

THE WHITE BOOK

THIRD EDITION (3.4)



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Welcome to the 3rd edition of the Middle East WHITE BOOK.

First published in the UK in 1972; the Middle East White Book is the first major drylining guide to focus specifically on the Middle East market.

In a few short years, Gyproc's Middle East White Book has not only become an essential reference document for building professionals but has helped to supercharge the growth of lightweight building systems across the Middle East.

Now in its third edition, it contains the latest solutions and recommendations from experts who have worked on building projects, large and small, across our region, and who understand their unique demands.

The comprehensive guide has been compiled by Gyproc's own team of technical and design specialists, with support from colleagues at Saint-Gobain, the world's leading expert in high performance lightweight drylining systems.

It contains detailed information and performance data to enable users to select and specify tried and tested partitions, linings, ceilings and external facades in every type and height of building.

It includes design and technical guidance on key areas such as fire, acoustics and structural performance, as well as information on sustainability and the environment – areas of growing importance to the Middle East construction industry.

This edition has been updated to include all the latest physical test results for fire and acoustic rated systems. There are new higher performing products like Gyproc SoundBloc, Gypframe AcouStuds and specialist Gypframe Resilient Bars giving increased acoustic performance over standard drywall, Glasroc X sheathing board for ultra-high resistance to moisture & mold and Gyproc Habito, the high strength plasterboard with superb fixing capability.

Researching and compiling such a comprehensive and authoritative guide is a major achievement. It has involved many hundreds of hours of dedicated work by our own technical specialists; by our colleagues from Saint-Gobain sister companies and research centres across the globe; and by our customers, distributors and other partners who have contributed and supported us over the years.

We hope you continue using this latest version of the Middle East White Book as your trusted guide in designing, specifying and delivering modern high-performing buildings across the Middle East.

Contents

Saint-Gobain Gyproc Middle East Plant
Abu Dhabi, United Arab Emirates

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Gyproc reserves the right to revise product specification without notice.

The information contained in this WHITE BOOK was, to the best of our knowledge, correct at the date of publication. For the very latest information, please refer to the online version of the WHITE BOOK (www.gyproc.ae), which is updated on a regular basis, as advice and specifications are changed. It remains the sole responsibility of the user to ensure current information is used at all times. Please note that 3D drawings have been included in this publication, and whilst they provide a close representation of the products and systems, they are primarily intended for illustrative purposes only.

The information herein should not be read in isolation as it is meant only as guidance for the user, who should always ensure that they are fully conversant with the products and systems being used and their subsequent installation prior to the commencement of work.

We advise that you read and familiarise yourself with all the information contained in this literature prior to the commencement of the work or specification. Also, please refer to our Product Data Sheets, available to download from www.gyproc.ae

For a comprehensive and up-to-date library of information visit the Gyproc website at: www.gyproc.ae

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Performance selector

When specifying a partition, lining or ceiling system, it is the performance characteristics that normally determine the solution. The system selector (pages 8 and 9) have been developed with this in mind. Simply select from the performance categories to easily identify the Gyproc systems that best satisfy the project requirements. A brief explanation of the categories are given below:

1 The selector table shows the range of performances offered by each system.

System selector	Performance			
	Sound absorption	Insulation		resis
		Airborne	Impact	
α_w	R_w dB	STC dB	L_{nw} dB	minutes
	33 - 62	34 - 60		30 - 180
	41 - 50	41 - 51		60
	36 - 62	37 - 63		30 - 120
	60 - 64	61 - 66		90 - 120
	58 - 62	59 - 63		90 - 120
	69 - 79	71 - 79		90 - 180
	42 - 50	43 - 51		60 - 120

33 - 62 **30 - 180**

0.50 - 0.75 Sound absorption - α_w & NRC

Absorption ratings used to describe the acoustic characteristics of a product. Used to determine and help specify the amount of acoustic comfort required within a space, controlling reverberation for better speech clarity. Typically used in schools and communal areas of apartments or other buildings.

33 - 62 Airborne sound insulation - R_w dB

Level of sound insulation afforded by a construction to adjacent areas in terms of airborne noise transmission, i.e. speech or music.

34 - 60 STC

This single figure rating method is the rating used for laboratory airborne sound insulation tests. The figure indicates the amount of sound energy being stopped by a separating building element when tested in isolation in the absence of any flanking paths.

68 - 57 Impact sound insulation - L_{nw} dB

Level of sound insulation afforded by a construction to adjacent areas in terms of impact noise transmission, i.e. footfall or furniture movement.

30 - 180 Fire resistance - minutes

Fire performance test results to the relevant standards.

► For further information on the above terms and other performance criteria, please refer to section - **Technical performance and principles of system design**

Key benefits

Gyproc systems offer a huge amount of flexibility meaning that they can be tailored to meet the requirements of a wide range of requirements.

► Refer to System introduction pages.

2 Key benefits as displayed in system introduction.

Key Benefits

- Lightweight system solution
- Achieves high levels of sound insulation up to R_w 62dB
- Satisfies BS 5234 requirements up to and including Severe Duty
- Accommodates services within the stud cavity
- 30 - 180 minutes fire resistance to BS, EN and ASTM standards
- Can allow for deflection at the head

Selecting components

The system component pages give an overview of the components used within each Gyproc system. Not all components will be used in all specifications, as some products are interchangeable depending upon performance requirements.

► Refer to System components pages.



System components

Gyproc Wall class

- Gyproc Acoustic** (Gyproc Acoustic) Vertical stud partitioning system designed to reduce sound transmission.
- Gyproc Standard Ceiling Channels** (Gyproc Standard Ceiling Channels) Standard floor and ceiling for meeting Gyproc partitions and ceiling systems at headroom to height not exceeding 4.500m.
- Gyproc Extra One-Flap Ceiling Channels** (Gyproc Extra One-Flap Ceiling Channels) Floor and ceiling channels designed for meeting studs at floor and ceiling for partitions over 4.500m and one-flap Gyproc deflection heads (resists deflection).

Gyproc Wall class (continued)

- Gyproc Regular** (G.S. Series) Standard gypsum plasterboard.
- Gyproc Moisture Resistant** (G.S. Series) Gypsum plasterboard with moisture resistant additives in the core and normal green lining paper for easy re-decoration.
- Gyproc FireStop** (G.S. Series) Gypsum plasterboard with fire resistant additives.
- Gyproc SoundBloc** (G.S. Series) Gypsum plasterboard with a high density core for enhanced sound insulation performance.
- Gyproc Gypsum X** (G.S. Series) Gyproc X is a high performance board with a mineral wool core and fire & smoke resistant (MFR/SMR) quality core.

Fitting products

- Gyproc Drywall Screws** (Gyproc Drywall Screws) Standard metal self-drilling metal screws for fixing Gyproc to metal framing via metal channel track.
- Gyproc Waterhead Screws** (Gyproc Waterhead Screws) Corrosion resistant self-drilling metal screws for fixing metal to metal framing via metal channel track.
- Gyproc Jack-Point Screws** (Gyproc Jack-Point Screws) Corrosion resistant self-drilling metal screws for fixing Gyproc to Gyproc metal framing channels via metal channel track.
- Gyproc Wedge Anchor** (Gyproc Wedge Anchor) Corrosion resistant anchor used for securing metal channel track to masonry.
- Gyproc Hammer Fix** (Gyproc Hammer Fix) Corrosion resistant self-drilling metal screws for fixing into the metal channel track and metal partition into masonry.

An illustration of the component and a brief description of its use and / or physical properties is included in the listing.

► Refer to System components pages.

Performance tables

Each performance table details the performance levels that each specification achieves. This includes the following, where appropriate:

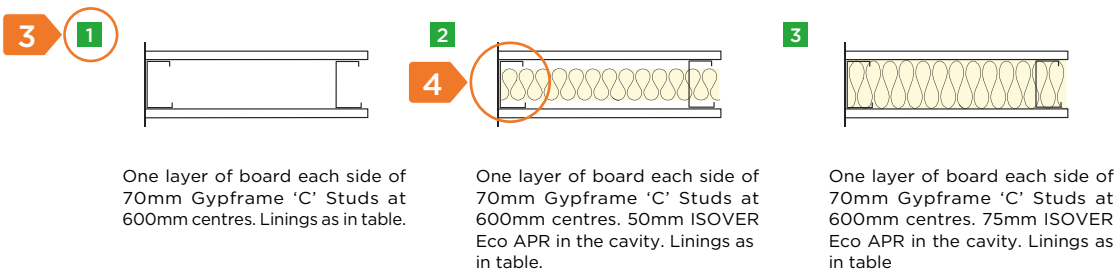
- Fire resistance
- Partition and lining thickness
- Acoustic performance
- Maximum partition height
- Duty rating

Within each system, solutions are primarily sorted by fire performance, then by partition thickness, as shown in the example below:

► Refer to Performance pages

- 3** Each row in the table has a number that corresponds with the plan view drawings located above each table.
- 4** Plan view drawings, located above each table, illustrate the composition of each specification.
- 5** Fire resistance is the primary selector for solutions.
- 6** The fire resistance test standard that applies to performances quoted on the page.
- 7** Important notes, relating to the performances quoted in the table, are located at the bottom of each table.

6 Table 1 – GypWall ROBUST 70mm Gypframe 'C' Studs (70S60) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263



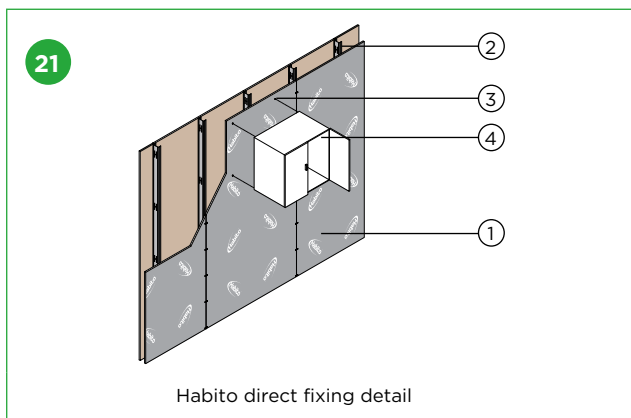
Detail	Partition thickness mm	Board type	Lining thickness mm	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		
5 60 minutes fire resistance								
1	102	DuraLine	1 x 15	4000	41	42	Severe	29
2	102	DuraLine	1 x 15	4000	49	48	Severe	29
3	102	DuraLine	1 x 15	4000	50	51	Severe	29

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs or reduced stud centres. Refer to Technical performance and principles of system design - Robustness section for increased heights.

7 **NB** For increased fixing capability replace above listed boards with equitant thickness of Gyproc Habito.

System design construction details

At the end of each system section, additional design information and construction detailing is included.



1. Gyproc Habito plasterboard
2. Gypframe 'C' Stud
3. No. 10 woodscrew, directly fixed to board only
4. Wall cupboard

Products

Refer to the Products section, pages 311-354, for a listing of Gyproc components used in this publication.

Key	S/E - Square edge	Included in the listings are product details such as dimensions, weights, finish details and other useful information.
	T/E - Tapered edge	

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Performance

Title

Sound absorption	Sound insulation		Fire resistance	Title	
	Airborne	Impact			
α_w	R_w dB	STC dB	L_{nw} dB	minutes	
PARTITION AND WALL SYSTEMS					
	33 - 62	34 - 60	30 - 180	GypWall CLASSIC	
				GypWall CURVE	
	41 - 50	41 - 51	60	GypWall ROBUST	
	36 - 62	37 - 63	45 - 120	GypWall HABITO	
	60 - 64	61 - 66	90 - 120	GypWall QUIET SF	
	58 - 62	59 - 63	90 - 120	GypWall QUIET	
	69 - 79	71 - 79	90 - 180	GypWall AUDIO	
	42 - 50	43 - 51	60 - 120	ShaftWall	
WALL LINING SYSTEMS					
				DriLyner BASIC	
	49 - 66			GypLyner UNIVERSAL	
	59 - 61		30 - 120	GypLyner IWL	
CEILING SYSTEMS					
	56 - 64	68 - 57		Gyproc MF ceilings	
				Gyproc MF CURVE	
			60 - 120	Gyproc MF fire performance ceilings	
	0.55 - 0.65			Gyptone acoustic ceilings - BIG boards	
	0.35 - 0.85			Rigitone acoustic ceilings	
				GypLyner UNIVERSAL ceilings	
	0.65 - 0.80			Gyptone GRID - acoustic ceilings	

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SpecSure

System Performance Future Proofed

Gyproc is a provider of superior quality products, for high performing systems, that are rigorously tested to internationally recognised standards.

Our systems withstand the robust demands of today's construction methods and building uses and provide comfortable living and working environments to the occupant.

We are confident our products will perform as intended. So confident we stamp it with Gyproc assurance. Our SpecSure system warranty is available on all complete Gyproc systems that consist of our comprehensive range of products.

SpecSure - guaranteeing the future of drywall.

The Gyproc Promise

SpecSure is your guarantee that the system you have chosen:

- Comprises only the highest quality components, designed to work individually and together to deliver the specified level of performance.
- Has the technical expertise and experience of the Middle East's leading drylining specialists behind it.
- Has been tested in third party accredited fire, acoustic and structural test laboratories.
- Has been site tested to demonstrate installation integrity and simplicity.
- Will be supported as required at every stage of the project by the Middle East's leading on and off-site technical support personnel.
- Will perform to published parameters once installed, to our recommendations.
- Will be replaced in the unlikely event of system failure attributed to; products manufactured outside published standards and system performance outside of published standards.



What you get with SpecSure

The best components

All Gyproc systems are precision engineered to provide the right level of performance for your building.

A range of systems designed for today's buildings

Our systems have been purpose-designed by experienced technicians to meet the challenging needs of today's increasingly demanding buildings.

Guaranteed performance

The systems are exhaustively tested in third party accredited laboratories, amongst the best-equipped and most advanced drywall testing facilities in Europe and around the world.

Full technical support

Gyproc is the leading authority on drywall systems, with a full team of designers, technicians, trainers and qualified technical advisors to help with every aspect of system design and installation.

The backing of the world leader in gypsum products

With over 14,700 employees across 135 sites in 67 countries, Saint-Gobain Gypsum Activities has an extensive network and an in-depth knowledge of local markets. Its 5 local brands Gyproc, Placo®, Rigips, British Gypsum and Certainteed have immediate access to the best practices in interior building systems and solutions all around the world. And most importantly, we value and invest in long-term customer relationship as well as training more than 20,000 employees each year, so that clients stay confident about the integrity of our people, products and processes.

To qualify for SpecSure

- Specify and install Gyproc systems in line with the recommendations in the current White Book - Middle East Edition. (www.gyproc.ae/literature)
- The systems must comprise only genuine branded Gyproc components (Gyproc, Gypframe, Glasroc, Aquaroc, Gyptone, Rigitone and ISOVER), tried and tested in buildings for many decades.
- We cannot guarantee that the use of other manufacturers' components will meet our rigorous performance and quality standards when installed in our tested systems.

Technical performance and principles of system design

Fire performance

Principles of fire performance

Fire growth

The choice of materials for internal and external walls and ceilings can significantly affect the spread of fire and its rate of growth, even though they are not likely to be the materials first ignited. The specification of linings is particularly important in circulation spaces where surfaces may offer the main means by which fire spreads, and where rapid spread is most likely to prevent occupants from escaping.

Two properties of lining materials that influence fire spread are the rate of flame spread over the surface when it is subject to intense radiant heating, and the rate at which the lining material gives off heat when burning.

Compartmentation

The spread of fire within a building can be restricted by sub-dividing it into compartments separated from one another by walls and / or floors of fire resisting construction. Two key objectives are:

- To prevent rapid fire spread, which could trap occupants in the building.
- To reduce the chance of fires becoming large, which are more dangerous - not only to occupants and fire service personnel, but also to people in the vicinity of the building.

The appropriate degree of sub-division depends on:

- The use and fire loading of the building, which affects the potential for fires and their severity, as well as the ease of evacuation.
- The height to the floor of the top storey in the building, which is an indication of the ease of evacuation and the ability of the fire service to intervene effectively.
- The Authority Having Jurisdiction (AHJ), commonly Civil Defence.

Structural fire precautions

Premature failure of the structure can be prevented by the provision for loadbearing elements to have a minimum period of fire resistance to failure of loadbearing capacity. The purpose in providing the structure with fire resistance is:

- To minimise the risk to the occupants, some of whom may have to remain in the building for some time (particularly if the building is a large one), while evacuation proceeds.
- To reduce the risk to fire fighters engaged in search and rescue operations.
- To reduce the danger to people in the vicinity of the building who may be hurt by falling debris, or because of the impact of the collapsing structure on other buildings.

Structural behaviour of steel in fire

Steel generally begins to lose strength at temperatures above 300°C and eventually melts at about 1500°C. Importantly for design, the greatest rate of strength loss is in the range of 400°C to 600°C.

Using international fire design codes, the load on the structure at the time of the fire can be calculated by treating it as an accidental limit state. If used, this will allow designers to specify to the fire protection contractor a limiting or failure temperature for a given structural section. The fire protection contractor will then be able to use the required thickness of material to ensure that the steel section does not exceed this temperature within the fire resistance period. This process could be simplified by the designer specifying a maximum steel temperature, based on the worst case, for all beams or columns on one floor level.

Buildings that are not primarily used for storage, e.g. offices, residential units, schools and hospitals, have a high percentage of non-permanent loads. For this type of building, some structural codes assume that a proportion of the design load will not be present at the time of the fire. Other types of buildings, such as warehouses and libraries, are primarily used for storage, so a high percentage of the load is permanent, and the codes allow for no reduction in design load for the fire condition. Please refer to the Fire and Life Safety (FLS) strategy for the exact project requirements.

The fire testing standards effectively base the failure criteria for loadbearing elements on strength. However, beams are often designed for deflection requirements, which mean that their strength is not fully utilised in the cold state and they would therefore have an additional reserve of strength at the fire limit state.

Columns are frequently designed so that a single length will be two or three storeys high. The lowest storey will be loaded the highest and the upper storey will be lightly loaded.

In buildings with a degree of non-permanent load (in terms of duration and magnitude), the load ratio of the structural members is unlikely to be greater than 0.6. In storage buildings, where the majority of load is permanent, the load ratio would normally be higher, but is unlikely to be greater than 0.65.

The thicknesses of protection required are specified for design temperatures of 550°C, unless otherwise stated. It is the responsibility of the design engineer, to specify the appropriate limiting steel temperatures.

The loss of strength of cold-formed steel at elevated temperatures exceeds that of hot-rolled steel by between 10% and 20%. Expert advice should be sought in determining the strength reduction factor at the limiting temperature.

Technical performance and principles of system design

Fire performance

Why gypsum is so effective in fire



Glass fibres within the core of a Glasroc specialist board



Failure of fire rated partition

Fire resistance

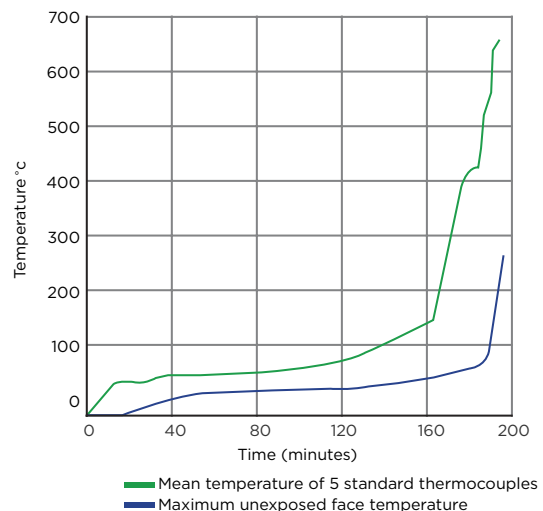
Gyproc Plasterboards and Glasroc specialist boards provide good fire protection due to the unique behaviour of gypsum in fire. When gypsum-protected building elements are exposed to fire, dehydration by heat (calcination) occurs at the exposed surface and proceeds gradually through the gypsum layer. Calcined gypsum on the exposed faces adheres tenaciously to uncalcined material, retarding further calcination which slows as the thickness of calcined material increases. While this continues, materials adjacent to the unexposed side will not exceed 100°C, below the temperature at which most materials will ignite, and far below the critical temperatures for structural components. Once the gypsum layer is fully calcined, the residue acts as an insulating layer while it remains intact.

Figure 1 - Temperature profile on the unexposed face of a partition system, shows a typical unexposed temperature profile for a plasterboard lined partition. The graph shows that there is a significant plateau in the temperature rise, while the plasterboard is undergoing calcination. After this period the temperature gradually rises until the boards lose their integrity and fall away.

The inclusion of glass fibres and shrinkage inhibitors within the gypsum core of certain plasterboards improves the cohesive properties and fire integrity performance. This enables a much higher fire protection performance to be achieved compared to Gyproc Regular board.

In terms of reaction to fire, gypsum products are excellent performers as the endothermic hydration reaction requires energy to be taken from the fire, so gypsum is a negative calorific contributor.

1 Temperature profile on the unexposed face of a partition system



Technical performance and principles of system design

Fire performance

British test standards



Fire resistance test - integrity testing on 3m high partition

Fire resistance test standards

Building Regulations and supporting documentation require elements of structure and other building elements to provide minimum periods of fire resistance, expressed in minutes, which are generally based on the occupancy and size of the building.

Fire resistance is defined in BS 476: Part 20: 1987 as 'the ability of an element of building construction to withstand exposure to a standard time / temperature and pressure regime without loss of its fire separating function or loadbearing function or both for a given time.

BS 476: Part 20: 1987

Describes the general procedures and equipment required to determine the fire resistance of elements of construction.

BS 476: Part 21: 1987

Describes the specific equipment and procedures for determining the fire resistance of loadbearing elements.

BS 476: Part 22: 1987

Describes the procedures for determining the fire resistance of non-loadbearing elements.

BS 476: Part 23: 1987

Describes the specific equipment and procedures for determining the contribution made by components to the fire resistance of structures.

Loadbearing capacity

A loadbearing element must support its test load. For floors, flat roofs and beams, allowable vertical deflection is limited to $\frac{1}{20}$ of the clear span.

Integrity

A separating element must resist collapse, the occurrence of holes, gaps or fissures through which flames and hot gases could pass, and sustained flaming on the unexposed face.

Insulation

A separating element must restrict the temperature rise of the unexposed face to below specified levels.

Reaction to fire test standards

Non-combustibility



Non-combustibility testing

To help provide maximum fire safety in buildings, certain building elements need to be constructed of non-combustible materials. A building material is designated as non-combustible if it satisfies performance criteria when tested in accordance with:

BS 476: Part 4: 1970 (1984) Non-combustibility test for materials.

BS 476: Part 11: 1982 (1988) Method for assessing the heat emission from building materials.

Technical performance and principles of system design

Fire performance

Materials of limited combustibility

- (a) Any non-combustible material.
- (b) Any material of density 300 kg/m^3 or more, which does not flame or cause a 20°C temperature rise when tested to BS 476: Part 11.
- (c) Any material with a non-combustible core at least 8mm thick having combustible facings (on one or both sides) not more than 0.5mm thick. Where a flame spread rating is specified, these materials must also meet the appropriate test requirements.

Gyproc plasterboards are all designated as materials of limited combustibility.

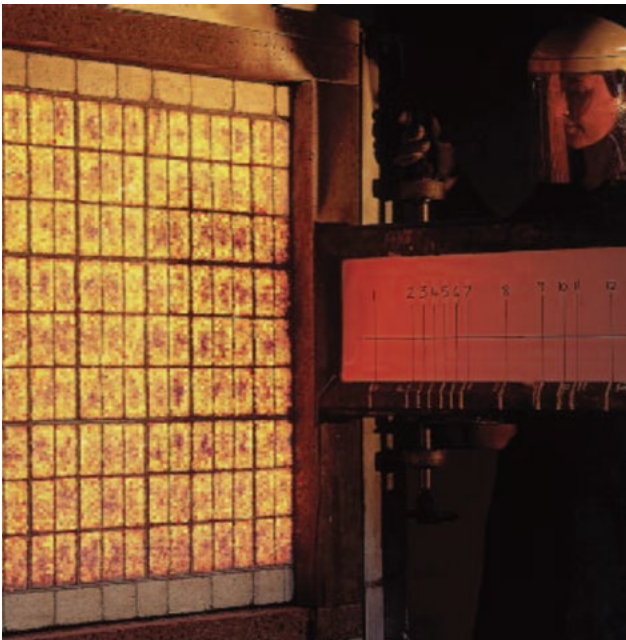
Glasroc X is designated as a non-combustible material.

Surface spread of flame

Flame spread over wall and ceiling surfaces is controlled by providing materials that are either non-combustible or materials of limited combustibility. Combustible materials (or certain materials of limited combustibility that are composite products) when tested to the standards below, are classified Class 1, 2, 3 or 4. Class 1 provides the greatest resistance to surface spread of flame.

BS 476: Part 7: 1997 Method of test to determine the classification of the surface spread of flame of products.

The exposed plasterboard surfaces of Gyproc plasterboards and Glasroc specialist boards are all designated as Class 1.



Surface spread of flame test

Fire propagation

Investigations concerned with the growth of fires in buildings show that the surface spread of flame test does not measure all the properties that are relevant for placing combustible materials in the proper order of hazard. Such considerations led to the test which is described in BS 476: Part 6: 1989 Method of test for fire propagation for products. This test takes into account the amount and rate of heat evolved by a specimen whilst subjected to a specified heating regime in a small furnace. The standard describes the method of calculating the results to obtain indices of performance, which help to determine the suitability of combustible wall and ceiling lining materials when used in areas requiring maximum safety.

Class 0

In addition to the degree to which combustible materials used as wall and ceiling linings can contribute to the spread of flame over their surfaces, consideration must also be given to the amount and rate of heat evolved by these materials when used in areas requiring maximum safety. Designers may choose to make provisions that wall and ceiling surfaces must be Class 0 in circulation spaces (which are often escape routes) and in other specific situations. In UK Building Regulations, Approved Document B (AD B), a Class 0 material is defined as either:

- (a) composed throughout of materials of limited combustibility (this term includes non-combustible materials)

or

- (b) a Class 1 material that has a fire propagation index (I) of not more than 12 and a sub-index (i1) of not more than 6.

The exposed surfaces of Gyproc plasterboards and Glasroc specialist boards are designated Class 0 in accordance with Approved Document B (AD B).

Although Class 0 is the highest performance classification for lining materials, it is not a classification identified in any British Standard.

Technical performance and principles of system design

Fire performance

American test standards

Fire codes

Fire codes are intended to establish minimum requirements that provide a reasonable degree of safety from fire in buildings and structures. These requirements vary depending on the use, occupancy, and construction details of the specific building. From the standpoint of building materials the codes are generally concerned with flammability ratings of interior finish materials, combustibility of the construction and its components, and the ability of a construction to resist exposure to fire.

Interior finish

Wall and ceiling surfaces are rated by their *flame spread index (FSI)* and *smoke developed index (SDI)*. These ratings are determined in accordance with ASTM E84, Standard Method for Test of Surface Burning Characteristics of Building Materials. This test method determines the relative performance value of the material being tested as compared to inorganic reinforced cement board (FSI = 0) and red oak (FSI = 100). Test methods designated UL 723 and UBC Standard 8-1 are recognised as being equivalent to ASTM E84.

International Building Code (IBC) have established three classes of performance, based upon flame spread and smoke developed indexes, which are used to specify requirements within the code:

CLASS DESIGNATION	FLAME SPREAD INDEX	SMOKE DEVELOPED INDEX
A	0-25	0-450
B	26-75	0-450
C	76-200	0-450

Materials classified as non-combustible

Materials that meet the criteria of ASTM E136, Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C, are classified as being non-combustible. In this test, a material sample is placed in the test furnace and its flaming time and the furnace temperature are measured. This test method is for the base material only and does not cover any surface coverings or coatings.

For materials that have a surface covering, the model building codes further define a non-combustible material as having a base material that meets the requirements of ASTM E136 and a surface covering less than 1/8" (3mm) in thickness whose flame spread index is not greater than 50.

Fire resistance

The ability of a structure to remain in place and prevent the spread of flames and heat when exposed to fire conditions is termed its fire resistance or time fire rating and is determined in accordance with ASTM E119, Standard Test Method for Fire Tests of Building Construction and Materials. In this test, a large scale construction sample is exposed to a standardised fire condition and performance is measured against test criteria which include temperature rise, ignition of cotton on the unexposed side of the sample, the ability of the sample to remain in place during the test period, and its ability to withstand a hose stream test after the fire test is completed.

The fire resistance rating is stated in periods of time such as 2 hour, 1 hour, 45 minutes and 30 minutes. The test allows the construction to be further classified as load bearing or non-load bearing walls. Test methods recognised UL 263 and UBC Standard 7-1 are recognized as being equivalent to ASTM E119.

Building codes regulate the type and location of materials used in building construction to provide for structural stability as well as for an acceptable degree of occupant safety when the building may be exposed to fire. Local code requirements must be consulted in order to determine specific compliance requirements.

Technical performance and principles of system design

Fire performance

Useful reference documents covering international legislation and guidance

Fire safety - building regulations

UK Building Regulations Approved Document B (AD B) is one of a series of documents approved by the Secretary of State as practical guidance on meeting the requirements of Schedule 1 and Regulation 7 of Building Regulations 2000 (England and Wales). AD B Volume 1 covers dwelling houses and AD B Volume 2 covers buildings other than dwelling houses.

The documents classify the use of a building into purpose groups and specify minimum periods of fire resistance to be achieved by the building elements. The periods of fire resistance vary according to the use and the size of building. The greater the fire hazard a building presents then the greater the period of fire resistance required to protect the elements within the building. The materials used to form the internal surfaces of the building are also controlled to reduce the risk of fire growth and internal fire spread.

Healthcare buildings - HTM 05 Firecode

Hospitals and healthcare environments, by their very nature, contain people who are at risk from fire. The recommendations given in the suite of HTM (Health Technical Memorandum) 05 Firecode (UK) includes internal fire spread, elements of structure, compartmentation, fire hazard areas, hospital streets, penetrations, protected shafts, ceiling membranes, cavity barriers and fire-stopping.

Educational buildings - Building Bulletin 100 (BB100)

In the UK the design of fire safety in schools is covered by BB100.

Fire protection for structural steel in buildings, ASFP Yellow Book

A UK publication prepared by the members of the Association for Specialist Fire Protection (ASFP). Presents the theory behind, and methods for, fire protection of structural steelwork. It provides a comprehensive guide to proprietary materials and systems.

Technical performance and principles of system design

Building acoustics

Principles of building acoustics

Building acoustics is the science of controlling noise in buildings, including the minimisation of noise transmission from one space to another and the control of noise levels and characteristics within a space.

Noise can be defined as sound that is undesirable, but this can be subjective and depends on the reactions of the individual. When a noise is troublesome, it can reduce comfort and efficiency. If a person is subjected to noise for long periods, it can result in physical discomfort or mental distress. In the domestic situation, a noisy neighbour can be one of the main problems experienced in attached housing. The best defence against noise is to ensure that proper precautions are taken at the design stage and during construction of the building. The correct acoustic climate must be provided in each space and noise transmission levels should be compatible with usage. Retrofitted remedial measures taken after occupation can be expensive and inconvenient.

Ideally, the sound insulation requirements of the building should take into account both internal and external sound transmission. The term 'building acoustics' embraces sound insulation and sound absorption. These two functions are distinct and should not be confused. See - Sound absorption.

Sound insulation

Sound insulation is the term describing the reduction of sound that passes between two spaces separated by a dividing element. In transmitting between two spaces, the sound energy may pass through the dividing element (direct transmission) and through the surrounding structure (indirect or flanking transmission). In designing for sound insulation, it is important to consider both methods of transmission. The walls or floors, which flank the dividing element, constitute the main paths for flanking transmission, but this can also occur at windows, cooling or ventilation ducts, doorways, etc.

The acoustic environment of the room and / or the building and the ability to reduce or eliminate air paths in the vicinity of the sound reducing element, e.g. doorsets, glazing, suspended ceiling cavities, ductwork, etc, will have a significant effect on its performance. For these reasons it is unlikely that figures quoted from laboratory test conditions will be achieved in practice. When the background noise is low, consideration may have to be given to a superior standard of sound insulation performance in conjunction with the adjoining flanking conditions. In any existing sound insulation problem, it is essential to identify the weakest parts of the composite construction.

Indirect paths (flanking transmission)

Flanking sound is defined as sound from a source room that is not transmitted via the separating building element. It is transmitted indirectly via paths such as windows, external walls and internal corridors. See **Figure 2 - Common flanking paths.**

It is imperative that flanking transmission is considered at the design stage and construction detailing is specified so as to eliminate or at least to minimise any downgrading of the acoustic performance. The sound insulation values quoted in system performance tables are laboratory values and the practicalities of construction will mean that acoustic performances measured in the laboratory will be difficult to achieve on site.

One of the main reasons for this difference is the loss of acoustic performance via flanking transmission paths. Good detailing at the design stage will minimise this effect and optimise the overall levels of acoustic privacy achieved.

If designing for residential units, design advice on flanking details must be followed to maximise the possibility of achieving the specified acoustic performance. It is imperative that the design advice is followed, other wise site sound insulation values may not meet the performance criteria required and expensive remedial treatment may be required.

Small openings such as gaps, cracks or holes will conduct airborne sound and can significantly reduce the sound insulation performance. For optimum sound insulation a construction must be airtight.

Small gaps or air paths around perimeter Gypframe framework should be sealed using Gyproc Sealant. At the base of the partition, gaps may occur, particularly when boards are lifted tight to the ceiling. Gaps greater than 5mm can be bulk filed at the finishing stage using Gyproc Jointing Compound.

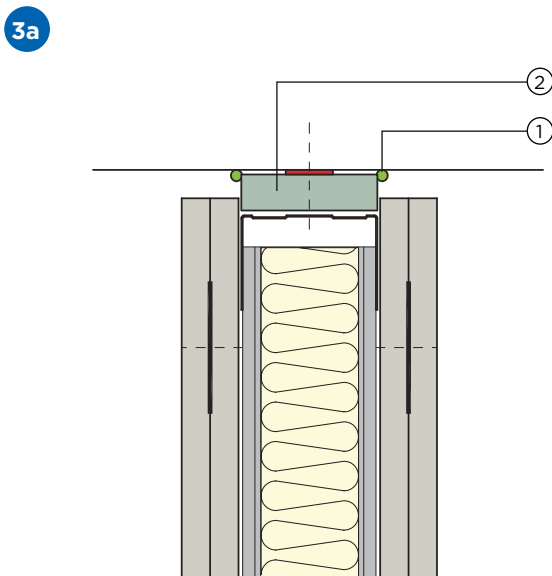
Deflection head details - acoustic performance

Deflection heads, by definition, must be able to move and, therefore, achieving an airtight seal is very difficult without incorporating sophisticated components and techniques. Air leakage at the partition heads will have a detrimental effect on acoustic performance of any partition. The approach shown in **Figure 3a - Deflection head A** could, for example, result in a loss of around 4dB to 5dB due to air leakage, in addition to that loss due to flanking transmission, etc.

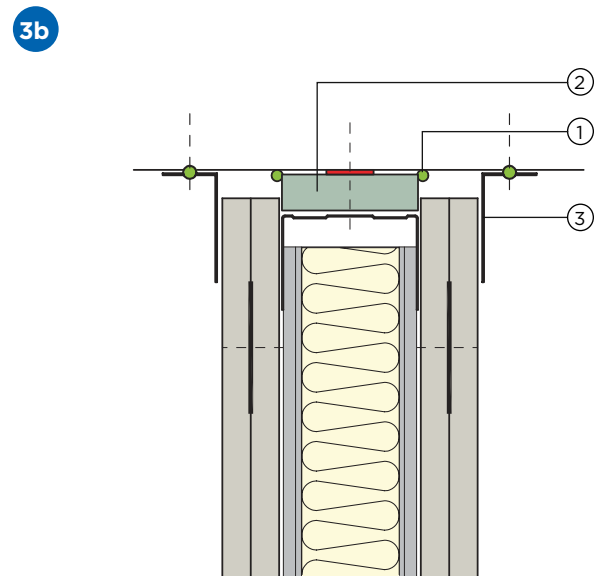
Where acoustic performance is a key consideration, steps can be taken to minimise this loss of performance. **Figure 3b - Deflection head B** shows the generally accepted method of achieving this and, provided that care is taken to ensure a tight fit between cloaking angle and lining board surface, the loss in performance can be significantly reduced. A loss in performance of around 1dB up to 2dB would be typical with this method. Other factors, such as flanking transmission through the structural soffit, can significantly affect the overall level of sound insulation. Therefore, to optimise sound insulation performance, other measures may need to be taken.



Common flanking paths



Deflection head detail - A
(subject to fire performance)



Deflection head detail - B
(subject to fire performance)

1. Gyproc Sealant for optimum sound insulation
2. Gyproc CoreBoard forming fire-stop

3. Gypframe GA4 Steel Angle to minimise loss of sound insulation performance due to air leakage

Technical performance and principles of system design

Building acoustics

A suspended ceiling installed on both sides of the partition may provide a similar cloaking effect to that of steel angles. Gyproc MF incorporating imperforate plasterboard can deliver a similar reduction in air leakage at the partition head. A tight fit between the ceiling perimeter and the surface of the partition lining board is important, although mechanically fixed perimeters are not essential. Ceilings with recessed light fittings may be less effective and if these cannot be sealed in some way, the installation of cloaking angles at the partition head should be considered. A suspended ceiling may also reduce the level of sound flanking transmission via the soffit. Where perforated ceilings are used, e.g. Gyptone, the angles as shown in Figure 3b are recommended. However, if the distance between the ceiling and the deflection head is greater than 200mm and the ceiling plenum contained ISOVER Eco APR (minimum 25mm), then the angles may not be required.

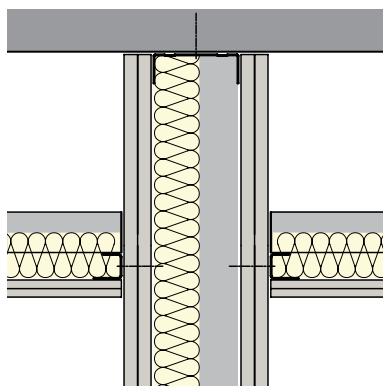
Sound by-passing a partition via the void above a suspended ceiling

This is a common source of sound transmission particularly where the ceiling is porous to sound. Where sound insulation is important, partitions should, wherever possible, continue through the ceiling to the structural soffit and be sealed at the perimeter junctions. Sound can easily travel through a perforated tile or lightweight suspended ceiling and over the top of a partition where it abuts the underside of the suspended ceiling. Gyproc plasterboard suspended ceilings offer better insulation where partitions must stop at ceiling level to provide a continuous plenum, and in this instance an option is to include a cavity barrier above the ceiling line.

Figure 4a-4d - Performance of typical ceiling / partition junctions showing the different levels of flanking effect for typical ceiling / high performance partition junctions. The best result is achieved by running the partition through to the structural soffit.

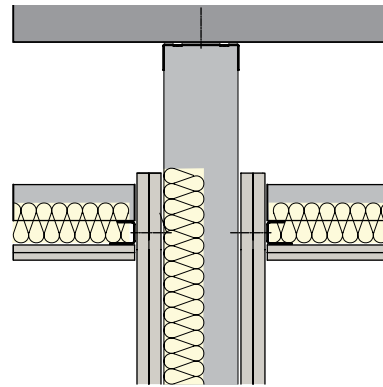
Figure 5-8 - Partition to structural steelwork junctions showing example details relating to a typical scenario where a partition is specified against a requirement of R_w 50dB.

4a



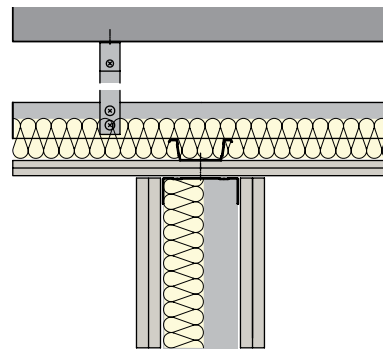
Partition lining continued to the soffit enabling the full potential of the partition to be achieved = 58dB

4b



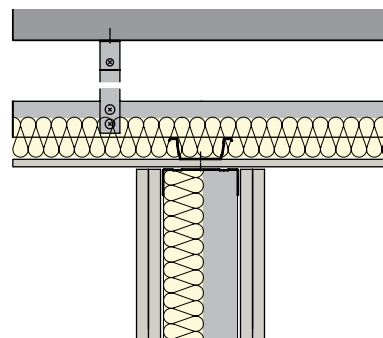
Concealed grid detail lined with a double layer of plasterboard within each room and overlaid with insulation = 56dB

4c



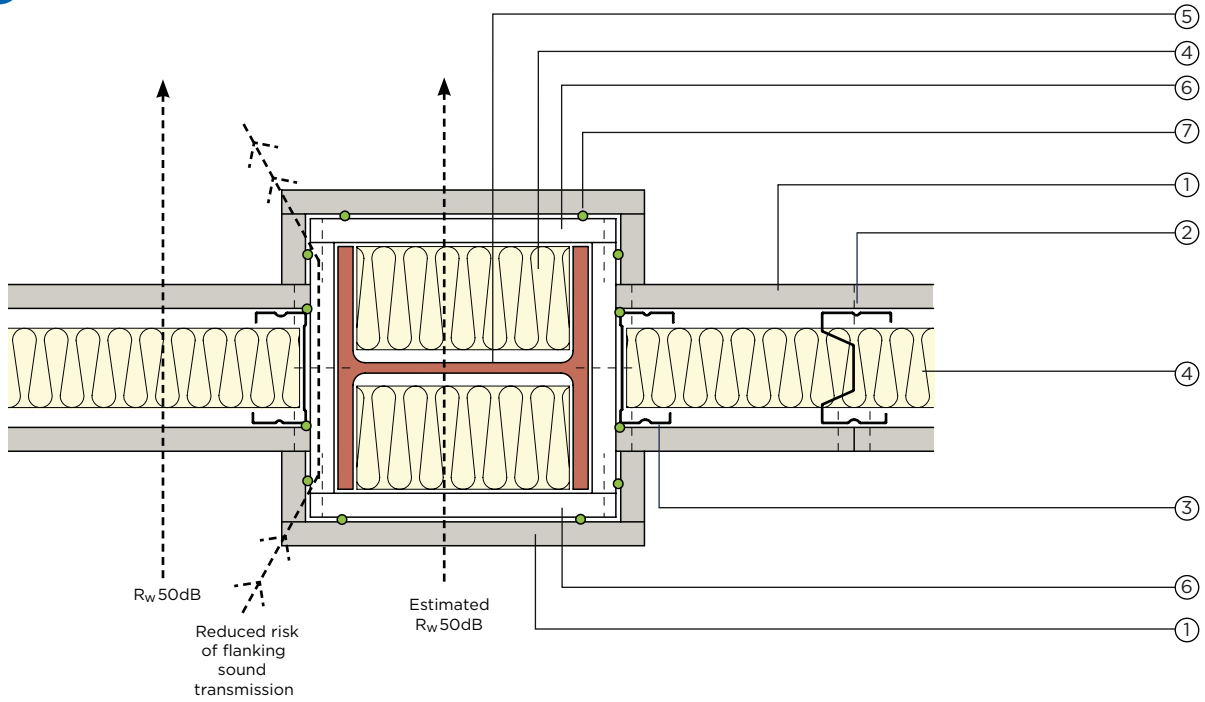
Concealed grid detail lined with a double layer of plasterboard and overlaid with insulation = 49dB

4d



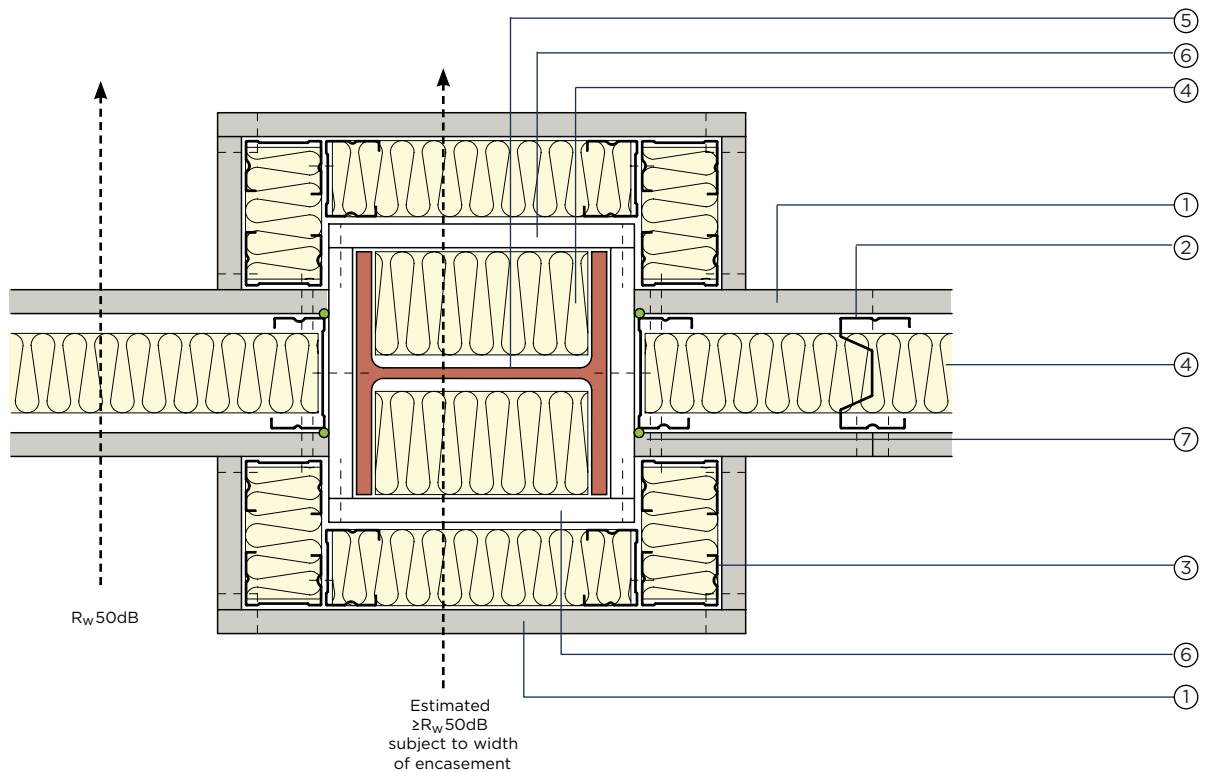
Concealed grid detail lined with a single layer of plasterboard and overlaid with insulation = 48dB

5



Encased steel column with additional plasterboard lining

6



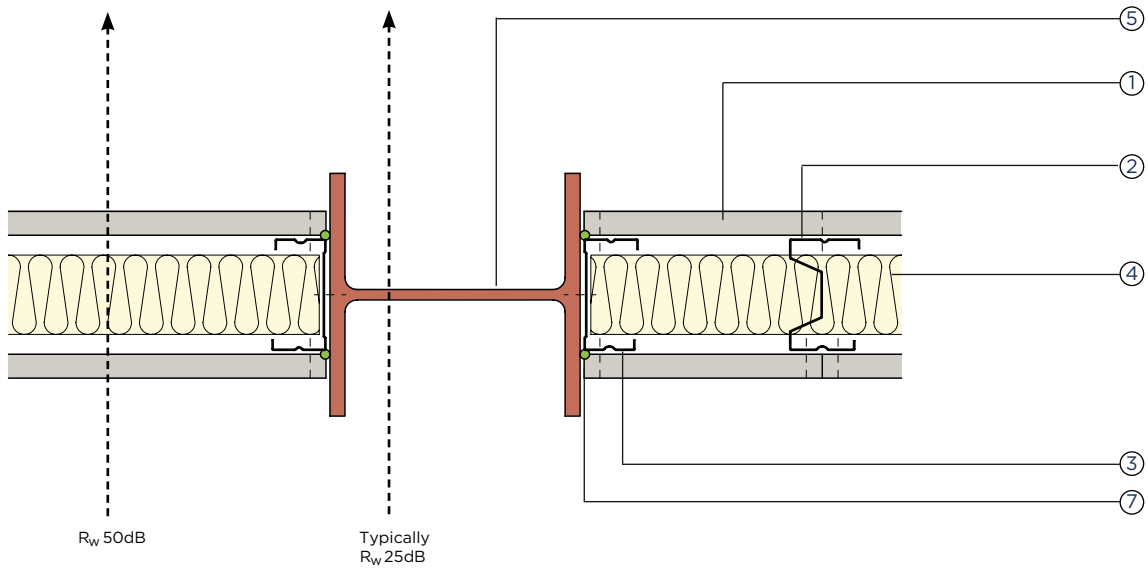
Encased steel column with additional framing, insulation and plasterboard lining

- | | |
|----------------------|---|
| 1. Gyproc DuraLine | 5. Structural steel |
| 2. Gyframe AcouStud | 6. Glasroc F FIRECASE - for fire protection of structural steel |
| 3. Gypframe 'C' Stud | 7. Gyproc Sealant |
| 4. ISOVER Eco APR | |

Technical performance and principles of system design

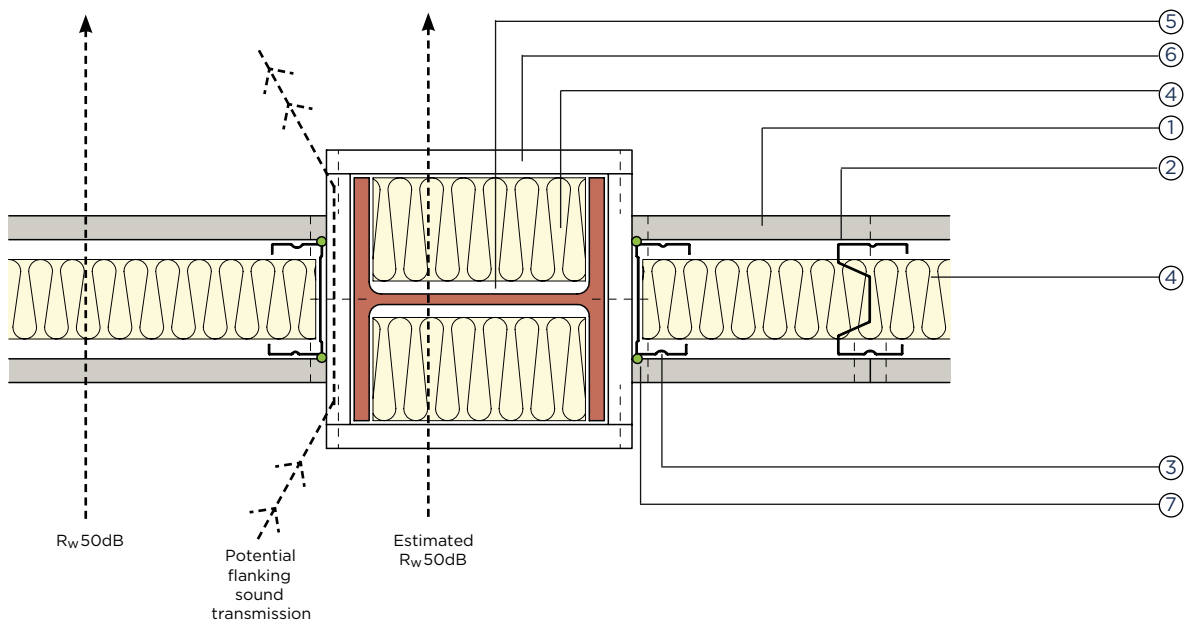
Building acoustics

7



Exposed / painted steel column

8



Encased steel column

- | | |
|---------------------|---|
| 1. Gyproc DuraLine | 5. Structural steel |
| 2. Gyframe AcouStud | 6. Glasroc F FIRECASE - for fire protection of structural steel |
| 3. Gyframe 'C' Stud | 7. Gyproc Sealant |
| 4. ISOVER Eco APR | |

Composite construction

A common mistake made when designing a building is to specify a high performance element and then incorporate a lower performing element within it, e.g. a door within a partition. Where the difference between sound insulation is relatively small (7dB or less) there needs to be a comparatively large area of the lower performing element, eg. door, before the overall sound insulation is significantly affected. A greater difference in sound insulation between the two elements normally results in a greater reduction of overall sound insulation performance.

Figure 9 - Composite calculation chart can be used to calculate the net mean sound insulation of composite partitions, e.g. a window in a partition. The correct mean sound insulation value for each part of the partition must be known in order to calculate the difference. This difference, read off on the curved line against the appropriate ratios on the vertical scale, gives the loss of insulation in dB on the horizontal scale. This figure is subtracted from the value of the part with the higher resistance to obtain the net sound insulation of the partition. Figure 9 may also be used to assess the effect of gaps or holes in a partition by giving a sound insulation value of 0dB to the aperture.

Example

Difference between insulation values of 30dB with ratio of areas (vertical scale) equal to 1:4. Loss of insulation (horizontal scale) = 23dB. Therefore, if the two parts had mean sound insulation values of 15dB and 45dB respectively, the net sound insulation of the partition would be only 22dB, i.e. 45dB - 23dB = 22dB.

9

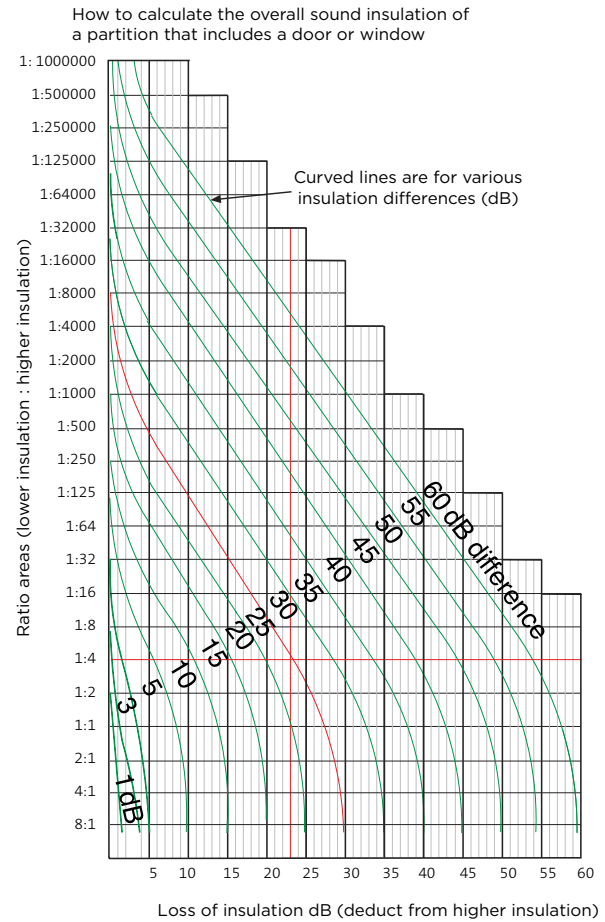


Table 1 shows the acoustic effect on a range of partitions when various types of door are installed. It can be seen that if a poor performance door is included in a partition, it does not matter if the wall achieves 25dB or 50dB sound insulation as the net performance will never be better than 27dB. The lowest performing element will always dominate the overall performance.

Table 1 - Effect of including various door types within a partition system

Door construction	Mean sound insulation of partition alone (dB)					
	25	30	35	40	45	50
	Mean sound insulation of partition with doorways accounting for 7% of area (dB)					
Any door with large gaps around the edge	23	25	27	27	27	27
Light door with edge sealing	24	28	30	32	32	32
Heavy door with edge sealing	25	29	33	35	37	37
Double doors with a sound lock	25	30	35	40	44	49

Technical performance and principles of system design

Building acoustics

Acoustic privacy

Two main factors affect the level of acoustic privacy achieved when designing a building:

- The sound insulation performance of the structure separating the two spaces.
- The ambient background noise present within the listening room.

The ambient background noise level can be a useful tool when designing buildings, as it is possible to mask speech from an adjacent space and hence provide enhanced speech confidentiality. There are a number of commercially available systems for achieving this and the technique is referred to as acoustic perfume or masking. It is, however, more common to treat the problem by specifying appropriate levels of sound insulation. A guide to sound insulation levels is given in **Table 2**.

Table 2 - Guide to sound insulation levels for speech privacy

Sound insulation between rooms R_w	Speech privacy
25dB	Normal speech can be overheard
30dB	Loud speech can be heard clearly
35dB	Loud speech can be distinguished under normal conditions
40dB	Loud speech can be heard but not distinguished
45dB	Loud speech can be heard faintly but not distinguished
> 50dB	Loud speech can only be heard with great difficulty

Specialist advice on acoustic privacy issues specifically for healthcare and educational environments can also be provided by contacting the Gyproc Technical Team. When designing for residential purposes, the standards of sound insulation given in **Table 2** are not adequate for separating walls as other sources of generated sound are often evident.

Ambient noise levels

Along with acoustic privacy, the level of sound energy acceptable within a room should be assessed with regards to intrusive noise levels and the level of potential noise likely to be generated within the room itself. For this purpose there are a number of methods, including the Noise Rating (NR) system. This rating quantifies the level of noise present within a space taking into account break-in of noise from the adjacent areas and also the background noise present within the space from ventilation or other building services. **Table 3** gives the recommended maximum noise within different activity spaces using NR criteria.

Table 3 - Recommended maximum noise rating for various types of room function

Situation	NR criteria (dB)
Sound studios	15
Concert halls, large theatres, opera houses	20
Large auditoria, large conference rooms, TV studios, hospital wards, private bedrooms, music practice rooms	25
Libraries, hotel rooms, courtrooms, cinemas, medium-sized conference rooms	30
Classrooms, small conference rooms, open-plan offices, restaurants, public rooms, operating theatres, nightclubs	35
Sports halls, swimming pools, cafeteria, large shops, circulation areas	40
Workshops, commercial kitchens, factory interiors	45

The factors that affect the ambient noise level of a space are:

- The level of external noise.
- The level of sound insulation designed into the surrounding structure.
- The amount and type of sound absorbing surfaces within the room.
- The noise generated by building services.

Where control of ambient noise is critical, advice should be sought from an acoustic consultant.

Sound Insulation - rating methods

The sound insulation rating methods that follow are defined in European literature:

R_w

This single figure rating method is the rating used for laboratory airborne sound insulation tests. The figure indicates the amount of sound energy being stopped by a separating building element when tested in isolation in the absence of any flanking paths. The acoustic range as per BS EN ISO 717-1 is 100 Hz - 3150 Hz.

R'_w

R'_w is the apparent sound reduction index and gives the airborne sound insulation performance between two adjacent rooms within a building as measured on site taking into consideration the reverberation time of the receiving room.

Technical performance and principles of system design

Building acoustics

D_{nTw}

The single figure rating method that gives the airborne sound insulation performance between two adjacent rooms within a building as measured on site. The result achieved is affected not only by the separating element but also by the surrounding structure and junction details.

C

The C adaptation term is a correction that can be added to the R_w rating. The C term is used because it targets the middle frequency performance of a building element. The rating $R_w + C$ may also be defined as RA.

C_{tr}

The C_{tr} adaptation term is a correction that can be added to either the R_w (laboratory) or D_{nTw} (site) airborne rating. The C_{tr} term is used because it targets the low frequency performance of a building element and in particular the performance achieved in the 100 - 315 Hz frequency range. This term was originally developed to describe how a building element would perform if subject to excessive low frequency sound sources, such as traffic and railway noise. Some of the performance tables in this book present relevant sound insulation values both in R_w terms but also in the C_{tr} adapted form. This rating is expressed as $R_w + C_{tr}$ and allows the acoustic designer to critically compare performances. The rating method has not been universally welcomed. Some acousticians believe that the method is too crude as it only considers the low frequency performance, and because site measurements at low frequencies are prone to difficulties, which can lead to a lack of confidence in the results achieved. Consequently, within separating constructions, Gyproc can offer enhanced specifications that meet the low frequency performance of the C_{tr} rating whilst also offering good mid and high frequency sound insulation.

L_{nw}

This single figure rating method is the rating used for laboratory impact sound insulation tests on separating floors. The figure indicates the amount of sound energy being transmitted through the floor tested in isolation, in the absence of any flanking paths. With impact sound insulation, the lower the figure the better the performance.

L_{nTw}

The single figure rating method that is used for impact sound insulation tests for floors. The figure indicates the sound insulation performance between two adjacent rooms within a building as measured on site. The result achieved is affected not only by the separating floor but also by the surrounding structure, e.g. flanking walls and associated junction details.

D_{nfw} / D_{ncw}

The single figure laboratory rating method BS EN ISO 717 - 1 that is used for evaluating the airborne sound insulation performance of suspended ceilings. Laboratory

tests simulate the room-to-room performance of the suspended ceiling when a partition is built up to the underside of the ceiling with sound transmitted via the plenum.

The sound insulation rating methods that follow are defined in American literature:

STC

This single figure rating method is the rating used for laboratory airborne sound insulation tests. The figure indicates the amount of sound energy being stopped by a separating building element when tested in isolation in the absence of any flanking paths.

The frequency range differs from the European figure as it starts from 125 Hz - 4000 Hz which provide different average values less focused on low frequencies.

ASTC / FSTC

This single figure rating method that gives the airborne sound insulation performance between two adjacent rooms within a building as measured on site. The result achieved is affected not only by the separating element but also by the surrounding structure and junction details.

IIC

This single figure rating method is the rating for laboratory impacts sound insulation tests on separating floors. The higher the impact insulation class is, the better the acoustic insulation will be.

CAC

A single figure laboratory rating for the performance of a ceiling system as a barrier to airborne sound transmission through a common plenum between adjacent closed spaces in accordance with ASTM E1414.

Lightweight construction

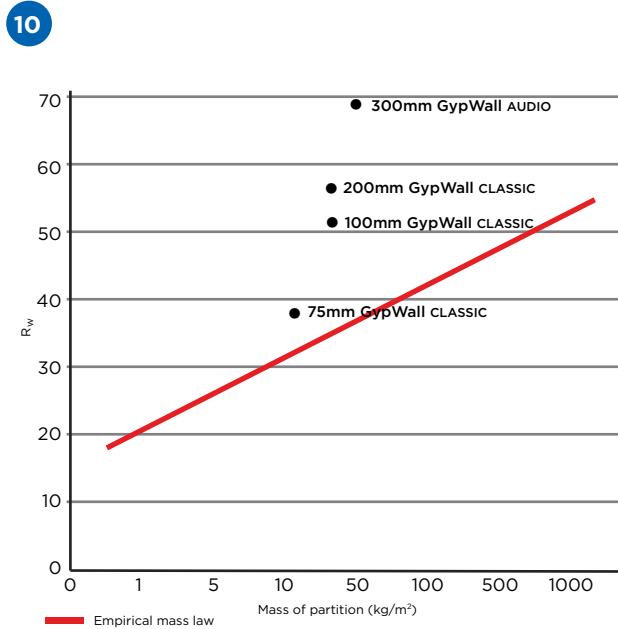
Typically the average sound insulation of a material forming a solid partition is governed by its mass. The heavier the material, the greater its resistance to sound transmission. To increase the sound insulation of a solid partition by about 4dB, the mass must be doubled. This is known as the empirical mass law.

For example, a 100mm solid block wall of average mass 100 kg/m² will have an approximate R_w value of 40dB, whereas a 200mm solid wall of the same material would have an R_w value of 44dB. Increasing mass is a very inefficient way of achieving sound insulation and one of the advantages of using lightweight cavity partitions and walls is that better than predicted sound reduction values can be achieved. This is why this construction is commonly used in auditoria, e.g. GypWall AUDIO.

Technical performance and principles of system design

Building acoustics

Figure 10 - Lightweight systems versus the mass law shows how lightweight systems consistently exceed mass law predictions. This demonstrates that adding mass is not always the best method when satisfying acoustic design requirements and that lightweight systems, if correctly designed, can provide very effective acoustic solutions.



Acoustic performance is commonly expressed as a decibel (dB) value. The logarithmic scale of decibels provides a simple way to cover a large range of values and show them as a convenient number. Unfortunately the decibel scale can create confusion especially when comparing alternative systems as the difference in acoustic performance can appear to be quite small. In reality an increase of 6dB is equivalent to a doubling of the acoustic performance of the system.

A simple stud partition, for example, can have an R_w rating of 6dB better than predicted by the mass law. In this case, the maximum sound insulation obtainable will be governed by the transmission of energy through the stud frame. The use of other frame types, or configurations, can result in even better insulation. If Gyproc plasterboard or Glasroc specialist boards are fixed using a flexible mounting system, such as Gypframe RB1 Resilient Bar, sound transmission through the framing is minimised and performance significantly better than the mass law prediction can be achieved.

The use of two completely separate stud frames can produce even better results. In this case, the maximum energy transmission is through the cavity between the plasterboard linings. The air in the cavity can be considered as a spring connecting the linings, which allows the passage of energy. The spring will have some inherent damping, which can be significantly increased by the introduction of a sound absorbing material, such as mineral wool, positioned in the cavity. The increased damping of the air-spring results in a

reduced coupling between the plasterboard linings and a consequent decrease in sound transmission. Air-spring coupling becomes less significant as the cavity width increases. In practice, cavities should be as wide as possible to insulate against low frequency sounds.

Two important effects; resonance and coincidence, occur in partitions and walls. These are governed by physical properties such as density, thickness and bending stiffness, and can result in a reduction in sound insulation at certain frequencies.

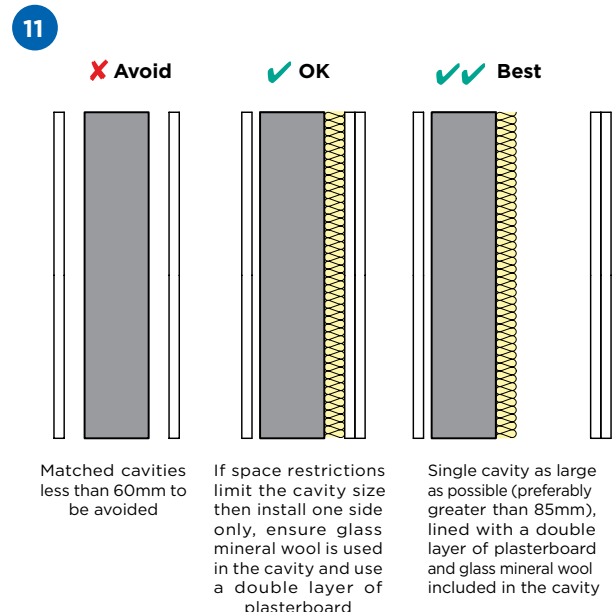
In lightweight cavity constructions, resonance and coincidence effects can be decreased by the use of two or more board layers. A simple way of increasing the sound insulation performance of a single layer metal stud partition is to add an additional layer of plasterboard to one, or both sides. This will increase the sound insulation performance by approximately 6dB or 10dB respectively.

Designing for on-site performance

Achieving a D_{nTw} + C_{tr} performance on site

The C_{tr} rating method puts increased emphasis on the low frequency region of the spectrum. For lightweight construction this means a significant change in some of the design principles. For partitions, the cavity should be as large as possible and double layers of plasterboard should be used.

