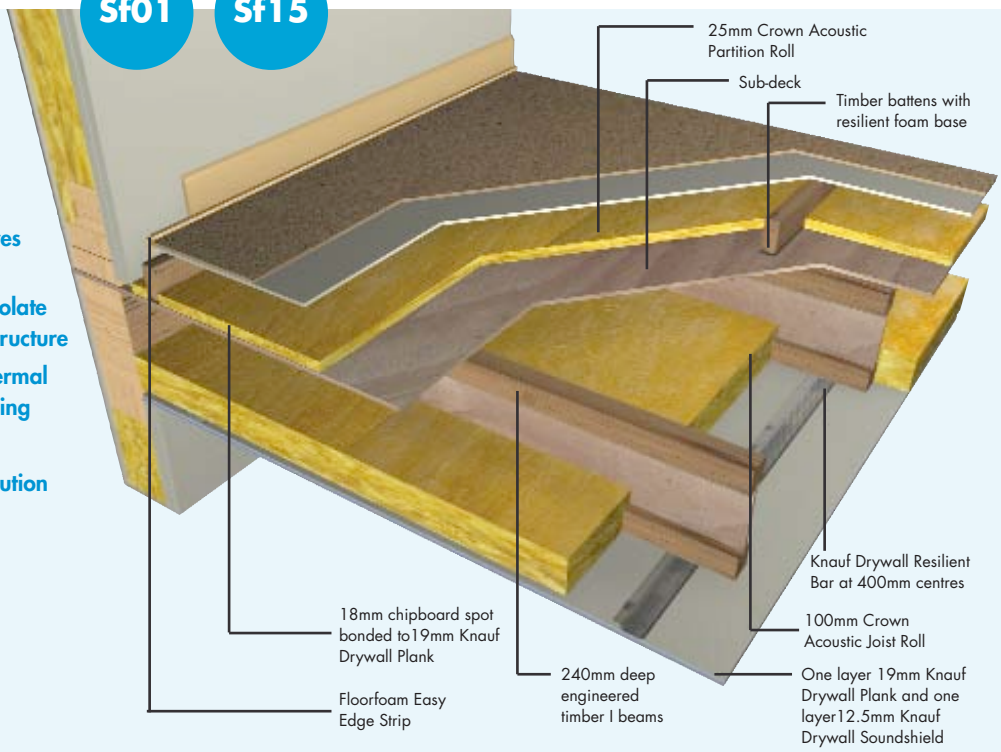
Separating floors

Timber frame floor with I-Beams (RD E-FT-1)

Sf01 Sf15

Advantages

- ✓ **Engineered timber beams reduce deflection and provide a wide fixing for the floor deck**
- ✓ **Mineral wool in voids absorbs sound and improves acoustic performance**
- ✓ **The resilient bar helps to isolate the ceiling from the floor structure**
- ✓ **Provides a high level of thermal separation between adjoining properties**
- ✓ **No need to site test this solution**



Products

Crown Acoustic Joist Roll and **Crown Acoustic Partition Roll** are made from glass mineral wool and formed into rolls which are lightweight, flexible, resilient and non-combustible. Each product's density meets the appropriate requirements of Robust Detail E-FT-1.

Floorfoam Easy Edge Strip is a strip of extruded polyethylene, pre-scored to fold around the edge of the floor deck. The 65mm wide top section is also scored at 10mm intervals to make trimming at the skirting easier. The 65mm vertical section incorporates a self adhesive strip with release tape. This enables the Floorfoam Easy Edge Strip to be secured in place when the floor deck is laid.

Typical construction

Timber floor using engineered I beams with battened floor with 25mm Crown Acoustic Partition Roll between resilient battens. 100mm Crown Acoustic Joist Roll between the joists and a double layer ceiling of mass 24 kg/m^2 on Knauf Drywall resilient bars at 400mm centres.

The construction complies with Robust Detail E-FT-1. No pre-completion testing is required with Robust Details. Refer to RD specification sheets and checklists for junction, flanking and other construction details.

It should be noted when considering using Robust Details in the construction of flats, that separating walls and floors must be compatible. The Robust Detail manual carries details of which walls and floors can be combined together.

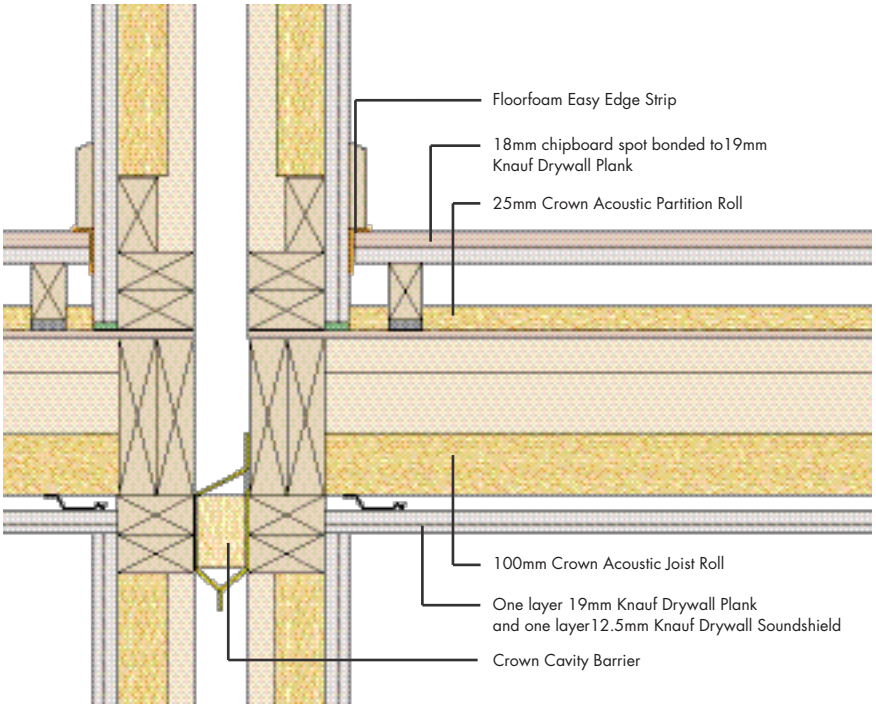
Installation

On completion of the structural timber floor, the Knauf Drywall Resilient Bars are screw fixed to the underside of the joists. Lengths of Crown Acoustic Joist Roll are inserted into the voids between the 'I' beams. The insulation should rest on the resilient bars and butt up against the I beams with no gaps. The plasterboard ceiling can then be fixed to the resilient bars. Ensure that the plasterboard screws do not penetrate into the timber 'I' beams.

On completion of the sub-floor deck and first fix services, resilient composite timber battens are laid out at 600mm centres. Crown Acoustic Partition Roll is laid between the battens. It must be laid under the services in the sub-floor void. The plasterboard plank and chipboard floor deck are fixed to the timber battens.

Floorfoam Easy Edge Strip should be adhered to the perimeter wall with the integral self adhesive strip. The floor deck is laid and butted up to the Floorfoam Easy Edge Strip, which is later folded under the skirting to provide acoustic isolation of the floor deck from the walls.

Typical junction with timber separating wall



Typical specification

Crown Acoustic Joist Roll, 100mm thick, to be placed between the timber I beams.

Crown Acoustic Partition Roll, 25mm thick, to be unrolled between the resilient floor battens. Crown Acoustic Partition Roll should be placed under any services running in the void between the battens.

The ceiling and floor to be as specified by the designer.

NBSPlus

Alternatively, consult the National Building Specifications (NBS) based on Standard Version P10/240. It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

In site tests, Robust Detail E-FT-1 has achieved airborne sound reduction results of 47-55 dB and impact sound reduction results of 46-58 dB.

This floor construction, if used on a building plot registered with Robust Details Limited, does not require pre-completion testing.

Fire performance

Crown Acoustic Joist Roll and Crown Acoustic Partition Roll are classified as Euroclass A1 to BS EN ISO 13501-1.

Sf15

Although this solution was developed as a Robust Detail which can be used without on site testing in new build dwellings in England and Wales, its use with the same materials, is appropriate as a separating wall in both new build non dwellings such as student accommodation, nursing homes and hotels, constructed using light weight steel frames. Similarly, it could be used in refurbishment projects in both dwellings and non-dwellings in existing constructions which require new separating floors, providing the flanking walls are suitable. In all cases, if it is used for work other than new dwellings, its performance must be proven by the stipulated on site testing procedures that apply.

For dwellings in Scotland and Northern Ireland there are no approved engineered I-beam separating floor constructions. Performance must be proven by the stipulated on site testing procedures.

