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Agrément Certificate  
**10/4763**  
Product Sheet 1

## ACARA CONCEPTS ACOUSTIC INSULATION FOR FLOORS AND WALLS

### PHONEWELL

#### PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Phonewell, an acoustic insulation which contributes to improving the impact and airborne sound performance of separating and internal floors when used as a resilient layer below the floating layer, and to improving the acoustic performance of separating and internal concrete walls when used behind the plasterboard lining in new and existing dwellings and similar buildings.

#### AGRÉMENT CERTIFICATION INCLUDES:

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



#### KEY FACTORS ASSESSED

**Acoustic performance** — the product improves the acoustic performance of separating and internal floors when used as a resilient layer below the floating layer and masonry walls (see section 5).

**Floor loading** — floorings incorporating the product can support the design loading for self-contained dwelling units (see section 6).

**Behaviour in relation to fire** — the product is suitable for use on masonry separating walls and floors and as a resilient layer installed between the sub-floor deck and upper floor deck in a timber separating floor which has proven fire resistance (see section 7).

**Durability** — the product, when installed with flooring overlays or internal lining boards, will remain effective as an acoustic material for the life of the element in which it is incorporated (see section 11).

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

On behalf of the British Board of Agrément

Chris Hunt  
Head of Approvals — Physics

Greg Cooper  
Chief Executive

Date of First issue: 20 August 2010

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

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

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# Regulations

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



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

Requirement:	A1	Loading
Comment:		Floors incorporating the product can meet this Requirement. See section 6.1 of this Certificate.
Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The product has a Class E surface and so the dimension of any cavity created are restricted by this Requirement. See section 7.1 of this Certificate.
Requirement:	E1	Protection against sound from other parts of the building and adjoining buildings
Requirement:	E2(a)(b)	Protection against sound within a dwelling-house etc
Comment:		The product will contribute to satisfying these Requirements. See sections 5.3 and 5.4 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.



## The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The product can contribute to a construction satisfying this Regulation. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building Standards - construction
Standard:	1.1(a)(b)	Structure
Comment:		Floors incorporating the product can satisfy this Standard, with reference to clause 1.1.1 <sup>(1)</sup> . See section 6.1 of this Certificate.
Standard:	2.4	Cavities
Comment:		The product has a Class E surface and so the dimensions of any cavity created are restricted by this Standard, with reference to clauses 2.4.1 <sup>(1)</sup> , 2.4.2 <sup>(1)</sup> and 2.4.7 <sup>(1)</sup> . See section 7.1 of this Certificate.
Standard:	5.1	Resisting sound transmission to dwellings using appropriate constructions
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 5.1.1 <sup>(1)</sup> and 5.1.12 <sup>(1)</sup> . See sections 5.3 and 5.5 of this Certificate.

(1) Technical Handbook (Domestic).



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

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	D1	Stability
Comment:		Floors incorporating the product can meet this Regulation. See section 6.1 of this Certificate.
Regulation:	E4(4)	Internal fire spread – Structure
Comment:		The product has a Class E surface and so the dimensions of any cavity created are restricted by this Regulation. See section 7.1 of this Certificate.
Regulation:	G2(1)(2)	Separating walls and separating floors
Regulation:	G3(1)(2)	Existing walls and floors which become separating walls and separating floors
Comment:		The product can contribute to satisfying these Regulations. See section 5.3 of this Certificate.

### Construction (Design and Management) Regulations 2007

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

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

See section: 1 *Description* (1.1) of this Certificate.

# Non-regulatory Information

## NHBC Standards 2010

NHBC accepts the use of Phonewell when installed and used in accordance with this Certificate, in relation to *NHBC Standards, Section 6 Superstructure, Sub-sections 6.3 Internal walls and 6.4 Timber and concrete upper floors, and NHBC Standards for Conversions and renovations, Clauses C15 Separating walls and C18 Upper floors.*

# Technical Specification

## 1 Description

1.1 Phonewell is a cross fluted corrugated board filled with loose silica sand, square-edged with a smooth surface and two thin internal layers of hardboard (see Figure 1). The nominal characteristics are given in Table 1.