For masonry walls lined with lightweight panels, cavities with a depth less than 60mm should be avoided. Two matched linings, with small, identical sized cavities either side of a solid masonry wall, should not be specified. These cavities can interact and cause a significant downgrade in the critical low frequency zone. If a small cavity needs to be used, then one side only should be lined with a double layer of plasterboard. Optimum performance is achieved by lining one side only and having a cavity depth of at least 85mm. See **Figure 11 - Optimum design of panel linings for C_{tr}**.



Technical performance and principles of system design

Building acoustics

To increase the sound insulation of new or existing masonry walls, GypLyner systems can be used in conjunction with ISOVER Eco APR insulation and the metal framing should be lined with plasterboard. The cavity depth for the GypLyner lining should be as large as possible, and small matched cavities either side of the wall should always be avoided.

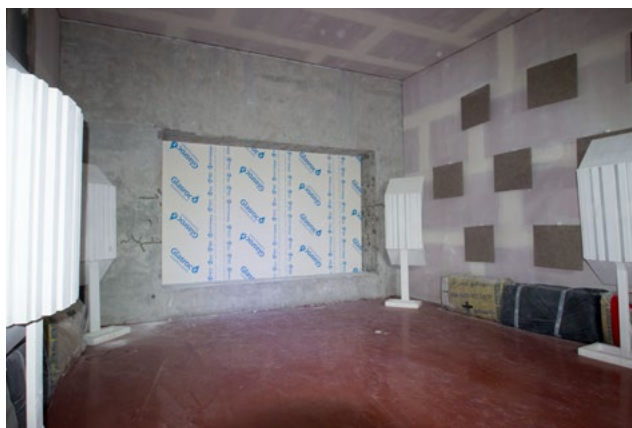
For lightweight separating floors it may be necessary to have an impermeate plasterboard ceiling that is partially de-coupled from the floor structure, e.g. Gyproc MF Ceiling system.

Inappropriate detailing of flanking conditions can greatly reduce the level of performance of the system from that achieved in the laboratory. For separating wall and floor constructions to be fully effective, care must be taken to correctly detail the junctions between the separating wall or floor and associated elements such as external walls, other separating elements and penetrations or door openings, etc. If junctions are incorrectly detailed then the acoustic performance will be limited and the required performance criteria may not be achieved in practice. For good practice detailing, please refer to the construction details sections from the relevant system sections within this book, available to download from www.gyproc.ae

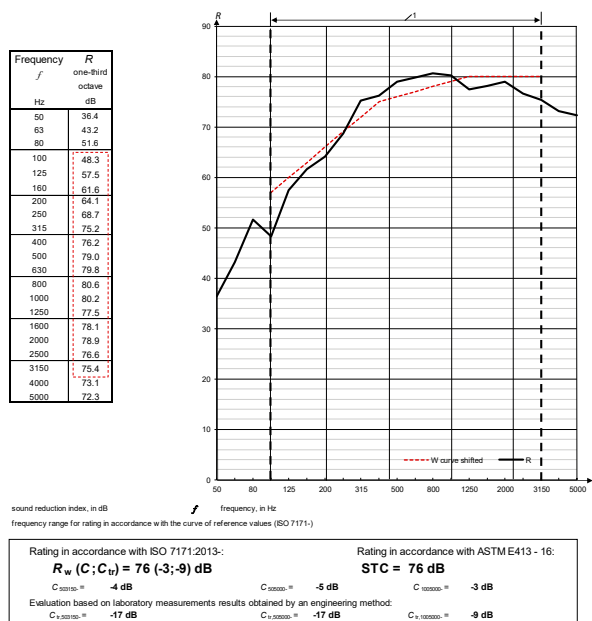
Typical test report for a sound airborne insulation test



Source Room



Receiving Room



On site testing may expose poor flanking details and inadequate separating wall and floor specifications. Therefore good flanking detailing and specifications that provide a reasonable margin of safety on site are essential.

A method of predicting the site $D_{nTW} + C_{tr}$ performance achievable from a system is to refer to a laboratory $R_w + C_{tr}$ rating. When looking at the difference between $R_w + C_{tr}$ and $D_{nTW} + C_{tr}$, a minimum drop of 5dB is typical depending on the wall specification, however Gyproc recommend that a safety margin of + 9dB should be built in to reduce the risk of failure through on site workmanship and/or poor detailing.

D_{nTW}
 Similar to $D_{nTW} + C_{tr}$, a realistic safety margin should be incorporated to reduce the risk of failure. Gyproc recommend a safety margin of + 7dB when comparing site performance (D_{nTW}) to laboratory performance (R_w). For example, to comply with a requirement of D_{nTW} 56dB, a system capable of achieving R_w 63dB under laboratory conditions should be specified.

$L_{nT,w}$
 A minimum drop of 5dB is typical when comparing site performance ($L_{nT,w}$) to laboratory performance (L_{nw}). When designing separating floors, an improved performance is achieved when de-coupling of the walking surface from the structural floor slab is implemented, when normally a resilient layer of Ethafoam / neoprene or similar gasket is laid below an upper sand and cement screed. In addition to a de-coupling of the ceiling, e.g. Gyproc MF ceiling, a much reduced risk of impact sound flanking transmission into and down the flanking walls and surrounding structure is now achieved.

Technical performance and principles of system design

Building acoustics

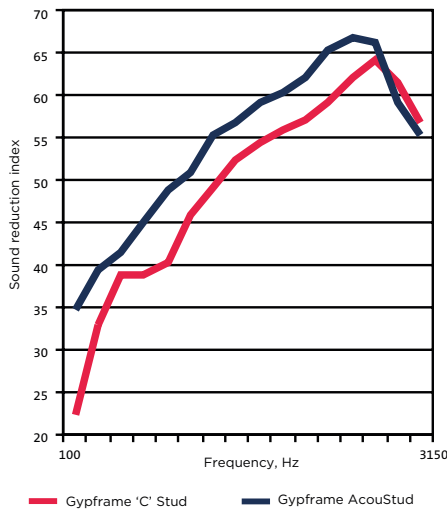
Examples of practical solutions

Gypframe AcouStuds

Gypframe AcouStuds are metal stud sections optimised to give enhanced sound insulation performance. These unique shaped studs are used for increased acoustic performance. Gypframe AcouStuds can be used to upgrade the acoustic performance of 70mm and 92mm wall systems.

Figure 12 shows the performance improvement possible using acoustic stud technology compared with a standard 'C' stud of the same cavity dimension.

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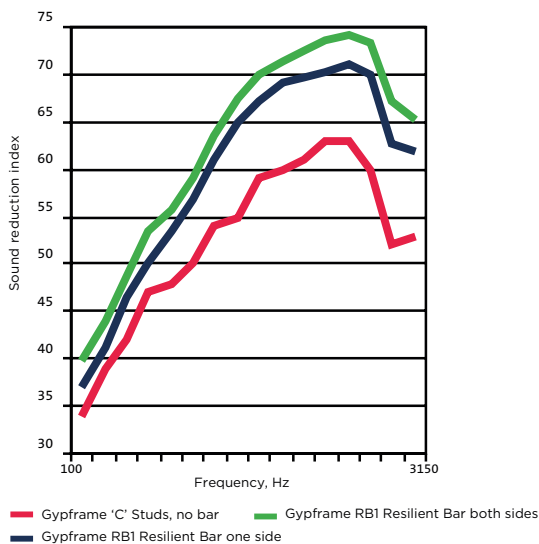


GypWall QUIET SF

GypWall QUIET SF utilises Gypframe RB1 Resilient Bars to partially de-couple the plasterboard linings from the partition stud frame, leading to enhanced levels of sound insulation.

Figure 13 shows the improvements possible when including Gypframe RB1 Resilient Bar on one or both sides of a standard Gypframe 70mm 'C' Stud partition.

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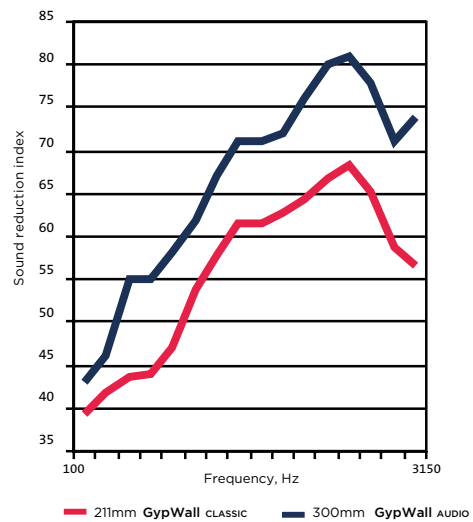


GypWall AUDIO

The most acoustically effective wall designs are twin frame walls. Minimal or no bridging between the plasterboard linings and the increased cavity size allows optimum performance from the wall.

Figure 14 shows the difference achievable by using a twin framed wall approach as opposed to a standard GypWall CLASSIC 'C' stud partition. The plasterboard linings and insulation are the same for both partitions and the key difference is the overall partition thickness - typically 212mm for the standard partition and 300mm for the twin framed option. With this type of design, further improvements in performance can be achieved by increasing the cavity size and / or increasing the board

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Floating floor treatment

Floating floor treatments are used with both lightweight and concrete separating floors to de-couple the walking surface from the floor structure and thereby improve both the airborne and impact sound insulation performance of a separating floor.

The value of this technique is recognised in Robust Details, and is currently featured in a number of separating floor solution.

Sound insulating drylinings

In designing for sound insulation, care should be taken to ensure that flanking transmission via the associated structure does not downgrade the performance of the partition or wall to a level below that required in use. This applies especially when a Gyproc partition is constructed in a masonry building. Care should be taken to ensure that the abutting structure is able to achieve the level of sound insulation required when flanking another wall or partition.

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Building acoustics

The performance of sound resisting concrete construction floors, supported on or flanked by conventionally finished masonry walls, can also be adversely affected. The effect of flanking transmission in the walls can be significantly reduced by the application of a GypLyner wall lining system to these flanking walls.

Lining treatments can also be beneficial in refurbishment work when applied to flanking walls to a new or existing sound resisting wall.

Sound absorption

Sound absorption is the term given to the loss of sound energy on interaction with a surface. Sound absorbent surfaces are used to provide the correct acoustic environment within a room or space. The choice of material will be influenced by its acoustic efficiency, appearance and durability. By converting some of the sound energy into heat, sound absorbing materials will also help sound insulation because less noise will be transmitted to other rooms. However, this reduction in noise is very small when compared with the potential reduction due to sound insulation. Sound absorption is therefore never a substitute for adequate sound insulation.

Reverberant energy

Reverberation is the persistence of sound in a particular space after the original sound is removed. A reverberation, or reverb, is created when a sound is produced in an enclosed space causing a large number of echoes to build up and then slowly decay as the sound is absorbed by the walls, ceilings, floor and air. The length of this sound decay is known as reverberation time and can be controlled using sound absorbing materials. The appropriate reverberation time for a space will be dependent on the size and function of the space. Some typical reverberation times are given in **Table 4**.

Table 4 - Typical reverberation times

Type of room / activity	Reverberation time (mid frequency)
Swimming pool	<2.0 seconds
Dance studio	<1.2 seconds
Large lecture theatre	<1.0 seconds
Small lecture room	<0.8 seconds
Primary school playroom	<0.6 seconds
Classroom for hearing impaired	<0.4 seconds

Reverberation time (T, T60 or RT)

The time it takes for the sound pressure level to fall by 60dB after the sound has been turned off. Measuring the reverberation time allows us to calculate the total sound absorption. The reverberation time varies according to the frequency.

Speech clarity

Speech clarity (intelligibility) is now recognised as essential in helping pupils in an educational environment to achieve their full potential. For further information please contact the Gyproc Technical Team.

Research has shown that pupils who cannot understand clearly what the teacher is saying have a tendency to 'switch off' - limiting their own educational opportunities and creating additional stress for teachers. In a typical classroom with the teacher at one end, sound reaches the pupils both directly from the teacher and via reflections from the ceiling, walls and floor. Refer to **Figure 15** - Sound transmission in a typical classroom. Pupils at the front will generally be able to understand what the teacher is saying, whilst pupils at the back and sides of the room receive a mixture of both direct speech and reflected sound, making it difficult to identify the teacher's words.

Reverberation time alone cannot be relied upon to deliver a suitable environment for good speech intelligibility. In any situation where speech communication is critical, e.g. conference room, lecture theatre or classroom, it is necessary to design the space appropriately using a mixture of sound reflective and sound absorbing surfaces.

Clarity measurement

The Clarity measurement (C50) compares the sound energy in early sound reflexes with those that arrive later. It is expressed in dB. A high value is positive for speech clarity.

Sound absorption rating methods

The following ratings are calculated in accordance with BS EN ISO 11654: 1997.

Sound absorption coefficient, α_s

Individual sound absorption figures quoted in third octave frequency bands are used within advanced modelling techniques to accurately predict the acoustic characteristics of a space. The coefficient ranges from 0 (total reflection) through to 1 (total absorption).

Practical sound absorption coefficient, α_p

A convenient octave-based expression of the sound absorption coefficient, commonly used by acoustic consultants when performing calculations of reverberation times within a building space.

The absorption diagrams here show the practical sound absorption coefficient, α_p in accordance with the international standard BS EN ISO 11654: 1997.

The same standard defines the weighted sound absorption single value, α_w and the sound absorption classes, which are provided for the products in this publication.

The absorption classes are designated A-E, where absorption class A has the highest sound absorption. Overall depth of the system (o.d.s) must always be stated for a given absorption class.

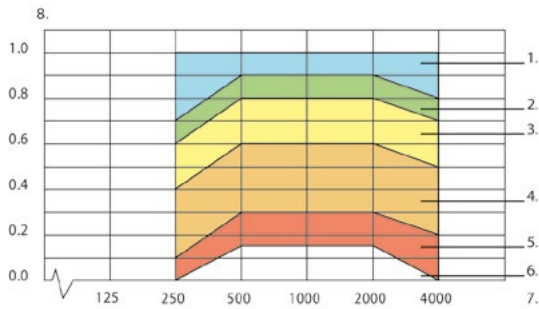
Technical performance and principles of system design

Building acoustics

The ASTM standard C423 specifies two different single values, the NRC (Noise Reduction Coefficient) and the SAA (Sound Absorption Average).

Both values are calculated as an average over the frequency ranges (250-2000 Hz and 200-2500 Hz respectively).

TABLE 5 - Absorption classes

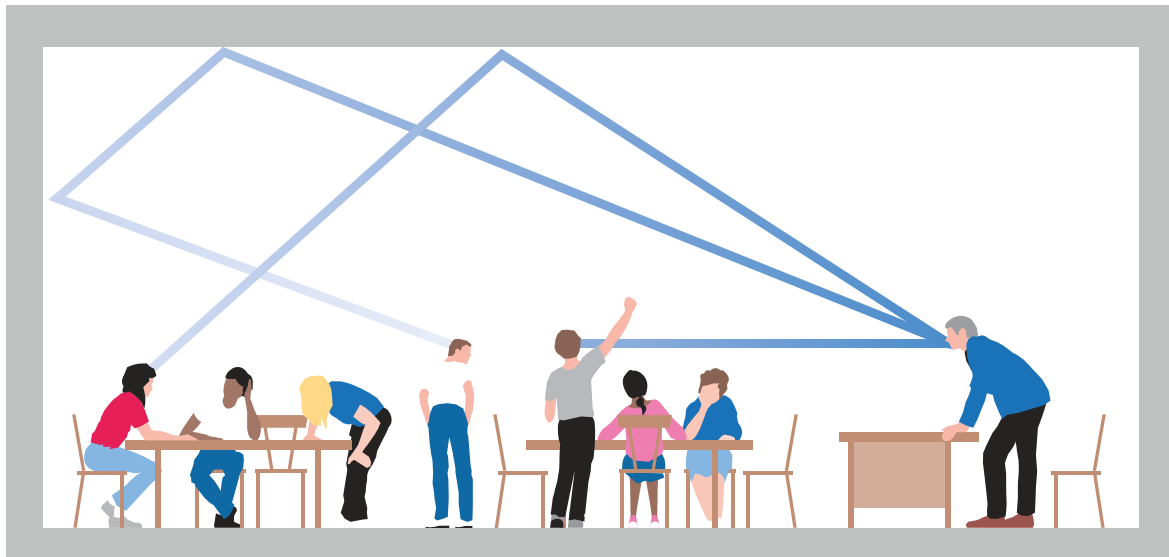


Sound absorption class	α_w
A	0.90, 0.95, 1.00
B	0.80, 0.85
C	0.60, 0.65, 0.70, 0.75
D	0.30, 0.35, 0.40, 0.45, 0.50, 0.55
E	0.15, 0.20, 0.25
Unclassified	0.00, 0.05, 0.10

Acoustic graph illustrated by Saint-Gobain Ecophon

- 1. Absorption class A
- 2. Absorption class B
- 3. Absorption class C
- 4. Absorption class D
- 5. Absorption class E
- 6. Unclassified
- 7. Frequency Hz
- 8. α_p Practical absorption coefficient

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Reverberation in a typical classroom

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Building acoustics

Weighted Sound Absorption Rating, α_w

A single figure rating used to describe the performance of a material. The single figure rating can have a modifier added to indicate if the spectral shape is dominated by a particular frequency range:

- L - absorption is predominantly in the low frequency region.
- M - absorption is predominantly in the mid frequency region.
- H - absorption is predominantly in the high frequency region.

The absence of a letter following the rating indicates that the absorber has no distinct area of sound absorption and has an essentially flat spectral shape. See **Figure 16 - Typical test data sheet for a sound absorption test.**

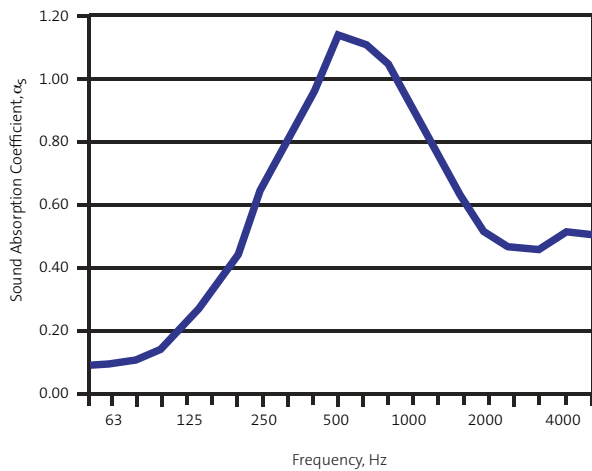
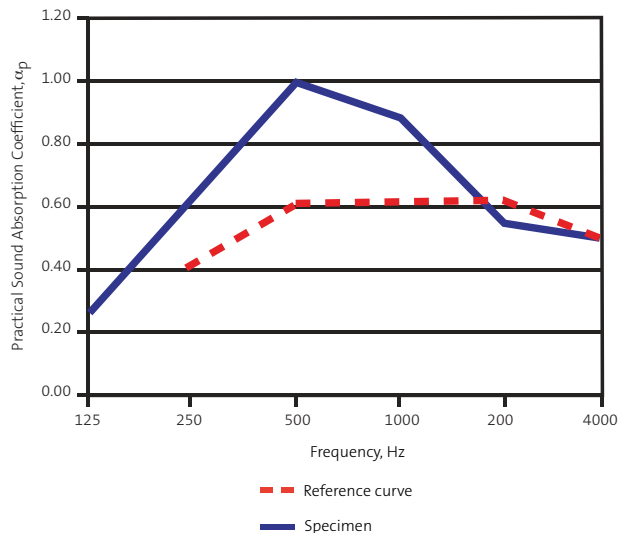
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Test code: R13402AA

Freq. H	Ref. curv	Specimen
125		0.25
250	0.40	0.60
500	0.60	1.00
1000	0.60	0.90
2000	0.60	0.55
4000	0.50	0.50

Rating and Sound absorption class according to EN ISO 11654: 1997 $\alpha_w = 0.60$ (M) Class = C
 It is strongly recommended to use this single figure rating in combination with the complete sound absorption coefficient curve.

Freq. Hz	α_s
50	0.10
63	0.10
80	0.12
100	0.16
125	0.24
160	0.35
200	0.44
250	0.63
315	0.80
400	0.96
500	1.15
630	1.12
800	1.04
1,000	0.89
1,250	0.76
1,600	0.62
2,000	0.52
2,500	0.46
3,150	0.45
4,000	0.51
5,000	0.50
6,300	
8,000	
10,000	



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Sound absorption treatments are referenced within some international regulatory documents, such as Approved Document E (AD E), Health and Technical Memorandum HTM 08-01 Acoustics - Healthcare Buildings and Building Bulletin 93 (BB93) to control the noise levels generated within common areas of residential and educational buildings, e.g. entrance halls, lobbies, corridors, stairs and landings. AD E specifies sound absorption in terms of a class of absorber. The values ascribed to the different classes are given in **Table 5**, according to BS EN ISO 11654: 1997, including frequencies 200-5000 Hz.

Noise Reduction Coefficient, NRC

Whilst the sound absorption performance of a ceiling system can be expressed as an NRC, this does not always accurately reflect the product performance. An NRC value is the arithmetic mean according to ASTM C423, derived as the mean value of 4 frequencies in the range 250-2000 Hz; this means that it will hide extremes in performance. For instance, a ceiling tile may be a very efficient absorber at high frequencies but very poor at low frequencies, and the NRC value will not reflect this. To optimise the room acoustics the more accurate Sound Absorption Rating α_w rating should be used.

Useful reference documents covering international legislation and guidance

Building Regulations Approved Document E (AD E) - Residential Buildings

Many of the regional authorities make reference to the national building regulations of the UK covering the resistance to the passage of sound - AD E gives guidance on providing a reasonable level of sound insulation between dwellings and offers suggested forms of separating construction. These forms of construction do not, however, guarantee that the required performance level will be achieved in practice. Ultimately the developer needs to demonstrate that the dwelling, when built, meets the performance levels set by means of Pre-Completion Testing.

AD E sets performance levels for the following areas of a residential building:

- The common areas - ie lobbies or reception areas of buildings that contain apartments or rooms for residential purposes should have an area equal to or greater than the floor area covered with a Class C absorber or better. An alternative calculation method is given with AD E.
- For stairwells or a stair enclosure in buildings containing apartments or rooms for residential purposes, an area equal to the surface area of the stair and landings, plus the ceiling area of the top floor, must be covered with an equal area of Class D absorber or alternatively 50% of the area must be covered with a Class C absorber or better.

Table 6 - AD E sound insulation requirements (England and Wales)

Where applicable	Minimum airborne sound insulation $D_{nT,w} + C_{tr}$ (site test result)	Maximum impact sound transmission $L_{nT,w}$ (site test result)	Minimum airborne sound transmission R_w (laboratory test result)
Separating walls between new homes	45dB	-	-
Separating walls between purpose-built rooms for residential purposes	43dB	-	-
Separating walls between rooms created by a change of use or conversion	43dB	-	-
Separating floors between new homes and purpose-built rooms for residential purposes	45dB	62dB	-
Separating floors between rooms created by a change of use or conversion	43dB	64dB	-
Internal wall without a door between a bathroom, or WC, and a habitable room	-	-	40dB
Internal wall without a door between a bedroom and another room within the dwelling	-	-	40dB
Internal floor	-	-	40dB

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Robust details

There are two methods of demonstrating that separating elements as defined within AD E will meet the requirements as set by the standard. The first option would be to employ pre-completion testing prior to hand over, typically one in ten units, that demonstrate compliance to the standard.

The second option would be to design to Robust Details. Where designers are looking for guidance in specifying suitable constructions to meet the requirements of AD E, then they can make reference to this catalogue of details that are approved by the UK government for construction without the need for pre-completion testing. Robust details are designed to give an improved safety margin over constructions that are typically used to allow for flanking and site installation issues.

Further information can be found at www.robustdetails.com

BS 8233 - Guidance on Sound insulation and noise reduction for buildings

Code of practice setting out acoustic ratings appropriate to a variety of different building types.

BB93 - Building Bulletin 93: Acoustic design of schools

Building Bulletin 93 contains acoustic design requirements for sound insulation between spaces, ambient noise levels and optimum reverberation times for various spaces within educational buildings. For more information contact the Gyproc Technical Team.

Health and Technical Memorandum HTM 08-01 Acoustics - Healthcare buildings

HTM 08-01 contains a method of determining the level of sound insulation required between adjacent spaces in a healthcare environment. The document also gives recommended reverberation times for various types of space. For more information contact the Gyproc Technical Team.

Technical performance and principles of system design

Robustness

Principles of robustness

Legislation and guidance

BS 5234: 1992 - Partitions (including matching linings)

BS 5234 comprises two parts - Part 1 code of practice for the design and installation, and Part 2 Specification for performance requirements for strength and robustness including methods of test in relation to end-use categories. The standard covers performance aspects such as stiffness, crowd pressure, impact resistance, anchorages and door slamming resistance.

HTM 60 - Ceilings in healthcare environments

HTM 60 sets out six performance categories. These categories relate user requirements to the physical and performance characteristics of different ceilings.

BS EN 13964: 2014 - Suspended ceiling - Requirements and test methods

Includes performance requirements for ceiling tiles and suspended ceiling grid systems (concealed and exposed). The standard covers issues such as the load span performance of grids.

Partition duty ratings

All our partition systems have a Duty Rating established in accordance with all the full requirements of BS 5234. These relate to the level of activity in adjacent spaces and the degree of care the partition is likely to receive. Grades are defined by the strength and robustness of a sample partition when tested by the methods described in BS 5234-2. A summary of performance criteria for grades of partitions is given in Annex B of the standard as listed in Table 7.

Table 7 - Duty ratings

Partition Duty	Category	Examples
Light	Adjacent space only accessible to persons with high incentive to exercise care. Small chance of accident occurring or misuse.	Domestic accommodation
Medium	Adjacent space moderately used, primarily by persons with some incentive to exercise care. Some chance of accident occurring or misuse.	Office accommodation
Heavy	Adjacent space frequently used by the public and others with little incentive to exercise care. Chance of accident occurring or misuse.	Public circulation areas, industrial areas
Severe	Adjacent space intensively used by the public and others with little incentive to exercise care. Prone to vandalism and abnormally rough use.	Major circulation areas, heavy industrial areas

The series of tests are designed to test the resistance to damage, both aesthetic and structural, from a range of impacts and load applications.

The tests are conducted at the maximum height for the partition system. BS 5234 itself does not have a method for establishing an acceptable maximum height, and the partition height must be established using a separate method - see maximum partition heights later. It is suggested within BS 5234 that the crowd pressure test may be suitable for evaluating heights up to 4200mm, but we would strongly advise against using this inconsistent approach and would never rely solely on BS 5234 for evaluating heights, especially above 4200mm.

Tests within BS 5234 include:

- Partition stiffness
- Resistance to damage from a small hard body impactor
- Resistance to damage from a large soft body impactor
- Resistance to perforation from a small hard body impactor
- Resistance to structural damage from a large soft body impactor
- Resistance to damage from door slamming

BS 5234 does not identify specific points of contact on a partition that should be impacted. However, we understand there are limiting points in terms of impact resistance. These are then subjected to the impact tests to ensure that the most onerous situation are assessed.

Optional tests are also detailed within the standard, but these are not used in the partition grading. These include:

- Resistance to damage from a crowd pressure load
- Lightweight anchorages pull down
- Lightweight anchorages pull out
- Heavyweight anchorages wall cupboard
- Heavyweight anchorages wash basin

Refer to section **Service Installations**, for information on fixing to drywall systems.

Important considerations

To achieve Heavy Duty or Severe Duty, the door detail needs to be reinforced otherwise the door opening will undergo too much deflection and damage during the onerous door slamming test.

To claim a partition duty, all tests must achieve the designated performance level. It is not possible, for example, for a partition lined with a single layer of

Technical performance and principles of system design

Robustness

Gyproc Regular (12.5mm) to achieve a duty rating better than Medium, because of the board's performance in the hard body perforation test. In the majority of cases, the type of board used will determine the maximum partition duty rating. Table 8 shows the maximum rating available based on a single layer board lining. In all cases, a double layer lining achieves Severe Duty.

Table 8 - Board type required to achieve a given duty rating

Board type	Maximum rating
12.5mm Gyproc Regular	Medium
15mm Gyproc Regular	Medium
12.5mm Gyproc FireStop	Medium
12.5mm Gyproc SoundBloc	Medium
12.5mm Glasroc X	Medium
15mm Gyproc FireStop	Heavy
15mm Gyproc SoundBloc	Heavy
15mm Gyproc DuraLine	Severe
12.5mm Gyproc Habito	Severe
15mm Gyproc Habito	Severe

The level of deflection and strength performance required to achieve Light Duty within BS 5234 is, in our opinion, unsuitable for any application. We do not offer any systems with a rating less than Medium Duty.

Maximum partition heights

As stated previously, BS 5234: Part 2: 1992 does not contain a consistent methodology for establishing the performance of a partition in terms of height. The industry has therefore adopted a methodology, which is based on the level of lateral deflection under a given uniformly distributed load (UDL). The criterion is that the maximum lateral deflection of the partition should not exceed $L/240$ (where L is the partition height) when the partition is uniformly loaded to 200Pa (Pa).

We utilise a UKAS accredited test laboratory to evaluate partition system heights against this performance criteria. The test evidence comes from a full-scale test procedure where the test specimen is subjected to a UDL and the induced lateral deflection is recorded. From this procedure, it is possible to establish the maximum height for a range of partition systems. Please see Table 9 for using **GypWall CLASSIC**, Table 10 and 11 for **GypWall HABITO** and Table 12 for **GypWall QUIET SF**.

When cutting Gypframe studs to suit partition height, it is not good practice to cut the stud through the location of a service cut-out.

Technical performance and principles of system design

Robustness

Table 9 - GypWall CLASSIC metal stud partition recommended maximum heights (mm) - based upon a limiting deflection of L/240 at 200 Pa

Stud	Boarding each side	600mm centres	600mm boxed	400mm centres	400mm boxed	300mm centres	300mm boxed
50 S 50	1 x 12.5mm	2500	2800	2900	3200	3100	3500
	1 x 15mm	2800	3000	3100	3300	3300	3600
	2 x 12.5mm	3400	3600	3600	3800	3800	4000
	2 x 15mm	3700	3800	3900	4000	4000	4200
70 S 50	1 x 12.5mm	3600	3900	4000	4300	4300	4700
	1 x 15mm	3800	4100	4200	4500	4500	4900
	2 x 12.5mm	4600	4800	4900	5100	5100	5400
	2 x 15mm	4900	5100	5100	5300	5300	5600
70 AS 50	1 x 12.5mm	3800	4200	4300	4700	4600	5100
	1 x 15mm	4000	4400	4500	4800	4700	5200
	2 x 12.5mm	4700	5000	5000	5300	5300	5700
	2 x 15mm	5000	5200	5300	5600	5500	5900
70 I 70	1 x 12.5mm	4600	-	5100	-	5600	-
	1 x 15mm	4700	-	5300	-	5700	-
	2 x 12.5mm	5300	-	5700	-	6100	-
	2 x 15mm	5500	-	5900	-	6300	-
92 S 50	1 x 12.5mm	4500	4800	4900	5400	5300	5800
	1 x 15mm	4700	5000	5200	5600	5500	6000
	2 x 12.5mm	5700	5900	6000	6300	6200	6600
	2 x 15mm	5900	6100	6200	6500	6400	6800
92 AS 50	1 x 12.5mm	4700	5100	5200	5700	5700	6200
	1 x 15mm	4900	5300	5400	5700	5800	6400
	2 x 12.5mm	5800	6100	6200	6500	6500	6900
	2 x 15mm	6000	6300	6400	6700	6700	7000
100 I 80	1 x 12.5mm	6000	-	6800	-	7400	-
	1 x 15mm	6100	-	6900	-	7500	-
	2 x 12.5mm	6800	-	7400	-	7900	-
	2 x 15mm	6900	-	7500	-	8000	-
150 S 50	1 x 12.5mm	6200	6800	6900	7600	7500	8300
	1 x 15mm	6500	7000	7200	7800	7700	8400
	2 x 12.5mm	7600	8000	8100	8600	8500	9100
	2 x 15mm	7900	8200	8300	8800	8700	9300
150 I 90	1 x 12.5mm	8400	-	9500	-	10400	-
	1 x 15mm	8500	-	9600	-	10500	-
	2 x 12.5mm	9100	-	10100	-	10900	-
	2 x 15mm	9400	-	10300	-	11100	-

In all GypWall CLASSIC system, for heights below 4200mm, the appropriate Gypframe Standard Channel can be used. It is recommended that for heights between 4200mm and 8000mm, the Gypframe Deep Channel is used. Gypframe Extra Deep Channel is used for heights above 8000mm. Additional consideration needs to be given if there is a deflection head requirement.

Technical performance and principles of system design

Robustness

Table 10 - GypWall HABITO metal 'C' stud and AcouStud 'AS' partition recommended maximum heights (mm) for single and multiple layers of Gyproc Habito - based upon a limiting deflection of L/240 at 200 Pa

Stud	Boarding each side	600mm centres	600mm boxed	400mm centres	400mm boxed	300mm centres	300mm boxed
50 S 50	1 x 12.5mm	3900	4000	4000	4200	4200	4400
	1 x 15mm	4200	4300	4300	4400	4400	4600
	2 x 12.5mm	5100	5100	5200	5300	5300	5400
	2 x 15mm	5400	5500	5500	5600	5600	5700
70 S 50	1 x 12.5mm	4700	4800	4900	5200	5100	5400
	1 x 15mm	4800	5000	5100	5300	5300	5600
	2 x 12.5mm	6200	6300	6300	6500	6500	6700
	2 x 15mm	6500	6600	6600	6600	6800	6900
70 AS 50	1 x 12.5mm	4800	5000	5000	5300	5300	5600
	1 x 15mm	4900	5100	5200	5500	5400	5800
	2 x 12.5mm	6300	6400	6400	6600	6600	6800
	2 x 15mm	6600	6700	6700	6900	6900	7100
92 S 50	1 x 12.5mm	5900	6100	6200	6500	6400	6800
	1 x 15mm	6100	6300	6300	6600	6600	6900
	2 x 12.5mm	7100	7200	7300	7500	7500	7700
	2 x 15mm	7400	7500	7600	7800	7800	8000
92 AS 50	1 x 12.5mm	6000	6300	6300	6700	6600	7000
	1 x 15mm	6200	6400	6500	6800	6800	7200
	2 x 12.5mm	7200	7300	7400	7600	7600	7900
	2 x 15mm	7500	7600	7700	7900	7900	8200
150 S 50	1 x 12.5mm	8000	8300	8400	8900	8900	9400
	1 x 15mm	8200	8500	8600	9100	9000	9500
	2 x 12.5mm	8800	9100	9200	9600	9600	10000
	2 x 15mm	9100	9400	9500	9900	9800	10300

In all GypWall HABITO system, for heights below 4200mm, the appropriate Gypframe Standard Channel can be used. It is recommended that for heights between 4200mm and 8000mm, the Gypframe Deep Channel is used. Gypframe Extra Deep Channel is used for heights above 8000mm. Additional consideration needs to be given if there is a deflection head requirement.

Technical performance and principles of system design

Robustness

Table 11 - GypWall HABITO metal 'C' stud and AcouStud 'AS' partition recommended maximum heights (mm) for Gyproc Habito & Gyproc Regular plasterboard - based upon a limiting deflection of L/240 at 200 Pa

Stud	Board lining (on each side)		600mm centres	600mm boxed	400mm centres	400mm boxed	300mm centres	300mm boxed
	Regular	Habito						
50 S 50	12.5mm	12.5mm	4300	4400	4400	4600	4600	4700
	15mm	12.5mm	4300	4400	4400	4600	4600	4700
	12.5mm	15mm	4500	4600	4600	4700	4700	4900
	15mm	15mm	4700	4800	4800	4900	4900	5000
70 S 50	12.5mm	12.5mm	5100	5300	5400	5600	5500	5800
	15mm	12.5mm	5100	5300	5400	5600	5500	5800
	12.5mm	15mm	5300	5400	5500	5700	5600	5900
	15mm	15mm	5400	5500	5600	5800	5700	6000
70 AS 50	12.5mm	12.5mm	5200	5400	5500	5700	5700	6000
	15mm	12.5mm	5200	5400	5500	5700	5700	6000
	12.5mm	15mm	5300	5500	5600	5800	5800	6100
	15mm	15mm	5400	5600	5700	5900	5900	6100
92 S 50	12.5mm	12.5mm	6500	6700	6800	7000	7000	7300
	15mm	12.5mm	6500	6700	6800	7000	7000	7300
	12.5mm	15mm	6600	6800	6900	7100	7100	7400
	15mm	15mm	6800	6900	7000	7200	7200	7500
92 AS 50	12.5mm	12.5mm	6600	6800	6900	7200	7200	7500
	15mm	12.5mm	6600	6800	6900	7200	7200	7500
	12.5mm	15mm	6700	6900	7000	7300	7300	7600
	15mm	15mm	6800	7000	7100	7400	7300	7700
150 S 50	12.5mm	12.5mm	8800	9100	9200	9600	9500	10000
	15mm	12.5mm	8800	9100	9200	9600	9500	10000
	12.5mm	15mm	8900	9200	9300	9700	9600	10100
	15mm	15mm	9000	9300	9400	9800	9700	10200

¹ Whilst Gyproc Habito is typically used as the outer layer plasterboard in multiple layer systems due to its superior impact resistance, these boards can be interchanged without downgrading the maximum heights indicated in this table.

In addition, these systems were tested for maximum heights using Gyproc Regular plasterboard as the additional board type. Where increased levels of fire and / or acoustic performance is required, then other board types may be used in lieu of Gyproc Regular board, along with Gyproc Habito, without downgrading the maximum heights indicated in this table.

In GypWall HABITO systems, for heights below 4200mm, the appropriate Gypframe Standard Channel can be used. It is recommended that for heights between 4200mm and 8000mm, the Gypframe Deep Channel is used. Gypframe Extra Deep Channel is used for heights above 8000mm. Additional consideration needs to be given if there is a deflection head requirement.

Technical performance and principles of system design

Robustness

Table 12 - GypWall QUIET SF metal stud partition with Gypframe RB1 Resilient Bars **one side - recommended maximum heights (mm), based on a limiting deflection of L/240 at 200 Pa**

Stud	Boarding each side	600mm centres	600mm boxed	400mm centres	400mm boxed	300mm centres	300mm boxed
50 S 50	2 x 12.5mm	3000	3200	3300	3500	3500	3800
	2 x 15mm	3200	3400	3400	3600	3600	3900
70 S 50	2 x 12.5mm	4000	4300	4400	4700	4600	5000
	2 x 15mm	4200	4400	4500	4800	4800	5100
70 I 70	2 x 12.5mm	4800	-	5400	-	5800	-
	2 x 15mm	5000	-	5500	-	5900	-
92 S 50	2 x 12.5mm	5000	5300	5300	5700	5700	6100
	2 x 15mm	5100	5400	5500	5800	5800	6200
100 I 80	2 x 12.5mm	6300	-	7000	-	7600	-
	2 x 15mm	6400	-	7100	-	7700	-
150 S 50	2 x 12.5mm	6800	7200	7400	8000	7900	8600
	2 x 15mm	6900	7400	7500	8100	8000	8700
150 I 90	2 x 12.5mm	8700	-	9700	-	10600	-
	2 x 15mm	8800	-	9800	-	10600	-

Table 13 - GypWall QUIET SF metal stud partition with Gypframe RB1 Resilient Bars **both sides - recommended maximum heights (mm), based on a limiting deflection of L/240 at 200 Pa**

Stud	Boarding each side	600mm centres	600mm boxed	400mm centres	400mm boxed	300mm centres	300mm boxed
50 S 50	2 x 12.5mm 2 x 15mm	2500	2700	2800	3100	3100	3400
70 S 50	2 x 12.5mm 2 x 15mm	3200	3600	3700	4100	4100	4500
70 I 70	2 x 12.5mm 2 x 15mm	4300	-	5000	-	5500	-
92 S 50	2 x 12.5mm 2 x 15mm	4000	4400	4500	5000	5000	5600
100 I 80	2 x 12.5mm 2 x 15mm	5700	-	6600	-	7200	-
150 S 50	2 x 12.5mm 2 x 15mm	5700	6300	6500	7200	7200	8000
150 I 90	2 x 12.5mm 2 x 15mm	8100	-	9200	-	10200	-

In all systems, for heights below 4200mm the appropriate standard (C) Gypframe Floor and Ceiling Channel can be used. It is recommended that for heights between 4200mm and 8000mm, the Deep Flange (DC) Gypframe Floor and Ceiling Channel is used and the Extra Deep Flange (EDC) is used for heights above 8000mm

Technical performance and principles of system design

Robustness

Assessing acoustic performance of GypWall cLASSIC with reduced stud centres

Reducing the centres of the metal studs within GypWall partition systems can have a detrimental effect on the sound insulation performance of the system.

The effect may vary depending on the precise specification, e.g. board type, number of board layers, stud size and type, insulation within stud cavity.

For guidance on a particular specification please contact the Gyproc Technical Team.

Movement

Deflection of upper floor and roof slabs can cause appreciable stress in partitions. Where such deflection is likely to occur, the partition to structural soffit junction detail must be designed to accommodate movement, whilst still complying with any fire or acoustic performance requirements. Typical deflection head details for fire-rated GypWall partition systems are given in the relevant partition and wall system sections within this book. Additional attention to detailing will be required to optimise sound insulation performance. The deflection head details included in the Building acoustics section shows a good practice solution incorporating steel angles, either side of the head and sealed to the structure, which results in only a 1dB, up to 2dB loss in performance.

Where linings (partitions, wall linings and ceilings) cross a movement joint in a structural wall, floor or roof slab, they should be provided with a movement joint at the same point, and be capable of the same range of movement as the wall, floor or roof joint. A range of movement / control joint beads are available in the market that provide a range of movement capabilities.

Environmental conditions

Temperature

Gyproc plasterboards and Glasroc specialist boards should not be used where the temperature will exceed 49°C for prolonged periods. Continued exposure to high temperatures and/or multiple exposure for short periods, results in the gradual continued calcination of the gypsum and loss of its inherent properties. Gyproc plasterboards and Glasroc specialist boards can be subjected to freezing conditions without risk of damage. Typically site temperatures across the Middle East are below 49°C, especially in shaded areas. Contact the Gyproc Technical Team for further guidance.

Moisture

Gyproc plasterboards should not be used in continuously damp conditions nor in buildings that are not weathertight. However, Moisture Resistant grade board, M2TECH grade board, Aquaroc FC board and Glasroc specialist boards are all suitable for use in intermittently damp conditions or sheltered external situations in conjunction with an appropriate decorative finish. Glasroc specialist boards are also suitable for external applications with suitable renderings.

Relative humidity (RH)

In moderate humidity situations, i.e. 40% to 70% RH, no special precautions need to be taken when using Gyproc plasterboards, other than those necessary to prevent interstitial condensation.

Intermittently high relative humidity, i.e. above 70% RH, requires special treatment to the face of the plasterboards, and only moisture resistant grade plasterboards or Glasroc specialist boards should be used. When using non-MR plasterboards, intermittent exposure to RH levels above 70% during the construction phase may be acceptable should the RH levels again return back to below 70%. Prolonged continuous exposure above 70% however, which may be several days, could actually delaminate the paper, expand or bubble the gypsum core or even bow the boards should they be stored incorrectly. Should any of these symptoms be apparent, then the boards would need to be replaced

Special environments - swimming pools and similar environments

Ceiling lining

Gyproc products and systems are regularly specified for ceilings in and around swimming pool halls and similar areas. With regard to ceiling specifications attention to detail is critical. The following guidance should be considered:

- The boards to be used should be Gyproc MR, M2TECH or Glasroc specialist boards or Aquaroc FC. They should be screw-fixed to a framed system at their recommended centres.
- The surface of the board should be finished using Gyproc's recommended methods, and they must be set and dry before applying decoration.
- The decoration should take the form of a suitable moisture impervious finish supplied by others.
- Penetrations in the ceiling linings and perimeters should be avoided where possible. All service penetrations must be sealed using a moisture resistant sealant (even though the recommended plasterboards are moisture resistant it is unwise to allow moisture to gain access to the core of the board).
- The air in the indoor pool area should be conditioned such that condensation will not form on the surface of the boards.
- In situations where there is a risk of condensation occurring within the ceiling cavity, it must be mechanically ventilated or the decorative finish must be impervious to water vapour. This will minimise the risk of condensation forming on 'cold' surfaces in the cavity, which could then come in to contact with the unprotected back face of the plasterboard lining.

Technical performance and principles of system design

Robustness

- It is good practice to protect the cut ends of Gypframe metal components using suitable material to prevent corrosion.
- Ensure that the Gypframe metal frame is totally encapsulated by suitable Gyproc board and waterproof finishing systems by Saint-Gobain Weber

Wall lining

Gyproc boards (including MR grade) are not suitable for use as wall linings in areas such as communal showers and public pool halls. Moisture Resistant grade board, M2TECH grade board, Aquaroc FC boards and Glasroc specialist boards can be considered for use in adjacent areas of wall lining and in most domestic situations but attention to detail is critical and, in addition to the guidance given above for ceiling linings, the following additional guidance should be considered.

- The lining boards must be lifted clear from any floor where free water is possible and a suitable skirting detail must be employed which will not allow water penetration
- In extreme moisture environments, Glasroc X must be used in conjunction with a tanking system
- Important guidance is given within BS 5385-1: 2009 and BS 5385-4: 2009, within which gypsum plasterboard and gypsum plaster are deemed unsuitable backgrounds for tiling in 'frequently wetted' areas. 'Frequently wetted' areas include communal showers and pool halls.

Ceilings - general

EN 13964: 2004 includes class definition relating to exposure conditions and maximum deflection. The standard Gyproc MF ceiling lay-out is capable of complying with deflection class 2 and exposure class A, however the system can be modified to meet classes 1 and B. Contact the Gyproc Technical Team for further guidance.

Technical performance and principles of system design

Service installations

Service installations guidance

Services within partitions and lining cavities

Services can be incorporated in all Gyproc lining systems, partitions and ceilings.

Gypframe stud framing has the benefit of 'H' shaped cut-outs, 70 x 27mm at the centres shown in **Figure 22 - Gypframe studs service cut-out details**. These service cut-outs are used to accommodate routing of electrical and other services within the partition cavity. Grommets or isolating strip can be installed in the push-out to provide additional prevention against abrasion of the cables if required. Switch boxes and socket outlets can be supported on brackets formed from Gypframe 103 FC 50 or 153 FC 90. Fixing Channels or cut and bent channels fixed horizontally between the studs.

Gypframe head and base channels do not generally have cut-outs, these need to be cut on site, paying attention to Health and safety guidance. Grommets or isolating strip should be installed in these cut-outs to prevent abrasion of the cables.

If a blockwork wall lining system, such as **GypLyner UNIVERSAL**, does not have sufficient depth to accommodate the service then the background should be 'chased out' to the appropriate depth. Pipes or conduits should be fixed in position before dry lining work commences. To maintain an airtight construction, the perimeter of any penetration through the lining should be sealed as necessary at the time the services are being installed.

When installing electrical services within a partition, it might result in the concealed cable being less than 50mm from the surface of the partition, particularly if the partition is less than 100mm thick. Whilst it may be apparent that electrical services are contained within a partition cavity due to the appearance of electrical sockets / switches on the partition surface, this might not be obvious from the reverse side. Therefore, before carrying out work, e.g. drilling into the surface, the reverse side of the partition must always be checked to determine the location of any concealed cables. It is good practice to maintain a clear zone. Where the location of electrical outlets cannot be determined from the reverse side, then the cable must either be mechanically protected or run at least 50mm from the surface of the wall or partition on the reverse side. Refer to figure 25 and 26.

Where water pipes are to be located within the GypWall system, it is recommended that only one pipe is passed through each aperture in the metal framework. If this cannot be accommodated for whatever reason, it may be necessary to incorporate proprietary pipe restraining clips, or other means of keeping the pipes apart, to prevent vibration noise.

To maintain an airtight construction, the perimeter of any penetration through the lining should be sealed as necessary at the time the services are being installed

Service penetrations and fixing into drywall systems

Fixing electrical socket boxes into Gyproc partitions and walls can impair both fire and acoustic performance, but with careful detailing this can be minimised. The relevant sections in this book offer specific guidance for the installation of socket boxes in separating walls, however designers should note that in particular the avoidance of back-to-back services is recommended. The plasterboard should always be neatly cut and Gyproc Sealant should be applied where optimum acoustic performance is required.

In fire-rated walls, the fire-stopping design is dependant on the period of fire resistance. Some typical details are shown in **Figure 27 - Socket box installation - up to 60 minutes fire resistance**, **Figure 28 - Socket box installation - up to 120 minutes fire resistance**, **Figure 29 - Socket box installation - up to 120 minutes fire resistance for twin frame partitions** and **Figure 30 - Socket box installation - up to 120 minutes fire resistance for GypWall QUIET SF**.

There are a number of fire-stopping products including putty pads, available on the market from a range of manufacturers. Whilst Gyproc has no objection to the use of putty pads for example within drylining systems, all performance substantiation has to be provided by the fire-stopping manufacturer as is the case for any fire-stopping material.

Penetrations of fire resistant constructions for services need careful consideration to ensure that the integrity of the element is not impaired, and also that the services themselves do not act as the mechanism of fire spread. It is important to use only those services and their installations that have been shown by fire test to be able to maintain the integrity of the construction. By designing service zones through which all services pass, the number of individual service penetrations can be minimised. Service zones can be sealed after installation of the services using a tested and substantiated fire-stopping system.

In most situations, the services will be installed by contractors other than the drylining contractor. It is important, therefore, that all relevant contractors should be advised as to where and how their service penetrations should be made and maintained. The necessity to independently support services will depend on their size and weight. Contact the Gyproc Technical Team for further guidance.

For fixing medium to heavy fixtures directly off the drywall system Gyproc Habito boards should be used as the face layer of the drywall. Due to the reinforced core of Gyproc Habito board it allows a safe working load of 30kg to be directly fixed to it by using a simple No. 10 woodscrew. In order to ensure the same working load from all the fixings, 15mm spacing is required between the fixings. Table 10 provides example fixings and typical safe working loads on partitions incorporating Gyproc Habito board.

Technical performance and principles of system design

Service installations

It is important to ensure that the drylining system specified is capable of supporting the loads, particularly if installing multiple fixtures. Furthermore, it may be necessary to incorporate several fixings per fixture to ensure the weight is distributed across the drylining system rather than a point load, particularly for medium to heavy fixtures.

When using any other Gyproc plasterboard, there are wide variety of fixing devices suitable for securing fixtures and fittings to typical Gyproc systems. Generally, the choice of individual fixing devices will depend on the type of system and the loading requirements. **Table 9** gives example fixing devices and usual applications in typical drywall systems to meet the specific load criteria.

For fixing services into a typical drywall except Gyproc Habito board, install services to the face of the partition, using a Gypframe Service Support Plate, which carries 18mm plywood within the cavity of the partition as shown in **Figure 20 - General arrangement of service support plates showing studs at 600mm centres**. An alternative to this would be to install a metal or timber support framework within the cavity of the partition as shown in **Figure 19 - Folding support rail fixture** and **Figure 20 - General arrangement of service support plates showing studs at 600mm centres, or Figure 21 - Gypframe 103 FC 50 or 153 FC 90 Fixing Channels**

Duct / damper penetration through drywall systems

Fire and smoke resisting dampers can be installed in to Gyproc's systems. Dampers prevent fire and smoke from passing from one fire compartment to another through heating, ventilation and air conditioning systems. 'An Industry Guide to the Design for the Installation of Fire and Smoke Resisting Dampers' is available from the Association of Specialist Fire Protection (ASFP) or as a download from www.asfp.org.uk. This document refers the designer to the principles of construction, and in particular to tested constructions, or to constructions assessed for performance in fire by a suitably qualified person.

Figures, 31 - Opening bridging studs for duct / damper penetration, 32 - Opening for service penetrations in fire-rated partitions and 33 - Fire tested construction in which the damper is supported by the partition show a method of preparing openings for installing dampers up to a maximum weight of 57kg within Gyproc systems. As the performance of the complete assembly will depend on a number of elements, the actual details of the opening need to be determined in conjunction with the fire-stopping and damper manufacturers.

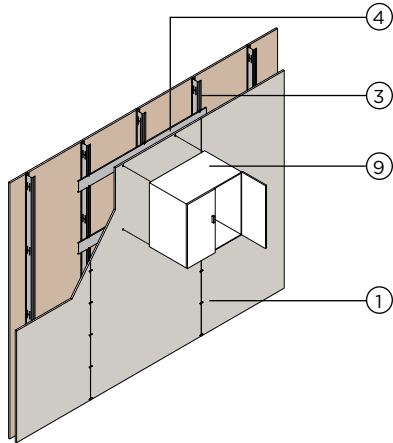
Useful reference documents covering international legislation and guidance

In the UK the installation of electrical services is carried out in accordance with the requirements of BS 7671: 2018, requirements for electrical installations, IEE Wiring Regulations. This was introduced in conjunction with the Institution of Engineering and Technology (IET), and is used for all books related to wiring regulations.

Technical performance and principles of system design

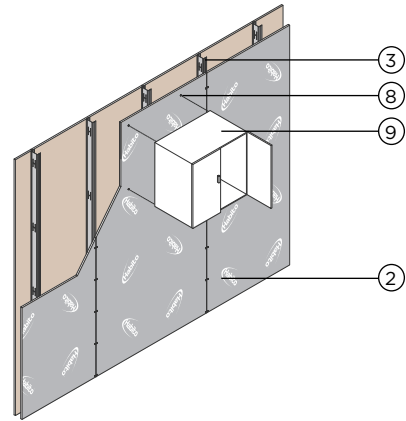
Service installations

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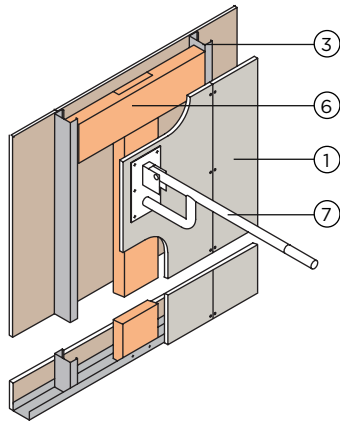
Wall cupboard fixture detail using Gyproframe Fixing Channel

18



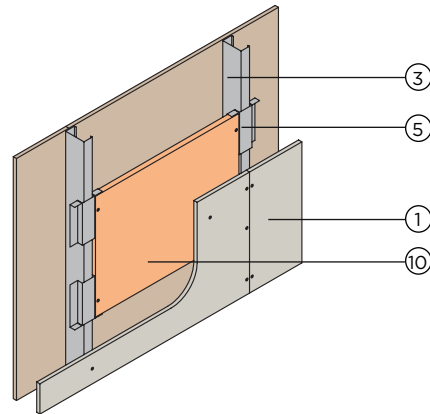
Wall cupboard fixture detail using Gyproc Habito

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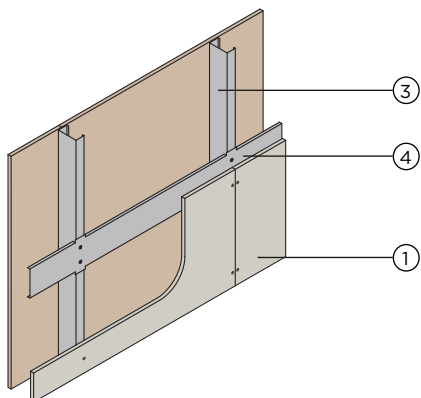
Folding support rail fixture detail

20



General arrangement of service support plates showing studs at 600mm centres

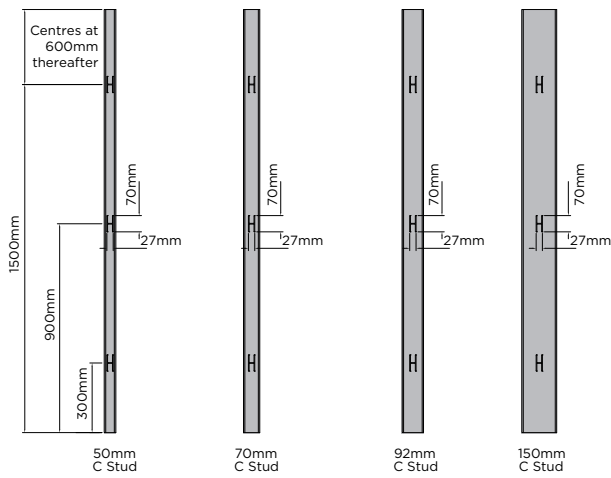
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Gyproframe 103 FC 50 Fixing Channel

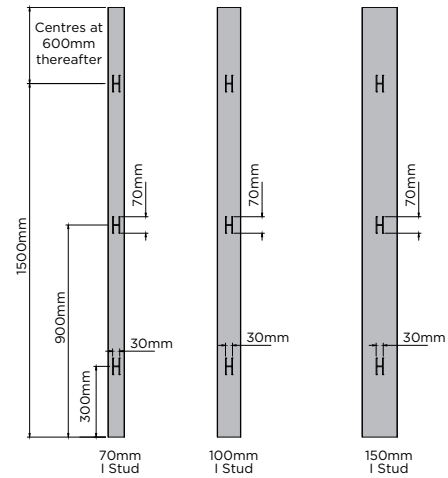
- | | |
|--|--|
| 1. Gyproc plasterboard or Glasroc specialist board | 6. 150 x 50mm timber suitably fixed to studs and channel |
| 2. Gyproc Habito plasterboard | 7. Folding support rail |
| 3. Gyproframe 'C' Stud | 8. No. 10 woodscrew, directly fixed to board only |
| 4. Gyproframe 103 FC 50 Fixing Channel fixed to studs with Gyproc Waferhead Screws | 9. Wall cupboard |
| 5. Gyproframe Service Support Plate | 10. 18mm plywood |

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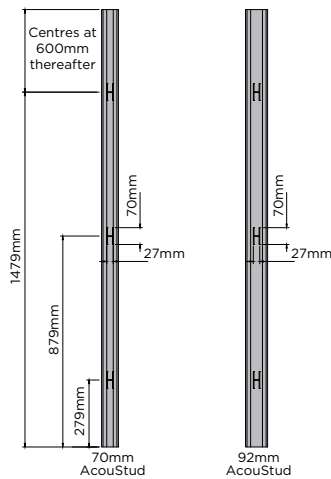
Gypframe studs service cut-out details - Gypframe 'C' Studs

23



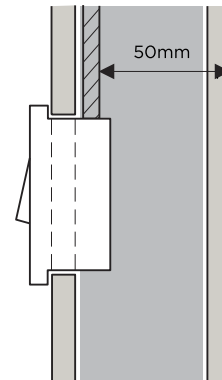
Gypframe studs service cut-out details - Gypframe 'I' Studs

24



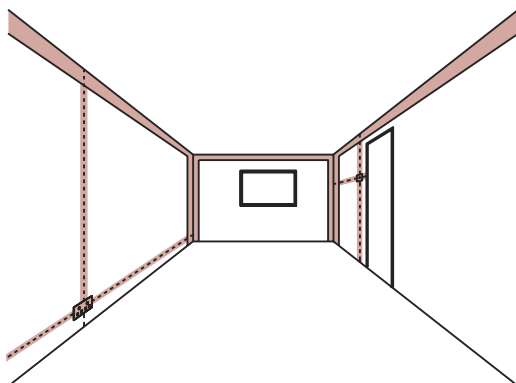
Gypframe studs service cut-out details - Gypframe 'AS' AcouStuds

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Minimum distance of cabling

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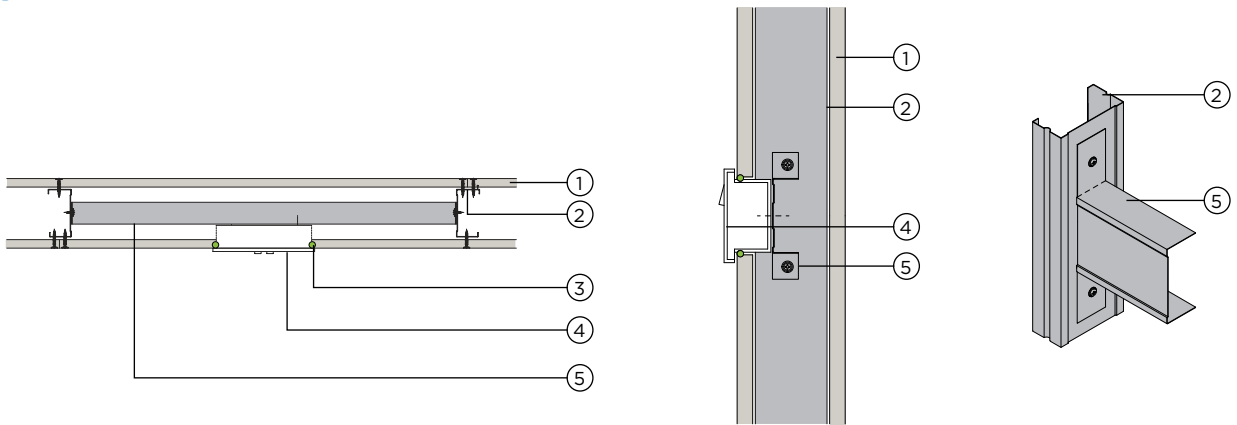


Standard zones of cabling

Technical performance and principles of system design

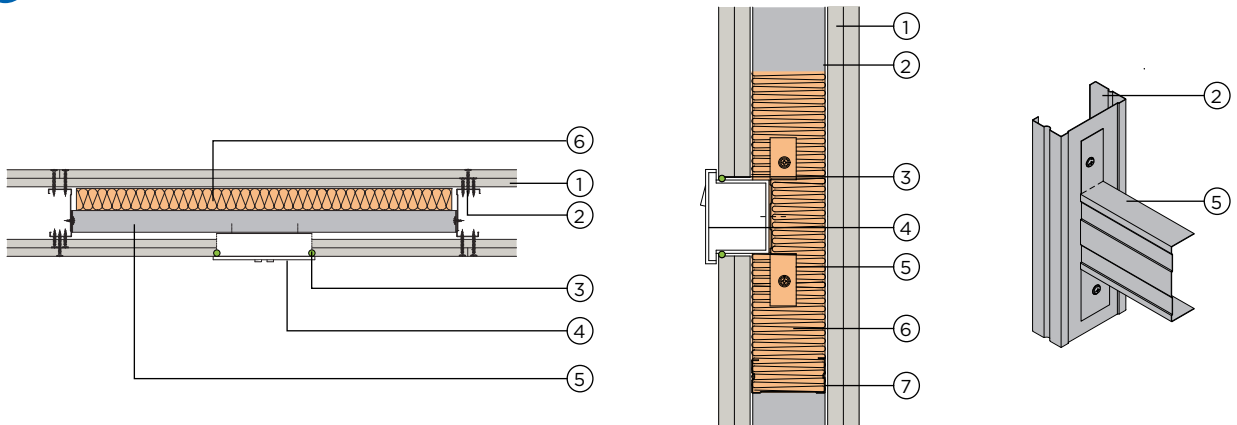
Service installations

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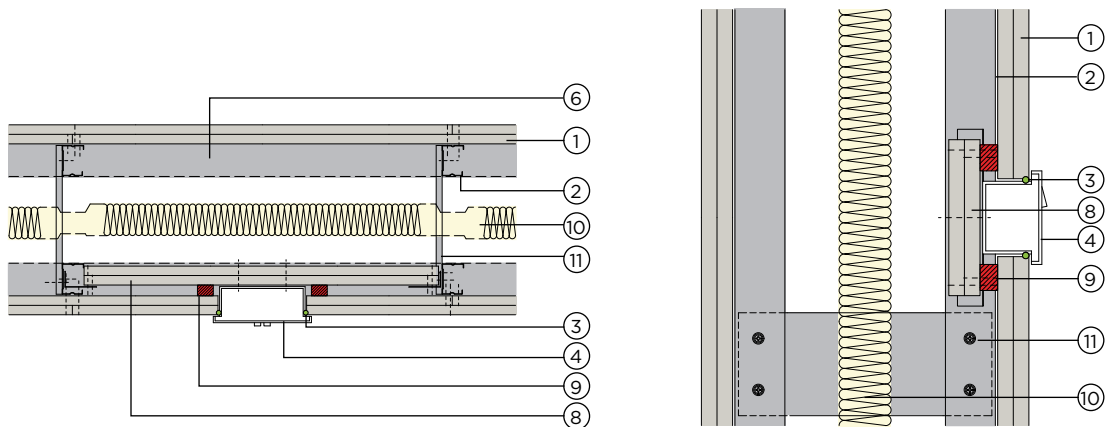
Socket box installation detail - up to 60 minutes fire resistance

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Socket box installation detail - up to 120 minutes fire resistance

29



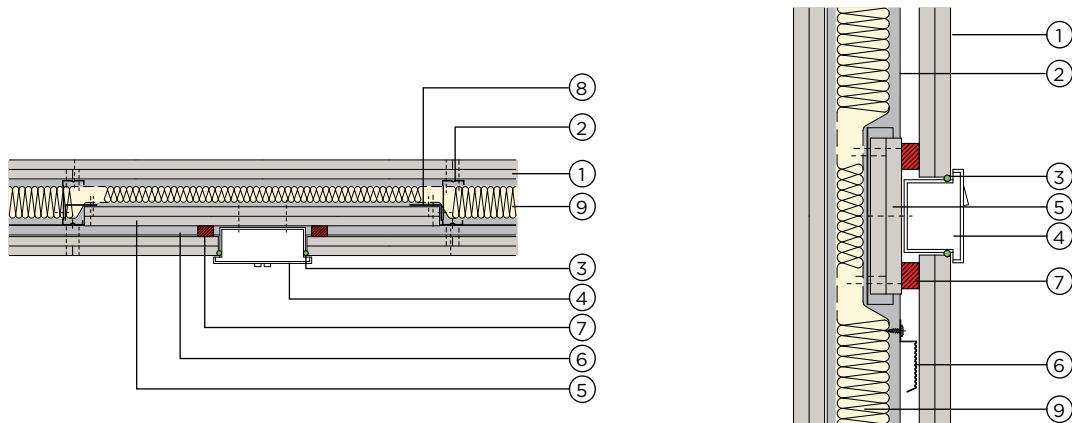
Twin frame - Socket box installation detail - up to 120 minutes fire resistance

1. Gyproc plasterboard
2. Gypframe 'C' Stud
3. Gyproc Sealant at switch box perimeter for improved acoustics
4. Electrical socket with metal back box fitted tight into plasterboard
5. Gypframe Standard Floor & Ceiling Channel receiving fixing of socket box - channel legs tabbed, bent and fixed to metal studs with Gyproc Waferhead Screws
6. Stone mineral wool (minimum 80 kg/m³) backing to socket box
7. Gypframe 'C' Stud Noggings with ends notched around stud and fixed with Gyproc Waferhead Screws to help retain stone mineral wool (by KIMMCO ISOVER)
8. Two layers of Gyproc plasterboard (same board type as partition lining) forming normal 150mm high baffle fixed to Gypframe GA4 Steel Angle with Gyproc Drywall Screws. Gypframe 103 FC 50 or similar / plywood may also be used (in addition to the plasterboard pattress) to provide additional support for the socket box if required
9. Suitable fire resistant seal where required
10. ISOVER Eco APR
11. Gypframe 103 FC 50 Fixing Channel

Technical performance and principles of system design

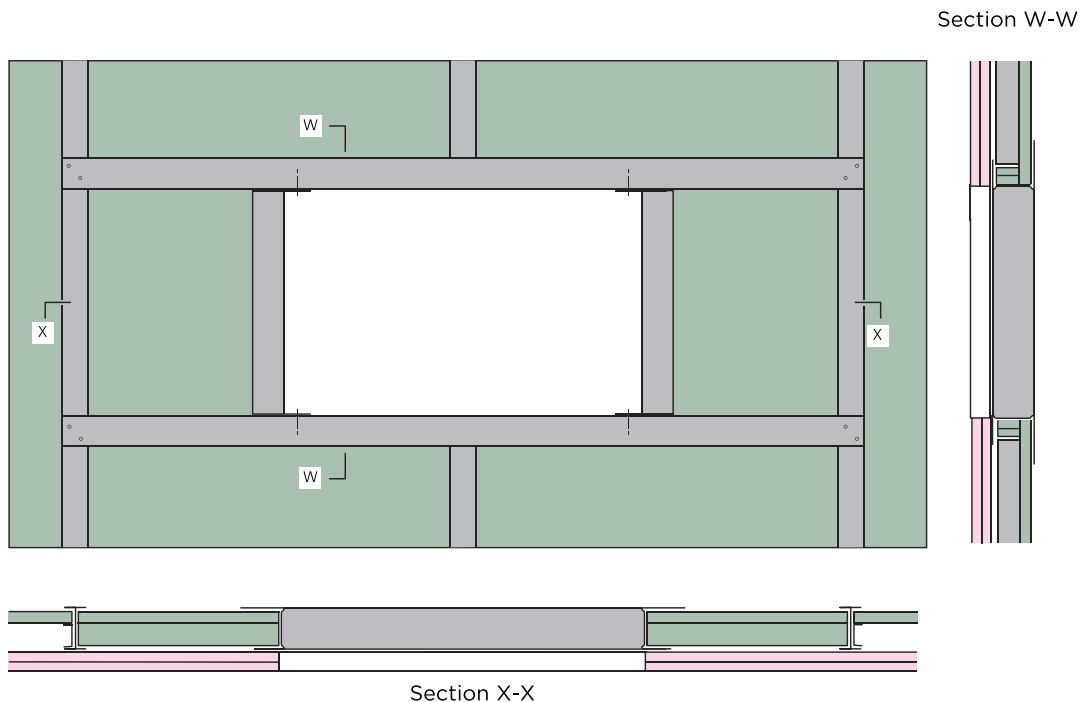
Service installations

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GypWall QUIET SF - Socket box installation detail - up to 120 minutes fire resistance

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Opening bridging studs for duct / damper penetration within ShaftWall

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Gyproc plasterboard 2. Gypframe 'C' Stud 3. Gyproc Sealant at switch box perimeter for improved acoustics 4. Electrical socket with metal back box fitted tight into plasterboard 5. Two layers of Gyproc plasterboard (same board type as partition lining) forming normal 150mm high baffle fixed to Gypframe GA4 Steel Angle with Gyproc Drywall screws. Gypframe 103 FC 50 or similar / plywood may also be used (in addition to the plasterboard pattress) to provide additional support for the socket box if required | <ol style="list-style-type: none"> 6. Horizontal Gypframe RB1 Resilient Bars 7. Suitable fire resistant seal where required 8. 150mm length of Gypframe GA4 Steel Angle fixed to the studs with two Gyproc Waferhead Screws 9. ISOVER Eco APR |
|---|---|

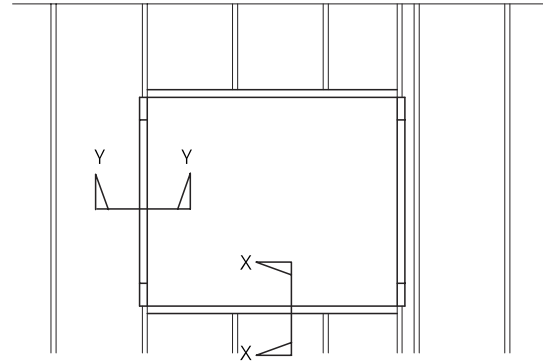
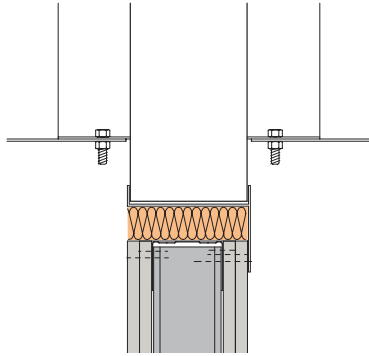
Technical performance and principles of system design

Service installations

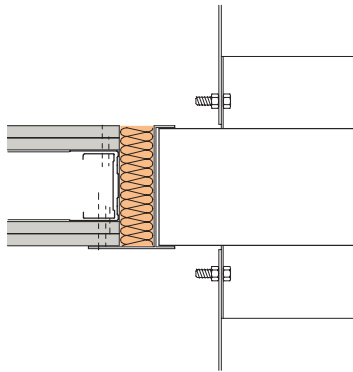
Typical opening for service penetrations in fire-rated partitions

32

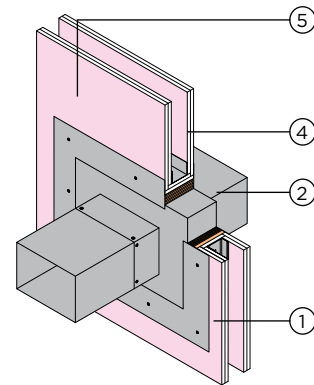
Section X-X



Section Y-Y



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1. Gyproc plasterboard or Glasroc specialist board
2. Gypframe 'C' Stud
3. Gypframe Floor & Ceiling Channel
4. Penetration seal as tested by damper manufacturer or proprietary alternative, confirmed as compatible by system designer / specifier (plasterboard lining around opening may not be required)
5. Damper (by others). Weight of damper should not exceed 57kg. Size of damper should not exceed 1400 x 1200mm

Technical performance and principles of system design

Service installations

Table 9 - Example fixing devices and typical safe working loads on partitions and wall linings

System	Lightweight fixtures up to 3kg (e.g. socket)	Lightweight to medium fixtures 4 - 8kg (e.g. small mirror)	Medium weight fixtures 9 - 20kg (e.g. shelf)	Medium to heavy fixtures 21 - 50kg (e.g. cupboard)	Heavy fixtures 51 - 100kg (e.g. basin)
ShaftWall					
GypWall systems ¹	A	B or C	D or I	G, H or I	K or H
GypLyner iWL					
DriLyner	A	B	F	L	L
GypLyner UNIVERSAL wall lining	A	B or C	D or E	J, K or L	K or L
Reference	Detail	Description	Typical SWL ² (typical failure load)		
A		No. 10 woodscrew into Gyproc plasterboard	3kg (12kg)		
B		Steel picture hook and masonry nail into Gyproc plasterboard	4kg (16kg)		
C		Metal self-drive into single layer Gyproc plasterboard	6kg (24kg)		
		Metal self-drive into double layer Gyproc plasterboard into timber nogging	8kg (32kg)		
D		Steel expanding cavity fixing, e.g. M5 x 40, into Gyproc plasterboard (board thicknesses up to 12.5mm)	12kg (48kg)		
		Steel expanding cavity fixing, e.g. M5 x 65, into plasterboard (board thicknesses from 15mm to 28mm)	18kg (72kg)		
E		Gyproc Drywall Screw fixed through Gyproc plasterboard into 0.5mm Gyproframe metal stud / Gyproframe 103 FC 50 Fixing Channel	19kg (76kg)		
F		Heavy duty plastic plug fixed through Gyproc plasterboard into masonry with 55mm minimum penetration	20kg (140kg)		
G		Gyproc Jack-Point Screws fixed through Gyproc plasterboard into minimum 0.8mm Gyproframe metal stud / Gyproframe 103 FC 90 Fixing Channel	30kg (120kg)		
H		No. 12 self-tapping screws fixed through Gyproc plasterboard into minimum 0.9mm Gyproframe metal stud / Gyproframe 103 FC 90 Fixing Channel	50kg (200kg)		
I		Steel expanding metal cavity fixing, e.g. M4 x 40, through Gyproc plasterboard into 0.9mm Gyproframe metal stud / Gyproframe 103 FC 90 Fixing Channel (board thicknesses up to 12.5mm)	40kg (160kg)		
		Steel expanding metal cavity fixing, e.g. M4 x 65, through Gyproc plasterboard into 0.9mm Gyproframe metal stud / Gyproframe 103 FC 90 Fixing Channel (board thicknesses from 15mm to 28mm)	50kg (200kg)		
		Steel expanding metal cavity fixing, e.g. M5 x 65, fixing through Gyproc plasterboard into plywood supported by Gyproframe Service Support Plate	50kg (200kg)		
J		8mm steel frame fixing fixed through Gyproc plasterboard into masonry with minimum 55mm penetration	60kg (240kg)		
K		No.12 self-tapping screw fixed through Gyproc plasterboard into timber sub-frame	120kg (480kg)		
L		M8 steel bolt / anchor fixed through Gyproc plasterboard into masonry with minimum 55mm penetration	130kg (520kg)		

¹ For GypWall QUIET SF, ensure that the fixings do not bridge the Gyproframe RB1 Resilient Bars, otherwise the acoustic performance will be compromised.