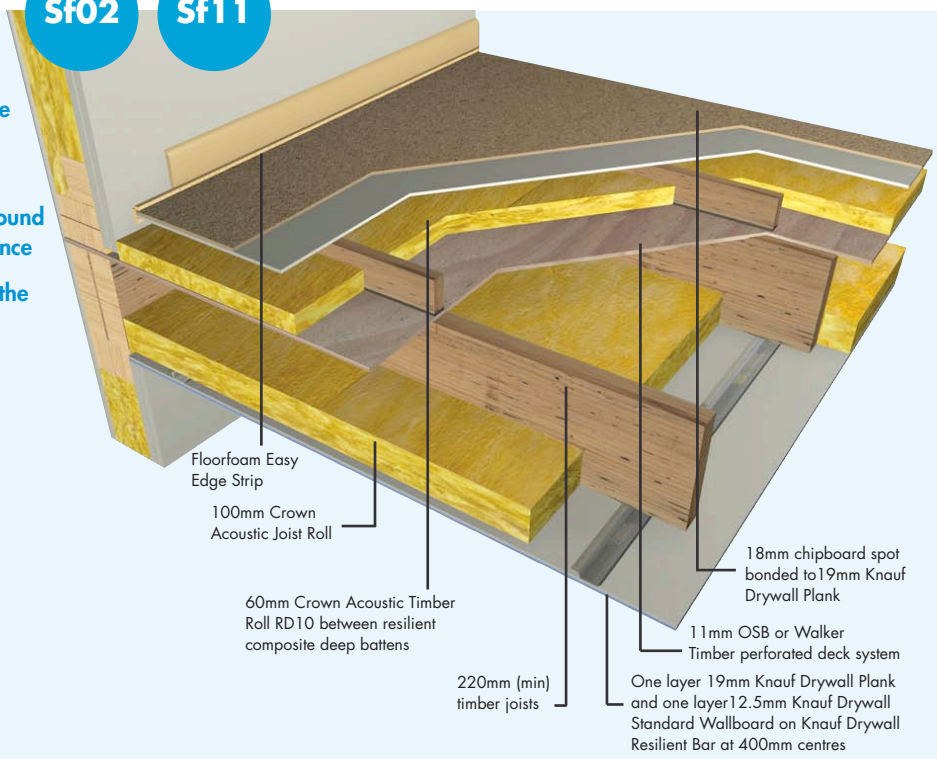
Separating floors

Timber frame floor with solid timber joists (RD E-FT-2)

Sf02 Sf11

Advantages

- ✓ **The resilient deep battens and Floorfoam Easy Edge Strip isolate the flooring surface from the main structure**
- ✓ **Mineral wool in voids absorbs sound and improves acoustic performance**
- ✓ **The resilient bar helps to isolate the ceiling from the floor structure**
- ✓ **Provides a high level of thermal separation between adjoining properties**
- ✓ **No need to site test this solution**



Products

Crown Acoustic Timber Roll RD10 and **Crown Acoustic Joist Roll** are made from glass mineral wool and formed into rolls which are lightweight, flexible, resilient and non-combustible. Each product's density meets the appropriate requirements of Robust Detail E-FT-2.

Floorfoam Easy Edge Strip is a strip of extruded polyethylene, pre-scored to fold around the edge of the floor deck. The 65mm wide top section is also scored at 10mm intervals to make trimming at the skirting easier. The 65mm vertical section incorporates a self adhesive strip with release tape. This enables the Floorfoam Easy Edge Strip to be secured in place when the floor deck is laid.

Typical construction

A new timber floor using solid timber joists with battened floor with 60mm Crown Acoustic Timber Roll RD10 between resilient battens. 100mm Crown Acoustic Joist Roll between the joists and a ceiling of double layer plasterboard on Knauf Drywall resilient bars at 400mm centres.

The construction complies with Robust Detail E-FT-2. No pre-completion testing is required with Robust Details. Refer to Robust Detail specification sheets and checklists for junction, flanking and other construction details.

It should be noted when considering using Robust Details in the construction of flats that separating walls and floors must be compatible. The Robust Detail manual carries details of which walls and floors can be combined together.

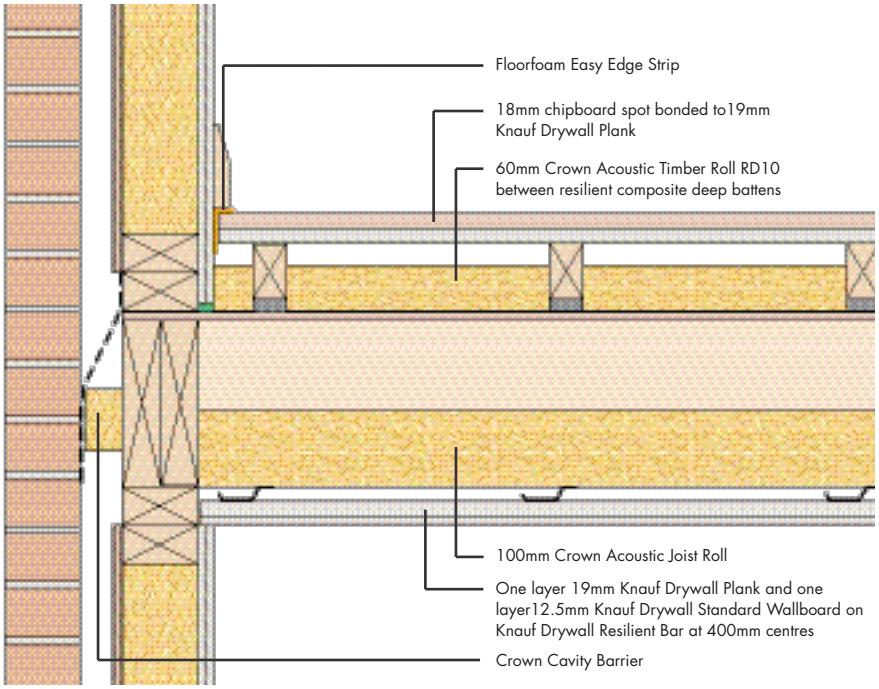
Installation

On completion of the structural timber floor, the Knauf Drywall Drywall Resilient Bars are screw fixed to the underside of the joists. Lengths of Crown Acoustic Joist Roll are inserted into the voids between the timber joists. The insulation should rest on the resilient bars and butt up against the timber joists with no gaps. The plasterboard ceiling can then be fixed to the resilient bars. Ensure that the plasterboard screws do not penetrate into the timber joists.

On completion of the sub-floor deck and first fix services, resilient composite timber battens are laid out at 600mm centres. Crown Acoustic Timber Roll RD10 is laid between the battens. It must be laid under the services in the sub-floor void. The plasterboard plank and chipboard floor deck are fixed to the timber battens.

Floorfoam Easy Edge Strip should be adhered to the perimeter wall with the integral self adhesive strip. The floor deck is laid and butted up to the Polyfoam Easy Edge Strip, which is later folded under the skirting to provide acoustic isolation of the floor deck from the walls.

Typical junction with external wall



Typical specification

Crown Acoustic Joist Roll, 100mm thick, to be placed between the timber joists.

Crown Acoustic Timber Roll RD10, 60mm thick, to be unrolled between the resilient floor battens. Crown Acoustic Timber Roll RD10 should be placed under any services running in the void between the battens.

The ceiling and floor to be as specified by the designer.

NBSPlus

Alternatively, consult the National Building Specifications (NBS) based on Standard Version P10/240. It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

In site tests, Robust Detail E-FT-2 has achieved airborne sound reduction results of 47-56 dB and impact sound reduction results of 48-60 dB.

This floor construction, if used on a building plot registered with Robust Details Limited, does not require pre-completion testing.

Fire performance

Crown Acoustic Timber Roll RD10 and Crown Acoustic Joist Roll are classified as Euroclass A1 to BS EN ISO 13501-1.

Sf11

Although this solution was developed as a Robust Detail which can be used without on site testing in new build dwellings in England and Wales, its use with the same materials, is appropriate as a separating wall in both new build non dwellings such as student accommodation, nursing homes and hotels, constructed using light weight steel frames. Similarly, it could be used in refurbishment projects in both dwellings and non-dwellings in existing constructions which require new separating floors, providing the flanking walls are suitable. In all cases, if it is used for work other than new dwellings, its performance must be proven by the stipulated on site testing procedures that apply.

For dwellings in Scotland and Northern Ireland there are no approved timber separating floor constructions that directly reflect this solution. It may be used, but performance must be proven by the stipulated on site testing procedures.

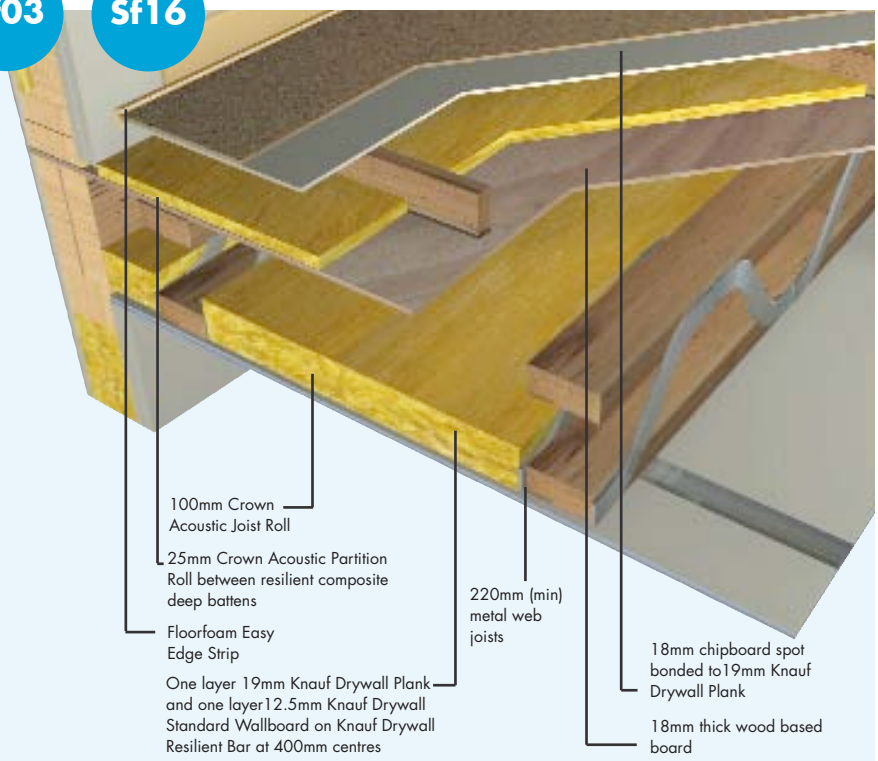
Separating floors

Timber frame floor with metal web joists (RD E-FT-3)

Sf03 Sf16

Advantages

- ✓ **The resilient deep battens and Floorfoam Easy Edge Strip isolate the floor surface from the main structure**
- ✓ **Mineral wool in voids absorbs sound and improves acoustic performance**
- ✓ **The resilient bar helps to isolate the ceiling from the floor structure**
- ✓ **Provides a high level of thermal separation between adjoining properties**
- ✓ **No need to site test this solution**



Products

Crown Acoustic Partition Roll and **Crown Acoustic Joist Roll** are made from glass mineral wool and formed into rolls which are lightweight, flexible, resilient and non-combustible. Each product's density meets the appropriate requirements of Robust Detail E-FT-3.