Figure 1 Product composition

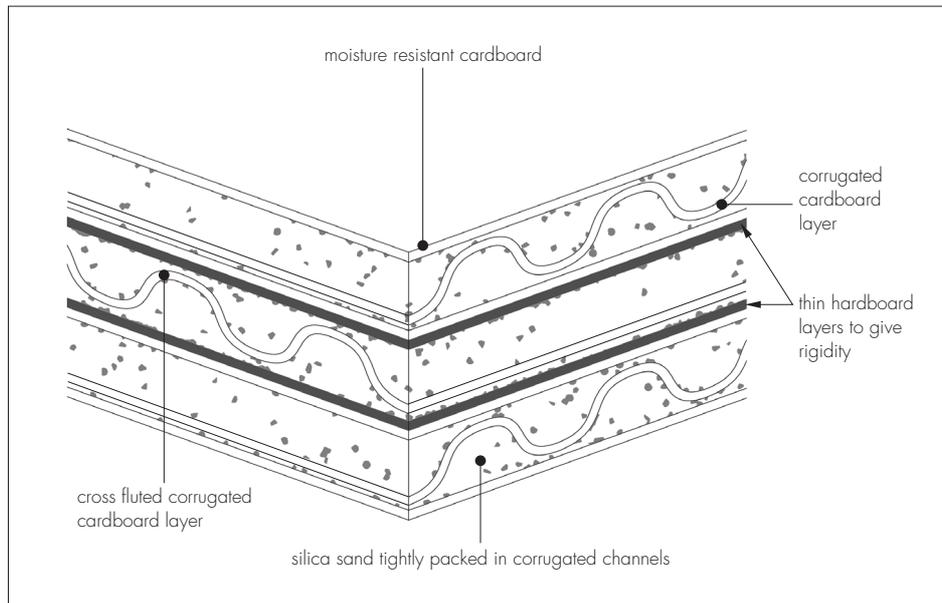


Table 1 Nominal characteristics

Dimensions (mm)	1200 x 800 x 15
Edge profile	Plain
Weight/unit area (kg.m <sup>-2</sup> )	18

1.2 Ancillary items for use with the product are:

- Phonewell Eco-Tape
- floor and wall overlays
- flexible acoustic sealant.

## 2 Delivery and site handling

2.1 The product is delivered to site, strapped on pallets encased in a thick corrugated cardboard box structure, which is placed over the product. Each board is labelled with the product name, the production date and code.

2.2 Each pallet bears a label with the product's name on it, together with dimensions, address of production site and storage information.

2.3 The product should be stored flat, under cover, in dry, well ventilated conditions.

# Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Phonewell.

## Design Considerations

### 3 General

3.1 The fixing of the Phonewell boards depends on the application and must be in accordance with the Certificate holder's instructions. Installation details are given in sections 12 and 13 of this Certificate.

#### Floors

3.2 The product is satisfactory for use as a resilient layer on concrete and timber separating and internal floors in dwellings and must be laid on sound, even bases. The product is laid between the sub-floor deck and upper floor deck in a timber separating floor. The product is covered with a suitable floor finish. The product is not for use within the floor cavity or under the ceiling lining of fire resistant constructions.

3.3 The product will contribute to the reduction of airborne and impact sound transmission through separating floors.

## Walls

3.4 The product is used to contribute to the acoustic performance of solid and cavity masonry, separating and internal walls in dwellings. The product is covered with a suitable plasterboard lining.

3.5 The product may be incorporated in masonry construction including clay and calcium silicate bricks, concrete blocks and natural and reconstituted stone blocks. Masonry walls of new buildings should be designed and constructed in accordance with BS EN 1996-1-2 : 2005 and its National Annex and BS 8000-3 : 2001. It is essential that such walls are constructed having regard to the local wind-driven rain index. Where reinforced masonry is involved, the design should be in accordance with BS EN 1996-1-1 : 2005 and its National Annex.

3.6 Since the product is not intended to offer resistance to rain penetration, walls to be covered with the product must be already rain resistant and show no signs of rain penetration.

3.7 Where the installation of the product with the lining board forms a void of 20 mm or more (ie timber batten systems), services can be incorporated behind the product. Where the services have a greater depth than the void, the advice of the Certificate holder should be sought. It is recommended that services which may penetrate the product eg light switches or power outlets, are kept to a minimum to limit damage to vapour checks and the overall air tightness of the building.

## 4 Practicability of installation

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

## 5 Acoustic performance

5.1 The degree of sound insulation achieved for completed constructions will depend substantially on the design and quality of construction of the wall or floor and their associated flanking elements.

5.2 The test data contained in Table 2 (which excludes flanking sound transmission) indicate that the sound insulation levels contained in Tables 3 and 4 (which include flanking sound transmission) are deemed to satisfy the national Building Regulations, can be met by the specified constructions. See Figures 2, 3 and 4.