² Safe Working Load (SWL) - a safety factor of 4 (steel fixings) and 7 (plastic fixings) has been used.

NB For technical assistance on above fixings please contact the fixings manufacturer. The suitability of the fixing must be confirmed by the relevant controlling authority.






NB Reference can also be made to the Construction Fixing Association (CFA) guidance note 'Fixing For Plasterboard', which can be accessed at fixingscfa.co.uk

NB The information within table 9 does not take into consideration any additional forces that may be applied whether it be accidental, abusive or otherwise. The example fixing devices, typical safe working loads and typical failure loads given in table 9 relate to the installation of single fixtures. It is important to ensure that the drylining system specified is capable of supporting the loads, particularly if installing multiple fixtures. Furthermore, it may be necessary to incorporate several fixings per fixture to ensure the weight is distributed across the drylining system rather than a point load, particularly for medium to heavy fixtures.

Technical performance and principles of system design

Service installations

Table 10 - Example fixing devices and typical safe working loads on Gyproc partitions, lining and ceiling systems incorporating Habito

Fixing Type			Habito Layers	Typical SWL ¹ (typical failure load)
Detail	Description	Size		
	Woodscrew	No. 10 (5mm)	1 x 12.5mm	30kg (60kg) ²
			2 x 12.5mm	80kg (160kg) ²
	Steel expanding cavity fixing	M5 x 37	1 x 12.5mm	55kg (110kg)
		M5 x 65	2 x 12.5mm	60kg (120kg)
		M6 x 37	1 x 12.5mm	65kg (130kg)
		M6 x 65	1 x 12.5mm	65kg (130kg)

¹Safe Working Load (SWL) - a safety factor of 2 has been used.

²A standard 5mm, single thread, No. 10 Woodscrew should be used. Other types of woodscrews can affect the safe working load.

NB The distance between screws used to support fixtures, as shown in this table, should be a minimum of 15mm apart. Fixings closer than this have poorer performance due to a breakdown of the plasterboard core.

NB Fixing screws can be taken out and then screwed back into the same hole without a decrease in pull out performance. This is because when first screwed in a thread is formed within the gypsum core. Re-inserting the screw uses the same thread and provides the same level of screw pull out performance up to a maximum of three times.

NB For GypWall QUIET SF, ensure that fixings do not bridge the Gypframe RB1 Resilient Bars, otherwise the acoustic performance will be compromised.

NB For technical assistance on above fixings please contact the fixings manufacturer. The suitability of the fixing must be confirmed by the building designer / fixing manufacturer.

NB The information within table 10 does not take into consideration any additional forces that may be applied, whether it be accidental, abusive or otherwise. The example fixing devices, typical safe working loads and typical failure loads given in table 10 relate to the installation of single fixtures. It is important to ensure that the drylining system specified is capable of supporting the loads, particularly if installing multiple fixtures. Furthermore, it may be necessary to incorporate several fixings per fixture to ensure the weight is distributed across the drylining system rather than a point load, particularly for medium to heavy fixtures.

Technical performance and principles of system design

Indoor air quality

We typically spend up to 90% of our time indoors, in schools, offices, hospitals and our homes. Clean air is something we assume we have in the buildings in which we live, work and learn, yet impurities found in the air can cause health problems and a reduction in our general well-being.

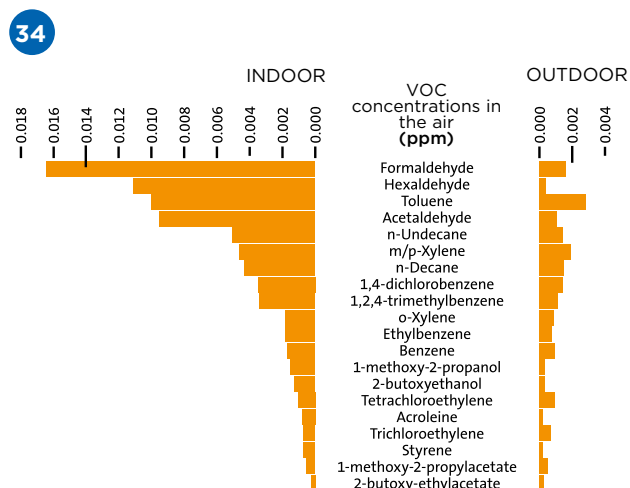
Clean air on the other hand can speed up patient recovery in hospitals, reduce absence at work and increase pupils' concentration at school.

Volatile organic compounds (VOC's)

Although we don't notice them, pollutants called volatile organic compounds (VOC's) including formaldehyde are often present in the air we breathe – naturally emitted from furniture, carpets, paints, varnishes, cleaning products and building materials.

VOC's have an initial boiling point of less than or equal to 250°C. They are emitted as a gas from a liquid or solid and enter the surrounding air. VOC's are numerous and varied. They include both human-made and naturally occurring chemical compounds. Formaldehyde (CH₂O) is both the highest concentration and highest risk VOC. Refer to figure 34 – VOC concentration.

Studies have shown that the air indoors can have concentrations of VOC's many times higher than the outdoor air. The increased focus on the reduction of energy consumption is leading to more airtight buildings, which means the quality of air is becoming even more critical. Refer to figure 34 – VOC concentration. Studies have shown that ventilation systems are only about 30% effective at removing VOC's from the air indoors.



Source: Indoor Air Quality Observatory (OQAI)

VOC concentration comparison, indoor vs outdoor

Some of the health problems VOC's can cause

People often complain about health problems after extended periods of time spent indoors. Studies have shown that many of these symptoms can be attributed to VOC's:

- Headaches
- Nausea
- Allergies and increased allergic reactions
- Lack of concentration
- Eye irritation
- Fatigue
- Breathing problems

The World Health Organisation (WHO) concerns about formaldehyde (which is a common VOC) in relation to human health are well published (WHO guidelines for indoor air quality: selected pollutants; 2010). All current regulation focuses on VOC emissions at project handover, and in reducing the VOC content of construction products.

Legislation and guidance

However, academic and evidence based design is increasingly highlighting that the major issue with VOC's is post handover / during building use.

Building regulations and guidance relating to VOC's:

- Building Regulations Approved Document F (ventilation)
- Building Bulletin 101 (education)
- BRE Digest 464 Part 2
- BRE Environmental Assessment Method (BREEAM) (indoor air quality)
- Health Technical Memorandum (HTM)03-01
- Leadership in Energy and Environmental Design (LEED) (indoor air quality)
- WELL Building Standard (indoor air quality)
- Al Sa'fat Dubai Green Building Evaluation System

You can't see or smell VOC's. Therefore there is no way of knowing what concentrations you are being exposed to on a daily basis.

Activ'Air® technology

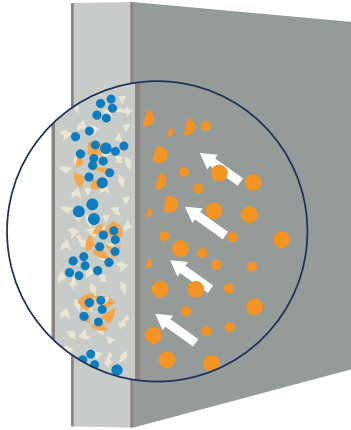
Activ'Air is a new technology added to certain Gyproc products. It is designed specially to convert formaldehyde into non-harmful inert compounds, thus eliminating the risk of re-emission. It is tested to capture and convert up to 70% of formaldehyde. Refer to figure 35 – Activ'Air technology.

Improving the indoor air quality is a major consideration amongst clients and building occupants, most notably those concerned with sustainability and health and wellbeing. Good clean air can reduce health problems as well as enhancing our healthy living in both our work and living spaces.

Technical performance and principles of system design

Indoor air quality

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1. Formaldehyde molecules

(●) in the air are absorbed by the plasterboard, plaster or ceiling

2. Activ'Air technology

(↔) converts them into inert compounds

3. The inert compounds

(●) remain locked in the plasterboard, plaster or ceiling

Activ'Air technology:

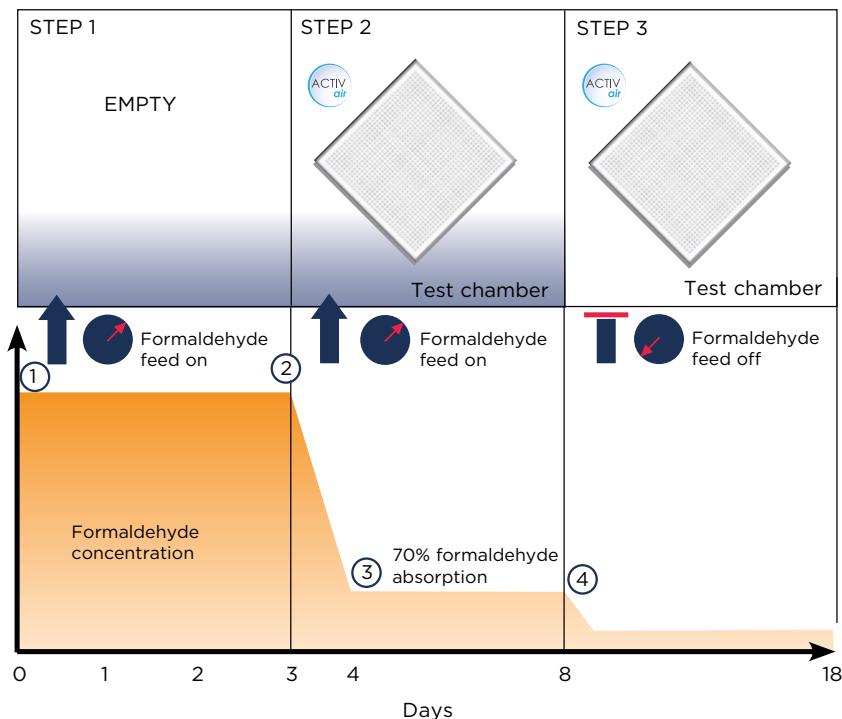
- Converts up to 70% of formaldehyde into inert compounds making indoor spaces healthier
- Uniquely captures and converts formaldehyde, removing the risk of re-emission even if the product is damaged or at end of life
- Will continue to work for at least 50 years
- Works through an emulsion paint finish
- Is fully recyclable.
- Has no impact on the installation or performance of the products or systems they are included in with regards to fire, acoustics, thermal or durability compared to standard versions of the products



¹When using Activ'Air products aim to have coverage in each room on the walls and / or ceiling equivalent to the m² area of the floor.

Activ'Air technology

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Activ'Air test principle

1. Formaldehyde was fed into the empty test chamber at a constant level
2. On day 3, a sample of a product containing Activ'Air technology was introduced to the test chamber
3. After 24 hours, Activ'Air technology had absorbed 70% of the formaldehyde in the chamber, with a continued in-feed of formaldehyde
4. Formaldehyde feed was stopped on day 8, and levels were further reduced as they continued to be absorbed by Activ'Air technology

Technical performance and principles of system design

Sustainability

Our mission is to develop innovative products and services that help customers build better spaces to live, work and play. In every kind of building - from home to work, from the local supermarket to the local hospital - we help to create partitions, provide comfort, protect against fire and insulate against sound.

With over 100 years' experience in plasterboard and ceiling solutions, we already have a multitude of high performance products and systems. However, we're pushing the boundaries in our current thinking and we have an ambitious innovation programme, driven by our customers, to deliver meaningful consumer benefits.

Useful reference documents covering international legislations and guidance

There are many building regulations and environmental assessment methods that apply to construction industry such as:

- Green Building Code
- Estidama Pearl Rating
- Al Safat
- The BRE Environmental Assessment Method (BREEAM)
- Leadership in Energy and Environmental Design (LEED)

This document does not go into detail about each of these standards, however, other documents within our literature detail how our products and systems meet specific requirements. Guides include:

- Gypsum Recycling Brochure
- Gyproc Environmental Brochure
- LEED V4 Brochure
- The Hospitality Sector Brochure
- The Healthcare Sector Brochure
- The Educational Sector Brochure.

This section should be read in conjunction with our sustainable practices, available online at <http://www.gyproc.ae/sustainability>

Certifications

ISO 14001:2015 - Environmental Management Systems: Requirements with guidance for use

ISO 14001 specifies the requirements for an environmental management system (EMS). It applies to those environmental aspects which the organization has control over and which it can be expected to have an influence. The standard applies to management systems which a site or organization might employ, but does not directly relate to products. It is not a product certification system or label. The standard itself does not state specific environmental performance criteria; this is down to the site or organization to do.

ISO 9001:2015 - Quality Management Systems: Requirements

ISO 9001 is an internationally recognized and well established quality framework, currently used by more than 897,000 organizations in 170 countries worldwide and sets the standard for quality management systems. The business has continuous assessment visits every 6 months, and the latest certificate was issued under the revised ISO 9001:2015 in August 2019.

OHSAS 18001:2007 - Occupational Health and Safety Management Systems: Requirements

OHSAS 18001:2007 is an internationally recognized assessment specification for occupational Health and Safety management systems. It was developed by a selection of leading trade bodies, international standards and certification bodies to address a gap where no third-party certifiable international standard exists.

Health and Safety is our core value. Our aim is to always be injury-free. We passionately believe that our employees, and other stakeholders, should go home in the same condition as they arrived. We set the target of zero accidents at work for employees, visitors and contractors.

Our culture is one where safety is everyone's responsibility. Our people are encouraged to lead from within, through a program of employee engagement and safety awareness, which includes functional safety committees, safety initiative worker groups and leadership groups. The business uses tools such as SUSA (Safe and Unsafe Acts) discussions and SMAT (Safety Management Audit Tool) to highlight safety concerns and correct them.

Keeping employees fit, happy and healthy is crucial for us. Our in-house occupational health team provide periodic health surveillance and on-going assessments with lifestyle guidance.

Products not manufactured by Gyproc

As previously stated, the ISO and OHSAS standards are not product certifications. They certify the management systems of companies within the supply chain. All products that are merchandised (i.e. bought in and not manufactured by us) and all processes conducted by us, i.e. purchasing and logistics management, are covered by our certifications.

Gyproc's recycled raw materials

Recovered gypsum

Currently we recover and recycle waste plasterboard from our own processes and plasterboard from customers can be returned to us for recycling into new boards. The gypsum content is used within the production of new boards; and the paper content is either used off site as soil improver or disposed off via responsible route.

Plasterboard liner

The liner used to sandwich gypsum to make plasterboard is made from various grades of paper, all of which is 100% post-consumer recycled material.

Technical performance and principles of system design

Sustainability

Life Cycle Assessment (LCA)

Across the construction industry there are many claims made regarding the environmental performance of products, and as such, it can be hard for specifiers to get a genuine picture of how sustainable a solution really is. LCA (Life Cycle Assessment) considers the entire life cycle of a product solution throughout its lifetime. As part of the assessment, a comprehensive range of factors are considered, including the potential environmental effects of raw materials, the manufacturing process, logistics, installation, performance in use and finally the product at the end of its life. Please refer to illustration below.

An Environmental Product Declaration (EPD) is a verified document that reports on the environmental data of products based on an LCA, as well as other relevant information in accordance with international standards such as ISO 14025:2006 Type III Environmental Declarations and BS EN 15804: 2012 Sustainability of Construction Works. Environmental product declaration core rates for the product category of construction products. Information such as raw material use, energy use and efficiency, content of materials and chemical substances, emissions to air, soil and water and waste generation can be viewed in an EPD.

RAW MATERIALS

Gypsum, a sustainably extracted natural resource from quarries but also a by-product from power stations and a recycled waste from jobsites.



MANUFACTURING

A manufacturing process at low temperatures, with low emissions and measured water consumptions.



LOGISTICS

Local production in most countries we serve.



Life Cycle approach

RECYCLING

Gypsum is 100% recyclable, indefinitely.



END-OF-LIFE

Easy to dismantle and recycle solutions.

BUILDING LIFETIME

Comfortable, efficient and healthy buildings.



INSTALLATION

Flexible and lightweight solutions. Limited waste generation on jobsite.

Technical performance and principles of system design

Sustainability

The EPD results also enable us to understand at which stage our products have the greatest impact on the environment. We can therefore make better informed decisions on processes involved in the production of current and new products, as well as taking steps to minimize the environmental impact of our products across their lifecycle.

EPD's also provide clear evidence for environmental building certification schemes, meeting credit requirements in BREEAM or mandatory in LEED, for example.

We want to make the selection of sustainable solutions simpler for our customers. In order to do this, we have begun developing Life Cycle Assessments (LCA) for our product ranges. The independently verified EPD, which are the result of the Life Cycle Assessment (LCA) process, are designed to give users information on the environmental performance of our products across numerous impact categories.

Our current completed EPDs are for:

- 12.5mm Gyproc Regular
- 12.5mm Gyproc Moisture Resistant H1
- 15mm Gyproc FireStop
- 12.5mm Gyproc SoundBloc
- 12.5mm Gyproc Habito
- 12.5mm Glasroc X

This is just the beginning of the journey. We are developing further EPD's for our solutions and these will be rolled out in due course. All current EPD's can be found on our website www.gyproc.ae and on the international EPD library www.environdec.com

Our sister companies Rigips and Gyptone, located in France and Denmark have had assessments carried out on our perforated gypsum acoustic ceilings. Please contact the Gyproc Technical Team to get the EPD's for these products.

Useful links

Gyproc - sustainability

www.gyproc.ae/sustainability

www.saint-gobain-gyproc.com/sustainability

ESTIDAMA

www.dpm.gov.abudhabi/en/Urban-Planning/Estidama-Program

AI SA'FAT

www.web.alsaafat.ae

BREEAM

www.breeam.org

LEED

www.usgbc.org/leed

Technical performance and principles of system design

Standards, Regulations & Approvals

The following standards, regulations and documents are relevant to the design and specification of internal dry linings and plasters. The list is not exhaustive and it is the responsibility of the designer to ensure that only the most current version of standards, etc, are referenced.

American standards

ASTM C1396-17: *Standard Specification for Gypsum Board*

- Section 4.3 Gypsum Board, type X (Special Fire-Resistant):
- Section 5. Gypsum Wallboard, Predecorated Gypsum Board, and Laminated Gypsum Board
- Section 6. Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board
- Section 7. Water-Resistant Gypsum Backing Board
- Section 8. Exterior Gypsum Soffit Board
- Section 9. Gypsum Sheathing Board

ASTM C1629-18a: *Standard Classification for Abuse-Resistant Non-decorated Interior Gypsum Panel products and Fibre-Reinforced Cement Panels*

ASTM C1186-08 (2016): *Standard Specification for Flat Fibre Cement Sheets*

- Type A—Sheets are intended for exterior applications, subjected to the direct action of sun, rain, or snow. They are supplied coated or uncoated.
- Type B—Sheets are intended for exterior applications, not subjected to the direct action of sun, rain, or snow.

ASTM C473-17: *Standard Test Methods for Physical Testing of Gypsum Panel Products*

ASTM C1185-08 (2016): *Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet*

ASTM C1288-17: *Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets*

ASTM C1658-18: *Standard Specification for Glass Mat Gypsum Panels*

ASTM C1177-17: *Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing*

ASTM A653-18: *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*

ASTM C645-18: *Standard Specification for Non-structural Steel Framing Members*

ASTM C475-17: *Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board*

ASTM C474-15: *Standard Test Methods for Joint Treatment Materials for Gypsum Board Construction*

ASTM C587-04: *Standard Specification for Gypsum Veneer Plaster*

ASTM C954-18: *Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs*

ASTM C1002-18: *Standard Specification for Steel Self Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs*

ASTM C1047-14a: *Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base*

ASTM E119-18: *Standard Test Methods for Fire Tests of Building Construction and Materials*

ASTM E84-19a: *Standard Test Method for Surface Burning Characteristics of Building Materials*

ASTM E136-19: *Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace*

ASTM E90-09: *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

ASTM E413-16: *Classification for Rating Sound Insulation*

ASTM C423-17: *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*

ASTM E336 - 19: *Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings*

ASTM E989 - 18: *Standard Classification for Determination of Single-Number Metrics for Impact Noise*

ASTM C754-18: *Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products*

ASTM C840-18b: *Standard Specification for Application and Finishing of Gypsum Board*

ASTM D3273-16: *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*

ASTM B117-18: *Standard Practice for Operating Salt Spray (Fog) Apparatus*

ASTM D1037-12: *Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials*

Technical performance and principles of system design

Standards, Regulations & Approvals

NFPA 268:2017 Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source

NFPA 285:2019: Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components

British standards

BS 476: Fire tests on building materials and structures

- Part 4:1970 Non-combustibility test for materials
- Part 6:1989+A1:2009 Method of test for fire propagation for products
- Part 7:1997 Method for classification of the surface spread of flame of products
- Part 20:1987 Methods for determination of the fire resistance of elements of construction (general principles)
- Part 21:1987 Method for determination of the fire resistance of loadbearing elements of construction
- Part 22:1987 Methods for determination of the fire resistance of non-loadbearing elements of construction
- Part 23:1987 Methods for the determination of the contribution of components to the fire resistance of a structure

BS 9999:2017 Code of Practice for fire safety in the design, management and use of buildings

BS 8233:2014: Guidance on sound insulation and noise reduction for buildings

BS 5234: Specification for performance requirements for strength and robustness

- Part 1:1992 Partitions (including matching linings) - Code of practice for design and installation
- Part 2:1992 Partitions (including matching linings) - Specification for performance requirements for strength and robustness including methods of test

BS 5250:2011 Code of Practice for the control of condensation in buildings

BS 12524:2000 Building material and products - Hygrothermal properties - Tabulated design values

BS 8481:2006 Design, preparation and application of internal gypsum, cement and lime plastering systems - specification

BS 8212:1995 Code of Practice for Drylining and Partitioning using Gypsum Plasterboard

BS 8000-0:2014 Workmanship on construction sites. Introduction and general principles

BS 5385: - Wall and floor tiling - Code of practice

- Part 1:2018 - Design and installation of ceramic, natural stone and mosaic wall tiling in normal conditions
- Part 4:2015 - Wall and floor tiling. Design and installation of ceramic and mosaic tiling in specific conditions. Code of practice

BS 7671:2018 Requirements for electrical installations. IET wiring regulations

BS 6100-0:2010 Building and civil engineering. Vocabulary. Introduction and index

BS 8414: 2015 Fire performance of external cladding systems.

- Part 1: Test method for non-loadbearing external cladding systems applied to the masonry face of a building
- Part 2: Test method for non-loadbearing external cladding systems fixed to and supported by a structural steel frame

European standards

BS EN 520:2004+A1:2009 Gypsum plasterboards - Definitions, Requirements and Test Methods.

- Type A: Gypsum plasterboard: Plasterboard suitable for gypsum plasters or decoration.
- Type D: Gypsum plasterboard with control density: These boards have a controlled density, with a face suitable for gypsum plasters or decoration. Improved performance in certain applications is obtainable.
- Type E: Gypsum sheathing board: Specifically manufactured to be used as sheathing board in external walls. They are not intended to receive decoration or be permanently exposed to external weather conditions. This type of wallboard has reduced water absorption rate with a minimum water vapour permeability.
- Type F: Gypsum plasterboard with improved core adhesion at high temperatures: Plasterboard suitable for gypsum plasters or decoration. These boards have mineral fibres and / or other additives in the gypsum core to improve core cohesion at high temperatures.
- Type H: Plasterboard with reduced water absorption rate: Boards suitable for special applications in which reduced water absorption properties are required to improve the performance of the board. These boards are designated Type H1, H2 and H3, with different water absorption performance.
- Type I: Gypsum plasterboard with enhanced surface hardness: These boards are used for applications where higher surface hardness is required. Suitable for gypsum plasters or decoration.

Technical performance and principles of system design

Standards, Regulations & Approvals

- Type P: Gypsum baseboard: Boards which have a face intended to receive gypsum plaster. They may be perforated during manufacture.
- Type R: Gypsum plasterboard with enhanced strength: Boards for special applications where higher strength is required have both increased longitudinal and transverse breaking loads. Suitable for gypsum plasters or decoration.

BS EN 15283: Gypsum boards with fibrous reinforcement - Definitions, Requirements and Test Methods

- Part 1:2008+A1:2009 Gypsum board with mat reinforcement
- Part 2:2008+A1:2009 Gypsum fibre boards

BS EN 10143:2006 Continuously hot-dip coated steel sheet and strip - tolerances on dimensions and shape

BS EN 14195:2014 Metal framing components for gypsum plasterboard systems. Definitions, requirements and test methods

BS EN 13658-1:2008 Metal lath and beads - Definitions, Requirements and Test Methods - Internal Plastering

BS EN 13279-1:2008 Gypsum binders, and gypsum plasters - Definitions and Requirements

BS EN 13963:2014 Jointing Materials for gypsum plasterboards - Definitions, Requirements and Test Methods

BS EN 13914-2:2016 Design, preparation and application of external rendering and internal plastering

BS EN 12004:2017 Adhesives for tiles. Definitions and specifications

BS EN 1363-1:2012 Fire Resistance Tests. General requirements

BS EN 1364: Fire Resistance tests for non-loadbearing elements

- Part 1:2015 Walls
- Part 2:2018 Ceilings

BS EN 1365: Fire Resistance tests for loadbearing elements

- Part 1:2012 Walls
- Part 2:2014 Floors and Roofs
- Part 3:2002 Beams
- Part 4:1999 Columns

BS EN 1366: Fire Resistance of service installations

- Part 3:2009 Penetration Seals
- Part 4:2006 Linear Joint Seals
- Part 5:2010 Service ducts and shafts

BS EN 13823:2010 Reaction to fire tests for building products excluding floors. Single burning item test

BS EN ISO 1182:2010 Reaction to fire tests for building products. Non-combustibility test

BS EN ISO 1716:2018 Reaction to fire tests for building products. Determination of the heat of combustion

BS EN ISO 11925-2:2010 Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Single-flame source test

BS EN ISO 10140: 2010 Acoustics. Laboratory measurement of sound insulation of building elements.

- Part 2: Measurement of airborne sound insulation
- Part 3: Measurement of impact sound insulation

BS EN ISO 10848-1: 2017 Acoustics. Laboratory and field measurement of flanking transmission for airborne, impact and building service equipment sound between adjoining rooms.

- Part 1: Frame document
- Part 2: Application to Type B elements when the junction has a small influence
- Part 3: Application to Type B elements when the junction has a substantial influence

BS EN ISO 717: Acoustics. Rating of sound insulation in buildings and of building elements

- Part 1:2013 Airborne sound insulation
- Part 2:2013 Impact sound insulation

BS EN ISO 354:2003 Acoustics. Measurement of sound absorption in a reverberation room

BS EN ISO 11654:1997 Acoustics. Sound absorbers for use in buildings. Rating of sound absorption

BS EN 13964:2014 Suspended Ceilings - Requirements and test methods

BS EN ISO 6946:2017 Building components and building elements - thermal resistance and thermal transmittance - calculation method

BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using data from reaction to fire tests

BS EN 1993-1:2005 Eurocode 3. Design of steel structures. General rules. Structural fire design

BS EN 13381-4:2013 Test methods for determining the contribution to the fire resistance of structural members. Applied passive protection

BS EN 10365:2017 Hot rolled steel channels, I and H sections. Dimensions and masses

Technical performance and principles of system design

Standards, Regulations & Approvals

BS EN 14246:2006 Gypsum elements for suspended ceilings. Definitions, requirements and test methods.

BS EN 10162:2003 Cold rolled steel sections. Technical delivery conditions. Dimensional and cross-sectional tolerances.

BS EN 14566:2008+A1:2009 Mechanical fasteners for gypsum plasterboard systems. Definitions, requirements and test methods.

BS EN 717:2004 Wood-based panels. Determination of formaldehyde release. Formaldehyde emission by the chamber method

BS EN ISO 11925-2:2010 Reaction to fire tests. Ignitability of products subjected to direct impingement of flame. Single-flame source test

BS EN ISO 1182:2010 Reaction to fire tests for products. Non-combustibility test

BS EN ISO 1716:2018 Reaction to fire tests for products. Determination of the gross heat of combustion (calorific value).

BS OHSAS 18001 Occupational Health and Safety Management

ISO standards

ISO 9001:2015 Quality management systems - Requirements

ISO 14001:2015 Environmental management systems - Requirements

ISO 45001:2018 Occupational health and safety management system - Requirements

ISO 16000-23: Performance test for evaluating the reduction of formaldehyde concentrations by sorptive building materials

Other reference documents

Building Regulations Approved Document E (revised 2003)

Health Technical Memorandum (HTM) 08-01

Building Bulletin 93 (BB93): Acoustic Design of Schools - A Design Guide

Gypsum Association GA-216 Application of Finishing of Gypsum Panel Products

Building Regulations Approved Document B (2019)

Estidama - Sustainability rating system developed by Abu Dhabi Urban Planning Council (UPC)

Leadership in Energy & Environmental Design (LEED) is a green building certification program by US Green Building Council

Uniform Building Code (UBC): 1997

- Volume 1 - Administrative, Fire and Life-Safety, and Field Inspection Provisions
- Volume 2- Structural Design Requirements

International Building Code (IBC) published by the International Code Council (ICC)

UAE Fire and Life Safety Code of Practice

AL SA'FAT Dubai Green Building Evaluation System

Government approvals

Safety is one of the biggest concerns by government bodies in the middle east throughout the entire stages of design and construction of buildings - particularly in the selection of sustainable and fire resistant products to ensure a safe environment for occupants.

Gyproc systems are tested and certified to local and international standards by an accredited third party laboratory in compliance with regulatory requirements. In addition, Gyproc holds valid approvals with the following government bodies for its products and systems.

Civil defence approvals

- Dubai Civil Defence
- Abu Dhabi Civil Defence
- Sharjah Civil Defence
- Royal Oman Police

Municipality approvals

- Dubai Central Laboratory
- Dubai Municipality

Certifications

ISO 9001:2015 - Quality Management Systems

ISO 9001 is an internationally recognised standard currently used by many companies worldwide for establishing quality management systems within the organisation to help improve its overall performance and provide consistent products and services that meets customer expectations.

Our plasterboard manufacturing facility within UAE is certified to ISO 9001:2015

Technical performance and principles of system design

Standards, Regulations & Approvals

ISO 14001:2015 - Environmental Management Systems

Our environmental management system implemented at our plasterboard factory in the middle east is deemed compliant with the environmental statutory requirements in accordance with ISO 14001. Gyproc's ISO 14001 certification emphasises the stringent environmental standards maintained across our facility and enables us to support customers through the delivery of sustainable construction products.

OHSAS 18001:2007 - Occupational Health and Safety Management Systems

OHSAS 1800:2007 Occupational Health and Safety Management Certification is an international standard which provides a framework to identify, control and decrease the risks associated with health and safety within the workplace.

Technical performance and principles of system design

Health and Safety

Overview

This section is a practical and safe guide to the manual lifting and handling of Gyproc products and systems. The pictures and advice given in this section should be taken as guidance in addition to the projects own health and safety requirements and industry best practices.

Introduction

Gyproc recognises the importance of Health and Safety at work. Working with a consultancy firm, international experts in lifting and handling, we have developed a series of 'Safe Systems of Work' for manual handling and lifting of our products.

The simple guidance in this section suggests appropriate methods for handling the full range of products available from Gyproc.

Legislation and Regulations

The details and guidance contained in this book and associated literature produced by Gyproc relate to applicable international legislative, regulatory requirements and standards current at the date of publication of this document. It is the responsibility of the user to ensure that these remain current prior to use.

Health and Safety

The products and systems included in this document have been developed for use in residential, commercial, educational, healthcare, hospitality, leisure and industrial buildings. Simple guidance on how to install these products and systems is given at the start of each relevant section. More detailed health and safety guidance is given in the Gyproc Technical and Safety Datasheets available to download from www.gyproc.ae

It is important to follow good site practice at all times and to ensure that appropriate safety precautions are taken, including the use of appropriate Personal Protective Equipment (PPE) and task suitable clothing when working with Gyproc products.

The following general notes on 'Safe Systems of Work' are offered for guidance.

Personal protection equipment (PPE)

- Always wear Personal Protective Equipment (PPE) as directed on site.
- Hard hat, high visibility vest and safety shoes are required at all times.
- Wear gloves and change them if they get wet.
- Always wear cut / puncture proof gloves when handling, carrying, cutting or fixing metal.
- Wear safety glasses and product recommended face mask when mixing powder products or applying to ceilings and when sanding.
- Wear safety glasses when snipping metal pieces.

- Do not continue to work if safety glasses become fogged due to condensation. Stop work and clean the glasses until the lenses are clear and de-fogged.

Installation

- Gyproc drylining systems are not designed to support body weight. Fixers must use a fit for purpose and properly inspected work platform.
- When cutting boards, power and hand tools should be used with care and in accordance with the manufacturers' recommendations. Appropriate PPE must be used.
- Keep sanding and other dust generation to a minimum. Maintain adequate ventilation and / or wear suitable protection.
- Power tools must be inspected prior to use and only operated by competent people who have been instructed and trained to use them safely.

Storage

- Store plasterboards, specialist boards, plasterboard accessories, metal sections and ceiling products in dry and covered conditions with adequate ventilation to disperse condensation.
- Gyproc plasterboards, Glasroc specialist boards and palletised materials should always be stored flat.
- Protect ready-mixed materials from freezing conditions, high temperatures and direct sunlight.
- Practice good housekeeping and stock rotation.
- Don't attempt to separate boards using the forks of a fork-lift truck.
- Don't use hoists or cranes without safety retaining ropes or slings.
- When handling insulation or cutting board products containing glass-fibre, wear suitable protection including appropriate face mask and gloves. Wear goggles when working overhead.

Manual lifting and handling

Plan Ahead Before You Lift

- Know what you are lifting and how you need to lift it.
- Assess the weight of the object before lifting.
- Only handle what you feel you can manage safely and comfortably.
- Determine whether or not it's safe for one person to lift the object on his / her own.
- Make sure the work area is flat, dry and clear of any debris.

Check Your Pathway

- Make sure the lift pathway is clear.
- Remove any tripping hazards or debris.
- Check for any wet or slick surfaces.

Technical performance and principles of system design

Health and Safety

When Lifting

- Turn your complete body moving your feet instead of twisting.
- Let your back find its natural curvature.
- Never lose control of the load.
- Whenever possible, use lift assists, forklift, dolly, cart, hand truck or hoist.
- Make sure you are trained before using the equipment.
- When lifting awkward or heavy loads, utilise a two-person lift.
- Make sure you lift at the same time and keep the load levelled.
- Always wear proper required PPE including safety shoes and gloves.

Manual Lifting Do's and Don'ts

DO's

- Know or test the object weight.
- Use ergonomic lift assists when possible.
- Plan the lift and clear your path.
- Get help for heavy or awkward loads.
- Keep the object in the power zone[^].
- Use a wide stance for balance.
- Use your legs to lift.
- Pivot your feet to avoid twisting.

[^] The power zone referenced in the text is related to the human body's strongest section. The body is strongest around the middle. The most powerful area (power zone) is between the shoulder and just above the knee.

DON'Ts

- Don't hold your breath.
- Don't bend or twist at the waist.
- Don't use a partial grip (1-2 fingers).
- Don't obstruct your vision when carrying.
- Don't jerk or lift quickly.
- Don't pinch your fingers or toes.
- Don't pull a load if you can push it.
- Don't forget to wear proper PPE.

Work methods

- Rest for 15 seconds, many times throughout the day. Some studies have shown that micro pauses (short breaks) reduce stress and can lead to an increase in productivity*.
- Rotate jobs; if one part of the job requires a lot of overhead work, switch for a while to an activity that uses different work motions.

* Musculoskeletal problems in bricklayers, carpenters and plasterers: literature review and results of site visits, Health and Safety Laboratory, Sheffield UK: Health and Safety Executive, 2001.

Handling and storage

In designing and installing systems incorporating Gyproc products, full consideration must be taken of the local legal requirements in the areas of:

- Manual Handling Regulations.
- Construction (Design and Management) Regulations.
- Control of Substances Hazardous to Health Regulations (COSHH).

Your attention is brought to the following publications which give approved guidance:

- Manual Handling Guidance on Regulations ISBN 071762823X.
- Managing Health and Safety in Construction. Construction (Design and Management) Regulations ISBN 9 80717662234.
- Designing for Health and Safety in Construction ISBN 0717608077.

Loading and unloading pallets

PPE: Hard hat, hi-vis vest, gloves and safety shoes required.

- Get as close to the object as possible.
- Use a wide stance with one foot forward and to the side of the object for good balance.
- Keep your back straight, push your buttocks out, and use your legs and hips to lower yourself down to the object.
- Slide the object as close to you as possible.
- Put the hand (same side of your body as the forward foot) on the side of the object furthest from you.
- Use this basic lifting technique for small objects when you can straddle the load and use a wide stance.
- Put the other hand on the side of the object closest to you.
- Both hands should be on opposite corners.
- Grasp the object firmly with both hands.
- Prepare for the lift, tighten your core muscles, look forward and upward, keep a straight and strong back.
- Lift slowly and follow your head and shoulders.
- Hold the load close to your body.
- Lift by extending your legs with your back straight, and breathe out as you lift.
- **Do not lift with feet in line or with load in front of the front foot.**



Technical performance and principles of system design

Health and Safety

Mixing of bagged products

PPE: Mask, eye protection, hard hat, hi-vis and safety shoes required.

Emptying bags into a mixer

- Always place one foot down by the side of the mixing container.
- Unlock the knees if necessary
- **Do not empty bags with feet in line.**



When mixing

- Keep the foot to the side of the mixing container.
- Unlock the knees if necessary.
- Maintain a balanced position.
- **Do not work with feet in line.**



Picking from mid-level

PPE: Hard hat, hi-vis vest, gloves and safety shoes required.

- Place one foot forward.
- Take a firm grip of the load.
- Pull the load to a point of pivot (using the legs if necessary).
- Pivot against the stack.
- Keep the load close.
- **Do not twist.**
- **Do not pick with feet in line.**



Handling buckets

PPE: Hard hat, gloves, hi-vis vest and safety shoes required.

- Always place one foot alongside the bucket before lifting, or pivot the bucket towards you before lifting.
- Take a firm grip with both hands.
- If heavy, you may need to tilt and take a grip of the base and the top of the bucket.
- Start the lift with the legs.
- Unlock the knees for low level work.



- Always turn by moving the feet.
- If taking two buckets, always carry in a balanced manner.
- Only handle what you can manage.
- **Do not carry heavy objects on one side.**
- **Do not twist.**

Handling lengths of metal

PPE: Gloves, hard hat, hi-vis vest and safety shoes required.

- Always approach the lengths of metal from one end.
- Place one foot forward.
- Unlock the knees for low level work.
- Take a firm grip.
- Lift using the legs to start the movement.
- **Do not pick from the middle of the stack.**
- Work your way to the middle. Pivot the stack and carry in a balanced manner.



OR

- Place over the shoulder.
- Work your way to the middle (point of balance).
- Unlock the knees to rest the stack against the shoulder.
- Allow the stack to pivot against the shoulder as you stand up.
- Only carry over the shoulder if you can remain upright.
- Be aware of your surroundings when carrying lengths of metal in this way.
- **Do not lean.**



If removing from racks.

PPE: Gloves, hard hat and safety shoes required.

- Place one foot forward.
- Pull metal length out of rack, turn and walk section forward.
- Drive with the legs to bring the load to one end.
- Work your way to the middle and carry in a balanced manner.
- Always communicate during the lifts and carrying.

Technical performance and principles of system design

Health and Safety

Handling boards

PPE: Hard hat, gloves, hi-vis vest and safety shoes required.

- Pull the board in towards yourself.
- Unlock the knees for low level work.
- Lift by using the legs.
- Try using handles for carrying plasterboard.
- Improve your grip to help make the lift less awkward.
- Tools are available to reduce the time you spend in overhead work, to help hold boards in place for fixing.
- Carry the board in a balanced manner (for large boards, you can support the board on the top of the chest / shoulder).
- Only lift what you feel you can manage.
- If necessary, seek assistance.
- When stacking boards, position boards sideways slightly in front of you, so you do not have to reach over your head or twist your body to lift them.
- Position panels to lean flat against a wall and do not wobble or slide.
- Push and slide panels along their edge or get assistance from a co-worker.
- Use team lifting where appropriate.
- **Do not carry heavy objects on one side.**



Carrying board up / down stairs

PPE: Hard hat, gloves, hi-vis vest and safety shoes required.

- Whether going up or down stairs, place one foot forward then, bring both feet together on each step.
- Keep the boards in a balanced manner.
- Place both feet on each step before moving off to improve control and balance throughout the lift.
- Work together and in time.
- Stop wherever necessary (if steps are in poor order, or have a deeper drop, you may need to place the load down first).
- Only lift what you feel you can manage.



Fixing walls

PPE: Eye protection, gloves, hard hat, hi-vis vest and safety shoes required.

- Operate in a balanced manner.
- Always keep one foot forward.
- Unlock the knees for low level work.
- Always work in front of the body.
- **Do not over-reach or stretch to the sides or above the head**



Lifting plasterboards into place (including ceilings) - Team Lift

PPE: Eye protection, hard hat, gloves, hi-vis vest and safety shoes required.

A well-executed team lift can help safely move loads without the risk of injury.

Know the Rules

- Before lifting, ensure that the back and legs are warmed up to improve performance and to reduce risk of injury.
- Use ergonomic lift assists whenever possible.
- Know and follow the work rules for loads that require team lifting.
- Keep the object in the power zone
- Use a wide stance for balance.
- Use your legs to lift.
- Pivot your feet to avoid twisting.

Get help

- Get help when work instructions and rules call for team lifting.
- Team members must always ask for help when load weight exceeds recommended limits (maximum 25 kg per person).



Technical performance and principles of system design

Health and Safety

Lifting Leader

- Determine a lifting Team Leader, preferably, the person who requested the help.
- The Team Leader should make sure that there's enough space for movements, good footing and no obstructions in the planned path of the lifting task.
- The Team Leader should pre-determine the number of steps in the lifting task required to safely move the load.
- The Team Leader should clearly communicate, before the start of the lifting task, the method and steps of the lifting task to the other team member(s).
- The Team Leader calls the signals to ensure proper coordination of the lift.
- The Team Leader should guide the team to move the load slowly and evenly without sudden movements or sudden starts and stops.

Executing the Lift

- The weight must remain levelled and evenly distributed.
- Team members should be especially careful on any incline / decline.
- Team should avoid walking backward during the lift whenever that is possible.
- An additional team member should guide the move if backward carrying cannot be avoided.

Fixing ceilings

PPE: Eye protection, hard hat, gloves and safety shoes required.

- Always work in a balanced position.
- Operate with one foot forward.
- Keep the body upright.
- Always use appropriate platforms where necessary.
- Always use inspected and fit for purpose tools.
- **Do not over-reach.**



All content and imagery in this section has been produced in association with

GypWall™

CLASSIC



The definitive metal stud
partition system



Al Bahr Towers
Abu Dhabi

GypWall CLASSIC

GypWall CLASSIC is the industry's original lightweight drywall partition system, providing cost-effective, multi-purpose solutions suitable for all types of buildings.



-  **30 - 180** mins
-  **33 - 62** R_w dB
-  **34 - 60** STC dB

Key Benefits



Lightweight system solution



Achieves high levels of sound insulation up to R_w 62dB



Satisfies BS 5234 requirements up to and including Severe Duty



Accommodates services within the stud cavity



30 - 180 minutes fire resistance to BS, EN and ASTM standards



Can allow for deflection at the head



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe 'C' Studs

(50 S 50, 70 S 50, 92 S 50, 100 S 50, 150 S 50)

Vertical stud providing acoustic and structural performances designed to receive fixing of board to both sides



Gypframe 'I' Studs

(70 I 70, 100 I 80, 150 I 90)

Enhanced strength stud that allows for increased partition height, designed to receive fixing of board



Gypframe AcouStud

(70 AS 50, 92 AS 50)

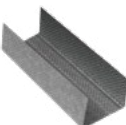
Vertical stud providing enhanced acoustic and structural performances designed to receive fixing of board to both sides



Gypframe Standard Floor & Ceiling Channels

(52 C 50, 72 C 50, 94 C 50, 102 C 50, 152 C 50)

Standard floor and ceiling channels for retaining Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe Deep Flange Floor & Ceiling Channels

(52 DC 60, 72 DC 60, 94 DC 60, 102 DC 60, 152 DC 60)

Floor and ceiling channels with deep flanges for retaining Gypframe studs at floor and ceiling junctions for partitions 4200mm to 8000mm high. Also used around openings and in deflection heads (maximum 30mm deflection)



Gypframe Extra Deep Flange Floor & Ceiling Channels

(52 EDC 80, 72 EDC 80, 94 EDC 80, 102 EDC 80, 152 EDC 80)

Floor and ceiling channels with extra deep flanges for retaining Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



Gypframe 103 FC 50 Fixing Channel

A versatile metal fixing channel used to support medium weight fixtures on walls



Gypframe 103 FC 90 Fixing Channel

A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe GFS1 Fixing Strap

Used to support horizontal board joints and within deflection head details



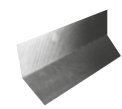
Gypframe GA1 Steel Angle

Used as a fixing mechanism to hold ISOVER Eco APR in place



Gypframe GA4 Steel Angle

Widely used in framed construction to provide support, fixing and additional strength to penetrations. Also used as an angle to improve the fire and acoustic performance at deflection heads



Gypframe GA6 Splayed Angle

Steel angle providing framing stability and board support



Gypframe Service Support Plate

For installation of 18mm plywood within a partition cavity to support medium to heavyweight fixtures

System components (continued)

Board products (continued)



Gyproc Regular^{1, 2, 3}
(12.5, 15mm)
Standard gypsum plasterboard



Gyproc SoundBloc^{1, 2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Gyproc Moisture Resistant^{2, 3}
(12.5, 15mm)
Gypsum plasterboard with moisture resistant additives in the core and special green lining paper for easy recognition



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc FireStop^{1, 2, 3}
(12.5, 15mm)
Gypsum plasterboard with fire resistant additives

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



Fixing products



Gyproc Drywall Screws
Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws
Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor
Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix
Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

System components (continued)

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

Corners



Habito Flex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco Acoustic Partition Roll (APR) (25, 50, 75 and 100mm)*

Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³



KIMMCO ISOVER Stone mineral wool (50 and 70mm)*

For fire stopping, where required

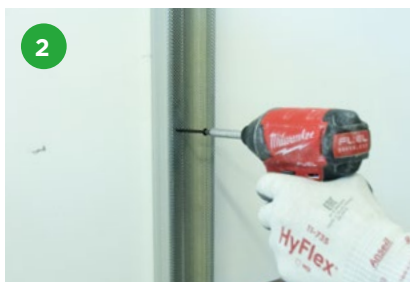
Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



Gypframe Floor & Ceiling Channels are fixed to the concrete substrate using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems).



Gypframe 'C' Studs are suitably fixed to abutments.



Gypframe 'C' Studs are fitted vertically to a friction fit within the channel sections to form the framework. Studs are fitted to all face the same way.



Openings for services can be accommodated using Gypframe channel between or across stud modules.



Door openings are constructed to suit the partitions duty rating.



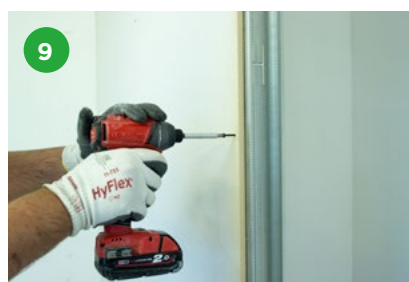
The perimeter of the metal framework is then sealed with Gyproc Sealant for optimum sound insulation performance.



Gypframe 103 FC 50 Fixing Channel fixed across studs to receive light/medium weight fixtures.



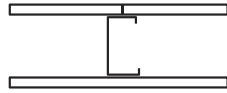
ISOVER Eco APR is added to the partition cavity for increased acoustic performance.



Gyproc plasterboards are fixed with Gyproc Drywall Screws to Gypframe studs. Ensure board joints are staggered between board layers and horizontal board joints in the face layer board should be supported with Gypframe GFS1 Fixing Strap.

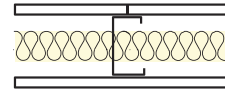
Table 1 – GypWall CLASSIC 50mm Gypframe ‘C’ Studs (50 S 50) - single and multiple layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119, ANSI / UL 263

1



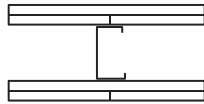
One layer of board each side of 50mm Gypframe ‘C’ Studs at 600mm centres. Linings as in table.

2



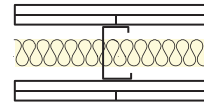
One layer of board each side of 50mm Gypframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

3



Two layers of board each side of 50mm Gypframe ‘C’ Studs at 600mm centres. Linings as in table.

4



Two layers of board each side of 50mm Gypframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

For single layer Severe Duty solutions please refer to GypWall ROBUST and HABITO sections

Detail	Partition thickness mm	Board type ²	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

30 minutes fire resistance

1	77	Regular	1 x 12.5 ³	2500	33	34	Medium	19
2	77	Regular	1 x 12.5 ³	2500	39	40	Medium	19
1	82	Regular	1 x 15	2800	35	35	Medium	25
2	82	Regular	1 x 15	2800	41	42	Medium	25

60 minutes fire resistance

1	82	FireStop	1 x 15	2800	35	35	Heavy	26
2	82	FireStop	1 x 15	2800	41	42	Heavy	26
3	102	Regular	2 x 12.5	3400	39	41	Severe	37
4	102	Regular	2 x 12.5	3400	47	49	Severe	37

120 minutes fire resistance

3	102	FireStop	2 x 12.5	3400	40	41	Severe	42
4	102	FireStop	2 x 12.5	3400	49	51	Severe	42
4	112	SoundBloc	2 x 15	3700	54	55	Severe	55

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe ‘I’ Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

² The boards listed and the performances shown include MR, M2TECH & Activ’Air versions.

³ Fire resistance to BS 476 only.

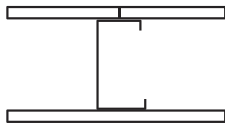
NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company’s fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Where tiling, refer to ‘Tiling section’ on page 304

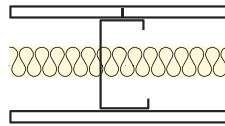
**Table 2 – GypWall CLASSIC 70mm Gypframe ‘C’ Studs (70 S 50) – single layer board linings.
Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119, ANSI / UL 263**

1



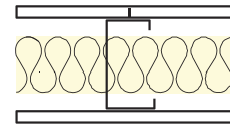
One layer of board each side of 70mm Gypframe ‘C’ Studs at 600mm centres. Linings as in table.

2



One layer of board each side of 70mm Gypframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

3



One layer of board each side of 70mm Gypframe ‘C’ Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

For single layer Severe Duty solutions please refer to GypWall ROBUST and HABITO sections

Detail	Partition thickness	Board type ²	Lining thickness	Maximum partition heights ¹	Sound insulation		Duty rating	Approx. weight
					R _w	STC		
	mm		mm	mm	dB	dB		kg/m ²

30 minutes fire resistance

1	97	Regular	1 x 12.5 ³	3600	35	35	Medium	19
2	97	Regular	1 x 12.5 ³	3600	41	42	Medium	19
3	97	Regular	1 x 12.5 ³	3600	44	44	Medium	19
1	97	SoundBloc	1 x 12.5 ³	3600	36	37	Medium	26
2	97	SoundBloc	1 x 12.5 ³	3600	43	45	Medium	26
3	97	SoundBloc	1 x 12.5 ³	3600	46	47	Medium	26
1	102	Regular	1 x 15	3800	35	36	Medium	26
2	102	Regular	1 x 15	3800	42	43	Medium	26
1	102	SoundBloc	1 x 15	3800	38	38	Heavy	29
2	102	SoundBloc	1 x 15	3800	44	44	Heavy	30
3	102	SoundBloc	1 x 15	3800	48	49	Heavy	30

45 minutes fire resistance

1	97	Glasroc X	1 x 12.5	3600	39	41	Medium	26
2	97	Glasroc X	1 x 12.5	3600	47	48	Medium	26
3	97	Glasroc X	1 x 12.5	3600	50	51	Medium	26

60 minutes fire resistance

1	102	FireStop	1 x 15	3800	36	37	Heavy	25
2	102	FireStop	1 x 15	3800	43	41	Heavy	25
3	102	FireStop	1 x 15	3800	45	43	Heavy	25

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe ‘I’ Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

² The boards listed and the performances shown include MR, M2TECH & Activ’Air versions.

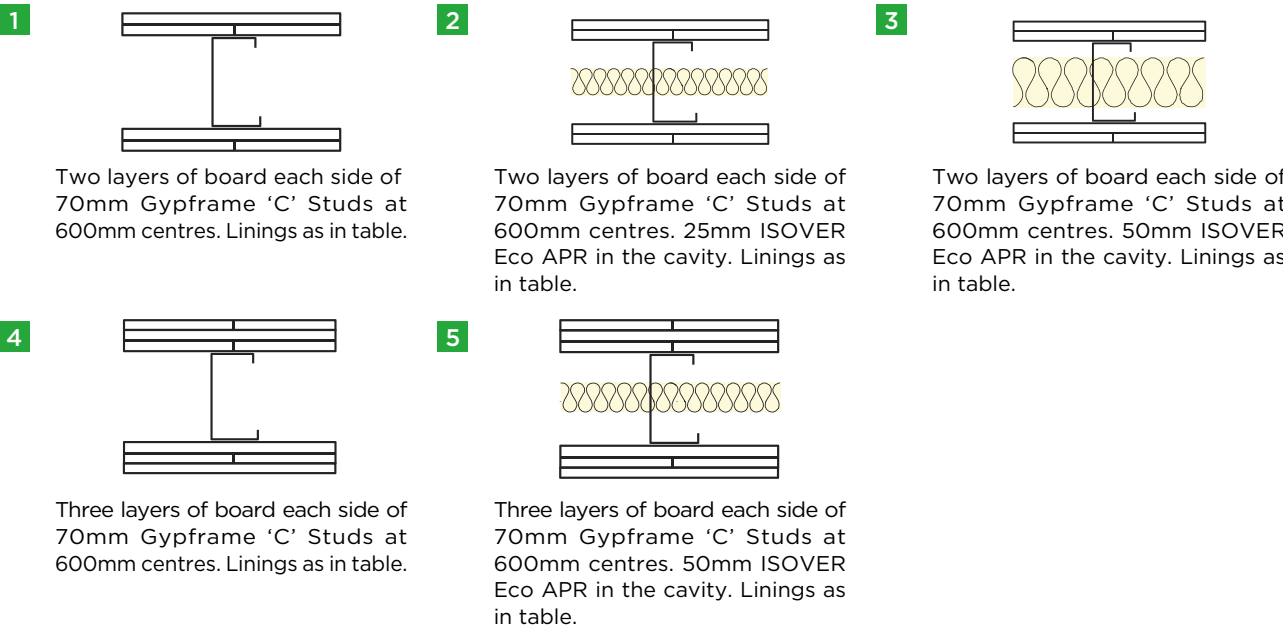
³ Fire resistance to BS 476 only.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company’s fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Where tiling, refer to ‘Tiling section’ on page 304

Table 3 – GypWall CLASSIC 70mm Gypframe ‘C’ Studs (70 S 50) – multiple layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119, ANSI / UL 263



Detail	Partition thickness mm	Board type ²	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

60 minutes fire resistance

1	122	Regular	2 x 12.5	4600	41	42	Severe	36
2	122	Regular	2 x 12.5	4600	48	49	Severe	36
3	122	Regular	2 x 12.5	4600	50	51	Severe	37

90 minutes fire resistance

2	122	SoundBloc	2 x 12.5	4600	53	54	Severe	48
3	122	SoundBloc	2 x 12.5	4600	54	55	Severe	49
1	132	Regular	2 x 15	4900	44	43	Severe	49

120 minutes fire resistance

1	122	FireStop	2 x 12.5	4600	42	44	Severe	42
2	122	FireStop	2 x 12.5	4600	50	51	Severe	42
3	122	FireStop	2 x 12.5	4600	51	52	Severe	43
2	132	SoundBloc	2 x 15	4900	55 ³	56	Severe	55

180 minutes fire resistance

4	162	FireStop	3 x 15	4900	44	43	Severe	71
5	162	FireStop	3 x 15	4900	51	52	Severe	71

¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe ‘I’ Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

²The boards listed and the performances shown include MR, M2TECH & Activ’Air versions.

³Increasing insulation to 50mm ISOVER Eco APR will not improve acoustic performance.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito..

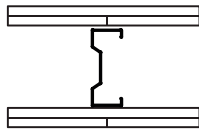
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company’s fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to ‘Tiling section’ on page 304

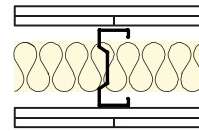
Table 4 - GypWall CLASSIC 70mm Gypframe AcouStuds (70 AS 50) - multiple layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



Two layers of board each side of 70mm Gypframe AcouStuds at 600mm centres. Linings as in table.