Floorfoam Easy Edge Strip is a strip of extruded polyethylene, pre-scored to fold around the edge of the floor deck. The 65mm wide top section is also scored at 10mm intervals to make trimming at the skirting easier. The 65mm vertical section incorporates a self adhesive strip with release tape. This enables the Floorfoam Easy Edge Strip to be secured in place when the floor deck is laid.

Typical construction

A new timber floor using metal web joists built into frame to support floor. 100mm Crown Acoustic Joist Roll between metal web joists and a ceiling of double layer plasterboard on Knauf Drywall resilient bars at 400mm centres, above which is a resilient battened floor with 25mm Crown Acoustic Partition Roll between the resilient composite deep battens.

The construction complies with Robust Detail E-FT-3. No pre completion testing is required with Robust Details. Refer to RD specification sheets and checklists for junction, flanking and other construction details.

It should be noted when considering using Robust Details in the construction of flats that separating walls and floors must be compatible. The Robust Detail manual carries details of which walls and floors can be combined together.

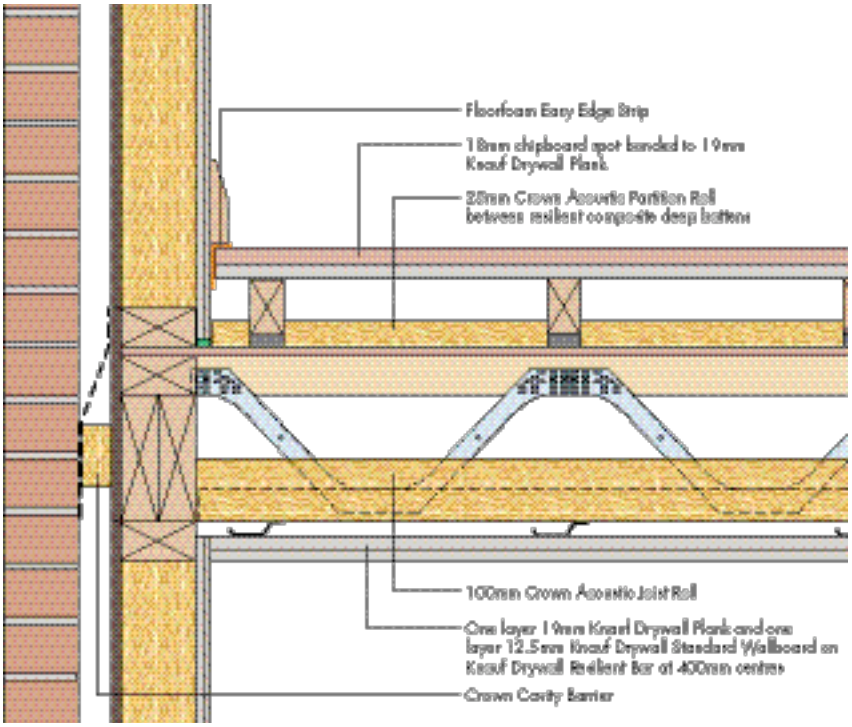
Installation

On completion of the structural timber floor, the Knauf Drywall Drywall Resilient Bars are screw fixed to the underside of the metal web joists. Lengths of Crown Acoustic Joist Roll are inserted into the voids between the web joists. The insulation should rest on the resilient bars and butt up against the joists with no gaps. The plasterboard ceiling can then be fixed to the resilient bars.

On completion of the sub-floor deck and first fix services, resilient composite timber battens are laid out at 600mm centres. Crown Acoustic Partition Roll is laid between the battens. It must be laid under the services in the sub-floor void. The plasterboard plank and chipboard floor deck are fixed to the timber battens.

Floorfoam Easy Edge Strip should be adhered to the perimeter wall with the integral self adhesive strip. The floor deck is laid and butted up to the Floorfoam Easy Edge Strip, which is later folded under the skirting to provide acoustic isolation of the floor deck from the walls.

Typical junction with external wall



Typical specification

Crown Acoustic Joist Roll, 100mm thick, to be placed between the timber joists.

Crown Acoustic Partition Roll, 25mm thick, to be unrolled between the resilient floor battens. Crown Acoustic Partition Roll should be placed under any services running in the void between the battens.

The ceiling and floor to be as specified by the designer.

NBSPlus

Alternatively, consult the National Building Specifications (NBS) based on Standard Version P10/240. It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

In site tests Robust Detail E-FT-3 has achieved airborne sound reduction results of 47-56 dB and impact sound reduction results of 44-55 dB.

This floor construction, if used on a building plot registered with Robust Details Limited, does not require pre completion testing.

Fire performance

Crown Acoustic Partition Roll and Crown Acoustic Joist Roll are classified as Euroclass A1 to BS EN ISO 13501-1.

Sf16

Although this solution was developed as a Robust Detail which can be used without on site testing in new build dwellings in England and Wales, its use with the same materials, is appropriate as a separating wall in both new build non dwellings such as student accommodation, nursing homes and hotels, constructed using light weight steel frames. Similarly, it could be used in refurbishment projects in both dwellings and non-dwellings in existing constructions which require new separating floors, providing the flanking walls are suitable. In all cases, if it is used for work other than new dwellings, its performance must be proven by the stipulated on site testing procedures that apply.

For dwellings in Scotland and Northern Ireland there are no approved timber separating floor constructions that directly reflect this solution. It may be used, but performance must be proven by the stipulated on site testing procedures.

Separating floors

Concrete floor: plank and screed/cast in situ ((RD) E-FC-1, E-FC-2 and E-FS-1)

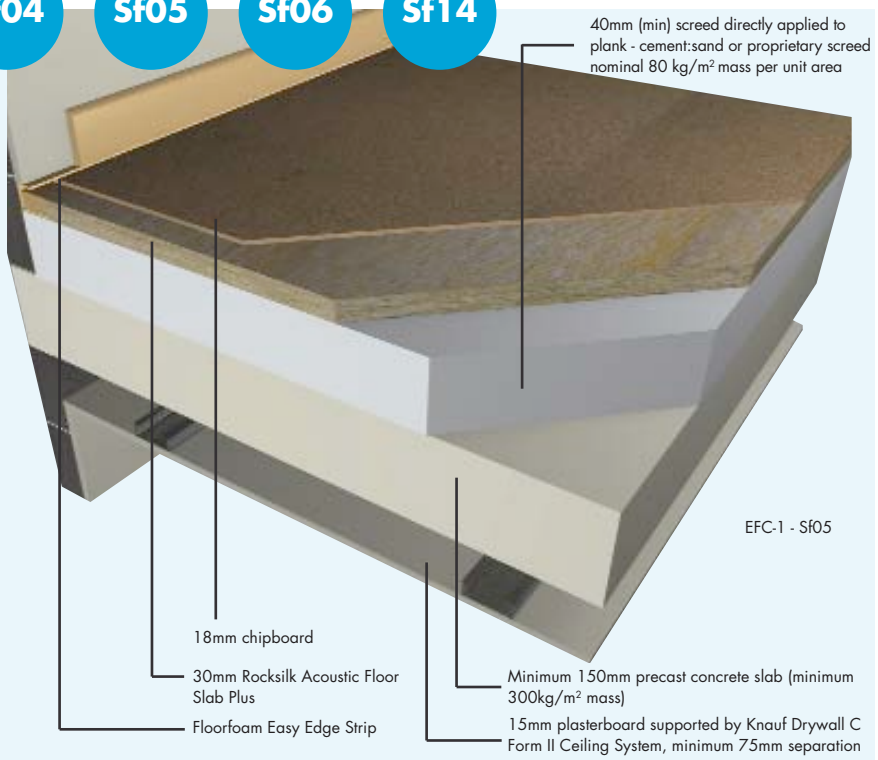
BBA BRITISH BOARD OF AGREMENT CERTIFICATE No 97/3433

Rocksilk Acoustic Floor Slab Plus

Sf04 Sf05 Sf06 Sf14

Advantages

- ✓ **Wet screed or in-situ concrete helps to minimise airpaths through the floor**
- ✓ **Resilient layer provides good acoustic isolation to improve impact sound performance**
- ✓ **Independent ceiling provides acoustic isolation and void for services**
- ✓ **Rocksilk Acoustic Floor Slab Plus easily exceeds the laboratory test requirements of Robust Details Ltd for a resilient layer in these applications**



Products

Rocksilk Acoustic Floor Slab Plus is a dense, rigid, non-combustible slab of rock mineral wool which is highly compression resistant.

Floorfoam Easy Edge Strip is a 10mm thick strip of extruded polyethylene, pre-scored to fold around the edge of a floating floor deck.

Typical construction

A precast concrete floor slab with a 40mm (min) screed directly applied to plank (cement/sand or proprietary screed nominal 80 kg/m² mass per unit area) and a floating floor of 18mm chipboard on 30mm Rocksilk Acoustic Floor Slab Plus. A ceiling of 15mm plasterboard supported on the Knauf Drywall C Form II ceiling system.

The construction complies with Robust Standard Detail E-FC-1 with FFT4 floating floor treatment. No pre-completion testing is required with Robust Details. Refer to Robust Detail specification sheets and checklists for junction, flanking and other construction details

It should be noted when considering using Robust Details in the construction of flats, that separating walls and floors must be compatible. The Robust Detail manual carries details of which walls and floors can be combined together.

Rocksilk Acoustic Floor Slab Plus is also suitable for Robust Standard Details E-FC-2 (Sf06) and E-FS-1 (Sf04), as illustrated on the page opposite.

Installation

The surface of the screed should be smooth and flat within 5mm when measured with a 2 metre straight edge.

When the screed has dried out, fix Floorfoam Easy Edge Strip to the perimeter wall with the integral self adhesive strip.

Install timber battens on resilient strips at the floor perimeter and thresholds then lay Rocksilk Acoustic Floor Slab Plus over the entire floor area. The joints between boards should be tightly butted.

