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Solutions Guide

New Build Residential

New Build Residential Solutions Guide

ISOVER SAINT-GOBAIN

Your environment. It's the nature of our business.

Foreword

As a world leader in designing, manufacturing and distributing building materials, Saint-Gobain is committed to providing innovative solutions to the most fundamental challenges facing the world today; reducing energy consumption, limiting our impact on the environment and creating a new generation of buildings which are safe, comfortable and energy efficient.

In the UK, we need to eliminate carbon emissions from our built environment by 2050 to meet the commitment of the Climate Change Act. The UK's housing stock is responsible for 30% of primary energy use in the UK and 27% of the UK's CO_2 emissions.

Isover are committed to working jointly with today's housebuilders to meet these challenges, in making homes of the future as energy efficient as possible, whilst also providing solutions for optimum living comfort. This New Build Residential Solutions Guide features guidance on these issues and the Isover solutions that can help housebuilders meet these fundamental challenges.

Helen Tunnicliffe
Head of Marketing
Saint-Gobain Isover

Contents

The New Build Residential Solutions Guide leads you through a portfolio of solutions for external walls, room-in-the-roof, cold roof, separating walls, separating floors, internal walls and internal floors.

Separating wall and floor constructions within this publication are grouped around the methods of complying with Building Regulations Approved Document E. Compliance can be demonstrated either through the use of Robust Details or Pre-Completion Testing. Internal walls and floors are grouped into British Gypsum Approved Systems and Approved Document E / Section 5 guidance constructions.

Construction details within **The New Build Residential Solutions Guide** show the thermal insulation, sound insulation, fire performances, BRE Green Guide ratings and credits towards the Code for Sustainable Homes. For home developers in Scotland, we have incorporated guidance within each detail showing how it can comply with the different regulatory requirements.

1 Thermal performance

Each thermal solution will include a U-value table detailing the levels of performance that can be achieved with given variables.

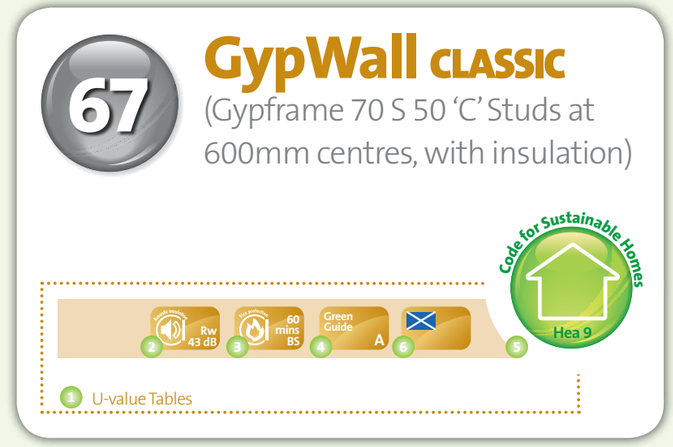
2 Acoustic performance

Each individual construction detail specifies the acoustic performance that element has been tested to achieve.

3 Fire performance

This gives practical guidance for the purposes of life safety in residential buildings. The regulations specify minimum periods of fire resistance to be achieved by different building elements (where applicable).

The Isover New Build Residential Solutions Guide specifies, by each relevant construction, the minimum period of fire resistance that element will achieve to *BS 476* (unless otherwise stated).



4 BRE Green Guide rating

The Green Guide is part of BREEAM (BRE Environmental Assessment Method), an accredited environmental rating scheme for buildings. The Green Guide contains more than 1200 specifications commonly used in various types of building. The Green Guide examines the relative environmental impacts of the construction materials commonly used in residential buildings. The environmental rankings are based on Life Cycle Assessments (LCA), using BRE's Environmental Profiles Methodology.

This data is set out as an A+ to E ranking system, where A+ represents the best environmental performance / least environmental impact, and E the worst environmental performance / most environmental impact. By evaluating the performance of materials and building systems against specific environmental impacts, it is possible for the specifier to select specifications on the basis of organisational preferences or priorities, or take decisions based on the performance of a material against a particular environmental impact.

Please visit *www.thegreenguide.org.uk* for further information.

Within the Code for Sustainable Homes, there is a mandatory requirement to achieve a Green Guide rating of between A+ and D for at least three of the following five elements of the building envelope: roof, external walls, internal walls (including separating walls) upper and ground floors (including separating floors), and windows.

5 The Code for Sustainable Homes

Within this publication we have highlighted construction details that can assist housebuilders in achieving credits under the Code for Sustainable Homes, 2010.

Look for this stamp against details that have the potential to achieve higher performance in areas such as thermal efficiency and acoustics.

6 Complying with Section 5 (Scotland)

Constructions featured within this document that can be used in Scotland as a means of complying with Section 5, will be denoted with 

NB to comply with Section 5 (Scotland) post completion testing is required.

Approved Document L 2010

Approved Document L (Conservation of fuel and power), effective from 1st October 2010, supports the implementation of the Energy Performance of Buildings Directive and the Energy White Paper published in 2003.

The government recognises global warming as a reality and aims to set a path for cutting the UK's CO_2 emissions by 60% by 2050, with real progress by 2020. Half of all CO_2 emissions come from buildings, therefore significant improvements in Building Regulations addressing energy efficiency is seen as a major contributor to meeting these targets.

Part L comprises of four Approved Documents:

- Approved Document **L1A**
  New dwellings
- Approved Document **L1B**
  Existing dwellings
- Approved Document **L2A**
  New buildings other than dwellings
- Approved Document **L2B**
  Existing buildings other than dwelling

Approved Document L1A - New dwellings

Approved Document L1A, 'new dwellings' refers to new-build houses and flats / apartments. It does not refer to buildings containing rooms for residential purposes such as nursing homes, student accommodation, etc. Approved Document L2A covers these new-build buildings (new buildings other than dwellings). For flats and other residential buildings with heated common areas, Approved Document L2A applies to the common areas.

Compliance with Approved Document L1A is based on the carbon performance of the whole dwelling. A whole building measure is given through the use of a SAP2009 calculation. This directly addresses the major concern of the regulations and allows for clear and objective aims.

The withdrawal of the use of the 'Elemental method' of compliance allows greater design flexibility.

Of all the factors that the SAP methodology takes into account, some factors influence the SAP calculation far more than others. The factors with the most significant effect are typically, fabric performance, water storage, ventilation and air-conditioning systems, heating (including lagging of pipes, ducts, vessels), lighting, dwelling position and orientation, solar gains, occupancy and use, and air permeability.

U-value calculations and SAP calculations are separate operations, indeed the U-value calculations of the external fabric components make up part of the total SAP calculation.

U-value advice

Approved Document L1A gives U-value design limits as shown opposite: Even though an 'as built' new dwelling may have U-values that meet these design U-values, the new dwelling may not necessarily meet the requirements of Approved Document L1A.

L1A	Design limits U-value (W/m²K)
Wall	0.30
Floor	0.25
Roof	0.20

Section 6 (Scotland)

Scottish thermal regulations are stipulated in Section 6 2010. U-value design limits are shown opposite.

Section 6	Design limits U-value (W/m²K)
Wall	0.25
Floor	0.18
Roof	0.18

Compliance process

There is a five-stage process for demonstrating compliance with Approved Document L1A once the Target Emission Rate (TER) has been calculated. The TER is calculated for the new dwelling using SAP2009 (or SBEM if the dwelling is over 450m²).

Stage 1 Achieving the TER

Using the same tool (either SAP2009 or SBEM) as used to calculate the TER, the Dwelling Emission Rate (DER) is calculated. Typically, two sets of DER will be needed:

(1) At design stage using design assumptions for Building Regulation approval. Features critical to achieving the DER will typically include better than standard U-values for any elements.

(2) At completion stage using 'as built' data and the actual air permeability figures.

As with the TER, the DER can be calculated at building level for flats / apartments to check compliance but individual DERs will be needed for energy labelling of each dwelling.

Stage 2 Limits on design flexibility

Limits on maximum U-values have been set broadly at 2002 levels for major elements (including walls, floors, etc).

An upper limit on air permeability has also been set at 10m³ / (hr. m²). However, most designs will need to be significantly better than this.

Stage 3 Limiting solar gain

SAP2009 will execute a routine to check whether the dwelling is likely to overheat.

Stage 4 Quality of construction and commissioning

4.1 - Continuity of insulation
There are 2 approaches:

(1) Use Approved Document L 'Accredited Construction Details' see below,

or

(2) Show equivalence to such details by using the guidance in BRE IP 17/01.

4.2 - Air permeability and air pressure testing

Air pressure testing is required by the Approved Document L regulations. For dwellings that use 'Accredited Construction Details' (see below) one of each dwelling type taken from the first batch of completed units will be required. For dwellings not using 'Accredited Construction Details' it is the greater of two of each type **or** 5% of each type (applicable to sites over 40 units). If after five dwellings have passed, then the 5% test rate can be reduced to 2%. If the pressure testing indicates that the 'as built' DER is worse than the TER, remedial measures have to be taken until the TER is achieved (these remedial measures do not have to be just related to airtightness, e.g. additional loft insulation or an improved boiler could be used to improve the DER). In addition, if a dwelling fails, an extra dwelling of that type has to be tested. For small sites, (one or two dwellings) testing is not required if it can be demonstrated that a successful test on the same dwelling type in the past year has taken place. Alternatively, a design air permeability of 15m³ /(hr. m²) can be taken and compensated for by another element, e.g. better fabric U-values.

Stage 5 Providing information

The owner has to be given the requisite information to know how to run the building.

Accredited construction details

The aim of 'Accredited Constructions Details' is to provide a simplified compliance route via accredited details for thermal continuity (bridging). These details outline thermal bridging performance to be at SAP2009 (Appendix K1) levels as a minimum. These details also provide guidance on air-leakage performance requirements, which could possibly lead to reduced sample testing.

As a leading supplier and authority on insulation systems, Isover can provide assistance with U-value calculations. For assistance contact our technical team on 0115 945 1143, or alternatively by email: isover.enquiries@saint-gobain.com

Calculated U-values

U-values are calculated by adding the thermal resistance (R) value of all of the individual components making up the construction then dividing the result into 1. An individual product's thermal resistance is calculated by taking the thickness of the material in metres and dividing it by its thermal conductivity (Ð). In addition to this correction factors are applied to take into account issues such as mechanical fixings and thermal bridging.

Approved Document E

Building Regulations Approved Document E gives guidance on how to provide reasonable standards of sound insulation in dwellings and other residential buildings - in both new-build and refurbishment or conversion work.

In July 2003, the regulation authorities tightened the standards of sound insulation for both separating walls and floors, and internal walls and floors for all residential buildings.

The aim of the standards is to improve the acoustic environment by reducing noise transmission between and within all residential dwellings.

In July 2003, Approved Document E introduced five key differences to the previous legislation:

1. Rating system

In addition to improving the acoustic performances that constructions need to achieve, Approved Document E introduced a new rating system. This introduced a correction factor when measuring sound that takes particular account of low frequency noise, e.g. bass sound - which are the most problematic frequencies to design out. This means that in practice the measures are much more difficult to achieve in situ on site.

2. On-site Pre-Completion Testing (PCT)

The onus is on the builders of the constructions to demonstrate that the required levels of sound insulation have been achieved through executing Pre-Completion Testing of the built constructions on site. Approved Document E requires that 1 in 10 constructions be tested.

3. Performance ratings for internal constructions

In addition to specifying levels of sound insulation for separating constructions, Approved Document E also includes a required level of sound insulation for internal constructions. The majority of internal partitions and floors must achieve the R_w 40dB requirement.

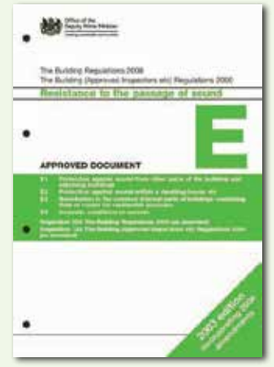
4. Control of sound reverberation

Approved Document E also makes provisions for ensuring that common circulation areas of residential buildings, e.g. corridors and stairwells in apartment buildings and hotels must have sound absorptive treatments to control noise reverberation.

5. Application to all residential buildings

Approved Document E applies to all types of residential buildings, including hotels, hostels, student accommodation and nursing homes.

However, as seen in the table below, the performance ratings required to be achieved by the separating constructions differ between dwellings and rooms for residential purposes, and between new-build.



Element of construction	Minimum airborne sound transmission (site test result) D_{nTw} + Ctr	Maximum impact sound transmission (site test result) L_{nTw}	Minimum airborne sound transmission (lab test result) R_w
Separating walls between dwellings	45dB		
Separating walls between rooms used for residential purposes	43dB		
Separating floors between dwellings and rooms used for residential purposes	45dB	62dB	
An internal wall or floor between a bathroom / WC and a habitable room. Also between bedrooms and other rooms within the dwelling[1]			40dB[1]

[1] Internal walls which include an opening are exempt from this requirement

Ways to comply

explained...

The requirement of Approved Document E is that 10% of all dwellings should be Pre-Completion Tested (PCT) on site. This testing applies to separating constructions only - not for internal constructions.

Although the revisions to Approved Document E took effect from 1st July 2003, the new-build dwelling sector, i.e. new-build houses and apartments were given a 12 month extension to this deadline. During this time, the Robust Details (RD) scheme was developed. The use of Robust Detail constructions is allowed in new houses and apartments as an alternative to Pre-Completion Testing.

The choice of compliance method available is dependent on the type of development on your particular site(s):

New-build houses or apartments

Two different routes to compliance are available for new-build houses or flats / apartments. Either

(1) Robust Detail constructions can be used by registering each plot and paying the required fee, or

(2) Manufacturers' proprietary systems or Approved Document E Guidance Constructions can be used, and then verified by Pre-Completion Testing.

If you choose to comply by using Robust Details, please refer to pages **53 - 56** (separating walls) and pages **70 - 73** (separating floors).

If you choose to comply by using our proprietary systems, please refer to pages **58 - 65** (separating walls) and pages **74 - 76** (separating floors). Alternatively, separating floor guidance constructions can be found on pages **77 - 78.**

All separating wall constructions must meet the required performance criteria of 45dB D_{nTw} + Ctr. All separating floor constructions must meet the required performance criteria of 45dB D_{nTw} + Ctr (airborne) / 62dB L_{nTw} (impact).

Internal constructions

There is no Pre-Completion Testing requirement for internal constructions. The performance requirement of R_w 40dB for internal walls and floors applies to residential developments, new-build or refurbishment / conversion. Building Control will check internal constructions at plan stage, to ensure details are specified that will meet this required performance. Either manufacturers' proprietary systems or guidance constructions can be used for this.

Section 5 (Scotland)

Approved Document E applies to England and Wales only. In Scotland, Section 5 is the Technical Handbook covering the resistance to the transmission of sound. The requirements of Section 5 apply only to walls and floors separating a dwelling from other parts of the same building in different occupation and from other adjoining buildings.

The fundamental differences between Section 5 (Scotland) and Approved Document E (England and Wales) are as follows:

- Section 5 (Scotland) does not have two sets of performance criteria for new-build or conversion projects.
- Section 5 (Scotland) has a 43dB requirement for internal partitions or mid-floors.
- Section 5 (Scotland) has no requirement for sound absorption in common areas of the building.
- Section 5 (Scotland) measures site performance by way of a D_{nTw} measure only, unlike Approved Document E (England and Wales) which also uses a Ctr correction factor for low frequency sound.
- The Robust Details initiative is not available for use as a scheme with which to comply with the regulation in Scotland, although some of the constructions may be comparable to those that can be used for compliance.

Section 5 (Scotland) performance requirements

Airborne sound

Minimum values of weighted standardised level difference (D_{nTw}) as defined in *BS EN ISO 717-1: 1997*

	Minimum value
Walls	56dB
Floors	56dB

Impact sound

Maximum values of weighted standardised impact sound pressure level (L_{nTw}) as defined in *BS EN ISO 717-2: 1997*

	Maximum value
Floors	56dB

The mean value is derived from four sets of measurements taken between different pairs of rooms in the construction. The individual performance stated in the tables above is the worst allowable performance for any of the room pair scenarios. Both individual and mean values must be met in order to achieve compliance.

Please refer to www.sbsa.gov.uk for further information and the latest updates.

The Code for Sustainable Homes

The Code for Sustainable Homes

The Code for Sustainable Homes has been introduced to drive a step-change in sustainable home building practice. It is a means of driving continuous improvement, greater innovation and exemplary achievement in sustainable home building.

The Code is a standard for key elements of design and construction that affect the sustainability of a new home. It will become the single national standard for sustainable homes, used by home designers and builders as a guide to development, and by home buyers to assist in their choice of home. The Code measures the sustainability of a home against design categories, rating the 'whole home' as a complete package.

The design categories included within the Code are:

- Energy and CO_2 emissions
- Water
- Materials
- Surface water run-off
- Waste
- Pollution
- Health and Wellbeing
- Management
- Ecology

The Code uses a sustainability rating system - indicated by 'stars', to communicate the overall sustainability performance of a home. A home can achieve a sustainability rating from one (★) to six (★★★★★★) stars depending on the extent to which it has achieved Code standards. One star is the entry level – above the level of Building Regulations; and six stars is the highest level - reflecting exemplary development in sustainability terms.

Mandatory Ratings

On 1st May 2008, a rating against the Code for new-build homes became mandatory. This came into effect for all developments where a local authority received a building notice, initial notice or full plans application after 1st May 2008.

However, this new requirement does not make it mandatory to build a Code home or to have each new home assessed against the Code. It does however mean that all buyers of new homes be given clear information about the sustainability of their new home.

A housebuilder can do this in one of two ways:
They can chose to build a Code home, have that home assessed against the Code and provide the home buyer with a Code certificate stating the star rating the home has achieved.

They can chose to build to current Building Regulations standards, not to pay for an assessment and instead download a free nil-rated certificate of non-assessment (also referred to as a nil-rating) to provide to the home buyer.

How the Code works

The Code for Sustainable Homes is an environmental assessment rating method for new homes in England which:

- Identifies a set of issues which are known to impact on the environment
- Establishes performance measures which:
  - are known to reduce environmental impacts
  - exceed the requirements of legislation and
  - regulations can be objectively assessed, evaluated and delivered in a practical and cost effective way by the construction industry
- Identifies environmental issues for which mandatory minimum performance must be achieved in order to gain a Code rating
- Assesses environmental performance in a two stage process (Design stage and Post-construction) using objective criteria and verification
- Records results of the Code assessment on a certificate assigned to the dwelling

Weightings, credits and percentage points

The weighting factors used in the Code have been derived from extensive studies involving a wide range of stakeholders who were asked to rank a range of environmental impacts in order of importance.

The table below is taken from the Code for Sustainable Homes Technical Guide (November 2010). It shows shows how weightings are applied across all Code categories of environmental impact to adjust the relative values of credits within different categories. Within each category credits are awarded for achieving specified degrees of performance. The weighting factors show the contribution made by each category to the total performance recognised and rewarded by the Code. The total available contribution is expressed as 100%. The weighting of each category is expressed as a fraction of this, such that the sum of all the category contributions equals 100%.

Total credits available, weighing factors and points

Categories of environmental impact	Total credits in each category	Weighting factor (% points contribution)	Approximate weighted value of each credit
Category 1 Energy and CO_2 emissions	31	36.4%	1.17
Category 2 Water	6	9.0%	1.50
Category 3 Materials	24	7.2%	0.30
Category 4 Surface water run-off	4	2.2%	0.55
Category 5 Waste	8	6.4%	0.80
Category 6 Pollution	4	2.8%	0.70
Category 7 Health and wellbeing	12	14.0%	1.17
Category 8 Management	9	10.0%	1.11
Category 9 Ecology	9	12.0%	1.33
Total		**100.0%**	

As an example, the 31 credits available for Energy and CO_2 emissions contribute to 36.4% of the total available performance. By dividing the weighting factor by the number of credits for each category, we arrive at an approximate weighted value for each credit. Within the Energy and CO_2 category, 36.4% contribution to the total, divided by the 31 credits available, means that each credit in this category is worth approximately 1.17 points.

Total percentage points score and resulting Code level

For every category, the number of credits achieved is divided by the total available and multiplied by the category weighting factor to give a percentage points score for the category. This number should be rounded down to two decimal places before the next step.

The rounded percentage point's scores for each category are then summed to arrive at the total percentage point score for the dwelling. The total percentage point score must be rounded down to the nearest whole number.

A Code level is awarded on the basis of achieving both a set of mandatory minimum standards and a minimum overall score. The Code level is derived from the total points achieved, according to the table below.

Code Levels	Total percentage points score (equal to or greater than)
Level 1 (★)	36 points
Level 2 (★★)	48 points
Level 3 (★★★)	57 points
Level 4 (★★★★)	68 points
Level 5 (★★★★★)	84 points
Level 6 (★★★★★★)	90 points

The Saint-Gobain Multi-Comfort Program

The Saint-Gobain Multi-Comfort Program is based on the Passivhaus concept, leading to bioclimatic design. It is sustainable and takes environmental, economic and social factors into account.

Furthermore, it offers optimal thermal comfort and related energy savings. It combines excellent acoustic and visual comfort with superb internal air quality, fire protection and safety. It permits great flexibility in building design, both externally and internally.

And it forms the foundation of Isover's strategy for the sustainable development of buildings:

Buildings account for approximately 40% of the carbon emissions in the UK*

*Information taken from The Carbon Trust website 2009

Why Multi-Comfort House?

The Saint-Gobain Multi-Comfort Program has many advantages for occupants. As well as unparalleled comfort, inhabitants will benefit from a sense of well-being that penetrates every corner of the building coupled with the reassurance that they are living a more sustainable lifestyle to help preserve our natural environment for generations to come.

For too long, we have been living in an unsustainable way and the damaging ecological effects of this lifestyle and its impact on our natural surroundings are becoming increasingly apparent in the form of climate change on a global scale.

We all experience the effects of climate change in our daily lives: from rising CO_2 levels and polluted air to ozone depletion and declining sources of fossil fuels. For this reason, climate protection is regarded worldwide as one of the greatest challenges facing our society this millennium. We all have a role to play in protecting the environment and the Saint-Gobain Multi-Comfort Program demonstrates how we can make a lasting difference starting with our own four walls.

We know the contribution to carbon emissions that buildings can make. Across the whole of our economy, buildings produce about half of the carbon emissions from energy use and houses about 27%. Significantly reducing that figure is not only desirable but easily possible.

A third of the energy that we use to heat our homes is wasted through heat loss as a result of poor insulation. We also have to heat our home far more than we should need to because of issues like poor airtightness.

And we know that whether it is small actions like using low energy light bulbs, or larger ones like thinking about orientation of a building at construction stage, there is an enormous amount we can do to reduce energy use and reduce emissions without clever gadgets and new complex technologies.