*Table 2 Sound Insulation (dB) — laboratory acoustic test results*

Type of construction	Details of construction	Airborne $R_w$ (C;C <sub>tr</sub> )	Impact sound $L_{n,w}$	Impact sound reduction $\Delta L_w$
Masonry internal wall	see Figure 2	48 (-1;-5)	—	—
Timber separating floors	see Figure 3 construction 1	59 (-1;-6)	56	—
	see Figure 3 construction 2	60 (-2;-6)	53	—
	see Figure 4 construction 1	60 (-2;-7)	55	—
	see Figure 4 construction 2	58 (-2;-8)	57	—
Concrete separating floor	see Figure 6 (in section 13.15)	—	56	21

*Table 3 Sound insulation (dB) deemed to satisfy — England and Wales*

Construction	Airborne $D_{nT,w} + C_{tr}$ (dB)	Impact $L_{nT,w}$ (dB)	Airborne $R_w$ (dB)
Purpose built dwelling-houses and flats			
— walls	≥ 45	—	—
— floors and stairs	≥ 45	≤ 62	—
Dwelling-houses and flats formed by material change of use			
— walls	≥ 43	—	—
— floors and stairs	≥ 43	≤ 64	—
Internal walls and floors — purpose built dwelling-houses and flats, dwelling-houses and flats formed by material change of use			
— walls and floors	—	—	≥ 40

Table 4 Sound insulation (dB) deemed to satisfy — Scotland and Northern Ireland

Construction	Airborne $D_{nT,w}$ (dB)	Impact $L_{nT,w}$ (dB)
Scotland and Northern Ireland (new constructions)		
Mean value — floors	$\geq 52$	$\leq 61$
Individual value — floors	$\geq 48$	$\leq 65$
Northern Ireland (conversions)		
Individual value — floors	$\geq 48$	$\leq 65$
Scotland and Northern Ireland (new constructions)		
Mean value — walls	$\geq 53$	—
Individual value — walls	$\geq 49$	—
Northern Ireland (conversions)		
Individual value — walls	$\geq 49$	—

Figure 2 Lightweight block wall construction used for the airborne sound insulation test

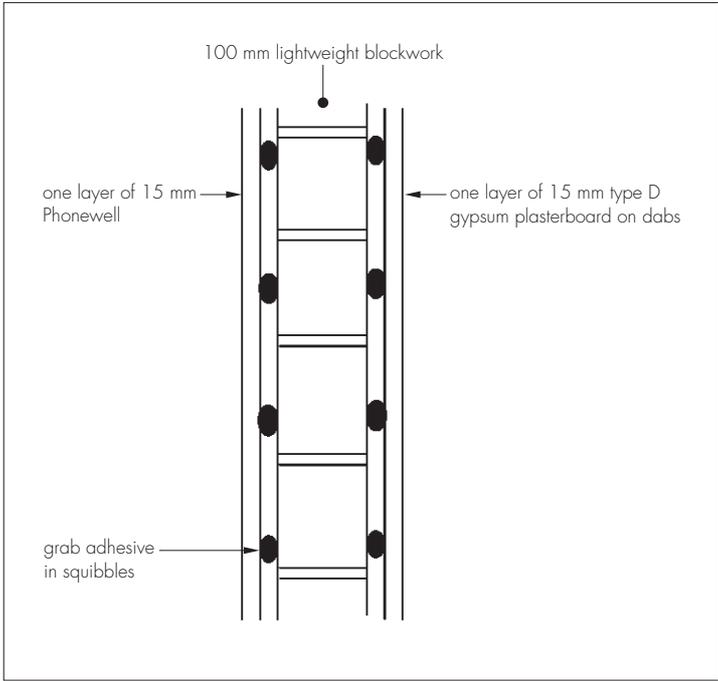


Figure 3 Timber floor with cavity insulation construction used for the airborne sound insulation test and impact sound insulation test