Lay the tongued and grooved chipboard over the insulation and glue all joints. Ensure that the Floorfoam Easy Edge Strip isolates the boards from the walls. Turn the top edge of the Floorfoam Easy Edge Strip onto the surface of the chipboard and trim once the skirting has been fixed in position.

No services should be installed in the floor system.

Performance

Acoustic performance

Rocksilk Acoustic Floor Slab Plus has been tested with standard 18mm chipboard in accordance with the requirements of Robust Detail Appendix D to exceed the minimum requirement for acoustic performance for floating floor treatments for use with concrete and steel composite separating floors.

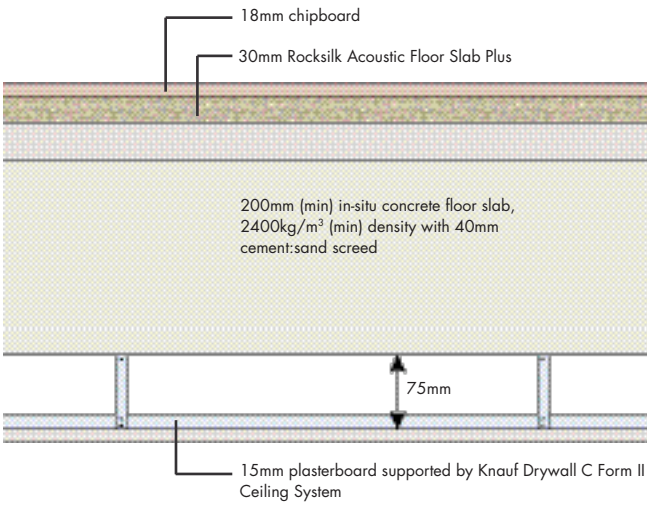
In site tests, Robust Detail E-FC-1 (Sf05) has achieved airborne sound reduction results of 47-59 dB and impact sound reduction results of 39-53 dB.

This floor construction, if used on a building plot registered with Robust Details Limited, does not require pre completion testing.

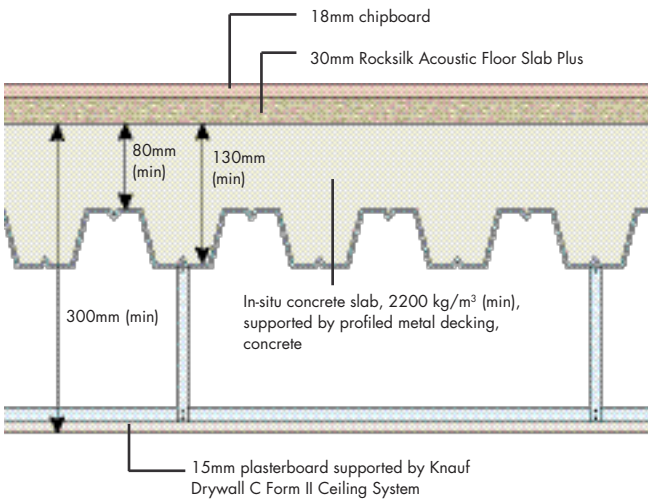
Fire performance

Rocksilk Acoustic Floor Slab Plus is classified as Euroclass A1 to BS EN ISO 13501-1.

Sf06 Cast in situ separating floor (E-FC-2)



Sf04 Permanent formwork separating floor (E-FS-1)



Sf06 This is Robust Detail E-FC-2, which utilises the same floating floor treatment (FFT4) as Sf05, the solution described in the details on the opposite page. This floating floor treatment utilises 30mm Rocksilk Acoustic Floor Slab Plus as the resilient layer and is installed in the same manner in this type of floor.

Sf04 This is Robust Detail E-FS-1, which utilises the same floating floor treatment (FFT4) as Sf05, the solution described in the details on page 666. This floating floor treatment utilises 30mm Rocksilk Acoustic Floor Slab Plus as the resilient layer and is installed in the same manner in this type of floor.

Sf14 This is a generic solution for all concrete and steel/concrete decks based on Robust Details. The Robust Details can be used without on site testing in new build dwellings in England and Wales. This generic solution is also appropriate as a separating floor in both new build non dwellings such as student accommodation, nursing homes and hotels constructed using appropriate constructions. Whether the floor is precast plank, in-situ cast slab, or concrete on permanent steel formwork, the floating floor treatment is the same. It utilises 30mm Rocksilk Acoustic Floor Slab Plus as the resilient layer and is installed in the same manner. Similarly, it could be used in refurbishment projects in both dwellings and non dwellings in existing constructions which require new separating floors, providing the flanking walls are suitable. In all cases, if it is used for work other than new dwellings, its performance must be proven by the stipulated on site testing procedures that apply.

For dwellings in Scotland and Northern Ireland there are no approved concrete floor constructions that directly reflect this solution. It may be used, but performance must be proven by the stipulated on site testing procedures.

Typical specification

With FFT4 floating floor treatment

Rocksilk Acoustic Floor Slab Plus, 30mm thick, to be placed over the structural floor. All joints to be close butted.

The floating chipboard floor to be as specified by the designer.

NBSPlus

Alternatively, consult the National Building Specifications (NBS) based on Standard Version K11/225 . It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

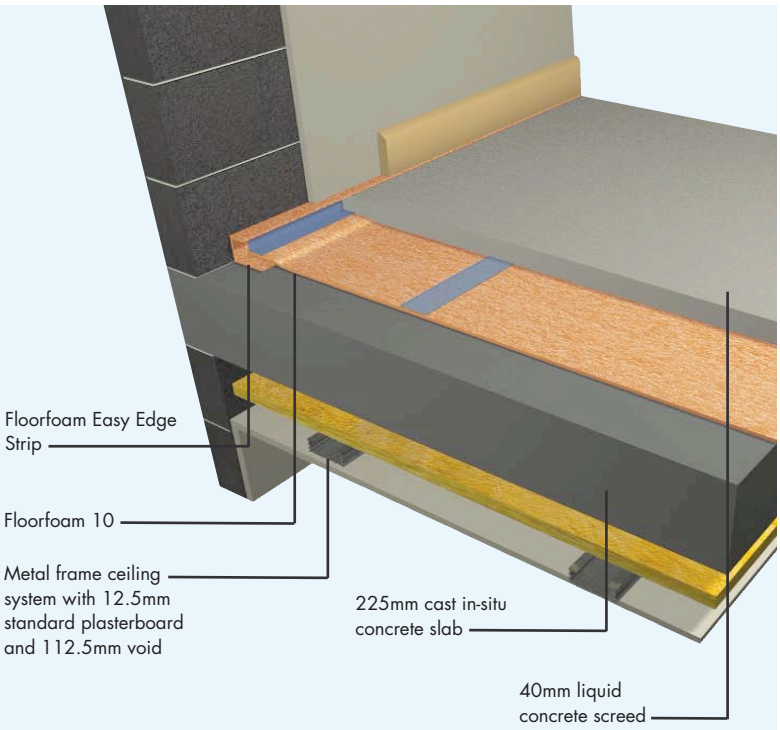
Separating floors

Concrete floor with screed and resilient layer

Sf07

Advantages

- ✓ **Resilient layer provides good acoustic absorption to improve impact sound performance**
- ✓ **Independent ceiling provides acoustic isolation and void for services**
- ✓ **Robust system with taped joints reduces the risk of screed contact with the main structure**
- ✓ **Special perimeter products make it easy to correctly install the edge detail - the most common failure in the installation of this type of system**



Products

Floorfoam 10 is a 10mm thick extruded polyethylene resilient layer.

Floorfoam Easy Edge Strip is a 10mm thick strip of extruded polyethylene, pre-scored to fold around the edge of a floating floor screed.

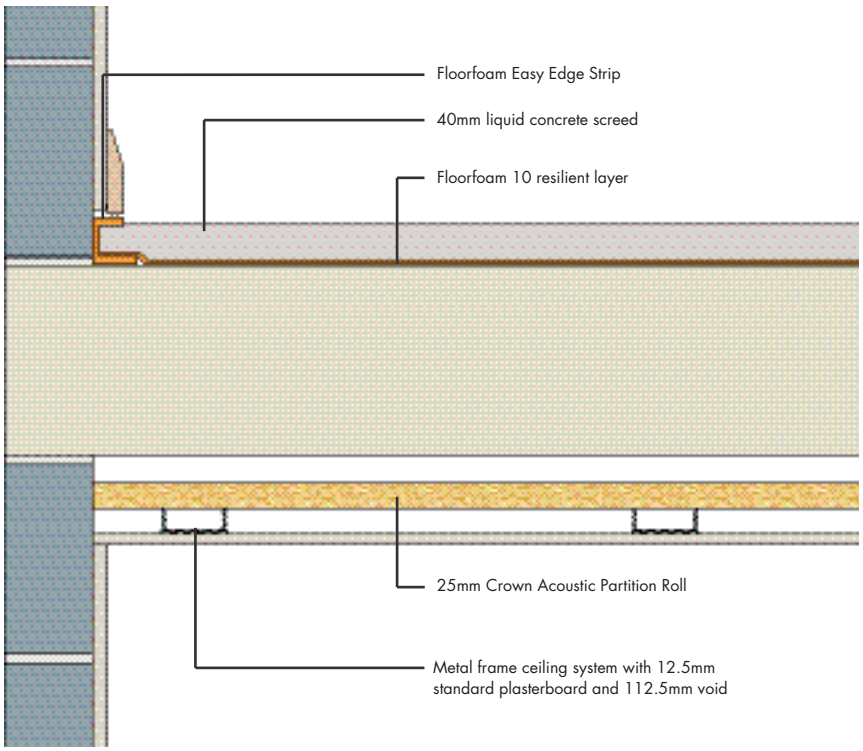
Typical construction

A cast in-situ solid concrete floor slab with a 40mm liquid concrete screed separated by a 10mm polyethylene foam resilient layer with junctions formed using a prefabricated edge strip. A ceiling of 8kg/m^2 standard 12.5mm plasterboard fixed to a metal frame system with a 112.5mm void.