Isover is a leading manufacturer of sustainable insulation solutions to protect both the built and the natural environment and is committed to promoting both ecological and comfortable living.

From product innovation to the sourcing of raw materials through to manufacture, distribution and installation, Isover constantly achieves improvements in its environmental impact. The company is the only glass mineral wool manufacturer to achieve the maximum possible recycled content, 86% using recycled glass that would otherwise go to landfill.

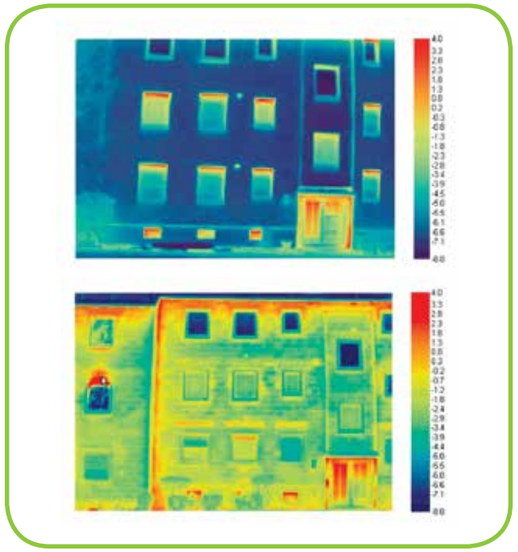
The use of Isover insulation also helps to reduce emissions. Over a typical 50 year life span of a building Isover insulation will save 300 tonnes of CO_2, which equates to over 375 times more CO_2 than is needed for its manufacture. In addition, a house built with Isover insulation to 2006 building regulations will halve the CO_2 emissions released into the environment when compared to a typical house built in the 1950's. At the same time our products also boast ODP (Ozone Depletion Potential) and GWP (Global Warming Potential) ratings of zero and it is these sound environmental credentials which have provided a foundation to establish the Passivhaus standard and the Saint-Gobain Multi-Comfort Program.

Thermal Requirements:

The thermal requirements for the Saint-Gobain Multi-Comfort Program are based on the Passivhaus design principles. These design principles incorporate and reinforce excellent thermal insulation of the building envelope (including windows and doors), airtight constructions, and ventilation systems with heat recovery for a permanent supply of fresh air. Small additional heating or cooling systems may also be integrated if needed depending on the climate zone.

Compared to conventionally built houses, the heating or cooling energy demands of a Passive House are lower by about 75%. And in contrast to old buildings, savings amount to as much as 90%.

Passivhaus buildings provide a high level of occupant comfort while using very little energy for heating and cooling. They are built with meticulous attention to detail and rigorous design and construction according to principles developed by the Passivhaus Institute in Germany, and can be certified through an exacting quality assurance process.



The following table highlights the typical U-value requirements for buildings up to Saint-Gobain Multi-Comfort Program standards:

	Housing stock completely insufficient thermal insulation	Insufficient thermal insulation	Low-energy houses	Saint-Gobain Multi -Comfort Program
Building Standard	**Completely insufficient thermal insulation** Structurally questionable, cost of heating no longer economical (typical of rural buildings, non-modernised old buildings).	**Insufficient thermal insulation** Thermal renovation is clearly worth the trouble (typical of residential houses built in the 50s to 70s of the last century).	**Low-energy houses**	**Very low energy houses** (Passive houses need to meet this parameter as part of the requirement profile)
Building Element	**Typical U-values and insulation thickness**			
External walls Insulation thickness	1.30 W/(m²K) 0mm	0.40 W/(m²K) 60mm	0.20 W/(m²K) 160mm	0.13 W/(m²K) 300mm
Roof Insulation thickness	0.90 W/(m²K) 40mm	0.22 W/(m²K) 220mm	0.15 W/(m²K) 300mm	0.10 W/(m²K) 400mm

The Passivhaus Standard

The Passivhaus Standard requires:

- a maximum space heating and cooling demand of less than 15 kWh/m² year or a maximum heating and cooling load of 10W/m².
- a maximum total primary energy demand of 120 kWh/m²/year.
- an air change rate of no more than 0.6 air changes per hour @ 50 Pa.

To achieve the Passivhaus Standard in the UK typically involves:

- very high levels of insulation
- extremely high performance windows with insulated frames
- airtight building fabric
- 'thermal bridge free' construction
- a mechanical ventilation system with highly efficient heat recovery

Certification

The Passivhaus Institute has developed a series of certification processes to ensure the quality of any official Passive House buildings and practitioners:

1. The Passive House Planning Package (PHPP), used to inform the design process and to assess or verify compliance with the Passivhaus Standard.
2. Certification for designers who have the expertise to deliver Passivhaus buildings.
3. A certification process for Passivhaus buildings, which applies both to the proposed design and the completed building.

"The heat losses of the building are reduced so much that it hardly needs any heating at all. Passive heat sources like the sun, human occupants, household appliances and the heat from the extract air cover a large part of the heating demand. The remaining heat can be provided by the supply air if the maximum heating load is less than 10W per square metre of living space. If such supply-air heating suffices as the only heat source, we call the building a Passivhaus."

Univ. Prof. Dr Wolfgang Feist

Head of Energy Efficient Construction/ Building Physics at the University of Innsbruck, Austria and Director of the Passivhaus Institute, Darmstadt, Germany.

Acoustic Requirements:

In addition to thermal comfort and related energy savings, the Saint-Gobain Multi-Comfort Program features acoustic comfort and shields the inhabitants from noise.

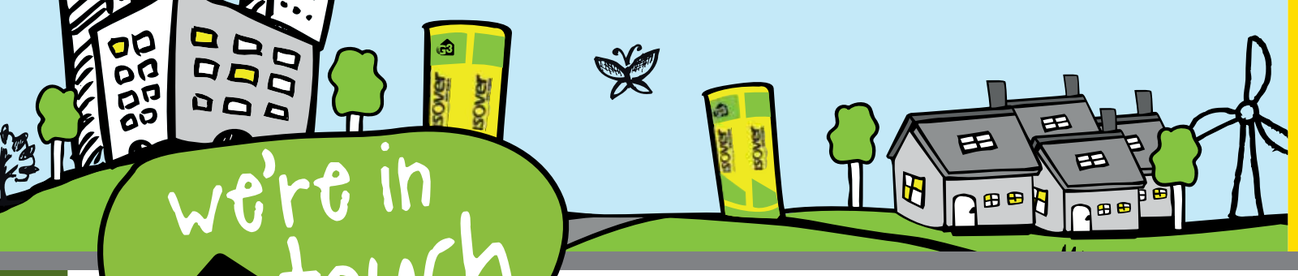
According to the European Noise Policy, 80 million EU citizens (20% of the population) are exposed to undesirably high noise levels, which lead to sleep disturbance and other adverse health effects such as: high blood pressure, mental stress, heart attacks and hearing damages.

Furthermore, noise and poor room acoustics can also have a negative effect on learning and working.

Therefore, Isover has defined the following acoustic requirments for the Multi-Comfort Program:

Requirement	"Comfort"
Airborne sound insulation between flats $D_{nT,w}$ (dB)(C 50-1350)	≥ 63
Airborne sound insulation between the rooms of one flat (without doors). Also incl. one family houses. $D_{nT,w}$ + C(dB)	≥ 45
Impact sound insulation between flats. L_{nTw} + $C_{1,500\text{-}2,500}$***(dB)	≤ 40
Impact sound insulation within a flat, also incl. one family houses. L_{nTw} + $C_{1,500\text{-}2,500}$(dB)	≤ 50
*** For transitional period: L_{nTw} + Cl, values lower by 2dB.	

These acoustic requirements protect inhabitants and users from exterior noise (road traffic, trains, airplanes, etc), from airborne noise coming from inside the building (conversations, hi-fi, television, etc), from structure-born noise (footsteps, objects falling on the floor, house hold equipment, etc) and noise from technical equipment (heating and ventilation systems, elevators, water pipes, etc).



At Isover we're in touch with you and your needs. As part of our commitment to providing you with the best insulation products and systems on the market, we're launching our latest innovation – G3 Touch.

Isover G3 Touch is a high performance, gentle mineral wool. It still has the same great performance you're used to, but it is now even easier to install, produces less dust than before and is kinder on the environment.

Named after its main benefits, G3 Touch provides you with 3 key guarantees:

great performance

G3 Touch is the same high performing mineral wool with excellent thickness recovery, strength and water resistance.

- **High thermal performance**
- **Excellent acoustic performance**
- **First class fire safety**
- **Awarded Eurofins Indoor Air Comfort "Gold standard" certification**

gentle to use

G3 Touch is easy to install and even though it's softer to touch, it's just as robust as it was before.

good for the environment

We take our environmental responsibility seriously, and are continually looking for ways to reduce our environmental impact. During every stage of development, from product innovation to the sourcing of raw materials through manufacture, distribution and installation, we constantly achieve improvements in our environmental impact.

- **Up to 86% of the raw materials used to make G3 Touch products are recycled**
- **We've introduced a fleet of ergonomically designed tear drop lorries to reduce CO_2 emissions on our deliveries**
- **We've increased delivery capability to 22 pallet loads**

Our 3 point plan for environmental sustainability, is our dynamic plan which focuses our efforts on continuously improving the way in which our products and processes impact the natural environment and seeks to ensure that Isover and our products, when in-situ, use less materials, less energy and produce less emissions.

The 3 guarantees of G3 Touch is our promise to you.

It's our promise to consistently deliver the latest in high performing insulation and our commitment to environmental responsibility.

To find out more about G3 Touch visit www.isover.co.uk/G3Touch

Bryant Homes, Blenheim Grange, Whatton

External walls

Approved Document L 2010

With specific reference to AD L1A for New Dwellings, compliance is based on the carbon performance of the whole dwelling, a measure of which is given through the use of the Standard Assessment Procedure (SAP calculation).

Compliance is no longer demonstrated by the elemental U-value method, but U-value calculations are required as they form part of the SAP calculation.

Although reference is made to 'Design Limit' U-values within AD L1A, U-values better than the 'Design Limit' are likely to be required to meet the required Carbon Index Level.

Approved Document L 2010	New build residential	
	Limiting fabric parameter (W/m²K)	Isover recommended U-value (W/m²K)
External wall	0.30	< 0.28

Section 6 - Scotland 2010

The standards and guidance given in Section 6 2010 are intended to reduce emissions of carbon dioxide by approximately 30% compared to the 2007 standards. The key changes over the 2007 version are:

- 30% improvement in CO_2 emissions for new buildings
- Expanded role for the use of low carbon equipment
- Improved backstops for fabric U-values and services efficiencies for new buildings

Section 6 includes a range of measures which can be used in setting the target emission rate for a notional dwelling. Included are guideline "notional" U-values, as follows:

Section 6 - Scotland 2010	New build residential	
	Area weighted max U-value (backstop) (W/m²K)	Notional U-value (W/m²K)
External wall	0.25	0.19

For further information on compliance with thermal building regulations, please refer to pages 5 and 6.

The Code for Sustainable Homes

Isover products can be specified to achieve reduced CO_2 target emission rates by means of insulation for improved U-values. Specialist products such as the Isover Vario Membrane System and expert design guidance can also help to achieve improved airtightness performance. This stamp highlights potential design solutions.

BBA approval

Isover CWS 36 Slab and Isover CWS 32 are endorsed by the British Board of Agrement (BBA) for use in all exposure zones for buildings up to and including 25m in height.

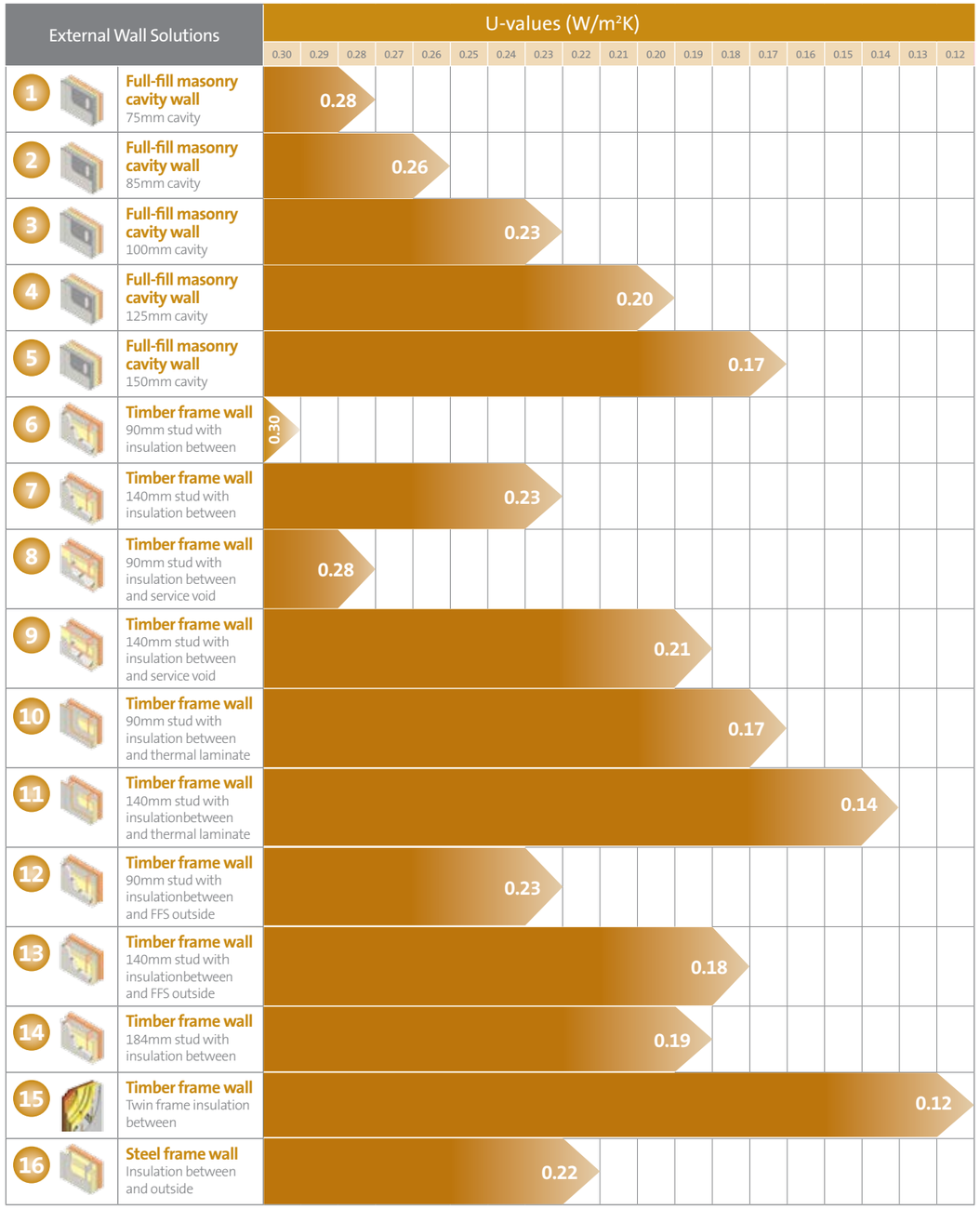
Isover CWS 36 – BBA Certificate 90/2465

Isover CWS 32 – BBA Certificate 90/2465

To download a copy of the certificate visit **www.bbacerts.co.uk**

External wall solutions

The external wall solutions detailed in this section of the guide are for masonry, timber frame and steel frame constructions. Constructions are designed to meet or exceed 2010 Thermal Building Regulations down to zero carbon levels. The table below provides a snapshot of the U-values that can be achieved with each solution.



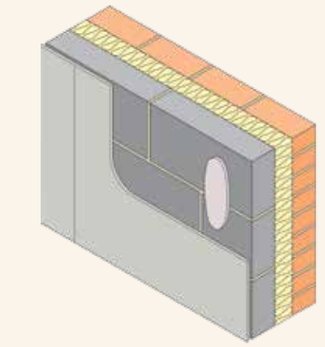
1 Full-fill masonry cavity wall

75mm cavity

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- **75mm cavity fully filled with Isover insulation (see table below)**
- 100mm block (see table below)
- Gyproc plasterboard or Gyproc ThermaLine laminate (see table below)



U-value W/m²K	75mm Isover insulation	Block W/mK	Wall thickness (mm)	Board lining
Isover CWS 36 (0.036W/mK) between cavity				
0.32	CWS 36	0.15	301	12.5mm Gyproc WallBoard
0.30	CWS 36	0.11	301	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity				
0.30	CWS 32	0.15	301	12.5mm Gyproc WallBoard
0.28	CWS 32	0.11	301	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity with a Gyproc ThermaLine laminate				
0.26	CWS 32	0.11	310	22mm Gyproc ThermaLine BASIC
0.25	CWS 32	0.11	318	30mm Gyproc ThermaLine BASIC
0.24	CWS 32	0.11	315	27mm Gyproc ThermaLine PLUS
0.23	CWS 32	0.11	323	35mm Gyproc ThermaLine PLUS
0.22	CWS 32	0.11	328	40mm Gyproc ThermaLine PLUS
0.18	CWS 32	0.11	338	50mm Gyproc ThermaLine SUPER

Isover Products

Isover CWS 36	Isover CWS 32
	

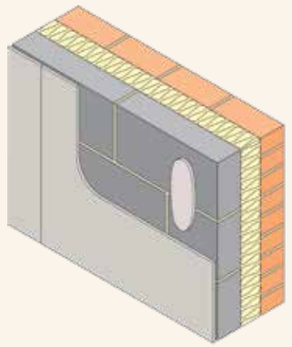
2 Full-fill masonry cavity wall

85mm cavity

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- **85mm cavity fully filled with Isover insulation (see table below)**
- 100mm block (see table below)
- Gyproc plasterboard or Gyproc ThermaLine laminate (see table below)



U-value W/m²K	85mm Isover insulation	Block W/mK	Wall thickness (mm)	Board lining
Isover CWS 36 (0.036W/mK) between cavity				
0.34	CWS 36	1.13	311	12.5mm Gyproc WallBoard
0.33	CWS 36	0.51	311	12.5mm Gyproc WallBoard
0.29	CWS 36	0.15	311	12.5mm Gyproc WallBoard
0.28	CWS 36	0.11	311	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity				
0.30	CWS 32	0.51	311	12.5mm Gyproc WallBoard
0.27	CWS 32	0.15	311	12.5mm Gyproc WallBoard
0.26	CWS 32	0.11	311	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity with a Gyproc ThermaLine laminate				
0.24	CWS 32	0.11	320	22mm Gyproc ThermaLine BASIC
0.23	CWS 32	0.11	328	30mm Gyproc ThermaLine BASIC
0.21	CWS 32	0.11	333	27mm Gyproc ThermaLine PLUS
0.17	CWS 32	0.11	348	50mm Gyproc ThermaLine SUPER

Isover Products

Isover CWS 36	Isover CWS 32
	

External masonry walls

Walls » External masonry

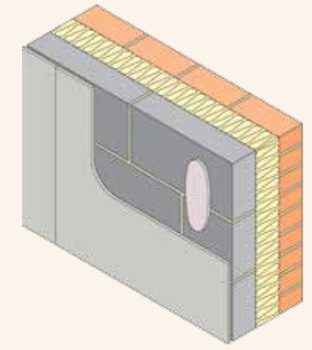
3 Full-fill masonry cavity wall

100mm cavity

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- **100mm cavity fully filled with Isover insulation (see table below)**
- 100mm block (see table below)
- Gyproc plasterboard or Gyproc ThermaLine laminate (see table below)



U-value W/m²K	100mm Isover insulation	Block W/mK	Wall thickness (mm)	Board lining
Isover CWS 36 (0.036W/mK) between cavity				
0.30	CWS 36	1.13	326	12.5mm Gyproc WallBoard
0.29	CWS 36	0.51	326	12.5mm Gyproc WallBoard
0.26	CWS 36	0.15	326	12.5mm Gyproc WallBoard
0.25	CWS 36	0.11	326	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity				
0.27	CWS 32	1.13	326	12.5mm Gyproc WallBoard
0.27	CWS 32	0.51	326	12.5mm Gyproc WallBoard
0.24	CWS 32	0.15	326	12.5mm Gyproc WallBoard
0.23	CWS 32	0.11	326	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity with a Gyproc ThermaLine laminate				
0.22	CWS 32	0.11	335	22mm Gyproc ThermaLine BASIC
0.21	CWS 32	0.11	343	30mm Gyproc ThermaLine BASIC
0.20	CWS 32	0.11	340	27mm Gyproc ThermaLine PLUS

Isover Products

Isover CWS 36	Isover CWS 32
	

4 Full-fill masonry cavity wall

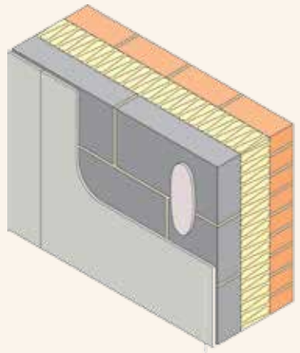
125mm cavity

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- **125mm cavity fully filled with Isover insulation (see table below)**
- 100mm block (see table below)
- Gyproc plasterboard or Gyproc ThermaLine laminate (see table below)

(U-value calculations based on thermal efficient wall ties)



U-value W/m²K	125mm Isover insulation	Block W/mK	Wall thickness (mm)	Board lining
Isover CWS 36 (0.036W/mK) between cavity				
0.25	CWS 36	1.13	351	12.5mm Gyproc WallBoard
0.24	CWS 36	0.51	351	12.5mm Gyproc WallBoard
0.22	CWS 36	0.15	351	12.5mm Gyproc WallBoard
0.21	CWS 36	0.11	351	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity				
0.23	CWS 32	1.13	351	12.5mm Gyproc WallBoard
0.22	CWS 32	0.51	351	12.5mm Gyproc WallBoard
0.20	CWS 32	0.15	351	12.5mm Gyproc WallBoard
0.20	CWS 32	0.11	351	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity with a Gyproc ThermaLine laminate				
0.18	CWS 32	0.11	360	22mm Gyproc ThermaLine BASIC
0.17	CWS 32	0.11	378	40mm Gyproc ThermaLine BASIC
0.16	CWS 32	0.11	378	40mm Gyproc ThermaLine PLUS

Isover Products

Isover CWS 36	Isover CWS 32
	

5 Full-fill masonry cavity wall

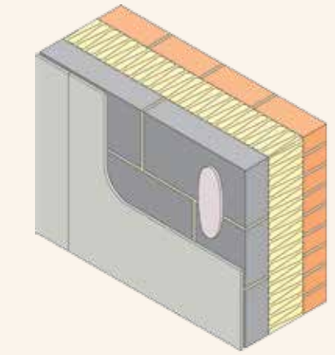
150mm cavity

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- **150mm cavity fully filled with Isover insulation (see table below)**
- 100mm block (see table below)
- Gyproc plasterboard or Gyproc ThermaLine laminate (see table below)

(U-value calculations based on thermal efficient wall ties)