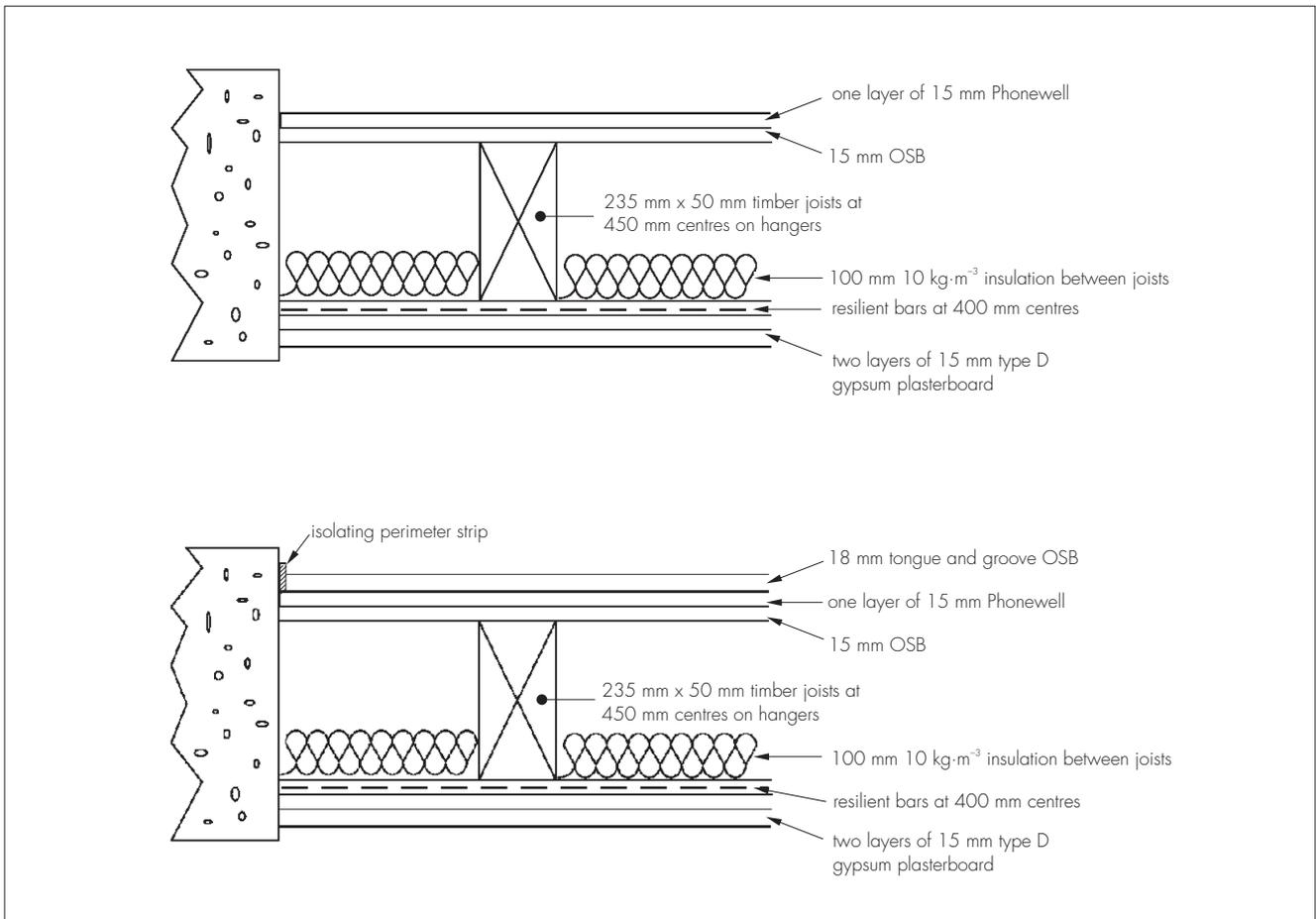
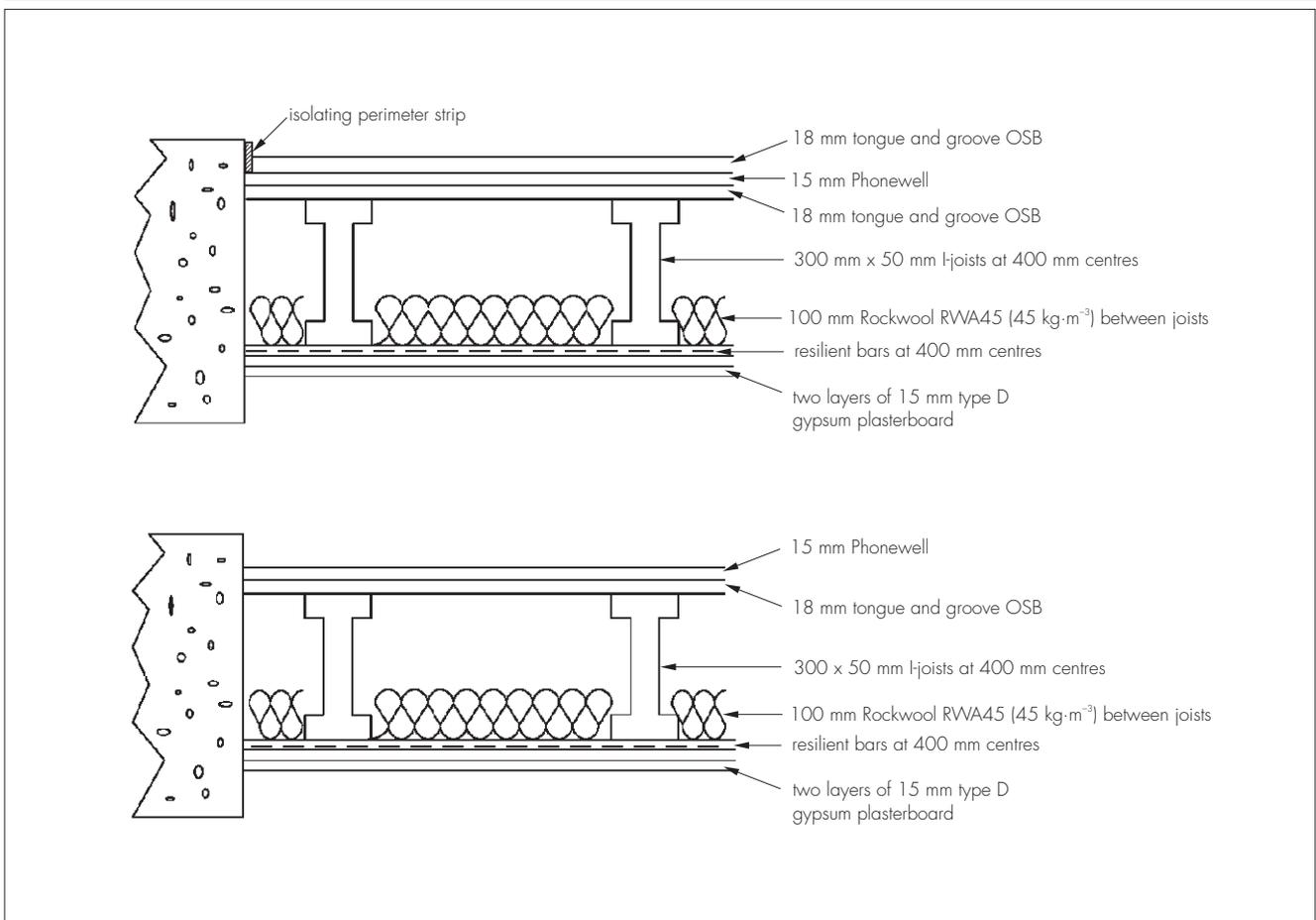


