

# Rigidur H for commercial applications

## Product data sheet

### Introduction

#### Characteristics

Rigidur H is a gypsum fibreboard which combines gypsum, cellulose fibres from recycled paper, and water, to form a dense sheet material that has superior rigidity, durability and mechanical strength.

The unique surface of Rigidur H protects the boards from scratches and damage, yet is smooth enough to decorate direct without the need for surface treatments. The tough, yet smooth, surface is a result of its special production process. By holding the boards in a continuous rolling process, they are compressed to the exact thickness required and no sanding of the surface takes place.

Both the Rigidur H product and the manufacturing process have been awarded a certificate for sustainability by The Rosenheim Institute of Construction Biology and Ecology, in Germany.



#### Applications

Rigidur H is the outer board component in GypWall EXTREME, offering a British Gypsum system with increased rigidity and durability.

GypWall EXTREME is specifically suited to the varied requirements of large school and hospital projects, offering a solution with superior durability for the most demanding high traffic areas of the building.

GypWall EXTREME also offers excellent acoustic performance, which is a key consideration in health and education building design.

GypWall EXTREME is covered by the British Gypsum SpecSure® lifetime system warranty and is fully compatible with GypWall ROBUST, as well as other British Gypsum SpecSure® approved systems. This gives you the opportunity to design the most cost-effective construction solution, both in terms of construction cost and whole life/maintenance costing for the project.

#### Plasterboard recycling

Rigidur H can be recycled with other British Gypsum plasterboard waste via the Plasterboard Recycling Service. For further information please visit the British Gypsum website, [www.british-gypsum.com](http://www.british-gypsum.com)

#### Board colour

- Beige - Face.
- Beige - Reverse.

#### Board printing

- Face - None.
- Edge - None.
- Reverse - Product name, board thickness and standards.

#### Board range

Width mm	Length mm	Edge type
<b>12.5mm Rigidur H</b>		kg/m <sup>2</sup> = 15.0 R (m <sup>2</sup> K/W) = 0.04
1200	2400	T/E
1200	2800	T/E
1200	3000	T/E
<b>15mm Rigidur H</b>		kg/m <sup>2</sup> = 18.0 R (m <sup>2</sup> K/W) = 0.04
1200	2400	T/E
1200	2800	T/E
1200	3000	T/E

T/E = Tapered edge.

## Introduction (continued)

### Rigidur H physical characteristics

Data (nominal values)	Rigidur H
<b>Dimensional tolerances at constant humidity</b>	
Length	-1mm/+0mm
Width	-1mm/+0mm
Diagonal difference	±2mm
Thickness	± 0.3mm
Taper width tolerances	35mm ± 10mm
<b>Nominal density &amp; strength</b>	
Nominal density	1200kg/m <sup>3</sup>
Flexural strength (value after drying at 40°C)	≥ 6.7N/mm <sup>2</sup>
<b>Certified tensile values according to DIN 1052 (Permit No: Z-9.1-434)</b>	
Bending perpendicular to the board surface	1.1N/mm <sup>2</sup> (12.5mm) 1.0N/mm <sup>2</sup> (15mm)
Bending in board surface	0.9N/mm <sup>2</sup>
Tension in board surface	0.4N/mm <sup>2</sup>
Pressure in board surface	1.8N/mm <sup>2</sup>
Shearing perpendicular to the board surface	0.5N/mm <sup>2</sup>
<b>Modulus calculations (Permit No: Z-9.1-434)</b>	
E-modulus perpendicular to the board surface	4500N/mm <sup>2</sup>
E-modulus parallel to the board surface	3500N/mm <sup>2</sup>
E-modulus tension	4500N/mm <sup>2</sup> (12.5mm) 2500N/mm <sup>2</sup> (15mm)
E-modulus compression	4500N/mm <sup>2</sup> (12.5mm) 3500N/mm <sup>2</sup> (15mm)
Shearing modulus G perpendicular to the board surface	1300N/mm <sup>2</sup>
<b>Additional data</b>	
Vapour permeability in accordance with DIN 526155	19μ
Thermal conductivity λ	0.35W/mK
Brinell surface hardness	35N/mm <sup>2</sup>
Swelling after 24 hours saturation	2%
Co-efficient of thermal expansion	15x10 <sup>-6</sup> K <sup>-1</sup>
Expansion/shrinkage due to changing of the relative humidity of 30% (at 20°C)	0.25mm/m
Moisture content at 65% relative air humidity and 20°C air temperature	1%
Classification in accordance with BS EN 13501-1: 2002	A1

## Standards

EN standard is EN 15283-2 Gypsum boards with fibrous reinforcement. Part 2: Gypsum fibre boards.