U-value W/m²K	150mm Isover insulation	Block W/mK	Wall thickness (mm)	Board lining
Isover CWS 36 (0.036W/mK) between cavity				
0.21	CWS 36	1.13	376	12.5mm Gyproc WallBoard
0.21	CWS 36	0.51	376	12.5mm Gyproc WallBoard
0.19	CWS 36	0.15	376	12.5mm Gyproc WallBoard
0.19	CWS 36	0.11	376	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity				
0.19	CWS 32	1.13	376	12.5mm Gyproc WallBoard
0.19	CWS 32	0.51	376	12.5mm Gyproc WallBoard
0.17	CWS 32	0.15	376	12.5mm Gyproc WallBoard
0.17	CWS 32	0.11	376	12.5mm Gyproc WallBoard
Isover CWS 32 (0.032W/mK) between cavity with a Gyproc ThermaLine laminate				
0.16	CWS 32	0.11	385	22mm Gyproc ThermaLine BASIC
0.15	CWS 32	0.11	390	27mm Gyproc ThermaLine PLUS
0.14	CWS 32	0.11	411	48mm Gyproc ThermaLine PLUS

Isover Products

Isover CWS 36	Isover CWS 32
	

6 Timber frame wall

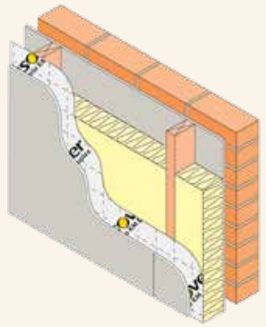
90mm stud with insulation between

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- Breather membrane or reflective breather membrane
- 9mm OSB sheathing board
- **90mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	90mm Isover insulation	Wall thickness (mm)	Board lining
With standard breather membrane			
0.44	Timber Frame Batt 43	265	12.5mm Gyproc WallBoard
0.42	Timber Frame Batt / Roll 40	265	12.5mm Gyproc WallBoard
0.40	Timber Frame Batt / Roll 35	265	12.5mm Gyproc WallBoard
0.38	Timber Frame Batt	265	12.5mm Gyproc WallBoard
With reflective breather membrane			
0.35	Timber Frame Batt 43	265	12.5mm Gyproc WallBoard
0.34	Timber Frame Batt / Roll 40	265	12.5mm Gyproc WallBoard
0.32	Timber Frame Batt / Roll 35	265	12.5mm Gyproc WallBoard
0.30	Timber Frame Batt 32	265	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
		

7 Timber frame wall

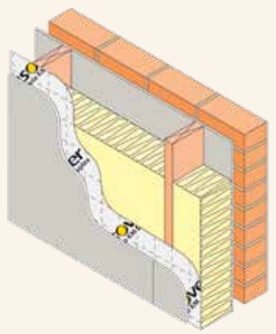
140mm stud with insulation between

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- Breather membrane or reflective breather membrane
- 9mm OSB sheathing board
- **140mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	140mm Isover insulation	Wall thickness (mm)	Board lining
With standard breather membrane			
0.31	Timber Frame Batt 43	315	12.5mm Gyproc WallBoard
0.30	Timber Frame Batt / Roll 40	315	12.5mm Gyproc WallBoard
0.28	Timber Frame Batt / Roll 35	315	12.5mm Gyproc WallBoard
0.26	Timber Frame Batt 32	315	12.5mm Gyproc WallBoard
With reflective breather membrane			
0.26	Timber Frame Batt 43	315	12.5mm Gyproc WallBoard
0.25	Timber Frame Batt / Roll 40	315	12.5mm Gyproc WallBoard
0.24	Timber Frame Batt / Roll 35	315	12.5mm Gyproc WallBoard
0.23	Timber Frame Batt 32	315	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
		

8 Timber frame wall

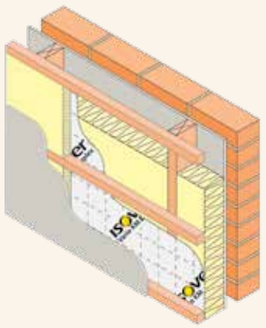
90mm stud with insulation between and service void

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- Breather membrane
- 9mm OSB sheathing board
- **90mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 50mm service void (with or without Isover Acoustic Partition Roll)
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	90mm Isover insulation	Wall thickness (mm)	Board lining
With clear service void			
0.40	Timber Frame Batt 43	315	12.5mm Gyproc WallBoard
0.38	Timber Frame Batt / Roll 40	315	12.5mm Gyproc WallBoard
0.36	Timber Frame Batt / Roll 35	315	12.5mm Gyproc WallBoard
0.34	Timber Frame Batt 32	315	12.5mm Gyproc WallBoard
With Isover Acoustic Partition Roll in service void			
0.31	Timber Frame Batt 43	315	12.5mm Gyproc WallBoard
0.30	Timber Frame Batt / Roll 40	315	12.5mm Gyproc WallBoard
0.29	Timber Frame Batt / Roll 35	315	12.5mm Gyproc WallBoard
0.28	Timber Frame Batt 32	315	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover APR	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
			

9 Timber frame wall

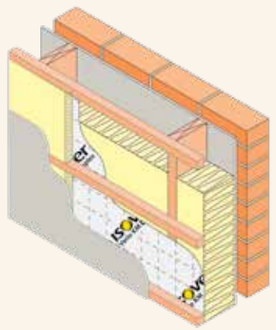
140mm stud with insulation between and service void

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm Clear Cavity
- Breather membrane
- 9mm OSB sheathing board
- **140mm timber stud and Isover insulation between (see table below)**
- 50mm service void (with or without Isover Acoustic Partition Roll)
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	140mm Isover insulation	Wall thickness (mm)	Board lining
With clear service void			
0.29	Timber Frame Batt 43	365	12.5mm Gyproc WallBoard
0.28	Timber Frame Batt / Roll 40	365	12.5mm Gyproc WallBoard
0.26	Timber Frame Batt / Roll 35	365	12.5mm Gyproc WallBoard
0.25	Timber Frame Batt 32	365	12.5mm Gyproc WallBoard
With Isover Acoustic Partition Roll witin service void			
0.24	Timber Frame Batt 43	365	12.5mm Gyproc WallBoard
0.24	Timber Frame Batt / Roll 40	365	12.5mm Gyproc WallBoard
0.22	Timber Frame Batt / Roll 35	365	12.5mm Gyproc WallBoard
0.21	Timber Frame Batt 32	365	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover APR	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
			

10 Timber frame wall

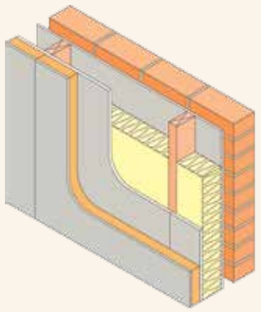
90mm stud with insulation between and thermal laminate

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- Breather membrane
- 9mm OSB sheathing board
- **90mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- Gyproc ThermaLine laminate (see table below)

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	90mm Isover insulation	Wall thickness (mm)	Board lining[1]
Gyproc ThermaLine PLUS			
0.30	Timber Frame Batt 43	305	40mm Gyproc ThermaLine PLUS
0.30	Timber Frame Batt / Roll 40	305	
0.28	Timber Frame Batt / Roll 35	305	
0.27	Timber Frame Batt 32	305	
0.29	Timber Frame Batt 43	300	48mm Gyproc ThermaLine PLUS
0.28	Timber Frame Batt / Roll 40	300	
0.27	Timber Frame Batt / Roll 35	300	
0.26	Timber Frame Batt 32	300	
Gyproc ThermaLine SUPER			
0.27	Timber Frame Batt 43	305	40mm Gyproc ThermaLine SUPER
0.26	Timber Frame Batt / Roll 40	305	
0.25	Timber Frame Batt / Roll 35	305	
0.24	Timber Frame Batt 32	305	
0.24	Timber Frame Batt 43	315	50mm Gyproc ThermaLine SUPER
0.23	Timber Frame Batt / Roll 40	315	
0.22	Timber Frame Batt / Roll 35	315	
0.22	Timber Frame Batt 32	315	
0.21	Timber Frame Batt 43	325	60mm Gyproc ThermaLine SUPER
0.20	Timber Frame Batt / Roll 40	325	
0.20	Timber Frame Batt / Roll 35	325	
0.19	Timber Frame Batt 32	325	
0.19	Timber Frame Batt 43	335	70mm Gyproc ThermaLine SUPER
0.19	Timber Frame Batt / Roll 40	335	
0.18	Timber Frame Batt / Roll 35	335	
0.17	Timber Frame Batt 32	335	

[1] *Where a laminate (except 48mm Gyproc ThermaLine PLUS) is specified, an additional 12.5mm Gyproc WallBoard is used as an inner layer to give 30 minutes fire resistance (loadbearing)*

Isover Products

Isover Timber Frame Batt / Roll	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
		

11 Timber frame wall

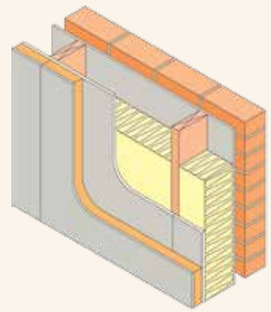
140mm stud with insulation between and themal laminate

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- Breather membrane
- 9mm OSB sheathing board
- **140mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- Gyproc ThermaLine laminate (see table below)

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	140mm Isover insulation	Wall thickness (mm)	Board lining[1]
Gyproc ThermaLine PLUS			
0.27	Timber Frame Batt 43	342	27mm Gyproc ThermaLine PLUS
0.26	Timber Frame Batt / Roll 40	342	
0.24	Timber Frame Batt / Roll 35	342	
0.23	Timber Frame Batt 32	342	
0.25	Timber Frame Batt 43	350	35mm Gyproc ThermaLine PLUS
0.24	Timber Frame Batt / Roll 40	350	
0.22	Timber Frame Batt / Roll 35	350	
0.22	Timber Frame Batt 32	350	
0.23	Timber Frame Batt 43	350	48mm Gyproc ThermaLine PLUS
0.22	Timber Frame Batt / Roll 40	350	
0.21	Timber Frame Batt / Roll 35	350	
0.20	Timber Frame Batt 32	350	
Gyproc ThermaLine SUPER			
0.19	Timber Frame Batt 43	365	50mm Gyproc ThermaLine SUPER
0.19	Timber Frame Batt / Roll 40	365	
0.18	Timber Frame Batt / Roll 35	365	
0.17	Timber Frame Batt 32	365	
0.17	Timber Frame Batt 43	375	60mm Gyproc ThermaLine SUPER
0.17	Timber Frame Batt / Roll 40	375	
0.16	Timber Frame Batt / Roll 35	375	
0.16	Timber Frame Batt 32	375	
0.16	Timber Frame Batt 43	385	70mm Gyproc ThermaLine SUPER
0.16	Timber Frame Batt / Roll 40	385	
0.15	Timber Frame Batt / Roll 35	385	
0.14	Timber Frame Batt 32	385	

[1] *Where a laminate (except 48mm Gyproc ThermaLine PLUS) is specified, an additional 12.5mm Gyproc WallBoard is used as an inner layer to give 30 minutes fire resistance.*

Isover Products

Isover Timber Frame Batt / Roll	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
		

12 Timber frame wall

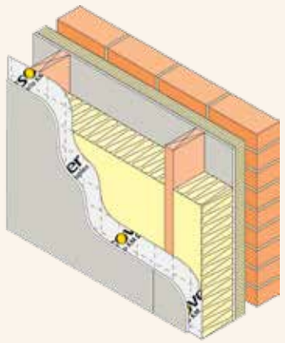
90mm stud with insulation between and Frame Façade Slab outside

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- **Cavity partially filled with 50mm Isover Frame Façade Slab (integral breather membrane)**
- 9mm OSB sheathing board
- **90mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	90mm Isover insulation	Wall thickness (mm)	Board lining
0.25	Frame Batt 43	315	12.5mm Gyproc WallBoard
0.25	Frame Batt / Roll 40	315	12.5mm Gyproc WallBoard
0.24	Frame Batt / Roll 35	315	12.5mm Gyproc WallBoard
0.23	Frame Batt 32	315	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover Frame Façade Slab	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
			

13 Timber frame wall

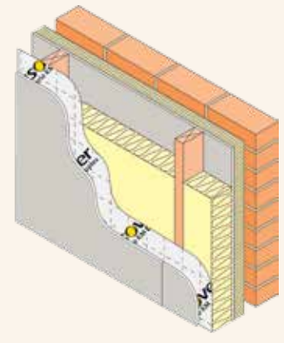
140mm stud with insulation between and Frame Façade Slab outside

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- **Cavity partially filled with 50mm Isover Frame Façade Slab (integral breather membrane)**
- 9mm OSB sheathing board
- **140mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	140mm Isover insulation	Wall thickness (mm)	Board lining
0.21	Frame Batt 43	365	12.5mm Gyproc WallBoard
0.20	Frame Batt / Roll 40	365	12.5mm Gyproc WallBoard
0.19	Frame Batt / Roll 35	365	12.5mm Gyproc WallBoard
0.18	Frame Batt 32	365	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover Frame Façade Slab	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
			

14 Timber frame wall

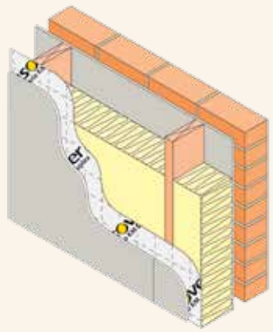
184mm stud with insulation between

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- Breather membrane or reflective breather membrane
- 9mm OSB sheathing board
- **184mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	180mm Isover insulation (2 x 90mm)	Wall thickness (mm)	Board lining
With standard breather membrane			
0.26	Timber Frame Batt 43	360	12.5mm Gyproc WallBoard
0.25	Timber Frame Batt / Roll 40	360	12.5mm Gyproc WallBoard
0.23	Timber Frame Batt / Roll 35	360	12.5mm Gyproc WallBoard
0.22	Timber Frame Batt	360	12.5mm Gyproc WallBoard
With reflective breather membrane			
0.22	Timber Frame Batt 43	360	12.5mm Gyproc WallBoard
0.21	Timber Frame Batt / Roll 40	360	12.5mm Gyproc WallBoard
0.20	Timber Frame Batt / Roll 35	360	12.5mm Gyproc WallBoard
0.19	Timber Frame Batt 32	360	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
		

15 Timber frame wall

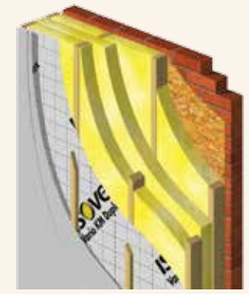
Twin frame

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- Breather membrane or reflective breather membrane
- 9mm OSB sheathing board
- **90mm timber stud and Isover insulation between (see table below)**
- **90mm cavity between frames and Isover insulation (see table below)**
- **90mm timber stud and Isover insulation between (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



U-value W/m²K	270mm Isover insulation (3 x 90mm)	Wall thickness (mm)	Board lining
With standard breather membrane			
0.16	Timber Frame Batt 43	445	12.5mm Gyproc WallBoard
0.15	Timber Frame Batt / Roll 40	445	12.5mm Gyproc WallBoard
0.14	Timber Frame Batt / Roll 35	445	12.5mm Gyproc WallBoard
0.13	Timber Frame Batt 32	445	12.5mm Gyproc WallBoard
With reflective breather membrane			
0.15	Timber Frame Batt 43	445	12.5mm Gyproc WallBoard
0.14	Timber Frame Batt / Roll 40	445	12.5mm Gyproc WallBoard
0.13	Timber Frame Batt / Roll 35	445	12.5mm Gyproc WallBoard
0.12	Timber Frame Batt 32	445	12.5mm Gyproc WallBoard

Isover Products

Isover Timber Frame Batt / Roll	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
		

16

Steel frame wall

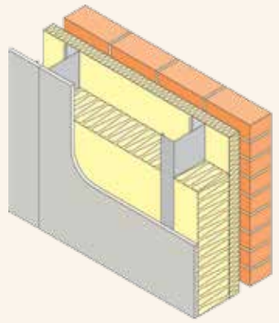
Insulation between and outside

Code for Sustainable Homes Ene 1

Green Guide A+

- 103mm brick
- 50mm clear cavity
- **50mm Isover Steel Frame Batt**
- **Steel studs and Isover insulation (see table below)**
- **Vapour control layer Vario KM Duplex (Vario Membrane System)**
- 12.5mm Gyproc WallBoard

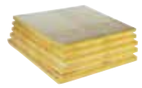
(Isover **ULTIMATE**™ Cavity Barriers should be installed within the wall cavity as required by Building Regulations)



¹ Based on Metsec M12 Studs at 600mm centres.
² Based on 2 x 75mm with joints staggered.

U-value W/m²K	Stud size	Isover insulation	Wall thickness (mm)	Board lining¹
0.29	100mm	50mm Steel Frame Infill Batt	316	12.5mm Gyproc WallBoard
0.26	100mm	75mm Steel Frame Infill Batt	316	12.5mm Gyproc WallBoard
0.25	100mm	100mm Steel Frame Infill Batt	316	12.5mm Gyproc WallBoard
0.22	150mm	150mm Steel Frame Infill Batt²	366	12.5mm Gyproc WallBoard

Isover Products

Isover Steel Frame Batt	Isover Steel Frame Infill Batt	Isover Vario Membrane System	Isover **ULTIMATE**™ Cavity Barriers
			

George Wimpey, Chestnut Grove, West London

Why Room-in-the-roof?

Home buyers are demanding greater flexibility from new homes. Changes of lifestyle, with more people working from home, extended families, more recreational pursuits - all call for extra space.

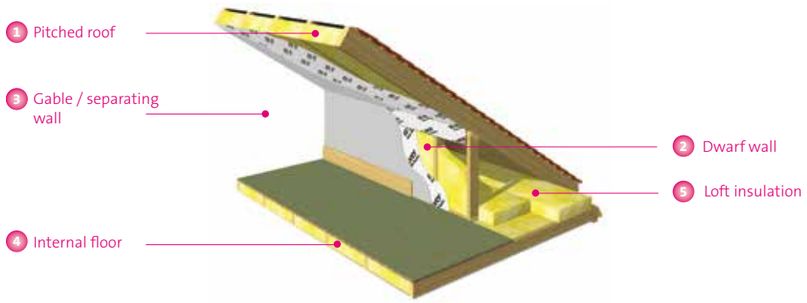
Providing extra living space from the outset has huge benefits all round, for the home buyer and builder alike:

- The extra cost of third floor living space - which home buyers are prepared to pay for - is an investment that greatly exceeds the cost of production
- Increased living space without increasing the footprint achieves an ideal scenario
- Reduced build cost per m^2
- Flexibility of living space without having to resort to expensive build-on costs

Elements of a Room-in-the-roof construction

Construction elements as highlighted below are required to meet Building Regulations performance requirements, for fire, sound and thermal performance. The next section details each of these construction elements in turn, providing:

- The regulatory performance requirements applicable
- Isover systems approved to meet and / or exceed these performance criteria



1 Pitched roof

The pitched roof must be designed to meet Building Regulations Approved Document L1A (Section 6 - Scotland) requirements for roofs. This section of the guide presents solutions to meet these regulations using Isover insulation. The table details the limiting U-value requirement for new build room-in-the-roof constructions in accordance with Approved Document L1A.

Limiting Fabric Parameters (W/m^2K)	
Roof	0.20

2 Dwarf walls

Isover recommend dwarf walls should match the U-values of the sloping ceiling.

3 Gable walls

Gable walls in semi or detached constructions have to be designed to meet Building Regulations Approved Document L (Section 6 - Scotland) requirements for external walls. Refer to the **External walls** section, from page **16**.

3 Separating walls

Where present, separating walls within a room-in-the-roof situation have to be designed to meet the current Approved Document E (Section 5 - Scotland) and approved Document L (Section 6 - Scotland) Building Regulation requirements. Refer to the **Separating walls** section, from page **48.**

Room-in-the-roof

Pitched Roof » Room-in-the-roof

4 Internal floor

Top Floor - The top floor has to be designed to meet the current Building Regulations Approved Document B / Section 5 (Scotland) requirements, and the Building Regulations Approved Document E / Section 5 (Scotland) requirements. The fire resistance requirement for the floor varies depending upon whether the room-in-the-roof is the third (30 minutes) or fourth (60 minutes) storey in a new-build home (Building Regulations Approved Document B1 table A2). Refer to the **Internal floors** section, from page **87**.

Mid Floor - The mid floor has to meet Building Regulations Approved Document B / Section 5 (Scotland) fire regulation requirements, and the current Approved Document E sound requirements. Mid floors above 5m need to have a fire resistance of 60 minutes (Building Regulations Approved Document B1 table A2). Refer to the **Internal floors** section, from page **87**.

5 Loft insulation

Installing loft insulation behind the dwarf wall limits the heat that can escape from the lower floors and out through the roof. This will have to be designed to meet Building Regulations Approved Document L (Section 6 - Scotland) requirements for roof constructions. Refer to the **Cold floors** section, from page **43**.

Internal walls

An internal wall must meet Building Regulations Approved Document E clause E2 sound regulation requirement of R_w 40dB. Section 5 (Scotland) stipulates a requirement of Rw 43dB.

- Between a bathroom / WC and a habitable room
- Between bedrooms
- Between bedrooms and any other room within the dwelling

Refer to **Internal walls** section, from page **79**. Internal walls which include a door are exempt from this requirement.

Improved airtightness

Isover's Vario Membrane System is unique in providing excellent levels of airtightness combined with unparalleled protection against moisture. Vario is a high quality 'intelligent' product that naturally adapts to changes in climate conditions. Vario not only improves living comfort for occupants, but its unique climate membrane also protects exposed pitched roofs and walls from damage caused by moisture. In addition, Vario is extremely tear-resistant and features practical guideline markings for easier installation. Refer to the Isover Vario Membrane System product overview, on pages **103** and **104** for more information.

Room-in-the-roof solutions

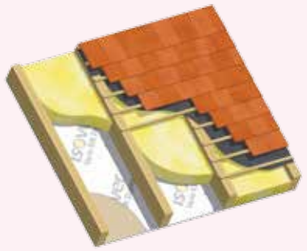
The Room-in-the-roof solutions detailed in this section of the guide are designed to meet or exceed 2010 Thermal Building Regulations down to zero carbon levels. The table below provides a snapshot the U-values that can be achieved with each solution.