2



Two layers of board each side of 70mm Gypframe AcouStuds at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type ²	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

90 minutes fire resistance

2	122	SoundBloc ³	2 x 12.5	4700	57	56	Severe	48
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120 minutes fire resistance

1	122	FireStop	2 x 12.5	4700	45	46	Severe	42
2	122	FireStop	2 x 12.5	4700	56	54	Severe	43

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

² The boards listed and the performances shown include MR, M2TECH & Activ'Air versions.

³ Increasing board thickness to 15mm will not improve acoustic performance.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

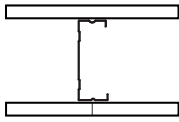
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

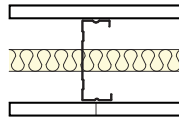
Table 5 – GypWall CLASSIC 92mm Gypframe ‘C’ Studs (92 S 50) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



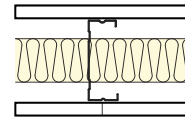
One layer of board each side of 92mm Gypframe ‘C’ Studs at 600mm centres. Linings as in table.

2



One layer of board each side of 92mm Gypframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table

3



One layer of board each side of 92mm Gypframe ‘C’ Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

For single layer Severe Duty solutions please refer to GypWall ROBUST and HABITO sections

Detail	Partition thickness mm	Board type ²	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

30 minutes fire resistance

1	119	Regular	1 x 12.5 ³	4500	35	35	Medium	19
2	119	Regular	1 x 12.5 ³	4500	43	43	Medium	20
3	119	Regular	1 x 12.5 ³	4500	44	44	Medium	20
3	119	SoundBloc	1 x 12.5 ³	4500	47	45	Medium	25
3	124	SoundBloc	1 x 15	4700	49	47	Heavy	29

60 minutes fire resistance

1	124	FireStop	1 x 15	4700	39	41	Heavy	25
3	124	FireStop	1 x 15	4700	46	47	Heavy	25

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe ‘I’ Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

² The boards listed and the performances shown include MR, M2TECH & Activ’Air versions.

³ Fire resistance to BS 476 only.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

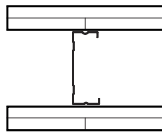
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company’s fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to ‘Tiling section’ on page 304

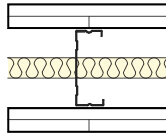
Table 6 - GypWall CLASSIC 92mm Gypframe 'C' Studs (92 S 50) - multiple layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



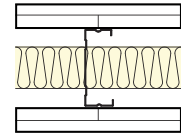
Two layers of board each side of 92mm Gypframe 'C' Studs at 600mm centres. Linings as in table.

2



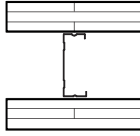
Two layers of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

3



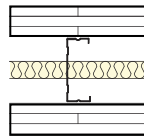
Two layers of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

4



Three layers of board each side of 92mm Gypframe 'C' Studs at 600mm centres. Linings as in table.

5



Three layers of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type ²	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

60 minutes fire resistance

1	144	Regular	2 x 12.5	5700	45	45	Severe	36
2	144	Regular	2 x 12.5	5700	51	51	Severe	36

90 minutes fire resistance

3	144	SoundBloc	2 x 12.5	5700	55	55	Severe	49
1	154	Regular	2 x 15	5900	45	45	Severe	48

120 minutes fire resistance

1	144	FireStop	2 x 12.5	5700	46	47	Severe	42
2	144	FireStop	2 x 12.5	5700	51	51	Severe	42
3	144	FireStop	2 x 12.5	5700	53	53	Severe	43
3	154	SoundBloc	2 x 15	5900	55	56	Severe	56

180 minutes fire resistance

4	184	FireStop	3 x 15	5900	46	47	Severe	71
5	184	FireStop	3 x 15	5900	51	51	Severe	72

¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

²The boards listed and the performances shown include MR, M2TECH & Activ'Air versions.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

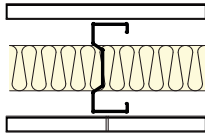
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

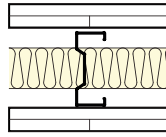
Table 7 - GypWall CLASSIC 92mm Gypframe AcouStuds (92 AS 50) - single and multiple layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



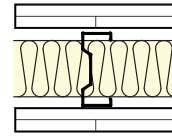
One layer of board each side of 92mm Gypframe AcouStuds at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

2



Two layers of board each side of 92mm Gypframe AcouStuds at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

3



Two layers of board each side of 92mm Gypframe AcouStuds at 600mm centres. 75mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type ¹	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w (R _w +Ctr) dB	STC dB		

30 minutes fire resistance

1	119	SoundBloc	1 x 12.5 ²	4700	49	48	Medium	24
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90 minutes fire resistance

2	144	SoundBloc	2 x 12.5	5800	59 (51)	56	Severe	47
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120 minutes fire resistance

3	154	SoundBloc	2 x 15	6000	62 (54)	60	Severe	58
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¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

² Fire resistance to BS 476 only.

³ The boards listed and the performances shown include MR, M2TECH & Activ'Air versions.

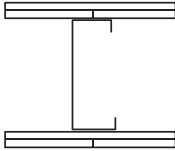
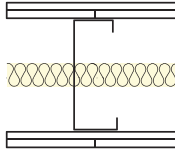
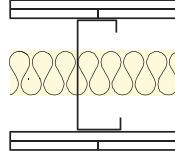
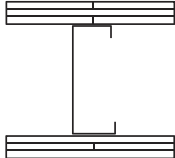
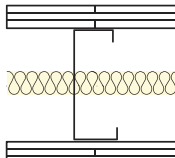
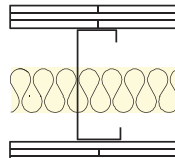
NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

Table 8 – GypWall CLASSIC 150mm Gypframe ‘C’ Studs (150 S 50) - multiple layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

<p>1</p>  <p>Two layers of board each side of 150mm Gypframe ‘C’ Studs at 600mm centres. Linings as in table.</p>	<p>2</p>  <p>Two layers of board each side of 150mm Gypframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.</p>	<p>3</p>  <p>Two layers of board each side of 150mm Gypframe ‘C’ Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.</p>
<p>4</p>  <p>Three layers of board each side of 150mm Gypframe ‘C’ Studs at 600mm centres. Linings as in table.</p>	<p>5</p>  <p>Three layers of board each side of 150mm Gypframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.</p>	<p>6</p>  <p>Three layers of board each side of 150mm Gypframe ‘C’ Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.</p>

Detail	Partition thickness mm	Board type ²	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

60 minutes fire resistance

1	202	Regular	2 x 12.5	7600	47	48	Severe	36
2	202	Regular	2 x 12.5	7600	52	52	Severe	36

90 minutes fire resistance

1	212	Regular	2 x 15	7900	49	50	Severe	48
2	212	Regular	2 x 15	7900	52	53	Severe	48

120 minutes fire resistance

1	202	FireStop	2 x 12.5	7600	47	48	Severe	42
2	202	FireStop	2 x 12.5	7600	52	52	Severe	43
3	202	FireStop	2 x 12.5	7600	53	53	Severe	43

180 minutes fire resistance

4	242	FireStop	3 x 15	7900	49	50	Severe	72
5	242	FireStop	3 x 15	7900	52	53	Severe	73
6	242	FireStop	3 x 15	7900	53	53	Severe	73

¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe ‘I’ Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

²The boards listed and the performances shown include MR, M2TECH & Activ’Air versions.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company’s fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to ‘Tiling section’ on page 304

Design

Planning – key factors

GypWall CLASSIC comprises Gypframe 'C' Studs installed at 600mm centres within Gypframe Floor & Ceiling Channels. The position of services and heavy fixtures should be pre-determined and their installation planned into the frame erection stage.

Fixing floor and ceiling channels

Gypframe Floor & Ceiling Channels must be securely fixed with a row of fixings at 600mm maximum centres. For 94mm and above, two rows of staggered fixings are required, each row at 600mm centres and each fixing 25mm in from the flange. If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channel should be used.

If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

To extend studs, overlap by 600mm (minimum) and fix together using Gyproc Waferhead Screws. Refer to construction detail 17, 18 & 19 on page 85.

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Refer to Building acoustics for further information.

Door openings

The designer should consider thickness tolerances of the partition types in relation to the proposed door frame detail. Standard door frame detailing to suit BS 5234: Part 2 Light and Medium Duty applications is shown in construction detail 26. Detailing to satisfy BS 5234: Part 2 requirements for Heavy and Severe Duty Rating is shown in construction details 27 and 28. The door manufacturer should also be consulted in relation to door details.

Specialist advice should be sought from door manufacturers and acoustic consultants to ensure the required acoustic performance is achieved. This becomes more important as acoustic requirements increase.

Framing surround for openings

Where services such as horizontal ducts, fire dampers and access panels are required to penetrate the wall, their position should be pre-determined in order that a framed opening can be provided. The openings should be constructed using established metal stud procedures. Refer to construction details 32 to 34.

Cavity barriers

Minimum 12.5mm Gyproc plasterboard, screw-fixed into the web of perimeter channels or vertical studs, will provide a satisfactory closure to flame or smoke.

Control joints

Control joints may be required in the partition to relieve stresses induced by expansion and contraction of the structure. Refer to construction detail 15. They should coincide with movement joints within the surrounding structure.

Deflection heads

Partition head deflection designs may be necessary to accommodate deflections in the supporting floor. Deflection heads may also be required to the underside of roof structures subjected to positive and negative pressures. Refer to construction details 21 to 25. When ceilings are not present to one or both sides of the partition, consideration should be given to the potential loss of acoustic performance. Refer to Building acoustics for further information.

Services

Penetrations

Penetrations of fire-resistant or sound-insulating constructions for services need careful consideration to ensure that the performance of the element is not downgraded. Consideration also needs to be given to the services themselves so they do not act as the mechanism of fire spread or sound transmission. Refer to Service installations for further information.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard. The service cut-outs in the studs can be used for routing electrical and other small services. Refer to construction detail 1. Cables should be protected by conduit, or other suitable precautions taken to prevent abrasion when they pass through the metal frame. Service cut-outs should be aligned to allow easy installation of service. If studs require cutting, cut from the same end of each stud to ensure cut-out alignment. Switch boxes and socket outlets can be supported from Gypframe 103 FC 50 Fixing Channel fixed horizontally between studs, or a high performance socket box detail can be used where higher acoustic performance is required.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through a GypWall partition, consideration should be given to the size and weight of the damper - this will determine whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to construction details 32 and 33.

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Medium weight fixtures can be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured by Gypframe Service Support Plates. Refer to Service installations for further information.

Design (continued)

Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board should be considered as the lining board where medium and / or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Access for maintenance

Suitable access panels (by others) can be used to provide access for maintenance. Access panels must be fully compatible with drywall construction and match the fire rating of the partition.

Board finishing

Refer to Finishing systems.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables from page 72-79 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc SoundBloc Activ'Air.

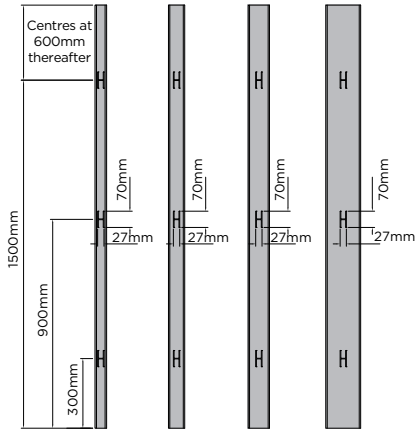
Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Construction details

For GypWall construction details, refer to the construction details shown on pages 82 to 92. For more typical or example details, please contact the Gyproc Technical Team.

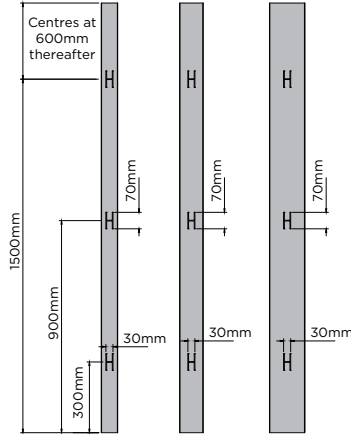
Construction details

1A



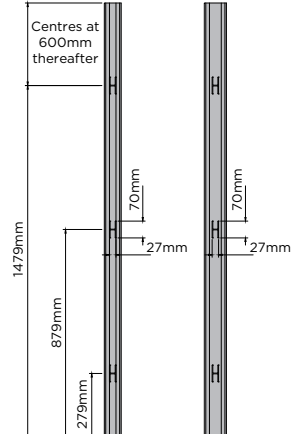
Gypframe 'C' Studs service cut-out details

1B



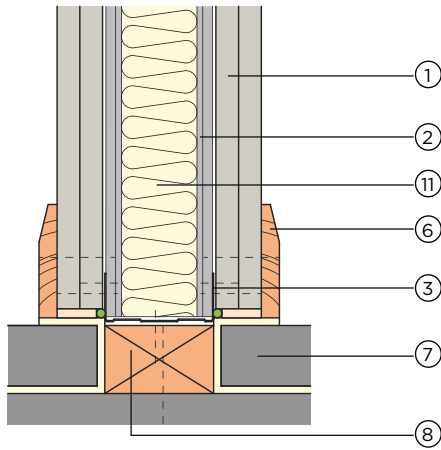
Gypframe 'I' Studs service cut-out details

1C



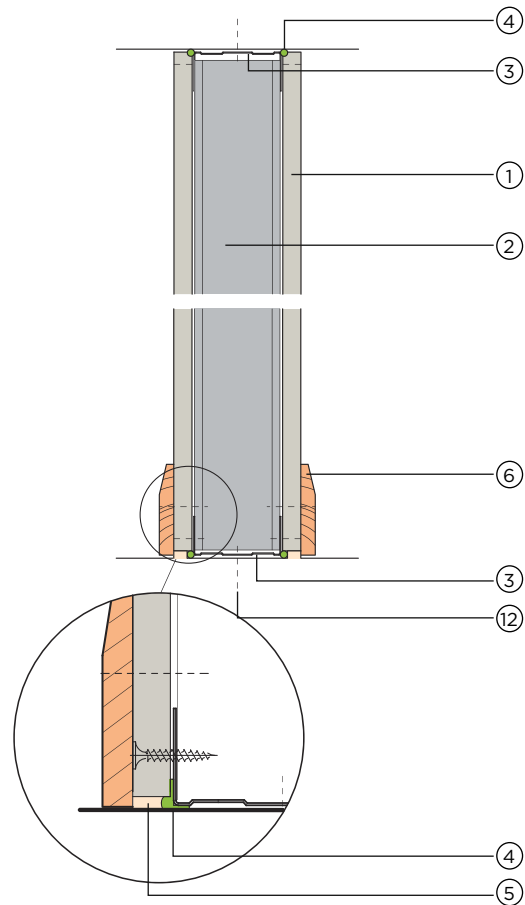
Gypframe 'AS' AcouStuds service cut-out details

2



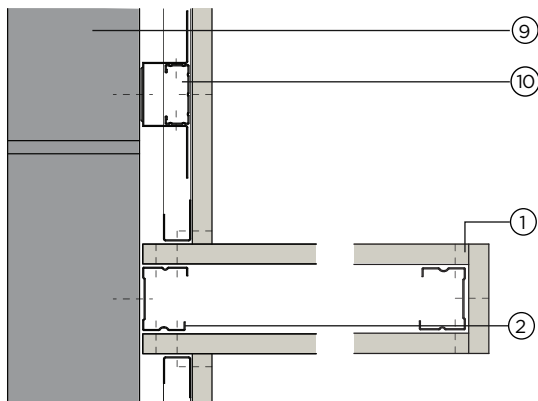
Base detail with timber sole plate

3



Head and base detail

4



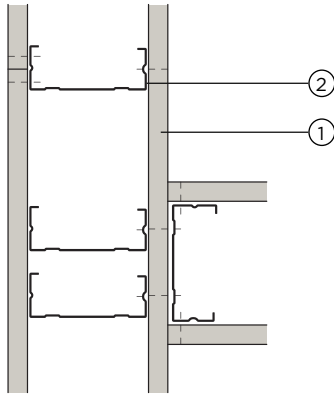
Junction with masonry and stop end detail

1. Gyproc plasterboard
2. Gypframe 'C' Stud
3. Gypframe Floor & Ceiling Channel
4. Gyproc Sealant
5. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)
6. Skirting

7. Floating screed on resilient layer
8. Timber sole plate suitably fixed to structure
9. Blockwork
10. GypLyner wall lining system
11. ISOVER Eco APR
12. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions

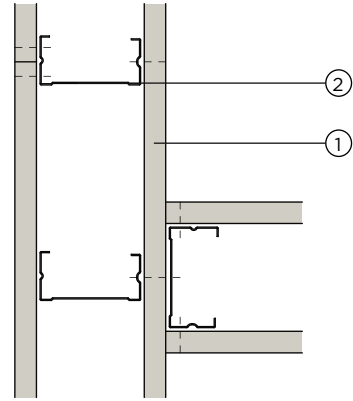
Construction details (continued)

5



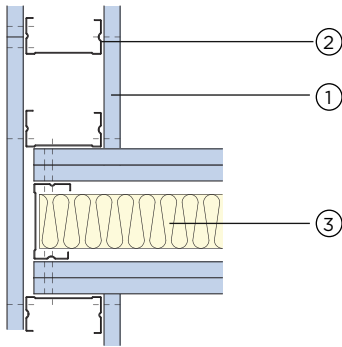
'T' junction detail for 92 / 150mm stud - single layer

6



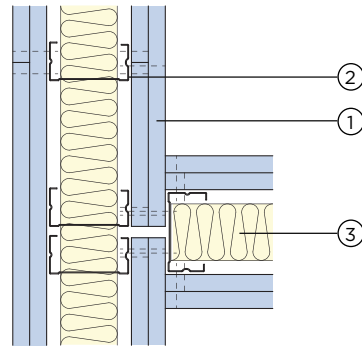
'T' junction detail for 50 / 70mm stud - single layer

7



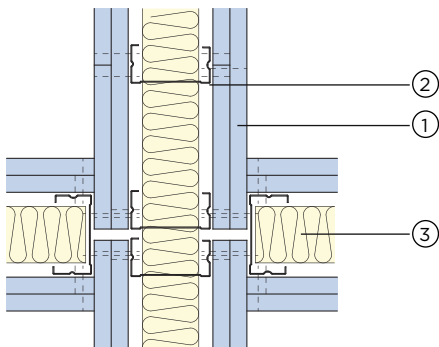
'T' junction detail when partition with higher acoustic performance abuts a partition with lower acoustic performance. Acoustic principles only - detail may not be suitable for all solutions

8



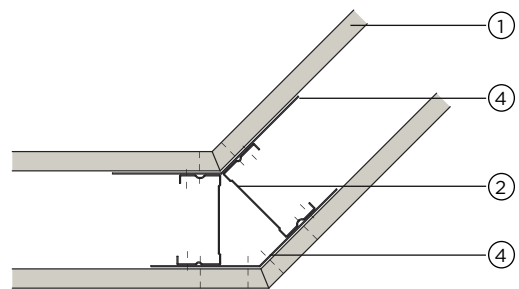
'T' junction detail to optimise acoustic performance and reduce flanking transmission

9



Four way junction detail to optimise acoustic performance and reduce flanking transmission

10



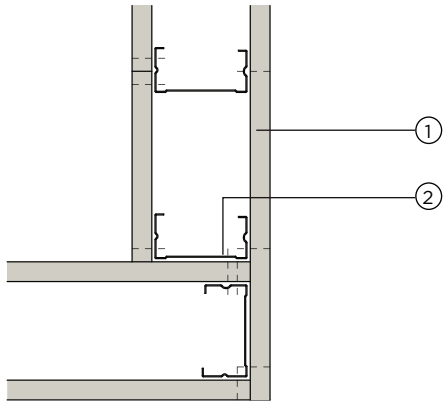
Splayed corner

- 1. Gyproc plasterboard
- 2. Gypframe 'C' Stud

- 3. ISOVER Eco APR
- 4. Gypframe GA6 Splayed Angle

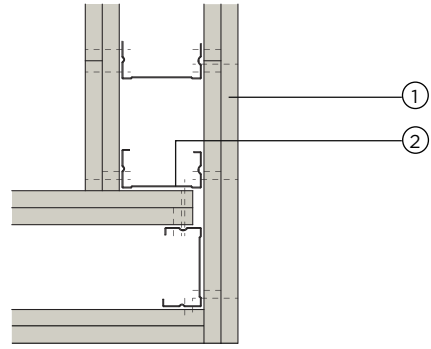
Construction details (continued)

11



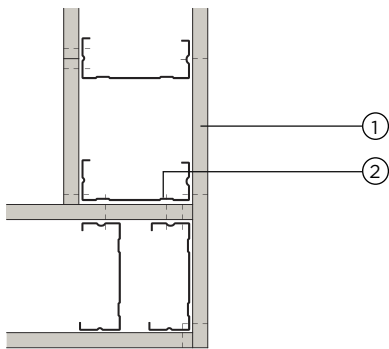
Corner detail for 50 / 70mm stud - single layer

12



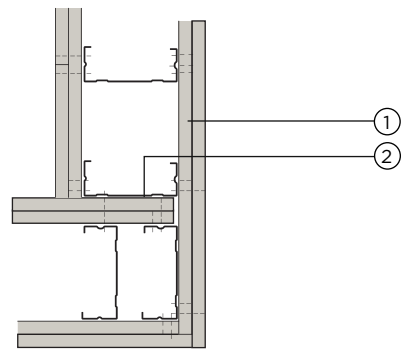
Corner detail for 50 / 70mm stud - double layer

13



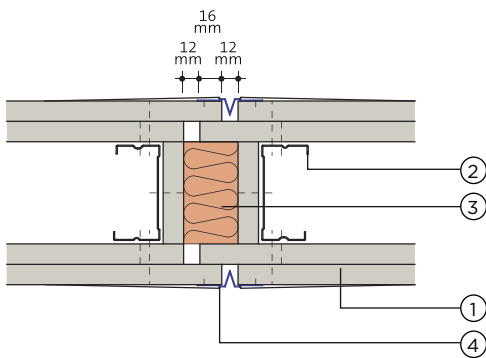
Corner detail for 92 / 150mm stud - single layer

14



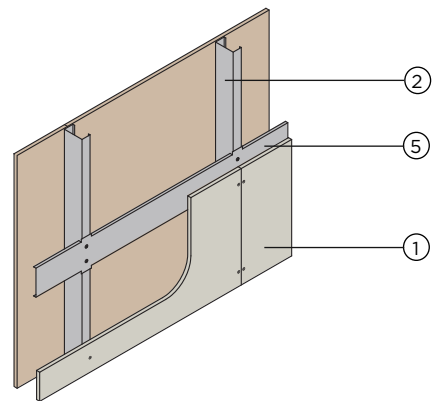
Corner detail for 92 / 150mm stud - double layer

15



Typical control joint

16



Gypframe 103 FC 50 Fixing Channel (short legs flattened at stud positions) for medium weight fixtures

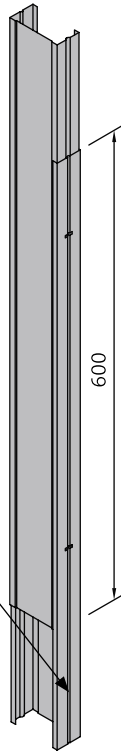
1. Gyproc plasterboard
2. Gypframe 'C' Stud
3. Stone mineral wool (minimum 23 kg/m³) (by KIMMCO ISOVER)

4. Control joint (by others)
5. Gypframe 103 FC 50 Fixing Channel

Construction details (continued)

17

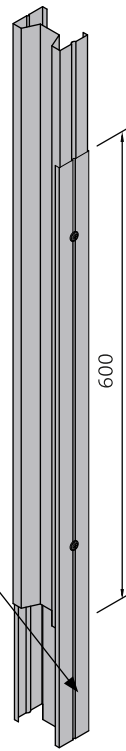
Gypframe 'C' Studs overlapped by minimum 600mm & locked together using two Gyproc Wafer head screws (total 4 no. fixing per stud overlap)



Stud Splice detail - Gypframe 'C' Stud

18

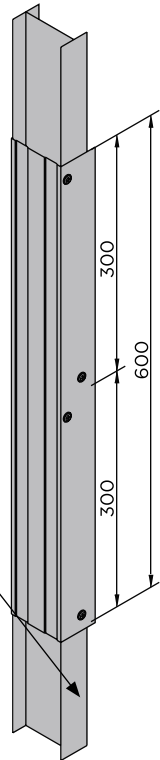
Gypframe 'AS' AcouStuds overlapped by 600mm (minimum) and fix together using two Gyproc Waferhead Screws to each flange (four fixings in total)



Stud Splice detail - Gypframe AcouStud

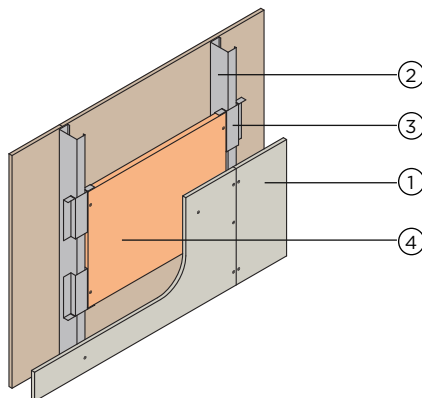
19

Gypframe 'I' Studs sleeved with minimum 600mm length of Gypframe channel & fixed together with 2 no. Gyproc wafer head screws to top & bottom studs on both flanges (8 total)



Stud Splice detail - Gypframe 'I' Stud

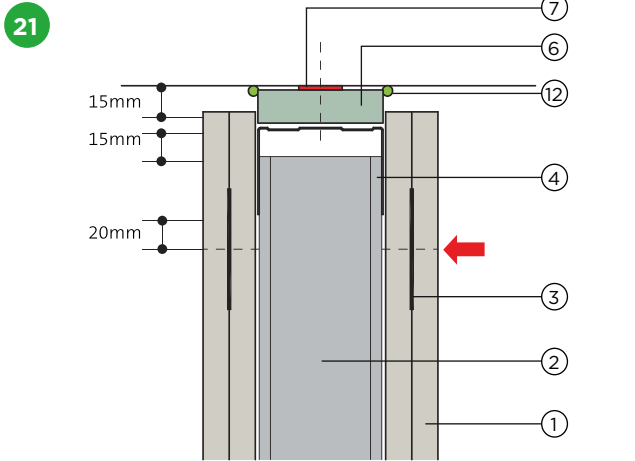
20



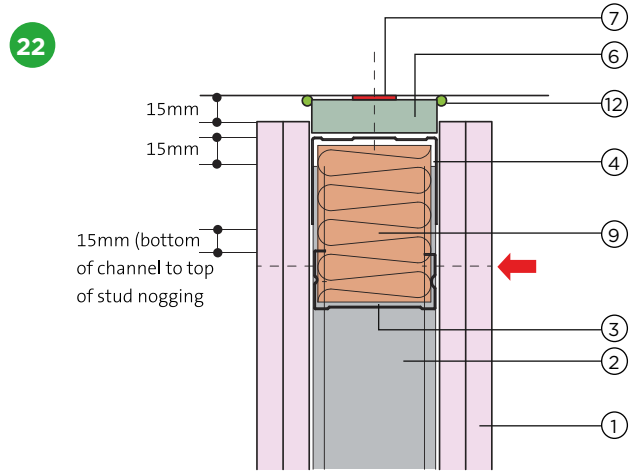
Gypframe Service Support Plate

1. Gyproc plasterboard
2. Gypframe 'C' Stud
3. Gypframe Service Support Plate
4. 18mm Plywood

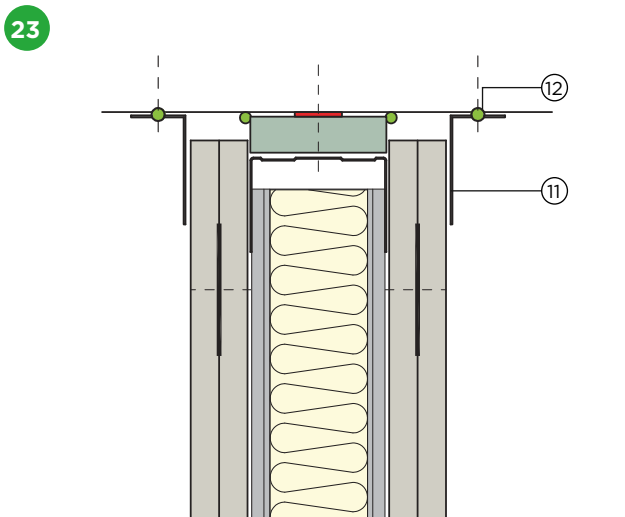
Construction details (continued)



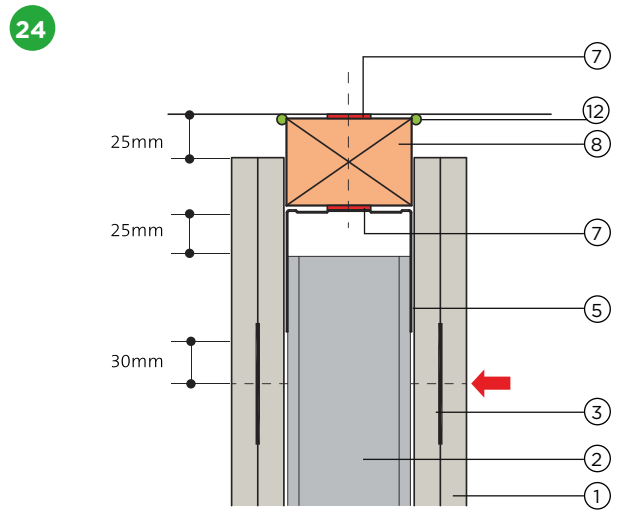
Deflection head detail for 15mm downward movement and 60 minutes fire resistance



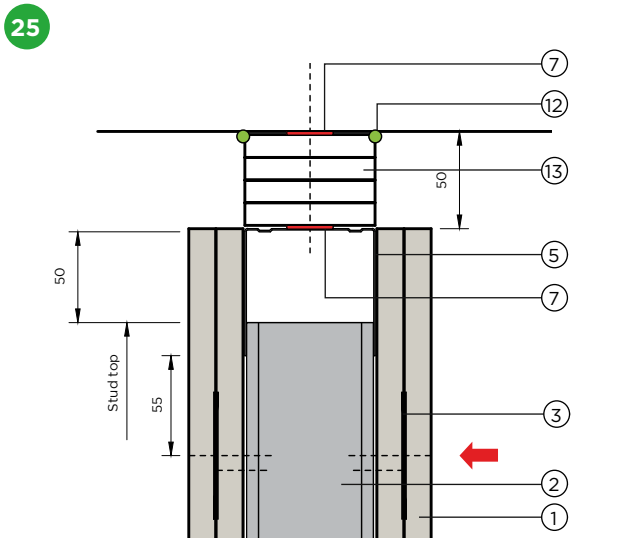
Deflection head detail for 15mm downward movement and up to 120 minutes fire resistance



Deflection head detail with GA4 angles to help maintain acoustic performance of partition. Can be omitted where a ceiling is to both sides




Deflection head detail for plus or minus 25mm movement and 60 minutes fire resistance



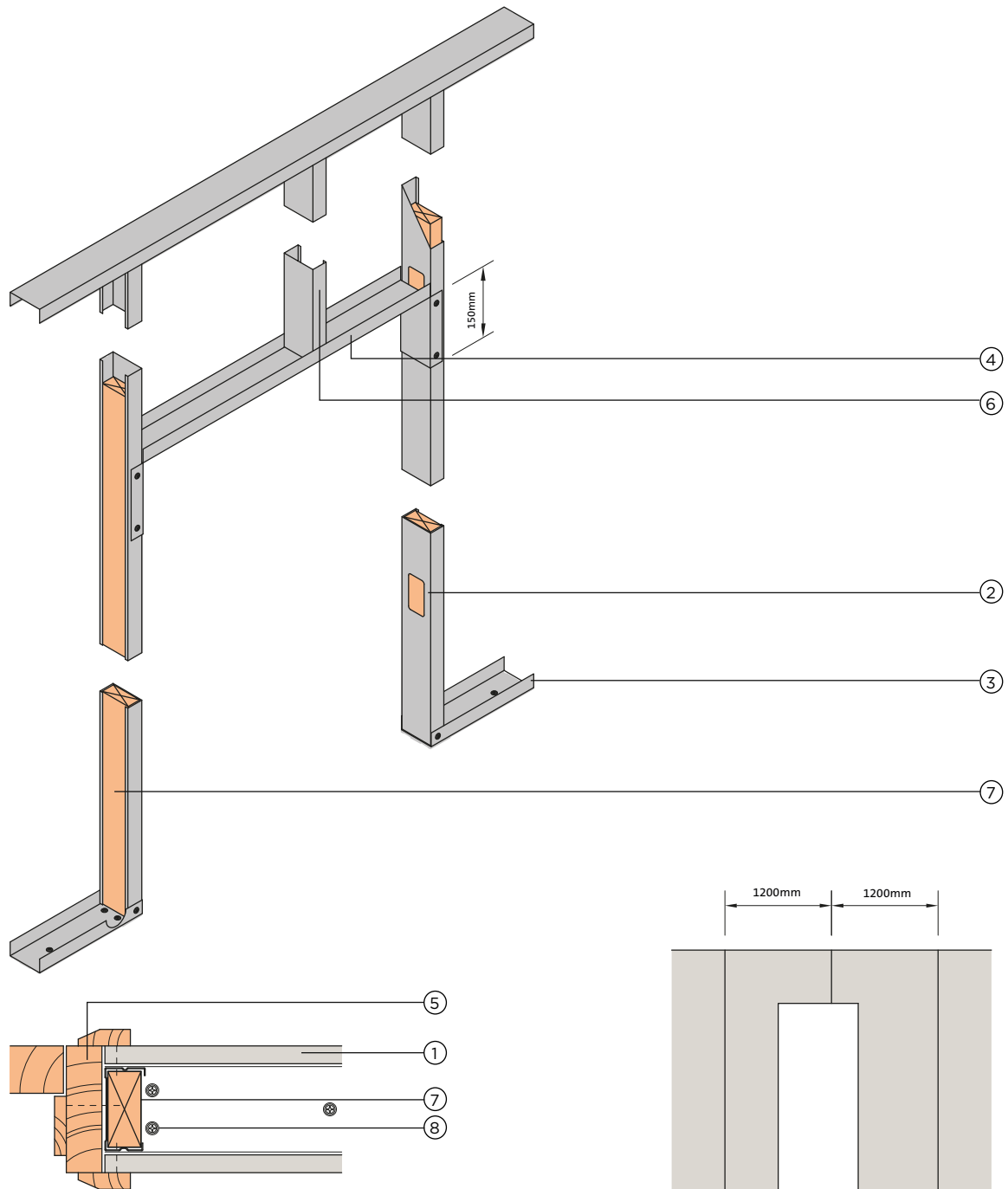
Deflection head detail for 50mm downward movement and 60 minutes fire resistance

1. Gyproc plasterboard
2. Gypframe 'C' Stud
3. Gypframe GFS1 Fixing Strap
4. Gypframe Deep Channel suitably fixed through fire-stop to structure at 600mm
5. Gypframe Extra Deep Channel fixed to timber head plate
6. Gyproc CoreBoard
7. Gyproc FireStrip (continuous)
8. Timber head plate suitably fixed to structure
9. Stone mineral wool (minimum 33 kg/m³) (by KIMMCO ISOVER) retained by stud nogging
10. Nogging cut from Gypframe 'C' Stud
11. Gypframe GA4 Steel Angle
12. Gyproc Sealant
13. 4 No. channel wide strips of 12.5mm Glasroc X

NB No fixings should be made through the boards into the flanges of the head channel. The arrow () denotes the position of the uppermost board fixing, which should be made into Gypframe GFS1 Fixing Strap (or stud nogging in construction detail 21). Gyproc FireStrip is used where the soffit shows signs of undulation or where small gaps, cracks or holes are apparent. FireStrip must be continuous to maintain fire performance. Where there is a need for a deflection head in a 90 minute wall, the 120 minute solution can be used (refer to construction detail 21) or alternatively, please contact the Gyproc Technical Team for further guidance.

Construction details (continued)

26



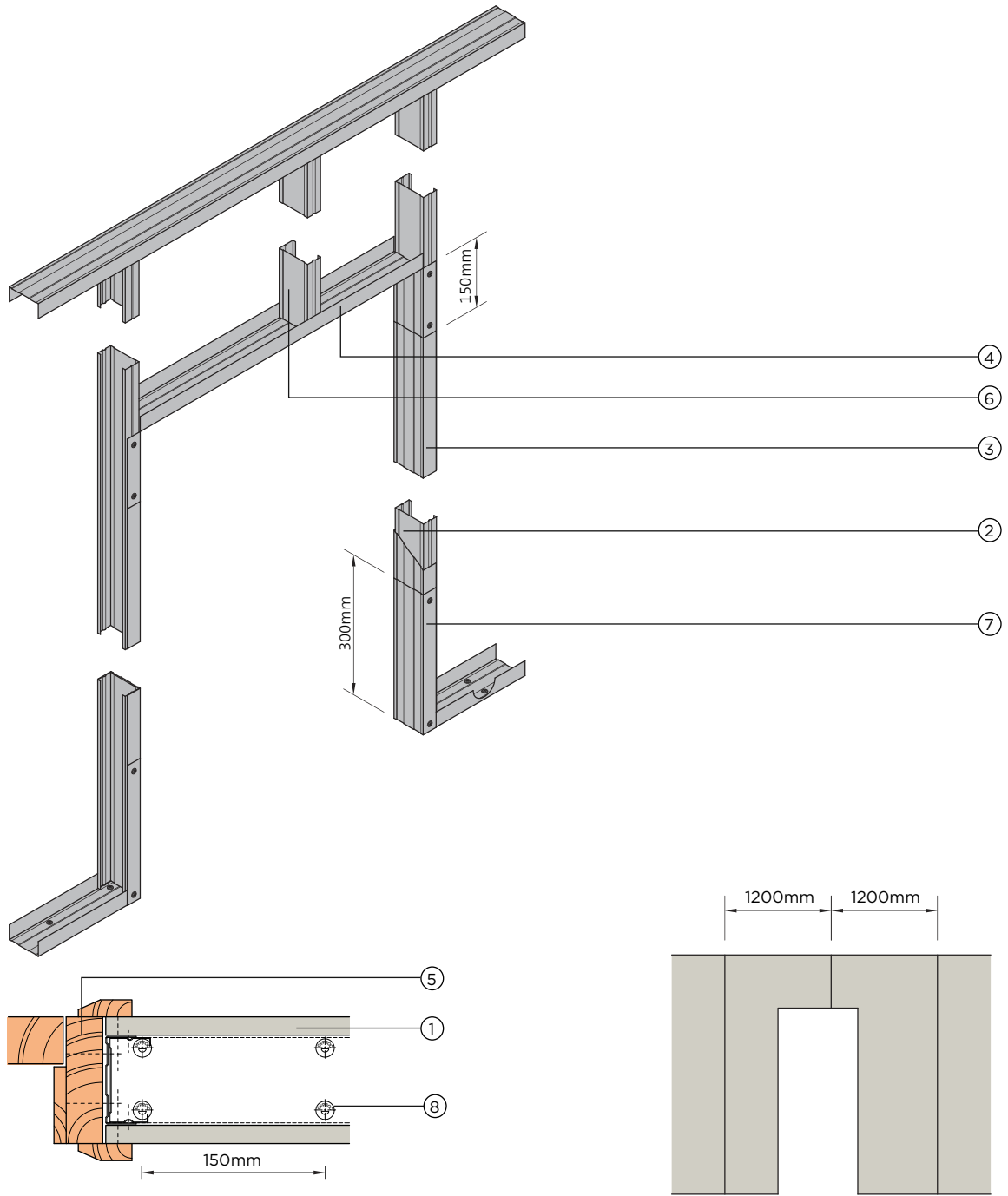
Door frame detail to satisfy BS 5234: Parts 1 & 2: 1992 - Light and Medium Duty.
Suitable for door weights upto 35kg.

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Gyproc plasterboard 2. Gypframe 'C' Stud 3. Gypframe Channel 4. Gypframe Channel cut and bent to form door head | <ol style="list-style-type: none"> 5. Timber door frame and architrave 6. Gypframe 'C' Stud to maintain stud module 7. Timber sub-frame 8. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions |
|---|---|

NB Advice should be sought from the door manufacturer prior to the construction of these details.

Construction details (continued)

27



Door frame detail to satisfy BS 5234: Parts 1 & 2: 1992 - Heavy and Severe Duty. Suitable for door weights upto 60kg. For door weights in excess of 60kg, please contact Gyproc Technical Team.

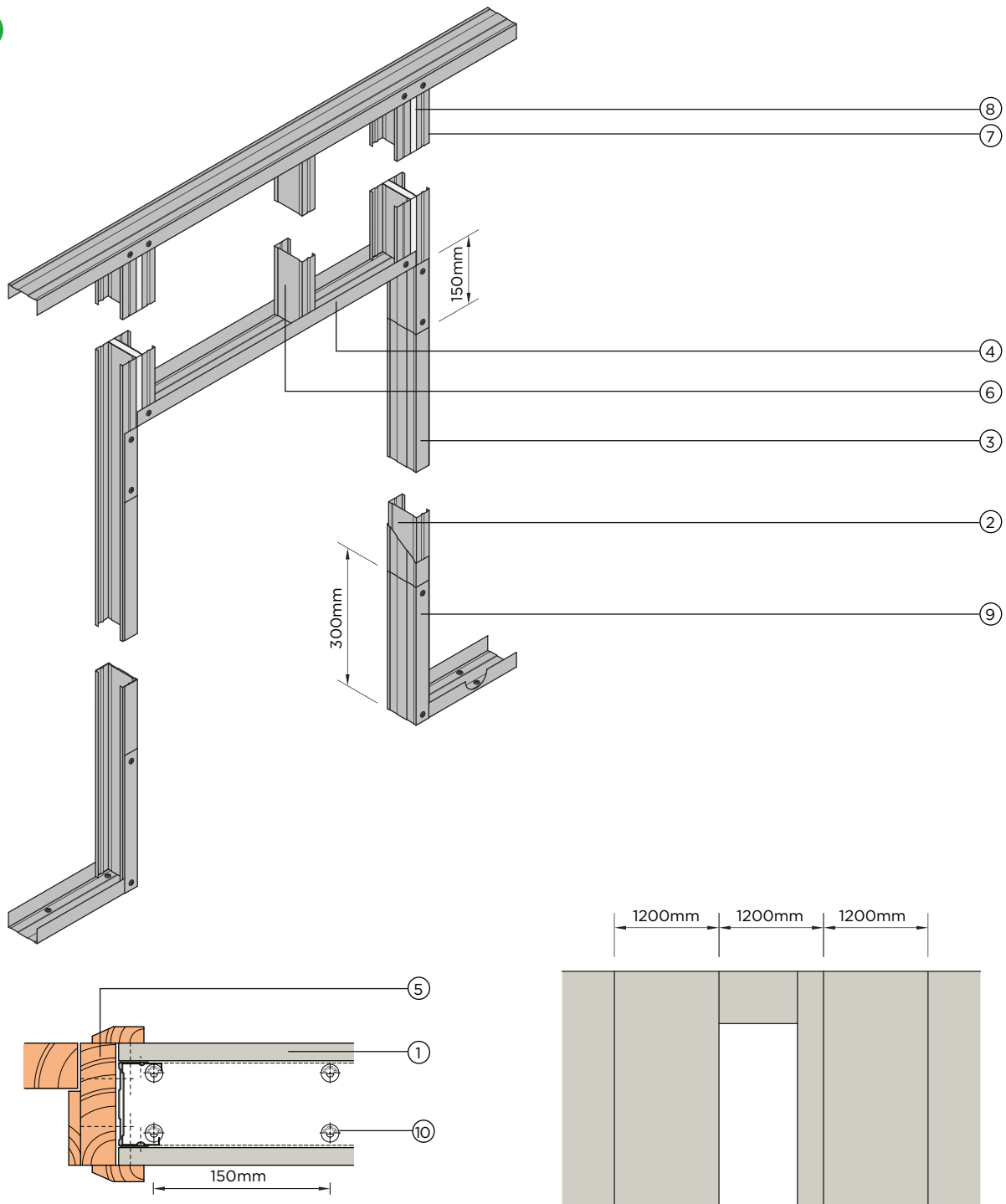
- 1. Gyproc plasterboard
- 2. Gypframe 'C' Stud
- 3. Gypframe Channel to sleeve studs
- 4. Gypframe Channel cut and bent to form door head
- 5. Timber door frame and architrave
- 6. Gypframe 'C' Stud to maintain stud module
- 7. Gypframe Channel cut and bent to extend up studs
- 8. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions

NB Advice should be sought from the door manufacturer prior to the construction of these details.

NB At the base, the channel is cut and bent to extend 300mm up the studs and fixed each side with two Gyproc Wafer Head Screws. The studs each side of the opening are sleeved full height of opening with Gypframe Channel.

Construction details (continued)

28



Alternative 'reduced plasterboard waste' door frame detail to satisfy BS 5324: Parts 1 & 2: 1992 - Heavy and Severe Duty. Suitable for door weights upto 60kg. For door weights above 60kg, please contact the Gyproc Technical Team.

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Gyproc plasterboard 2. Gypframe 'C' Stud 3. Gypframe Channel to sleeve studs 4. Gypframe Channel cut and bent to form door head 5. Timber door frame and architrave 6. Gypframe 'C' Stud to maintain stud module | <ol style="list-style-type: none"> 7. Gypframe 'C' Studs fixed back to back with Gyproc Drywall Screws at 300mm centres staggered 8. Plasterboard infill (same type as lining) cut to fit between studs 9. Gypframe Channel cut and bent to extend up studs 10. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions |
|--|--|

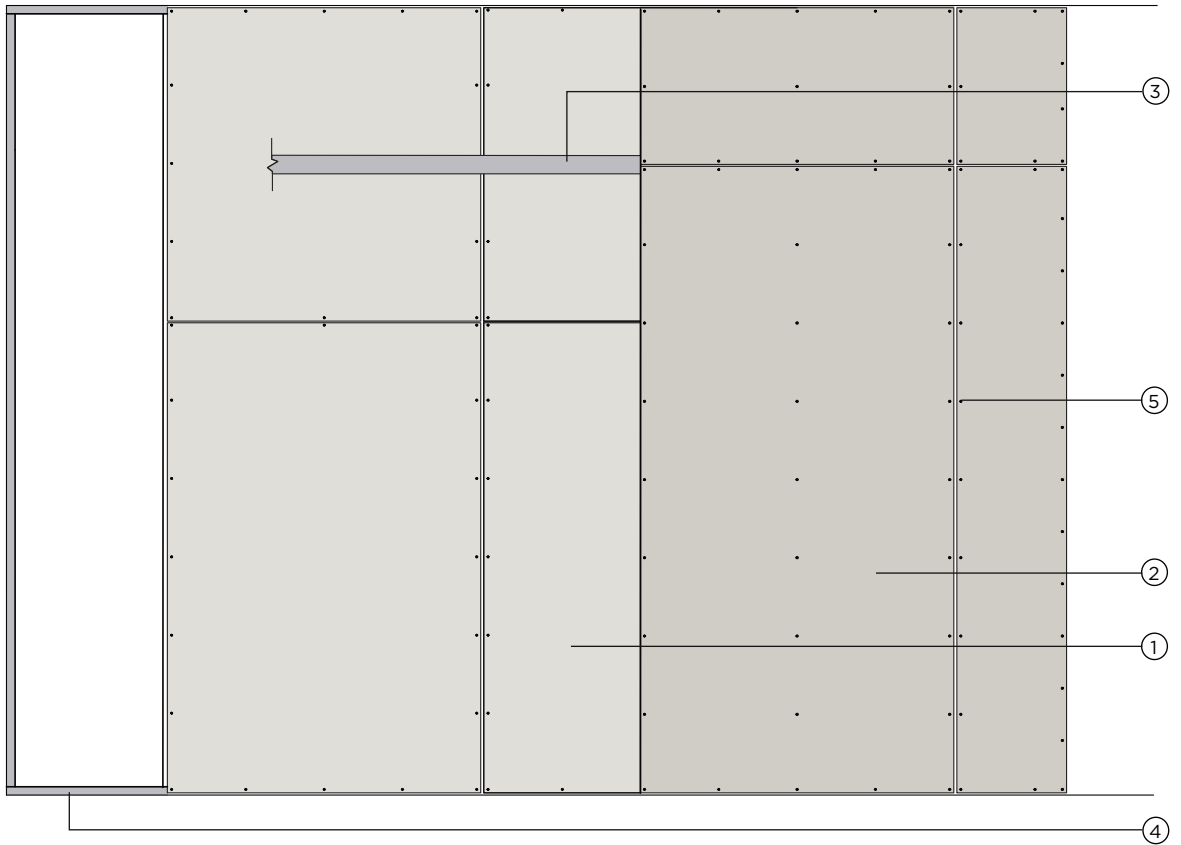
NB Advice should be sought from the door manufacturer prior to the construction of these details.

NB At the base, the channel is cut and bent to extend 300mm up the studs and fixed each side with two Gyproc Wafer Head Drywall Screws. The studs each side of the opening are sleeved full height of opening with Gypframe Channel.

NB The principle of this alternative 'reduced plasterboard waste' detail is only suitable for GypWall CLASSIC and GypWall ROBUST for fixed head situations only.

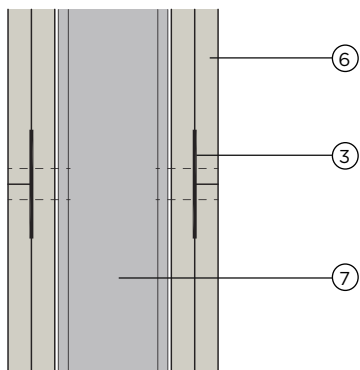
Construction details (continued)

29



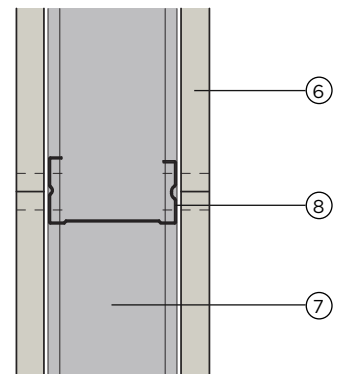
Board layout - typical configuration

30



Horizontal board joint - double layer

31



Horizontal board joint - single layer

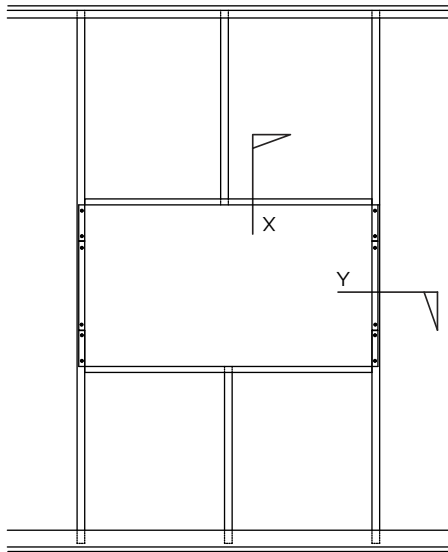
1. Inner layer of Gyproc plasterboard
2. Outer layer of Gyproc plasterboard
3. Gypframe GFS1 Fixing Strap
4. Gypframe metal framing

5. Gyproc Drywall Screws
6. Gyproc plasterboard
7. Gypframe 'C' Stud
8. Horizontal nogging cut from Gypframe 'C' Stud

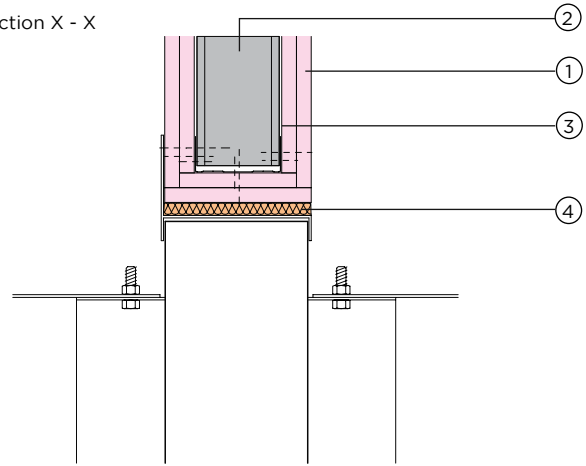
Construction details (continued)

32

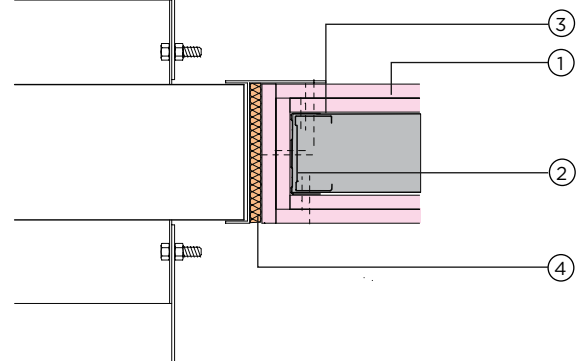
Elevation



Section X - X

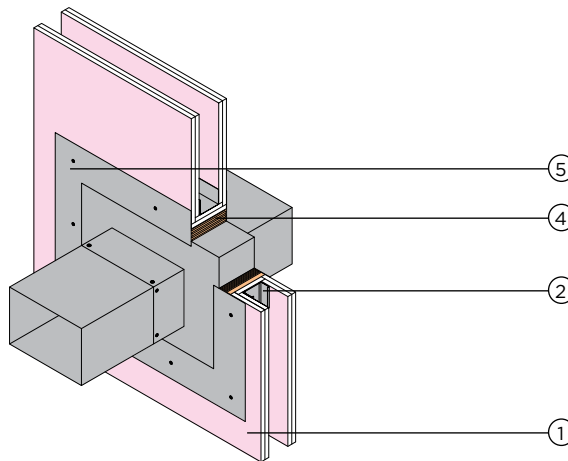


Section Y - Y



Opening upto 1200mm for service penetrations in fire-rated partitions with fixed heads. For openings where deflection heads are specified, contact the Gyproc Technical Team.

33

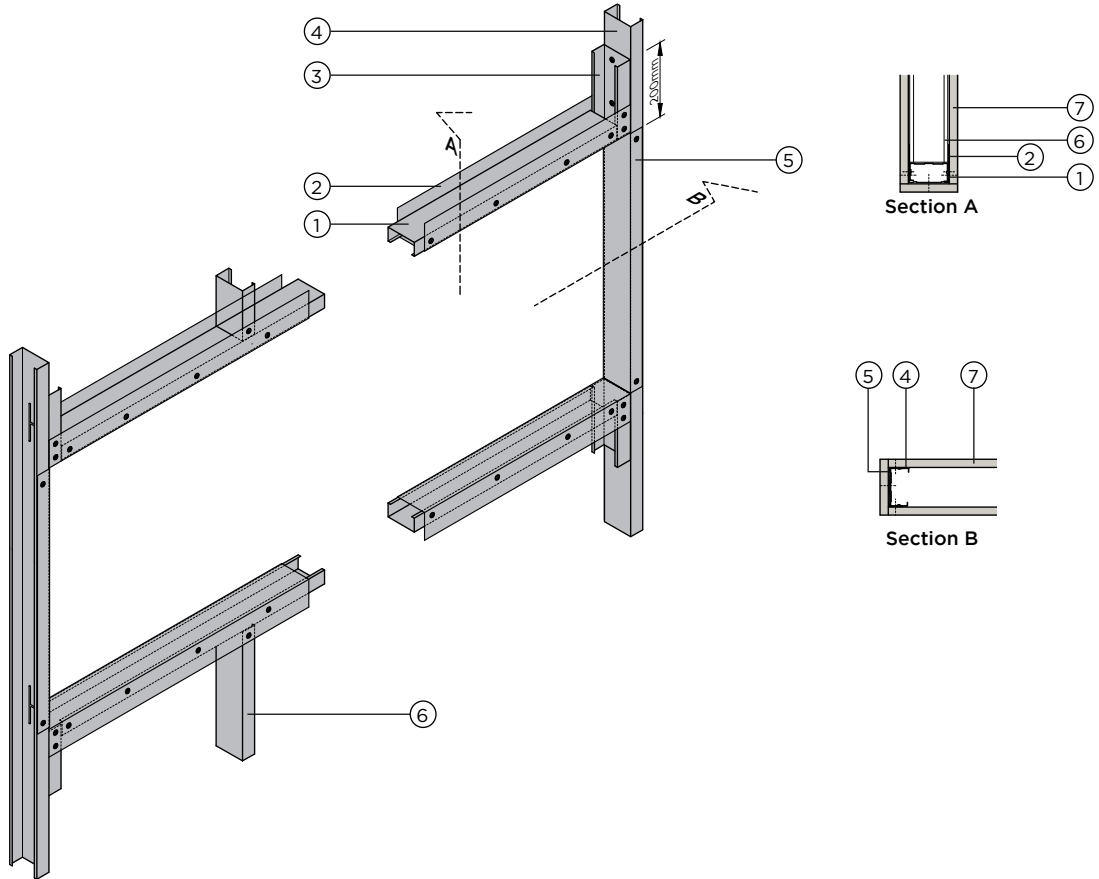


Fire tested construction construction detail in which the damper is supported by the partition (isometric view)

1. Gyproc plasterboard
2. Gypframe 'C' Stud
3. Gypframe Channel
4. Penetration seal as tested by damper manufacturer or proprietary alternative, confirmed as compatible by system designer / specifier (Plasterboard lining around opening may not be required)
5. Damper (by others). Weight of damper should not exceed 57kg. Size of damper should not exceed 1400mm (height) x 1200mm (width)

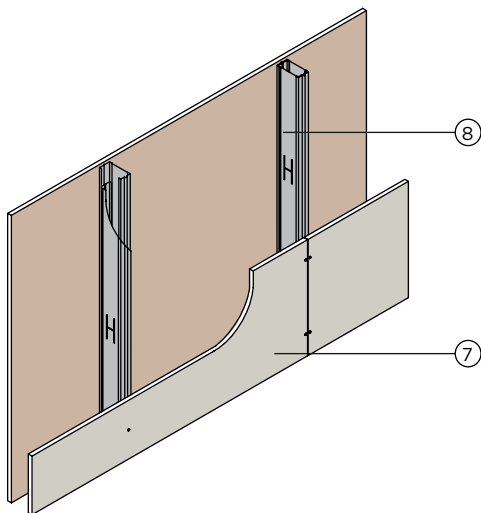
Construction details

34



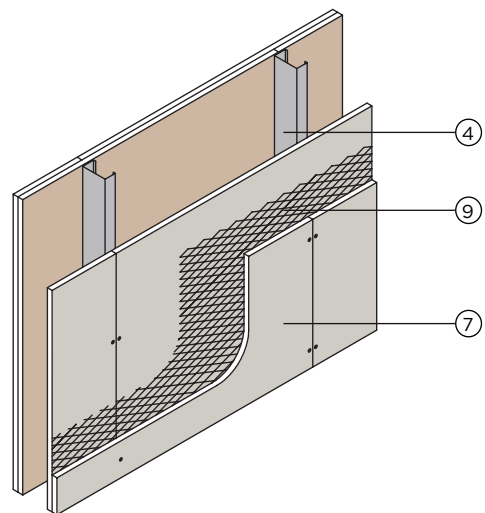
Opening from 1200mm to 3600mm wide for MEP services/door/window/glazed screen (detail may vary according to weight of glazing. Contact the Gyproc Technical Team for guidance).

35



Boxed Gypframe 'C' Studs for improved strength and robustness

36



Expanded metal lath between board layers for additional security

1. Gypframe 'C' Stud inserted into channel
2. Gypframe Extra Deep Channel
3. 200mm length Gypframe 'C' Stud soldiers
4. Gypframe 'C' Stud
5. Gypframe Stud sleeve to full opening height with Gypframe channel

6. Additional Gypframe 'C' studs to suit stud module
7. Gyproc Plasterboards
8. Gypframe Box 'C' Stud
9. Expament Securilath MD1 (2076F) or similar, bedded on vertical beads of Gyproc Sealant at 300mm centres and fixed to studs

NB For openings greater than 3600mm, contact the Gyproc Technical Team.

NB When using detail 28 and/or 29 for improved strength, robustness and security, we would also recommend the use of Gyproc DuraLine for greater impact resistance. See the GypWall robust section for further details.

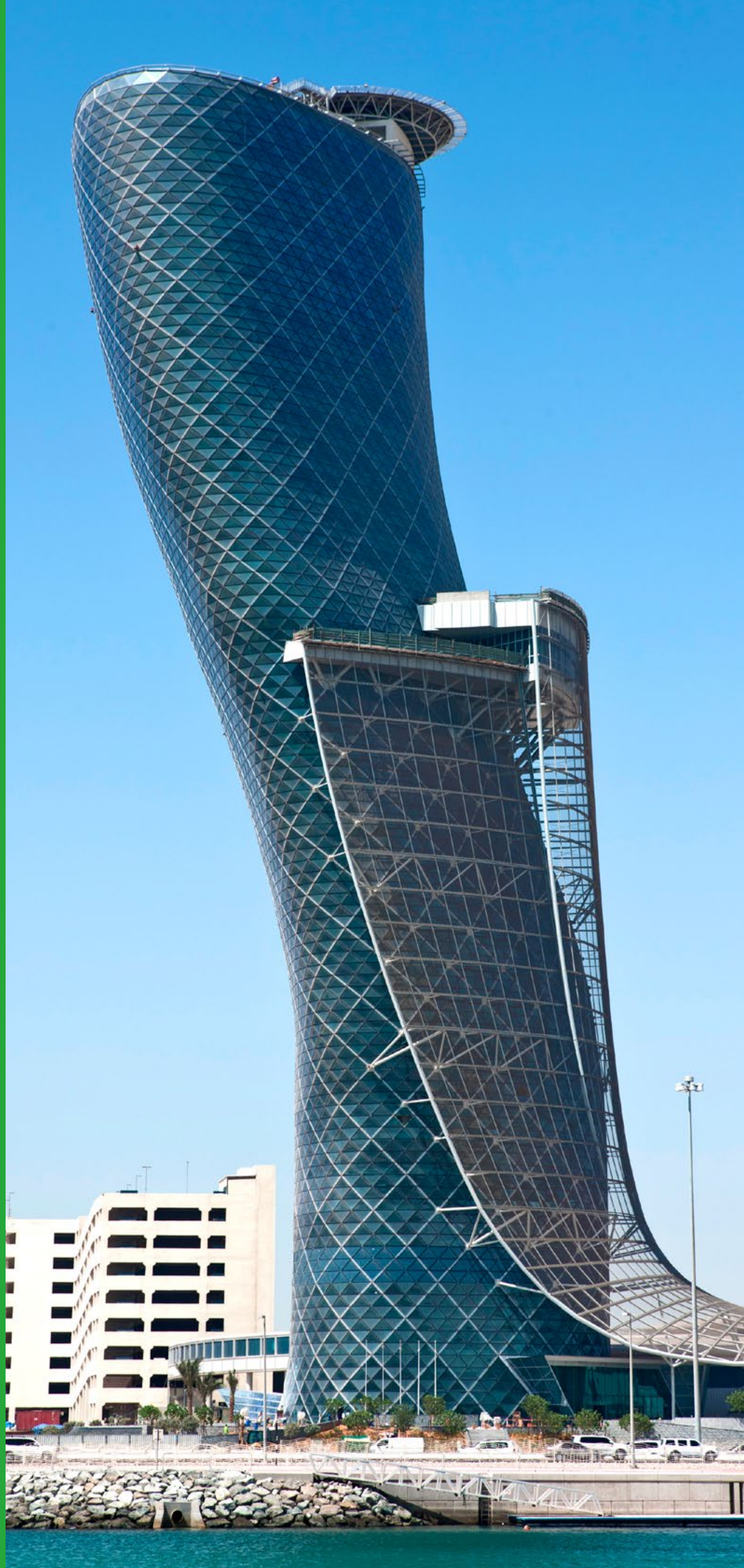
Notes

GypWall™

CURVE



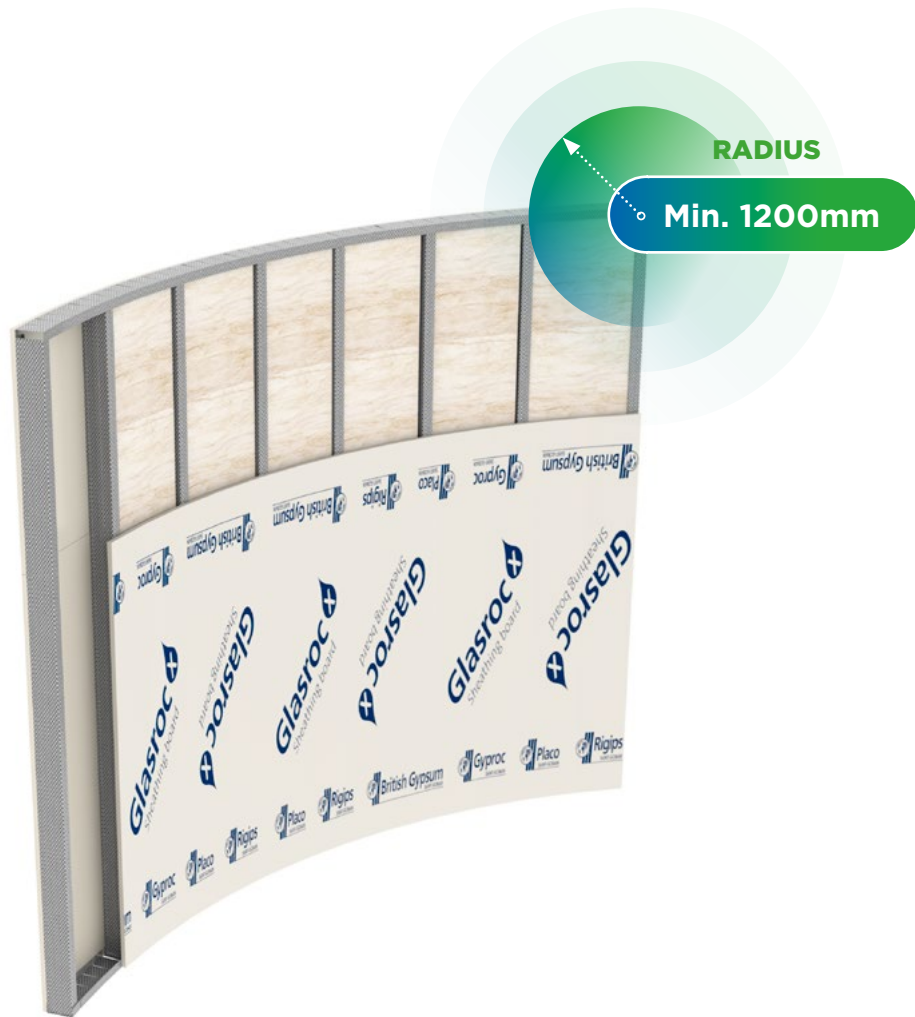
Curved partition and
wall lining system



Capital Gate Hyatt Hotel
Abu Dhabi

GypWall CURVE

GypWall CURVE is a highly cost-effective system designed to provide curved walls and linings. This system can be installed in all types of buildings to deliver design flexibility and aesthetic impact.