Installation

A 225mm thick concrete floor slab (density of 1800kg/m^3) is cast in situ and then overlaid with Polyfoam Floorfoam 10 ensuring that all joints are butted together and taped. Place strips of Floorfoam Easy Edge Strip around the perimeter of the floor, using the self adhesive backing strip to hold it in place against the wall and tape the joints. Lay the Floorfoam 10 over the 'heel' of the Floorfoam Easy Edge Strip and tape the joint. The floor is then screeded to finish, taking care to ensure that the screed remains totally isolated from the main structure to prevent any acoustic transfer. Finally, the top part of the Floorfoam Easy Edge Strip is folded down over the screed. Place the skirting on the edge strip and fix to the wall, ensuring the edge strip is between the skirting and the floor screed. Trim the edge strip flush to the face of the skirting.

Typical junction with external wall



Typical specification

An unfolded strip of Floorfoam Easy Edge Strip to be placed against the wall at the floor perimeter.

Overlay concrete floor slab with Floorfoam 10, closely butt jointing and taping joints, including overlap over heel of Floorfoam Easy Edge Strip.

Minimum 40mm liquid screed laid over the resilient layer. The screed to be isolated from the wall and structural elements in the floor.

Floorfoam Easy Edge Strip to be folded back over screed and fixed between skirting and wall.

Alternatively, consult the National Building Specifications (NBS) based on Standard Version M10/125 . It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

Floorfoam 10 and Easy Edge Strip have been developed for cushioning vibrations. Their closed cell construction makes them excellent at absorbing impact sound. This construction requires testing to show compliance with Building Regulations.

Fire performance

When Floorfoam is installed in a concrete floor construction it will not contribute to the development stages of a fire.

Density

Floorfoam 10 and Floorfoam Easy Edge Strip have a minimum density of 30 kg/m^3.

Compression resistance

The closed cell nature of Floorfoam makes it resistant to compression.

Separating floors

Concrete floor with screed and two resilient layers

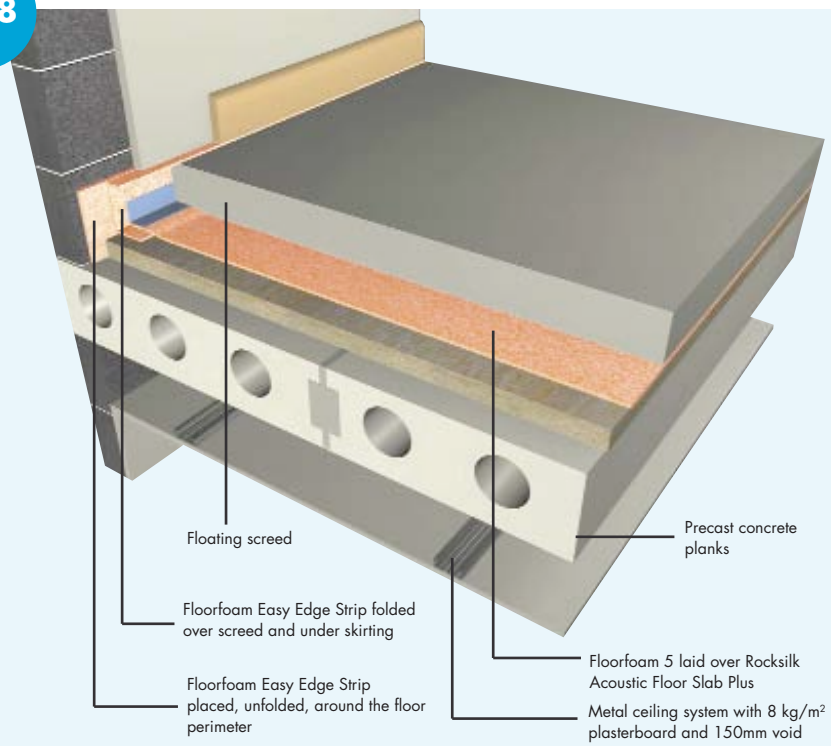
BBA BRITISH BOARD OF AGRÉMENT CERTIFICATE No 97/3433

Rocksilk Acoustic Floor Slab Plus

Sf08

Advantages

- ✓ **Resilient layers provide good acoustic absorption to improve impact sound performance**
- ✓ **Independent ceiling provides acoustic isolation and void for services**
- ✓ **Robust two layer system with taped joints reduces the risk of screed contact with the main structure**
- ✓ **Special perimeter products make it easy to correctly install the edge detail - the most common failure in the installation of this type of system**



Products

Rocksilk Acoustic Floor Slab Plus is a rigid, compression resistant rock mineral wool slab.

Floorfoam 5 is a 5mm thick extruded polyethylene resilient layer.

Floorfoam Easy Edge Strip is a 10mm thick strip of extruded polyethylene, pre-scored to fold around the edge of a floating floor screed.

Typical construction

A precast concrete floor slab with a 65mm sand/cement screed or 40mm liquid screed (with a minimum mass of 80 kg/m²) on 5mm Floorfoam 5 and 25mm Rocksilk Acoustic Floor Slab Plus. A ceiling of 15mm plasterboard supported on the Knauf Drywall C Form II ceiling system.

This construction requires testing to show compliance with Building Regulations.

Installation

All the joints between the precast planks should be grouted and sealed.

Place unfolded strips of Floorfoam Easy Edge Strip around the perimeter of the floor, using the self adhesive backing strip to hold it in place against the wall.

Lay the Rocksilk Acoustic Floor Slab Plus over the entire floor area. The joints between boards should be tightly butted.

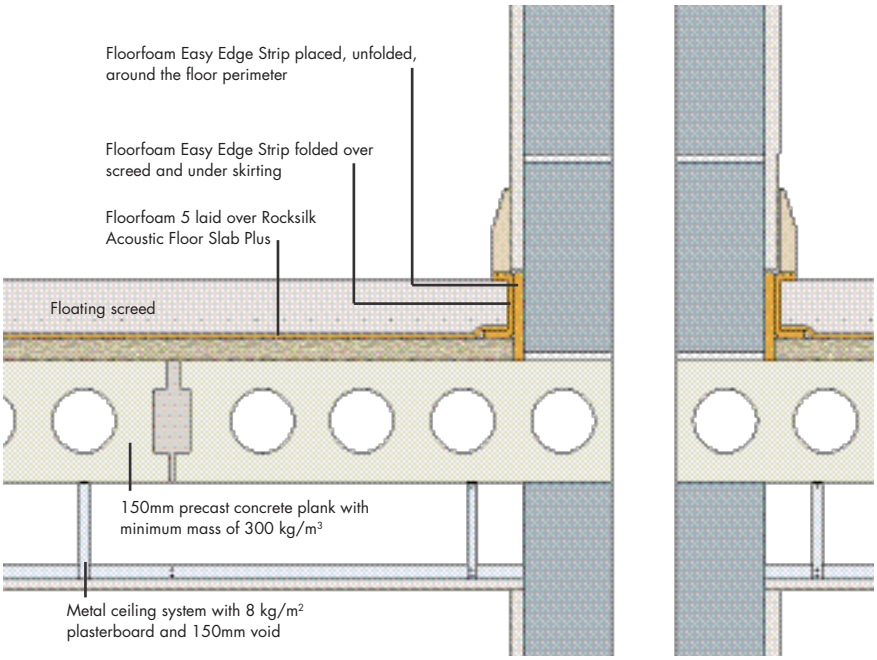
Place folded strips of Floorfoam Easy Edge Strip on top of the Rocksilk Acoustic Floor Slab Plus at the floor perimeter.

Overlay the Rocksilk Acoustic Floor Slab Plus with the Floorfoam 5, with joints overlapped a minimum of 150mm and ensuring they do not coincide with the joints of the insulation slabs. Turn the Floorfoam 5 over the 'heel' of the Floorfoam Easy Edge Strip and tape the joint.

The floor is then screeded to finish, taking care to ensure that the screed remains totally isolated from the main structure to prevent any acoustic transfer.

Finally, the top part of the Floorfoam Easy Edge Strip is folded down over the screed.

Place the skirting on the edge strip and fix to the wall, ensuring the edge strip is between the skirting and the floor screed. Trim the edge strip flush to the face of the skirting.



Typical specification

An unfolded strip of Floorfoam Easy Edge Strip to be placed against the wall at the floor perimeter.

Rocksilk Acoustic Floor Slab Plus, 25mm thick, to be placed over the structural floor. All joints to be close butted.

Place a second, folded strip of Floorfoam Easy Edge Strip at the junction of the floor perimeter and the Rocksilk Acoustic Floor Slab Plus.

Overlay Rocksilk Acoustic Floor Slab Plus with Floorfoam 5, taped to the heel of the Floorfoam Easy Edge Strip.

Minimum 65mm cement/sand screed*/ minimum 40mm proprietary screed* laid over the resilient layers. The screed to be isolated from the wall and structural elements in the floor.

(* delete as appropriate)

Alternatively, consult the National Building Specifications (NBS) based on Standard Version M10/125 . It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

Rocksilk Acoustic Floor Slab Plus has excellent sound absorption characteristics. For optimum performance, the insulation must be tightly butted, with no gaps.

Floorfoam has been developed for cushioning vibrations. Its closed cell construction makes it excellent at absorbing impact sound.

Fire performance

Rocksilk Acoustic Floor Slab Plus is classified as Euroclass A1 to BS EN ISO 13501-1.

When Floorfoam is installed in a concrete floor construction it will not contribute to the development stages of a fire.

Density

Floorfoam 5 and Floorfoam Easy Edge Strip have a minimum density of 30 kg/m³.

Compression resistance

Rocksilk Acoustic Floor Slab Plus is manufactured to provide a very high level of compression resistance.

The closed cell nature of Floorfoam makes it resistant to compression.