Room-in-the-roof solutions		U-values (Wm^2K)
		0.25 0.24 0.23 0.22 0.21 0.20 0.19 0.18 0.17 0.16 0.15 0.14 0.13 0.12 0.11 0.10
17 	**Room-in-the-roof** Between rafters	0.19
18 	**Room-in-the-roof** Between rafters and thermal laminate	0.11
19 	**Room-in-the-roof** Smartroof® - Off-site panalised roofing system	0.14
20 	**Room-in-the-roof** X-Rafter - off-site panelised roofing system	0.12

17 Room-in-the-roof

Insulation between rafters

- Tiled or slated roof on tiling battens on breather membrane, softwood rafters at 600mm centres
- **200mm Isover Timber Frame Batt 35 insulation installed between 222mm rafters (see table)**
- Timber fraction 6.3%
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard fixed to underside of rafters



U-value W/m²K	Isover insulation	Thickness (mm)	Board Lining
0.19	Timber Frame Batt 35	2 x 100	12.5 Gyproc WallBoard

Isover Products

Isover Timber Frame Batt 35	Isover Vario Membrane System
	

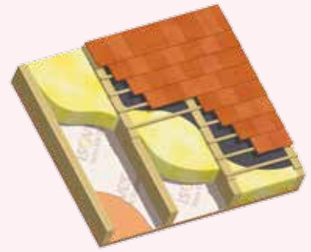
Room-in-the-roof

Pitched Roof » Room-in-the-roof

18 Room-in-the-roof

Insulation between rafters and thermal laminate

- Tiled or slated roof on tiling battens on breather membrane, softwood rafters at 600mm centres
- **200mm Isover Timber Frame Batt 35 insulation installed between 222mm rafters (see table)**
- Timber fraction 6.3%
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- Gyproc ThermaLine laminate as a ceiling lining fixed to the underside of rafters (see table)



U-value W/m²K	Isover insulation	Thickness (mm)	Board Lining
0.17	Timber Frame Batt 35	2 x 100	40mm Gyproc ThermaLine BASIC
0.16	Timber Frame Batt 35	2 x 100	40mm Gyproc ThermaLine PLUS
0.15	Timber Frame Batt 35	2 x 100	40mm Gyproc ThermaLine SUPER
0.14	Timber Frame Batt 35	2 x 100	50mm Gyproc ThermaLine SUPER
0.13	Timber Frame Batt 35	2 x 100	60mm Gyproc ThermaLine SUPER
0.12	Timber Frame Batt 35	2 x 100	70mm Gyproc ThermaLine SUPER
0.11	Timber Frame Batt 35	2 x 100	80mm Gyproc ThermaLine SUPER

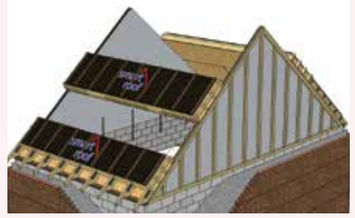
Isover Products

Isover Timber Frame Batt 35	Isover Vario Membrane System
	

19 Room-in-the-roof

smartroof® - off-site panelised roofing system

- Tiled or slated roof on tiling battens
- Counter battens
- smartroof® reflective breather membrane
- **smartroof® panel with Isover insulation (see table below)**
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 11mm OSB sheathing board
- 50mm service void (optional - see table below)
- 12.5mm Gyproc WallBoard



U-value W/m²K	Isover insulation (panel)	Isover insulation (service void)
0.20	200mm Spacesaver Plus	No service void
0.18	170mm Spacesaver Plus	50mm Timber Frame Batt 32
0.16	200mm Spacesaver Plus	50mm Timber Frame Batt 32
0.14	200mm Timber Frame Batt 32	50mm Timber Frame Batt 32

Isover Products

Isover Spacesaver Plus	Isover Timber Frame Batt
	

smartroof® is a complete panelised 'room-in-roof' system from wallplate level upwards. smartroof panels span gable-to-gable supported by pre-fabricated 'spandrel panels', therefore eliminating purlins and gable and party blockwork. smartroof's® design creates a 100% usable space and greater flexibility for roof light and dormer positioning. A typical pair of smartroofs can be constructed in just one day leaving them complete and ready for follow on trades.

Room-in-the-roof

Pitched Roof » Room-in-the-roof

20 Room-in-the-roof

MiTek X-Rafter - off-site panelised roofing system

- Tiled or slated roof on tiling battens
- Counter battens
- Membrane (see table below)
- **300mm X-Rafter panel with Isover insulation (see table below)**
- 9mm OSB sheathing board
- **Vapour control and airtightness membrane (Isover Vario Membrane System)**
- 12.5mm Gyproc WallBoard

U-value W/m²K	Isover insulation	Membrane
0.16	250mm Spacesaver Plus	Tyvek Enercor Roof Membrane
0.15	300mm Spacesaver	Standard breather membrane
0.13	300mm Timber Frame Batt 35	Standard breather membrane
0.12	300mm Timber Frame Batt 32	Standard breather membrane

Isover Products

Isover Spacesaver	Isover Spacesaver Plus	Isover Timber Frame Batt
		

The MiTek X-Rafter System

This unique application of the sucessful MiTek Posi-Strut combined with insulated panel technology produces the most versatile solution to the growing needs of the house building industry.

This exciting new roofing system produces a flexible room in the roof solution capable of providing the the thermal performance that will increasingly be required by the planned revisions to Part L of the Building Regulations.

Cold roof

Why insulate lofts?

As much as 25% of the heat lost in an un-insulated house is through the roof. Using Isover loft insulation is an effective way for people to save energy and money in their homes. Installing 270mm of Isover Spacesaver in an un-insulated loft will save 800kg of CO_2 every year, and reduce energy bills by around £150 per year for the homeowner* – which means installation will payback in just 2 years!

* Based on insulating a gas heated, semi-detached home with three bedrooms

Approved Document L 2010

With specific reference to Approved Document L1A for New Dwellings, compliance is based on the carbon performance of the whole dwelling, a measure of which is given through the use of the Standard Assessment Procedure (SAP calculation). Compliance is no longer demonstrated by the elemental U-value method, but U-value calculations are required as they form part of the SAP calculation. Although reference is made to 'Design Limit' U-values within Approved Document L1A, U-values better than the 'Design Limit' are likely to be required to meet the required Carbon index level.

Approved Document L 2010	New build	
	Limiting fabric parameter (W/m²K)	Isover recommended U-value (W/m²K)
Cold Roof	0.20	< 0.18

Section 6 - Scotland 2010

The standards and guidance given in Section 6 2010 are intended to reduce emissions of carbon dioxide by approximately 30% compared to the 2007 standards. The key changes over the 2007 version are:

- 30% improvement in CO_2 emissions for new buildings
- Expanded role for the use of low carbon equipment
- Improved backstops for fabric U-values and services efficiencies for new buildings

Section 6 includes a range of measures which can be used in setting the target emission rate for a notional dwelling. Included are guideline "notional" U-values, as follows:

Section 6 - Scotland 2010	New build	
	Area weighted max U-value (back-stop) (W/m²K)	Isover recommended U-value (W/m²K)
Cold Roof	0.18	< 0.18

For further information on compliance with thermal building regulations, please refer to page 5 and 6.

The Code for Sustainable Homes

Isover products can be specified to achieve reduced CO_2 target emission rates by means of insulation for improved U-values. Specialist products such as the Isover Vario Membrane System and expert design guidance can also help to achieve improved airtightness performance. This stamp highlights potential design solutions.

Cold roof solutions

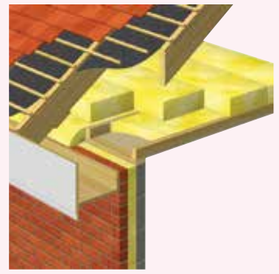
The Cold Roof solutions detailed in this section of the guide are designed to meet or exceed 2010 Thermal Building Regulations down to zero carbon levels. The table below provides a snapshot the U-values that can be achieved with each solution.

Cold roof solutions		U-values (Wm^2K)															
		0.25	0.24	0.23	0.22	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10
21 	**Cold roof** Insulation between and over joists (0.043 W/m^2K)																0.10
22 	**Cold roof** Insulation between and over joists (0.040 W/m^2K)																0.10

Cold roof

Insulation between and over Joists (0.043 W/m^2K)

- **100mm of Isover insulation between joists**
- **Second layer of Isover insulation cross laid over joists**
- Timber fraction 6.3%



U-value W/m^2K	Isover insulation	Thickness between joists (mm)	Thickness over joists (mm)	Combined thickness (mm)
0.21	Spacesaver or Spacesaver Ready-Cut (0.043)	100	100	200
0.17	Spacesaver or Spacesaver Ready-Cut (0.043)	100	150	250
0.15	Spacesaver or Spacesaver Ready-Cut (0.043)	100	170	270
0.14	Spacesaver or Spacesaver Ready-Cut (0.043)	100	200	300
0.12	Spacesaver or Spacesaver Ready-Cut (0.043)	100	250 (100+ 150)	350
0.10	Spacesaver or Spacesaver Ready-Cut (0.043)	100	320 (150+ 170)	420

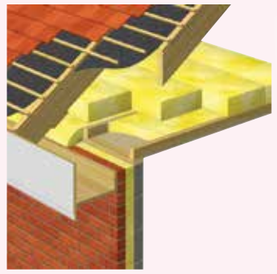
Isover Products

Isover Spacesaver	Isover Spacesaver Ready Cut
	

22 Cold roof

Insulation between and over Joists (0.040 W/m²K)

- **100mm of Isover insulation between joists**
- **Second layer of Isover insulation cross laid over joists**
- Timber fraction 6.3%



U-value W/m²K	Isover insulation	Thickness between joists (mm)	Thickness over joists (mm)	Combined thickness (mm)
0.19	Spacesaver Plus (0.40)	100	100	200
0.16	Spacesaver Plus (0.40)	100	150	250
0.13	Spacesaver Plus (0.40)	100	200	300
0.10	Spacesaver Plus (0.40)	100	300 (200+ 100)	400

Isover Products

Isover Spacesaver Plus

Countryside Properties, Lock 38, Stoke-on-Trent

Approved Document E 2003 – Clause E1

Separating wall constructions must be built to comply with Building Regulations Approved Document E clause E1 and are subject to Pre-Completion Testing unless a Robust Detail construction is used.

Clause E1 of Approved Document E stipulates the following:

Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that they provide reasonable resistance to sound from other parts of the same building and from adjoining buildings.

Approved Document E 2003 – Performance standards

The following table is adapted from Approved Document E and highlights the minimum performance standards required for separating walls. Please note that the requirement is for airborne sound insulation only.

Dwelling-houses and flats - performance standards for separating walls that have a separating function		
	Airborne sound insulation D_{ntw} + Ctr dB (Minimum values)	Inpact sound insulation $L'_{nt,w}$ dB (Minimum values)
New build separating walls	45	-

Rooms for residential purposes - performance standards for separating walls that have a separating function		
	Airborne sound insulation D_{ntw} + Ctr dB (Minimum values)	Inpact sound insulation $L'_{nt,w}$ dB (Minimum values)
New build separating walls	43	-

How to comply

Robust Details - All Robust Details have been approved as capable of meeting or exceeding the E1 performance criteria, providing they are built correctly. Following these specifications means the construction can be exempt from undertaking Pre Completion Testing. The Robust Details scheme applies to new-build houses and apartments only. Plots must be registered with Robust Details Limited prior to construction.

NB – It is important to check the compatibility of the Robust Detail separating walls with the Robust Detail separating floors. Please refer to **www.robustdetails.com** for more information.

Manufacturers' Proprietary Systems - These constructions are British Gypsum Approved Systems, which, provided they are built correctly, have the potential to achieve E1 performance criteria required for new-build houses and apartments separating floor constructions and new-build rooms for residential purposes. Pre-Completion Testing must be executed on a 10% sample (by type) to demonstrate compliance.

The Code for Sustainable Homes

Within category 7 of the Code for Sustainable Homes, Health and Wellbeing, section Hea 2 states that up to four credits are available for achieving higher standards of sound insulation than those given in Building Regulations Approved Document E and demonstrating it by using either Pre-Completion Testing or Robust Details. This stamp highlights construction details which have the potential to achieve the number of credits stated, provided they are built correctly.

Section 5 - Scotland

Section 5 (Scotland) stipulates a minimum airbourne sound performance for separating walls of 56 D_{ntw} dB. Please be aware that Scottish Regulations do not recognise a correction factor for low frequency sound.

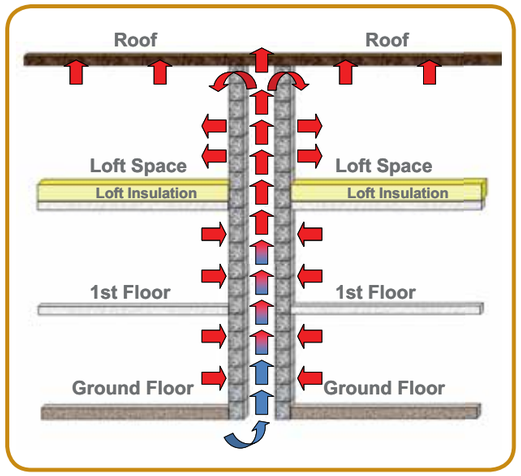
	Airbourne sound insulation D_{ntw} dB (Minimum values)
Separating walls	56

Approved Document L 2010 - Requirements

Contrary to previous assumptions, Approved Document L will no longer treat separating cavity walls as a zero heat loss element, due to the thermal bypass effect

The heat loss can be reduced by measures that restrict air movement through the cavity, either by means of fully-filling the cavity and/or by providing effective sealing around the perimeter.

Table 3 - U-values for party walls	
Party wall construction	**U-value (W/m²K)**
Solid	0.0
Unfilled cavity with no effective edge sealing	0.5
Unfilled cavity with effective edge sealing around all exposed edges and in line with insulation layers in abutting elements	0.2
A fully filled cavity with effective sealing at all exposed edges and in line with insulation layers in abutting elements	0.0



What is the thermal bypass effect'?

Where outside air is able to flow into the separating wall cavity a cold zone is created which results in heat flux through the wall sections on either side. The extent of air flow and heat flux will depend on external conditions such as wind and temperature and also on the setting up of a ventilation stack effect caused by warmed air rising in the cavity to be replaced by cooler air drawn in from outside. The air movements involved can be significant and, if no steps are taken to restrict flows, the resulting heat losses can be large.

Isover RD Party Wall Roll

Isover RD Party Wall Roll is a full-fill glass mineral roll for use in 75mm, 100mm, 125mm and 150mm separating wall cavities. The product meets the full-fill requirement to deliver a zero U-value for separating 'party' walls as defined in Building Regulations (Approved Document L1A, Table 3). See page 56 for Separating Wall Solutions 29 and 30 and also page 97 for further product information

Zero U-value solutions

This stamp highlights construction details which have potential to achieve a zero U-value, provided they are built correctly.

Scotland

Scottish regulations also recognise that separating walls should no longer be treated as zero heat loss. Section 6 stipulates the following:

To limit heat loss, a separating wall cavity should have effective perimeter sealing around all exposed edges and in line with insulation layers in abutting elements which separate the dwelling from another building or from an unheated space. Further reduction in heat loss can be achieved where the cavity separating wall is also fully filled with a material that limits air movement.

Separating wall solutions

The separating wall solutions detailed in this section of the guide are Robust Detail or British Gypsum Approved Systems. These constructions have been tested and proved to meet or exceed the sound insulation values given in the table on page 49. Please note that for British Gypsum Approved Systems Pre-Completion Testing must take place to demonstrate compliance.

Separating wall solutions (Robust Details)	Airborne sound dB (D_{ntw} + Ctr) - site test result
	45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
23 **E-WM-8: Masonry** Lightweight aggregate blockwork (35mm Isover RD35 and Gyproc plasterboard)	48
24 **E-WM-14: Masonry** Lightweight aggregate blockwork with 100mm cavity (35mm Isover RD35 and Gyproc plasterboard)	50
25 **E-WM-15: Masonry** aircrete blockwork (35mm Isover RD35 and Gyproc plasterboard)	48
26 **E-WM-17: Masonry** Lightweight aggregate blockwork (Isover RD Party Wall Roll and Gyproc plasterboard)	50
27 **E-WM-20: Masonry** Lightweight aggregate blockwork (Isover RD Party Wall Roll and Gyproc plasterboard)	50
28 **E-WM-24: Masonry** Masonry aircrete aggregate blockwork (Isover RD Party Wall Roll and Gyproc plasterboard)	50
29 **E-WT-1: Twin Timber Frame** without sheathing board	50
30 **E-WT-2: Twin Timber Frame** with sheathing board	48
31 **E-WS-1: Twin Steel Frame**	47
32 **E-WS-2: Steel Frame** GypWall QUIET IWL (Non-loadbearing)	47
33 **E-WS-3: Twin Steel Frame** Modular build steel frame	50
34 **E-WS-4: Twin Steel Frame**	50
35 **Masonry Walls** GypLyner UNIVERSAL lining	59

Separating walls

Separating wall solutions (British Gypsum Approved)	Airbourne sound transmission (R_w + Ctr dB) - lab test result
	50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65
36 **GypWall CLASSIC** With Gypframe 146 AS 50 AcouStuds	56
37 **GypWall CLASSIC** With Gypframe 146 AS 50 AcouStuds	57
38 **GypWall QUIET**	53
39 **GypWall QUIET**	57
40 **GypWall QUIET SF**	54
41 **GypWall QUIET SF** with additional service zone created with GypLyner UNIVERSAL	54
42 **GypWall QUIET SF**	53
43 **GypWall QUIET IWL**	58
44 **GypWall QUIET IWL**	62

Isover Products

Isover separating wall solutions incorporate the following Isover products

Isover RD Party Wall Roll	Isover RD35	Isover Acoustic Partition Roll
		
Isover Acoustic Slab	**Isover Timber Frame Batt**	**Isover Timber Party Wall Roll**
		

23 E-WM-8: Masonry

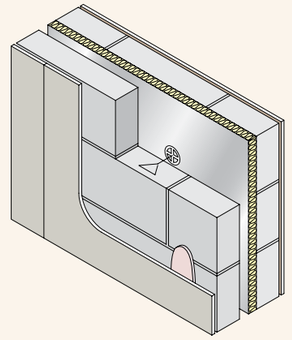
Lightweight aggregate blockwork
(35mm Isover RD35 and Gyproc plasterboard)

Code for Sustainable Homes: 1 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide C

- Overall construction nominal width 320mm
- Lightweight aggregate cavity block wall, minimum 100mm blocks (density 1350 - 1600kg/m³)
- Minimum 75mm cavity between leaves
- **Isover RD35 in the cavity**
- Nominal 8mm (minimum 6mm) Gyproc Soundcoat Plus
- Drylined with 12.5mm Gyproc WallBoard TEN, 15mm Gyproc WallBoard or 12.5mm Gyproc SoundBloc dot and dabbed (**DriLyner BASIC** system)



24 E-WM-14: Masonry

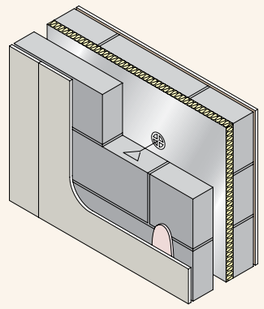
Lightweight aggregate blockwork with 100mm cavity
(35mm Isover RD35 and Gyproc plasterboard)

Code for Sustainable Homes: 3 Credits Hea 2

Robust Detail Approved Construction

RD | Green Guide C

- Overall construction nominal width 345mm
- Lightweight aggregate cavity block wall, minimum 100mm blocks (density 1350 - 1600kg/m³)
- Minimum 100mm cavity between leaves
- **Isover RD35 in the cavity**
- Drylined with 12.5mm Gyproc WallBoard TEN, 15mm Gyproc WallBoard or 12.5mm Gyproc SoundBloc dot and dabbed (**DriLyner BASIC** system)



25 E-WM-15: Masonry

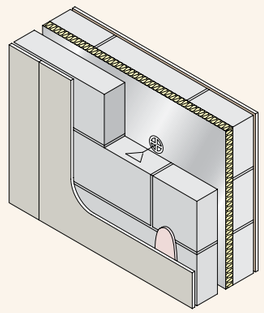
Aircrete blockwork
(35mm Isover RD35 and Gyproc plasterboard)

Code for Sustainable Homes: 1 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide B

- Overall construction nominal width 320mm
- Aircrete cavity block wall, minimum 100mm blocks (density 600 – 800kg/m³)
- Minimum 75mm cavity between leaves
- **Isover RD35 in the cavity**
- Drylined with 12.5mm Gyproc WallBoard TEN, 15mm Gyproc WallBoard or 12.5mm Gyproc SoundBloc dot and dabbed (**DriLyner BASIC** system)



26 E-WM-17: Masonry

Lightweight aggregate blockwork
(Isover RD Party Wall Roll and Gyproc plasterboard)

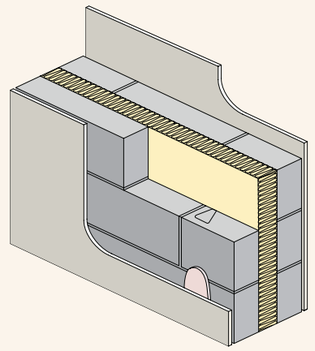
Code for Sustainable Homes: 3 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide B

- Overall construction nominal width 320mm
- Lightweight aggregate cavity block wall, minimum 100mm blocks (density 1350 – 1600kg/m³) or Plasmor Aglite Ultima 1050 kg/m³ cavity block wall
- Minimum 75mm cavity between leaves
- **Minimum 75mm Isover RD Party Wall Roll in the cavity**
- Drylined with dot and dabbed 12.5mm Gyproc WallBoard TEN, 15mm Gyproc WallBoard or 12.5mm Gyproc SoundBloc

Can be used as part of a solution to achieve ZERO U-VALUES



27 E-WM-20: Masonry

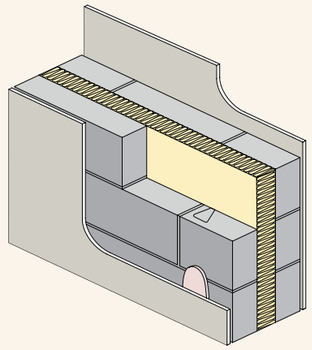
Lightweight aggregate blockwork
(Isover RD Party Wall Roll and Gyproc plasterboard)

Code for Sustainable Homes 3 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide B | Scottish Building Standards

- Overall construction nominal width 345mm
- Lightweight aggregate cavity block wall, minimum 100mm blocks (density 1350 – 1600kg/m³)
- Minimum 100mm cavity between leaves
- **Minimum 100mm Isover RD Party Wall Roll in the cavity**
- Drylined with dot and dabbed 12.5mm Gyproc WallBoard TEN, 15mm Gyproc WallBoard or 12.5mm Gyproc SoundBloc



Can be used as part of a solution to achieve ZERO U-VALUES

28 E-WM-24: Masonry

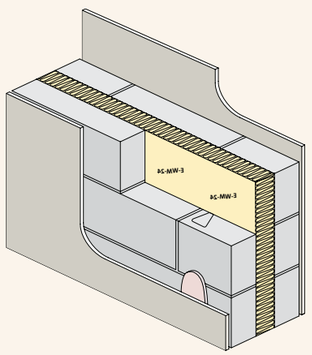
Masonry aircrete blockwork
(Isover RD Party Wall Roll and Gyproc plasterboard)