Figure 4 I-joist floor with cavity insulation used for the airborne sound insulation test and impact sound insulation test





5.3 The measures to be taken in design and during installation to avoid direct paths for airborne and impact sound and to minimise flanking sound transmission are given in the documents supporting the national Building Regulations (see Tables 3 and 4):

**England and Wales** — Approved Document E

**Scotland** — Mandatory Standard 5.1, clauses 5.1.1<sup>(1)</sup> and 5.1.12<sup>(1)</sup>

(1) Technical Handbook (Domestic).

**Northern Ireland** — Technical Booklets G and G1.



5.4 In order to show compliance, walls and floors incorporating the product are subject to pre-completion testing in accordance with Approved Document E, Section 1.



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

(1) Technical Handbook (Domestic).

## 6 Floor loading



6.1 The product when covered with a suitable floor covering is capable of resisting the following loads shown in Table 5 for category A1 and type A situations for domestic and residential activities as defined in BS EN 1991-1-1 : 2002, Table NA.2. Load tests results for the product are given in Table 5.

Table 5 Load test results

Construction	Compression under distributed load of 1kN		Concentrated load for 1 mm compression	
	corner (mm)	edge (mm)	corner (kN)	edge (kN)
Covered with 7 mm thick laminate	0.7	0.8	3.5	2.1
Covered with water resistant chipboard 16 mm thickness	0.6	0.9	3.3	1.4

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

## 7 Behaviour in relation to fire



7.1 The product has a Class E reaction to fire classification to BS EN 13501-1 : 2007 and must be protected from naked flames and other ignition sources during and after installation.