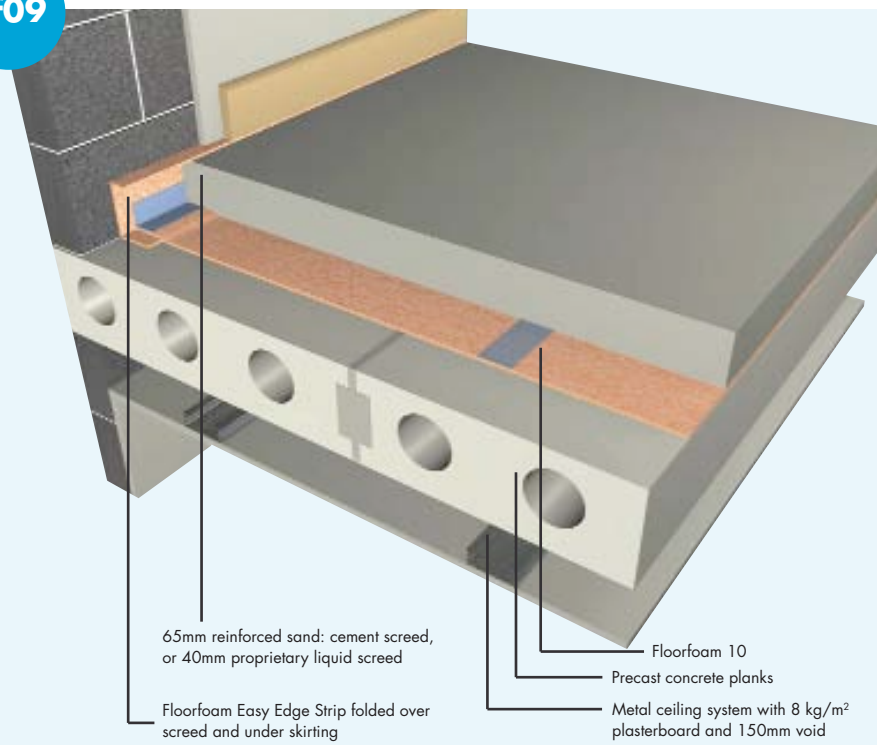
Separating floors

Concrete floor with screed and resilient layer

Sf09

Advantages

- ✓ **Resilient layer provides good acoustic absorption to improve impact sound performance**
- ✓ **Independent ceiling provides acoustic isolation and void for services**
- ✓ **Quick and easy installation**
- ✓ **Special perimeter products make it easy to correctly install the edge detail - the most common failure in the installation of this type of system**



Products

Floorfoam 10 is a 10mm thick extruded polyethylene resilient layer.

Floorfoam Easy Edge Strip is a 10mm thick strip of extruded polyethylene, pre-scored to fold around the edge of a floating floor screed.

Typical construction

A precast concrete floor slab with either a 65mm sand/cement screed or 40mm liquid screed (with a minimum mass of 80 kg/m²) on Floorfoam 10 and isolated from the perimeter walls with Floorfoam Easy Edge Strip. A ceiling of 8 kg/m² plasterboard is suspended on a metal frame system 150mm below the floor slab.

Installation

All the joints between the precast planks should be grouted and sealed.

Place folded strips of Floorfoam Easy Edge Strip at the floor perimeter.

Lay Floorfoam 10, with joints tightly butted and tape all joints. Tightly butt the Floorfoam 10 over the 'heel' of the Floorfoam Easy Edge Strip at wall junctions and tape the joint. Ensure there are no gaps.

The floor is then screeded to finish, taking care to ensure that the screed remains totally isolated from the main structure to prevent any acoustic transfer.

Finally, the top part of the Floorfoam Easy Edge Strip is folded down over the screed.

Plasterboard is installed and rested on top of the Easy Edge Strip.

When fixing the skirting, place it on the Easy Edge Strip and fix to the wall, ensuring the Easy Edge Strip is between the skirting and the floor screed. Trim the Easy Edge Strip flush to the face of the skirting and seal with acoustic sealant.

Performance

Acoustic performance

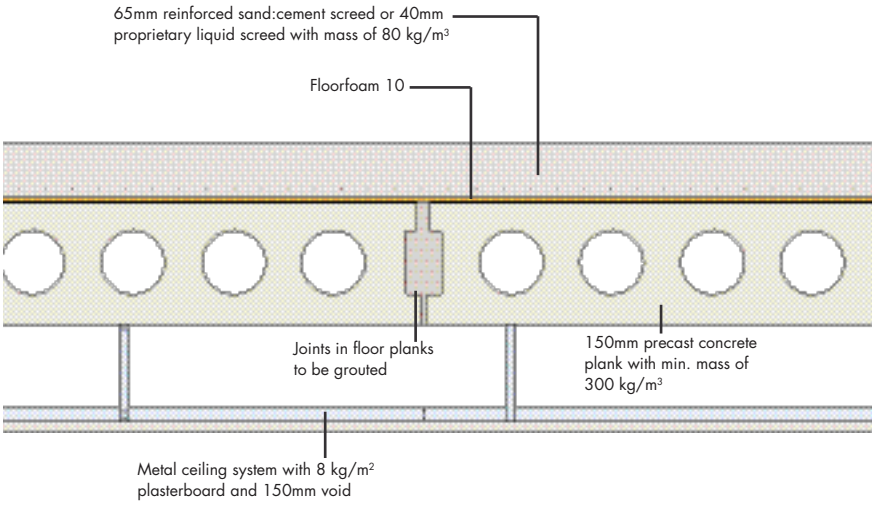
Floorfoam has been developed for cushioning vibrations. Its closed cell construction makes it excellent at absorbing impact sound.

The construction shown should achieve the sound insulation performance required by Approved Document E when Floorfoam 10 is used in conjunction with Floorfoam Easy Edge Strip.

The construction shown meets the requirements of Floor type 2 with floating layer F2 in Scotland (where a 12.5mm thick product is used) together with a levelling screed to the concrete floor and a separating membrane above the Floorfoam to prevent screed entering the resilient layer.

Fire performance

When Floorfoam is installed in a concrete floor construction it will not contribute to the development stages of a fire.



Typical specification

Place Floorfoam Easy Edge Strip at the floor perimeter.

Lay Floorfoam 10, and tape to the heel of the Floorfoam Easy Edge Strip. Tape all Floorfoam 10 joints.

Minimum 65mm cement/sand screed*/ minimum 40mm proprietary screed* laid over the resilient layer. The screed to be isolated from the wall and all structural elements in the floor.

(* delete as appropriate)

Alternatively, consult the National Building Specifications (NBS) based on Standard Version M10/125. It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Density

Floorfoam 10 and Floorfoam Easy Edge Strip have a minimum density of 30 kg/m³.

Compression resistance

The closed cell nature of Floorfoam makes it resistant to compression.

Table 89: Results of acoustic test data – lab testing

	Screed type	Airborne	Impact
thickness (mm)		R_w (C,C_{tr})	$L_{n,w}$
12.5	65mm sand/cement	57 dB (-1; -5)	57 dB
12.5	40mm liquid screed	57 dB (-1; -5)	56 dB

Test method: BS EN ISO 140-3: 1995-TP15 and BS EN ISO 140-6: 1998-TP12.

Results interpretation: BS EN ISO 717-1: 1997 and BS EN ISO 717-2.

Table 90: Results of acoustic test data – site testing

Floorfoam	Screed type	Airborne	Impact
thickness (mm)		R_w (C,C_{tr})	$L_{n,w}$
10	65mm sand/cement	53 dB	54 dB
10	40mm liquid screed	51 dB	55 dB

Test method: BS EN ISO 140-4: 1995-TP15 and BS EN ISO 140-7.

Results interpretation: BS EN ISO 717-1: 1997 and BS EN ISO 717-2.

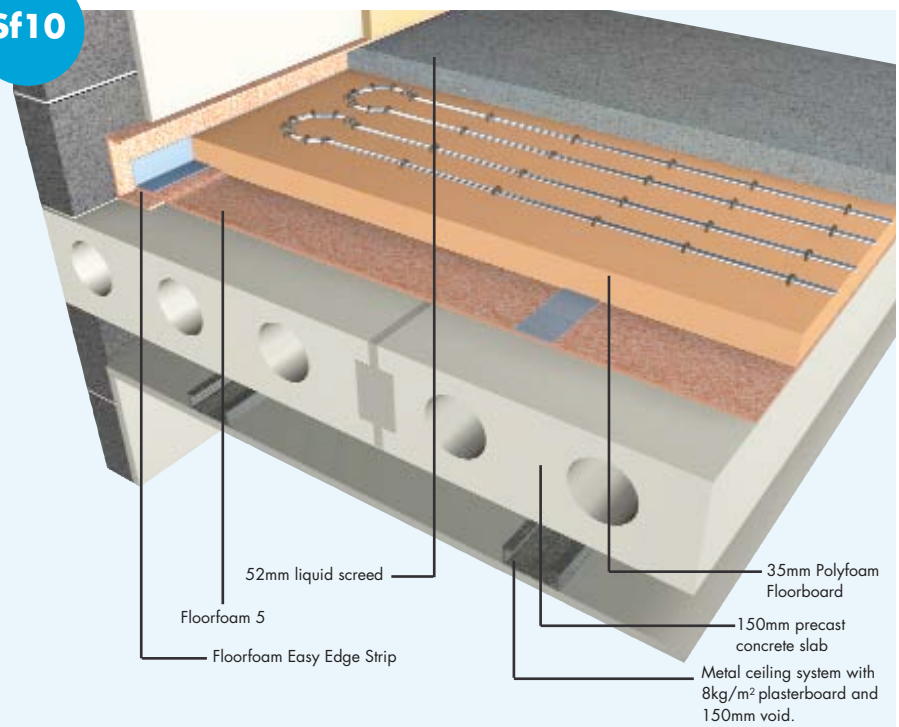
Separating floors

Concrete floor with underfloor heating

Sf10

Advantages

- ✓ **Allows underfloor heating to be used in upper floor flats whilst complying with the requirements of Part E of The England and Wales Building Regulations**
- ✓ **Provides a high level of acoustic and thermal performance**
- ✓ **Heating system and installation can be carried out by one contractor**



Products

Floorfoam 5 is a 5mm thick extruded polyethylene resilient layer.