Code for Sustainable Homes 3 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide B

- Aircrete cavity block wall, minimum 100mm blocks (density 600 – 800kg/m³)
- Minimum 100mm cavity between leaves
- **Minimum 100mm Isover RD Party Wall Roll in the cavity**
- Drylined with 12.5mm Gyproc WallBoard dot and dabbed (DriLyner BASIC system)



Can be used as part of a solution to achieve ZERO U-VALUES

29 Masonry walls

GypLyner UNIVERSAL lining

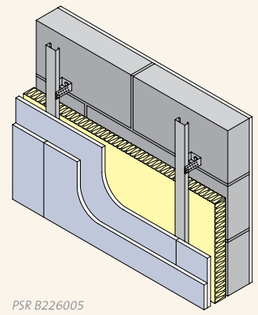
Code for Sustainable Homes 3 Credit Hea 2

Pre-Completion Testing - British Gypsum Approved System

(45dB D_{nTw} + Ctr)

59dB R_w + Ctr | Rw 66dB

- Core masonry element mass per unit area minimum 200Kg/m², e.g. 100mm high density aggregate blocks
- GypLyner UNIVERSAL wall lining to one side of wall with minimum 85mm cavity (framing at 600mm centres)
- **Lined with double layer of 12.5mm Gyproc SoundBloc, 50mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Other side lined with either 12.5mm Gyproc WallBoard on the DriLyner BASIC system or 13mm Thistle plaster finish
- Nominal width 232mm (drylined) or 223mm (plastered)



PSR B226005

30 E-WT-1: Timber frame

Without sheathing board

Code for Sustainable Homes 3 Credit Hea 2

Robust Detail Approved Construction

RD | Min - 60mins BS | Green Guide A+ | Scottish Building Standards

- Overall construction nominal width 300mm
- Cavity width minimum 240mm, gap of minimum 50mm between frames
- **90mm Isover Timber Frame Batt 40 positioned between the studs in each timber frame**
- Board options:
  - Inner Layer of 19mm Gyproc Plank, outer layer of 12.5mm Gyproc WallBoard each side

Or

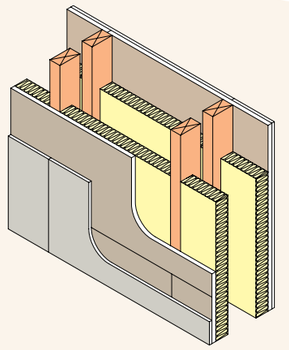
- Double layer of 15mm Gyproc SoundBloc each side,

Or

- Double layer of 15mm Gyproc FireLine each side,

Or

- Inner layer of 19mm Gyproc Plank, outer layer of 12.5mm Gyproc FireLine each side



31 E-WT-2: Timber frame

With sheathing board

Code for Sustainable Homes 1 Credit Hea 2

Robust Detail Approved Construction

RD | Min - 60mins BS | Green Guide A+ or A-[1]

- Overall construction nominal width 300mm
- Cavity width minimum 240mm, gap of minimum 50mm between frames
- Minimum 50mm gap between sheathing panels
- **90mm Isover Frame Batt 40 positioned between the studs in each timber frame**
- Board options:

- Inner layer of 19mm Gyproc Plank, outer layer of 12.5mm Gyproc WallBoard each side

Or

- Double layer of 15mm Gyproc SoundBloc each side,

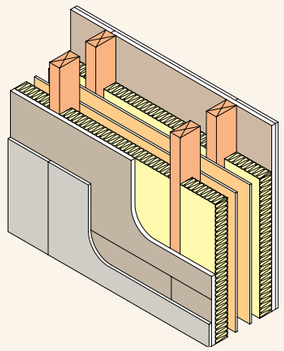
Or

- Double layer of 15mm Gyproc FireLine each side,

Or

- Inner layer of 19mm Gyproc Plank, outer layer of 12.5mm Gyproc FireLine each side

NB: Fully-fill cavity with Isover Timber Party Wall Roll to help achieve a zero U-value wall



[1]Depending on sheathing board specified. Please refer to www.thegreenguide.org.uk for further information

32 E-WS-1: Steel frame

Robust Detail Approved Construction

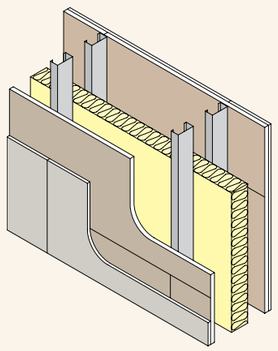
RD | Min - 60mins BS[1] | Green Guide A+

- For use in lightweight steel frame housing or flats / apartments
- Minimum cavity width 200mm
- Loadbearing studs
- Overall construction nominal width 263mm
- **50mm Isover Frame Batt 32 positioned between the frames**
- **25mm Isover Acoustic Partition Roll (APR 1200) between the studs in each frame**
- Board options:

- Inner layer of 19mm Gyproc Plank, outer layer of 12.5mm Gyproc WallBoard each side

Or

- Double layer of 15mm Gyproc SoundBloc each side



[1]Subject to manufacturers' substantiation based on their loadbearing stud

33 E-WS-2: Steel frame

GypWall QUIET IWL (non-loadbearing)

Robust Detail Approved Construction

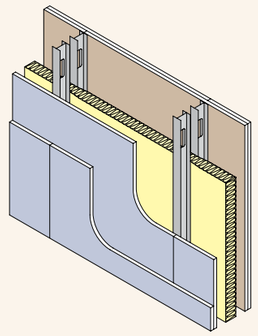
RD | Min - 90mins BS | Green Guide D

- Overall construction nominal width 250mm
- Minimum cavity width 190mm
- Gypframe 'I' Studs minimum 60mm depth (no bracing between leaves)
- **100mm Isover Acoustic Partition Roll (APR 1200) positioned between the frames**
- Board options:

- Double layer of 15mm Gyproc SoundBloc each side (for 90 minutes BS and EN fire resistance)

Or

- Double layer of 15mm Gyproc SoundBloc each side overboard with one layer of 12.5mm Gyproc FireLine each side (for 120 minutes BS and EN fire resistance)



34 E-WS-3: Steel frame

Modular build steel frame

Code for Sustainable Homes 3 Credit Hea 2

Robust Detail Approved Construction

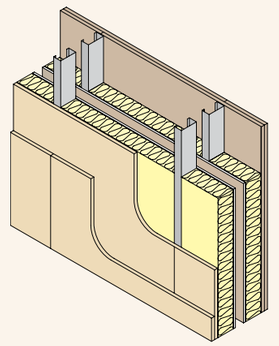
RD | Min - 60mins BS[1] | Green Guide B or C[2]

- Only for use in lightweight steel frame housing or flats / apartments
- Overall construction nominal width 264mm
- Minimum 72mm or 100mm loadbearing studs
- Minimum 40mm gap between sheathing panels
- **Minimum 75mm minimal Isover TS48 Slab (45Kg/m³) positioned between the studs**
- Board options:

- 72mm studs - double layer of 15mm Rigidur H

Or

- 100mm studs - double layer of 12.5mm Rigidur H



[1]Depending on sheathing board specified. Please refer to www.thegreenguide.org.uk for further information

35 E-WS-4: Steel frame

Code for Sustainable Homes: 3 Credits, Hea 2

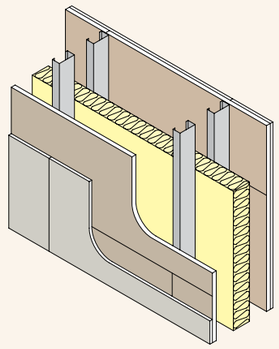
Robust Detail Approved Construction

RD | Min - 60mins BS[1] | Green Guide A

- Only for use in lightweight steel frame housing or flats / apartments
- Minimum cavity width 250mm
- Overall construction nominal width 313mm
- Minimum 75mm loadbearing 'C' studs
- **90mm Isover Timber Frame Batt 32 positioned between the frames**
- Board options:
  - Inner layer of 19mm Gyproc Plank, outer layer of 12.5mm Gyproc WallBoard each side

Or

- Double layer of 15mm Gyproc SoundBloc each side



[1]*Subject to manufacturers' substantiation based on their loadbearing stud*

36 GypWall CLASSIC

With Gypframe 146 AS 50 AcouStuds

Pre-Completion Testing - British Gypsum Approved System

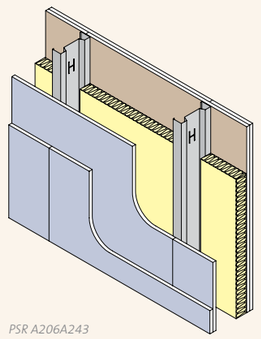
(45dB D_{nTw} + Ctr)

R_w + Crt 56dB | 90mins BS

- Overall construction nominal width 208mm
- Gypframe 146 AS 50 AcouStud at 600mm centres
- **50mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a double layer of 15mm Gyproc SoundBloc each side

Alternatively

- Lined with a double layer of 15mm Gyproc DuraLine for 120 minutes fire resistance



PSR A206A243

37 GypWall CLASSIC

With Gypframe 146 AS 50 AcouStuds

Code for Sustainable Homes: 1 Credit, Hea 2

Pre-Completion Testing - British Gypsum Approved System

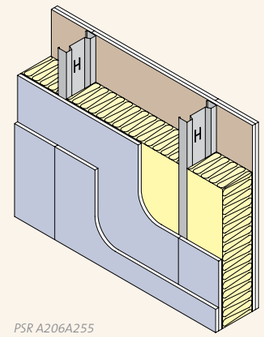
(45dB D_{nTw} + Ctr)

R_w + Crt 57dB | 90mins BS

- Overall construction nominal width 208mm
- Gypframe 146 AS 50 AcouStuds at 600mm centres
- **150mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a double layer of 15mm Gyproc SoundBloc each side

Alternatively

- Lined with a double l ayer of 15mm Gyproc DuraLine for 120 minutes fire resistance



PSR A206A255

38 GypWall QUIET

Pre-Completion Testing - British Gypsum Approved System

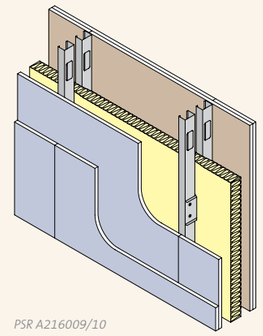
(45dB D_{nTw} + Ctr)

R_w + Crt 53dB | 90mins BS

- Overall construction nominal width 200mm
- Two frames of 48mm Gypframe 'C' Stud at 600mm centres, cross braced at 1200mm centres
- Cavity width of 140mm
- **50mm Isover Acoustic Partition Roll (APR 1200) positioned between the frames**
- Lined with a double layer of 15mm Gyproc SoundBloc each side

Alternatively

- Lined with a double layer of 15mm Gyproc FireLine for 120 minutes fire resistance



PSR A216009/10

39 GypWall QUIET

Code for Sustainable Homes 1 Credit Hea 2

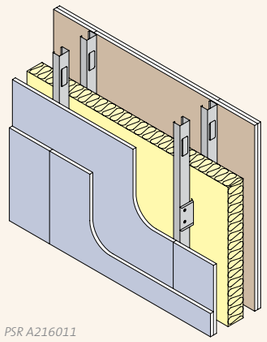
Pre-Completion Testing - British Gypsum Approved System
(45dB D_{nTw} + Ctr)

R_w + Crt 57dB | 90mins BS | R_w 63dB

- Overall construction nominal width 250mm
- Two frames of 48mm Gypframe 'C' Stud at 600mm centres, cross braced at 1200mm centres
- Cavity width of 190mm
- **75mm Isover Acoustic Slab positioned between the frames**
- Lined with a double layer of 15mm Gyproc SoundBloc each side

Alternatively

- Lined with a double layer of 15mm Gyproc DuraLine for 120 minutes fire resistance



PSR A216011

40 GypWall QUIET SF

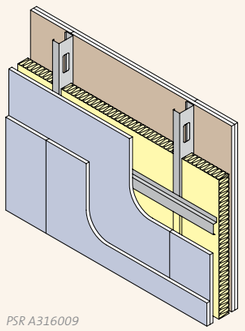
Pre-Completion Testing - British Gypsum Approved System
(45dB D_{nTw} + Ctr)

R_w + Crt 54dB | 90mins BS

- Overall construction nominal width 148mm
- 70mm Gypframe 'C' Studs at 600mm centres with Gypframe RB1 Resilient Bar at 600mm centres fixed to one side of the studs
- **50mm Isover Acoustic Partition Roll (APR 1200) positioned in the cavity**
- Lined with a double layer of 15mm Gyproc SoundBloc each side

Alternatively

- Lined with a double layer of 15mm Gyproc DuraLine for 120 minutes fire resistance



PSR A316009

41 GypWall QUIET SF

With additional service zone created with GypLyner UNIVERSAL

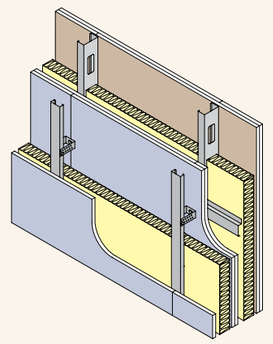
Pre-Completion Testing - British Gypsum Approved System
(45dB D_{nTw} + Ctr)

R_w + Crt 54dB | 90mins BS

- Base separating wall, **GypWall QUIET SF**

A wall lining with:

- Minimum 70mm cavity
- **Minimum 50mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Single layer of 15mm Gyproc SoundBloc installed on one or both sides of the base **GypWall QUIET SF** construction (for base construction refer to **GypWall QUIET SF**)
- This solution can be used without lowering the acoustic performance of **GypWall QUIET SF**

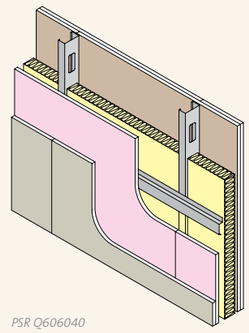


42 GypWall QUIET SF

Pre-Completion Testing - British Gypsum Approved System
(45dB D_{nTw} + Ctr)

R_w + Crt 53dB | 120mins BS

- Overall construction nominal width 148mm
- 70mm Gypframe 'C' Studs at 600mm centres with Gypframe RB1 Resilient Bar at 600mm centres fixed to one side of the studs
- **50mm Isover Acoustic Partition Roll (APR 1200) positioned in the cavity**
- Lined with a inner layer of 15mm Gyproc FireLine and an outer layer of 15mm Gyproc DuraLine



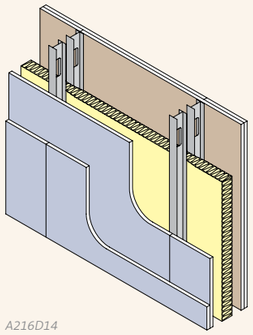
PSR Q606040

43 GypWall QUIET IWL

Pre-Completion Testing - British Gypsum Approved System (45 dB D_{nTw} + Ctr)

58dB R_w + Ctr | 90mins BS | R_w 66dB

- Overall construction nominal width 200mm
- Two frames of Gypframe 48 I 50 'I' Studs at 600mm centres
- Cavity width of 140mm wide
- **50mm Isover Acoustic Partition Roll (APR 1200) positioned in the cavity**
- Lined with a double layer of 15mm Gyproc SoundBloc each side



A216D14

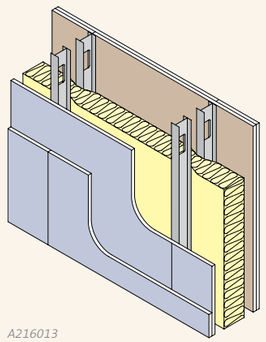
44 GypWall QUIET IWL

Code for Sustainable Homes 1 Credit Hea 2

Pre-Completion Testing - British Gypsum Approved System (45dB D_{nTw} + Ctr)

62dB R_w + Ctr | 90mins BS | R_w 70dB

- Overall construction nominal width 250mm
- Two frameworks of Gypframe 60 I 50 'I' Stud
- Cavity width of 190mm wide
- **100mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a double layer of 15mm Gyproc SoundBloc each side



A216013

Berkeley Homes, Royal Arsenal, Wodwich

Separating floors

Approved Document E 2003 – Section E2

Separating floor constructions must be built to comply with Building Regulations Approved Document E clause E1 and are subject to Pre-Completion Testing unless a Robust Detail construction is used.

Clause E1 of Approved Document E stipulates the following:

Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that they provide reasonable resistance to sound from other parts of the same building and from adjoining buildings.

Approved Document E 2003 – Performance standards

The following table is adapted from Approved Document E and highlights the minimum performance standards required for separating floors. Please note that the requirement is for both airborne and impact sound insulation.

Dwelling-houses, flats and rooms for residential purposes - performance standards for separating floors that have a separating function		
	Airborne sound insulation D_{ntw} + Ctr dB (Minimum values)	Inpact sound insulation $L'_{nt,w}$ dB (Maximum values)
New build separating floors	45	62

How to Comply

Robust Details - All Robust Details have been approved as capable of meeting or exceeding the E1 performance criteria, providing they are built correctly. Following these specifications means the construction can be exempt from undertaking Pre Completion Testing. The Robust Details scheme applies to new-build houses and apartments only. Plots must be registered with Robust Details Limited prior to construction.

NB – It is important to check the compatibility of the Robust Detail separating floors with the Robust Detail separating walls. Please refer to **www.robustdetails.com** for more information.

Manufacturers' Proprietary Systems - These constructions are British Gypsum Approved Systems, which, provided they are built correctly, have the potential to achieve E1 performance criteria required for new-build houses and apartment separating floor constructions and new build rooms for residential purposes. Pre-Completion Testing must be executed on a 10% sample (by type) to demonstrate compliance.

The Code for Sustainable Homes

Within category 7 of the Code for Sustainable Homes, Health and Wellbeing, section Hea 2 states that up to four credits are available for achieving higher standards of sound insulation than those given in Building Regulations Approved Document E and demonstrating it by using either Pre-Completion Testing or Robust Details. This stamp highlights construction details which have the potential to achieve the number of credits stated, provided they are built correctly.

Section 5 - Scotland

Section 5 (Scotland) stipulates a minimum airborne sound performance for separating floors of 56 D_{ntw} dB and impact sound performance of 56 $L'_{nt,w}$ dB. Please be aware that Scottish Regulations do not recognise a correction factor for low frequency sound in airbourne performance.

	Airborne sound insulation D_{ntw} - dB (Minimum values)	Impact sound insulation $L'_{nt,w}$ dB (Maximum values)
Separating Floors	56	56

Separating floor solutions

The separating floor solutions detailed in this section of the guide are Robust Detail or British Gypsum Approved Systems. These constructions have been tested and proved to satisfy the sound insulation values given in the table on the previous page. Please note that for British Gypsum Approved Systems and Guidance Constructions Pre-Completion Testing must take place to demonstrate compliance.

Separating floor solutions (Robust Detail)		Airborne Sound Transmission (D_{ntw} + Ctr dB) - site result: 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
		Impact Sound Transmission ($L'_{n\,T,w}$ dB) - site result: 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43
45	**E-FC-6** Beam and block floor with pre-cast or in-situ edge beams. Screed laid on Regupol E48 resilient layer system	47 / 60
46	**E-FC-7** Beam and block floor with pre-cast or in-situ edge beamand floating floor system	47 / 60
47	**E-FC-8** E-FC-8 Pre-cast concrete planks with screed laid on resilient layers and bonded resillient floor cover	48 / 59
48	**E-FS-2** UltraBEAM metal joists with floating floor	48 / 59
49	**E-FT-1** Engineered timber 'I' joist with floating floor	48 / 59
50	**E-FT-2** Solid timber joist with floating floor	48 / 59
51	**E-FT-3** E-FT-3 Mitek Posi-Joist or Prestoplan PresWeb metal web joists with floating floor	47 / 60
52	**E-FT-4** Finn joists with GyvIon SoundBar screed	48 / 59
53	Engineered timber 'I' joist with **GypFloor** SB	48 / 59

Separating floor solutions (British Gypsum Systems and Guidance Constructions)		Airborne Sound Transmission (R_w + Ctr dB) - lab test result 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 Impact Sound Transmission ($L'_{n,w}$ dB) - lab test result 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43
54	Pre-cast concrete planks with GypFloor SB and CasoLine MF Ceiling	61 43
55	Pre-cast concrete planks with GypFloor SB and GypLyner UNIVERSAL Ceiling	56 48
56	Timber joist with GypFloor SB and Gypframe RB1 Resilient Bar Ceiling	56 48
57	Timber joist with GypFloor SB and CasoLine MF Ceiling	55 50
58	Timber joist with CasoLine MF Ceiling and platform floor	54 50
59	In-situ concrete slab with ceiling and soft covering (floor type 1.1C)	Guidance construction
60	Pre-cast concrete planks with ceiling and soft covering (floor type 1.2B)	Guidance construction
61	In-situ concrete slab with ceiling and floating floor (floor type 2.1C)	Guidance construction
62	Timber joist with platform floor and independent ceiling (floor type 3.1A)	Guidance construction

Isover Products

Isover separating floor solutions incorporate the following Isover products

Isover Acoustic Partition Roll	Isover RD Acoustic Floor Slab	Isover Sound Deadening Floor Slab
		

45

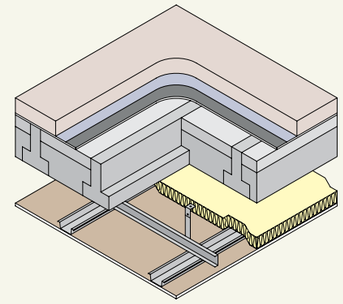
E-FC-6

Beam and block floor with pre-cast or in-situ edge beams. Screed laid on Regupol E48 resilient layer system

Robust Detail Approved Construction

RD · Green Guide C or D[1] · Scotland

- Minimum 65mm sand / cement screed
- 8mm Regupol E48
- 0.2mm (minimum) waterproof membrane
- Beam and block, minimum 100mm thick dense aggregate infill blocks, minimum 50mm concrete topping, minimum 300kg/m² combined mass per unit area
- **CasoLine MF or GypLyner UNIVERSAL ceiling providing minimum 300mm between top of beam and ceiling board, 50mm Isover Acoustic Partition Roll (APR 1200) in the ceiling cavity, lined with a single layer of 12.5mm Gyproc WallBoard TEN**



[1]Depending on floor screed specified. Please refer to www.thegreenguide.org.uk for further information.