Key Benefits



Minimum radius 1200mm



Choice of linings to suit performance requirements and to maintain continuity



Gypframe channel can be easily shaped to radius



Boards can be jointed in the normal way



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe 'C' Studs

(50 S 50, 70 S 50, 92 S 50, 150 S 50)
Vertical stud providing acoustic and structural performances designed to receive fixing of board to both sides



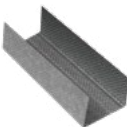
Gypframe 'I' Studs

(70 I 70, 100 I 80, 150 I 90)
Enhanced strength stud that allows for increased partition height, designed to receive fixing of board



Gypframe Standard Floor & Ceiling Channels

(52 C 50, 72 C 50, 94 C 50, 102 C 50, 152 C 50)
Standard floor and ceiling channels for retaining the Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe Deep Flange Floor & Ceiling Channels

(52 DC 60, 72 DC 60, 94 DC 60, 102 DC 60, 152 DC 60)
Floor and ceiling channels with deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions 4200mm to 8000mm high. Also used around openings and in deflection heads (maximum 30mm deflection)



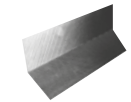
Gypframe Extra Deep Flange Floor & Ceiling Channels

(52 EDC 80, 72 EDC 80, 94 EDC 80, 102 EDC 80, 152 EDC 80)
Floor and ceiling channels with extra deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



Gypframe GFS1 Fixing Strap

Used to support horizontal board joints and within deflection head



Gypframe GA6 Splayed Angle

Steel angle providing framing stability and board support

Board products



Gyproc Regular^{1, 2, 3}

(9, 12.5, 15mm)
Standard gypsum plasterboard



Gyproc FireStop^{1, 2, 3}

(12.5, 15mm)
Gypsum plasterboard with fire resistant additives



Gyproc SoundBloc^{1, 2}

(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Gyproc DuraLine^{1, 2, 3}

(15mm)
Gypsum plasterboard with fire resistant additives and a high density core for enhanced sound insulation and impact resistance performance



Gyproc Habito²

(12.5, 15mm)
Next generation plasterboard which consists of a specially reinforced gypsum core designed for high strength and fixing capability



Glasroc X²

(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick, excluding 'I' studs



Gyproc Habito Screws

Corrosion resistant self-tapping screw with counter sunk cross heads specifically used for fixing Gyproc Habito plasterboard to Gypframe 'C' Stud and 'I' Stud



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick, excluding 'I' studs



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

System components (continued)

Corners



Habitoflex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco

Acoustic Partition Roll (APR)

(25, 50, 75 and 100mm)*
Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³



KIMMCO ISOVER

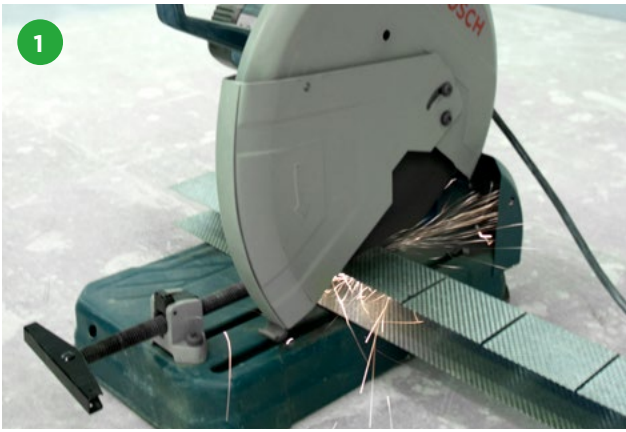
Stone mineral wool

(50 and 70mm)*
For fire stopping, where required

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



Gyproframe Extra Deep Channel is cut and bent on-site to the required radius to achieve a smooth and un-faceted line.



Gyproframe Floor & Ceiling channels are fixed to the concrete substrate using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems).



Gyproframe studs are fitted vertically within channel sections, and to abutments to form the framework.



Gyproframe studs are fixed into the channel at both head and base and must all face the same way. If a deflection head is required, the studs should not be fixed into the head channel.



Gyproc plasterboard / Glasroc specialist boards are then fixed to the Gyproframe framework with Gyproc Drywall Screws.



Boards are fixed horizontally. Stagger board joints and avoid vertical joints occurring on the apex of the curve.

Design

Table 1 – Minimum bending radii and stud centres

Board type	Thickness	Minimum radius ¹	Stud centres
	mm	mm	mm ²
Glasroc X	12.5	1200	300
Gyproc Regular	9	1800	300
	12.5	3600	300
	15	4800	300
Gyproc SoundBloc	12.5	2900	300
	15	3600	300
Gyproc FireStop	12.5	4800	300
	15	5700	400
Gyproc Habito	12.5	6000	400
	15	7000	400
Gyproc DuraLine	15	5700	400
Aqaroc FC	6	1400	300
	9	3000	300
	12	6000	400
	15	7000	600

¹ Concave or convex.

² For any radius 7000mm or more, studs can be installed at 600mm centres irrespective of board type with the exception of 6mm Aqaroc FC and 9mm Gyproc Regular plasterboard.

NB To help maintain a uniform curve, or to meet specific performance criteria, multiple layer specifications can be used.

Planning – key factors

GypWall CURVE comprises Gypframe 'C' Studs installed within carefully snipped Gypframe Floor & Ceiling Channels. The positioning of vertical board joints on exposed board layers at the apex of the curve should be avoided. The positioning of all studs, therefore, needs to be determined at the design stage. Where straight runs occur within curved partitions or linings, stud centres can be increased as determined by the specification, once 600mm off the curve.

Fixing floor and ceiling channels

Gypframe Floor & Ceiling Channels must be securely fixed in two lines at 300mm centres. If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channel should be used.

If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

To extend studs, overlap by 600mm (minimum) and fix together using Gyproc Waferhead Screws. Refer to construction detail 17, 18 & 19 - GypWall CLASSIC on page 85.

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Refer to Building acoustics for further information.

Cavity barriers

Minimum 12.5mm Gyproc plasterboard, screw-fixed into the web of perimeter channels or vertical studs, will provide a satisfactory closure to flame or smoke.

Fire resistance

There is no specific standard against which to test curved walls and linings, but adhoc testing has been carried out which indicates that a slight downgrade in performance may occur compared to that claimed for the straight partition. This will depend on the system selected, e.g. board specification and radius. In some instances however, a downgrade in resistance level may not occur and for specification purposes the worst case scenario is a 30 minute downgrade, e.g. for 30 minutes select a 60 minutes board specification.

Deflection heads

Deflection heads should follow the principles of straight partitions but incorporate multiple layers of Glasroc X to form the firestop above the head channel, cut to required curve. Alternatively, multiple layers of plywood may also be used for 60 minute rated partitions. For higher rated systems, please contact the Gyproc Technical Team.

Degree of curvature

In common with other sheet materials, board-ends have a tendency to remain straight. The minimum radius, therefore, will be influenced by the board characteristics, the length of curve, the support centres, and the occurrence of board joints. In order to help maintain a uniform curve, or to meet specific performance criteria, multiple layer specifications can be used.

Sound insulation

Reducing the centres of the metal studs within GypWall CURVE can have a detrimental effect on sound insulation. Include 25mm ISOVER Eco APR in the cavity for optimised acoustic performance.

Services

Penetrations

Penetrations of fire-resistant or sound-insulating constructions for services need careful consideration to ensure that the performance of the element is not downgraded. Consideration also needs to be given to the services themselves so they do not act as the mechanism of fire spread or sound transmission. Refer to Service installations for further information.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard. The service cut-outs in the studs can be used for routing electrical and other small services. Refer to GypWall CLASSIC - construction detail 1 on page 82. Cables should be protected by

Design (continued)

flexible conduit, or other suitable precautions taken to prevent abrasion when they pass through the metal frame. Service cut-outs should be aligned to allow easy installation of service. If studs require cutting, cut from the same end of each stud to ensure cut-out alignment.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through a GypWall partition, consideration should be given to the size and weight of the damper - this will determine whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to GypWall CLASSIC - construction details 32-34 on pages 91-92.

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board (depending on the required radius of the wall) should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc specialist board or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified - for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified - for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding table on pages 72-79 of GypWall CLASSIC (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified - for example Gyproc SoundBloc Activ'Air.

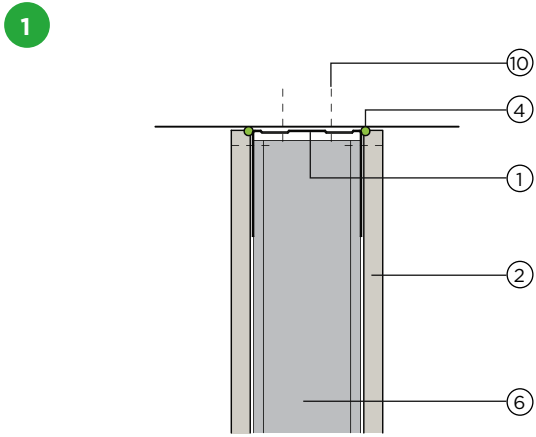
Using Activ'Air versions of any of the plasterboard linings

listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

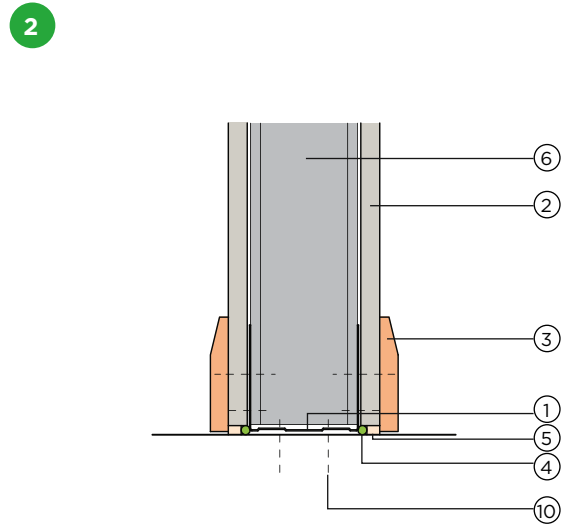
Construction details

For GypWall construction details, refer to the construction details shown on page 102. For more typical or example details, please contact the Gyproc Technical Team.

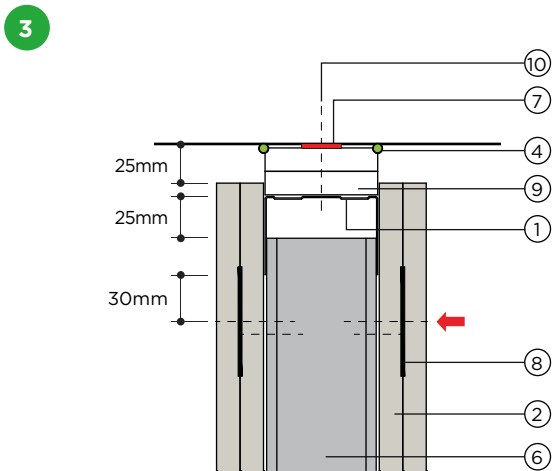
Construction details



Head detail



Base detail



Deflection head detail for 15mm downward movement and 60 minutes fire resistance

1. Gypframe Channel
2. Gyproc plasterboard or Glasroc specialist board
3. Skirting
4. Gyproc Sealant
5. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)
6. Gypframe 'C' Stud
7. Gyproc FireStrip (continuous)
8. Gypframe GFS1 Fixing Strap
9. Two layers of 12.5mm Glasroc X cut to required curve
10. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions

NB No fixings should be made through the boards into the flanges of the head channel. The arrow (➔) denotes the position of the uppermost board fixing, which should be made into Gypframe GFS1 Fixing Strap. Gyproc FireStrip is used where the soffit shows signs of undulation or where small gaps, cracks or holes are apparent. FireStrip must be continuous to maintain fire performance.

Notes

GypWall™

ROBUST



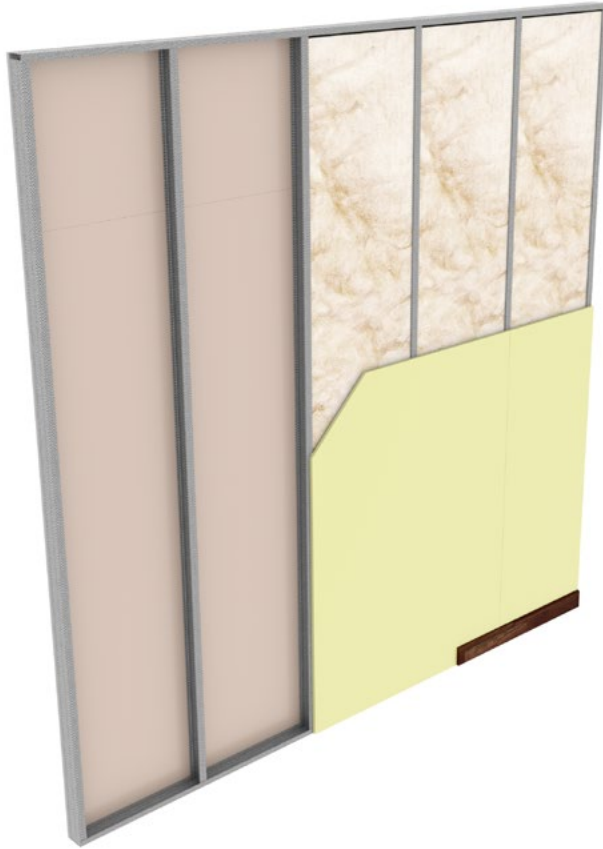
High impact resistant
partition system



The King Hussein
Cancer Center Extension
Kingdom of Jordan

GypWall ROBUST

GypWall ROBUST is a highly impact-resistant partition system for use where a more durable structure is required.



-  **60** mins
-  **41 - 50** R_w dB
-  **41 - 51** STC dB

Key Benefits



Achieves Severe Duty Rating in accordance with BS 5234 with only a single layer of Gyproc DuraLine plasterboard to each side of the partition



Reduced maintenance cycles due to impact resistant nature of Gyproc DuraLine plasterboard



Single layer system provides 60 minutes fire resistance



Accommodates services within the stud cavity



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe 'C' Studs

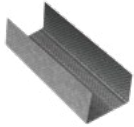
(70 S 60, 92 S 60)

Vertical stud providing acoustic and structural performances designed to receive fixing of board to both sides



Gypframe 103 FC 50 Fixing Channel

A versatile metal fixing channel used to support medium weight fixtures on walls



Gypframe Deep Flange Floor & Ceiling Channels

(72 DC 60, 94 DC 60)

Standard floor and ceiling channels for retaining the Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe 103 FC 90 Fixing Channel

A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe Standard Floor & Ceiling Channels

(72 C 50, 94 C 50)

Standard floor and ceiling channels for retaining Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe GFS1 Fixing Strap

Used to support horizontal board joints and within deflection head



Gypframe Extra Deep Flange Floor & Ceiling Channels

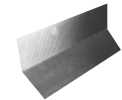
(72 EDC 80, 94 EDC 80)

Floor and ceiling channels with extra deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



Gypframe GA1 Steel Angle

Used as a fixing mechanism to hold ISOVER Eco APR insulation in place



Gypframe GA6 Splayed Angle

Steel angle providing framing stability and board support

Board products



Gyproc DuraLine^{1, 2, 3}

(15mm)

Gypsum plasterboard with high density core with glass fibre for enhanced impact resistance performance

¹ Moisture resistant (MR) versions of the above board is specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints and provides improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal introduced for use within Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcements



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance

Corners



Habito Flex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

System components (continued)

Insulation products



**ISOVER Eco
Acoustic Partition Roll (APR)**
(25, 50, 75 and 100mm)*
Non-combustible glass mineral wool
roll for sound insulation in partitions,
linings and ceiling systems.

Minimum density: 16 kg/m³



**KIMMCO ISOVER
Stone mineral wool**
(50 and 70mm)*
For fire stopping, where required.

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



Gypframe Deep Channels or Gypframe Extra Deep Channels are suitably fixed to the floor and soffit.



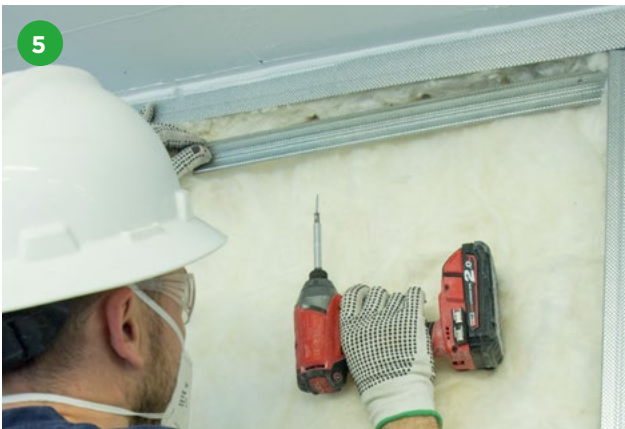
Gypframe Studs are suitably fixed to abutments. Gypframe Studs are fitted vertically to a friction fit within the channel sections to form the framework. Studs are fitted to all face the same way.



The perimeter of the metal framework is then sealed with Gyproc Sealant for optimum sound insulation performance



Gypframe 103 FC 50 Fixing Channel fixed to stud to receive light/medium weight fixtures



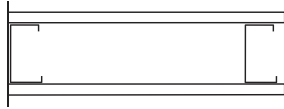
ISOVER Eco APR insulation is added to the partition cavity for increased acoustic performance.



Gyproc DuraLine boards are fixed to framing members with Gyproc Drywall Screws to form the lining.

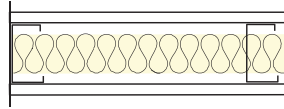
Table 1 – GypWall ROBUST 70mm Gypframe ‘C’ Studs (70 S 60) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



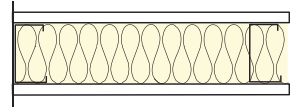
One layer of board each side of 70mm Gypframe ‘C’ Studs at 600mm centres. Linings as in table.

2



One layer of board each side of 70mm Gypframe ‘C’ Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

3



One layer of board each side of 70mm Gypframe ‘C’ Studs at 600mm centres. 75mm ISOVER Eco APR in the cavity. Linings as in table

Detail	Partition thickness	Board type	Lining thickness	Maximum partition heights ¹	Sound insulation		Duty rating	Approx. weight
					R _w	STC		
	mm		mm	mm	dB	dB		kg/m ²

60 minutes fire resistance

1	102	DuraLine	1 x 15	4000	41	42	Severe	29
2	102	DuraLine	1 x 15	4000	49	48	Severe	29
3	102	DuraLine	1 x 15	4000	50	51	Severe	29

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe ‘I’ Studs or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

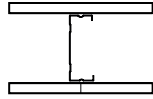
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company’s fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Gypframe Deep Flange Floor & Ceiling Channel or Gypframe Extra Deep Flange Floor & Ceiling Channel should be used at the base and at the head (subject to deflection head criteria)

NB Where tiling, refer to ‘Tiling section’ on page 304

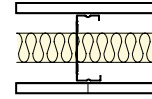
Table 2 - GypWall ROBUST 92mm Gypframe 'C' Studs (92 S 60) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



One layer of board each side of 92mm Gypframe 'C' Studs at 600mm centres. Linings as in table.

2



One layer of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

60 minutes fire resistance

1	124	DuraLine	1 x 15	4900	41	41	Severe	29
2	124	DuraLine	1 x 15	4900	49	50	Severe	30

¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** for increased heights.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Gypframe Deep Flange Floor & Ceiling Channel or Gypframe Extra Deep Flange & Ceiling Channel should be used at the base and at the head (subject to deflection head criteria)

NB Where tiling, refer to 'Tiling section' on page 304

Design

Planning – key factors

GypWall ROBUST comprises Gypframe 'C' Studs installed at 600mm centres within Gypframe Deep Flange Floor & Ceiling Channels. The position of services and heavy fixtures should be pre-determined and their installation planned into the frame erection stage.

Fixing floor and ceiling channels

Gypframe Deep Flange Floor & Ceiling Channels must be securely fixed with a row of fixings at 600mm maximum centres. For 94mm and above, two rows of staggered fixings are required, each row at 600mm centres and each fixing 25mm in from the flange. If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channel should be used.

If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

To extend studs, overlap by 600mm (minimum) and fix together using Gyproc Waferhead Screws. Refer to GypWall CLASSIC - construction details 17, 18 and 19 on page 85.

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Refer to Building acoustics for further information.

Door openings

The designer should consider thickness tolerances of the partition types in relation to the proposed door frame detail. To satisfy BS 5234: Part 2: Part 2 requirements for Heavy and Severe Duty Rating is shown in construction detail 115. The door manufacturer should also be consulted in relation to door details.

Specialist advice should be sought from door manufacturers and Acoustic Consultants to ensure the required acoustic performance is achieved. This becomes more important as acoustic requirements increase.

Framing surround for openings

Where services such as horizontal ducts, fire dampers and access panels are required to penetrate the wall, their position should be pre-determined in order that a framed opening can be provided. The openings should be constructed using established metal stud procedures. Refer to GypWall CLASSIC - construction details 32 to 34 on page 91-92.

Cavity barriers

Minimum 12.5mm Gyproc plasterboard, screw-fixed into the web of perimeter channels or vertical studs, will provide a satisfactory closure to flame or smoke.

Control joints

Control joints may be required in the partition to relieve stresses induced by expansion and contraction of the structure. Refer to GypWall CLASSIC - construction detail 15 on page 84. They should coincide with movement joints within the surrounding structure.

Deflection heads

Partition head deflection designs may be necessary to accommodate deflections in the supporting floor. Deflection heads may also be required to the underside of roof structures subjected to positive and negative pressures. Refer to GypWall CLASSIC - construction details 21 to 25 on page 86. When ceilings are not present to one or both sides of the partition, consideration should be given to the potential loss of acoustic performance. Refer to Building acoustics for further information.

Services

Penetrations

Penetrations of fire-resistant or sound-insulating constructions for services need careful consideration to ensure that the performance of the element is not downgraded. Consideration also needs to be given to the services themselves so they do not act as the mechanism of fire spread or sound transmission. Refer to Service installations for further information.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard. The service cut-outs in the studs can be used for routing electrical and other small services. Refer to GypWall CLASSIC - construction detail 1 on page 82. Cables should be protected by conduit, or other suitable precautions taken to prevent abrasion when they pass through the metal frame. Service cut-outs should be aligned to allow easy installation of service. If studs require cutting, cut from the same end of each stud to ensure cut-out alignment. Switch boxes and socket outlets can be supported from Gypframe 103 FC 50 Fixing Channel fixed horizontally between studs, or a high performance socket box detail can be used where higher acoustic performance is required.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through a GypWall partition, consideration should be given to the size and weight of the damper - this will determine whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to GypWall CLASSIC - construction details 32 and 33 on page 91.

Design (continued)

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Medium weight fixtures can be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured by Gypframe Service Support Plates. Refer to Service installations for further information. Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Access for maintenance

Suitable access panels (by others) must be used to provide access for maintenance. Access panels must be fully compatible with drywall construction and match the fire rating of the partition.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC fibre cement board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

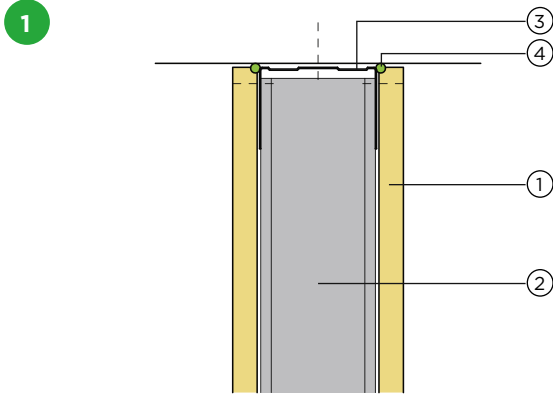
Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables from page 110-111 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example SoundBloc Activ'Air.

Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

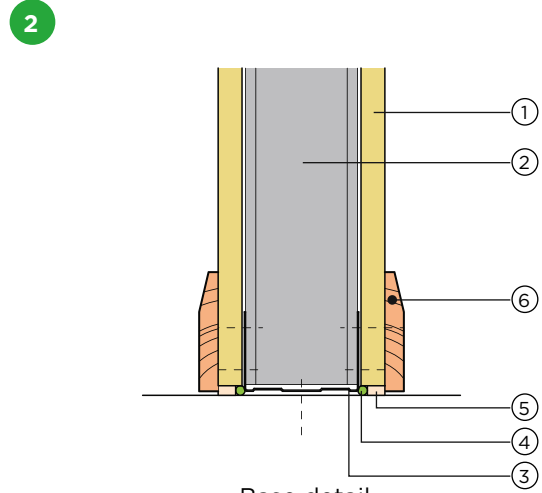
Construction details

For GypWall construction details, refer to the construction details shown on pages 114 to 116. For more typical or example details, please contact the Gyproc Technical Team.

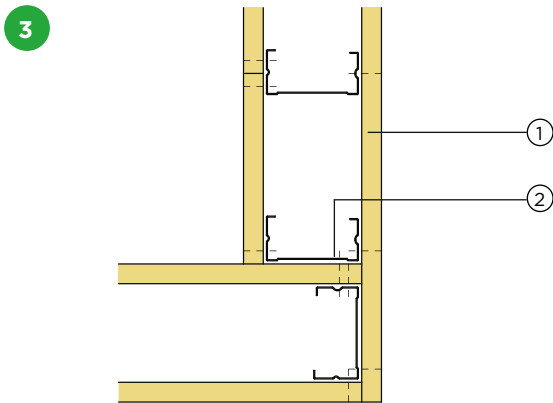
Construction details



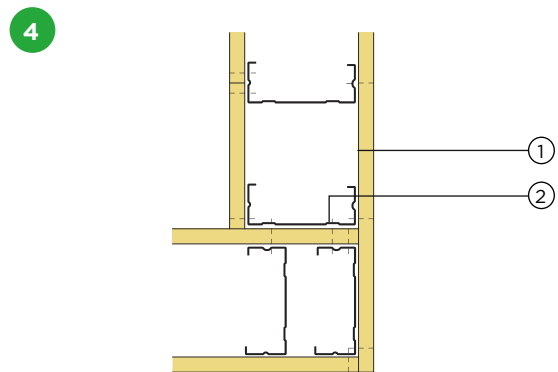
Head detail



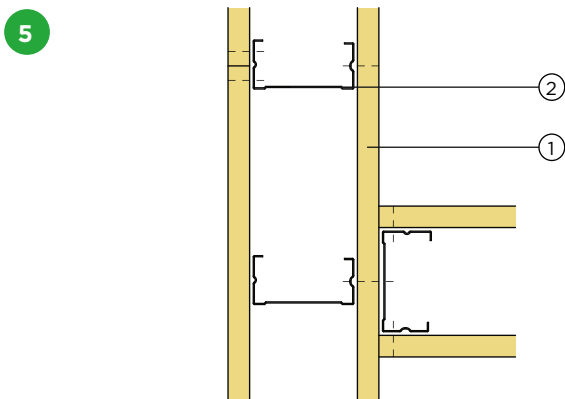
Base detail



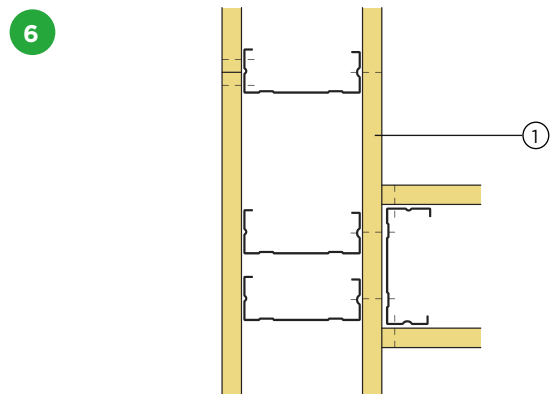
Corner detail for 70mm stud



Corner detail for 92mm stud



'T' junction detail for 70mm stud



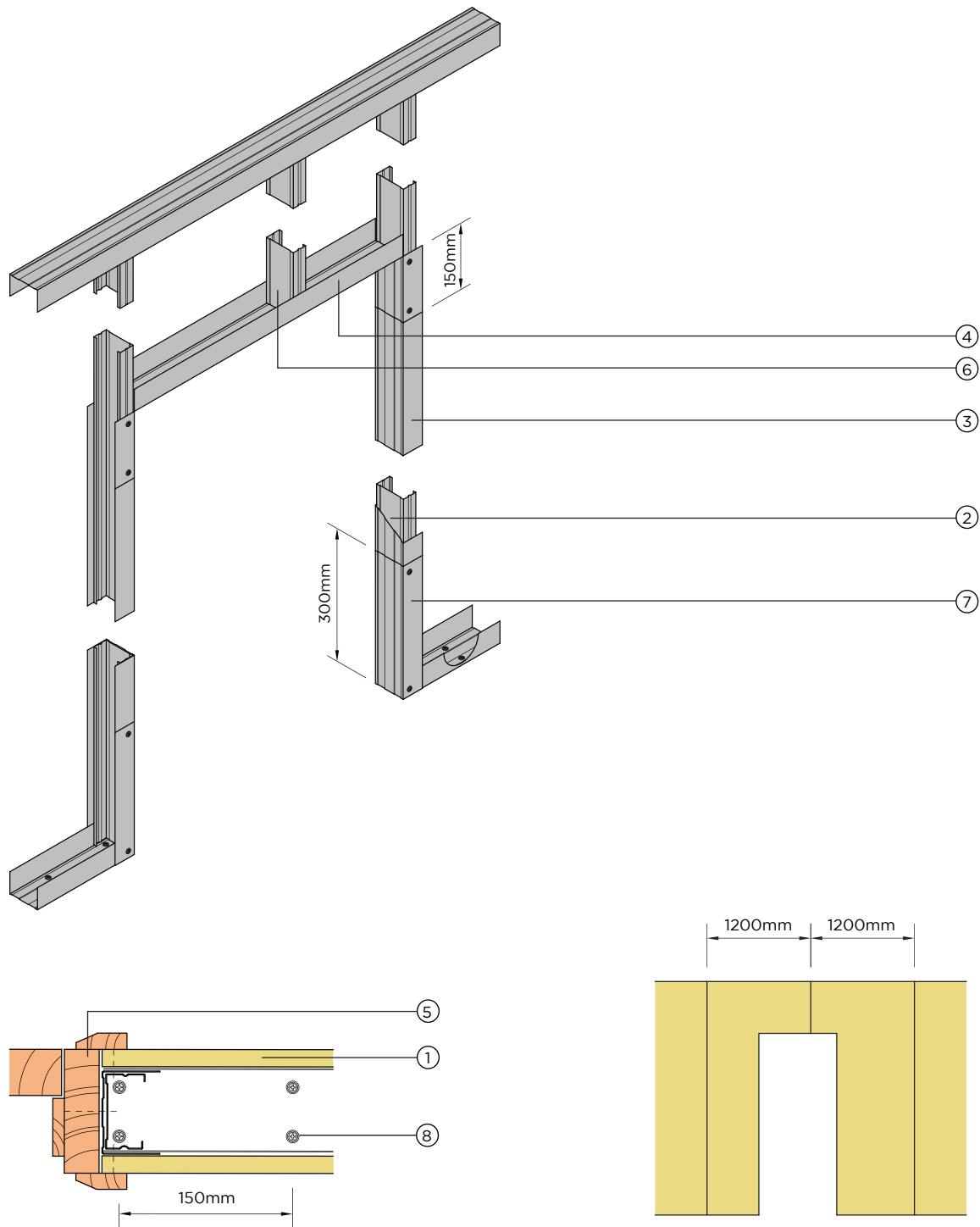
'T' junction detail for 92mm stud

1. Gyproc DuraLine
2. Gypframe 'C' Stud
3. Gypframe Deep Flange Floor & Ceiling Channels

4. Gyproc Sealant
5. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)
6. Skirting

Construction details

7



Door frame to satisfy BS 5234: Parts 1 & 2: 1992 - Heavy and Severe Duty. Suitable for door weights up to 60kg. For door weights in excess of 60kg, please contact Gyproc Technical Team.

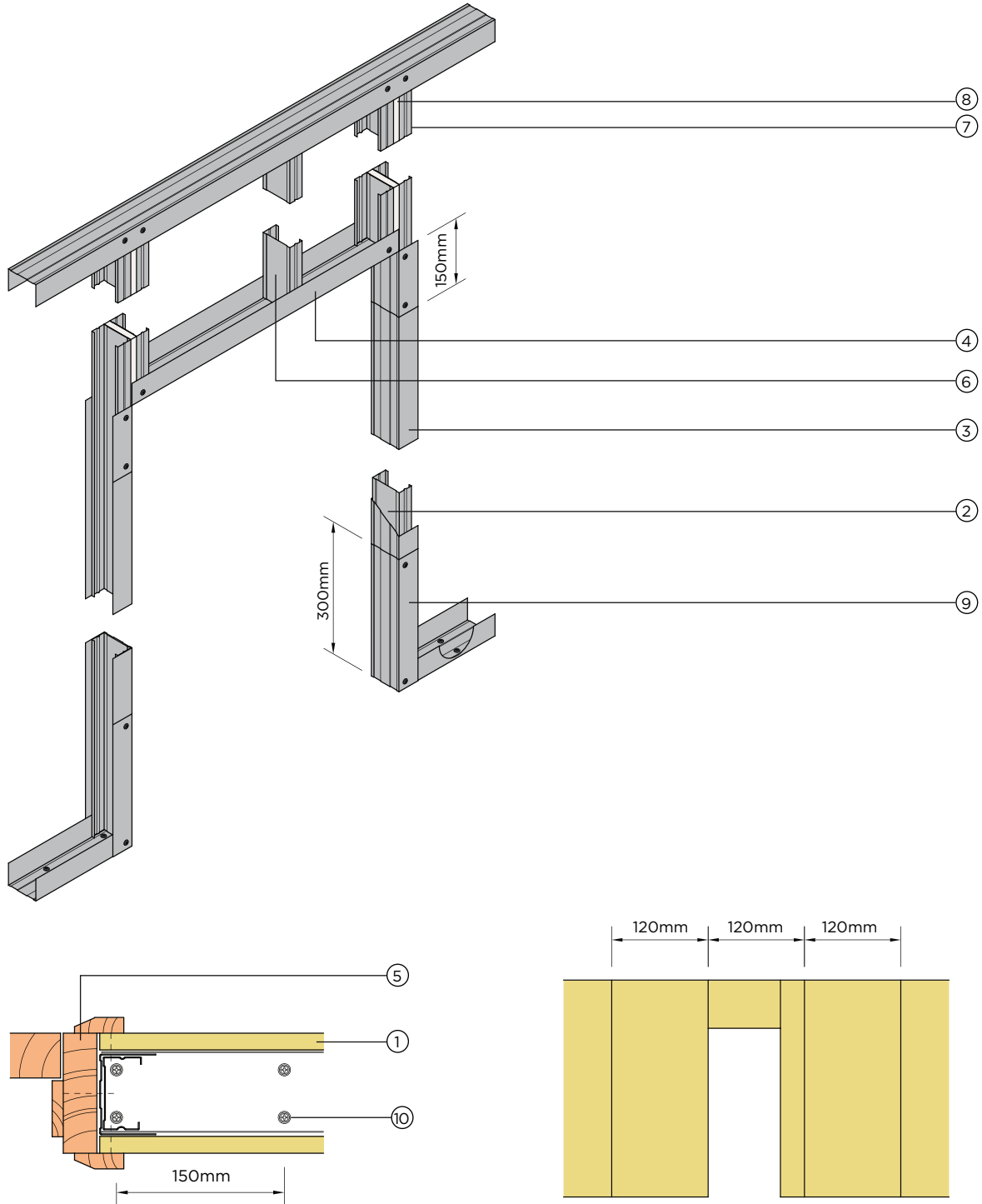
- | | |
|---|---|
| 1. Gyproc DuraLine | 5. Timber door frame and architrave |
| 2. Gypframe 'C' Stud | 6. Gypframe 'C' Stud to maintain stud module |
| 3. Gypframe Deep Flange Floor & Ceiling Channels to sleeve studs | 7. Gypframe Deep Flange Floor & Ceiling Channels cut and bent to extend up studs |
| 4. Gypframe Deep Flange Floor & Ceiling Channels cut and bent to form door head | 8. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions |

NB Advice should be sought from the door manufacturer prior to the construction of these details.

NB At the base, the channel is cut and bent to extend 300mm up the studs and fixed each side with two Gyproc Waferhead Screws.

Construction details

8



Alternative 'reduced plasterboard waste' door frame detail to satisfy BS 5324: Parts 1 & 2: 1992 - Heavy and Severe Duty. Suitable for door weights up to 60kg. For door weights above 60kg, please contact Gyproc Technical Team.

- | | |
|--|---|
| <ul style="list-style-type: none"> 1. Gyproc DuraLine 2. Gypframe 'C' Stud 3. Gypframe Deep Flange Floor & Ceiling Channels to sleeve studs 4. Gypframe Deep Flange Floor & Ceiling Channels cut and bent to form door head 5. Timber door frame and architrave 6. Gypframe 'C' Stud to maintain stud module | <ul style="list-style-type: none"> 7. Gypframe 'C' Studs fixed back to back with Gyproc Drywall Screws at 300mm centres staggered 8. Plasterboard infill (same type as lining) cut to fit between studs 9. Gypframe Deep Flange Floor & Ceiling Channels cut and bent to extend up studs 10. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions |
|--|---|

NB Advice should be sought from the door manufacturer prior to the construction of these details.

NB The principle of this reduced plasterboard waste door detail is only suitable for GypWall CLASSIC and GypWall ROBUST for fixed head situations only.

NB At the base, the channel is cut and bent to extend 300mm up the studs and fixed each side with two Gyproc Waferhead Drywall Screws..

Notes

GypWall™

HABITO

High strength partition systems with superior fixing capability



GypWall HABITO

GypWall HABITO offers complete freedom when it comes to adding fixtures to a partition. With high levels of impact resistance, durability and general robustness, GypWall HABITO gives superior performance over standard partitions. GypWall HABITO is based upon GypWall CLASSIC, but is also applied to other GypWall systems shown in this section, giving superior fixing capability with improved fire and acoustic performance and increased heights.



45 - 120 mins



36 - 62 R_w dB



37 - 63 STC dB

Key Benefits



Better acoustics



Fix anywhere without the need for additional plastering



Incredibly strong



Increased heights using Gyproc Habito plasterboard



Attack resistance



Reduced maintenance cycles due to a highly impact board surface



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe 'C' Studs

(50 S 50, 70 S 50, 92 S 50, 100 S 50, 150 S 50)

Vertical stud providing acoustic and structural performances designed to receive fixing of board to both sides



Gypframe 'I' Studs

(70 I 70, 100 I 80, 150 I 90)

Enhanced strength stud that allows for increased partition height, designed to receive fixing of board



Gypframe AcouStud

(70 AS 50, 92 AS 50)

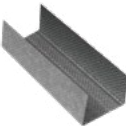
Vertical stud providing enhanced acoustic and structural performances designed to receive fixing of board to both sides



Gypframe Standard Floor & Ceiling Channels

(52 C 50, 72 C 50, 94 C 50, 102 C 50, 152 C 50)

Standard floor and ceiling channels for retaining Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe Deep Flange Floor & Ceiling Channels

(52 DC 60, 72 DC 60, 94 DC 60, 102 DC 60, 152 DC 60)

Floor and ceiling channels with deep flanges for retaining Gypframe studs at floor and ceiling junctions for partitions 4200mm to 8000mm high. Also used around openings and in deflection heads (maximum 30mm deflection)



Gypframe Extra Deep Flange Floor & Ceiling Channels

(52 EDC 80, 72 EDC 80, 94 EDC 80, 102 EDC 80, 152 EDC 80)

Floor and ceiling channels with extra deep flanges for retaining Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



Gypframe 103 FC 50 Fixing Channel

A versatile metal fixing channel used to support medium weight fixtures on walls



Gypframe 103 FC 90 Fixing Channel

A versatile metal fixing channel used to support heavy weight fixtures on walls



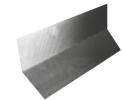
Gypframe GFS1 Fixing Strap

Used to support horizontal board joints and within deflection head details



Gypframe GA4 Steel Angle

Widely used in framed construction to provide support, fixing and additional strength to penetrations. Also used as an angle to improve the fire and acoustic performance at deflection heads



Gypframe GA6 Splayed Angle

Steel angle providing framing stability and board support



Gypframe Service Support Plate

For installation of 18mm plywood within a partition cavity to support medium to heavyweight fixtures

System components (continued)

Board products



Gyproc Regular^{1, 2, 3}
(12.5, 15mm)
Standard gypsum plasterboard



Gyproc SoundBloc^{1, 2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Gyproc FireStop^{1, 2, 3}
(12.5, 15mm)
Gypsum plasterboard with fire resistant additives



Gyproc Habito²
(12.5, 15mm)
Next generation plasterboard which consists of a specially reinforced gypsum core designed for high strength and fixing capability

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



Fixing products



Gyproc Habito Screws
Corrosion resistant self-tapping screw with counter sunk cross heads specifically used for fixing Gyproc Habito plasterboard to 'C' Stud and 'I' Stud



Gyproc Waferhead Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Drywall Screws
Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Wedge Anchor
Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Waferhead Screws
Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Hammer Fix
Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry



Gyproc Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs

System components (continued)

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance

Corners



Habito Flex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco Acoustic Partition Roll (APR) (25, 50, 75 and 100mm)*

Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³



KIMMCO ISOVER Stone mineral wool (50 and 70mm)*

For fire stopping, where required

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



Gypframe Floor & Ceiling channels are fixed to the concrete substrate using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems).



Gypframe 'C' Studs are suitably fixed to abutments. Gypframe 'C' Studs are fitted vertically to a friction fit within the channel sections to form the framework. Studs are fitted to all face the same way.



The perimeter of the metal framework is then sealed with Gyproc Sealant for optimum sound insulation performance.



ISOVER Eco APR is added to the partition cavity for increased acoustic performance.



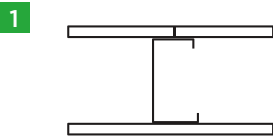
Score and Snap

Gyproc Habito board is cut to length by first marking then scoring a line on the face side of the board with a straight edge and a construction use knife. Then, lift the sheet off the floor and snap Gyproc Habito board along the score line.

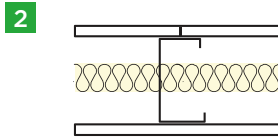


Gyproc Habito boards are screw-fixed to framing members to form the lining. Horizontal joints in face layer boards should be backed with Gypframe GFS1 Fixing Strap or stud noggings.

Table 1 – GypWall HABITO 50mm Gyframe ‘C’ Studs (50 S 50) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263



One layer of board each side of 50mm Gyframe ‘C’ Studs at 600mm centres. Linings as in table.



One layer of board each side of 50mm Gyframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

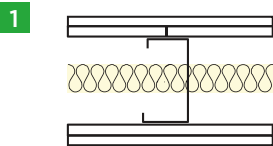
45 minutes fire resistance

1	77	Habito	1 x 12.5	3900	36	37	Severe	26
2	77	Habito	1 x 12.5	3900	43	46	Severe	26

60 minutes fire resistance

1	82	Habito	1 x 15	4200	37	38	Severe	30
2	82	Habito	1 x 15	4200	46	48	Severe	30

Table 2 – GypWall HABITO 50mm Gyframe ‘C’ Studs (50 S 50) - double layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263



Two layers of board each side of 50mm Gyframe ‘C’ Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Inner Board type	Outer Board type	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

120 minutes fire resistance

1	102	1 x 12.5 FireStop	1 x 12.5 Habito	4300	50	52	Severe	48
---	-----	-------------------	-----------------	------	----	----	--------	----

¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gyframe ‘I’ Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

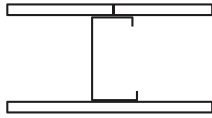
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company’s fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gyframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to ‘Tiling section’ on page 304

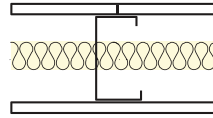
Table 3 - GypWall HABITO 70mm Gypframe 'C' Studs (70 S 50) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



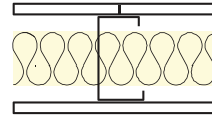
One layer of board each side of 70mm Gypframe 'C' Studs at 600mm centres. Linings as in table.

2



One layer of board each side of 70mm Gypframe 'C' Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

3



One layer of board each side of 70mm Gypframe 'C' Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

45 minutes fire resistance

1	97	Habito	1 x 12.5	4700	39	40	Severe	26
2	97	Habito	1 x 12.5	4700	45	47	Severe	27
3	97	Habito	1 x 12.5	4700	48	50	Severe	27

60 minutes fire resistance

1	102	Habito	1 x 15	4800	40	41	Severe	30
2	102	Habito	1 x 15	4800	45	46	Severe	31
3	102	Habito	1 x 15	4800	48	49	Severe	31

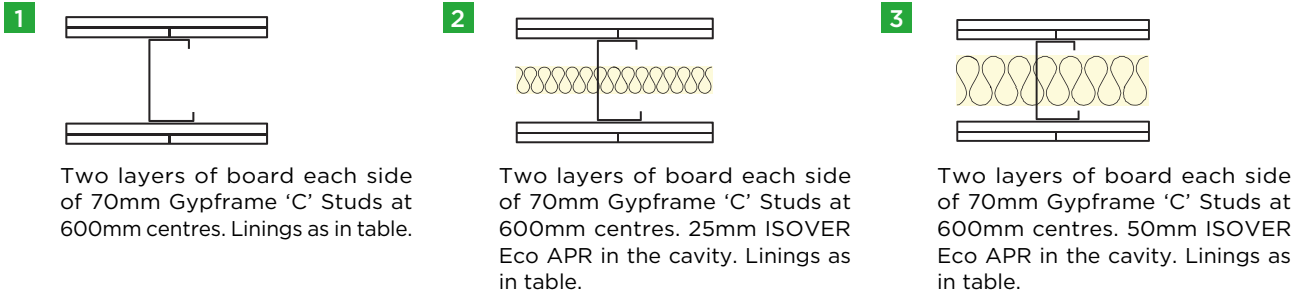
¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

Table 4 - GypWall HABITO 70mm Gypframe 'C' Studs (70 S 50) - double layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263



Detail	Partition thickness mm	Inner Board type mm	Outer Board type mm	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		
60 minutes fire resistance								
1	122	1 x 12.5 Regular	1 x 12.5 Habito	5100	46	47	Severe	43
3	122	1 x 12.5 Regular	1 x 12.5 Habito	5100	54	55	Severe	44
90 minutes fire resistance								
2	132	1 x 15 Regular	1 x 15 Habito	5400	56	58	Severe	53
120 minutes fire resistance								
1	122	1 x 12.5 FireStop	1 x 12.5 Habito	5100	46	47	Severe	45
1	122	1 x 12.5 Habito	1 x 12.5 Habito	6200	48	47	Severe	50
3	122	1 x 12.5 FireStop	1 x 12.5 Habito	5100	53	55	Severe	46
3	122	1 x 12.5 Habito	1 x 12.5 Habito	6200	54	55	Severe	51
2	132	1 x 15 FireStop	1 x 15 Habito	5400	56	57	Severe	54

¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

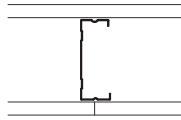
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

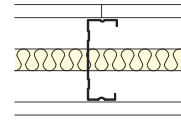
Table 5 - GypWall HABITO 92mm Gypframe 'C' Studs (92 S 50) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



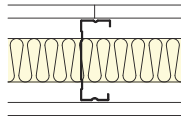
One layer of board each side of 92mm Gypframe 'C' Studs at 600mm centres. Linings as in table.

2



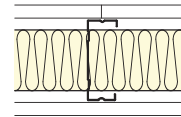
One layer of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 25mm ISOVER Eco APR in the cavity. Linings as in table.

3



One layer of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

4



One layer of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 75mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

45 minutes fire resistance

1	119	Habito	1 x 12.5	5900	41	41	Severe	26
2	119	Habito	1 x 12.5	5900	48	46	Severe	27
3	119	Habito	1 x 12.5	5900	50	47	Severe	27
4	119	Habito	1 x 12.5	5900	52	49	Severe	27

60 minutes fire resistance

1	124	Habito	1 x 15	6100	40	41	Severe	30
2	124	Habito	1 x 15	6100	48	48	Severe	31
3	124	Habito	1 x 15	6100	51	49	Severe	31
4	124	Habito	1 x 15	6100	52	51	Severe	31

¹Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

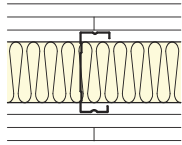
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

Table 6 - GypWall HABITO 92mm Gypframe 'C' Studs (92 S 50) - double layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



Two layers of board each side of 92mm Gypframe 'C' Studs at 600mm centres. 75mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Inner Board type mm	Outer Board type mm	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

120 minutes fire resistance

1	144	1 x 12.5 FireStop	1 x 12.5 Habito	6500	58	58	Severe	48
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¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

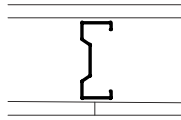
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

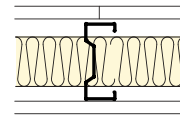
Table 7 - GypWall HABITO 92mm Gyframe AcouStuds (92 AS 50) - single layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



One layer of board each side of 92mm Gyframe AcouStuds at 600mm centres. Linings as in table.

2



One layer of board each side of 92mm Gyframe AcouStuds at 600mm centres. 75mm ISOVER Eco APR in the cavity. Linings as in table.

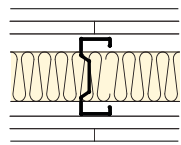
Detail	Partition thickness mm	Board type	Lining thickness mm	Maximum partition heights ¹ mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w dB	STC dB		

60 minutes fire resistance

1	124	Habito	1 x 15	6200	41	42	Severe	30
2	124	Habito	1 x 15	6200	53	51	Severe	30

Table 8 - GypWall HABITO 92mm Gyframe AcouStuds (92 AS 50) - double layer board linings. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI / UL 263

1



Two layers of board each side of 92mm Gyframe AcouStuds at 600mm centres. 75mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Inner Board type	Outer Board type	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w (R _w + C _v) dB	STC dB		

120 minutes fire resistance

1	154	1 x 15 SoundBloc	1 x 15 Habito	6800	62 (53)	60	Severe	58
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¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gyframe 'I' Studs, or reduced stud centres. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gyframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

GypWall HABITO – Extended applications

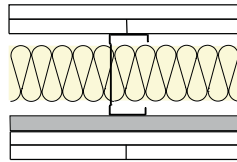
Where other GypWall systems are specified, and an improved level of fixing capability is required along with improved fire & acoustic performance, or increased heights are required, Gyproc Habito board may be used as an outer (or inner) lining board in lieu of the specified board type whilst still achieving the same, or increased levels of performance. The following pages provide details of this performance for both GypWall QUIET SF and GypWall QUIET systems lined with Gyproc Habito.

Note that at the time of writing, Gyproc Habito MR or M2TECH is not available. Where improved fixability is required and Gyproc Habito is preferred, then Habito may be used as the inner layer board keeping the specified MR or M2TECH grade board lining as the outer layer ensuring the specified moisture / mold & moisture performance of the partition is maintained.

For guidance on design considerations for these individual systems, please refer to the appropriate design section of relevant system type in this White Book.

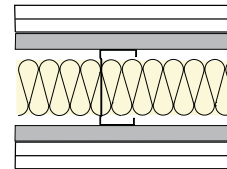
Table 9 - GypWall HABITO QUIET SF 70mm Gypframe 'C' Studs (70 S 50). Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI/UL 263

1



Two layers of board each side of 70mm Gypframe 'C' Studs at 600mm centres with Gypframe RB1 Resilient Bar at 600mm centres to one side. 50mm ISOVER Eco APR in the cavity. Linings as in table.

2



Two layers of board each side of 70mm Gypframe 'C' Studs at 600mm centres with Gypframe RB1 Resilient Bar at 600mm centres to both sides. 50mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Inner Board type mm	Outer Board type mm	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w (R _w +Ctr) dB	STC dB		

120 minutes fire resistance

1	138	1 x 12.5 FireStop	1 x 12.5 Habito	4400	59 (48)	60	Severe	52
2	154	1 x 12.5 FireStop	1 x 12.5 Habito	3800	61 (50)	62	Severe	52

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

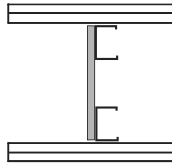
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

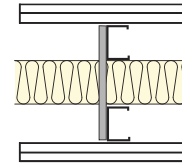
Table 10 - GypWall HABITO QUIET 50mm Gypframe 'C' Studs (50 S 50) with cross braces. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119, ANSI / UL 263

1



Two Gypframe 'C' Stud frameworks braced at max. 1200mm centres. Studs at 600mm centres. Linings as in table.

2



Two Gypframe 'C' Stud frameworks braced at max. 1200mm centres. Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Inner Board type mm	Outer Board type mm	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w (R _w +Ctr) dB	STC dB		

120 minutes fire resistance

1	200	1 x 12.5 FireStop	1 x 15 Habito	9000	51 (43)	51	Severe	50
2	200	1 x 12.5 FireStop	1 x 15 Habito	9000	61 (49)	63	Severe	50
2	200	1 x 15 SoundBloc	1 x 15 Habito	9400	61 (50)	63	Severe	58

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs. Refer to **Technical performance and principles of system design - Robustness** section for increased heights.

² Increasing cavity width improves acoustic performance, especially at low frequencies (R_w + C_{tr})

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm Gypframe Deep Channel should be used at the head and base. For heights in excess of 8000mm Gypframe Extra Deep Channel should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304






Fixing Capability



Direct Fixing in Gyproc Habito boards:

Partitions can be made future proof by using Gyproc Habito boards. You can now fix heavy items directly into the board without using any specialist fixings or support. Gyproc Habito makes fixing cupboards, TV's, hospital screens, equipment and everyday objects like fire extinguishers, frames, curtain poles etc., very simple and secure.

Table 11 - Example fixing devices and typical safe working loads on Gyproc partitions, lining and ceiling Tab incorporating Habito

Fixing Type			Habito Layers	Typical SWL ¹ (typical failure load)
Detail	Description	Size		
	Woodscrew	No. 10 (5mm)	1 x 12.5mm	30kg (60kg) ²
			2 x 12.5mm	80kg (160kg) ²
	Steel expanding cavity fixing	M5 x 37	1 x 12.5mm	55kg (110kg)
		M5 x 65	2 x 12.5mm	60kg (120kg)
		M6 x 37	1 x 12.5mm	65kg (130kg)
		M6 x 65	1 x 12.5mm	65kg (130kg)

¹Safe Working Load (SWL) - a safety factor of 2 has been used

²A standard 5mm, single thread, No. 10 Woodscrew should be used. Other types of woodscrews can affect the safe working load.

NB The distance between screws used to support fixtures, as shown in this table, should be a minimum of 15mm apart. Fixings closer than this have poorer performance due to a breakdown of the plasterboard core.












NB Fixing screws can be taken out and then screwed back into the same hole without a decrease in pull out performance. This is because when first screwed in a thread is formed within the gypsum core. Re-inserting the screw uses the same thread and provides the same level of screw pull out performance up to a maximum of three times.

NB For GypWall QUIET SF, ensure that fixings do not bridge the Gypframe RB1 Resilient Bars, otherwise the acoustic performance will be compromised.

NB For technical assistance on above fixings please contact the fixings manufacturer. The suitability of the fixing must be confirmed by the building designer / fixing manufacturer.

NB The information within table 11 does not take into consideration any additional forces that may be applied, whether it be accidental, abusive or otherwise. The example fixing devices, typical safe working loads and typical failure loads given in table 11 relate to the installation of single fixtures. It is important to ensure that the drylining system specified is capable of supporting the loads, particularly if installing multiple fixtures. Furthermore, it may be necessary to incorporate several fixings per fixture to ensure the weight is distributed across the drylining system rather than a point load, particularly for medium to heavy fixtures.

Table 12 - Types of load applied to Gyproc partitions, lining and ceiling systems

Type of Load	Examples	Can Habito be used?
 Static Load/Dead Load	Any load that remains constant once imposed on the wall  	 Habito can be used for these types of load
 Cyclic Load	Any load that is gradually imposed and reduced  	 Habito can be used for these types of load
 Live Load/Dynamic Load	Any load that is imposed through human interaction  	We recommend the use of a secondary structure to support live loads

Design

Planning – key factors

GypWall HABITO follows Gyproc’s standard partition layouts but lines them with a unique plasterboard product which is designed to offer ultimate performance in fixability, impact resistance, fire and acoustic performance.

For guidance on design considerations for these individual systems, please refer to the appropriate design section of relevant system type in this White Book.

The following design guidance is specific to these systems lined with Gyproc Habito.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc Habito. Refer to Tiling on page 304 for further information.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables from page 124-131 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC’s) such as formaldehyde, from the atmosphere. Where additional protection against VOC’s is required, then Activ’Air versions of the boards listed in these pages should be specified – for example Gyproc Habito Activ’Air.

Using Activ’Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Fixtures

Due to the unique composition and inherent strength of Gyproc Habito, fixings can be made directly to the board. The patented reinforced core provides a high resistance against screw pull-out, and resists multiple fix and re-fix actions. Tests show that the same screw can be re-fixed into the same location seven times without adversely affecting the pull-out strength of the board as listed in the table below. In addition, fixings have been tested against screw pull-out as close as 15mm to an adjacent fixing under load.

GypWall HABITO has been designed to support the simple fixing of medium and heavy weight items such as shelves, cupboards, tv’s, fire extinguishers, curtain poles etc. without pre-planning at design stage where specialist metal fixing channels or plywood pattressing is normally required.

This means that new layouts can be created, or existing layouts changed, simply and safely using a normal screwdriver and a simple no. 10 wood screw. There is no requirement for support battens or special fixings and no need for pre-drilling in to masonry providing additional flexibility and design freedom in room set-up and layout, and helping to ensure that future fixing needs are accommodated.

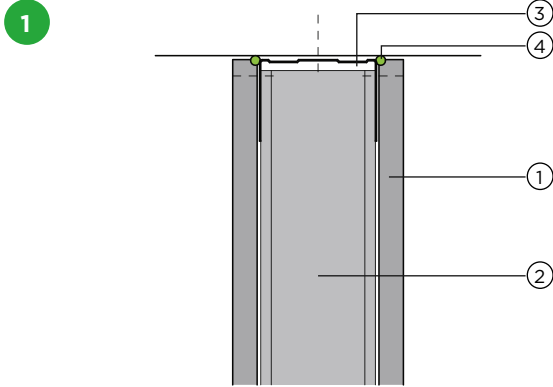
Refer to table 11 and 12 for guidance on the type and weight of fixtures that can be directly fixed to GypWall HABITO.

Refer to Service installations for further information.

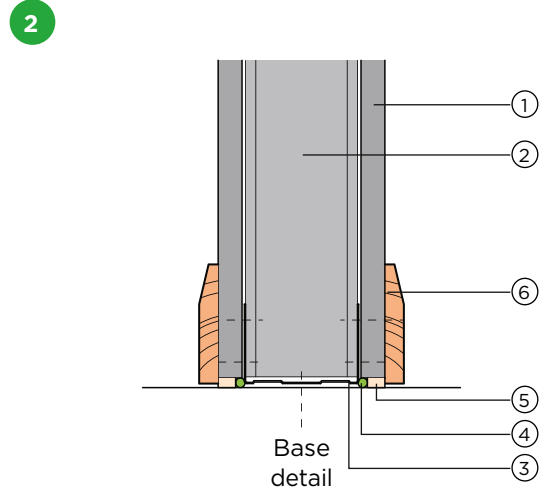
Construction details

For GypWall HABITO construction details, refer to the construction details shown on page 134. For additional construction details, refer to GypWall CLASSIC, QUIET SF and QUIET sections of this White Book. For further typical or example details, please contact the Gyproc Technical Team.

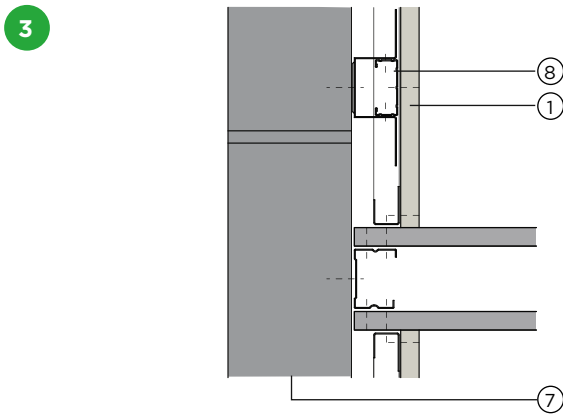
Construction details - Single stud



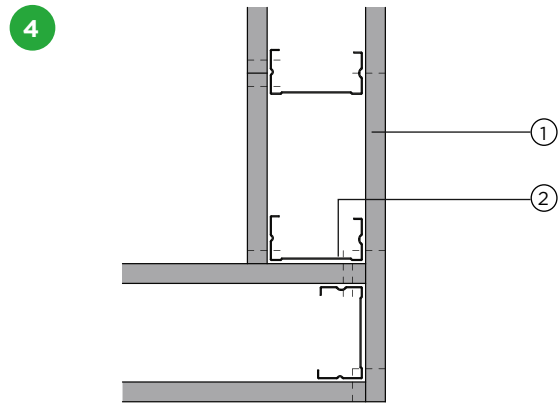
Head detail



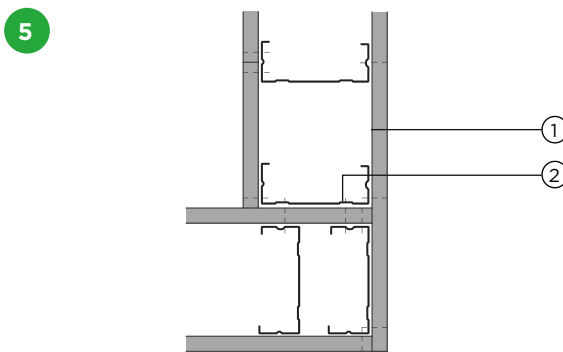
Base detail



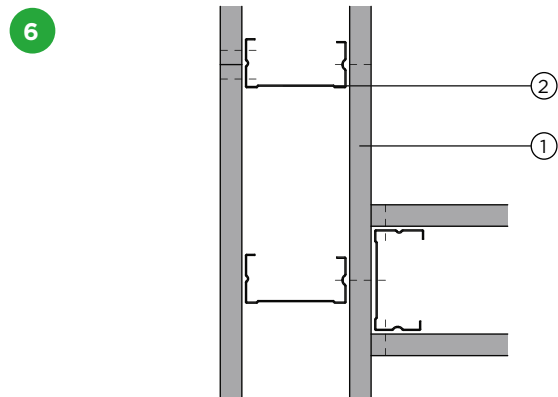
Junction detail with masonry and stop end detail



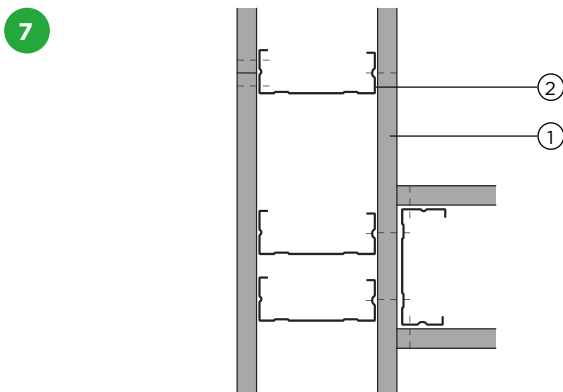
Corner detail for 70mm stud



Corner detail for 92mm stud



'T' junction detail for 70mm stud



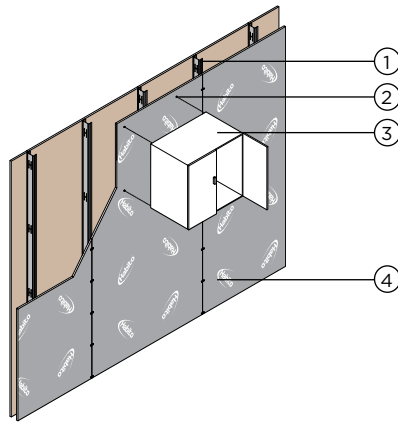
'T' junction detail for 92mm stud

1. Gyproc Habito
2. Gypframe 'C' Stud
3. Gypframe Deep Channel
4. Gyproc Sealant
5. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)
6. Skirting
7. Internal blockwork
8. GypLyner wall lining system

NB For more details refer to GypWall CLASSIC section on Page 66

Construction details - Single stud (continued)

8



Habito direct fixing detail

1. Gyproc Habito plasterboard
2. Gypframe 'C' Stud
3. No. 10 woodscrew, directly fixed to board only
4. Wall cupboard

GypWall™

QUIET SF

—

Single frame high performance acoustic separating wall system

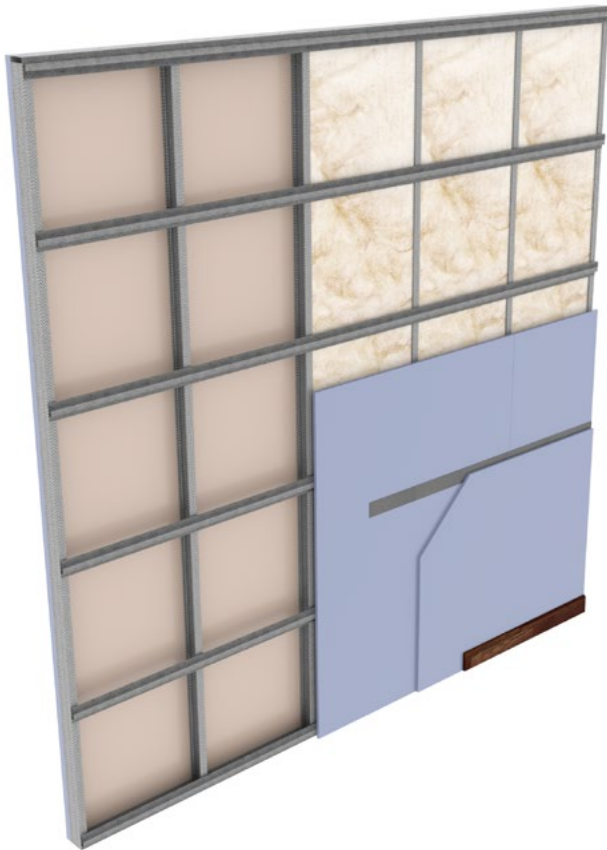


Mafraq Hospital
Abu Dhabi

GypWall QUIET SF

Part of Gyproc's QUIET range of partitioning systems, GypWall QUIET SF is a single frame lightweight, non-loadbearing partition, which provides high levels of sound insulation up to and exceeding regulatory requirements for separating walls.