7.2 The product is suitable for use on concrete separating walls and floors, and as a resilient layer between the sub-floor deck and upper floor deck in timber separating and internal floors providing the existing floor (from the ceiling lining to the sub-floor deck for timber floors) has been shown to satisfy the load bearing capacity performance criterion of BS 476-21 : 1987 or BS EN 1365-1 : 1999 for the required fire resistance period. The fire resistance rating of the constructions shown in Figures 3 to 6 (see sections 5.2, 13.6 and 13.5) should be determined by an appropriate test or assessment.

7.3 When properly installed, the product will be contained between the wall and internal lining board. Therefore, it will not contribute to the development stages of a fire or present a smoke or toxic hazard until the lining is compromised.

7.4 Care must be taken to ensure continuity of fire resistance at junctions with fire-resisting elements, in accordance with the relevant provisions of the national Building Regulations.

7.5 Elements must incorporate cavity barriers at edges, around openings, at junctions with fire-resisting elements and in cavities in accordance with the relevant provisions of the national Building Regulations. The design and installation of cavity barriers must take into account any anticipated differential movement.

## 8 Proximity of flues and appliances

When installing the product in close proximity to certain flue pipes and/or heat-producing appliances in buildings subject to national Building Regulations, the relevant provisions and guidance given below should be met:

**England and Wales** — Approved Document J

**Scotland** — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)</sup> to 3.19.9<sup>(1)</sup>

(1) Technical Handbook (Domestic).

**Northern Ireland** — Technical Booklet L.

## 9 Penetration by services

Any penetrations by services should be designed and constructed so as to maintain the fire resistance of the construction.

## 10 Maintenance

As the product is confined within the wall/floor structure and it has suitable durability (see section 11), maintenance is not required.

## 11 Durability



The product will perform satisfactorily and provide airborne and impact acoustic performance for the life of the floor and wall, provided it is installed in accordance with the recommendations of this Certificate.

## Installation

### 12 General

12.1 Phonewell must be installed in accordance with the Certificate holder's instructions. Installation should not commence until the building is weatherproof and the wet trades completed and dried out. If wet trades are not completed before the product is installed, a temporary peel clean protective surface can be laid.

12.2 Mould or fungal growth present in the substrate should be treated before the product is installed. If wood preservatives or damp-proofing treatments are used, sufficient time must be allowed for the dispersion of solvents that may be contained in them. Similarly, backgrounds must be allowed to dry out before fixing the product.

12.3 Unintentional air paths through the building envelope should be limited as far as is reasonably practicable by sealing gaps and junctions:

- at edges of openings, such as windows and doors
- at junctions with walls, floors and ceilings
- around service penetrations.

12.4 Flanking strips are not required to isolate the product from surrounding flanking elements (structures). It is the installer's responsibility to ensure that all materials are safely and securely held.

### 13 Procedure

#### Floors

13.1 The product should be acclimatised to conditions in service before installation.

13.2 Mechanical fixings and adhesive must not be used to secure the product to the timber sub-deck or concrete deck or straight through the upper floor deck, into the product and into the sub deck.

13.3 The concrete floor over which the product is to be laid should be left as long as possible to maximise drying out, eg the recommendations of BS 8000-3 : 2001 should be followed.