46

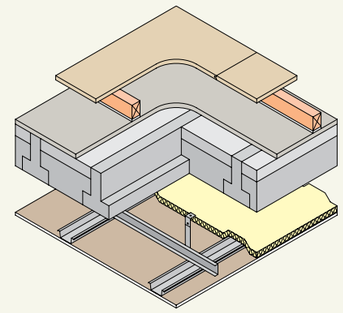
E-FC-7

Beam and block floor with pre-cast or in-situ edge beam and floating floor treatment

Robust Detail Approved Construction

RD · Green Guide A or B[1] · Scotland

- A Robust Detail performing floating floor system which must achieve a minimum lab performance of 17dB impact, e.g. GypFloor SB - see pages 54 and 55 for options
- Beam and block, minimum 100mm thick dense aggregate infill blocks, minimum 50mm concrete topping, minimum 300kg/m² combined mass per unit area
- **CasoLine MF or GypLyner UNIVERSAL ceiling providing minimum 300mm between top of beam and ceiling board, 25mm Isover Acoustic Partition Roll (APR 1200) in the ceiling cavity, lined with a single layer of 12.5mm Gyproc WallBoard TEN**



[1]Depending on floor treatment specified. Please refer to www.thegreenguide.org.uk for further information.

47 E-FC-8

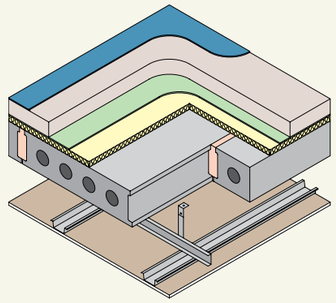
E-FC-8 Pre-cast concrete planks with screed laid on resilient layers and bonded resilient floor cover

Code for Sustainable Homes 1 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide C or D[1]

- Minimum 4.5mm bonded resilient floor covering
- Minimum 65mm sand / cement screed or minimum 40mm proprietary screed (nominal 80 kg/m² mass per unit area)
- 5mm foamed polyethylene layer (30 - 36 kg/m²)
- **Isover RD Acoustic Floor Slab (minimum 140 kg/m³ mass per unit area)**
- Minimum 150mm pre-cast concrete floor planks with minimum surface mass of 300kg/m²
- CasoLine MF or GypLyner UNIVERSAL ceiling providing minimum 150mm ceiling void, lined with a single layer of 12.5mm Gyproc SoundBloc or 12.5mm Gyproc WallBoard TEN (to be specified for 150mm minimum depth concrete planks) **or**
- CasoLine MF or GypLyner UNIVERSAL ceiling providing minimum 100mm ceiling void, lined with a single layer of 12.5mm Gyproc SoundBloc or 12.5mm Gyproc WallBoard TEN (to be specified for 200mm minimum depth concrete planks)



[1]Depending on floor treatment specified. Please refer to www.thegreenguide.org.uk for further information.

48 E-FS-2

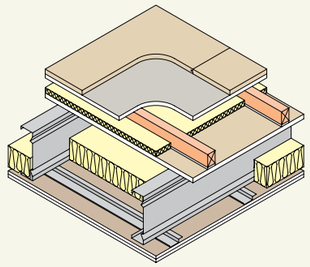
UltraBEAM metal joist with floating floor

Code for Sustainable Homes 1 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide A+ or A[1]

- A Robust Detail performing floating floor treatment which must achieve a minimum lab performance of 17dB impact
- Minimum sub-deck of 22mm wood based board (minimum density 600kg/m³)
- **25mm Isover Acoustic Partition Roll (APR) in make up FFT1 between acoustic floor battens**
- Minimum 225mm UltraBEAM metal joists
- **100mm Isover Acoustic Partition Roll (APR) in the joist cavity**
- Gypframe RB1 Resilient Bar ceiling at 450mm centres, lined with an inner layer of 19mm Gyproc Plank and an outer layer of 12.5mm Gyproc WallBoard TEN or 12.5mm Gyproc SoundBloc or double layers of 15mm Gyproc SoundBloc can be used



[1]Depending on floor treatment specified. Please refer to www.thegreenguide.org.uk for further information.

Separating floors

Floors » Separating

49 E-FT-1

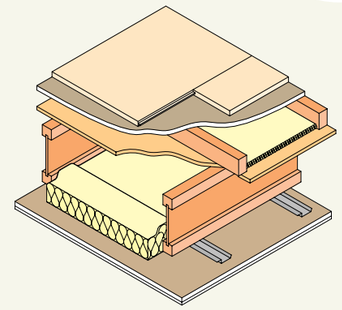
Engineered timber 'I' joist with floating floor

Code for Sustainable Homes 1 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide A+

- A sub-deck of 15mm OSB and an FFT1 Robust Detail approved floating floor system
- **25mm Isover Acoustic Partition Roll (APR 1200) in make up FFT1 between acoustic floor battens**
- Minimum 240mm depth engineered timber 'I' joist
- **100mm Isover Acoustic Partition Roll (APR 1200) in the joist cavity**
- Gypframe RB1 Resilient Bar ceiling at 400mm centres, lined with an inner layer of 19mm Gyproc Plank and an outer layer of 12.5mm Gyproc WallBoard TEN or 12.5mm Gyproc SoundBloc or double layer of 15mm Gyproc SoundBloc can be used



50 E-FT-2

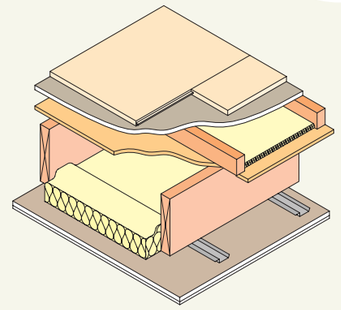
Solid timber joist with floating floor

Code for Sustainable Homes 1 Credit Hea 2

Robust Detail Approved Construction

RD | Green Guide A+

- A sub-deck of 15mm OSB and an FFT1 Robust Detail approved floating floor system
- **65mm Isover Acoustic Partition Roll (APR 1200) in make up FFT1 between acoustic floor battens**
- Solid timber joists (minimum 220mm) at maximum 400mm centres
- **100mm Isover Acoustic Partition Roll (APR 1200) in the joist cavity**
- Gypframe RB1 Resilient Bar ceiling at 400mm centres, lined with an inner layer of 19mm Gyproc Plank and an outer layer of 12.5mm Gyproc WallBoard or double layer of 15mm Gyproc SoundBloc can be used



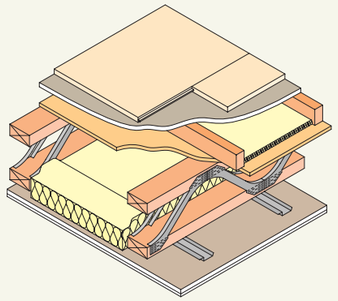
51 E-FT-3

E-FT-3 Mitek Posi-Joist or Prestoplan PresWeb metal web joists with floating floor

Robust Detail Approved Construction

RD | Green Guide A+

- A sub-deck of 18mm OSB and an FFT1 Robust Detail approved floating floor system (see page 58)
- **25mm Isover Acoustic Partition Roll (APR 1200) in make up FFT1 between acoustic floor battens**
- Minimum 253mm Posi-Joist or PresWeb metal web joists
- **100mm Isover Acoustic Partition Roll (APR 1200) in the joist cavity**
- Gypframe RB1 Resilient Bar ceiling at 400mm centres, lined with double layer of 15mm Gyproc SoundBloc



52 E-FT-4

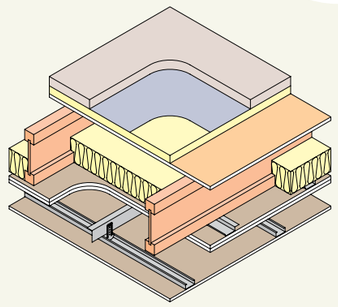
Finn joists with Gyvlon SoundBar screed

Code for Sustainable Homes: 1 Credit, Hea 2

Robust Detail Approved Construction

RD | Green Guide C or D[1]

- 40mm Gyvlon SoundBar screed
- Minimum 500 gauge polythene
- 34mm Finnforest SoundBar board
- Minimum 15mm wood based board (minimum density 600kg/m³)
- 220mm Finnjoists
- **100mm Isover Acoustic Partition Roll (APR 1200) in the joist cavity**
- Gypframe RB1 Resilient Bar ceiling, at 400mm centres, lined with a double layer of 15mm Gyproc SoundBloc
- GypLyner UNIVERSAL ceiling, providing a minimum 100mm ceiling void, lined with a single layer of 12.5mm Gyproc WallBoard



[1]Depending on wood based board specified. Please refer to www.thegreenguide.org.uk for further information.

53

Pre-cast concrete planks with GypFloor SB and CasoLine MF Ceiling

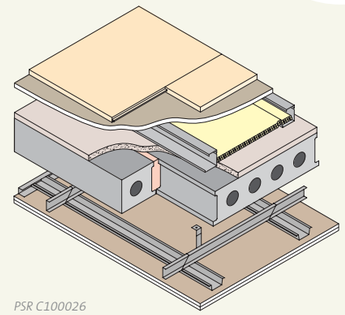
Code for Sustainable Homes: 3 Credit, Hea 2

Pre-Completion Testing - British Gypsum Approved System

(45dB D_{nTw} + Ctr and 62dB L_{nTw})

R_w + Ctr 61dB, L_{nTw} 43dB | R_w 71dB

- Walking surface of 18mm chipboard on 19mm Gyproc Plank
- **70mm Gypframe 70 SB 65 Steel Battens set at 400mm centres with 25mm Isover Acoustic Partition Roll (APR 1200) in the batten cavity**
- Minimum 25mm screed bonded directly to the planks
- Minimum 150mm pre-cast concrete floor planks, with minimum surface mass of 300kg/m²
- CasoLine MF ceiling providing minimum 140mm ceiling void lined with a double layer of 12.5mm Gyproc SoundBloc



PSR C100026

54

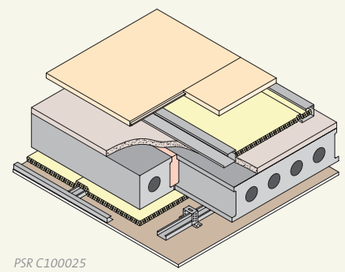
Pre-cast concrete planks with GypFloor SB and GypLyner UNIVERSAL ceiling

Pre-Completion Testing - British Gypsum Approved System

(45dB D_{nTw} + Ctr and 62dB L_{nTw})

R_w 67dB

- Walking surface of 18mm chipboard
- **50mm Gypframe 50 SB 65 Steel Battens set at 400mm centres with 25mm Isover Acoustic Partition Roll (APR 1200) in the batten cavity**
- Minimum 25mm screed bonded directly to the planks
- Minimum 150mm pre-cast concrete floor planks, with minimum surface mass of 300kg/m²
- **GypLyner UNIVERSAL ceiling providing minimum 75mm ceiling void lined with 25mm Isover Acoustic Partition Roll (APR 1200) in the cavity lined with a single layer of 12.5mm Gyproc SoundBloc**



PSR C100025

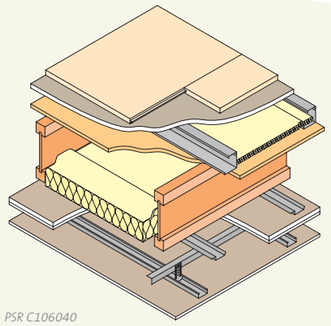
55 Engineered timber 'I' joist with **GypFloor** SB

Code for Sustainable Homes: 1 Credit – Hea 2

Pre-Completion Testing - British Gypsum Approved System (45dB D_{nTw} + Ctr and 62dB L_{nTw})

Sound insulation: RD[1] | Fire protection: 60 minutes BS[2] | Scotland

- Chipboard walking surface on 19mm Gyproc Plank
- **70mm Gypframe 70 SB 65 Steel Battens with 50mm Isover Acoustic Partition Roll (APR 1200) in the batten cavity**
- Sub-deck of 15mm OSB
- Minimum 240mm depth engineered timber 'I' joist
- **100mm Isover Acoustic Partition Roll (APR 1200) in the joist cavity**
- Gypframe RB1 Resilient Bar ceiling lined with an inner layer of 19mm Gyproc Plank and an outer layer of 12.5mm Gyproc WallBoard or double layer of 15mm Gyproc FireLine
- GypLyner UNIVERSAL ceiling to incorporate service requirements lined with a single layer of 12.5mm Gyproc WallBoard



PSR C106040

[1]Awaiting Robust Detail approval, please check the British Gypsum website for notification – www.british-gypsum.com

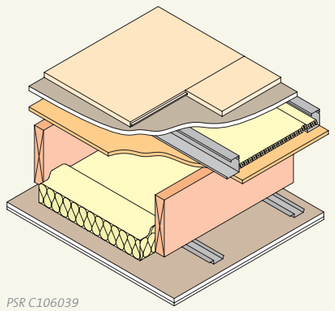
[2] Based on a British Gypsum test with a typical 'I' joists (please clarify with manufacturer)

56 Timber joist with **GypFloor** SB and Gypframe RB1 Resilient Bar ceiling

Pre-Completion Testing - British Gypsum Approved System (45dB D_{nTw} + Ctr and 62dB L_{nTw})

Sound insulation: R_w + Ctr 56dB, L_{nw} 48dB | Fire protection: 60 minutes BS | Scotland: R_w 66dB

- Walking surface of 22mm chipboard on 19mm Gyproc Plank
- **70mm Gypframe 70 SB 65 Steel Battens at 400mm centres with 50mm Isover Acoustic Partition Roll (APR 1200) in the batten cavity**
- Sub-deck of 15mm OSB
- Minimum 240mm timber joist
- **100mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Gypframe RB1 Resilient Bar ceiling at 450mm centres lined with a double layer of 15mm Gyproc SoundBloc



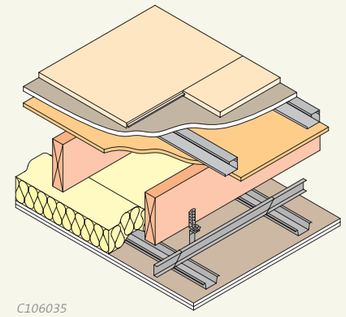
PSR C106039

57 Timber joist with **GypFloor** SB and **CasoLine** MF ceiling

Pre-Completion Testing - British Gypsum Approved System (45dB D_{nTw} + Ctr and 62dB L_{nTw})

Sound insulation: R_w + Ctr 55dB, L_{nw} 50dB | Fire protection: 60 minutes BS | Scotland: R_w 67dB

- Walking surface of 18mm chipboard on 19mm Gyproc Plank
- 50mm Gypframe 50 SB 65 Steel Battens at 400mm centres
- Sub-deck of 15mm OSB
- Minimum 195mm timber joist
- **100mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- CasoLine MF ceiling, incorporating Gypframe Acoustic Hangers, suspended beneath joists to give a minimum 287mm cavity lined with a double layer of 15mm Gyproc SoundBloc



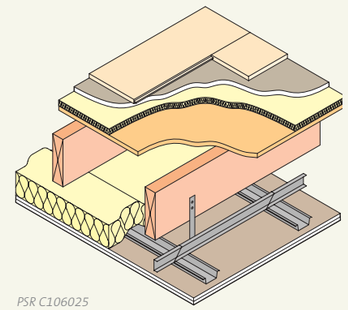
C106035

58 Timber joist with **CasoLine** MF ceiling and platform floor

Pre-Completion Testing - British Gypsum Approved System (45dB D_{nTw} + Ctr and 62dB L_{nTw})

Sound insulation: R_w + Ctr 54dB, L_{nw} 50dB | Fire protection: 60 minutes BS | Scotland: R_w 66dB

- Walking surface of 18mm t&g chipboard bonded to 19mm Gyproc Plank
- **Resilient layer of 25mm Isover Sound Deadening Floor Slab laid over 15mm OSB board to top of joists**
- Timber joists at 450mm or 600mm centres
- **100mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- CasoLine MF ceiling suspended beneath joists to give a minimum 277mm cavity lined with a double layer of 15mm Gyproc SoundBloc



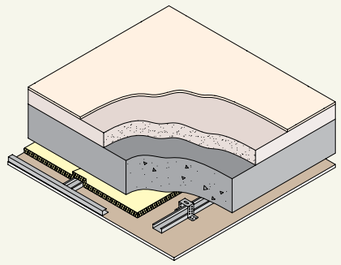
PSR C106025

59 In-situ concrete slab with ceiling and soft covering (floor type 1.1C)

Pre-Completion Testing - Guidance Construction

Guidance Construction

- Bonded soft floor covering essential
- In-situ concrete slab, minimum surface mass 365kg/m² including any bonded screed
- **GypLyner UNIVERSAL ceiling providing minimum 25mm ceiling void full-fill with Isover Acoustic Partition Roll (APR 1200) in the cavity or**
- **CasoLine MF ceiling providing minimum 100mm ceiling void full-fill with Isover Acoustic Partition Roll (APR 1200) in the cavity, lined with a single layer of 12.5mm Gyproc WallBoard TEN or 12.5mm Gyproc SoundBloc**

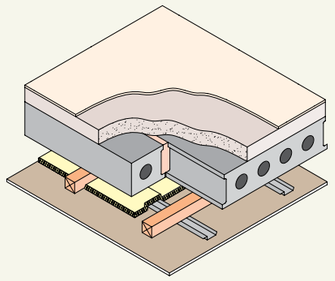


60 Pre-cast concrete planks with ceiling and soft covering (floor type 1.2B)

Pre-Completion Testing - Guidance Construction

Guidance Construction

- Pre-cast concrete planks, minimum surface mass 365kg/m² including any bonded screed
- All floor joints fully grouted. Bonded soft floor covering essential
- **Gypframe RB1 Resilient Bar on timber battens, full-fill with Isover Acoustic Partition Roll (APR 1200) in the cavity, lined with a single layer of 12.5mm Gyproc WallBoard TEN or 12.5mm Gyproc SoundBloc**



Separating floors

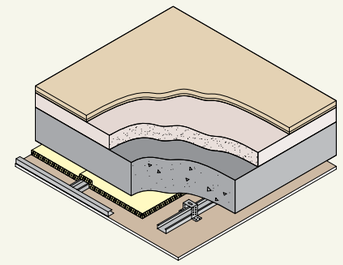
Floors » Sepatating

61 In-situ concrete slab with ceiling and floating floor (floor type 2.1C)

Pre-Completion Testing - Guidance Construction

Guidance Construction

- Floating floor treatment essential
- In-situ concrete slab, minimum surface mass 300kg/m² including any bonded screed
- **GypLyner UNIVERSAL ceiling providing minimum 25mm ceiling void full-fill with Isover Acoustic Partition Roll (APR 1200) in the cavity or**
- **CasoLine MF ceiling providing minimum 100mm ceiling void full-fill with Isover Acoustic Partition Roll (APR 1200) in the cavity lined with a single layer of 12.5mm Gyproc WallBoard TEN or 12.5mm Gyproc SoundBloc**

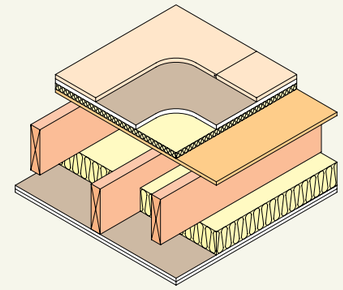


62 Timber joist with platform floor and independent ceiling (floor type 3.1A)

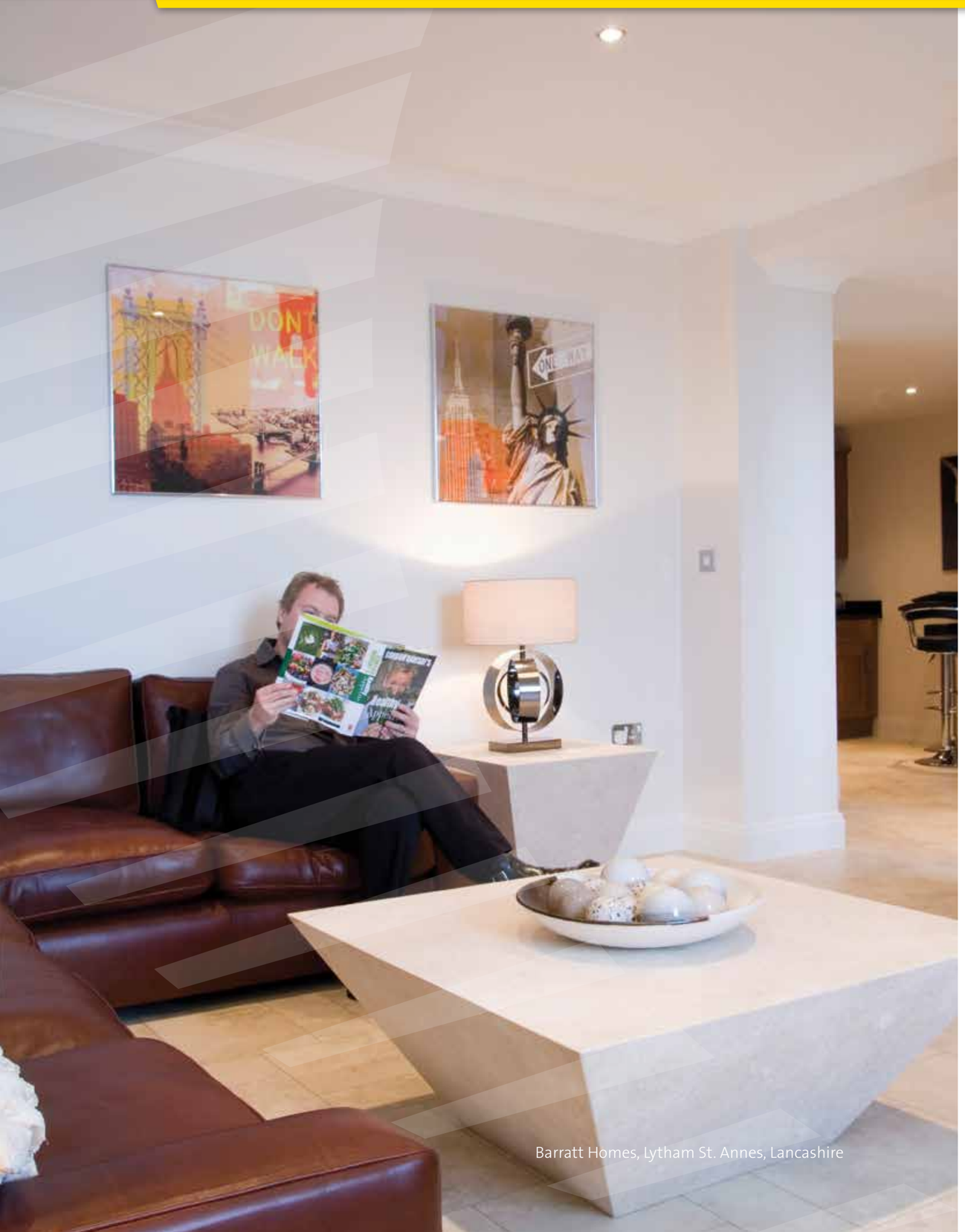
Pre-Completion Testing - Guidance Construction

Guidance Construction | Green Guide A+, A or B[1]

- Walking surface of 18mm t&g chipboard, bonded to 19mm Gyproc Plank
- **Resilient layer of 25mm Isover Sound Deadening Floor Slab laid over 15mm OSB board to top of joists**
- Timber joists at 450mm centres or 600mm centres
- **100mm Isover Acoustic Partition Roll (APR 1200) in the ceiling cavity**
- Independent timber joist ceiling (a clearance of at least 100mm should be left between the top of the ceiling joists and the underside of the base floor) lined with a double layer of 12.5mm Gyproc WallBoard TEN or a double Gyproc SoundBloc



[1] Depending on floor treatment specified. Please refer to www.thegreenguide.org.uk for further information



Barratt Homes, Lytham St. Annes, Lancashire

Internal walls

Approved Document E 2003 – Section E2

Internal wall constructions are not subject to Pre-Completion Testing but must be built to comply with Building Regulations Approved Document E clause E2 using British Gypsum Approved Systems incorporating Isover insulation or Guidance Constructions.