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### Performance

#### Fire protection

Rigidur H achieves an A1 Euroclass reaction to fire rating. Rigidur H achieves Class 0 reaction to fire rating in accordance with Approved Document B of the national Building Regulations.

#### Fire resistance

Performances achieved with Rigidur H will depend on the board type and thickness, number of layers, stud centres and type, fixing centres and type, and choice of cavity insulation. Two example specifications tested by British Gypsum are given below:

Board specification	Stud size	Cavity insulation	Fire resistance (EN) mins	Max. partition height (mm)		Partition duty <sup>1</sup>	System reference
				BS	EN		
Single layer of 15mm Rigidur H	Gypframe 70 S 60 'C' Stud	None	30	4000	4000	Severe	X606001
Outer layer of 12.5mm Rigidur H with an inner layer of 15mm Gyproc WallBoard	Gypframe 70 AS 50 AcouStud	None	60	4700	4000	Severe	X606A005

<sup>1</sup> The resistance to impact of Rigidur H is higher than the most severe criteria set out in *BS 5234: Part 2: 1992*. British Gypsum has conducted a number of additional structural performance and durability tests above and beyond Severe Duty to better reflect actual use in high traffic areas. Please contact the British Gypsum Drywall Academy for more information.

#### Sound insulation

The mass and sound absorbing qualities of Rigidur H enable high acoustic performance to be achieved. Performances will depend on the board type and thickness, number of layers,

stud centres and type, fixing centres and choice of cavity insulation. Four example specifications tested by British Gypsum are given below:

Board specification	Stud size	Cavity insulation	Sound insulation (R <sub>w</sub> ) dB	Partition duty <sup>1</sup>	System reference
Single layer of 15mm Rigidur H	Gypframe 70 S 60 'C' Stud	50mm Isover APR 1200	52	Severe	X606003
Outer layer of 12.5mm Rigidur H with an inner layer of 15mm Gyproc WallBoard	Gypframe 70 AS 50 AcouStud	None	54	Severe	X606A005
Outer layer of 12.5mm Rigidur H with an inner layer of 15mm Gyproc SoundBloc	Gypframe 70 AS 50 AcouStud	25mm Isover APR 1200	58	Severe	X606A007

<sup>1</sup> The resistance to impact of Rigidur H is higher than the most severe criteria set out in *BS 5234: Part 2: 1992*. British Gypsum has conducted a number of additional structural performance and durability tests above and beyond Severe Duty to better reflect actual use in high traffic areas. Please contact the British Gypsum Drywall Academy for more information.


## Performance (continued)

### Moisture resistance

The surface of Rigidur H has been treated to prevent the ingress of moisture. Tests have shown that it will increase less than 2% in thickness after immersion in water for 24 hours, and is therefore a product considered suitable for use in 'intermittently damp' areas (e.g. kitchens and bathrooms).

Rigidur H is suitable for internal applications only. If the boards become wet during construction they should be thoroughly dried out before finishing. If the boards become completely saturated, it may be necessary to replace the boards.

### Thermal conductivity

 Rigidur H - 0.35W/mK.

### Surface hardness

Brinell hardness  $\geq 35\text{N/mm}^2$ , compared with standard gypsum plasterboard at typically  $18\text{N/mm}^2$ .

### Limitations of use

Rigidur H is unsuitable for use in areas subject to continuously damp conditions and must not be used to isolate dampness. Rigidur H is not suitable for use in temperatures above  $49^\circ\text{C}$ .

### Effect of condensation

The thermal insulation and ventilation requirements of national Building Regulations aim to reduce the risk of condensation and mould growth in new buildings. However, designers should take care to eliminate all possibility of problems caused by condensation, particularly in refurbishment projects.

## Installation

### General

Additional time should be allowed for the cutting, handling and fixing of Rigidur H compared to standard Gyproc plasterboard.

Rigidur H should be stored on a firm, flat and level surface. If the boards are temporarily stored outside they should be kept clear of the ground and securely covered with an anchored polythene sheet or tarpaulin to protect from dampness and inclement weather.