GypWall QUIET SF offers high levels of acoustic performance within a narrow footprint. This makes it the ideal solution for a wide range of buildings where it is important to provide occupants with a comfortable acoustic environment, whilst at the same time maximising available floor area, for example, residential, schools and hospitals.



 **90 - 120** mins

 **60 - 64** R_w dB

 **61 - 66** STC dB

Key Benefits



Very efficient use of floor space due to a high level of acoustic performance being achieved with a minimal partition width



Reduced sound transmission is achieved through the use of Gypframe RB1 Resilient Bar to provide a high degree of isolation between the Gypframe 'C' Studs and the high performance Gyproc plasterboard lining



Uses a unique and innovative performance plasterboard designed specifically for high levels of sound insulation - Gyproc SoundBloc.



Achieves Severe Duty rating in accordance with BS 5234



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



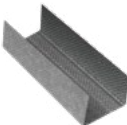
Gypframe 'C' Studs
(70 S 50, 92 S 50)
Vertical stud providing acoustic and structural performances designed to receive fixing of board after installation of Gypframe RB1 Resilient Bars



Gypframe 'I' Studs
(70 I 70, 100 I 80)
Enhanced strength stud that allows for increased partition height, designed to receive fixing of board after installation of Gypframe RB1 Resilient Bars



Gypframe Standard Floor & Ceiling Channels
(72 C 50, 94 C 50, 102 C 50)
Standard floor and ceiling channels for retaining the Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe Deep Flange Floor & Ceiling Channels
(72 DC 60, 94 DC 60, 102 DC 60)
Floor and ceiling channels with deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions 4200mm to 8000mm high. Also used around openings and in deflection heads (maximum 30mm deflection)



Gypframe Extra Deep Flange Floor & Ceiling Channels
(72 EDC 80, 94 EDC 80, 102 EDC 80)
Floor and ceiling channels with extra deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



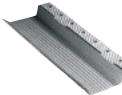
Gypframe 103 FC 50 Fixing Channel
A versatile metal fixing channel used to support medium weight fixtures on walls



Gypframe 103 FC 90 Fixing Channel
A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe GFS1 Fixing Strap
Used to support horizontal board joints and within deflection head details



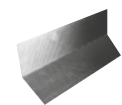
Gypframe RB1 Resilient Bar
Acoustically engineered channel to separate board fixing from the primary frame. Fixed horizontally to face of studs



Gypframe GA1 Steel Angle
Used as a fixing mechanism to hold ISOVER Eco APR insulation in place



Gypframe GA4 Steel Angle
Widely used in framed construction to provide support, fixing and additional strength to wall ceiling and encasement framing. Also used as an angle to improve the fire performance at deflection heads



Gypframe GA6 Splayed Angle
Steel angle providing framing stability and board support

Board products



Gyproc SoundBloc^{1,2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

Corners



Habito Flex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

System components (continued)

Insulation products



**ISOVER Eco
Acoustic Partition Roll (APR)**
(25, 50, 75 and 100mm)*
Non-combustible glass mineral wool
roll for sound insulation in partitions,
linings and ceiling systems

Minimum density: 16 kg/m³



**KIMMCO ISOVER
Stone mineral wool**
(50 and 70mm)*
For fire stopping, where required

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



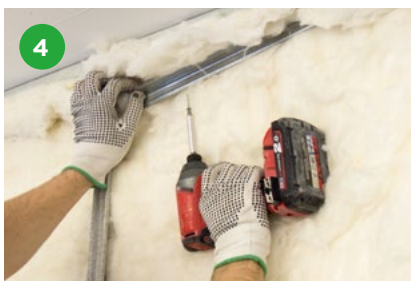
Gypframe Floor & Ceiling channels are fixed to the concrete substrate using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems). Where Gypframe RB1 Resilient Bars are used to one side only, consider the Gypframe RB1 Resilient Bar dimension of 16mm when setting out.



Gypframe 'C' Studs are suitably fixed to abutments and are fitted vertically to a friction fit within the channel sections to form the framework. Studs are fitted to all face the same way.



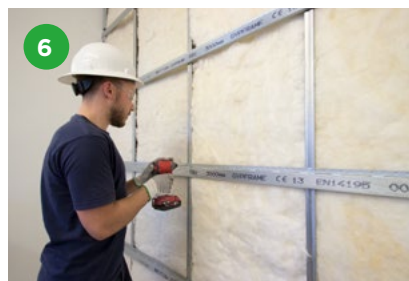
The perimeter of the metal framework is then sealed with Gyproc Sealant for optimum sound insulation performance.



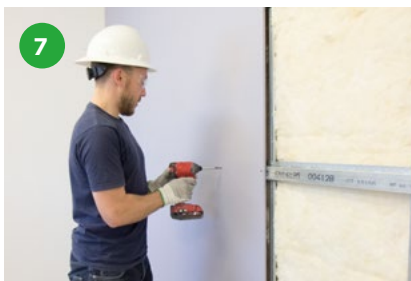
ISOVER Eco APR is added to the partition cavity.



Gypframe RB1 Resilient Bars are installed vertically to abutment and door studs to accept perimeter fixings for the Gyproc plasterboard linings.



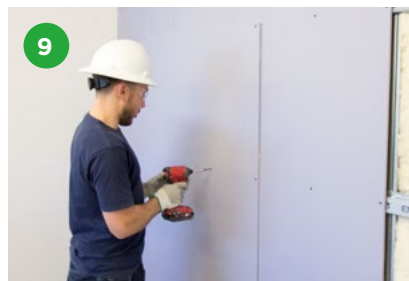
Gypframe RB1 Resilient Bars are fixed across the stud framing and are joined by nesting them together and fixing to Gypframe 'C' Studs using Gyproc Waferhead Screws. Gypframe RB1 Resilient Bars are fixed through the angled flange with the resilient section hanging downward, with the exception of the uppermost and bottommost bar, which are fixed with the resilient section pointing upwards to provide board fixing at the head and additional robustness at the base.



First layer of Gyproc plasterboard is fixed using Gyproc Drywall Screws to Gypframe RB1 Resilient Bars or Gypframe studs.



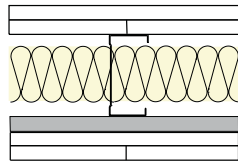
Gyproc Sealant should be applied to the perimeter of the inner layer immediately prior to fitting the face layer board on the side(s) of the partition where resilient bars are located.



The second layer of Gyproc plasterboard is fixed using Gyproc Drywall Screws to Gypframe RB1 Resilient Bars or studs with all board joints staggered.

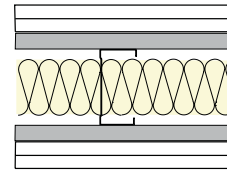
TABLE 1 - GypWall QUIET SF 70mm (70 S 50) and 92mm (92 S 50) Gypframe 'C' Studs. Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 & ANSI/UL 263

1



Two layers of board each side of Gypframe 'C' Studs at 600mm centres with Gypframe RB1 Resilient Bar at 600mm centres to one side. 50mm ISOVER Eco APR in the cavity. Linings as in table.

2



Two layers of board each side of Gypframe 'C' Studs at 600mm centres with Gypframe RB1 Resilient Bar at 600mm centres to both sides. 50mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type ²	Lining thickness mm	Maximum partition heights ¹ mm	Stud size mm	Sound insulation		Duty rating	Approx. weight kg/m ²
						R _w (R _w +Ctr) dB	STC dB		

90 minutes fire resistance

1	138	SoundBloc	2 x 12.5	4000	70	60 (47)	61	Severe	48
2	154	SoundBloc	2 x 12.5	3200	70	61 (50)	63	Severe	49
1	160	SoundBloc	2 x 12.5	5000	92	61 (49)	62	Severe	48
2	176	SoundBloc	2 x 12.5	4000	92	62 (52)	63	Severe	49

120 minutes fire resistance

1	148	SoundBloc	2 x 15	4200	70	62 (51)	64	Severe	56
2	164	SoundBloc	2 x 15	3200	70	64 (52)	65	Severe	57
1	170	SoundBloc	2 x 15	5100	92	62 (52)	61	Severe	56
2	186	SoundBloc	2 x 15	4000	92	64 (54)	66	Severe	57

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs. Refer to **Technical performance and principles of system design - Robustness**.

² The boards listed and the performances shown include MR versions.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Where tiling, refer to 'Tiling section' on page 304.

Design

Planning – key factors

GypWall QUIET SF comprises Gypframe 'C' Studs installed at 600mm centres within Gypframe Floor & Ceiling Channels and Gypframe RB1 Resilient Bars horizontally fixed to one or both sides. The position of services and heavy fixtures should be pre-determined and their installation planned into the frame erection stage.

Fixing floor and ceiling channels

Gypframe Floor & Ceiling Channels must be securely fixed with a row of fixings at 600mm maximum centres. For 94mm and above, two rows of staggered fixings are required, each row at 600mm centres and each fixing 25mm in from the flange. Be aware that if working to centre lines on a plan, GypWall QUIET SF systems incorporating Gypframe RB1 Resilient Bar to one side only are not symmetrical. If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channel should be used.

If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

To extend studs, overlap by 600mm (minimum) and fix together using Gyproc Waferhead Screws. Refer to GypWall CLASSIC - construction details 17, 18 & 19 on page 85.

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Consideration should be given to using a wider twin frame partition to fully encompass the structural steel. Refer to sections GypWall QUIET or GypWall AUDIO for details. Refer to Building acoustics for further information.

Door openings

The designer should consider thickness tolerances of the partition types in relation to the proposed door frame detail. Any openings will require very careful detailing to minimise the loss of acoustic performance of the partition. Consult with an Acoustic Consultant. Specialist heavy acoustic doorsets may require additional support. Refer to construction detail 8 within this section.

Framing surround for openings

Where services such as horizontal ducts, fire dampers and access panels are required to penetrate the wall, their position should be pre-determined in order that a framed opening can be provided. The openings should be constructed using established metal stud procedures. Refer to GypWall CLASSIC - construction details 32 to 34 on page 91-92.

Cavity barriers

Stone mineral wool (by KIMMCO ISOVER) cut neatly to fit across the cavity forms a suitable closure.

Acoustic performance

The partition achieves high levels of sound insulation by virtue of the separation between the board and the stud framing afforded by the Gypframe RB1 Resilient Bars. It is important that, when screw-fixing boards, the screws do not contact the stud framing and also that services, fixtures, etc, do not form a bridge between the lining boards on each side of the partition. For optimum performance all air paths should be sealed. Gyproc Sealant should be applied to the perimeter of the inner layer immediately prior to fitting the face layer board on the side(s) of the partition where resilient bars are located.

Deflection heads

Partition head deflection designs may be necessary to accommodate deflections in the supporting floor. Deflection heads may also be required to the underside of roof structures subjected to positive and negative pressures. Refer to construction detail 3. When ceilings are not present to one or both sides of the partition, consideration should be given to the potential loss of acoustic performance. Refer to Building acoustics for further information.

Services

Penetrations

Penetrations of fire-resistant or sound-insulating constructions for services need careful consideration to ensure that the performance of the element is not downgraded. Consideration also needs to be given to the services themselves so they do not act as the mechanism of fire spread or sound transmission. Refer to Service installations for further information.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard. The service cut-outs in the studs can be used for routing electrical and other small services. Refer to GypWall CLASSIC - construction detail 1. Cables should be protected by conduit, or other suitable precautions taken to prevent abrasion when they pass through the metal frame. Service cut-outs should be aligned to allow easy installation of service. If studs require cutting, cut from the same end of each stud to ensure cut-out alignment. Switch boxes and socket outlets can be supported from Gypframe 103 FC 50 Fixing Channel fixed horizontally between studs, or a high performance socket box detail can be used where higher acoustic performance is required.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through a GypWall partition, consideration should be given to the size and weight of the damper - this will determine whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to GypWall CLASSIC - construction details 32-33.

Design (continued)

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Medium weight fixtures can be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured by Gypframe Service Support Plates. In all instances the Gypframe Service Support Plates are fixed to the side without a Gypframe RB1 Resilient Bar.

Medium and heavy weight fixtures can only be made when the lining boards are fixed directly to the stud framing. The installation of fixings may downgrade the acoustic performance of the wall. Refer to Acoustic performance for further information.

Refer to Service installations for further information.

For alternative solutions, where fixtures are required to both sides of a partition, consider using GypWall QUIET.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

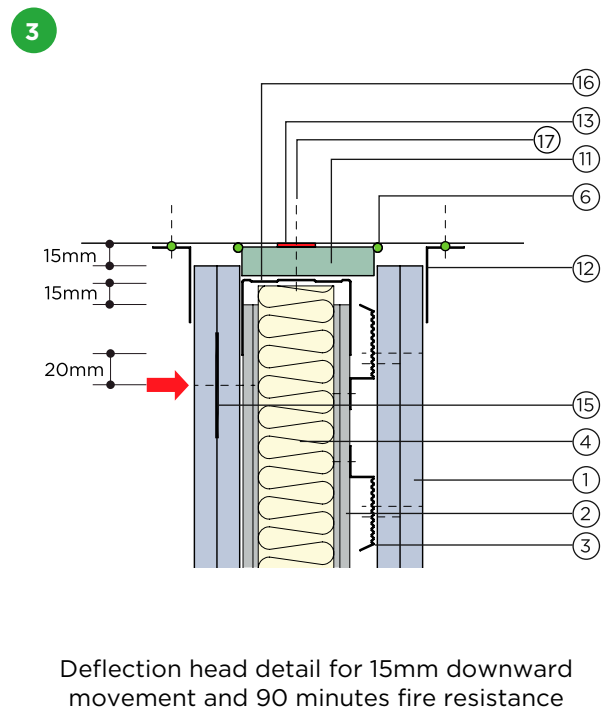
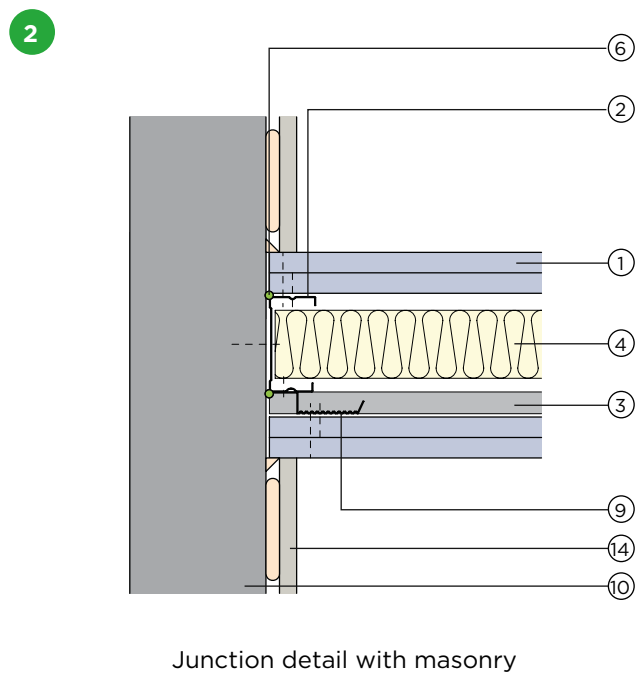
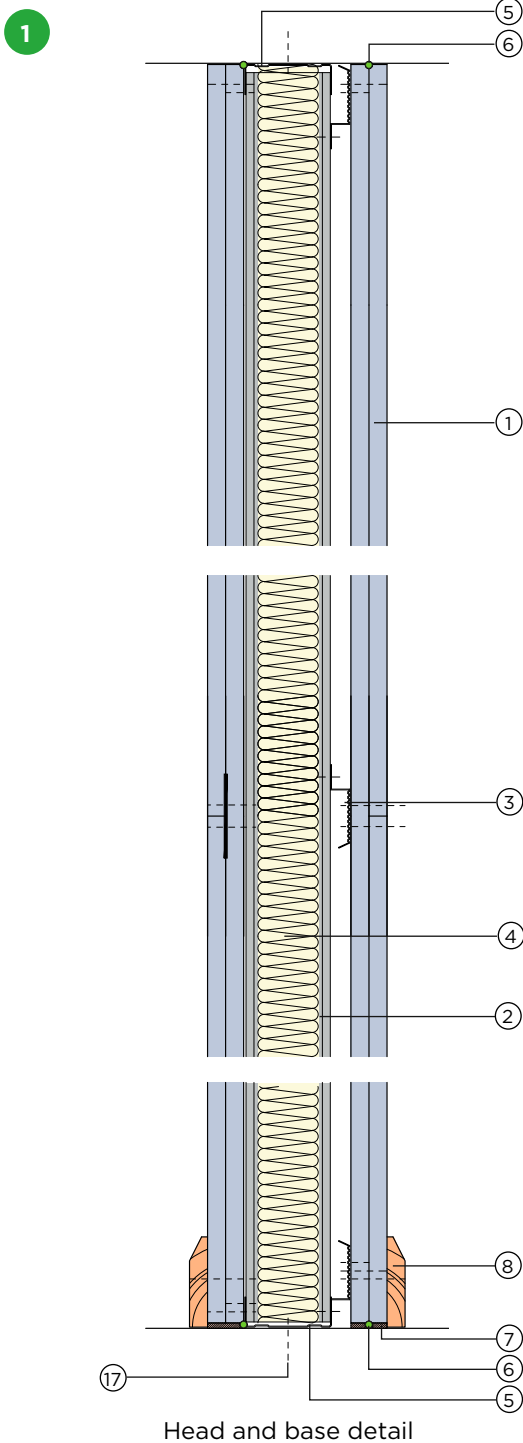
Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables on page 142 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc SoundBloc Activ'Air.

Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Construction details

For GypWall QUIET SF construction details, refer to the construction details shown on pages 145 to 147. For more typical or example details, please contact the Gyproc Technical Team.

Construction details

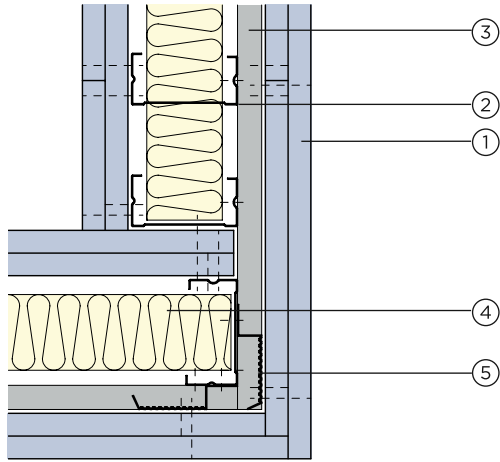


1. Gyproc SoundBloc
2. Gypframe 'C' Stud
3. Gypframe RB1 Resilient Bar
4. 50mm ISOVER Eco APR
5. Gypframe Floor & Ceiling Channel
6. Gyproc Sealant
7. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)
8. Skirting
9. Vertical Gypframe RB1 Resilient Bar noggings
10. Blockwork
11. Gyproc CoreBoard (width of Gypframe stud and Gypframe RB1 Resilient Bar)
12. Gypframe GA4 Steel Angle
13. Gyproc FireStrip
14. DriLyner BASIC wall lining system
15. Gypframe GFS1 Fixing Strap
16. Gypframe Deep Flange Floor & Ceiling Channel
17. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions

NB No fixings should be made through the boards into the flanges of the head channel. The arrow (←) denotes the position of the uppermost board fixing, which should be made into Gypframe GFS1 Fixing Strap. Where the soffit shows signs of undulation, has small gaps, cracks or holes; we recommend applying Gyproc FireStrip to maintain fire performance.

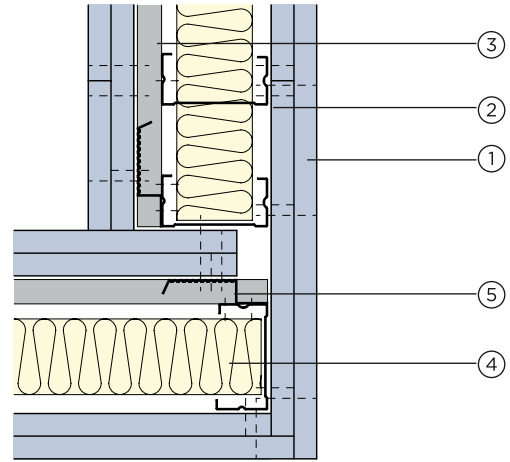
Construction details (continued)

4



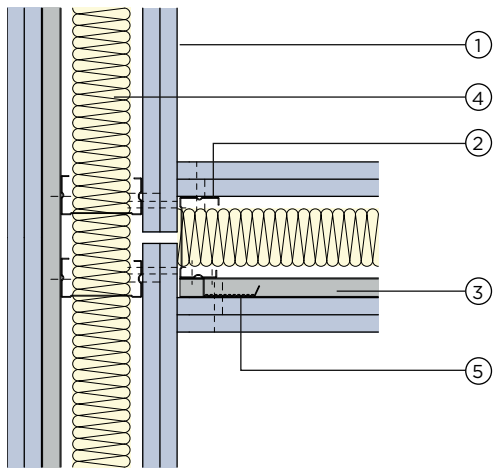
Corner detail - resilient bar to external corner

5



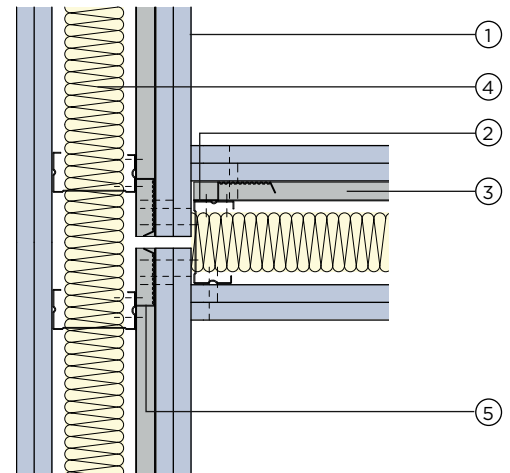
Corner detail - resilient bar to internal corner

6



'T' junction detail (resilient bar on opposite side)

7



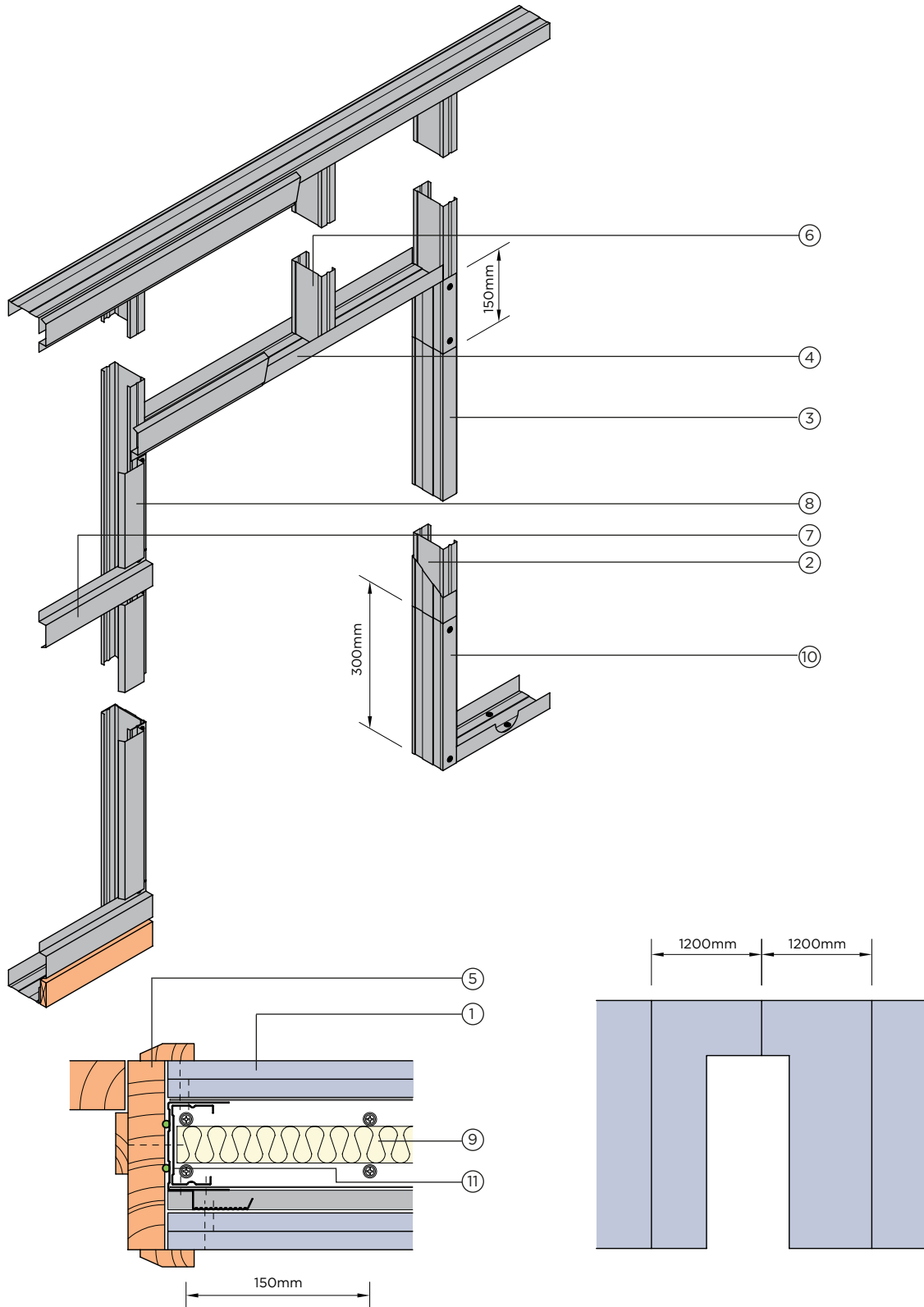
'T' junction detail (resilient bar on abutment side)

1. Gyproc SoundBloc
2. Gyproframe 'C' Stud
3. Gypframe RB1 Resilient Bar

4. 50mm ISOVER Eco APR
5. Vertical Gypframe RB1 Resilient Bar noggling

Construction details (continued)

8



Door frame to satisfy BS 5234: Parts 1 & 2: 1992 - Heavy and Severe Duty.
Suitable for door weights upto 60kg, please contact Gyproc Technical Team

- | | |
|---|---|
| 1. Gyproc SoundBloc | 7. Gyproframe RB1 Resilient Bar |
| 2. Gyproframe 'C' Stud | 8. Gyproframe RB1 Resilient Bar vertical nogging |
| 3. Gyproframe Standard Floor & Ceiling Channel | 9. 50mm ISOVER Eco APR |
| 4. Gyproframe Standard Floor & Ceiling Channel cut and bent to form door head | 10. Gyproframe Standard Floor & Ceiling Channel cut and extend up studs |
| 5. Timber door frame and architrave | 11. Gyproc Sealant |
| 6. Gyproframe 'C' Stud to maintain stud module | |

GypWall™

QUIET



Twin frame
high performance
acoustic wall system



GypWall QUIET

GypWall QUIET is a lightweight, non-loadbearing, twin framed acoustic separating wall, often used in developments such as apartments, hotels, hospitals and schools where a high level of acoustic performance is required to either meet or exceed both client and local municipality regulations.



	90 - 120	mins
	58 - 62	R _w dB
	59 - 63	STC dB

Key Benefits



Reduced sound transmission is achieved by a high degree of isolation between the two frameworks and Gyproc SoundBloc



Twin-frame design allows large services, structural steel or concrete columns & beams to easily be accommodated within the partition whilst maintaining room-to-room acoustic performance



Lightweight separating wall giving higher performance compared to blockwork



Achieves increased heights over standard partitions



Satisfies BS 5234: Part 2 requirements up to and including Severe Duty



Allows for deflection at the head



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe 'C' Studs

(50 S 50)

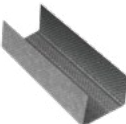
Vertical stud providing acoustic and structural performances designed to receive fixing of board



Gypframe Standard Floor & Ceiling Channels

(52 C 50)

Standard floor and ceiling channels for retaining the Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe Deep Flange Floor & Ceiling Channels

(52 DC 60)

Floor and ceiling channels with deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions 4200mm to 8000mm high. Also used around openings and in deflection heads (maximum 30mm deflection)



Gypframe Extra Deep Flange Floor & Ceiling Channels

(52 EDC 80)

Floor and ceiling channels with extra deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



Gypframe 103 FC 50

Fixing Channel

A versatile metal fixing channel used to support medium weight fixtures on walls



Gypframe 103 FC 90

Fixing Channel

A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe GFS1 Fixing Strap

Used to support horizontal board joints and within deflection head details



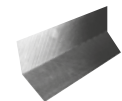
Gypframe GA1 Steel Angle

Used as a fixing mechanism to hold ISOVER Eco APR insulation in place.



Gypframe GA4 Steel Angle

Widely used in framed construction to provide support, fixing and additional strength to penetrations. Also used as an angle to improve the fire and acoustic performance at deflection heads



Gypframe GA6 Splayed Angle

Steel angle providing framing stability and board support



Gypframe Service Support Plate

For installation of 18mm plywood within a partition cavity to support medium to heavyweight fixtures

System components (continued)

Board products (continued)



Gyproc SoundBloc^{1,2}

(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Gyproc FireStop^{1,2,3}

(12.5, 15mm)
Gypsum plasterboard with fire resistant additives



Glasroc X²

(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology



Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gyproframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

System components (continued)

Corners



Habitoflex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco

Acoustic Partition Roll (APR)

(25, 50, 75 and 100mm)*
Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³



KIMMCO ISOVER

Stone mineral wool

(50 and 70mm)*
For fire stopping, where required

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



Two rows of Gypframe Floor & Ceiling channels, set out to required dimensions, ensuring a gap between channel, are fixed to the concrete substrate using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems).



Gypframe 'C' Studs are suitably fixed to abutments.



Gypframe 'C' studs are fitted vertically to a friction fit within the both channel sections to form the twin framework. Studs are fitted to all face the same way.



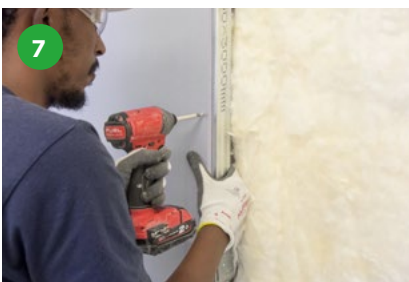
Stud pairs are braced together using appropriate lengths of Gypframe 103 FC 50 Fixing Channel. Use four Gyproc Waferhead Screws per brace, two screws per stud.



The perimeter of each frame is then sealed with Gyproc Sealant to seal airpaths and to provide optimum acoustic performance.



ISOVER Eco APR is added to the partition cavity for increased acoustic performance.



Gyproc plasterboards are fixed with Gyproc Drywall Screws to Gypframe studs. Ensure board joints are staggered between board layers.



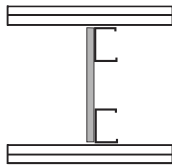
Gypframe GFS1 Fixing Strap to support horizontal board joints in the face layer board.



Boards are then taped and jointed using Gyproc Jointing Compound along with Gyproc joint tape and sanded to achieve a smooth finish.

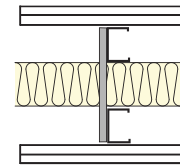
**Table 1 - GypWall QUIET 50mm Gypframe 'C' Studs (50 S 50) with cross braces.
Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119, ANSI / UL 263**

1



Two Gypframe 'C' Stud frameworks braced at max. 1200mm centres. Studs at 600mm centres. Linings as in table.

2



Two Gypframe 'C' Stud frameworks braced at max. 1200mm centres. Studs at 600mm centres. 50mm ISOVER Eco APR in the cavity. Linings as in table.

Detail	Partition thickness mm	Board type	Lining thickness mm	Maximum partition heights mm	Sound insulation		Duty rating	Approx. weight kg/m ²
					R _w (R _w +Ctr) dB	STC dB		

90 minutes fire resistance

2	200	SoundBloc	2 x 12.5	6800	60 (51)	61	Severe	48
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120 minutes fire resistance

1	200	FireStop	2 x 12.5	6800	48 (40)	48	Severe	45
2	200	FireStop	2 x 12.5	6800	58 (50)	59	Severe	45
2	200	SoundBloc	2 x 15	7500	63 (55)	63	Severe	57

¹ Based on a limiting deflection of L/240 at 200 Pa. Greater heights can be achieved through the use of Gypframe 'I' Studs. Refer to **Technical performance and principles of system design - Robustness**.

² Increasing cavity width improves acoustic performance, especially at low frequencies (R_w + C_{tr})

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channels should be used at the base and at the head (subject to deflection head criteria).

NB Where tiling, refer to 'Tiling section' on page 304

Design

Planning – key factors

GypWall QUIET comprises twin rows of Gypframe 'C' Studs installed at 600mm centres within Gypframe Floor & Ceiling Channels. For heights up to 2400mm each pair of studs must be cross braced at mid-height. Where multiple braces are required the braces must be located at 1200mm vertical centres staggered by 600mm. The position of services and heavy fixtures should be pre-determined and their installation planned into the frame erection stage.

Fixing floor and ceiling channels

Gypframe Floor & Ceiling Channels must be securely fixed with a row of fixings at 600mm maximum centres. If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channels should be used.

If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

To extend studs, overlap by 600mm (minimum) and fix together using Gyproc Waferhead Screws. Refer to GypWall CLASSIC - construction details 17, 18 & 19 on page 85.

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Refer to Building acoustics for further information.

Door openings

Any openings will require careful detailing if the acoustic performance is to be maintained. Specialist heavy acoustic door sets may require additional support.

Specialist advice should be sought from door manufacturers and Acoustic Consultants to ensure the required acoustic performance is achieved. This becomes more important as acoustic requirements increase.

Framing surround for openings

Where services such as horizontal ducts, fire dampers and access panels are required to penetrate the wall, their position should be pre-determined in order that a framed opening can be provided. The openings should be constructed using established metal stud procedures. Refer to GypWall CLASSIC - construction details 32 to 34 on page 91-92.

Cavity barriers

Stone mineral wool (by KIMMCO ISOVER) cut neatly to fit across the cavity forms a suitable closure.

Control joints

Control joints may be required in the partition to relieve stresses induced by expansion and contraction of the structure. Refer to construction detail 15. They should coincide with movement joints within the surrounding structure.

Deflection heads

Partition head deflection designs may be necessary to accommodate deflections in the supporting floor. Deflection heads may also be required to the underside of roof structures subjected to positive and negative pressures. Refer to construction details 2 and 3. When ceilings are not present to one or both sides of the partition, consideration should be given to the potential loss of acoustic performance. Refer to Building acoustics for further information.

Services

Penetrations

Penetrations of fire-resistant or sound-insulating constructions for services need careful consideration to ensure that the performance of the element is not downgraded. Consideration also needs to be given to the services themselves so they do not act as the mechanism of fire spread or sound transmission. Refer to Service installations for further information.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard. The service cut-outs in the studs can be used for routing electrical and other small services. Refer to GypWall CLASSIC - construction detail 1. Cables should be protected by conduit, or other suitable precautions taken to prevent abrasion when they pass through the metal frame. Service cut-outs should be aligned to allow easy installation of service. If studs require cutting, cut from the same end of each stud to ensure cut-out alignment. Switch boxes and socket outlets can be supported from Gypframe 103 FC 50 Fixing Channel fixed horizontally between studs, or a high performance socket box detail can be used where higher acoustic performance is required.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through a GypWall partition, consideration should be given to the size and weight of the damper - this will determine whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to GypWall CLASSIC - construction details 31-33.

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Medium weight fixtures can be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured by Gypframe Service Support Plates. Refer to Service installations for further information.

Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc habito board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Design (continued)

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

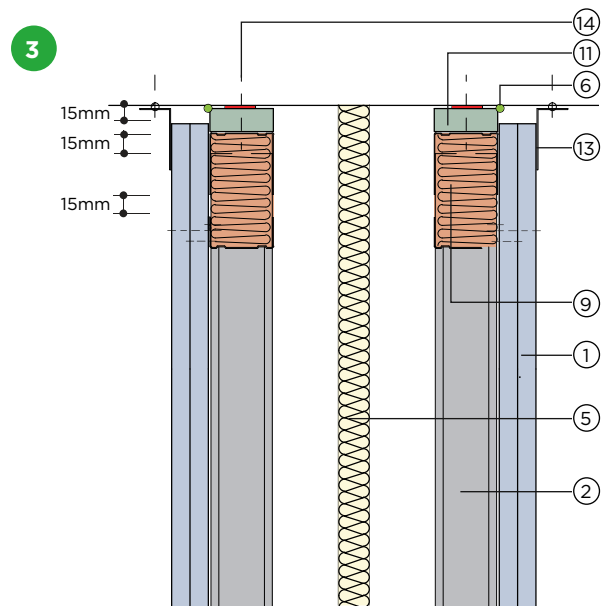
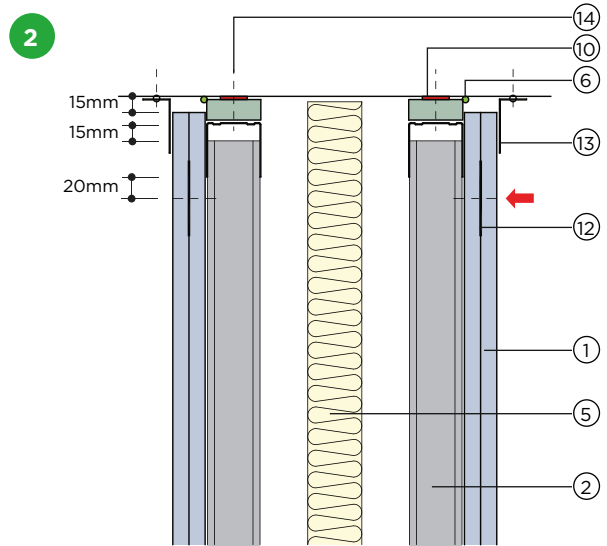
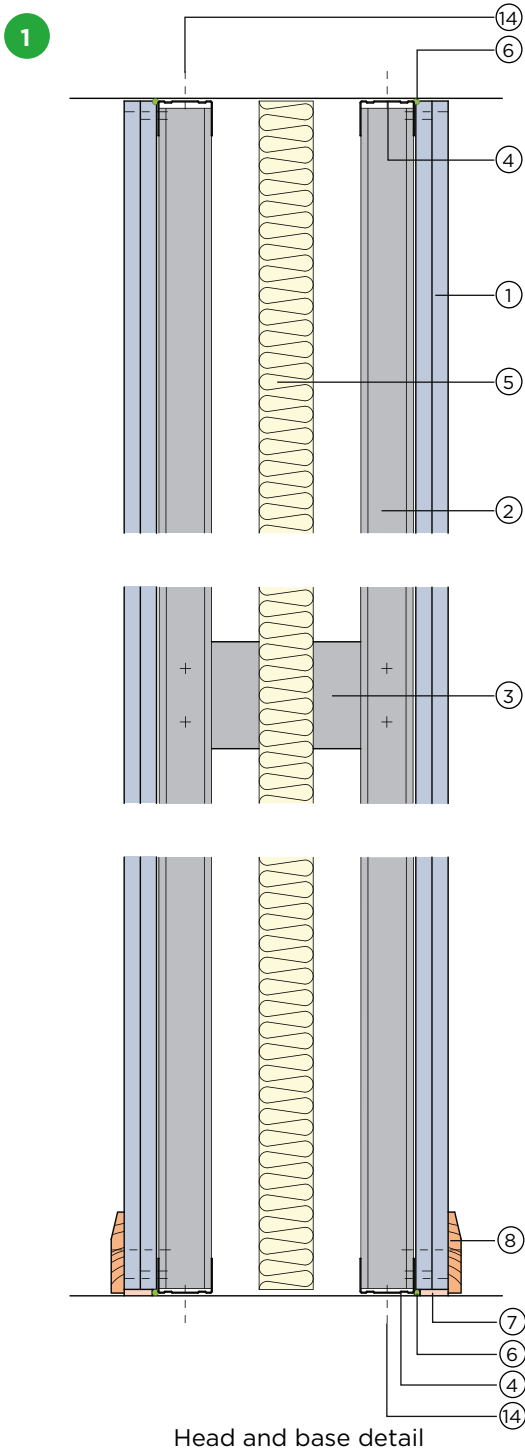
Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables on page 154 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc SoundBloc Activ'Air.

Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Construction details

For GypWall QUIET construction details, refer to the construction details shown on pages 157 to 158. For more typical or example details, please contact the Gyproc Technical Team.

Construction details



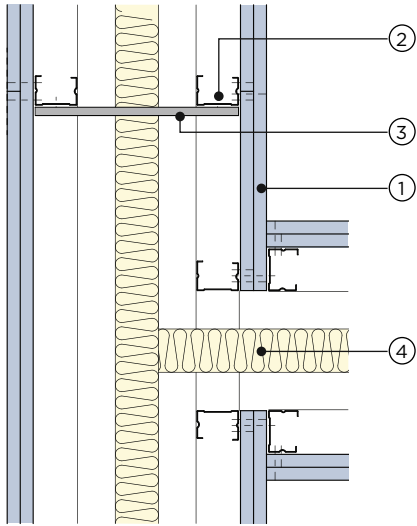
1. Gyproc SoundBloc
2. Gyproframe 'C' Stud
3. Gyproframe 103 FC 50 Fixing Channel (at 1200mm vertical centres)
4. Gyproframe floor and ceiling channel
5. ISOVER Eco APR
6. Gyproc Sealant
7. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)

8. Skirting
9. Stone mineral wool (minimum 33 kg/m³) (by KIMMCO ISOVER) retained by stud nogging
10. Gyproc FireStrip (continuous)
11. Gyproc CoreBoard
12. Gyproframe GFS1 Fixing Strap
13. Gyproframe GA4 Steel Angle where required
14. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions

NB No fixings should be made through the boards into the flanges of the head channel. The arrow (←) denotes the position of the uppermost board fixing, which should be made into Gyproframe GFS1 Fixing Strap. Gyproc FireStrip is used where the soffit shows signs of undulation or where small gaps, cracks or holes are apparent. FireStrip must be continuous to maintain fire performance. Where there is a need for a deflection head in a 90 minute wall, the 120 minute solution can be used (refer to construction detail 3) or alternatively, please contact the Gyproc Technical Team for further guidance.

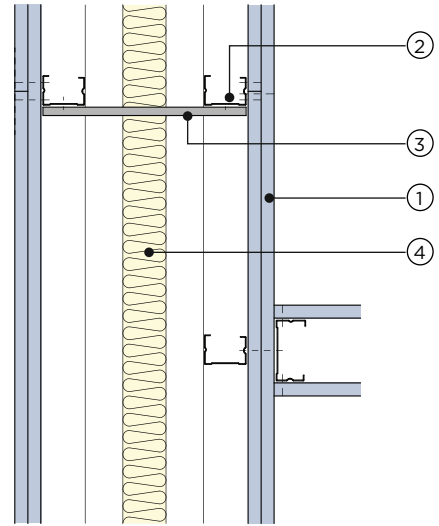
Construction details (continued)

5



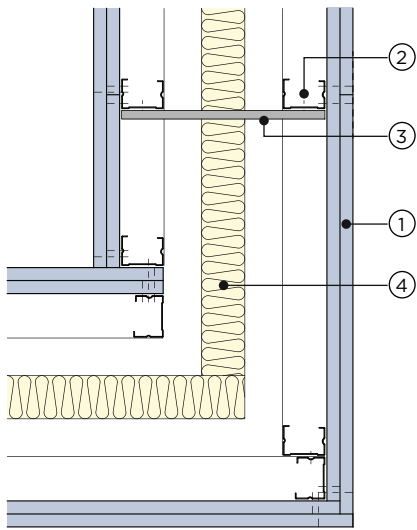
'T' junction detail

6



'T' junction detail with
GypWall CLASSIC partition

7



Internal / external corner detail

1. Gyproc SoundBloc
2. Gyframe 'C' Stud

3. Gyframe 103 FC 50 Fixing Channel
4. ISOVER Eco APR

Notes

GypWall™

AUDIO

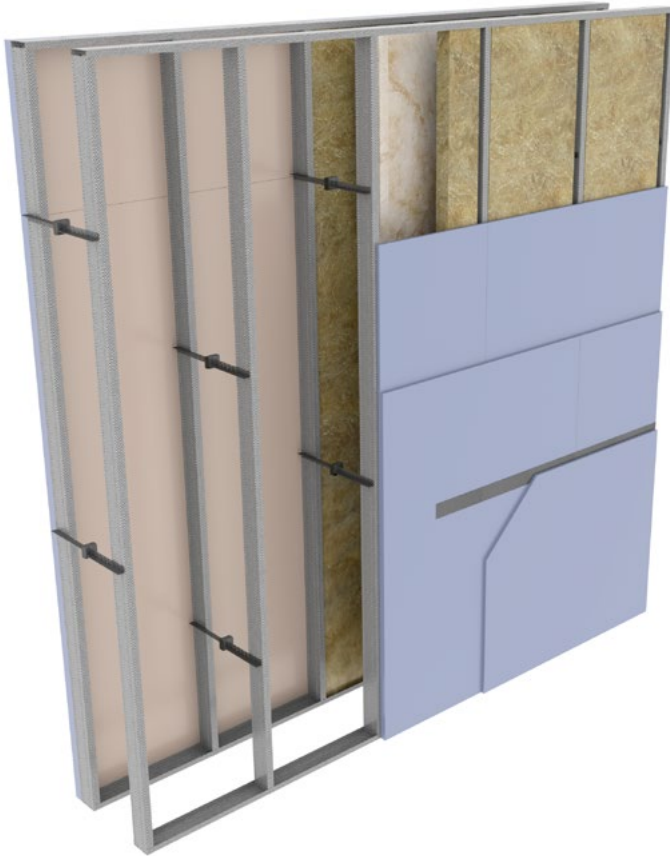


The ultimate cinema
wall system



GypWall AUDIO

GypWall AUDIO is a non-loadbearing, twin-frame high performance wall system that provides exceptionally high levels of sound insulation. It is used to separate multi-screen cinemas & multi-use facilities, such as theatres, music rooms, exhibition halls, conference centres, and leisure facilities.



-  **90 - 180** mins
-  **69 - 79** R_w dB
-  **71 - 79** STC dB

Key Benefits



Exceptionally high levels of sound insulation across a broad frequency spectrum



The lightweight system combines high levels of performance and a smaller footprint, compared with masonry alternatives



Designed to satisfy sound insulation requirements for cinemas equipped with high performance sound systems



Up to 180 minutes fire resistance



Provides Severe Duty rating in accordance with BS 5234: Parts 1 & 2: 1992



Can provide fire protection to structural steel within the partition cavity



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe 'C' Studs

(92 S 10)

Vertical stud providing acoustic and structural performances designed to receive fixing of board



Gypframe GAB3 Acoustic Brace

To cross brace two rows of Gypframe studs for optimum acoustic performance



Gypframe Standard Floor & Ceiling Channels

(94 C 50)

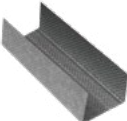
Standard floor and ceiling channels for retaining the Gypframe studs at floor and ceiling junctions and around openings to heights not exceeding 4200mm



Gypframe 103 FC 50

Fixing Channel

A versatile metal fixing channel used to support medium weight fixtures on walls.



Gypframe Deep Flange Floor & Ceiling Channels

(94 DC 60)

Floor and ceiling channels with deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions 4200mm to 8000mm high. Also used around openings and in deflection heads (maximum 30mm deflection)



Gypframe 103 FC 90

Fixing Channel

A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe Extra Deep Flange Floor & Ceiling Channels

(94 EDC 80)

Floor and ceiling channels with extra deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



Gypframe GFS1 Fixing Strap

Used to support horizontal board joints and within deflection head details



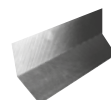
Gypframe GA1 Steel Angle

Used as a fixing mechanism to hold ISOVER Eco APR insulation in place.



Gypframe GA4 Steel Angle

Widely used in framed construction to provide support, fixing and additional strength to wall ceiling and encasement framing. Also used as an angle to improve the fire performance at deflection heads.



Gypframe GA6 Splayed Angle

Steel angle providing framing stability and board support



Gypframe Service Support Plate

For installation of 18mm plywood within a partition cavity to support medium to heavyweight fixtures

System components (continued)

Board products



Gyproc SoundBloc^{1, 2}

(12.5, 15mm)

Gypsum plasterboard with a high density core for enhanced sound insulation performance



Glasroc X²

(12.5mm)

Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology



Fixing products



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gyproframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

System components (continued)

Corners



Habito Flex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco Acoustic Partition Roll (APR) (100mm)*

Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³



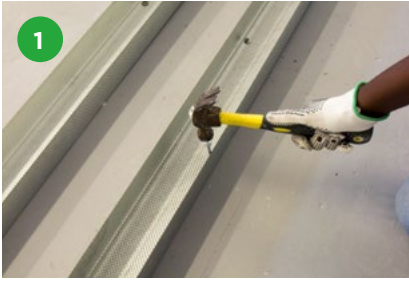
KIMMCO ISOVER Stone mineral wool (100mm)*

For fire stopping, where required

Minimum density: 60 kg/m³

* Available in other thickness and density

Installation overview



Two rows of Gypframe Floor & Ceiling channels, set out to required dimensions, ensuring a gap between channel, are fixed to the concrete substrate using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems)



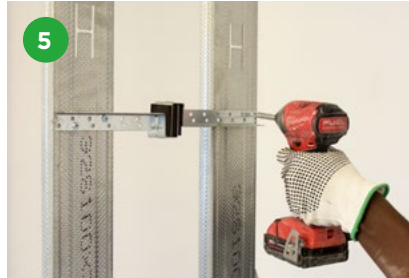
Gypframe 'C' studs are suitably fixed to abutments.



The perimeter of each frame is then sealed with Gyproc Sealant to seal airpaths and to provide optimum acoustic performance.



Gypframe 'C' studs are fitted vertically to a friction fit within the channel sections to form the framework. Studs are fitted to all face the same way.



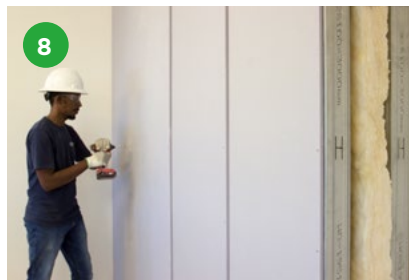
Stud pairs are braced together using a Gypframe GAB3 Acoustic Brace at the specified centres. The brace is twice fixed to each stud with Gyproc Waferhead Jack-Point Screws and should be staggered at alternate stud pairs.



ISOVER Eco APR is held in place using a Gypframe GA1 Steel Angle suitably fixed to the soffit.



KIMMCO ISOVER Stone Mineral Wool is tightly packed between adjacent studs.

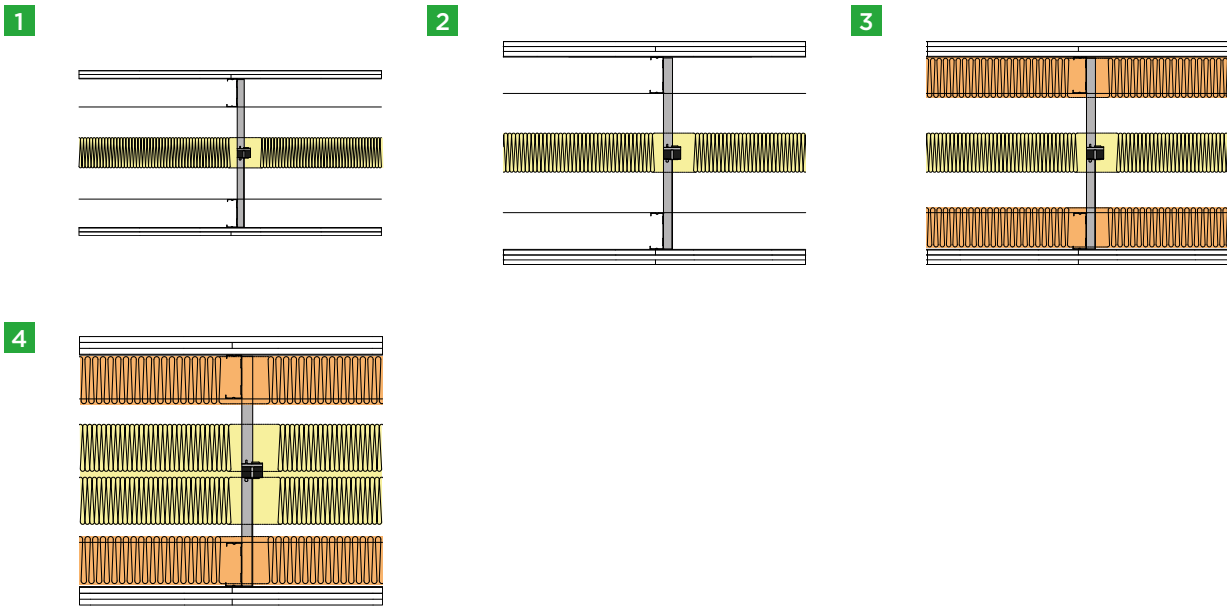


Gyproc plasterboards are fixed with Gyproc Jack-Point Screws to Gypframe studs. Ensure board joints are staggered between board layers



Gypframe GFS1 Fixing Strap to support horizontal board joints in the face layer board

**Table 1 - GypWall AUDIO 92mm Gypframe 'C' Stud (92 S 10).
Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 and ANSI / UL 263**



Two frames of Gypframe 92 S 10 'C' Studs spaced at 600mm centres with Gypframe GAB3 at 3300mm centres.
Linings and insulation as in table.

Detail	Partition thickness mm	Board type ^{1,2} mm	Lining thickness mm	Maximum partition height				Acoustic Partition Roll mm	Sound insulation		Duty rating	Approx. weight kg/m ²
				Fixing Channels braces at 3600mm centres		GAB3 Acoustic braces at 3300mm centres			$R_w(R_w + C_{tr})$	STC		
				L/240 mm	L/125 ³ mm	L/240 mm	L/125 ³ mm					

90 minutes fire resistance

1	300	SoundBloc	2 x 12.5	8000	9500	8000	10000	100	69 (57)	71	Severe	49
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120 minutes fire resistance

1	300	SoundBloc	2 x 15	8000	9500	8000	10000	100	71 (59)	71	Severe	57
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180 minutes fire resistance

2	450	SoundBloc	3 x 15	8200	10500	8300	10700	100	72 (64)	72	Severe	85
3	450	SoundBloc	3 x 15	8200	10500	8300	10700	1 x 100 + 2 x 100 stone mineral wool	76 (67)	76	Severe	87
4	570	SoundBloc	3 x 15	9000	11500	9500	11500	2 x 100 + 2 x 100 stone mineral wool	79 (68)	79	Severe	88

¹ For improved durability and impact resistance, the outer layer plasterboard can be replaced with a layer of Gyproc DuraLine or equivalent thickness Gyproc Habito (also for increased fixing capability).

² The boards listed and the performances shown include MR, M2TECH & Activ'Air versions.

³ Refer to deflection criteria, in design section. L/125 heights shown only suitable for systems with a fire resistance rating of upto 120 minutes.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channel should be used at the base and at head (subject to deflection criteria). For heights over 8000mm, Gypframe Extra Deep Channels should be used at head and base

NB Where tiling, refer to 'Tiling section' on page 304

**Table 2 - GypWall AUDIO fire protection to structural steel.
Solutions to satisfy the requirements of ENV 13381-2: 2002 and BS 476: Part 1987: 21**

Board type	Minimum Lining thickness mm	Fire resistance mins	Section factor ¹ A/V (Hp/A) m ⁻¹
Gyproc SoundBloc	2 x 12.5	30	Up to 300
Gyproc SoundBloc	2 x 15	60	Up to 300
Gyproc SoundBloc	3 x 15	120	Up to 300

¹For improved durability, impact resistance and high levels of fixing capability, the outer layer Gyproc SoundBloc can be replaced with the equivalent thickness of Gyproc Habito

²Based on four-sided exposure, with no vertical joints aligning with the column, and boards not fixed to the column to maintain air space.

Design

Planning – key factors

GypWall AUDIO comprises twin rows of Gypframe 'C' Studs installed at 600mm centres within Gypframe Floor & Ceiling Channels. The position of services and heavy fixtures should be pre-determined and their installation planned into the frame erection stage.

Designers and site management should give full consideration to the potential exposure of GypWall AUDIO to differential pressures, such as wind loadings during installation.

Fixing floor and ceiling channels

Gypframe Floor & Ceiling Channels must be securely fixed with two rows of staggered fixings, each row at 600mm centres and each fixing 25mm in from the flange. If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channels should be used.

If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

To extend studs, overlap by 600mm (minimum) and fix together using Gyproc Waferhead Jack-Point Screws. Refer to GypWall CLASSIC - construction details 17, 18 and 19 on page 85.

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Refer to Building acoustics for further information.

Door openings

Any openings will require careful detailing if the acoustic performance is to be maintained. Specialist heavy acoustic door sets may require additional support.

Specialist advice should be sought from door manufacturers and Acoustic Consultants to ensure the required acoustic performance is achieved. This becomes more important as acoustic requirements increase.

Framing surround for openings

Where services such as horizontal ducts, fire dampers and access panels are required to penetrate the wall, their position should be pre-determined in order that a framed opening can be provided. The openings should be constructed using established metal stud procedures. Refer to GypWall CLASSIC - construction details 32 to 34 on page 91-92.

Cavity barriers

Minimum 12.5mm Gyproc plasterboard, screw-fixed into the web of perimeter channels or vertical studs, will provide a satisfactory closure to flame or smoke.

Control joints

Control joints may be required in the partition to relieve stresses induced by expansion and contraction of the structure. Refer to construction detail 15 - GypWall

CLASSIC on page 84. They should coincide with movement joints within the surrounding structure.

Deflection heads

Partition head deflection designs may be necessary to accommodate deflections in the supporting floor. Deflection heads may also be required to the underside of roof structures subjected to positive and negative pressures. Refer to construction details 3 and 4. Designers should pay specific attention to potential loss of acoustic performance through deflection detailing, service penetrations and flanking across the roofing or structural soffit at the head of the partition. Ceilings, sometimes referred to as mass barrier ceilings, should be considered to help reduce any acoustic loss at the head of the partition and maintain the sound attenuation expected onsite between spaces.

Deflection criteria

Our normal recommendation is to build to a deflection criteria of L/240 at 200 Pa, however it is common for this system to be built to L/125 at 200 Pa. Partitions built to a maximum height based on L/125 at 200 Pa will exhibit greater deflection compared to partitions built to a maximum height based on L/240 at 200 Pa. Partitions with deflection characteristics outside the standard L/240 criteria will exhibit more flex during installation and in general use, and therefore we recommend you verify the acceptability of the deflections with the relevant interested parties before specifying / installing partitions based on L/125 criteria.

Cross bracing

Laboratory tests were carried out on walls without bracing. The results, however, are a realistic representation of site conditions in which Gypframe 103 FC 50 Fixing Channel cross-braces are fitted at the recommended 3600mm maximum centres, provided that appropriate measures are taken on site to eliminate flanking sound transmission. All braces must be staggered by half distance of the brace centres. Test evidence is provided by British Gypsum Report ATR 1299, where a site test on a large multi-screen cinema wall achieved comparable performance to the equivalent specification tested in the laboratory without bracing.

Acoustic designers may prefer the option of a resilient acoustic brace. The Gypframe GAB3 Acoustic Brace has been shown in tests not to downgrade acoustic performance in laboratory conditions. However, as a result of the mechanics of this brace fixing centres should be reduced from 3600mm to 3300mm, staggered by half distance of brace centres. Maximum recommended wall heights will vary.

Refer to Table 1 within this section.

The minimum and maximum wall widths for which Gypframe GAB3 Acoustic Brace can be used without modification are 300mm and 600mm respectively. Likewise, the minimum and maximum cavity width between the two stud frames for which Gypframe GAB3 Acoustic Brace can be used without modification are 100mm and 400mm respectively.

Design (continued)

The Gypframe GAB3 Acoustic Brace may be cut using a hacksaw or powertool. If required, the Gypframe GAB3 Acoustic Brace can be extended by fixing a short length of Gypframe 92 S 10 'C' Stud to one side of the brace with four Gyproc Waferhead Jack-Point Screws (ensure a 75mm minimum overlap with no contact to board lining). The short length of stud is also then fixed to the vertical studs with four Gyproc Waferhead Jack-Point Screws.

Care should be taken to ensure Gypframe GAB3 Acoustic Braces are correctly and fully engaged and not mis-aligned.

Each pair of studs must be braced at least once, staggered to the adjacent pairs, irrespective of the partition height or specified bracing centres.

Where partition heights are specified based on lateral restraint from a suitable Gyproc MF ceiling, either this ceiling should be in place at the time of installation or temporary restraint should be used.

Board fixing

In common with good building practice, the twin frame wall should be boarded progressively from each side of the partition. This will help prevent differential loadings on the framework.

Services

Penetrations

Penetrations of fire-resistant or sound-insulating constructions for services need careful consideration to ensure that the performance of the element is not downgraded. Consideration also needs to be given to the services themselves so they do not act as the mechanism of fire spread or sound transmission. Refer to Service installations for further information.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard. The service cut-outs in the studs can be used for routing electrical and other small services. Refer to Service Installations. Cables should be protected by conduit, or other suitable precautions taken to prevent abrasion when they pass through the metal frame. Service cut-outs should be aligned to allow easy installation of service. If studs require cutting, cut from the same end of each stud to ensure cut-out alignment. Switch boxes and socket outlets can be supported from Gypframe 103 FC 50 Fixing Channel fixed horizontally between studs, or a high performance socket box detail can be used where higher acoustic performance is required. Where extreme levels of acoustic performance are required, such as auditoria to auditoria partitions in cinemas, electrical conduits and services should be surface mounted to the face of the partition prior to any surface mounted acoustic fabric panelling (or similar) in order to avoid penetrations.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through a GypWall partition, consideration should be given to the size and weight of the damper - this will determine

whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to GypWall CLASSIC - construction details 32-34 on pages 91-92.

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Medium weight fixtures can be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2: 1992) such as wash basins and wall cupboards, can be fixed using plywood secured by Gypframe Service Support Plates. Refer to Service installations for further information.

Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified - for example SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified - for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding Table 1 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified - for example Gyproc SoundBloc Activ'Air.

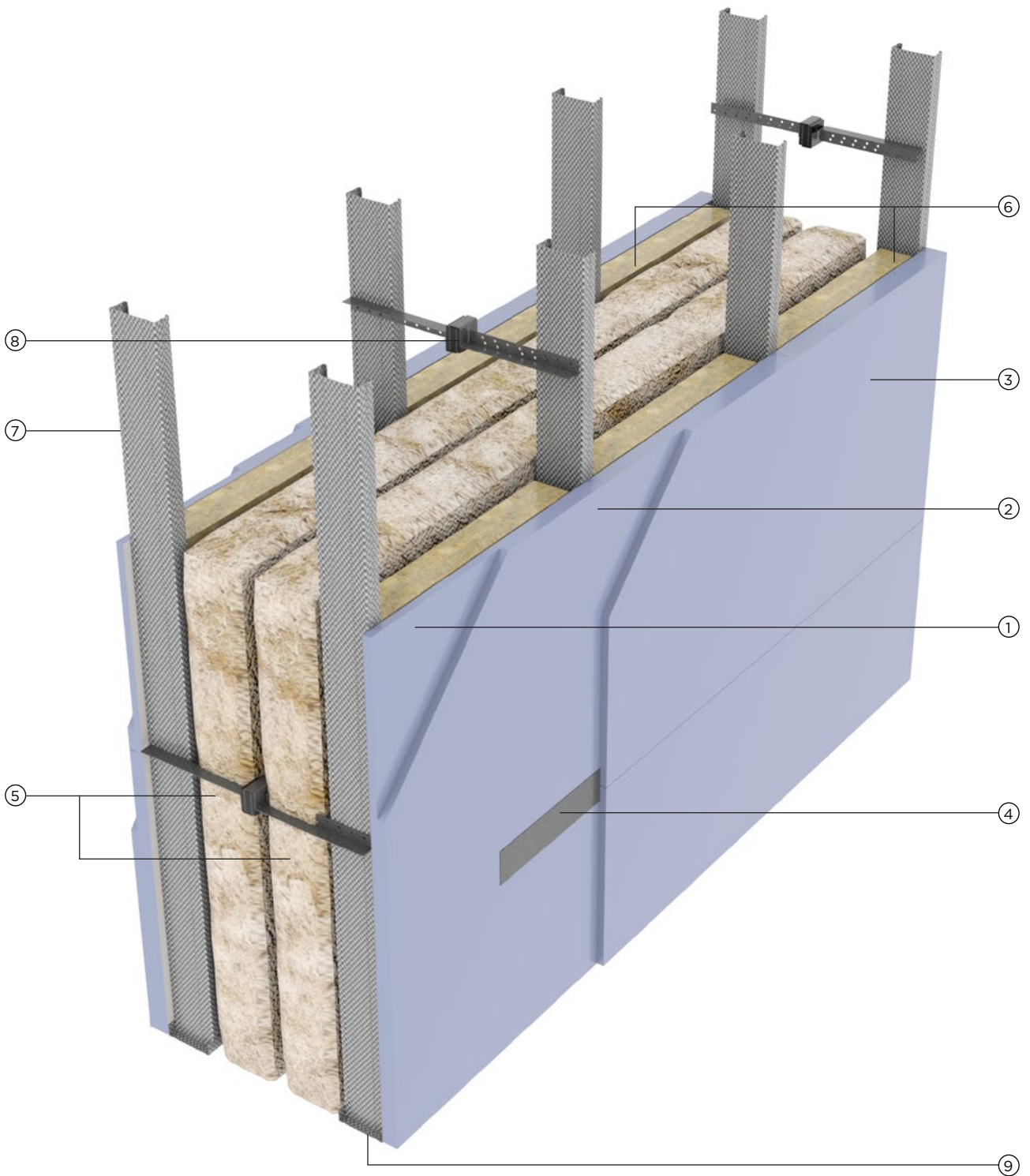
Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Construction details

For GypWall AUDIO construction details, refer to the construction details shown on pages 170 to 174. For more typical or example details, please contact the Gyproc Technical Team.