Clause E2 of Approved Document E stipulates the following:

Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that -

(a) internal walls between a bedroom or a room containing a water closet, and other rooms;
and
(b) internal floors,
provide reasonable resistance to sound.

Requirement E2 does not apply to -

(a) an internal wall which contains a door;

(b) an internal wall which separates an en suite toilet from the associated bedroom;

(c) existing walls and floors in a building which is subject to a material change of use.

Approved Document E 2003 – Performance standards

The following table is adapted from Approved Document E and highlights the minimum performance standards required for internal walls. Please note that the requirement is only for airborne sound insulation and not impact sound.

Table 2: Laboratory values for new internal walls within: dwelling-houses, flats and rooms for residential purposes, whether purpose built or formed by material change of use.

	Airborne sound insulation R_w dB (Minimum values)
Internal walls	40

Approved Document E states that the normal ways of satisfying the requirements in E2 will be to use constructions for new walls within a dwelling-house, flat or room for residential purposes, that provide the laboratory sound insulation values set out in Table 2. Test bodies conducting testing should preferably have UKAS accreditation (or a European equivalent) for laboratory measurements. It is not intended that performance should be verified by testing on site.

Section 5 - Scotland

Section 5 (Scotland) stipulates a minimum airbourne sound performance for internal walls of 43 R_w dB. Solutions which satisfy Scottish regulations are denoted by the following symbol:

	Airborne sound insulation R_w dB (Minimum values)
Internal walls	43

The Code for Sustainable Homes

Within category 1 of the Code for Sustainable Homes, Energy and CO_2 Emissions, section Ene 9 states that one credit is available for providing a home office in a suitable quiet room. When incorporating a home office within a dwelling, it is a good idea to provide reasonable protection against noise from others in the house. Internal wall solutions incorporating Isover insulation can be specified to achieve enhanced sound insulating performance. This stamp highlights potential design solutions.

Internal wall solutions

The internal wall solutions detailed in this section of the guide are British Gypsum Approved Systems incorporating Isover insulation or guidance constructions. These constructions have been tested and proved to satisfy the laboratory sound insulation values given in Table 2 of the previous page.

Internal wall solutions		Airborne Sound Transmission (R_w dB) - lab test result
		40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55
63	**GypWall RAPID dB Plus** Gypframe 43 AS 50 AcouStuds at 450mm centres, with insulation	43
64	**GypWall RAPID dB Plus** Gypframe 43 AS 50 AcouStuds at 900mm centres, with insulation	44
65	**GypWall CLASSIC** Gypframe 48 S 50 'C' Studs at 600mm centres, with insulation	40
66	**GypWall CLASSIC** Gypframe 70 S 50 'C' Studs at 600mm centres, with insulation	43
67	**Timber stud** 600mm centres, with insulation	40
68	**Timber stud** 600mm centres, with insulation	41
69	**Timber stud** 600mm centres, with insulation	43
70	**GypWall CLASSIC** 600mm centres, with insulation (type 2 Scotland)	Guidance construction
71	**Timber stud** internal wall type B (type 2 Scotland)	Guidance construction

Isover Products

Isover internal wall solutions incorporate the following Isover products

Isover Acoustic Partition Roll

Internal walls

Walls » Internal walls

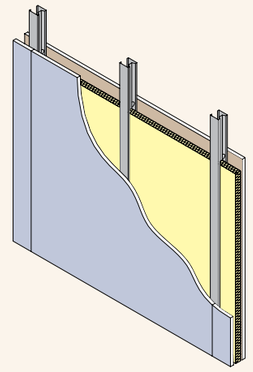
63 GypWall RAPID dB Plus

(Gypframe 43 AS 50 AcouStuds at 450mm centres, with Isover insulation)

British Gypsum Approved System

R$_w$ 43dB | 30 mins BS | Green Guide A

- Overall construction nominal width 75mm
- 43mm Gypframe 43 AS 50 AcouStud at 450mm centres
- Use Gypframe Floor & Ceiling Channel vertically at abutments in **GypWall RAPID dB Plus** rather than Gypframe stud section
- **25mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a single layer of 15mm Gyproc SoundBloc RAPID each side
- 32mm British Gypsum Drywall Screws are used to fix 15mm Gyproc SoundBloc in the **GypWall RAPID dB Plus** system
- The innovative door detailing of **GypWall RAPID dB Plus** means that overboarding is not required during installation and, as a result, plasterboard waste is considerably reduced
- Recommended maximum height - 2700mm



PSR A139A006

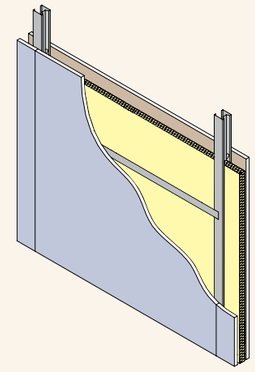
64 GypWall RAPID dB Plus

(Gypframe 43 AS 50 AcouStuds at 900mm centres, with Isover insulation)

British Gypsum Approved System

R$_w$ 44dB | 30 mins BS | Green Guide A

- Overall construction nominal width 75mm
- Gypframe 43mm 43 AS 50 AcouStuds at 900mm centres
- Gypframe GWR2 mid-height nogging
- Use Gypframe Floor & Ceiling Channel vertically at abutments in **GypWall RAPID dB Plus** rather than Gypframe stud section
- **25mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a single layer of 15mm Gyproc SoundBloc RAPID each side
- 32mm British Gypsum Drywall Screws are used to fix 15mm Gyproc SoundBloc in the **GypWall RAPID dB Plus** system
- The innovative door detailing of **GypWall RAPID dB Plus** means that overboarding is not required during installation and, as a result, plasterboard waste is considerably reduced
- Recommended maximum height - 2400mm



PSR A139A003

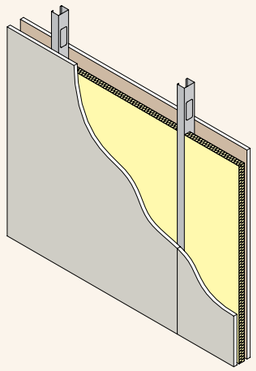
65 GypWall CLASSIC

(Gypframe 48 S 50 'C' Studs at 600mm centres, with Isover insulation)

British Gypsum Approved System

Sound Insulation R_w 40dB | Fire Protection 30 mins BS | Green Guide A

- Overall construction nominal width 75mm
- Gypframe 48 S 50 'C' Studs at 600mm centres
- **25mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a single layer of 12.5mm Gyproc WallBoard each side
- Recommended maximum height - 2500mm



PSR A206033

66 GypWall CLASSIC

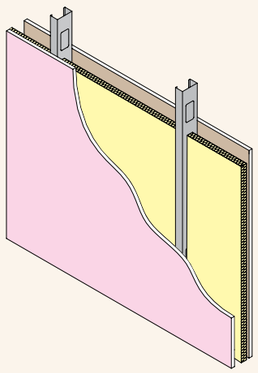
(Gypframe 70 S 50 'C' Studs at 600mm centres, with Isover insulation)

Code for Sustainable Homes Hea 9

British Gypsum Approved System

Sound Insulation R_w 43dB | Fire Protection 60 mins BS | Green Guide A

- Overall construction nominal width 102mm
- Gypframe 70 S 50 'C' Studs at 600mm centres
- **25mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a single layer of 15mm Gyproc FireLine each side
- Recommended maximum height - 3800mm



PSR A206110

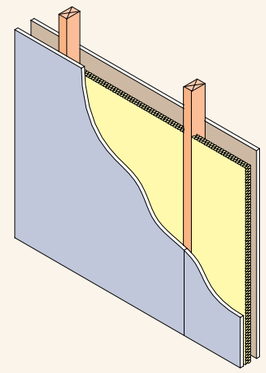
67 Timber stud

(600mm centres, with Isover insulation)

British Gypsum Approved System

Sound Insulation R_w 40dB | Fire Protection 30 mins BS | Green Guide A+

- Overall construction nominal width 88mm
- Minimum 63mm x 38mm non-loadbearing timber studs at 600mm centres
- Timber noggings are normally required. Please seek advice from timber supplier.
- **25mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a single layer of 12.5mm Gyproc SoundBloc each side



PSR A026009

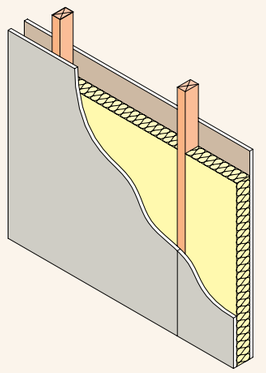
68 Timber stud

(600mm centres, with Isover insulation)

British Gypsum Approved System

Sound Insulation R_w 41dB | Fire Protection 30 mins BS | Green Guide A+

- Overall construction nominal width 88mm
- Minimum 63mm x 38mm non-loadbearing timber studs at 600mm centres
- Timber noggings are normally required. Please seek advice from timber supplier.
- **65mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a single layer of Gyproc WallBoard each side



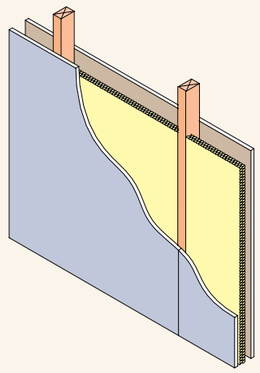
PSR A026012

69 Timber stud

(600mm centres, with Isover insulation)

British Gypsum Approved System

- Overall construction nominal width 93mm
- Minimum 63mm x 38mm non-loadbearing timber studs at 600mm centres
- Timber noggings are normally required. Please seek advice from timber supplier.
- **50mm Isover Acoustic Partition Roll (APR 1200) in the cavity**
- Lined with a single layer of 15mm Gyproc SoundBloc each side



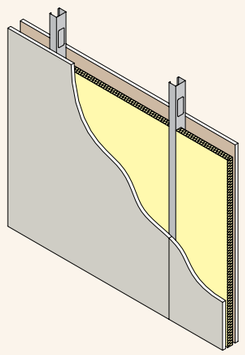
PSR A026033

70 GypWall CLASSIC

(internal wall type B, type 2 Scotland)

Guidance Construction

- Overall construction nominal width 75mm
- Maximum height 2500mm (at 600mm centres) or 2700mm (at 400mm centres)
- Gypframe 48 S 50 'C' Studs at 400mm or 600mm centres
- **25mm Isover Acoustic Partition Roll (APR 1200) in the stud cavity**
- Board options:
  Single layer of 12.5mm Gyproc WallBoard TEN each side
  or
  Single layer of 12.5mm Gyproc SoundBloc each side

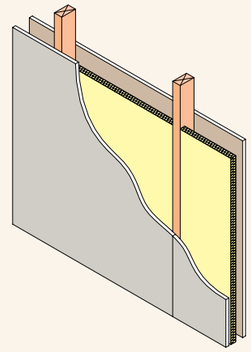


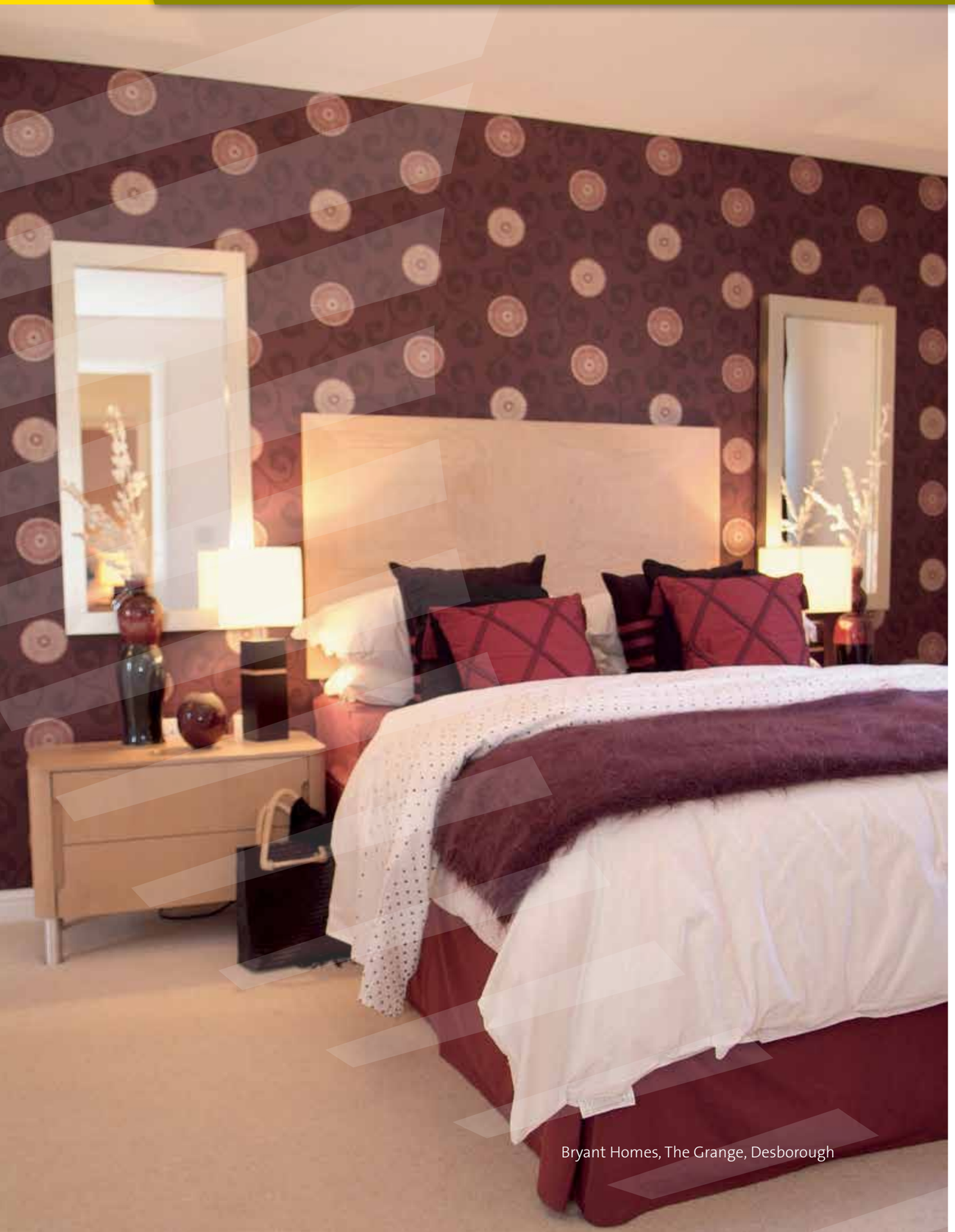
71 Timber stud

(internal wall type B, type 2 Scotland)

Guidance Construction

- Overall construction nominal width 100mm
- Minimum 75mm x 38mm timber stud at 600mm centres (loadbearing ratio 60%)
- Timber noggings are normally required. Please seek advice from timber supplier
- **25mm Isover Acoustic Partition Roll (APR 1200) in the stud cavity**
- Board options:
  Single layer of 12.5mm Gyproc WallBoard TEN each side
  or
  Single layer of 12.5mm Gyproc SoundBloc each side





Bryant Homes, The Grange, Desborough

Internal floors

Approved Document E 2003 – Clause E2

Internal floor constructions are not subject to Pre-Completion Testing but must be built to comply with Building Regulations Approved Document E clause E2 using Guidance Constructions.

Clause E2 of Approved Document E stipulates the following:

Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that –

(a) internal walls between a bedroom or a room containing a water closet, and other rooms;

and

(b) internal floors,

provide reasonable resistance to sound.

Requirement E2 does not apply to –

(a) an internal wall which contains a door;

(b) an internal wall which separates an en suite toilet from the associated bedroom;

(c) existing walls and floors in a building which is subject to a material change of use.

Approved Document E 2003 – Performance standards

The following table is adapted from Approved Document E and highlights the minimum performance standards required for internal floors. Please note that the requirement is for airborne sound insulation only and not impact sound insulation.

Laboratory values for new internal floors within: dwelling-houses, flats and rooms for residential purposes, whether purpose built or formed by material change of use.	
	Airborne sound insulation R_w dB (Minimum values)
Floors	40

Approved Document E states that the normal ways of satisfying the requirements in E2 will be to use constructions for new floors within a dwelling-house, flat or room for residential purposes, that provide the laboratory sound insulation values set out in Table 2. Test bodies conducting testing should preferably have UKAS accreditation (or a European equivalent) for laboratory measurements. It is not intended that performance should be verified by testing on site.

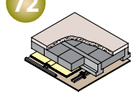
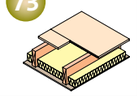
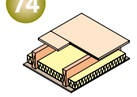
Section 5 - Scotland

Section 5 (Scotland) stipulates a minimum airborne sound perfprmance for internal floors of 43 R_w dB. Solutions which satisfy Scottish regulations are denoted by the following symbol.

	Airborne sound insulation R_w dB (Minimum values)
Internal walls	43

Internal Floor Solutions

The separating floor solutions detailed in this section of the guide are Robust Detail or British Gypsum Approved Systems incorporating Isover insulation. These constructions have been tested and proved to satisfy the sound insulation values given in the table on 67 of Approved Document E. Please note that for British Gypsum Approved Systems Pre-Completion Testing must take place to demonstrate compliance.

Internal floor solutions		Airborne Sound Transmission (R_w dB) - lab test result															
		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
72 	**Beam and block** (internal floor type B)	Guidance construction															
73 	**Solid timber joists** (Internal floor type C)	Guidance construction															
74 	**Timber or metal joist** (with wood-based board and gypsum based board ceiling and absorbent material (type 3)	Guidance construction Scotland															

Isover Products

Isover internal floor solutions incorporate the following Isover products

Isover Acoustic Partition Roll

72 Beam and block

(internal floor type B, type 2 Scotland)

Guidance Construction

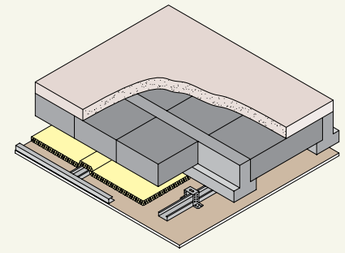
Guidance Construction

- Beam and block floor, surface mass minimum 220kg/m²
- Minimum 40mm bonded sand / cement screed
- GypLyner UNIVERSAL
- **25mm Isover Acoustic Partition Roll (APR 1200) filling the cavity**
- Board options:

- Lined with a single layer of 12.5mm Gyproc WallBoard TEN

or

- A single layer of 12.5mm Gyproc SoundBloc



73 Solid timber joists

(internal floor type C)

Guidance Construction

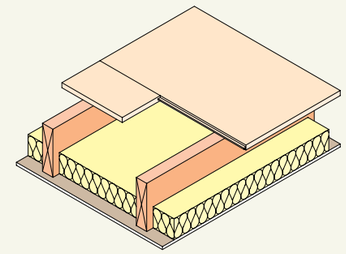
Guidance Construction | Green Guide A+

- Timber joist floor with wood based flooring minimum 15kg/m²
- **100mm Isover Acoustic Partition Roll (APR 1200)**
- Board options:

- Lined with 12.5mm Gyproc WallBoard TEN

or

- A single layer of 12.5mm Gyproc SoundBloc



74 Timber or metal joist

(with wood-based board and gypsum based board ceiling and absorbent material type 3)

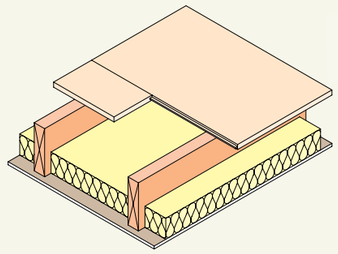
Guidance Construction (Scotland)

- Floor surface of timber - or wood-based board, minimum mass per unit area 15 kg/m²
- 47 x 200mm joists at 450mm centres.
- **100mm Acoustic Partition Roll (APR 1200) laid in between the joists**
- Board options:

- Lined with a double layer of 12.5mm Gyproc WallBoard TEN

or

- Double layer of 12.5mm Gyproc SoundBloc



Isover Spacesaver

A glass mineral wool roll providing thermal insulation for domestic loft floors.

- ✓ **Enables U-values down to 0.14 W/m²K with 300mm of insulation**
- ✓ **Rolls are pre-perforated at 3x386mm and 2x580mm to fit between any joist spacing**
- ✓ **Rolls compression fit between joists with no need for additional fixings**

Product Features

Thermal insulation

Thermal conductivity of 0.043 W/mK. Helps to meet the requirements of Approved Document L 2010 (England & Wales) and Section 6 (Scotland)

Easy to install

Isover Spacesaver is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m²K/W)	Width (mm)	Length (mm)	Roll area (m²)
Spacesaver	100	0.043	2.33	1160	9170	10.64
Spacesaver	150	0.043	3.49	1160	6030	6.99
Spacesaver	170	0.043	3.95	1160	5390	6.25
Spacesaver	200	0.043	4.65	1160	3880	4.50

Isover Spacesaver Plus

A glass mineral wool roll providing increased thermal insulation for domestic loft floors.

- ✓ **Enables U-values down to 0.10 W/m²K with 400mm of insulation**
- ✓ **Rolls are pre-perforated at 3x386mm and 2x580mm to fit between any joist spacing**
- ✓ **Rolls compression fit between joists with no need for additional fixings**

Product Features

Thermal insulation

High thermal conductivity of 0.040 W/mK. Helps to meet the requirements of Approved Document L 2010 (England & Wales) and Section 6 (Scotland)

Easy to install

Isover Spacesaver Plus is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m²K/W)	Width (mm)	Length (mm)	Roll area (m²)
Spacesaver Plus	100	0.040	2.50	1160	7000	8.12
Spacesaver Plus	150	0.040	3.75	1160	4670	5.42
Spacesaver Plus	200	0.040	5.00	1160	3500	4.06

Isover Spacesaver Ready-Cut

A glass mineral wool roll providing thermal insulation for domestic loft floors.