### Cutting

Due to the high density and hardness of Rigidur H, it is not as easy to score and snap with a knife as Gyproc plasterboards. Best practice is to use a hand held circular saw with suitable dust extraction. Use a fine saw blade with a high ratio of teeth. Always use a suitable dust collection system. Always follow the manufacturers' guidance when using electrical tools.

For complex details (i.e. doors and socket details), it is recommended that a jigsaw is used. Curves can be achieved using a fret saw.

### Handling

Individual boards can be transported for short periods stood on end, although storage on end is not recommended as boards could become permanently warped.

### Fixing

Rigidur H is fixed using 40mm Rigidur Screws, at 300mm centres around the perimeter of the board and at the intermediate stud positions, at least 13mm from the edge of the board.

When using Rigidur H, always fix from the bottom of the partition upwards, as per best practice. Single layer Rigidur H should be fixed to Gypframe 70 S 60 'C' Studs. Double layers should be fixed to Gypframe 70 AS 50 AcouStuds or Gypframe 146 AS 50 AcouStuds.

Due to the length of Rigidur Screws, care must be taken when fixing in close proximity to services. Rigidur Screws have a smaller head than standard Gyproc Drywall Screws, allowing them to be counter-sunk into the tough Rigidur surface. Removing the depth adapter on the screw gun may reduce burring around the edge of the screw.

Note that, due to the high density and hardness of Rigidur H that gives it excellent impact resistance, some burring around the screw heads can be expected. Additional time should be allowed for cleaning off, before finishing with a small surfboard (or sand paper).

Inner layers of Gyproc plasterboards should be fixed with 25mm Gyproc Drywall Screws around the perimeter of the board at 300mm centres, and at the intermediate stud at 600mm centres.

For wall lining applications, it is recommended that Rigidur H is installed using the **Gyplyner UNIVERSAL** system, however, 12.5mm Rigidur H can be fixed using the **Drilyner BASIC** system, where dot and dab is a requirement. Due to the length of Rigidur Screws (40mm), care must be taken when fixing to Gypframe GL1 Lining Channel. A minimum cavity of 30mm will be required to ensure against thermal bridging to the external wall.

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### Finishing

#### Board types

T/E - Tapered Edge Finish with Gyproc jointing materials for taped and filled joints, or Thistle plasters.

#### Jointing

Gyproc jointing materials, together with Gyproc Joint Tape, produce a durable joint reinforcement and a smooth, continuous, crack-free surface ready for priming with Gyproc Drywall Primer and final decoration.

When jointing Rigidur H by hand, use Gyproc Easi-Fill. The joints can be finished using the 10" & 12" Gyproc Speed Tape Finishers (quick release versions) if desired. When jointing using the Gyproc Speed Tape Automatic Taper, use Gyproc ProMix UTE for the best results (Gyproc Joint Cement can be considered, but care needs to be taken to mix to the correct consistency). Due to the nature of the joints on tapered edge Rigidur H, the Gyproc Joint Tape will need to be bedded down with a 50mm wide taping knife to flatten the tape back onto the joint. Take care to leave sufficient jointing material behind the tape to ensure good adhesion. The joints can then be finished using the 10" & 12" Gyproc Speed Tape Finishers (quick release versions).

#### Plastering

Rigidur H can be skim-finished using Thistle Multi-Finish, Thistle Board Finish or Thistle Durafinish. The board surface may need to be treated with a coat of Thistle GypPrime prior to skimming, to control the suction.

For finishing Rigidur H, it is recommended that Thistle Durafinish or Gyproc jointing materials be used where optimum impact and abrasion resistance is required.

#### Decoration

Due to its smooth, hard surface, Rigidur H is suitable for all types of surface coverings, such as paint and wallpaper. The boards and their joints must be clean, dry and free from dust. Depending on the requirements of the decoration, ensure that all joints have been suitably sanded.

When painting Rigidur H, it is recommended that a base coat of Gyproc Drywall Primer is used before finishing with two coats of good quality trade emulsion.

Ceramic and synthetic tiles (up to 300mm x 300mm) are suitable for application to Rigidur H. Please follow manufacturers' recommendations regarding any surface preparation and adhesive that should be used. Please refer to SITE BOOK, section 10 – Finishing systems and decorative effects, for guidance regarding tile weight, and follow guidance for Gyproc plasterboard.