Floorfoam Easy Edge Strip is a 10mm thick strip of extruded polyethylene, pre-scored to fold around the edge of a floating floor screed.

Polyfoam Floorboard is a range of 100% ozone friendly extruded polystyrene rigid board insulation – it is lightweight yet has excellent structural strength and long term effectiveness

Standard – domestic and light commercial loading

Extra – commercial, industrial flooring and cold storage

Typical construction

A precast concrete floor slab with a proprietary liquid screed on Polyfoam Floorboard with stapled underfloor heating system separated by Floorfoam 5 with junctions formed using Floorfoam Easy Edge Strip.

A ceiling of 8kg/m² plasterboard fixed to a metal frame system with a 150mm void.

The precast concrete hollow core slab should be 150mm thick and have a minimum mass of 300 kg/m². Joints between planks should be filled with a sand cement mix grout.

The heating pipes are stapled to the Polyfoam Floorboard. All joints in the Polyfoam Floorboard should be closely butted and taped.

Installation

All the joints between the precast planks should be grouted and sealed.

Place folded strips of Floorfoam Easy Edge Strip at the floor perimeter.

Lay Floorfoam 5, with joints butted together and taped. Lay the Floorfoam 5 over the heel of the edge strip and tape the joint.

Lay the Polyfoam Floorboards over the Floorfoam 5 and tape the joints.

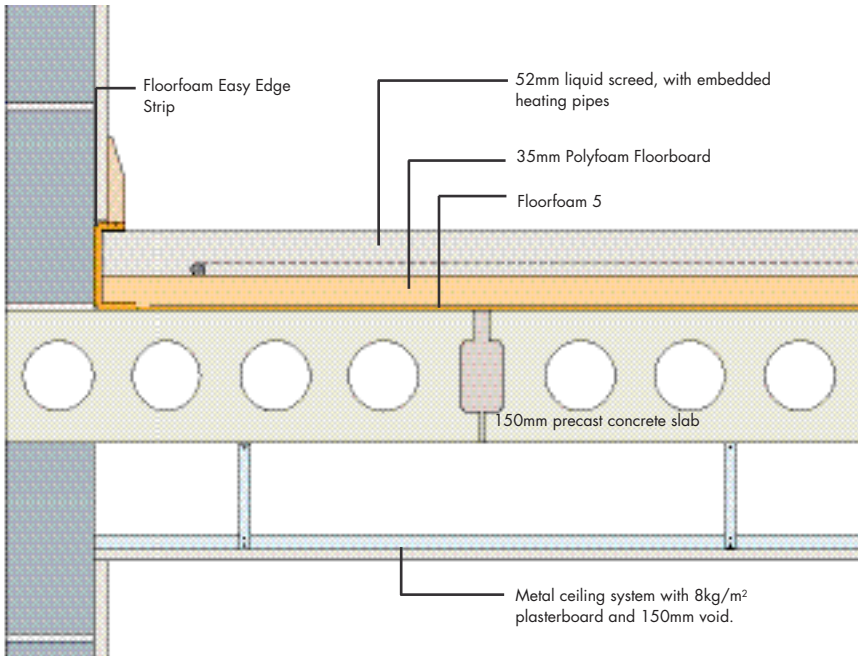
Install the heating pipes in accordance with the manufacturer's instructions.

The floor is then screeded to finish, taking care to ensure that the screed remains totally isolated from the main structure to prevent any acoustic transfer.

Finally, the top part of the Floorfoam Easy Edge Strip is folded down over the screed, the plasterboard is installed and rested on top of the Easy Edge Strip.

Place the skirting on the edge strip and fix to the wall, ensuring the edge strip is between the skirting and the floor screed. Trim the edge strip flush to the face of the skirting.

Where a greater level of compressive strength is required Polyfoam Floorboard Extra should be used in place of Polyfoam Floorboard Standard.



Typical specification

Place Floorfoam Easy Edge Strip at the floor perimeter.

Lay Floorfoam 5, butt joint and tape to the heel of the Floorfoam Easy Edge Strip.

Lay Polyfoam Floorboards, closely butt and tape the joints.

Minimum 52mm proprietary liquid screed laid over the resilient layers. The screed to be isolated from the wall and structural elements in the floor.

Alternatively, consult the National Building Specifications (NBS) based on Standard Version. It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

Floorfoam has been developed for cushioning vibrations. Its closed cell construction makes it excellent at absorbing impact sound.

The construction shown should achieve the sound insulation performance required by Approved Document E.

Fire performance

When Floorfoam and Polyfoam Floorboard are installed in a concrete floor construction they will not contribute to the development stages of a fire.

Density

Floorfoam and Floorfoam 5 Easy Edge Strip have a minimum density of 30 kg/m³.

Compression resistance

The closed cell nature of Floorfoam makes it resistant to compression.

Polyfoam Floorboard is highly resistant to compression – see Table 92.

Table 91: Results of acoustic test data

Screed type	Airborne	Impact
	R_w (C,C_{tr})	$L_{n,w}$
52mm liquid screed	57 dB (-1; -5)	54 dB

Test method: BS EN ISO 140-3: 1995-TP15 and BS EN ISO 140-6: 1998-TP12

Results interpretation: BS EN ISO 717-1: 1997 and BS EN ISO 717-2

Table 92: Compressive creep results for Polyfoam Floorboards

Product	Load applied (kPa)	Initial compression (%)	Further compression after 50 years (%)
Polyfoam Standard	60	2	1.5
Polyfoam Extra	120	2	1.5

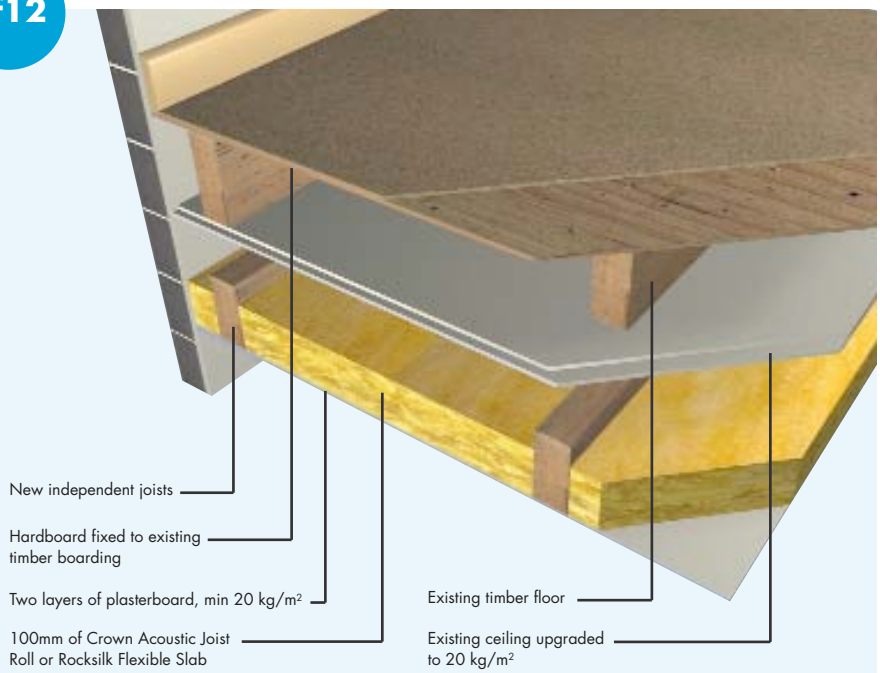
Separating floors

Upgrading existing timber floor with new ceiling

Sf12

Advantages

- ✓ **The independent ceiling provides good acoustic isolation**
- ✓ **Crown Acoustic Joist Roll and Rocksilk Flexible Slab provide improved acoustic performance with no increase in depth**
- ✓ **Crown Acoustic Joist Roll and Rocksilk Flexible Slab friction fit between joists**
- ✓ **Provides a high level of thermal separation between adjoining properties**



Products

Crown Acoustic Joist Roll is made from glass mineral wool and formed into rolls which are lightweight, flexible, resilient and non-combustible.

Rocksilk Flexible Slab is a semi-rigid non-combustible rock mineral wool slab.

Typical construction

Existing timber joisted floor with existing boarding overlaid with hardboard. A new independent timber joisted ceiling with 100mm Crown Acoustic Joist Roll or 100mm Rocksilk Flexible Slab between the joists and a double layer plasterboard ceiling of at least 20 kg/m² overall mass.

Where the existing ceiling is being retained, it should be upgraded to achieve an overall mass of at least 20 kg/m².

The construction is as recommended for Floor treatment 1 in Approved Document E and is for use where flats are formed by material change of use. Pre-completion testing is required.

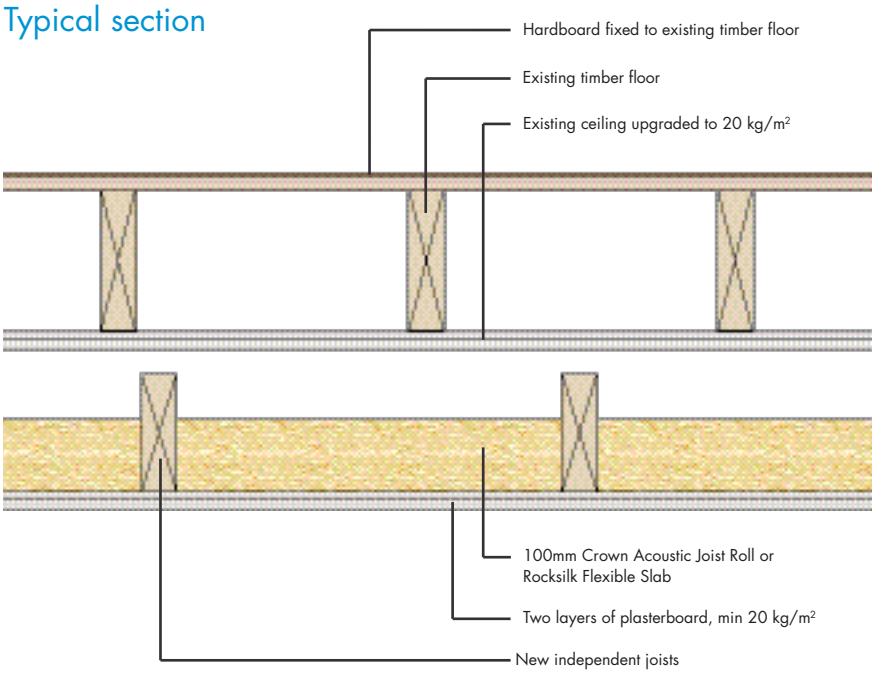
Installation

Any remedial work necessary to the existing ceiling should be carried out before installation of the new independent ceiling.