Construction details

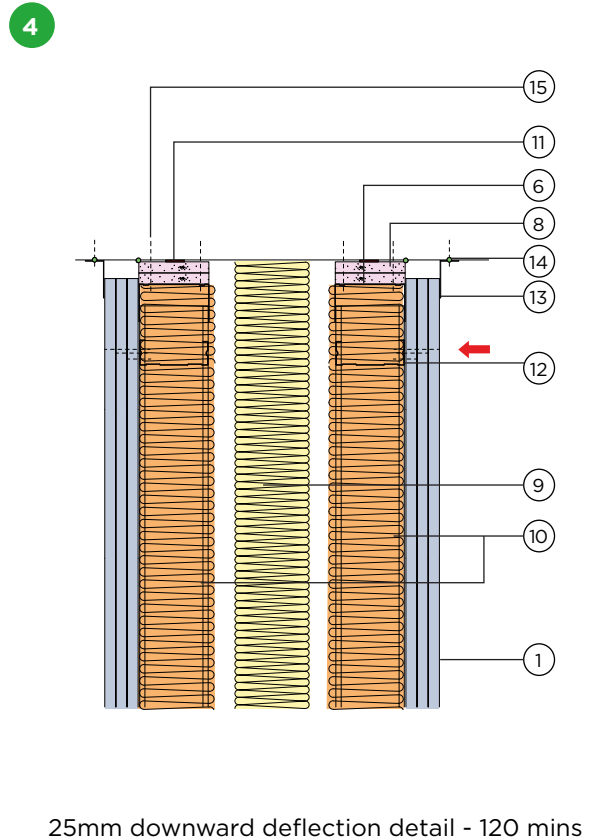
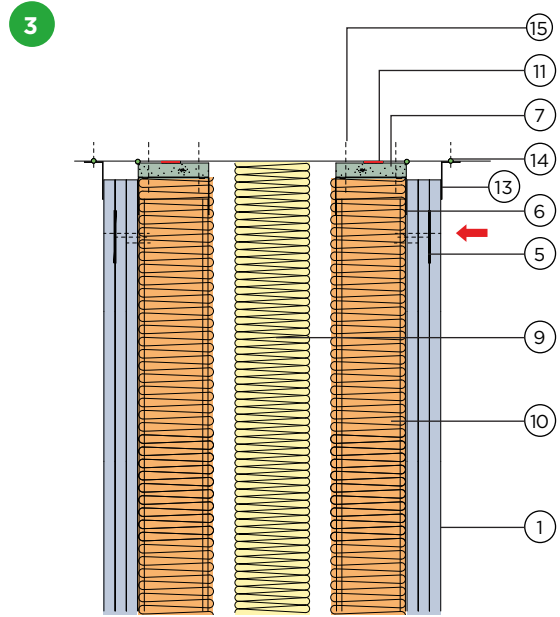
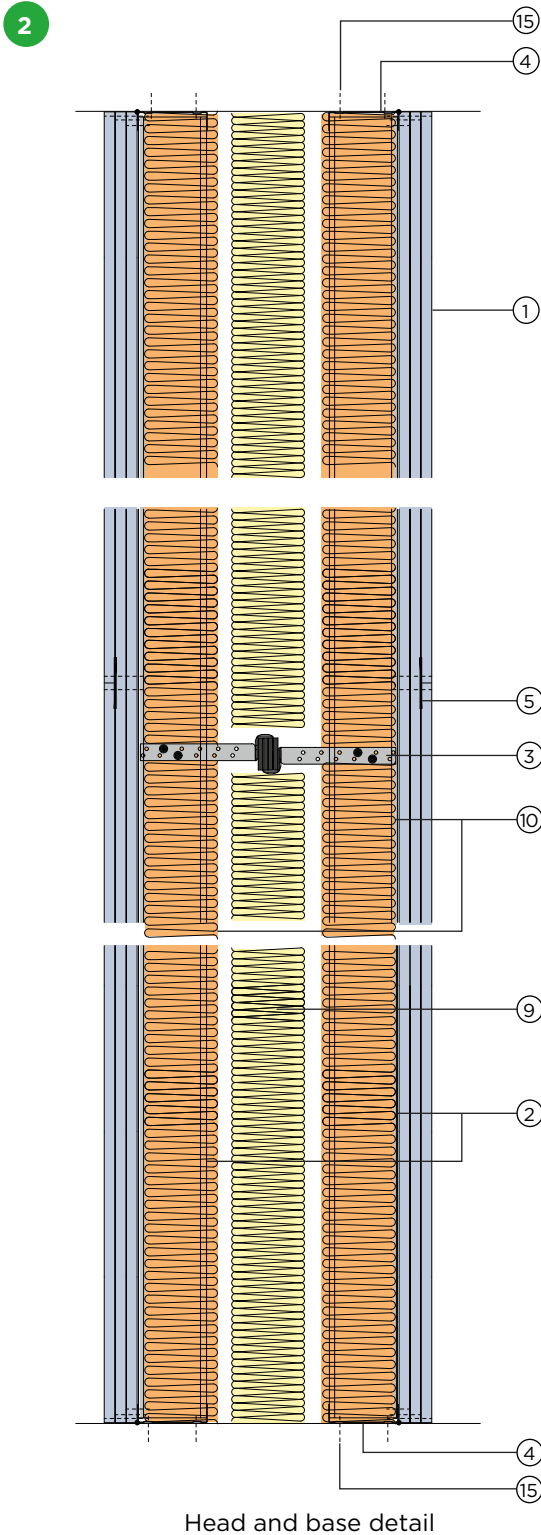
1



Splicing and bracing detail between stud pairs.

- | | |
|-------------------------------------|--|
| 1. Inner layer of Gyproc SoundBloc | 6. Stone mineral wool (by KIMMCO ISOVER) |
| 2. Middle Layer of Gyproc SoundBloc | 7. Gypframe 'C' stud |
| 3. Outer layer of Gyproc SoundBloc | 8. Gypframe GAB3 Acoustic Brace |
| 4. Gypframe GFS1 Fixing Strap | 9. Gypframe Channel |
| 5. ISOVER Eco APR | |

Construction details (continued)



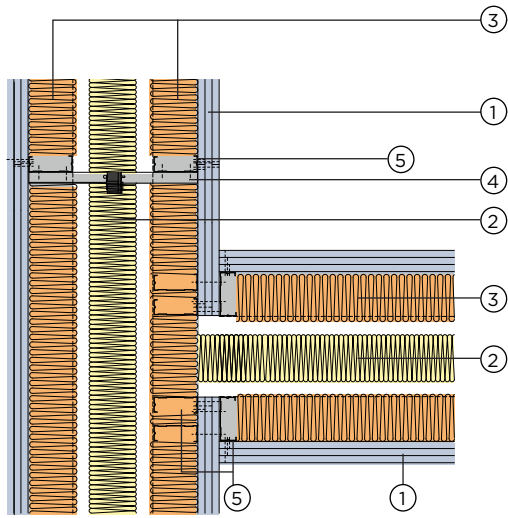
1. Gyproc SoundBloc
2. Gyproframe 'C' Stud
3. Gyproframe GAB3 Acoustic Brace
4. Gyproframe Floor & Ceiling Channel
5. Gyproframe GFS1 Fixing strap
6. Gyproframe Deep Channel
7. Gyproc CoreBoard
8. Two strips of 15mm Gyproc FireStop

9. ISOVER Eco APR
10. Stone mineral wool (by KIMMCO ISOVER)
11. Gyproc FireStrip
12. Nogging cut from Gyproframe 'C' Stud
13. Gyproframe GA4 Steel Angle
14. Gyproc Sealant
15. Gyproc Wedge Anchor for fire rated partitions or Gyproc Hammer Fix for non-fire rated partitions

NB No fixings should be made through the boards into the flanges of the head channel. The arrow (←) denotes the position of the uppermost board fixing, which should be made into Gyproframe GFS1 Fixing Strap. Continuous Firestrip must be installed as shown to maintain fire performance.

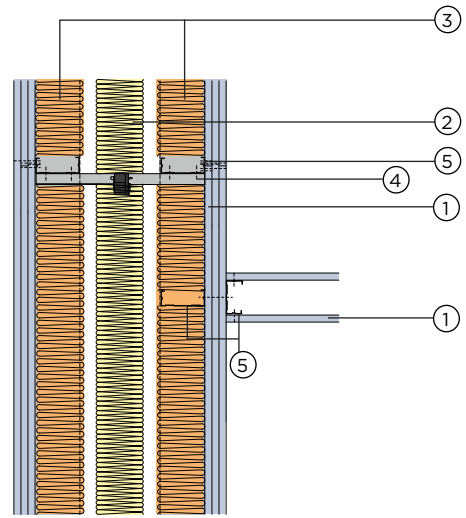
Construction details (continued)

5



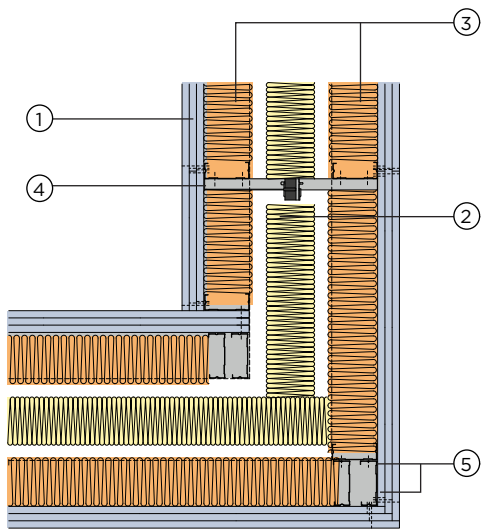
'T' junction detail

6



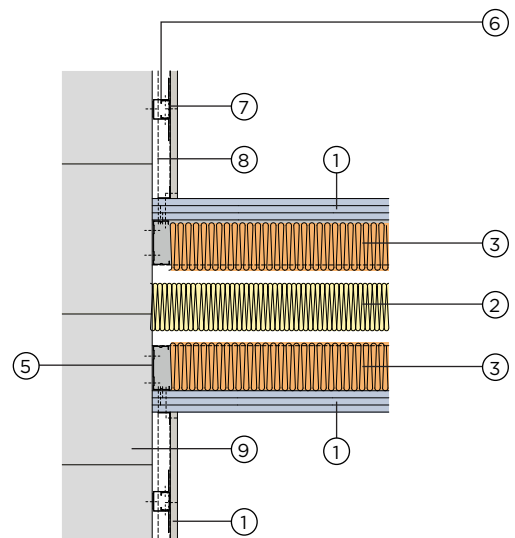
'T' junction detail with CLASSIC partition

7



Internal/External corner detail

8



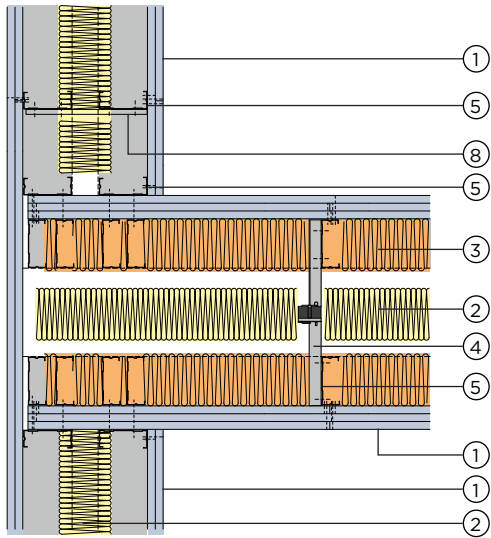
'T' junction abutment with masonry + wall liner - detail

1. Gyproc SoundBloc
2. ISOVER Eco APR
3. Stone mineral wool (by KIMMCO ISOVER)
4. Gyproframe GAB3 Acoustic Brace
5. Gyproframe 'C' Stud

6. Gypframe GLB85/135 Fixing Bracket
7. Gypframe GL1 Stud
8. Gypframe GA1 Steel Angle
9. Wall structure

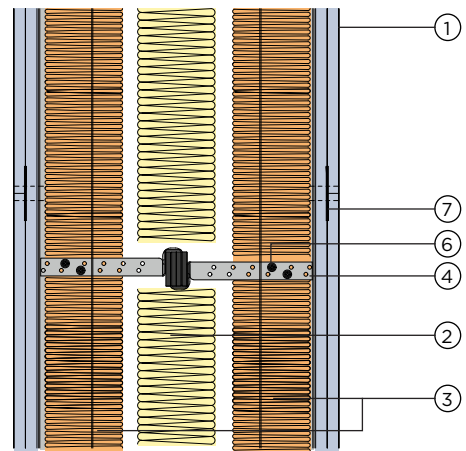
Construction details (continued)

9



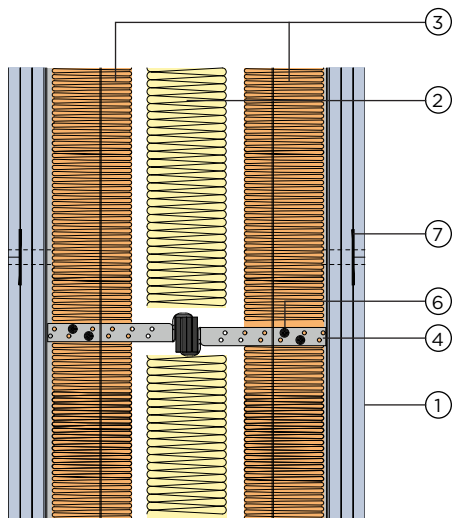
'T' junction high abutting detail

10



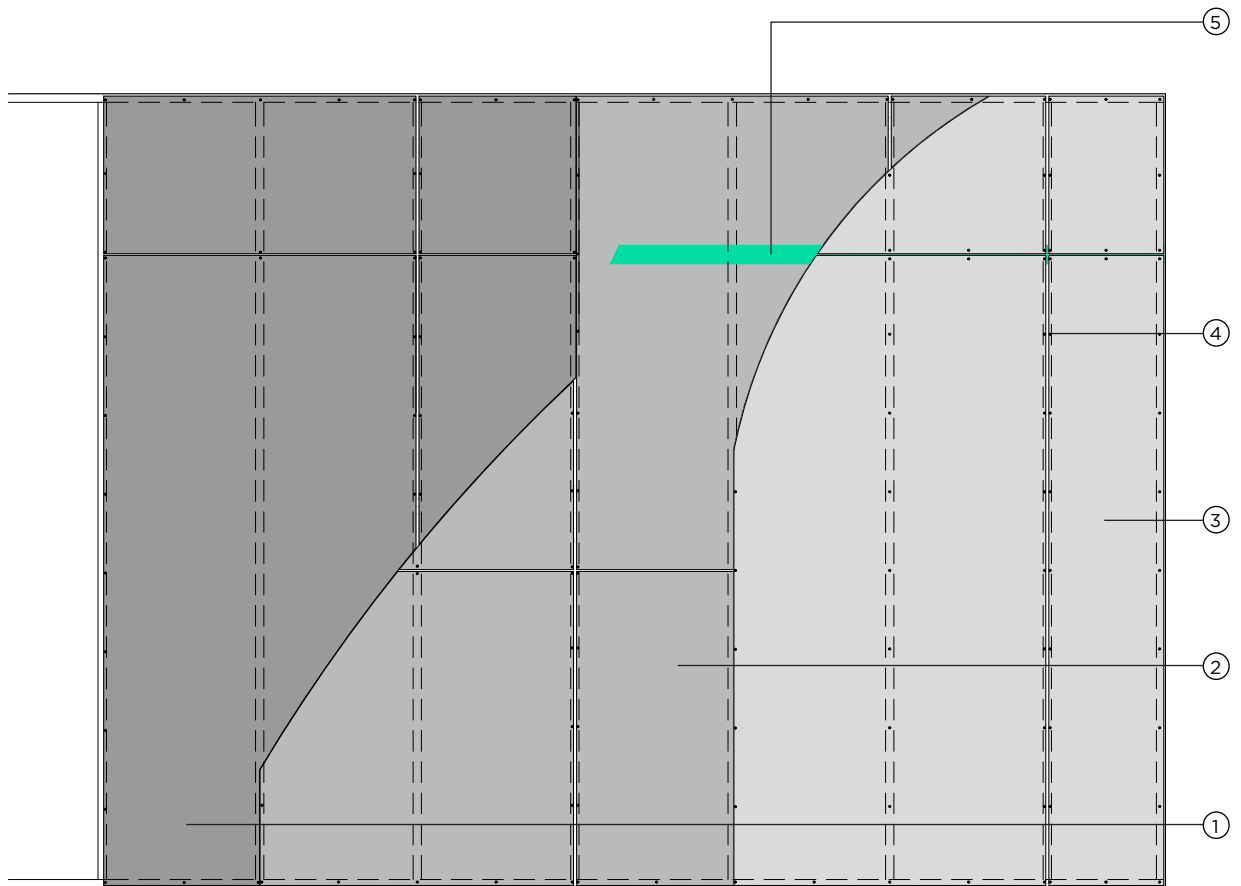
Horizontal board joint detail - double layer

11



Horizontal board joint detail - triple layer

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Gyproc SoundBloc 2. ISOVER Eco APR 3. Stone mineral wool (by KIMMCO ISOVER) 4. Gyproframe GAB3 Acoustic Brace | <ol style="list-style-type: none"> 5. Gypframe 'C' Stud 6. Gyproc Waferhead Screws 7. Gypframe GFS1 Fixing strap 8. Gypframe 103 FC 50 Fixing Channel |
|---|---|



Elevation of typical board layout - Studs installed at 600mm centres

- | | |
|-------------------------------------|-------------------------------|
| 1. Inner layer of Gyproc SoundBloc | 4. Gypframe 'C' stud |
| 2. Middle layer of Gyproc SoundBloc | 5. Gypframe GFS1 Fixing Strap |
| 3. Outer layer of Gyproc SoundBloc | |

Notes

ShaftWall

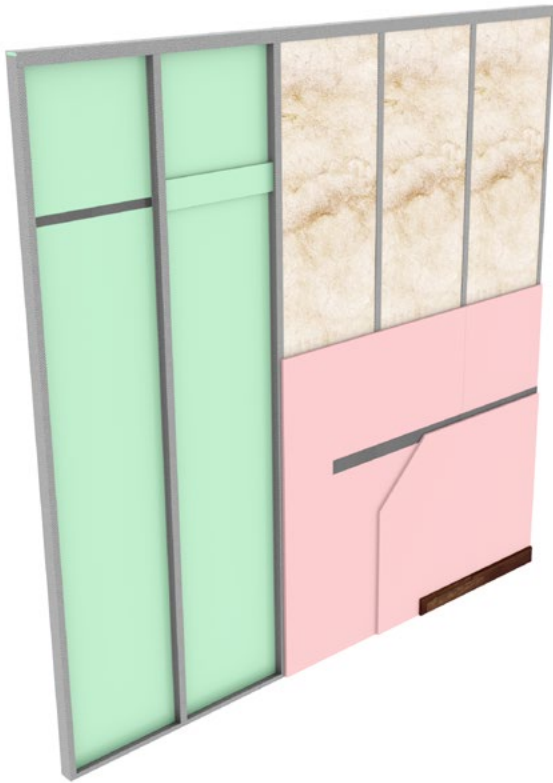
—
Shaft and riser
encasement system
and linings within
confined spaces



Jumeirah Al Naseem
Madinat Jumeirah
Dubai

ShaftWall

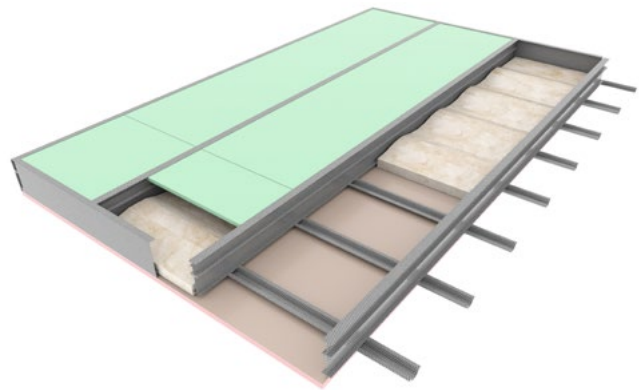
ShaftWall provides a lightweight, fire-resistant structure to protect elements in confined spaces wherever access is limited to one side only. The system provides a protective structure which can be incorporated at an early stage of the construction without the need for scaffolding. The system can also be built horizontally to provide a fire-rated membrane.



 **60 - 120** mins

 **42 - 50** R_w dB

 **43 - 51** STC dB



Key Benefits



Used where access is limited to one side only



Horizontal membranes built entirely from below



Lightweight and fast-track construction results in an earlier project delivery



Minimal wall thickness of 87mm



Higher certainty of installed acoustic performance due to laboratory tests incorporating deflection heads



Satisfies deflection and air pressure requirements of lift shafts, risers and pressurised ducts



Eligible for the SpecSure warranty from Gyproc.

System components

Gypframe metal components



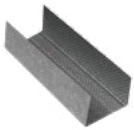
Gypframe 'I' Studs
(70 I 70, 100 I 80, 150 I 90)
Enhanced strength stud that allows for greater partition height, without increasing partition width. Designed to receive fixing of board to one side (face fixed) and to accommodate Gyproc CoreBoard within its flange.



Gypframe Starter Channels
(70 SC 70, 100 SC 80, 150 SC 90)
Vertical stud used at abutments and openings to receive fixing of board.



Gypframe Standard Floor & Ceiling Channels
(72 C 50, 102 C 50, 152 C 50)
Standard floor channels for retaining Gypframe studs at floor junctions up to heights not exceeding 4200mm. Also used around openings.



Gypframe Deep Flange Floor & Ceiling Channels
(72 DC 60, 102 DC 60, 152 DC 60)
Floor and ceiling channels with deep flanges for retaining Gypframe studs at the head and base of partitions, 4200mm to 8000mm high. Also used at the head of partitions up to 4200mm, in deflection heads (maximum 30mm deflection) and around openings.



Gypframe Extra Deep Flange Floor & Ceiling Channels
(72 EDC 80, 102 EDC 80, 152 EDC 80)
Floor and ceiling channels with extra deep flanges for retaining Gypframe studs at the head and base of partitions over 8000mm high. Also used in deflection heads (maximum 50mm deflection) and around openings.



Gypframe Retaining Channel
(RC 70, RC 100, RC 150)
Retaining channel to provide support for Gyproc CoreBoard located within Gypframe 'I' studs.



Gypframe 103 FC 50 Fixing Channel
A versatile metal fixing channel used to support medium weight fixtures on walls



Gypframe 103 FC 90 Fixing Channel
A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe GFS1 Fixing Strap
Used to support horizontal board joints.



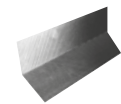
Gypframe GA1 Steel Angle
Perimeter angle to support Gypframe MF5 ceiling section and facilitate fixing of boards in horizontal ShaftWall system



Gypframe GA3 Steel Angle
Used at horizontal joints of Gyproc CoreBoard.



Gypframe GA4 Steel Angle
Widely used in framed construction to provide support, fixing and additional strength to wall ceiling and encasement framing. Also used as an angle to improve the fire performance at deflection heads.



Gypframe GA6 Splayed Angle
Steel angle providing framing stability and board support.



Gypframe MF5 Furring Section
Secondary section supported by Gypframe MF7, used to receive board lining

System components (continued)

Board products



Gyproc FireStop^{1, 2, 3}
(12.5mm, 15mm)
Gypsum plasterboard with fire resistant additives



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc CoreBoard^{2, 3}
(19mm)
Gypsum plasterboard with fire and moisture resistant additives. Retained within studs and to form deflection head.

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



Fixing products



Gyproc Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing boards to Gyproframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor
Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry

Plasterboard accessories



Gyproc Jointing Compound
Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Sealant
Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Gyproc FireStrip
Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape
Suitable for flat joint reinforcement



Gyproc Paper Tape
Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Glasroc X Tape
Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

System components (continued)

Corners



Gyproc Drywall Corner Bead
Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead
A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco Acoustic Partition Roll (APR)
(25, 50, 75 and 100mm)*
Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³



KIMMCO ISOVER Stone mineral wool
(50 and 70mm)*
For fire stopping, where required

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



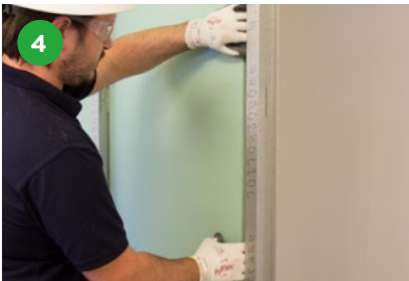
Gypframe Floor & Ceiling channels are fixed to the concrete substrate using Gyproc Wedge Anchors



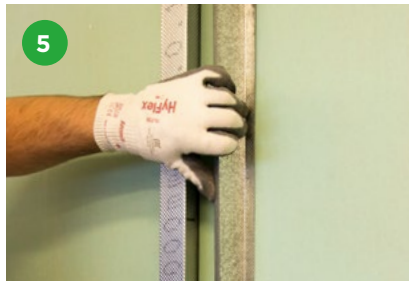
Gypframe Starter Channels are suitably fixed to abutments



Gypframe 'I' studs are fitted vertically to a friction fit within the channel sections to form the framework.



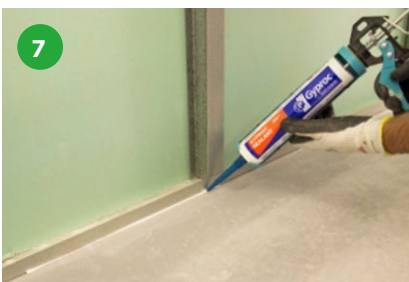
Gyproc CoreBoard is fitted between the studs on the shaft side. For sealed ShaftWall systems, apply sealant to the inside face of the rear flanges of Gypframe 'I' Studs, head channel, floor channel and Gypframe Starter Channels.



Gyproc CoreBoard is held in place and secured using Gypframe Retaining Channels.



Horizontal joints in the Gyproc CoreBoard are fire stopped using Gypframe GA3 Angle and strips of Gyproc CoreBoard from the nonshaft side.



The perimeter of the ShaftWall is sealed with Gyproc Sealant, in order to enhance the acoustic performance of the system





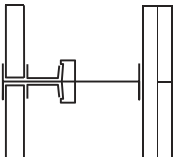
ISOVER Eco APR is added to the ShaftWall cavity for increased acoustic performance



Screw fix inner and outer layers of Gyproc FireStop board to the non-shaft side using Gyproc Jack-Point Screws at 300mm centres around the perimeter and in the field of the board to all Gypframe 'I' studs. Reduce screws to 200mm centres at external angles and stagger board joints between layers.

Table 1 – ShaftWall (vertical elements)

Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 and ANSI / UL 263

1	2	3
		
Gypframe 70 or 100mm 'I' Stud framework at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. Lining boards, to the non-shaft side, and ISOVER Eco APR in the cavity. Lining boards, to the non-shaft side, and ISOVER Eco APR as per the listings in the table below.	Gypframe 70 or 100mm 'I' Stud framework at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. ISOVER Eco APR in the cavity. Lining boards, to the non-shaft side, and ISOVER Eco APR as per the listings in the table below.	Gypframe 150 90 'I' Stud framework at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. ISOVER Eco APR in the cavity. Lining boards, to the non-shaft side, and ISOVER Eco APR as per the listings in the table below.

Detail	Partition thickness	Lining boards to non-shaft side ¹		Maximum partition heights ²	Stud size	ISOVER Eco APR	Sound insulation ³ (sealed structure)		Duty rating ⁴	Approx. weight
		Board type	Lining thickness				R _w	STC		
	mm		mm	mm	mm	mm	dB	dB		kg/m ²

60 minutes fire resistance⁵

1	87	FireStop	1 x 15	4200	70	50	42	43	Heavy	30
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120 minutes fire resistance⁵

2	102	FireStop	2 x 15	4500	70	50	45	46	Severe	43
2	132	FireStop	2 x 15	6700	100	50	49	50	Severe	44
2	132	FireStop	2 x 15	6700	100	75	50	51	Severe	44
3	182	FireStop	2 x 15	7900	150	25	48	48	Severe	46
3	182	FireStop	2 x 15	7900	150	100	50	50	Severe	46

¹ For improved durability and impact resistance, the outer layer of Gyproc FireStop can be replaced with a layer of Gyproc DuraLine or equivalent thickness Gyproc Habito (also for increased fixing capability). On single layer linings this will improve duty rating to Severe Duty.

² Based on a limiting deflection of L/240 at 200 Pa.

³ The acoustic performance figures quoted are for sealed structures. In addition to sealing of the perimeter framing with Gyproc Sealant, Gyproc CoreBoards are bedded into sealant as well as the fire stops within the head channel. The acoustic performance figures quoted include ShaftWall partitions with deflection heads with a ceiling element to one side. Where a ceiling is not present, then 50mm wide strips of Gyproc CoreBoard, or FireStop, are bedded in Gyproc Sealant and fixed at 600mm centres to the soffit to the non-shaft side, closely fitted against the deflection head ensuring a minimum overlap of 4mm with the lining boards.

⁴ Duty rating is estimated from non-shaft side only

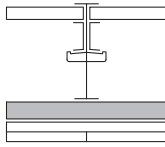
⁵ When exposed to fire from the non-shaft side, the fire integrity of the partition is maintained as per the classification, however the temperature of exposed metal exceeds the requirements of ASTM E119 & BS 476: Part 22: 1987 within the fire test period. Therefore, relaxation should be sought from the approving authority on the basis that no combustible materials are likely to be stored on the shaft side adjacent to the structure. In situations where the full period of fire insulation is required, contact the Gyproc Technical Team for further guidance.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights up to 4200mm, Gypframe Standard Channel should be used at the base and Gypframe Deep Channel at the head. For heights between 4200mm and 8000mm Gypframe Deep Channel should be used at the head and base. For heights in excess of 8000mm Gypframe Extra Deep Channel should be used at the base and at the head (subject to deflection head criteria).

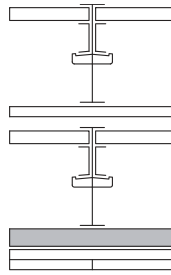
Table 2 - ShaftWall (horizontal elements)
Solutions to satisfy the requirements of BS 476: Part 22: 1987.

1



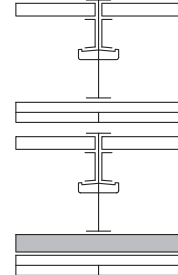
Gypframe 70 or 100mm 'I' Stud or Gypframe 150 | 90 tabbed 'I' Stud frames at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. 25mm ISOVER Eco APR in cavity (optional). Gypframe MF5 Ceiling Sections fixed to ceiling side at 400mm centres. Lining boards to ceiling side, see table.

2



Two Gypframe 150 | 90 tabbed 'I' Stud frames at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. 25mm ISOVER Eco APR in cavity (optional). On the lower framework only, Gypframe MF5 Ceiling Sections fixed to ceiling side at 400mm centres. Lining boards to ceiling side, see table.

3



Two Gypframe 150 | 90 tabbed 'I' Stud frames at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. 25mm ISOVER Eco APR in cavity (optional). On the lower framework only, Gypframe MF5 Ceiling Sections fixed to ceiling side at 400mm centres. Lining boards to ceiling side, see table.

Detail	Membrane thickness mm	Lining boards to ceilings		Maximum span ¹ mm	Stud size mm	Sound insulation R _w		Approx. weight kg/m ²
		Board type	Lining thickness mm			No Insulation dB	Sealed structure plus 25mm ISOVER Eco APR dB	

60 minutes fire resistance

1	124	FireStop	2 x 15	2800	70	42	45	39
1	154	FireStop	2 x 15	3700	100	44	46	39
1	204	FireStop	2 x 15	5100	150	48	50	39

90 minutes fire resistance

2	391	{ FireStop upper frame 1 x 15 FireStop lower frame 2 x 15 }		5100	150	48	50	77
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120 minutes fire resistance

3	406	{ FireStop upper frame 2 x 15 FireStop lower frame 2 x 15 }		5100	150	48	50	88
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¹Based on a limiting deflection of L/400. Additional weight applied to the ceiling will reduce the span. Please contact the Gyproc Technical Team for guidance.

² Gyproc CoreBoard and CoreBoard fire stops within the head channel, are bedded onto Gyproc Sealant, as required for sealed air shafts, in addition to normal sealing of the perimeter.

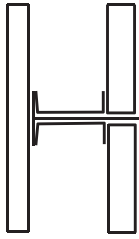
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB ShaftWall used horizontally should not be used for materials storage or access for personnel, or to provide support to services.

NB Gypframe Extra Deep Channel should be used at perimeter.

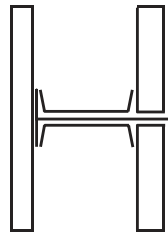
Table 3 - ShaftWall (vertical elements) - limiting heights at various air pressures and allowable deflections

1



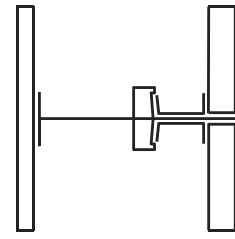
Gypframe 70 | 70 'I' Stud framework at 600mm centres with one layer of 15mm Gyproc FireStop¹.

2



Gypframe 100 | 80 'I' Stud framework at 600mm centres with one layer of 15mm Gyproc FireStop¹.

3



Gypframe 150 | 90 tabbed 'I' Stud framework at 600mm centres with one layer of 15mm Gyproc FireStop¹.

Detail	Allowable deflection	Limiting height (mm) at stated air pressure (Pa)								
		200	240	300	360	400	480	500	600	650

60 minute solutions

1	L/125	5000	4700	4400	4100	4000	3800	3700	3500	3400
	L/240	4200	4000	3700	3500	3300	3200	3100	2900	2800
	L/360	3700	3500	3300	3100	2900	2800	2700	2600	2500
2	L/125	7500	7100	6600	6200	6000	5700	5500	5200	5100
	L/240	6000	5700	5300	5000	4800	4600	4400	4200	4100
	L/360	5200	4900	4600	4300	4200	4000	3900	3600	3500
3	L/125	9600	9000	8400	7900	7600	7200	7100	6700	6500
	L/240	7700	7300	6700	6400	6100	5800	5700	5400	5200
	L/360	6700	6400	5900	5500	5400	5000	5000	4700	4600

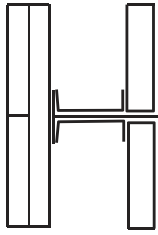
Table 3 gives the limiting heights for ShaftWall systems when subjected to air pressures ranging from 200 Pa through to 650 Pa and at three allowable deflection levels - L/125, L/240, L/360. Partition heights are normally quoted for air pressures of 200 Pa at an allowable deflection of L/240. Refer to Limiting heights at different air pressures, in Design section.

¹For improved durability and impact resistance, the outer layer of Gyproc FireStop can be replaced with a layer of Gyproc DuraLine or equivalent thickness Gyproc Habito (also for increased fixing capability). On single layer linings this will improve duty rating to Severe Duty.

NB For heights up to 4200mm Gypframe Standard Channel should be used at the base and Gypframe Deep Channel at the head. For heights between 4200mm and 8000mm Gypframe Deep Channel should be used at the head and base. For heights in excess of 8000mm Gypframe Extra Deep Channel should be used at the base and at the head (subject to deflection head criteria).

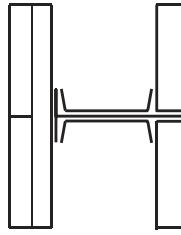
Table 4 - ShaftWall (vertical elements) - limiting heights at various air pressures and allowable deflections

4



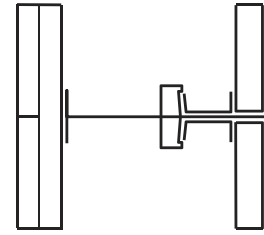
Gypframe 70 I 70 'I' Stud framework at 600mm centres with two layers of 15mm Gyproc FireStop¹.

5



Gypframe 100 I 80 'I' Stud framework at 600mm centres with two layers of 15mm Gyproc FireStop¹.

6



Gypframe 150 I 90 tabbed 'I' Stud framework at 600mm centres with two layers of 15mm Gyproc FireStop¹.

Detail	Allowable deflection	Limiting height (mm) at stated air pressure (Pa)								
		200	240	300	360	400	480	500	600	650

120 minute solutions

4	L/125	5200	4900	4600	4300	4100	4000	3800	3600	3500
	L/240	4500	4200	3900	3700	3500	3400	3300	3100	3000
	L/360	3900	3700	3400	3200	3100	3000	2900	2700	2600
5	L/125	8400	7900	7300	6900	6600	6400	6200	5800	5600
	L/240	6700	6300	5900	5500	5300	5100	5000	4700	4500
	L/360	5600	5300	4900	4600	4500	4300	4100	3900	3800
6	L/125	9900	9300	8600	8100	7800	7500	7200	6800	6600
	L/240	7900	7400	6900	6500	6300	6000	5800	5500	5300
	L/360	6900	6500	6000	5700	5500	5300	5100	4800	4700

Table 4 gives the limiting heights for ShaftWall systems when subjected to air pressures ranging from 200 Pa through to 650 Pa and at three allowable deflection levels - L/125, L/240, L/360. Partition heights are normally quoted for air pressures of 200 Pa at an allowable deflection of L/240. Refer to Limiting heights at different air pressures, in Design section.

¹For improved durability and impact resistance, the outer layer of Gyproc FireStop can be replaced with a layer of Gyproc DuraLine or equivalent thickness Gyproc Habito (also for increased fixing capability). On single layer linings this will improve duty rating to Severe Duty.

NB For heights up to 4200mm Gypframe Standard Channel should be used at the base and Gypframe Deep Channel at the head. For heights between 4200mm and 8000mm Gypframe Deep Channel should be used at the head and base. For heights in excess of 8000mm Gypframe Extra Deep Channel should be used at the base and at the head (subject to deflection head criteria).

Design

Planning – key factors

GypWall ShaftWall comprises Gypframe 'I' Studs and Gypframe Starter Channels within Gypframe Floor & Ceiling Channels. The shaft-side boards (Gyproc CoreBoard) are placed between the Gypframe 'I' studs and secured in place with Gypframe Retaining Channels; which enables construction from one side only.

The position of services and heavy fixtures should be pre-determined and their installation planned into the frame erection stage.

GypWall ShaftWall systems are normally incorporated at an early stage within the project, and as such it is important that a good standard of control is exercised on site to ensure that the adoption of drylining techniques at such an early stage of construction is fully integrated into the site planning programme. If the building envelope is left unsealed while ShaftWall is under construction where excessive humidity or where excessive amounts of water for construction use could lead to accidental water damage, Gyproc FireStop MR, Gyproc DuraLine MR, Gyproc Habito MR or Glasroc X should be used for the lining. All penetrations will need to be adequately fire-stopped.

Fire Performance

When exposed to fire from the corridor or 'non-shaft' side, the fire integrity of the partition is maintained as per the classification, however the temperature of exposed metal exceeds the requirements of ASTM E119 & BS 476: Part 22: 1987 within the fire test period. Therefore, relaxation should be sought from the relevant approving authority on the basis that no combustible materials, are likely to be stored on the shaft side adjacent to the structure. In situations, where the full period of fire integrity plus fire insulation is required, specify the next level of fire classification, for example of 60 minutes is required, use a 90 minute specification. Where 120 minutes is required, replace the inner layer of 15mm Gyproc FireStop (corridor side) with 19mm Gyproc CoreBoard, fixed horizontally. Contact the Gyproc Technical Team for further guidance.

Acoustic performance

The quoted sound insulation performances of ShaftWall, detailed in the preceding performance tables are for sealed structures. In addition to sealing of the perimeter framing with Gyproc Sealant, Gyproc CoreBoards are bedded into sealant as well as the fire stops within the head channel. The acoustic performance figures quoted include ShaftWall partitions with deflection heads with a ceiling element to one side. Where a ceiling is not present, then 50mm wide strips of Gyproc CoreBoard, or FireStop, are bedded in Gyproc Sealant and fixed at 600mm centres to the soffit to the non-shaft side, closely fitted against the deflection head ensuring a minimum overlap of 4mm with the lining boards.

Further sound insulation improvement can be achieved by substituting Gyproc DuraLine or Gyproc Habito of equivalent thickness in lieu of Gyproc FireStop, providing 1-2dB improvement. The installation of a Gypframe RB1 Resilient Bar may further improve performance, contact the Gyproc Technical Team for further guidance.

Fixing floor and ceiling channels

Gypframe Floor Channels must be securely fixed with a row of fixings at 600mm maximum centres. For 94mm and above, two rows of staggered fixings are required, each row at 600mm centres and each fixing 25mm in from the flange. Gypframe Ceiling Channels must be securely fixed with a row of fixings at 300mm maximum centres. For 94mm and above, again two rows of staggered fixings are required, each row at 300mm centres and each fixing 25mm in from the flange.

The channel must have continuous support along its length to maintain specified performance levels. If continuous support is not provided by the structure, e.g. Z-sections running transverse to a steel beam, the designer should detail the installation of a rigid non-combustible material between the Z-sections. Z-sections need to be protected and remain in-situ in the event of a fire, taking into account any loads they are supporting.

In situations where the floor channel is fixed inline to diagonal structural steel, the studs should be accurately scribed to the rake of the channel to maintain the full bearing surface.

If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channel should be used. If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

Splicing details vary dependent upon which stud system is used. Refer to construction details 14 & 15 on page 191.

Fixing to metal decking

Where ShaftWall is to be located transverse to the profiles of the decking, all slots or perforations above the head channel should be sealed using a proprietary fire barrier or fire spray. Fire-stopping material can be applied prior to the head channel being positioned, providing that any surplus is removed flush with the steel decking.

Fixing to structural steel encasements

Where ShaftWall abuts a column or beam encasement, the framing will generally require fixing through to the structural steelwork or through to the structural framing of the encasement. Where ShaftWall abuts the web of the steelwork a Z-section can be located to provide a fixing point level with the flanges of the steelwork.

Connection to the structure

Structural steelwork and its associated connections often result in complex junctions around shafts. If ShaftWall is built on the same line as the beamwork framing the shaft, problems may arise in trying to seal the wall up to the steelwork. It is recommended that, wherever possible, the wall should be located to one side of the beams, and fixed from structural floor to structural soffit.

Design (continued)

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Refer to Building acoustics for guidance.

Door openings

In the case of both normal access doors and lift doors, the door and frame assembly must have been shown by a fire resistance test to achieve the required standard of performance in this form of construction.

Lift doors must be substantiated in conjunction with ShaftWall complete with their framing members and transom panels. To achieve a satisfactory level of compatibility, a suitable starter channel should be mechanically fixed to the door frame at 300mm centres. Refer to construction detail 25 within this section.

Pressurised airshafts and service ducts

The use of pressure conditions in various types of shaft / duct requires that the boards should be sealed into the framing members using Gyproc Sealant in addition to the normal sealing of the framing to adjoining structures. It is essential that these areas are identified at a very early stage of the contract, and that other trades are instructed to recognise the need for the application of sealant and its replacement if subsequently damaged or removed. In order that the integrity of the pressurised system can be maintained, Gyproc Sealant should be specified for all board-to-metal applications, and the sealing of Gyproc CoreBoard to the framing. Refer to construction details 16 - 19 within this section.

Control joints

Control joints may need to be considered in conditions where excessive movement is likely to occur, or to coincide with constructional expansion joints. In order that the deflection criteria can be maintained throughout the building, it is necessary to introduce horizontal movement joints in the lining where this would normally be required to extend through the height of the building, e.g. stairwells. The horizontal movement joint can be accommodated adjacent to the floor slab. Refer to construction detail 29 within this section.

Deflection heads

Deflection heads, by definition, must be able to move and, therefore, achieving an airtight seal is difficult. Inevitably, this will have a detrimental effect on the acoustic performance of any wall that incorporates deflection at the head. In most cases, a suspended ceiling will assist in minimising loss of performance. Refer to construction details 12 - 13 for standard head details.

Gyproc FireStrip must be applied as a continuous seal where the soffit shows signs of undulation or where small gaps, cracks or holes are apparent to maintain fire performance. Also, board fixings must not be inserted above the uppermost line depicted by the red arrow in each drawing. Where greater deflection needs to be accommodated, contact the Gyproc Technical Team for further guidance.

Limiting heights at different air pressures

The maximum heights quoted in the performance tables for vertical elements are based on a limiting deflection of L/240 at 200 Pa. In practice, deflection from L/125 to L/360 may be allowed and pressure conditions between 200 Pa and 650 Pa may be encountered. These variations will affect the maximum wall height. Refer to table 3 and 4.

Deflection criteria

Partitions built to a maximum height based on L/125 at 200 Pa will exhibit greater deflection compared to partitions built to a maximum height based on L/240 at 200 Pa. Partitions with deflection characteristics outside the standard L/240 criteria will exhibit more flex during installation and in general use, and therefore we recommend you verify the acceptability of the deflections with the relevant interested parties before specifying / installing partitions based on L/125 criteria.

Services

Penetrations

Penetrations of fire-resistant constructions for services should be minimised, however if essential, careful consideration should be given to ensure that the integrity of the element is not impaired, and that the services themselves do not act as the mechanism of fire spread. Refer to Service installations for further information.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through ShaftWall, consideration should be given to the size and weight of the damper - this will determine whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to GypWall CLASSIC - construction details 32-34 on pages 91-92.

Openings bridging studs

Openings should be constructed using channels for the trimming members. The web of the channel should be rebated to allow the flanges to oversail the stud. The flanges are secured with two fixings. Channels are cut and inserted to maintain the 25mm gap surround and fixed to the trimming channels. Refer to construction detail 20 within this section.

Openings between studs

The opening is constructed using channels for the trimming members. The web should be rebated and the flanges allowed to oversail the studs. The stud is secured with two fixings. Channels are cut and inserted with the webs folded to provide fixings. A plasterboard packer is inserted adjacent to the stud. Refer to construction detail 21 within this section.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671. The positions for light switches and other electrical outlets should be pre-determined in order that provision can be made for support, and also for the fire integrity of the system.

Design (continued)

Gypframe 103 FC 50 Fixing Channel should be cut to bridge adjoining studs, with the edges flattened to permit fixing. The fixing channel should be backed with stone mineral wool. Gyproc FireStop linings should be cut to allow a close fitting entry of the switch box which can be secured to the fixing channel. Refer to construction detail 7 within this section.

Access for maintenance

For access doors, openings should be framed to avoid impairing the structural or fire-resistant properties of ShaftWall. To provide an opening ready to receive a door set, the jambs to storey height should be capped with Gypframe Extra Deep Channel incorporating a plasterboard packer. A pre-formed spandrel panel assembled between starter channels should be inserted between jambs and engaged into the head channel, retaining the 15mm gap for deflection at the head. Refer to construction detail 22, 23 and 25 within this section.

Support is provided by a Gypframe Channel transom. The door frame is secured to both Gypframe 'I' Stud and Gypframe Extra Deep Channel jambs and also to the transom member.

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Medium weight fixtures can be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured by Gypframe Service Support Plates. Refer to Service installations for further information.

Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc FireStop MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc FireStop or Gyproc CoreBoard M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables from page 182-183 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc FireStop or Gyproc CoreBoard Activ'Air.

Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Horizontal ShaftWall

ShaftWall can be specified for horizontal applications as a free-spanning membrane with no support from the soffit. The membrane can be constructed entirely from below and can achieve spans up to 5100mm and fire resistance up to 120 minutes. A typical application is for fire escape corridors. Services should be independently supported from the building structure.

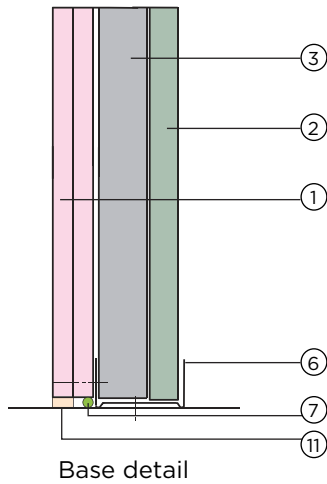
Supporting partitions should be of a greater fire resistance period than that of the horizontal ShaftWall. Contact the Gyproc Technical Team for further guidance.

Construction details

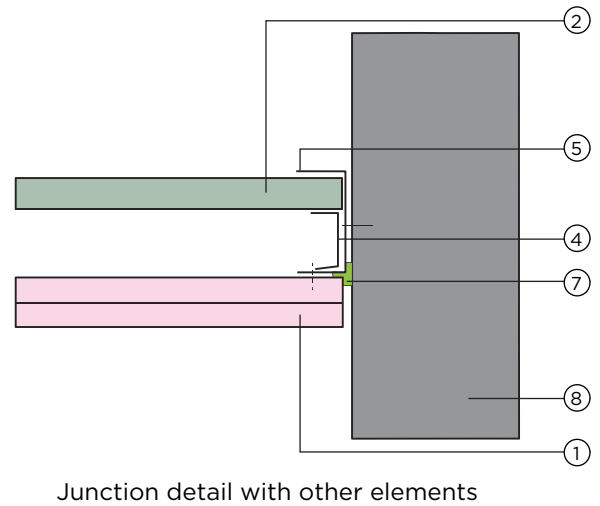
For ShaftWall construction details, refer to the construction details shown on pages 189 to 197. For more typical or example details, please contact the Gyproc Technical Team.

Construction details

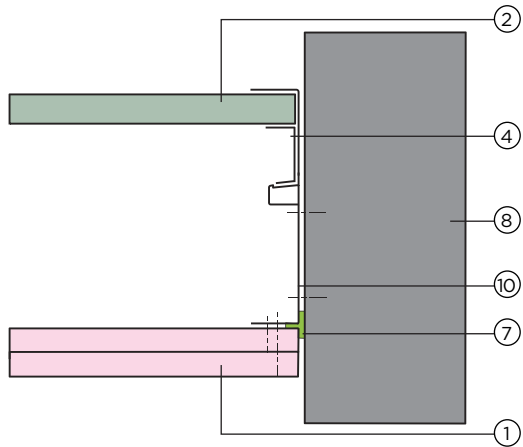
1



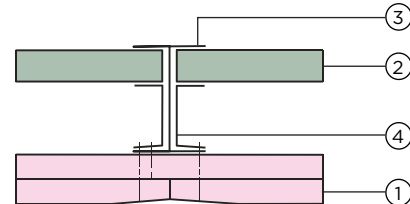
2



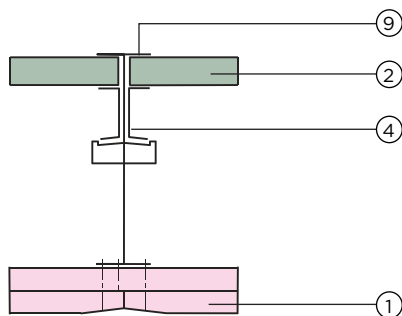
3



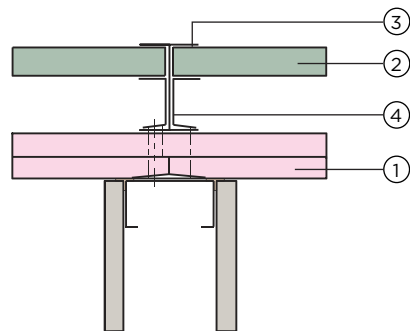
4



5



6

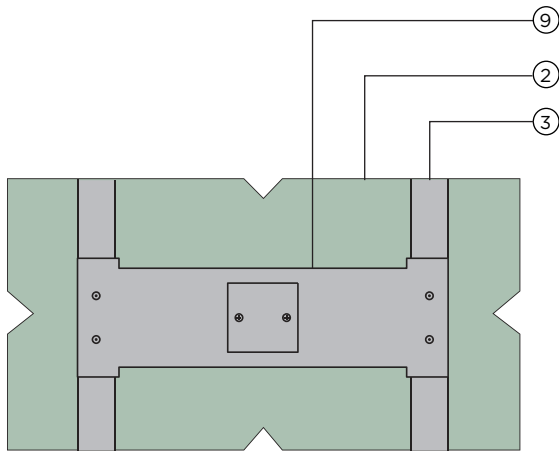
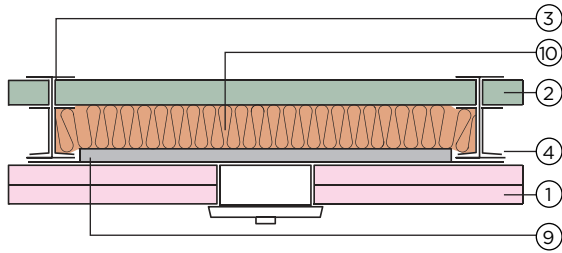


1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Stud
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gypframe Deep Channel

7. Gyproc Sealant
8. Structure
9. Gypframe 150 I 90 tabbed 'I' Stud
10. Gypframe 150 SC 90 tabbed Starter Channel
11. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)

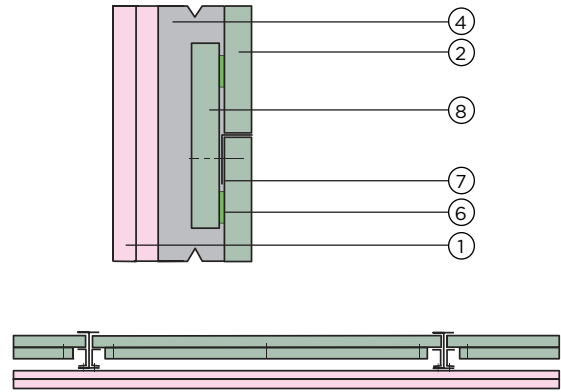
Construction details (continued)

7



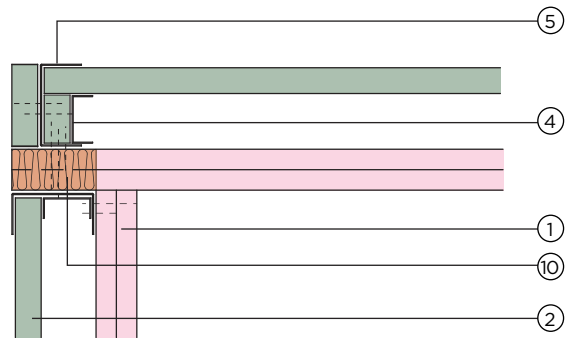
Socket box detail

8



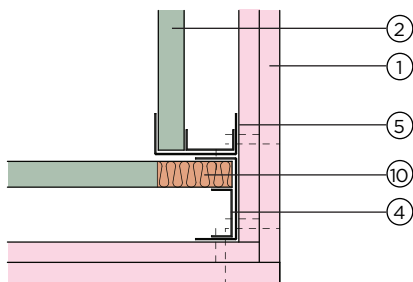
Gyproc CoreBoard horizontal joint detail

9



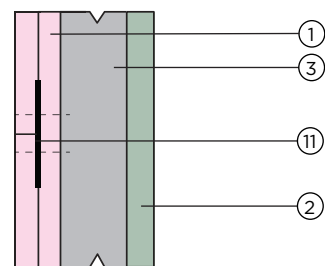
Internal corner detail

10



External corner detail

11



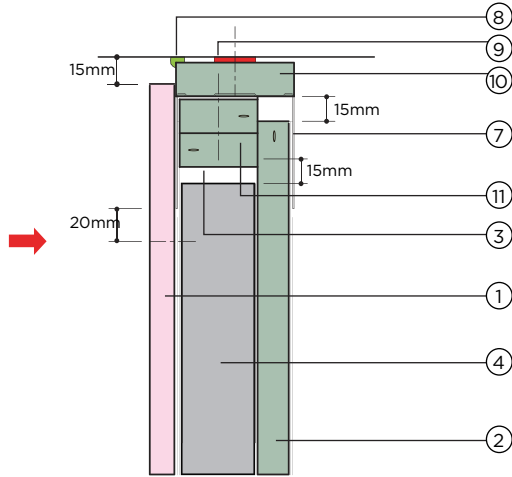
Horizontal board joint detail

1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Stud
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gyproc Sealant

7. Gypframe GA3 CoreBoard Joint Angle
8. 122mm Gyproc CoreBoard strip (cut on site)
9. Gypframe 103 FC 50 Fixing Channel
10. KIMMCO ISOVER stone mineral wool
11. Gypframe GFS1 Fixing Strap

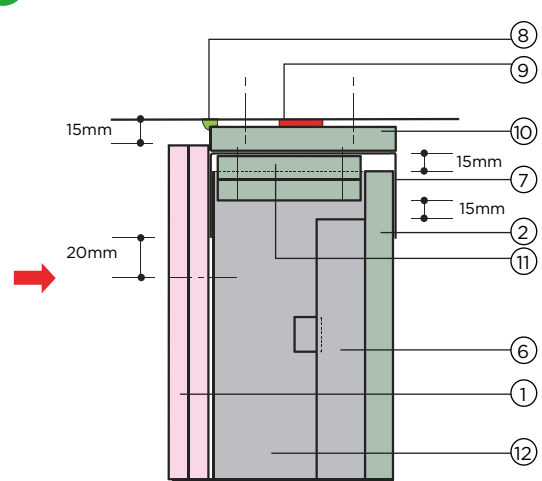
Construction details (continued)

12



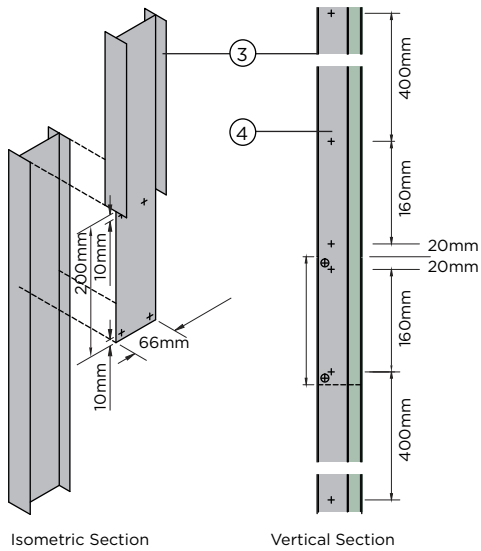
15mm deflection head detail - applicable to 70mm and 100mm 'I' Studs

13



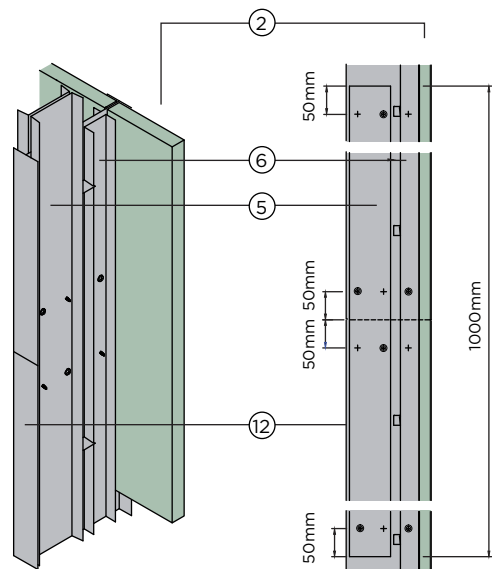
15mm deflection head detail - applicable to 150mm 'I' Studs

14



70mm and 100mm 'I' Stud splicing detail

15



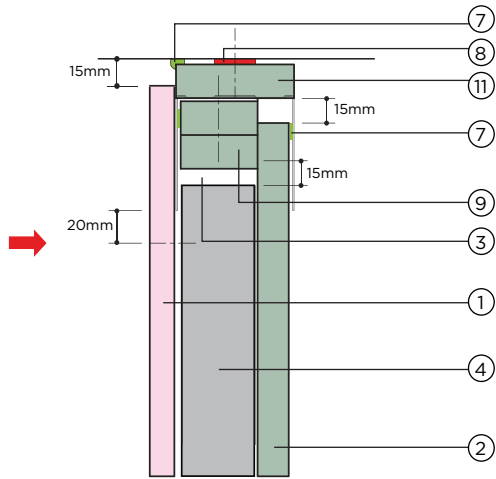
150mm 'I' Stud splicing detail

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Gyproc FireStop 2. Gyproc CoreBoard 3. Gypframe 'I' Stud 4. Gypframe Retaining Channel RC 70 / RC 100 5. Gypframe Retaining Channel RC 100 6. Gypframe Retaining Channel RC 150 | <ul style="list-style-type: none"> 7. Gypframe Extra Deep Channel 8. Gyproc Sealant 9. Gyproc FireStrip 10. Gyproc CoreBoard as dropped soffit 11. Gyproc CoreBoard fire-stop 12. Gypframe 150 90 tabbed 'I' Stud |
|---|---|

NB No fixings should be made through the boards into the flanges of the head channel. The arrow (➡) denotes the position of the uppermost board fixing.