Mineral-based paints (e.g. lime, silicone) are not suitable for use with Rigidur H.

#### Heavy, semi-rigid or impermeable wallcoverings

The use of these wallcoverings may involve specialist adhesives or techniques which may not be compatible with Gyproc Drywall Primer. Consult the wallcovering and/or adhesive manufacturer for a specific recommendation.

#### Repair

**Minor damage** - lightly sand the surface to remove burrs and fill flush with two applications of Gyproc Joint Cement.

**Deep indents resulting from impact** - check the board core to ensure that it is not shattered. If intact, apply a coat of Gyproc Joint Filler followed by the procedure for repairing minor damage as outlined above, once set/dry.

**Extensive damage** - when the damage is more extensive, it may be necessary to replace that area of board. It is important that the replacement board is of the same type as specified and installed. Cut out the affected area back to the nearest framing member. Replace the board, accurately cutting and screw fixing the same type and thickness of board. Fill edge joints, then tape and finish in the recommended way. Redecorate as required.

**NB** It is essential that repairs are made 'like for like'. If the finish is skim plaster, jointing materials must not be used in the repair.

## Finishing (continued)

### Attaching loads

#### Flat loads

Lightweight flat objects (e.g. pictures and mirrors) can be simply hung with picture hooks or wood screws fixed directly into the board, without the need for support noggings (see main table below for loadbearing capacity). When fixing flat loads, any two points of attachment must have a minimum distance of 150mm from each other. Failure to do so will result in the halving of the weight of the load able to be supported.

#### Cantilever loads

Shelves and hanging cupboards can be attached with suitable cavity fixings. The choice of attachment method is dependent upon the weight, distance of the weight from the fixing, and dimensions of the object. When fixing cantilever loads, any two points of attachment must have a minimum distance of 150mm from each other. Failure to do so will result in the halving of the weight of the load able to be supported. Contact the fixing manufacturer for guidance when calculating cantilever loads.

### Heavy loads

Heavy loads (e.g. wash basins, sanitary units and radiators) should be fixed to the Gypframe metal framing.

Examples of the pull out capacity of various fixings in Rigidur H are given in the table below:

Board lining	Fixing type	Safe working load per fixing <sup>1</sup>	
		Pull down	Pull out
Single layer Rigidur H	Single picture hook and masonry nail	12.5mm = 17kg 15mm = 18kg	
Single layer Rigidur H	Number 10 woodscrew		12.5mm = 30kg 15mm = 30kg
Single layer Rigidur H	'Fischer PD' nylon plug & screw		12.5mm = 20kg 15mm = 20kg
Single layer Rigidur H	'Fischer UX (8 x 50)' nylon plug & screw		12.5mm = 21kg 15mm = 27kg
Single layer Rigidur H	'Fischer HM8 x 55' steel cavity fixing		15mm = 49kg
Single layer Rigidur H	'Fischer KD6' steel cavity fixing		12.5mm = 58kg 15mm = 74kg

<sup>1</sup> Safe working loads were calculated using a safety factor of x4 for metal fixings and x7 for plastic fixings as per Construction Fixings Association guidance. Please refer to the fixing manufacturers' recommendations when mounting and fixing.



# Rigidur H for commercial applications

## Product data sheet

### Health & Safety

This information reflects typical values and is not a product specification.

#### 1. Identification of the substances / preparation and company

##### Rigidur H

Supplier British Gypsum  
East Leake  
Loughborough  
Leicestershire  
LE12 6HX

Telephone 08705 456123

Recommended uses: Rigidur H is a gypsum fibreboard designed for interior drywall construction.

#### 2. Composition / information on ingredients

General composition: Calcium sulphate dihydrate and fibres of recycled paper.

#### 3. Hazards identification

THE MOST IMPORTANT HAZARDS ARE:

These products are not classified as dangerous according to CHIP.

Dust from sawing or sanding may irritate the respiratory system, skin and eyes.

#### 4. First aid measures

Eye contact Wash eyes with clean water.

Skin contact Wash thoroughly with soap and water.

Ingestion DO NOT INDUCE VOMITING. Rinse out mouth thoroughly and give plenty of water.

Inhalation If irritation occurs, remove person to fresh air.

General Get medical attention if any symptoms persist.

#### 5. Fire fighting measures

The products do not pose a fire hazard. However, some packaging materials or facings may burn.