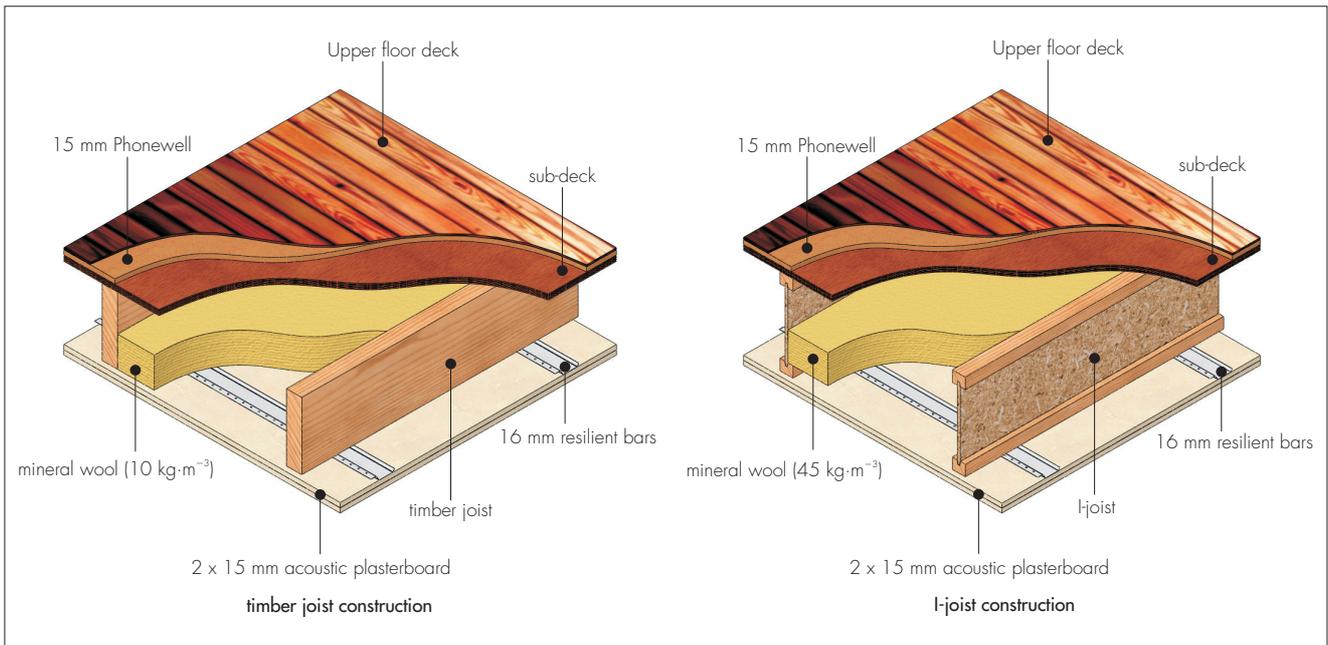
13.4 The floor surface must be dry, smooth and flat and to ensure the product is fully supported at every point, localised irregularities (up to 10 mm deep) can be patched using loose adjustment filler. For larger areas, quarry sand should be used. For further advice contact the Certificate holder.

13.5 The product may be walked on during installation.

13.6 Fixings or services must not bridge the product. Services (excluding gas pipes) passing through separating floors in conversions should be surrounded with sound absorbent material for their full height and enclosed in a duct above and below the floor, in accordance with the national Building Regulations.

## Timber separating floor solutions with a floating layer (see Figure 5)

Figure 5 Typical timber separating floor constructions



13.7 The ceiling comprises resilient bars with two layers of not less than 30 mm thick type D gypsum plasterboard with joints staggered. Jointing and finishing of tapered plasterboard is carried out in the appropriate manner applying plasterer's scrim to all joints and a thin coat of plaster.

13.8 Junctions between ceiling and wall linings must be sealed with flexible acoustic sealant.

13.9 An expansion gap between the sub-deck/upper floor deck and the perimeter walls should be provided at the rate of 2 mm per metre run or a minimum of 10 mm, whichever is the greater (see also section 13.11).

13.10 The perimeter between the sub-deck and the surrounding walls should be sealed and any gaps in the sub-deck should be filled with flexible acoustic sealant.

13.11 The product is laid down floating on the sub-deck floor, tightly butted together in a brickwork pattern, and fitted tightly up to the perimeter walls.

13.12 Flanking strips are not required to isolate the product from the walls. If the installer has opted to add a harder, more traditional floating surface on top of the product, eg chipboard, then this surface will need isolating from the perimeter walls with a flanking strip. For ease of installation, the product and the harder surface can be isolated together.

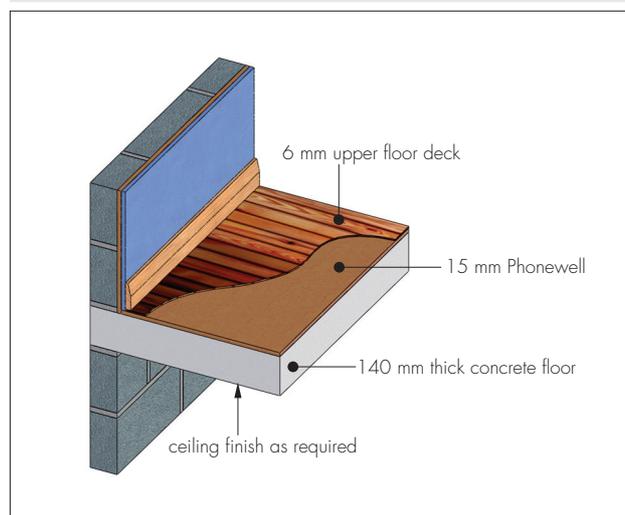
13.13 The installation of the upper floor deck should be in accordance with the manufacturer's installation instructions.