- ✓ **Enables U-values down to 0.14 W/m²K with 300mm of insulation**
- ✓ **Rolls are ready-cut within 600mm and 400mm joist spacing**
- ✓ **Rolls compression fit between joists with no need for additional fixings**

Product Features

Thermal insulation

Thermal conductivity of 0.043 W/mK. Helps to meet the requirements of Approved Document L 2010 (England & Wales) and Section 6 (Scotland)

Easy to install

Isover Spacesaver Ready-Cut is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable points for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m²K/W)	Width (mm)	Length (mm)	Roll area (m²)
Spacesaver Ready-Cut	100	0.043	2.33	3 x 386	9170	10.62
Spacesaver Ready-Cut	100	0.043	2.33	2 x 580	9170	10.64
Spacesaver Ready-Cut	150	0.043	3.49	3 x 386	6030	6.98
Spacesaver Ready-Cut	150	0.043	3.49	2 x 580	6030	6.99
Spacesaver Ready-Cut	200	0.043	4.65	3 x 386	3880	4.49
Spacesaver Ready-Cut	200	0.043	4.65	2 x 580	3880	4.50

Isover RD35

A glass mineral wool slab designed for use in E-WM-8, E-WM-14 and E-WM-15 Robust Detail wall constructions to meet Approved Document E (England and Wales) and Section 5 (Scotland).

- ✓ **Ensures compliance with Approved Document E 2003 England & Wales) without the need for on-site sound testing**
- ✓ **Removes the need for a wet plaster or parge coating resulting in significant time and cost savings**
- ✓ **Provides the opportunity to gain 3 credits towards The Code for Sustainable Homes**

Product Features

Easy to install

- Compatible with conventional wall tie spacing ensuring ease of installation
- Isover RD35 insulation is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible, fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Width (mm)	Length (mm)	Batts per pack	Pack area (m²)
RD35	35	455	1200	16	8.80

Isover RD Party Wall Roll

A glass mineral wool roll designed for use in E-WM-17, E-WM-20 and E-WM-24 Robust Detail constructions to meet Approved Document E (England and Wales) and Section 5 (Scotland).

- ✓ **Thermal bypass solution - meets the full requirement to deliver zero U-value for party walls as defined in Building Regulations (Approved Document L1A, Table 3)**
- ✓ **Delivers maximum 3 credits under Code for Sustainable Home 'Health & Wellbeing' Issue EH2-Sound Insulation**
- ✓ **E-WM-17, E-WM-20 and E-WM-24 are dry-finish solutions with no requirement for render or parge-coating prior to drylining**
- ✓ **No requirements for PCT (Pre-Completion Testing)**

Product Features

Easy to install

- Proven practical site solutions delivering thermal and acoustic performance
- Assured quality of installation - roll format ensures minimal or no vertical joints
- Isover RD Party Wall Roll insulation is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible, fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Width (mm)	Length (mm)	Roll area (m^2)
RD Party Wall Roll	75	2 x 455	8500	7.74
RD Party Wall Roll	100	2 x 455	6000	5.46
RD Party Wall Roll	125	2 x 455	5000	4.55
RD Party Wall Roll	150	2 x 455	4000	3.64

Isover CWS 36

A glass mineral wool full-fill cavity slab providing thermal performance in masonry cavity walls to meet Approved Document L (England and Wales).

- ✓ **BBA approved for use in masonry walls (England & Wales) Approved for use in severe exposure zones and in buildings up to and including 25 meters in height (Certification No: 90/2465)**
- ✓ **Enables U-values as low as 0.25 W/m²K within a 300mm wall width**
- ✓ **Full fill solution helps minimise flanking sound transmission along the wall cavity and removes the requirement for cavity fire barriers**

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE No 90/2465

Product Features

Thermal insulation

Thermal conductivity of 0.036 W/mK. Helps to meet the requirements of Approved Document L 2010 (England & Wales)

Easy to install

- The 455mm wide slabs are compatible with conventional wall tie spacing ensuring ease of installation
- Isover CWS 36 insulation is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m^2K/W)	Width (mm)	Length (mm)	Batts per pack	Pack area (m^2)
CWS 36	50	0.036	1.39	455	1200	20	10.92
CWS 36	65	0.036	1.81	455	1200	16	8.74
CWS 36	75	0.036	2.08	455	1200	16	8.74
CWS 36	85	0.036	2.36	455	1200	12	6.55
CWS 36	100	0.036	3.78	455	1200	12	6.55
CWS 36	125	0.036	3.47	455	1200	8	4.37
CWS 36	150	0.036	4.17	455	1200	6	3.28

Isover CWS 32

A higher performing glass mineral wool full-fill cavity slab providing excellent thermal performance in masonry cavity walls to meet or exceed the requirements of Approved Document L (England and Wales).

- ✓ **BBA approved for use in masonry walls (England & Wales) Approved for use in severe exposure zones and in buildings up to and including 25 meters in height (Certification No: 90/2465)**
- ✓ **Enables U-values as low as 0.17 W/m²K in a single thickness of insulation**
- ✓ **Full fill solution helps minimise flanking sound transmission along the wall cavity and removes the requirement for cavity fire barriers**

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE No 90/2465

Product Features

Thermal insulation

Excellent thermal conductivity of 0.032 W/mK. Helps to meet and exceed the requirements of Approved Document L 2010 (England & Wales)

Easy to install

- The 455mm wide slabs are compatible with conventional wall tie spacing ensuring ease of installation
- Isover CWS 32 insulation is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m^2K/W)	Width (mm)	Length (mm)	Batts per pack	Pack area (m^2)
CWS 32	50	0.032	1.56	455	1200	14	7.64
CWS 32	65	0.032	2.03	455	1200	12	6.55
CWS 32	75	0.032	2.34	455	1200	10	5.46
CWS 32	85	0.032	2.66	455	1200	8	4.37
CWS 32	100	0.032	3.13	455	1200	6	3.28
CWS 32	125	0.032	3.91	455	1200	5	2.73
CWS 32	150	0.032	4.69	455	1200	4	2.18

Isover Timber Frame Batts

A glass mineral wool batt providing thermal and acoustic insulation for timber walls and roofs to help meet Approved Document L (England and Wales) and Section 6 (Scotland).

- ✓ **Excellent thermal performance with a thermal conductivity of 0.032 to 0.043 W/mK within the range. Helps to meet the requirements of Approved Document L 2010 (England & Wales) and Section 6 (Scotland)**
- ✓ **Push fits between 600mm timber stud centres with no need for additional fixings**
- ✓ **Two batts end-to-end typically fit standard storey height**

Product Features

Easy to install

Isover Timber Frame Batts are is manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m^2K/W)	Width (mm)	Length (mm)	Batts per Pack	Pack area (m^2)
Timber Frame Batt 32	50	0.032	1.56	570	1175	9	6.03
Timber Frame Batt 32	90	0.032	2.81	570	1175	5	3.35
Timber Frame Batt 32	140	0.032	4.38	570	1175	5	3.35
Timber Frame Batt 35	90	0.035	2.57	570	1175	10	6.70
Timber Frame Batt 35	100	0.035	2.86	570	1175	8	5.36
Timber Frame Batt 35	140	0.035	4.00	570	1175	6	4.02
Timber Frame Batt 35	150	0.035	4.29	570	1175	6	4.02
Timber Frame Batt 40	90	0.040	2.25	570	1175	14	9.38
Timber Frame Batt 40	140	0.040	3.50	570	1175	8	5.36
Timber Frame Batt 43	90	0.043	2.09	570	1175	12	8.04
Timber Frame Batt 43	140	0.043	3.26	570	1175	8	5.36

Isover Timber Frame Rolls

A glass mineral wool roll providing thermal and acoustic insulation for timber walls to help meet Approved Document L (England and Wales) and Section 6 (Scotland).

- ✓ **Excellent thermal performance with a thermal conductivity of 0.035 to 0.040 W/mK within the range. Helps to meet the requirements of Approved Document L 2010 (England & Wales) and Section 6 (Scotland)**
- ✓ **Push fits between 600mm timber stud centres with no need for additional fixings**

Product Features

Easy to install

Isover Timber Frame Rolls are manufactured from high quality glass mineral wool which makes it lightweight and easy to handle, cut and install

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m^2K/W)	Width (mm)	Length (mm)	Roll area (m^2)
Timber Frame Roll 35	90	0.035	2.57	2 x 570	5300	6.04
Timber Frame Roll 35	140	0.035	4.00	2 x 570	4000	4.56
Timber Frame Roll 40	90	0.040	2.25	2 x 570	10130	11.55
Timber Frame Roll 40	140	0.040	3.50	2 x 570	6500	7.41

Isover Timber Party Wall Roll

A glass mineral wool roll providing thermal insulation for separating timber frame walls.

- ✓ **Supplied in a 50mm, 75mm and 100mm thickness to cover all common cavity widths**
- ✓ **The strong, resilient and flexible rolls are 1200mm and unsplit for fast coverage of large areas**
- ✓ **Designed for use in timber frame separating wall cavities to help deliver a zero U-value for party walls as defined in UK Building Regulations**

Product Features

Thermal insulation

Meets the full-fill requirement to help deliver a zero U-value for party walls as defined in Building Regulations (Approved Document L1A, Table 3)

Recycled content

Manufactured from up to 86% recycled post-consumer glass that would otherwise go to landfill

Euroclass A1 fire rating

Isover glass mineral wool insulation has an A1 Euroclass fire rating - the best attainable

Protected planet

Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

Product	Thickness (mm)	Width (mm)	Length (mm)	Density kg/m^3	Pack area (m^2)
Timber Party Wall Roll	50	1200	12000	18.0	14.40
Timber Party Wall Roll	75	1200	8000	18.0	9.60
Timber Party Wall Roll	100	1200	6000	18.0	7.20

Isover Frame Façade Slab

A low lambda rigid glass mineral wool slab providing a continuous layer of insulation around timber frame constructions.

- ✓ **Continuous layer of insulation reduces cold bridging through the frame enabling U-values down to zero carbon levels**
- ✓ **Weatherproof breathable facing protects the construction and negates the need for an additional breather membrane**
- ✓ **Tongue and groove vertical joints to aid installation and minimise air gaps**
- ✓ **Full range of accessories available including wall-ties, spacers and sealing tape**

Product Features

Thermal insulation

Excellent thermal performance with a thermal conductivity of 0.031 W/mK. Provides a continuous layer of insulation around the frame, reducing cold bridging and allowing very low U-values to be achieved.

Easy to install

Supplied in 1200 x 1800mm slabs to provide quick coverage of large areas

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO GWP GLOBAL WARMING POTENTIAL

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Thickness (mm)	Thermal conductivity (W/mK)	Thermal resistance (m^2K/W)	Width (mm)	Length (mm)	Batts per pack	Pack area (m^2)
Frame Façade Slab	50	0.031	1.61	1200	1800	4	8.64

Isover Vario Membrane System

A high performance membrane unique in providing excellent levels of airtightness with unparalleled protection against moisture.

- ✓ **Improves the energy efficiency of the building by reducing heat loss through the building envelope to a tenth of that of a conventional house**
- ✓ **Improves thermal comfort by protecting against leaky cracks and joints which invariably cause uncomfortable drafts**
- ✓ **Ideal for use in low energy and Passivhaus constructions and buildings with mechanical ventilation and heat recovery systems**

Product Features

Moisture management

Intelligent moisture management properties help to protect the building fabric from moisture damage

Easy to install

Nylon based micropore membrane with breathable properties

- 3 times stronger than polythene membrane so less likely to damage during transit and installation
- Easy to handle and cut, resulting in more efficient installation

Accessories

Specially developed tape and sealant systems fully compatible with Vario Membrane

- Non ageing tapes for fast and efficient joining
- Ensures maximum performance of Vario system for the lifetime of the property

Product	Units	Measure
Vario KM Duplex Membrane	1 Roll ($60m^2$)	40m x 1.5m
Vario Powerflex	1 Box (10 rolls)	25m
Vario KB1	1 box (5 rolls)	40m
Vario DS Sealant	1 box (12 cartridges)	310ml per cartridge
Vario Pro-Tape	1 box (5 rolls)	10m

Isover ULTIMATE™ Cavity Barriers

A non-combustible glass wool cavity barrier used to restrict the spread of smoke and flames and to minimise flanking noise transmission in concealed cavities.

- ✓ **Provides up to 120 minutes fire protection in concealed cavities which helps to meet requirements of Approved Document B (England & Wales) and Section 2 (Scotland)**
- ✓ **Helps minimise flanking sound transmission along the wall cavity**
- ✓ **Helps towards a zero U-value separating wall by providing effective edge sealing**

Product Features

Easy to install

Excellent compression properties, which allows for the barrier to be easily installed into cavities without risking damage to brickwork

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

ZERO ODP OZONE DEPLETION POTENTIAL

Product	Cavity size (mm)	Length (mm)	Width (mm)	Sleeve colour	Fre protecrion
Cavity Barrier (65)	50 - 65	1200	100	Yellow	30
Cavity Barrier (80)	66 - 80	1200	100	Blue	30
Cavity Barrier (100)	81 - 100	1200	100	White	30
Cavity Barrier (65)	50 - 65	1200	200	Yellow	60
Cavity Barrier (80)	66 - 80	1200	200	Blue	60
Cavity Barrier (100)	81 - 100	1200	200	White	60
Cavity Barrier (65)	50 - 65	1200	300	Yellow	120
Cavity Barrier (80)	50 - 65	1200	300	Blue	120
Cavity Barrier (100)	81 - 100	1200	300	White	120
Cavity Barrier (65)	50 - 65	2400	300	Yellow	120
Cavity Barrier (80)	66 - 80	2400	300	Blue	120
Cavity Barrier (100)	81 - 100	2400	300	White	120

Isover Acoustic Partition Roll (APR 1200)

A glass mineral wool roll providing high levels of acoustic insulation in partitions, walls and floors to meet acoustic requirements in domestic and non-residential applications.

- ✓ **Provides high levels of acoustic insulation in partitions, party walls and floors to help meet requirements of Approved Document E (England & Wales) and Section 5 (Scotland)**
- ✓ **Covered by the SpecSure® Warranty with guaranteed lifetime performance when used as a part of British Gypsum drywall and acoustic floor systems**

SPECSURE LIFETIME SYSTEM WARRANTY

Product Features

Easy to install

600mm wide glass mineral wool rolls

- Compatible with 600mm timber stud centres
- Push fits with no need for additional fixings

Water resistant

Resilient to moisture damage in storage, during transportation and on site during installation

Euroclass A1 fire rating

Totally non-combustible and fire safe

Protected planet

Excellent environmental credentials and helps towards valuable credits for The Code for Sustainable Homes

- BRE Green Guide A+ Rating
- Recycled content of up to 86%
- Zero Ozone Depletion Potential (ODP) and <5 Global Warming Potential (GWP)

Product	Thickness (mm)	Width (mm)	Length (mm)	Roll area (m^2)
Acoustic Partition Roll (APR 1200)	25	2 x 600	20000	24.00
Acoustic Partition Roll (APR 1200)	25	3 x 400	20000	24.00
Acoustic Partition Roll (APR 1200)	50	2 x 600	13000	15.60
Acoustic Partition Roll (APR 1200)	65	2 x 600	10000	12.00
Acoustic Partition Roll (APR 1200)	75	2 x 600	12200	14.64
Acoustic Partition Roll (APR 1200)	100	2 x 600	9170	11.00

The Club - Code Level 3 social housing development

Isover glass mineral wool insulation played a key role in helping The Club achieve Level 3 of the Code for Sustainable Homes.

Main Characteristics

- Built by Parkfield House Developments on the site of a former social club, The Club in Stanford Le Hope, Essex, is a social housing development comprising 15 apartments and three houses.
- The £1.1 million development must comply with Level 3 of the Code for Sustainable Homes, so an insulation solution that would meet both acoustic and energy efficiency requirements.
- Isover's CWS 32 100mm was specified and installed in the cavity walls, with Isover's Acoustic Partition Roll (APR 1200) used in the internal partitions and 100mm RD Party Wall Roll used in the separating walls to meet the performance levels required.

Product Information

Product Name	Insulated building parts	Requirements
CWS 32	Cavity walls	Acoustic and thermal performance
APR 1200	Internal partitions	Acoustic performance
RD Party Wall Roll	Separating walls	Acoustic and thermal performance

"Using Isover insulation materials enabled us to easily meet Building Regulations, 2010 Code Level 3 and also meet Part E acoustic legislation targets with a Robust Details approved construction. As well as enhanced thermal and acoustic performance it will also help to improve living comfort and reduce energy bills for residents. We have used Isover insulation on previous projects and have always been very happy with the efficiency of the products and the ease with which they can be installed."

Bob Dolby,
Parkfield House Developments

3point plan for environmental sustainability

Isover has developed its 3 Point Plan for environmental sustainability. This seeks to ensure that Isover and our products when in-situ use:

- Less **Materials**
- Less **Energy**
- Less **Emissions**

- Manufactured using up to 86% recycled glass content

BRE Green Guide to specification
Product Rating

- Isover glass mineral wool achieves an A+ summary rating under the BRE Green Guide to Specification.

Nottingham H.O.U.S.E - Achieving Passive House standards

"The Nottingham H.O.U.S.E was built to stringent standards in line with Passivhaus Standards and Level Six of the Code for Sustainable Homes. As well as positively contributing to its sustainability credentials, the products and systems used within the innovative concept house needed to work well in both warmer and cooler climates and Isover insulation products played a key role in helping to achieve the performance levels required."

Tom Cox,
Innovation and Product Manager, Saint-Gobain Isover

The Nottingham H.O.U.S.E (Home Optimising the Use of Solar Energy) aims to meet Passivhaus standards and Level 6 of the Code for Sustainable Homes. Choosing the right insulation to maximise Code credits and provide optimum efficiency was therefore essential to the project's success.

Main Characteristics

- Designed by architecture students from the University of Nottingham's Department of the Built Environment, the H.O.U.S.E was the UK's only entry in the final of the first International Solar Decathlon Europe competition to design, build and operate an energy efficient home.
- It features a modular volumetric design for ease of transportation and rapid assembly, and consists of eight fully prefabricated modules made from a timber cassette panel structure.
- Isover's Multimax 30, Vario membrane, Acoustic Partition Roll (APR 1200) and RKL Façade were used in the interior panels and on the external walls of the modules, as well as the internal floor, to give unbeatable thermal, acoustic and fire-safe performance.

Product Information

Product Name	Insulated building parts	Requirements
Multimax 30	Off-site fabricated panels	Acoustic and thermal performance
Vario membrane	External walls	Airtightness and moisture management
APR 1200	Internal floors	Acoustic performance and partitions
Frame Façade Slab	Exterior side of wall cassettes	Thermal performance and weather resistance

Isover insulation products

- Comply with the generic BRE Green Guide rating of A+
- Zero ozone depletion potential (ODP)
- >5 Global Warming Potential (GWP)
- Excellent environmental credentials help compliance with sustainability demands

Tarmac - Separating Walls 4 credit solution

Isover's Robust Details approved RD Party Wall Roll used in two, 3 bed homes built by Tarmac at the University of Nottingham.

Main Characteristics

- Ensuring maximum credits for sound insulation was an important consideration for the homes. Tarmac approached Isover who recommended it's RD Party Wall Roll, the new insulation benchmark for acoustic performance in separating walls.
- The system enabled Tarmac to achieve excellent sound insulation results, exceeding Part E Building Regulations, and obtaining the maximum possible number of credits in this area under the Code for Sustainable Homes. On site acoustic testing on the ground and first floors delivered results of 57dB and 60dB, far exceeding the 53dB required for maximum CfSH credits.

Isover RD Party Wall Roll is now incorporated into E-WM-17 construction detail in the Robust Details manual

- E-WM-17 is drylined with gypsum boards directly to the inner face of the blockwork using a 'dot and dab' finish. This process eliminates the need to apply a sand and cement render or parge coat, making it the fourth Isover Robust Detail construction to eliminate the need for wet trades on site.

Product Information

Product Name	Materials	Insulated building parts	Requirements
E-WM-17 incorporating Isover RD Party Wall Roll	Glass Mineral Wool	Masonry separating walls	Acoustic and thermal performance

CfSH Credits

- E-WM-17 incorporating Isover RD Party Wall Roll delivers three credits under 'Health & Wellbeing Hea 2 Sound Insulation' for the Code for Sustainable Homes, four credits for BRE EcoHomes and a B element rating in accordance with the BRE Green Guide to Specification 2008.

Isover RD Party Wall Roll

"Tarmac chose to work with Isover because of our excellent track record in delivering high performance acoustic constructions. For the CfSH assessment, it was essential that the party wall performance was such that 4 valuable credits were gained under the Health and Wellbeing Sound Insulation Category.

We are proud that an Isover system has been key to the delivery of this project and we believe that it reflects our commitment to innovation and the creation of sustainable insulation solutions."

Tom Cox,
Innovation and Product Manager, Saint-Gobain Isover

Taylor Wimpey - E-WM-17 trials incorporating RD Party Wall Roll

NO NEED FOR PRE-COMPLETION TESTS, RENDERS OR PARGE COATING!

"We have used Isover insulation products on site for some time and were extremely impressed with the E-WM-17 solution incorporating RD Party Wall Roll. Not only did it meet the required environmental criteria and Building Regulations, providing higher acoustic performance, it offered numerous benefits throughout the installation process, leading to time and associated cost savings. In addition, it eliminated the need for pre-completion sound testing and we are pleased with both the results of the trials and feedback from contractors on site."

Craig Hurst,
Site Manager,
Taylor Wimpey

Built by Taylor Wimpey, Southwood was the first development in the UK to trial Robust Detail E-WM-17, a masonry separating wall solution incorporating Isover RD Party Wall Roll.

Main Characteristics

- Situated near Corby in Northamptonshire, Southwood comprises a mix of around 180 apartments, terrace homes and detached properties.
- E-WM-17 100mm RD Party Wall Roll was used in 100mm design cavities on three plots at the development.
- Tests on all three properties showed that the solution achieved at least 50dB ($D_{nT,w}$ + Ctr), exceeding Part E Building Regulations.

Code for Sustainable Homes 3 Credits Hea 2

Product Information

Product Name	Insulated building parts	Requirements
E-WM-17 incorporating Isover RD Party Wall Roll	Masonry separating walls	Acoustic and thermal performance

Isover insulation products

- E-WM-17 incorporating Isover RD Party Wall Roll delivers three credits under 'Health & Wellbeing Hea 2 Sound Insulation' for the Code for Sustainable Homes, four credits for BRE EcoHomes and a B element rating in accordance with the BRE Green Guide to Specification 2008.
- Combined with its insulating properties and ease of installation, the system's unrivalled acoustic performance made it an ideal choice for this development. Following the success of the initial trials, Taylor Wimpey has since specified it on developments in Ilkeston and Ravenshead, with plans to roll it out across additional sites over the coming months.