Suitable extinguishing media – water, foam, carbon dioxide or dry powder.

#### 6. Accidental release measures

Not applicable.

#### 7. Handling and storage

Use – Minimise dust generation when sawing or sanding in poorly ventilated places. Avoid eye contact - see Section 8 for recommended personal protective equipment and Section 3 for hazards identification.

Rigidur H will not support body weight between rafters, joints or frame members.

Manual handling – Sheets of Rigidur H can be unwieldy, use an appropriate lifting technique. The weight of each sheet can vary between products. For manual handling purposes assume the following nominal weights:

##### Rigidur H weights

Board	Board thickness mm	Board width mm	Board length mm	Board weight kg	Pallet weight tonnes
Rigidur H	12.5	1200	2400	43	1.9
	12.5	1200	2800	50	2.0
	12.5	1200	3000	54	2.3
	15	1200	2400	52	1.7
	15	1200	2800	61	1.8
	15	1200	3000	65	1.7

**NB** All weights are approximate.

Mechanical handling – The dimensions of the pallet vary depending on the product size. To avoid potentially overloading a lift truck, it is important that any effect on load centres is considered. The nominal weight of each palletised load is given in the weights table in this section of the document.

Storage – Store on pallets supplied, in dry conditions. To maintain stability, place pallets on firm level ground, and ensure that stacks are both level and vertical.

**NB** When working with individual boards, only work from a single pallet, not a stack.

##### Pallet stacking heights

The maximum stack heights on level concrete floors and vertical stacks are as follows:

Board width mm	Board length mm	Pallet stack height packs
1200	2400	6
1200	2800	6
1200	3000	7

## Health & Safety (continued)

### 8. Exposure control / personal protection

#### Workplace exposure limit

Substance	Total inhalable	Respirable
Plaster	10mg/m <sup>3</sup> 8hr TWA	4mg/m <sup>3</sup> 8hr TWA
Quartz (silica)		0.1mg/m <sup>3</sup> 8hr TWA
Man Made Mineral Fibres (MMMMF)	5mg/m <sup>3</sup> 8hr TWA (gravimetric method)	

**NB** HSE guidance - control exposure to <0.1mg/m<sup>3</sup> (8 hr TWA).

#### Personal protection

**Respiratory** Use in a well ventilated area. Where practicable use engineering methods to control dust levels. If the exposure standards could be exceeded use a disposable face mask complying with *EN 149 FFP2*.

**Skin** Wear appropriate clothing to protect against repeated or prolonged skin contact.

**Eye** If there is a risk of material entering the eye, wear eye protection to *BS EN 166*.

### 9. Physical and chemical properties

**Appearance** Solid flat sheet in a beige colour.

### 10. Stability and reactivity

No special physical conditions need to be avoided. No specific restrictions regarding incompatible materials.

### 11. Toxicology information

No known toxicological effects.

### 12. Ecological information

Stable product with no known adverse environmental effects.

### 13. Disposal consideration

Waste from gypsum plasterboard products is normally classified as 'non-hazardous, non-inert' and is fully recyclable. Please refer to the British Gypsum Plasterboard Recycling Service literature or contact the Plasterboard Recycling Customer Service Centre on 0800 6335040 for details. Other methods of disposal are available. Always seek the advice of a trained and competent professional.

### 14. Transport information

Not classified as hazardous for transportation.

### 15. Regulatory information

Not classified under the CHIP regulations.

### 16. Other information

Control of Substances Hazardous to Health Regulations  
The Manual Handling Operations Regulations  
HSE Guidance Note EH40: Workplace Exposure Limits  
Gypsum Wastes – Environment Agency Information Sheet  
The British Gypsum **WHITE BOOK**  
The British Gypsum **SITE BOOK**  
The British Gypsum website: [www.british-gypsum.com](http://www.british-gypsum.com)

**Note to user:** This Product Data Sheet does not constitute a workplace risk assessment for COSHH.

There are a number of situations where the approach to manual handling of British Gypsum products should be considered. For further guidance, please refer to the Manual Handling Section of the **SITE BOOK**, or Manual Handling Guide, available to download from the British Gypsum website [www.british-gypsum.com](http://www.british-gypsum.com)

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For a comprehensive and up-to-date library of information visit the British Gypsum website at: [www.british-gypsum.com](http://www.british-gypsum.com)

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