13.14 Where there is a likelihood of regular water spillage, in rooms such as kitchens, bathrooms, shower and utility rooms, protection must be considered, eg by the use of marine ply or tile backing board, laid over the product and sealed at joints and at the wall perimeter.

13.15 The installation of the ceiling should be in accordance with the manufacturer's installation instructions.

## Concrete separating floor solution with a floating layer (see Figure 6)

Figure 6 Concrete floating floor



13.16 The perimeter between the concrete sub-deck and the surrounding walls should be sealed.

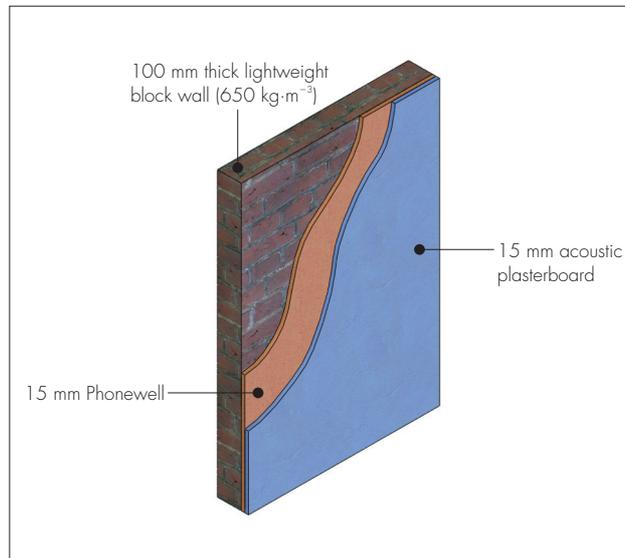
13.17 The surface of the raw concrete floor must be clean, dry and sufficiently level. If required, any unevenness can be levelled out with sand, although the product does have minor correction capabilities.

13.18 The product is laid down floating on the concrete floor, tightly butted together in a brickwork pattern, and fitted tightly up to the perimeter walls (see also section 13.12).

13.19 The installation of the floor deck should be in accordance with the manufacturer's installation instructions.

#### Masonry Walls (see Figure 7)

Figure 7 Brick or block wall



13.20 On bare masonry walls, any loose material should be removed and any holes or gaps should be filled and sealed with flexible sealant.

13.21 The product should be bonded to the existing wall using a quick setting adhesive foam or mechanically fixed to 16 mm resilient bars. The boards must be butted tightly up to each other and to surrounding walls, floor and ceiling.

13.22 Acoustic plasterboard should be bonded to the product using quick setting adhesive foam and a 5 mm perimeter gap should be left around floor, walls and ceiling. The plasterboard joints must not align with joints on the product.

13.23 The plasterboard must be secured to the wall with secondary mechanical fixings, in accordance with the manufacturer's instructions.

13.24 The 5 mm perimeter gaps around the plasterboard should be sealed with flexible acoustic sealant.

13.25 All screw heads and joints must be adequately sealed.

13.26 Skirting boards should be fitted ensuring they do not make contact with the floor.

13.27 The product can also be used to upgrade existing walls without the need to remove the plasterboard. The product is bonded to the original plasterboard and a second layer of plasterboard is bonded over the product and secured mechanically, in accordance with the manufacturer's installation instructions.

## 14 Additional Care

14.1 Care should be exercised to minimise filler spillage.

14.2 The product should always be cut on a flat surface.

14.3 The product may be cut using a jigsaw, hand saw, knife or a circular saw.

## 15 Tests

Tests have been carried out on Phonewell to determine the following:

- effect of high humidity
- deflection under distributed and concentrated load
- creep under distributed loading
- pull through resistance of fixings
- bond strength
- soft body impact.

## 16 Investigations

An examination was made of data relating to:

- durability
- acoustic performance.

## Bibliography

BS 476-21 : 1987 *Fire tests on building materials and structures — Methods for determination of the fire resistance of loadbearing elements of construction*

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

BS EN 1365-1 : 1999 *Fire resistance tests for loadbearing elements — Walls*

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

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

BS EN 1996-1-1 : 2005 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*

NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules — Structural fire design*

BS EN 13501-1 : 2007 *Fire classification of construction products and building elements. Classification using test data from reaction to fire tests*

## 17 Conditions

17.1 This Certificate:

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

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

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

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

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

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

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