After installing the new independent ceiling joists, friction fit 100mm Crown Acoustic Joist Roll or 100mm Rocksilk Flexible Slab between the joists. The insulation should butt up tightly against the sides of each joist, with no gaps.

Install the double layer plasterboard ceiling as specified. Seal the perimeter of the new ceiling with tape or sealant.

Typical section



Typical specification

Crown Acoustic Joist Roll*/Rocksilk Flexible Slab*, 100mm thick, to be placed between the timber joists of the independent ceiling.

Alternatively, consult the National Building Specifications (NBS) based on Standard Version P10/240. It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

This construction has the potential to comply with the requirements of the Building Regulations when forming a separating floor from an existing floor by material change of use. Compliance can only be demonstrated by a package of sound testing agreed with Building Control.

Crown Acoustic Joist Roll and Rocksilk Flexible Slab have excellent sound absorption characteristics. For optimum performance, the insulation must be tightly butted, with no gaps.

Fire performance

Crown Acoustic Joist Roll and Rocksilk Flexible Slab are classified as Euroclass A1 to BS EN ISO 13501-1.

Generally, this type of floor construction will be required to provide 30 minutes fire resistance. This will be provided by the plasterboard ceiling.

Density

Crown Acoustic Joist Roll has a density of 10 kg/m³.

Rocksilk Flexible Slab has a density in excess of 10 kg/m³.

Separating floors

Upgrading existing timber floor with new platform floor

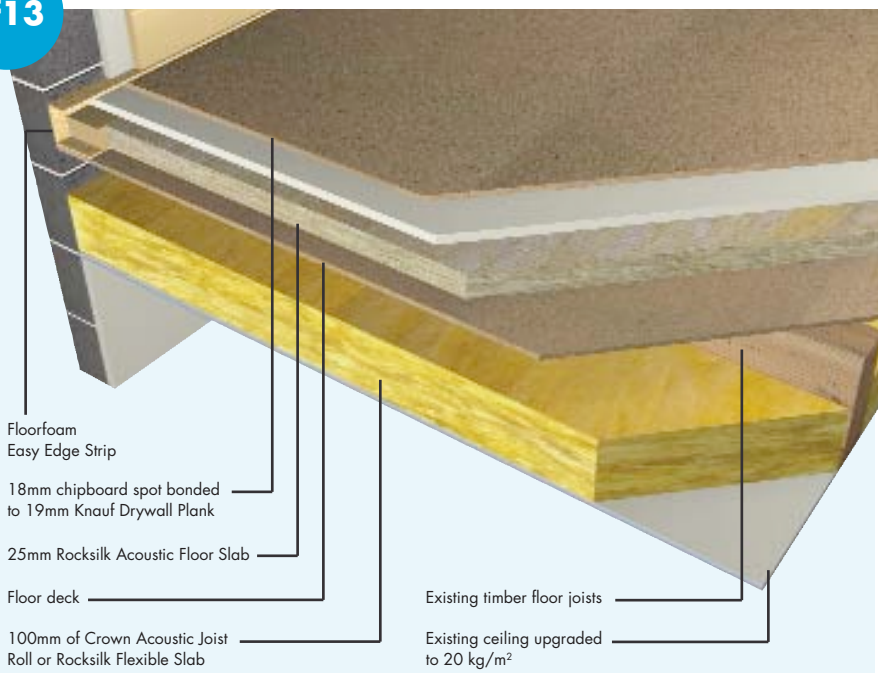
BBA BRITISH BOARD OF AGRÉMENT CERTIFICATE No 97/3453

Rocksilk Acoustic Floor Slab

Sf13

Advantages

- ✓ **Crown Acoustic Joist Roll and Rocksilk Flexible Slab provide improved acoustic performance**
- ✓ **Crown Acoustic Joist Roll and Rocksilk Flexible Slab friction fit between joists**
- ✓ **Provides a high level of thermal separation between adjoining properties**



Products

Rocksilk Acoustic Floor Slab is a rigid, non-combustible, compression resistant slab of rock mineral wool.

Crown Acoustic Joist Roll is made from glass mineral wool and formed into rolls which are lightweight, flexible, resilient and non-combustible.

Rocksilk Flexible Slab is a semi-rigid non-combustible rock mineral wool slab.

Floorfoam Easy Edge Strip is a strip of extruded polyethylene, pre-scored to fold around the edge of the floating floor deck.

Typical construction

Existing timber joisted floor with new floating platform (min 25kg/m²) on a resilient layer of 25mm Rocksilk Acoustic Floor Slab. 100mm Crown Acoustic Joist Roll or 100mm Rocksilk Flexible Slab to be installed between the joists of the existing floor.

The existing ceiling should be upgraded to achieve an overall mass of at least 20 kg/m².

The construction is as recommended for Floor treatment 2 in Approved Document E and is for use where flats are formed by material change of use. Pre-completion testing is required.

Installation

Before installing the floating platform, lay 100mm Crown Acoustic Joist Roll or place 100mm Rocksilk Flexible Slab between the joists of the existing floor. The insulation should butt up tightly against the sides of each joist, with no gaps.

Refix the floor deck and fix Floorfoam Easy Edge Strip to the perimeter wall with the integral self adhesive strip.

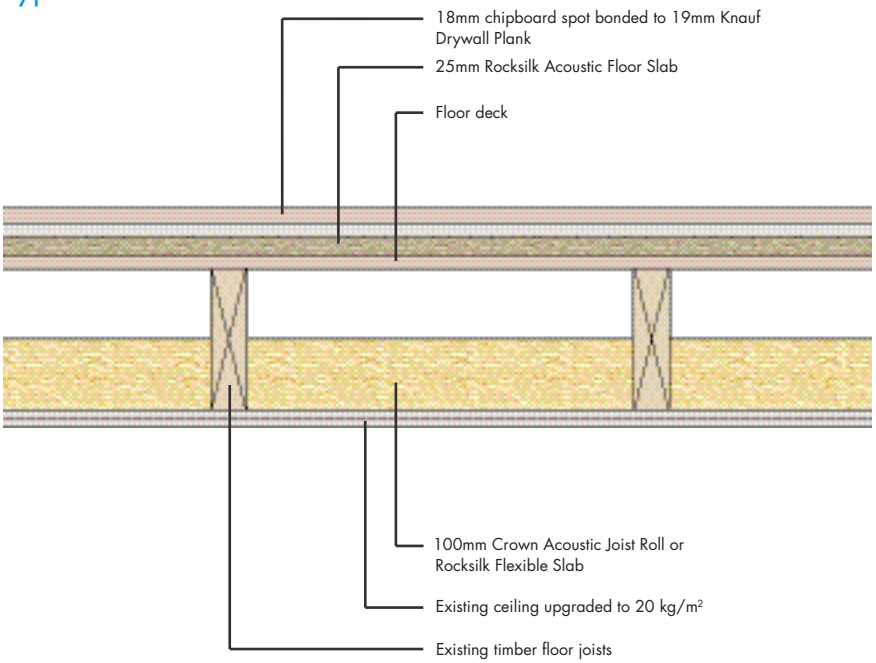
Install timber battens on resilient strips at the floor perimeter and thresholds.

Lay Rocksilk Acoustic Floor Slab to cover the entire floor. The joints between slabs should be tightly butted.

Lay sheets of 19mm plasterboard over the resilient layer and butt up to the Floorfoam Easy Edge Strip. Spot bond 18mm tongue and groove chipboard to the plasterboard and glue the tongue and groove joints. The joints between the two layers should be staggered. Floorfoam Easy Edge Strip is folded under the skirting to provide acoustic isolation of the floor deck from the walls.

Internal partitions should be built off the structural timber floor. No services should be placed within, or penetrate the resilient layer.

Typical section



Typical specification

Crown Acoustic Joist Roll*/Rocksilk Flexible Slab* 100mm thick, to be placed between the existing floor joists.

(*Delete as appropriate).

Rocksilk Acoustic Floor Slab, 25mm thick, to be placed over the existing floor deck.
All joints to be close butted and taped.

The floating platform floor to be as specified by the designer.

Alternatively, consult the National Building Specifications (NBS) based on Standard Version P10/240 and K11/225.
It contains a set of proprietary clauses, which are edited versions written by Knauf Insulation.

Performance

Acoustic performance

This construction has the potential to comply with the requirements of the Building Regulations when forming a separating floor from an existing floor by material change of use. Compliance can only be demonstrated by a package of sound testing agreed with Building Control.

Rocksilk Acoustic Floor Slab, Crown Acoustic Joist Roll and Rocksilk Flexible Slab have excellent sound absorption characteristics. For optimum performance, the insulation must be tightly butted, with no gaps.

Fire performance

Crown Acoustic Joist Roll, Rocksilk Acoustic Floor Slab and Rocksilk Flexible Slab are classified as Euroclass A1 to BS EN ISO 13501-1.

Generally, this type of floor construction will be required to provide 30 minutes fire resistance. This will be provided by the plasterboard ceiling.

Density

Rocksilk Acoustic Floor Slab has a density of 100 kg/m^3.

Crown Acoustic Joist Roll has a density of 10 kg/m^3.

Rocksilk Flexible Slab has a density in excess of 10 kg/m^3

Compression resistance

Rocksilk Acoustic Floor Slab is manufactured to provide a high level of compression resistance.

KNAUF INSULATION

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2005-2008

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