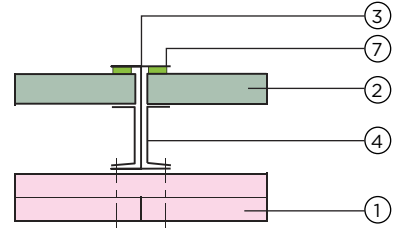
Construction details (continued)

16



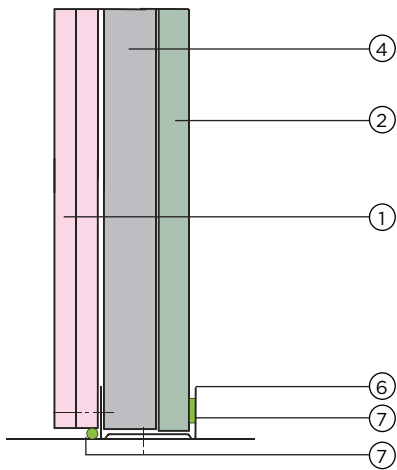
Head detail (sealed structure)

17



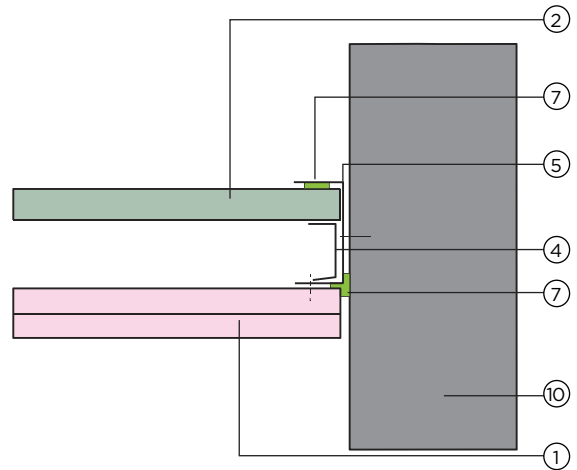
Intermediate stud detail (sealed structure)

18



Base detail (sealed structure)

19



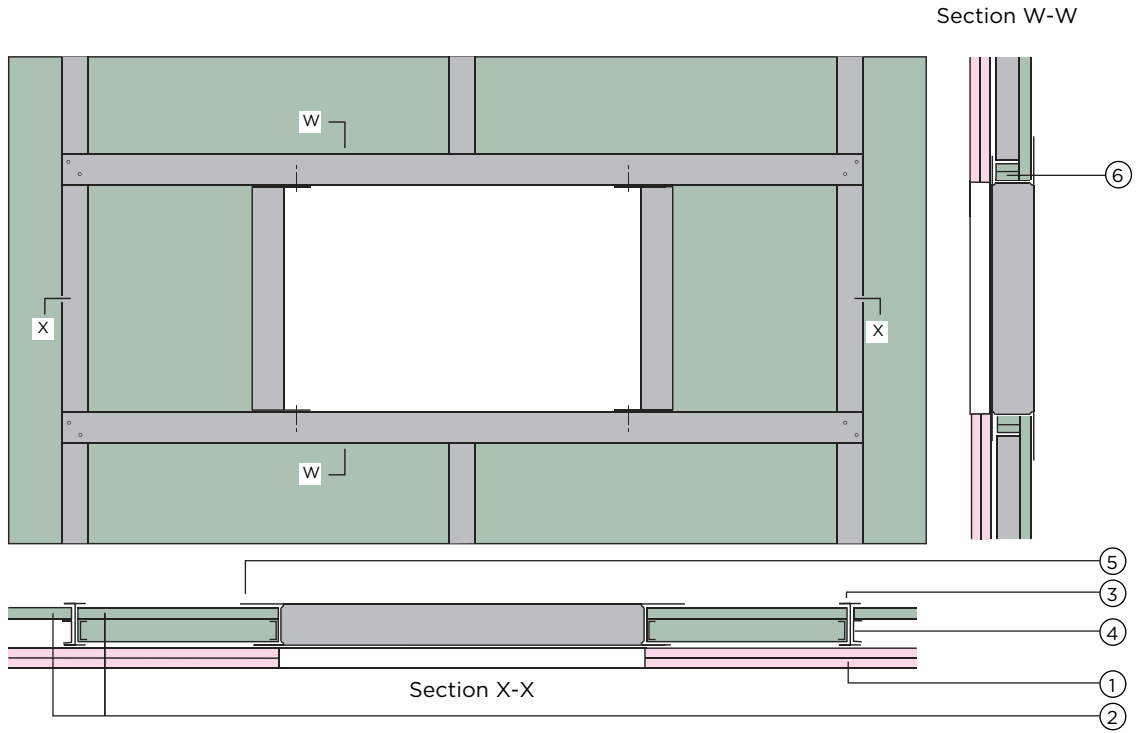
Junction detail with other elements (sealed structure)

1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Stud
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gypframe Standard Floor & Ceiling Channel

7. Gyproc Sealant
8. Gyproc FireStrip
9. Gyproc CoreBoard fire-stop (cut on site)
10. Structure
11. Gyproc CoreBoard as dropped soffit

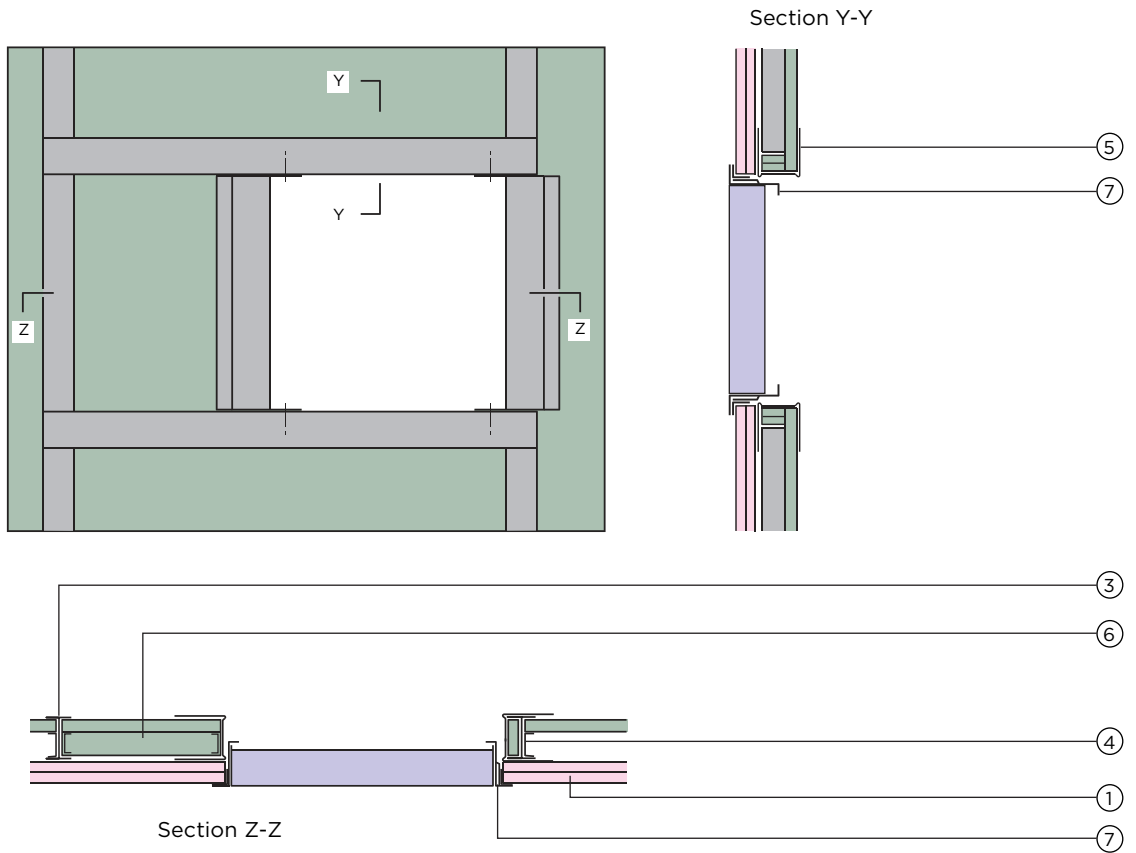
Construction details (continued)

20



Opening bridging studs detail

21

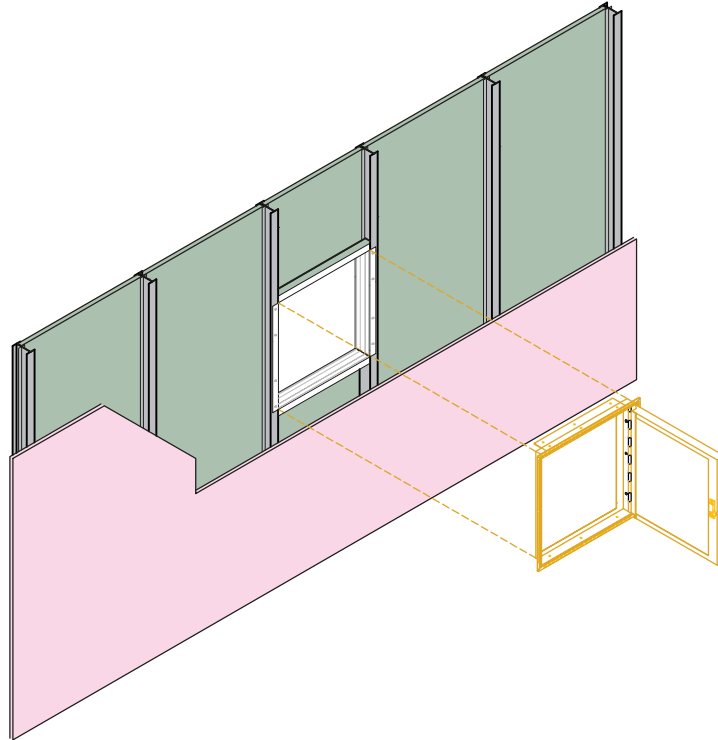


Opening between studs detail

- | | |
|-------------------------------|---|
| 1. Gyproc FireStop | 5. Gypframe Extra Deep Channel (to frame the opening) |
| 2. Gyproc CoreBoard | 6. Gyproc CoreBoard fire-stop (cut on site) |
| 3. Gypframe 'I' Studs | 7. Access panel frame |
| 4. Gypframe Retaining Channel | |

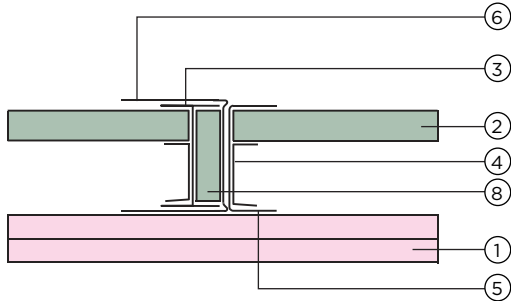
Construction details (continued)

22



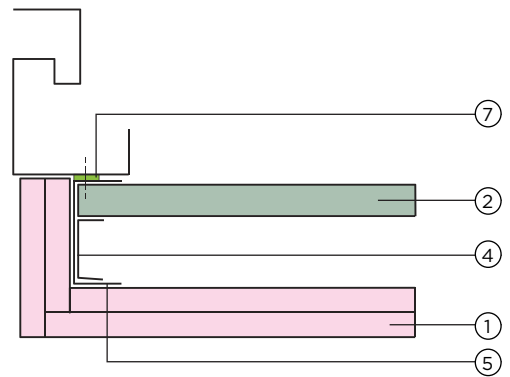
Access Panel on 'I' Stud - Isometric detail

23



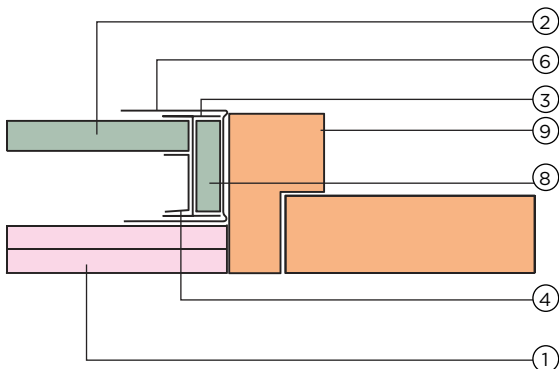
Access door detail - spandrel panel

24



Lift door detail (Gypframe Starter Channel mechanically fixed to frame)

25

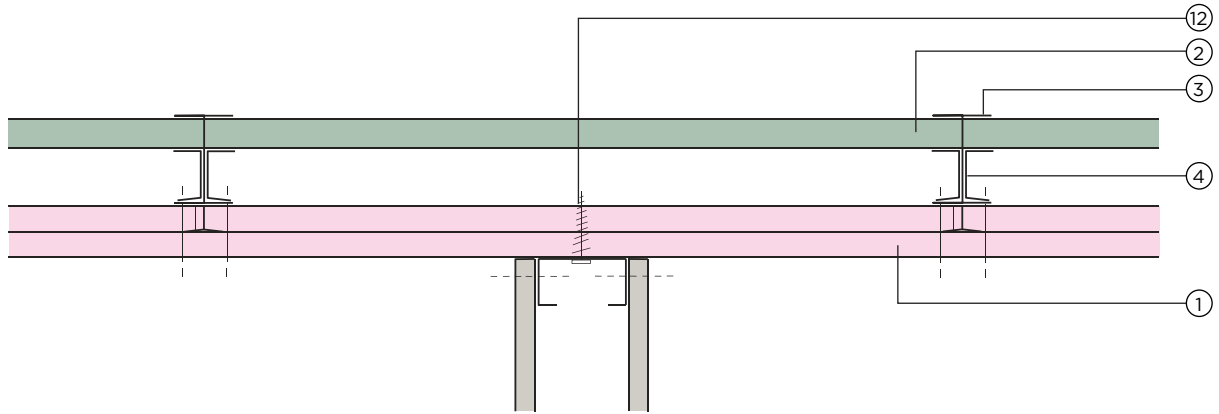


Access door jamb detail

1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Studs
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gypframe Extra Deep Channel
7. Gyproc Sealant
8. Gyproc CoreBoard packer (cut on site)
9. Door frame

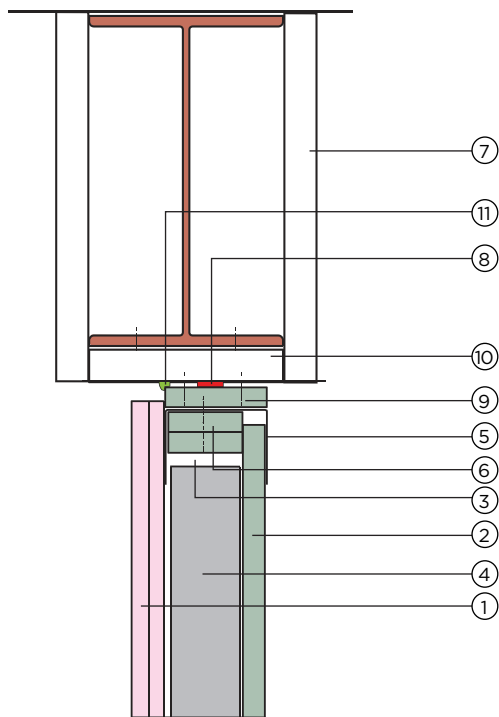
Construction details (continued)

27



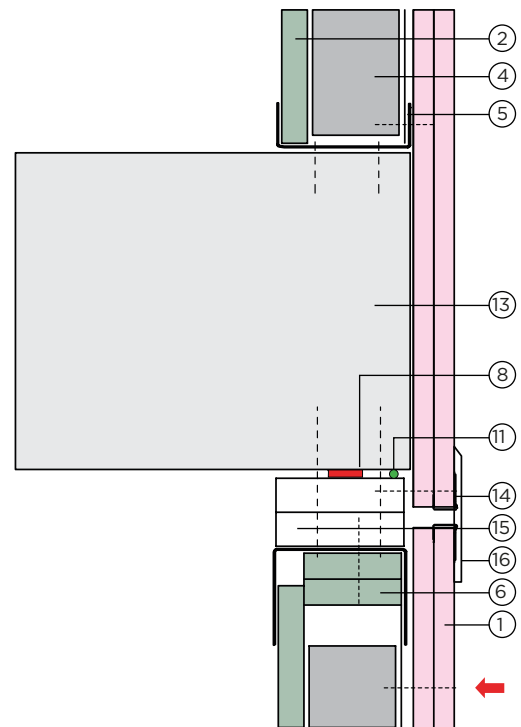
Retro-fit non-performance partition junction detail

28



Fixing head channel detail to Z-section at underside of beams

29

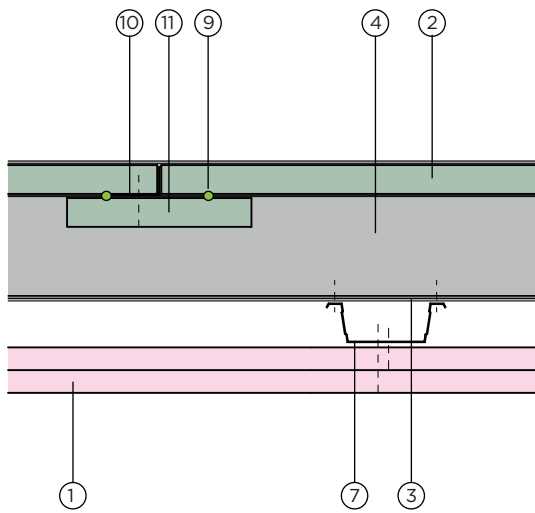


Control joint detail at floor slab junction where lining boards continue

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Gyproc FireStop 2. Gyproc CoreBoard 3. Gypframe 'I' Studs 4. Gypframe Retaining Channel 5. Gypframe Extra Deep Channel 6. Gyproc CoreBoard fire-stops 7. Beam encasement 8. Gyproc FireStrip | <ol style="list-style-type: none"> 9. Gyproc CoreBoard as dropped soffit 10. Z-section 11. Gyproc Sealant 12. Suitable metal self-drive fixing (by others) 13. Structure 14. Gyproc Edge Bead - if no cover strip is used 15. Glasroc X 16. Cover strip (by others) |
|--|---|

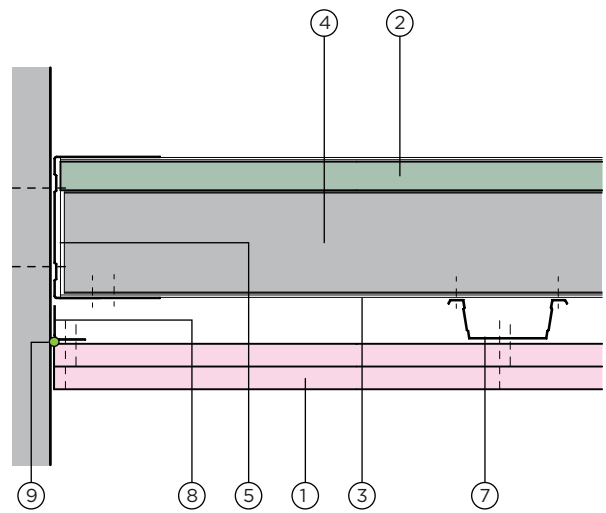
Construction details (continued)

30



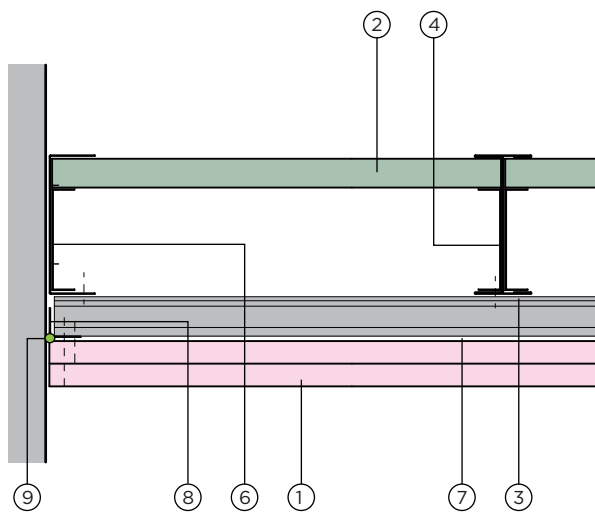
Gyproc CoreBoard joint detail

31



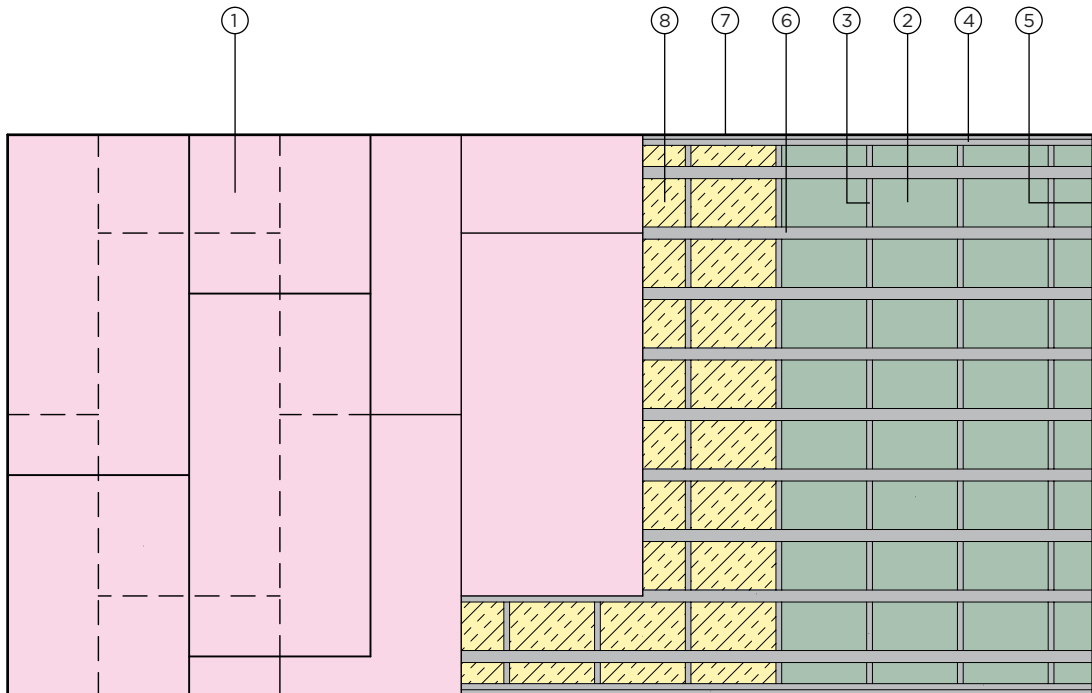
Perimeter detail 1

32



Perimeter detail 2

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Gyproc FireStop 2. Gyproc CoreBoard 3. Gypframe 'I' Stud 4. Gypframe Retaining Channel 5. Gypframe Extra Deep Flange Floor & Ceiling Channel 6. Gypframe Starter Channel | <ol style="list-style-type: none"> 7. Gypframe MF5 Ceiling Section 8. Gypframe GA1 Steel Angle 9. Gyproc Sealant 10. Gypframe GA3 Steel Angle 11. 122mm wide strip of 19mm Gyproc CoreBoard |
|--|--|



Reflected ceiling plan

- | | |
|---|---------------------------------|
| 1. Gyproc FireStop | 5. Gypframe Starter Channel |
| 2. Gyproc CoreBoard | 6. Gypframe MF5 Ceiling Section |
| 3. Gypframe 'I' Studs | 7. Gypframe GA1 Steel Angle |
| 4. Gypframe Extra Deep Flange Floor & Ceiling Channel | 8. ISOVER Eco APR |

DriLyner

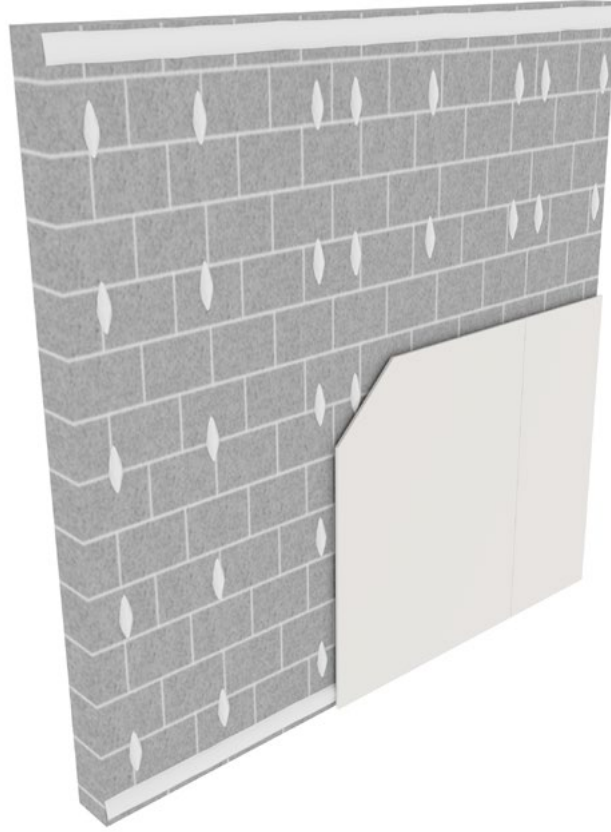
BASIC

Adhesive system for
drylining masonry walls



DriLyner BASIC

DriLyner BASIC system provides simple and effective techniques for drylining block and concrete walls in both new-build and refurbishment work. This system uses plasterboard adhesive dabs to bond boards directly to the wall.



Key Benefits



Eliminates wet trades



Minimal loss in room space



Alternative to plastering to provide straight finish for masonry and block walls



Services incorporated with minimum chasing



Removes minor surface irregularities within the drylining cavity



Cost effective with high coverage



Eligible for the SpecSure warranty from Gyproc

System components

Board products



Gyproc Regular^{1, 2, 3}
(12.5, 15mm)
Standard gypsum plasterboard



Gyproc DuraLine^{1, 2, 3}
(15mm)
Gypsum plasterboard with fire resistant additives and a high density core for enhanced sound insulation and impact resistance performance



Gyproc FireStop^{1, 2, 3}
(12.5, 15mm)
Gypsum plasterboard with fire resistant additives



Gyproc Habito²
(12.5mm, 15mm)
Next generation plasterboard which consists of a specially reinforced gypsum core designed for high strength and fixing capability



Gyproc SoundBloc^{1, 2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



Plasterboard accessories



Gyproc Plasterboard Adhesive
For direct fixing plasterboards to brick, block-work or cementitious backgrounds



Gyproc Paper Tape
Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc Jointing Compound
Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Fibre Tape
Suitable for flat joint reinforcement



Glasroc X Tape
Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

Corners



Habito Flex 83
Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex
Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead
Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead
A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Installation overview



Mark setting out lines on the floor and ceiling allowing for high spots, a minimum 10mm & maximum 25mm drylining cavity and the thickness of board.



Mark the wall with lines at 1200mm centres to indicate board positioning.



Take a clean bucket and add approximately 10kg of Gyproc Plasterboard Adhesive gradually to 5 litres of clean water. Leave for 3 minutes before mixing. Mix until a smooth consistency is achieved. We recommend using a power mixing tool at speed not exceeding 200rpm.



Commence drylining from a window / door reveal or internal angle, apply adhesive dabs in three or four rows (as appropriate) to receive the first board, together with intermediate dabs at ceiling level and a continuous band of adhesive at skirting level.



A continuous fillet / ribbon of Gyproc Plasterboard Adhesive is applied to the wall perimeter and around all services and openings as board fixing proceeds. This is important if the lining is designed to act as an air barrier to achieve building airtightness.



Position the boards with the bottom edge resting on plasterboard packing strips. Boards are 'tapped' into position, lifted tight to the ceiling using a footlifter and supported until the adhesive sets. Further boards are installed, lightly butted together, to complete the lining.

Design

Planning – key factors

Gyproc DriLyner BASIC comprises Gyproc plasterboard adhesively fixed using Gyproc Plasterboard Adhesive dabs appropriately distributed over a masonry background with a suitable key to ensure fastness. The position of services should be pre-determined and their installation planned into the construction stage.

In general, an allowance of the total board thickness plus 10mm for the dabs should be made from the high point of the background to the face of the lining. This will determine the lining dimension required at door and window reveals and soffits. Ceilings should be installed prior to the application of DriLyner linings, ensuring that the boards are cut close to the wall.

Interior partitions abutting the inner leaf of the external wall should also be installed prior to installation of DriLyner lining where fire and acoustic performance are a key consideration. This helps to reduce flanking transmission.

DriLyner linings should only be installed to backgrounds that are reasonably dry and protected from the weather.

If the surface is friable, consider the use of a mechanically fixed system such as GypLyner UNIVERSAL. Refer to GypLyner UNIVERSAL.

DriLyner BASIC can be fixed directly to low, medium, and high suction masonry, as well as pre-cast and in-situ normal ballast aggregate concrete, using Gyproc Plasterboard Adhesive. Concrete backgrounds must be free of shutter-release agents and will need to be brushed down to remove dust, and slightly dampened with a wet brush prior to applying adhesive dabs. Concrete which is exceptionally dense or smooth, or made with limestone, brick or granite aggregates, should be pre-treated with a bonding agent such as PVA or similar, which should be applied in bands to correspond with the adhesive dab centres.

Variations in moisture content of the background will lead to differences in its suction characteristics. When these are extreme, either with slow drying conditions, or dry, hot conditions, care must be taken. If too wet, allow the backgrounds to dry out. In dry, hot conditions, care should be taken to avoid rapid loss of moisture prior to the set of the adhesive.

When a considerable quantity of moisture may be present in the building, due to the condition of the building fabric or to prolonged humid weather, consideration should be given to the use of dehumidifiers or appropriate ventilation to speed up the drying-out process. Installation of the lining before the background is adequately dry can have an adverse effect on both the building and the lining itself.

When installing DriLyner BASIC to composite wall structures consisting of concrete columns with infills of brick or block, dabs of adhesive should not be located on the columns but only on the brick or block infill areas. This will reduce the likelihood of cracking of the finished lining as a result of differential movement within the background.

Adhesive dabs

Dabs should be applied in a regular pattern in accordance with BS 8212 and BS 8000: Part 8 to give a minimum area of contact between board and background of 20%.

Services

The cavity between the linings and the background can be used to incorporate services. This minimises the depth of chasing required in the background. Pipes and conduits should be fixed in position before lining work commences. Gas pipes should be installed in accordance with BS 6891, which requires pipes to be fully encased, e.g. using Gyproc Plasterboard Adhesive. To maintain an airtight construction the perimeter of any penetration through the lining should be sealed as necessary at the time the services are being installed.

The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard.

Cavity barriers

Local building regulations may require the provision of vertical cavity barriers to long runs of lining. A suitable cavity barrier can be formed using a continuous vertical line of dabs running down the centre of a board.

Thermal performance

Uncontrolled air movement through the drylining cavity can result in a reduction in thermal performance through the lining system. U-values for DriLyner systems are typically calculated on a sealed cavity between the lining and the background. This is achieved in practice if the abutting elements and the background are constructed correctly, and junctions are sealed.

When the lining is designed to act as an air barrier to achieve building airtightness, the perimeter of the cavity is to be sealed by applying a continuous fillet / ribbon of Gyproc Plasterboard Adhesive or Gyproc Sealant to the perimeter of the external wall and around any services and openings.

Fixtures

Lightweight fixtures can be made directly to the lining. For other fixtures, the fixing device used should be long enough to bridge the drylining cavity and give adequate penetration into the solid wall. Refer to Service installations.

Where it is preferred to not bridge the lining and drilling to fix into the masonry background using specialist fixings, or where multiple fixtures may be added or subsequently moved around the room in the future necessitating further drilling into masonry each time, Gyproc Habito Board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Board finishing

Refer to Finishing systems on page 298.

Design (continued)

Tiling

Tiling should only commence seven days after installation. For further details on tiling guidance, refer to Tiling section on page 304.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc SoundBloc Activ'Air.

Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

GypLyner UNIVERSAL



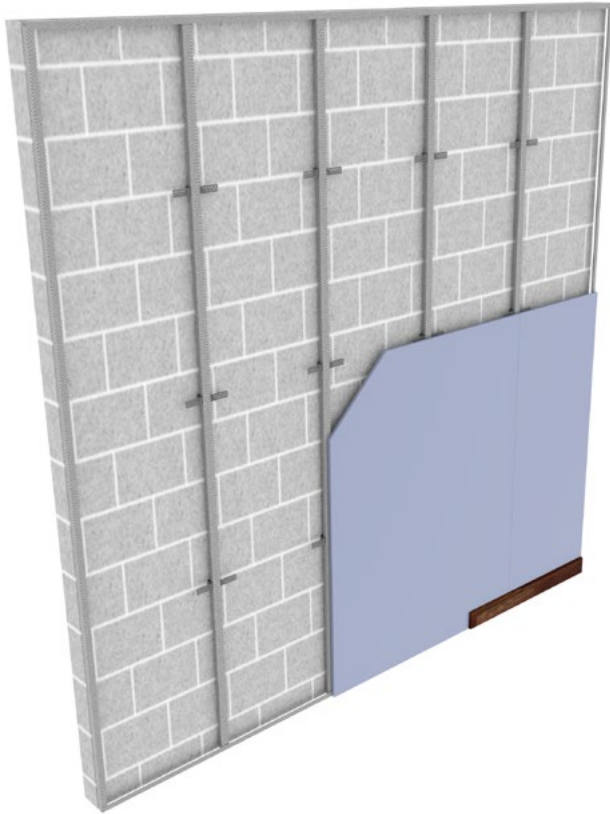
Metal framed
wall lining system



Lapita Hotel
Dubai

GypLyner UNIVERSAL

GypLyner UNIVERSAL wall lining system is a cost-effective, virtually independent metal frame drylining. It is a general purpose system that is suitable for all internal non-loadbearing applications.



49 - 66 R_w dB

Key Benefits



Background surface undulations are accommodated within the framework cavity



Services are easily incorporated within the framework cavity, such as water and waste pipe



Minimal thermal bridging of the insulation layer due to the small, discrete fixings back to the substrate



Ideal for refurbishing existing walls where enhanced acoustic performance is required



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe GL1 Stud
Main support channel to receive fixing of board



Gypframe GA1 Steel Angle
Primarily used as a perimeter wall angle and also used as a fixing mechanism to hold ISOVER Eco APR in place



Gypframe GLB85 Bracket
For connecting the GL1 lining channel to the background with a maximum of 85mm cavity depth



Gypframe GA4 Steel Angle
Widely used in framed construction to provide support, fixing and additional strength to wall and encasement framing. Also used as an angle to improve the fire performance at deflection heads.



Gypframe GLB135 Bracket
For connecting the GL1 lining channel to the background with a maximum of 135mm cavity depth



Gypframe Service Support Plate
For installation of 18mm plywood within a partition cavity to support medium to heavyweight fixtures



Gypframe GFS1 Fixing Strap
Used to support horizontal board joints and within deflection head details

Board products



Gyproc SoundBloc^{1,2}
(12.5mm, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

Corners



Habito Flex 83

Adjustable and superior corner reinforcement that uses structural laminate technology for ultimate impact protection



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

System components (continued)

Insulation products



**ISOVER Eco
Acoustic Partition Roll (APR)**
(25, 50, 75 and 100mm)*
Non-combustible glass mineral wool
roll for sound insulation in partitions,
linings and ceiling systems

Minimum density: 16 kg/m³

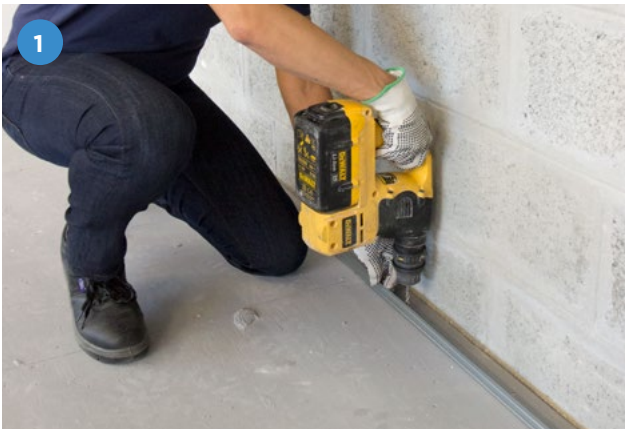


**KIMMCO ISOVER
Stone mineral wool**
(50 and 70mm)*
For fire stopping, where required

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



Gypframe GA1 Steel Angle is fixed to perimeters at 600mm centres using Gyproc Hammer Fix.



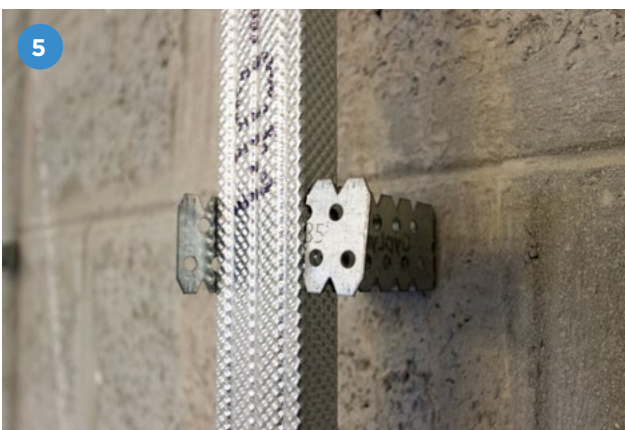
Vertical lines are marked on the wall at appropriate intervals to indicate Gypframe GLB85/GLB135 fixing centres. Horizontal lines are marked at appropriate centres to determine individual bracket positions. Brackets are then fixed into position.



Gypframe GL1 Studs are installed inline with the Gypframe GLB85/GLB135 Brackets at 600mm centres and screw fixed using Gyproc Waferhead screws to the GA1 Angle at the head and base.



Gypframe GLB85/GLB135 bracket legs are bent forward and each leg fixed to the Gypframe GL1 Studs with Gyproc Waferhead Screws.

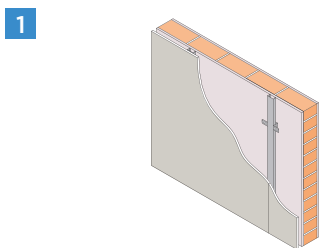


The protruding Gypframe GLB85/GLB135 bracket legs are bent back to sit clear of the Gypframe GL1 Studs. At internal angles, Gypframe GL1 Stud is positioned tight into the corner to provide support for the lining boards.

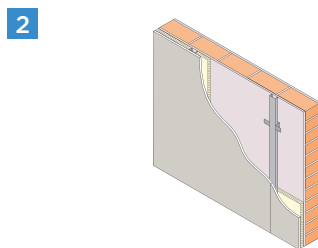


Gyproc boards are screw-fixed to framing members with Gyproc Drywall Screws.

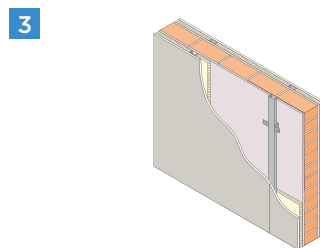
Table 1 – GypLyner UNIVERSAL refurbishment



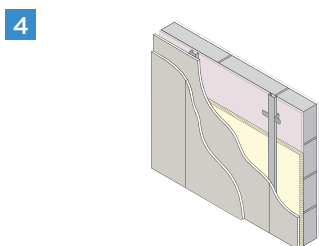
Solid brick wall (103mm) of density 1700 kg/m³ with 13mm plaster each side and Gypframe GL1 Stud framework fixed to **one side** to give 35mm cavity. Lining as in table.



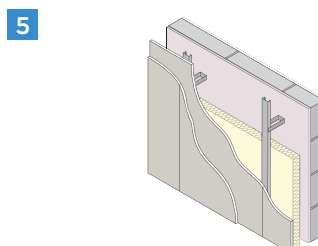
Solid brick wall (103mm) of density 1700 kg/m³ with 13mm plaster each side and Gypframe GL1 Stud framework fixed to **one side** to give 35mm cavity. Cavity filled with 25mm ISOVER Eco APR. Lining as in table.



Solid brick wall (103mm) of density 1700 kg/m³ with 13mm plaster each side and Gypframe GL1 Stud framework fixed to **both sides** to give 35mm cavities. Cavities filled with 25mm ISOVER Eco APR. Linings as in table.



Solid block wall (100mm) of density 1700 kg/m³ with 13mm plaster each side. Gypframe GL1 Stud framework fixed to **one side** to give 35mm cavity. Cavity filled with 25mm ISOVER Eco APR. Linings as in table.



Solid block wall (100mm), of density 1700 kg/m³ with 13mm plaster each side. Gypframe GL1 Stud framework fixed to **one side** to give 85mm cavity. Cavity filled with 50mm ISOVER Eco APR. Linings as in table.

*For fixing details contact the Gyproc Technical Team

Detail	Board type ¹	Lining thickness	Sound insulation	Improvement over existing wall
		mm	$R_w (R_w + C_{tr})$ dB	$R_w (R_w + C_{tr})$ dB
1	Gyproc SoundBloc	1 x 12.5	49 (43)	+2 (-1)
2	Gyproc SoundBloc	1 x 12.5	57 (50)	+10 (+6)
3	Gyproc SoundBloc	1 x 12.5	60 (42)	+13 (-2)
4	Gyproc SoundBloc	1 x 12.5	57 (50)	+10 (+6)
4	Gyproc SoundBloc	2 x 12.5	60 (55)	+13 (+11)
5	Gyproc SoundBloc	1 x 12.5	64 (56)	+17 (+12)
5	Gyproc SoundBloc	2 x 12.5	66 (59)	+19 (+15)

¹ For greater impact resistance replace Gyproc SoundBloc with 15mm Gyproc DuraLine. For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Where tiling, refer to 'Tiling section' on page 304

Design

Planning – key factors

GypLyner UNIVERSAL comprises Gypframe GL1 Studs installed at 600mm centres fixed back to a masonry background at 800mm vertical centres using either a Gypframe GLB85 or GLB135 bracket dependent on the cavity depth required.

Allow for a stand-off of 25mm - 85mm plus the lining thickness for Gypframe GLB85 Brackets, and 25mm - 135mm plus the lining thickness for Gypframe GLB135 Brackets. These stand-offs are sufficient to correct irregularities normally encountered in solid backgrounds. The standoff will determine the lining dimension required at door and window reveals and soffits. Ceilings should be installed prior to installing GypLyner UNIVERSAL wall linings. Any abutting partitions should also be installed prior to drylining.

Cavity barriers

Local building regulations may require the provision of vertical cavity barriers to long runs of lining. Minimum 12.5mm plasterboard, cut to cavity depth and screw-fixed to the leg of Gypframe GL1 Stud will provide a satisfactory cavity barrier, or alternatively stone mineral wool (by KIMMCO ISOVER) cut neatly to fit across the cavity also forms a suitable closure. The nature of the barrier and its fixing should not detract from the general performance of the wall.

Thermal performance

Uncontrolled air movement through the drylining cavity can result in a reduction in thermal performance through the lining system. U-values for GypLyner UNIVERSAL wall lining systems are typically calculated on a sealed cavity between the lining and the background. This is achieved in practice if the abutting elements and the background are well fitted, and junctions are sealed using Gyproc Sealant.

Condensation and water vapour resistance

The application of two coats of a vapour control sealer (by others) to Gyproc plasterboards after installation and jointing should provide a water vapour resistance of at least 15 MNs/g. Alternatively using an appropriate vapour control layer such as a polythene membrane, prior to installing the plasterboard lining will significantly reduce the risk of interstitial condensation.

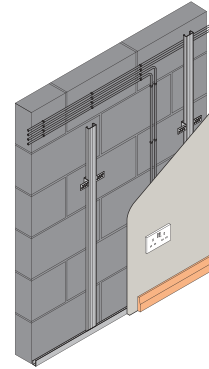
It is important, particularly in new buildings, that external masonry walls are properly dried out before a vapour control layer is provided, otherwise moisture may be trapped, impairing the performance of the construction.

Wall lining rigidity

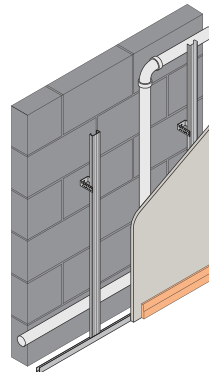
Gypframe GLB85 or Gypframe GLB135 Brackets should be positioned equidistant at maximum 800mm vertical centres. Where there is a requirement for increased rigidity, these support centres should be reduced accordingly, although acoustic performance may be downgraded. Gyproc Hammer Fix anchors are recommended for fixing brackets to the solid background.

Services

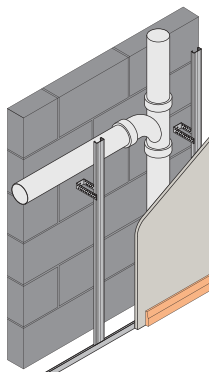
The cavity between the metal framework and the background facilitates the incorporation of services. Pipes and conduits should be fixed in position before installing the framing. Maximum cavity depths (substrate surface to the back of the lining board) of 85mm or 135mm can be achieved using Gypframe GLB85 or GLB135 Bracket respectively. Note that when running services horizontally, there will be the depth of the GL1 Stud (18mm) will need to be accounted for. For example, using a GLB135 Bracket will give a maximum 135mm clear cavity when running services vertically, but 135mm - 18mm (117mm) when running services horizontally.



Cabling



Water and waste pipes



Soil pipes

Design (continued)

Fixtures

Lightweight fixtures can be made directly to the lining. Medium weight fixtures should be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured with Gypframe Service Support Plates. Refer to Service installations for further information.

Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables on page 210 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc SoundBloc Activ'Air.

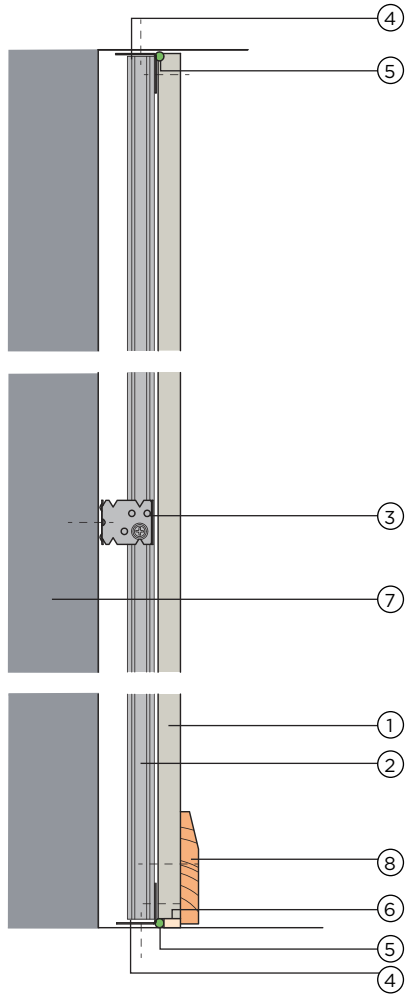
Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Construction details

For GypLyner UNIVERSAL construction details, refer to the construction details shown on page 213. For more typical or example details, please contact the Gyproc Technical Team.

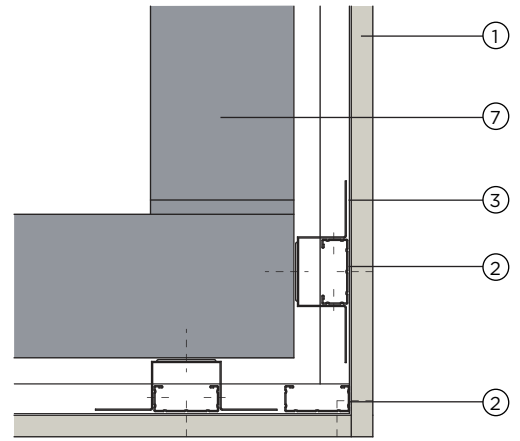
Construction details

1



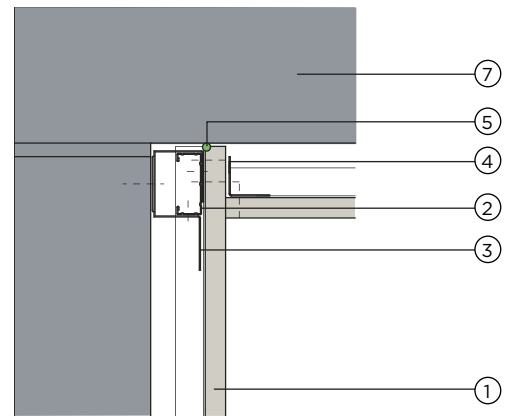
Head and base detail

2



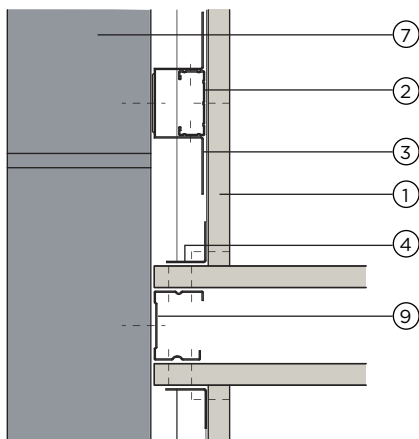
External angle detail

3



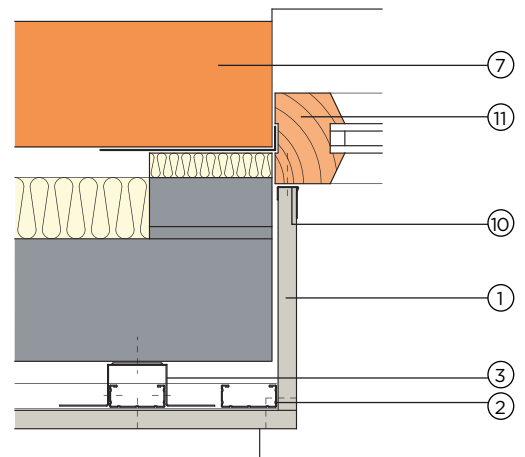
Internal angle detail

4



Partition junction detail

5



Window reveal detail

- 1. Gyproc SoundBloc
- 2. Gyframe GL1 Stud
- 3. Gyframe GLB85/GLB135 Bracket
- 4. Gyframe GA1 Steel Angle
- 5. Gyproc Sealant
- 6. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)

- 7. Wall structure
- 8. Skirting
- 9. Gypframe 'C' Stud
- 10. Gyproc Edge Bead
- 11. Window frame

GypLyner

IWL



Independent wall
lining system



GypLyner IWL

GypLyner IWL is a lightweight, non-loadbearing system, which is built independently of the external wall construction. The system is used in all types of building, but is particularly suitable for those with reinforced concrete or steel frames. The lining provides fire resistance to structural steel sections clad with lightweight metal sheeting, and can also be used in association with new or existing masonry walls to increase sound insulation and meet thermal performance requirements.



 **30 - 120** mins

 **59 - 61** R_w dB

Key Benefits



Totally independent from wall with fixings to floor and soffit only



Provides fire protection to structural steelwork



Used horizontally to form a corridor ceiling



Used to upgrade the sound and thermal performance of an existing masonry wall



Satisfies BS 5234 requirements up to and including Severe Duty



Services are easily incorporated within the framework with no limitation to the cavity size that can be created



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



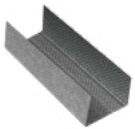
Gypframe 'I' Studs

(70 | 70, 100 | 80, 150 | 90)
Enhanced strength stud that allows for lining height, without increasing lining width. Designed to receive fixing of board to one side only



Gypframe Standard Floor & Ceiling Channels

(72 C 50, 102 C 50, 152 C 50)
Standard floor channels for retaining Gypframe studs at floor junctions up to heights not exceeding 4200mm. Also used around openings



Gypframe Deep Flange Floor & Ceiling Channels

(72 DC 60, 102 DC 60, 152 DC 60)
Floor and ceiling channels with deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions 4200mm to 8000mm high. Also used around openings and in deflection heads (maximum 30mm deflection)



Gypframe Extra Deep Flange Floor & Ceiling Channels

(72 EDC 80, 102 EDC 80, 152 EDC 80)
Floor and ceiling channels with extra deep flanges for retaining the Gypframe studs at floor and ceiling junctions for partitions over 8000mm high. Also used around openings and in deflection heads (maximum 50mm deflection)



Gypframe GFS1 Fixing Strap

Used to support horizontal board joints



Gypframe GA1 Steel Angle

Used as a fixing mechanism to hold ISOVER Eco APR in place



Gypframe 103 FC 50

Fixing Channel

A versatile metal fixing channel used to support the weight fixtures on walls



Gypframe 103 FC 90

Fixing Channel

A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe Service Support Plate

For installation of 18mm plywood within a partition cavity to support medium to heavyweight fixtures

System components (continued)

Board products



Gyproc Regular^{1, 2, 3}
(12.5, 15mm)
Standard gypsum plasterboard



Gyproc DuraLine^{1, 2, 3}
(15mm)
Gypsum plasterboard with fire resistant additives and a high density core for enhanced sound insulation and impact resistance performance



Gyproc Moisture Resistant^{2, 3}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance.



Gyproc Habito²
(12.5, 15mm)
Next generation plasterboard which consists of a specially reinforced gypsum core designed for high strength and fixing capability



Gyproc FireStop^{1, 2, 3}
(12.5, 15mm)
Gypsum plasterboard with fire resistant additives



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc SoundBloc^{1, 2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick, excluding 'I' studs



Gyproc Habito Screws

Corrosion resistant self-tapping screw with counter sunk cross heads specifically used for fixing Gyproc Habito plasterboard to 'C' Stud framing 0.8mm thick or greater and 'I' Studs greater than 0.7mm thick



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick, excluding 'I' studs



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints and provides improved resistance against cracking



Gyproc FireStrip

Soft extruded linear gap seal introduced for use within Gyproc system deflection head details



Gyproc Fibre Tape

Suitable for flat joint reinforcements



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Glass mat drywall tape ideal for use with mold-resistant and paperless drywall systems for high-humidity and moisture-prone applications. Available in a 30m roll

System components (continued)

Corners



Habito Flex 83

Using SLAM technology it provides an impact resistant corner by fitting every angle, every time



Levelline Flex

Drywall corner that flexes to any inside or outside corner angle



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco

Acoustic Partition Roll (APR)

(25, 50, 75 and 100mm)
Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems.

Minimum density: 16 kg/m³



KIMMCO ISOVER

Stone mineral wool

(50 and 70mm)
For fire stopping, where required.

Minimum density: 33 kg/m³

Installation overview



Gypframe Floor & Ceiling channels are fixed to the concrete substrate using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems).



Gypframe 'C' Studs are suitably fixed to abutments.



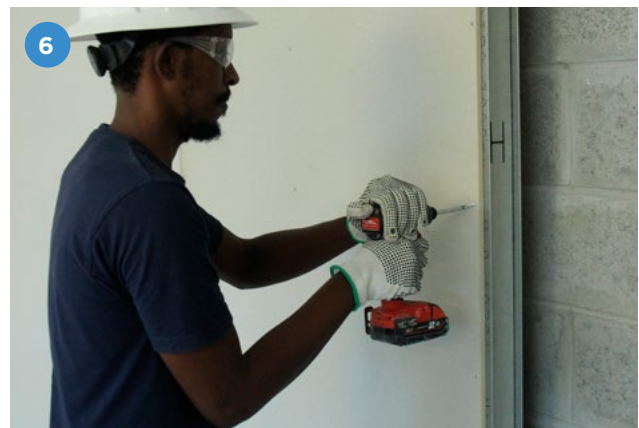
Gypframe 'I' Studs are friction fit vertically at the required centres within the channel sections to form the framework. This allows for adjustment of stud positions during boarding.



The perimeter of the metal framework is then sealed with Gyproc Sealant for optimum sound insulation performance.



ISOVER Eco APR is added to the lining cavity for increased acoustic performance.



Gyproc plasterboards are fixed with Gyproc Drywall Screws to Gypframe studs. Ensure board joints are staggered between board layers and horizontal board joints in the face layer board should be supported with Gypframe GFS1 Fixing Strap.

Table 1a - GypLyner IWL maximum heights¹ for Gypframe 'I' Studs at 600mm centres

Stud type	12.5mm boards maximum heights		15mm boards maximum heights	
	single mm	double mm	single mm	double mm
Gypframe 70 I 70	3600	4200	3900	4300
Gypframe 100 I 80	5100	5700	5400	5800
Gypframe 150 I 90	6900	7200	7200	7500

Table 1b - GypLyner IWL maximum heights¹ for Gypframe 'I' Studs at 400 centres

Stud type	12.5mm boards maximum heights		15mm boards maximum heights	
	single mm	double mm	single mm	double mm
Gypframe 70 I 70	4100	4800	4500	5000
Gypframe 100 I 80	5800	6500	6200	6600
Gypframe 150 I 90	7900	8200	8200	8600

Table 1c - GypLyner IWL maximum heights¹ for Gypframe 'I' Studs at 300 centres

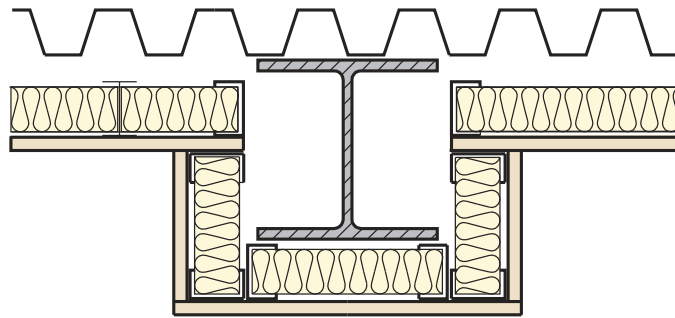
Stud type	12.5mm boards maximum heights		15mm boards maximum heights	
	single mm	double mm	single mm	double mm
Gypframe 70 I 70	4500	5200	4900	5500
Gypframe 100 I 80	6400	7100	6800	7200
Gypframe 150 I 90	8700	9000	9100	9500

¹ Based on a limiting deflection of L/240 at 200 Pa.

NB For heights between 4200mm and 8000mm, Gypframe Deep Channel should be used at the base and at head (subject to deflection criteria). For heights over 8000mm, Gypframe Extra Deep Channels should be used at head and base

**Table 2 – GypLyner IWL linings to steel clad external walls¹
Solutions to satisfy the requirements of BS 476: Part 22: 1987**

1



Board linings to one side of Gypframe 'I' Stud framework and 50mm ISOVER Eco APR forming an independent lining to structural steel columns, in association with external steel cladding. Linings as in table.

Detail	Board type ³	Lining thickness	Duty rating
		mm	

30 minutes integrity : 30 minutes insulation² fire resistance

1	Regular	2 x 12.5	Severe
1	SoundBloc	2 x 12.5	Severe
1	Regular	2 x 15	Severe
1	SoundBloc	2 x 15	Severe

60 minutes integrity : 30 minutes insulation² fire resistance

1	FireStop	1 x 12.5	Medium
1	FireStop	1 x 15	Heavy

90 minutes integrity : 30 minutes insulation² fire resistance

1	FireStop	2 x 12.5	Severe
1	FireStop	2 x 15	Severe

¹ The fire resistances apply to external walls, whose construction incorporates structural steel sections with a profiled steel cladding, when the inside of the wall is exposed to fire.

² The figures quoted relate to the complete wall structure including the external cladding. The lining also offers fire protection to steel columns from the lining side, subject to A/V (Hp/A) factor. Refer to Table 3.

³ The boards listed and the performances shown include MR, M2TECH & Activ'Air versions.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito

NB For improved durability and impact resistance, the outer layer of board can be replaced with a layer of Gyproc DuraLine.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Where tiling, refer to 'Tiling section' on page 304

**Table 3 – GypLyner IWL fire protection to structural steel.
Solutions to satisfy the requirements of BS 476: Part 21: 1987**

Board type	Lining thickness	Fire protection mins	Section factor ¹ A/V (Hp/A) m ⁻¹
	mm		
FireStop/Habito	1 x 12.5	30	Up to 300
FireStop/Habito	1 x 12.5	60	Up to 165
FireStop/Habito/DuraLine	1 x 15	30	Up to 300
FireStop/Habito/DuraLine	1 x 15	60	Up to 195
Regular/SoundBloc	2 x 12.5	30	Up to 300
FireStop/Habito	2 x 12.5	60	Up to 300
Regular/SoundBloc	2 x 15	60	Up to 300
FireStop/Habito	2 x 12.5	90	Up to 200
FireStop/Habito/DuraLine	2 x 15	90	Up to 300
FireStop/Habito	3 x 12.5	90	Up to 300
FireStop/Habito/DuraLine	2 x 15	120	Up to 110
FireStop/Habito	3 x 12.5	120	Up to 190
FireStop/Habito/DuraLine	3 x 15	120	Up to 300

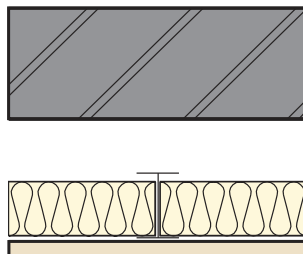
¹Based on four-sided exposure. Protection is afforded to universal column sections as described in BS 4: Part 1. Based on critical temperature 550°C (information on other critical temperatures is available). A 10mm air gap is required between the back of the board and the face of the structural steel.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc's recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Where tiling, refer to 'Tiling section' on page 304

**Table 4 – GypLyner IWL linings to masonry construction.
Solutions to satisfy the requirements of BS 476: Part 21: 1987**

1



Single or double layer board to one side of Gypframe 'I' Stud framework and 50mm ISOVER Eco APR forming an independent lining to masonry construction with a sealed surface mass of 1700 kg/m² (minimum). Linings as in table.

Detail	Board type ²	Lining thickness	Sound insulation R _w (R _w + C _{tr}) dB	Acoustic improvement over existing wall	Duty rating	Approx. weight kg/m ²
		mm				

120 minutes fire resistance¹

1	SoundBloc	1 x 12.5	59 (51)	+14	Medium	11
1	SoundBloc	1 x 15	59 (51)	+14	Medium	13
1	SoundBloc	2 x 12.5	61 (54)	+16	Severe	20
1	SoundBloc	2 x 15	61 (54)	+16	Severe	23

¹ The fire resistance quoted is provided by the masonry wall without contribution from lining.

² The boards listed and the performances shown include MR, M2TECH & Activ'Air versions.

NB For increased fixing capability replace above listed boards with equivalent thickness of Gyproc Habito

NB For improved durability and impact resistance, the outer layer of board can be replaced with a layer of Gyproc DuraLine.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc's recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB Where tiling, refer to 'Tiling section' on page 304

Design

Planning – key factors

GypLyner IWL comprises of Gypframe 'I' Studs installed at 600mm centres within Gypframe Floor & Ceiling Channels to receive board to one side. The position of services should be pre-determined and their installation planned into the frame erection stage. It is important that all parts of the lining system, including any solid form of thermal insulation, should remain independent of the external walling. The lining is erected with the external walling in place and the windows and doors fixed.

Extended heights / splicing studs

Where the wall height exceeds the available length of the Gypframe 'I' Stud, sections of stud can be spliced together to the required length using 600mm lengths of the appropriate floor and ceiling channel, fixed with four Gyproc Waferhead Jack-Point Screws in each flange to each side. Refer to construction detail 2.

Where greater heights than listed in table 1a, 1b and 1c are required, it may be possible to brace the lining back to the structure. Note that the system is non-loadbearing and should not be used to provide lateral restraint to masonry or other external wall constructions.

Junction with a suspended ceiling

Where a GypLyner IWL system is to be fixed, in accordance with Gyproc's installation instructions, to the underside and into the framework of a Gyproc MF ceiling, it's permissible maximum height is equal to that of where it is fixed.

In situations where a GypLyner IWL system is fixed up to a structural soffit but has a Gyproc MF ceiling to one side of the lining, where it is appropriately fixed to both this lining and perimeter partitions / walls, consideration can be given to the lateral restraint provided by the ceiling when developing the lining specification.

The relevant maximum height then, is the greater of the floor to Gyproc MF ceiling height or ceiling to structural soffit height. Where heights are specified based on lateral restraint from a suitable MF ceiling, either this ceiling should be in place at the time of installation or temporary restraint should be used.

Acoustic performance

GypLyner IWL can be used as an independent lining to improve the sound insulation of new or existing masonry walls. Acoustic testing on a basic masonry wall construction achieving R_w 45dB sound insulation gave a 14dB improvement when the wall was lined with GypLyner IWL. A 16dB improvement was achieved with a double layer plasterboard lining incorporating ISOVER insulation. Refer to Table 4. Careful detailing is required at junctions with sound insulating linings in order to maintain acoustic performance. Refer to construction detail 6.

Cavity barriers

Local building regulations may require the provision of vertical cavity barriers to long runs of lining. Minimum 12.5mm plasterboard, cut to cavity depth and screw-fixed to the leg of Gypframe GL1 Stud will provide a satisfactory cavity barrier, or alternatively stone mineral

wool (by KIMMCO ISOVER) cut neatly to fit across the cavity also forms a suitable closure. The nature of the barrier and its fixing should not detract from the general performance of the wall.

Fixing floor and ceiling channels

Gypframe Floor & Ceiling Channels must be securely fixed with a row of fixings at 600mm maximum centres. For 94mm and above, two rows of staggered fixings are required, each row at 600mm centres and each fixing 25mm in from the flange. If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channel should be used. If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Deflection heads

GypLyner IWL can accommodate deflection at the head with suitable detailing incorporating Gypframe Deep Flange or Extra Deep Flange Floor & Ceiling Channels. Refer to construction detail 4.

Control joints

Control joints may be required in the partition to relieve stresses induced by expansion and contraction of the structure. They should coincide with movement joints within the surrounding structure.

Insulation

ISOVER insulation batts, matching approximately the same depth as the Gypframe 'I' stud specified, are inserted to a friction-fit within the stud cavity. The Batts are self-supported from the 'I' stud flanges. Where a thinner ISOVER slab is to be used compared to the Gypframe 'I' Stud depth, additional sections of ISOVER insulation batt appropriately cut to size are inserted as a packer within the 'I' stud flange to help retain the slab in place. Alternatively, ISOVER Eco APR may be hung from the structural soffit either between stud modules or within the cavity formed between the background and the back of the 'I' stud flanges if appropriate.

Thermal performance

Uncontrolled air movement through the drylining cavity can result in a reduction in thermal performance through the lining system. U-values for GypLyner IWL wall lining systems are typically calculated on a sealed cavity between the lining and the background. This is achieved in practice if the abutting elements and the background are well fitted, and junctions are sealed using Gyproc Sealant.

Condensation and water vapour resistance

The application of two coats of a vapour control sealer (by others) to Gyproc plasterboards after installation and jointing should provide a water vapour resistance of at least 15 MNs/g. Alternatively using an appropriate vapour control layer such as a polythene membrane, prior to installing the plasterboard lining will significantly reduce the risk of interstitial condensation.

It is important, particularly in new buildings, that external masonry walls are properly dried out before a vapour control layer is provided, otherwise moisture may be trapped, impairing the performance of the construction.

Design (continued)

Services

The stud cut-outs can be used for services provided that the Isover insulation (where required) remains in place. The positioning of stud cut-outs is shown in construction detail 1.

Surface mounted services should be located against the plasterboard lining, and fixed through the lining to the stud framework. Any interruptions in the lining integrity will downgrade its performance. The installation of electrical services should be carried out in accordance with BS 7671 or other equivalent international standard.

Fixtures

Lightweight fixtures can be made directly to the lining. Medium weight fixtures should be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured with Gypframe Service Support Plates. Refer to Service installations for further information.

Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables from page 222-223 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc SoundBloc Activ'Air.

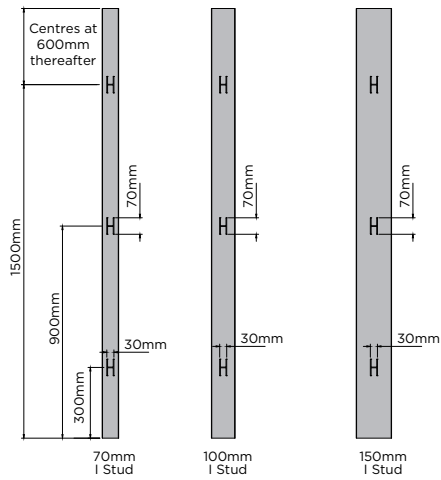
Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Construction details

For GypLyner IWL construction details, refer to the construction details shown on pages 226 to 227. For more typical or example details, please contact the Gyproc Technical Team.

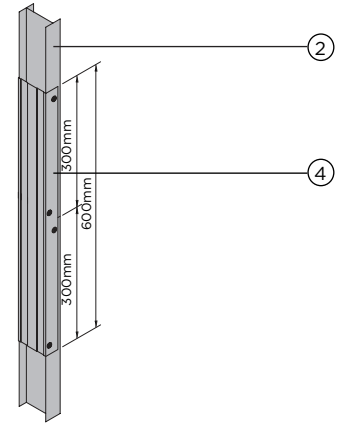
Construction details

1



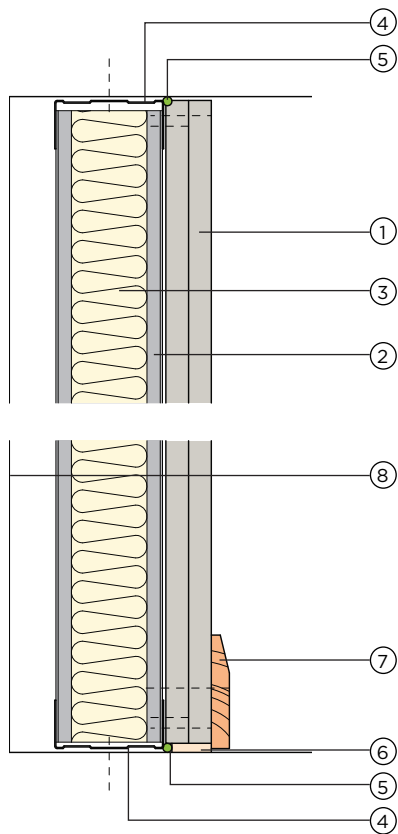
Service cut-outs - Gypframe 'I' Studs

2



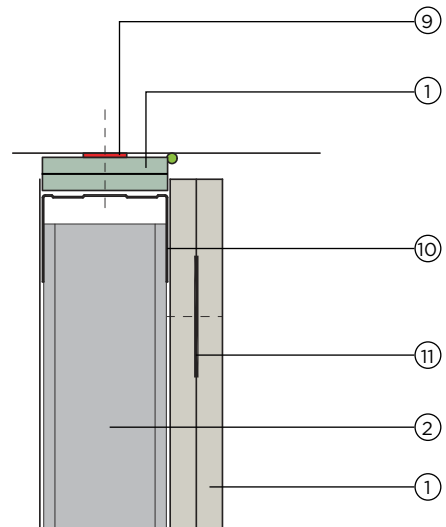
Gypframe 'I' Stud splicing detail

3



Head and base detail

4



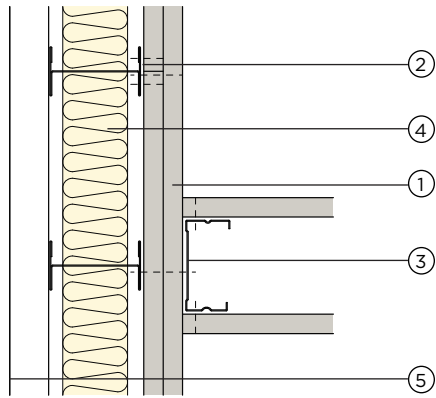
Deflection head detail

1. Gyproc plasterboard
2. Gypframe 'I' Stud
3. ISOVER Eco APR
4. Gypframe Floor & Ceiling channel
5. Gyproc Sealant
6. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)

7. Skirting
8. Wall structure
9. Gyproc FireStrip (continuous)
10. Gypframe Deep Channel
11. Gypframe GFS1 Fixing Strap

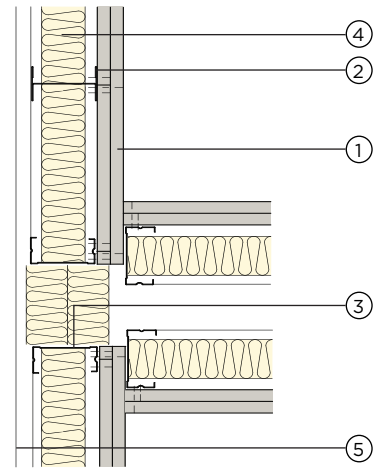
Construction details (continued)

5



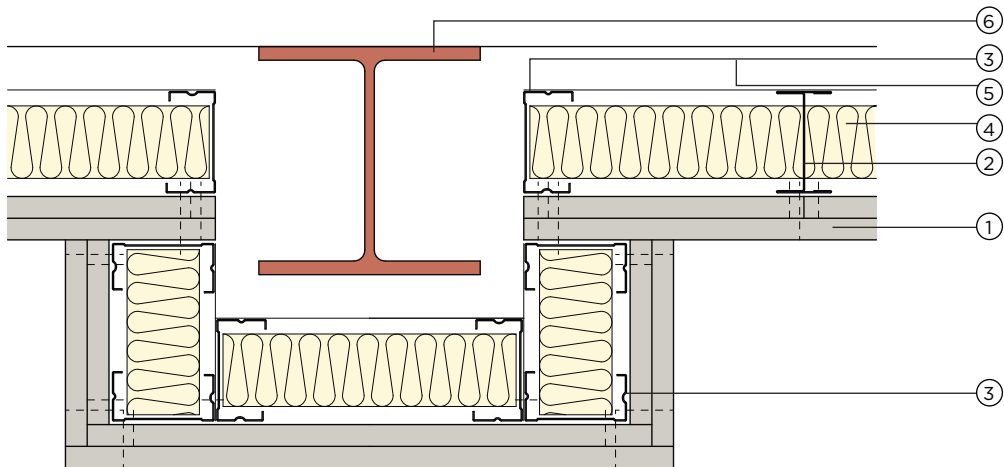
Partition junction detail

6



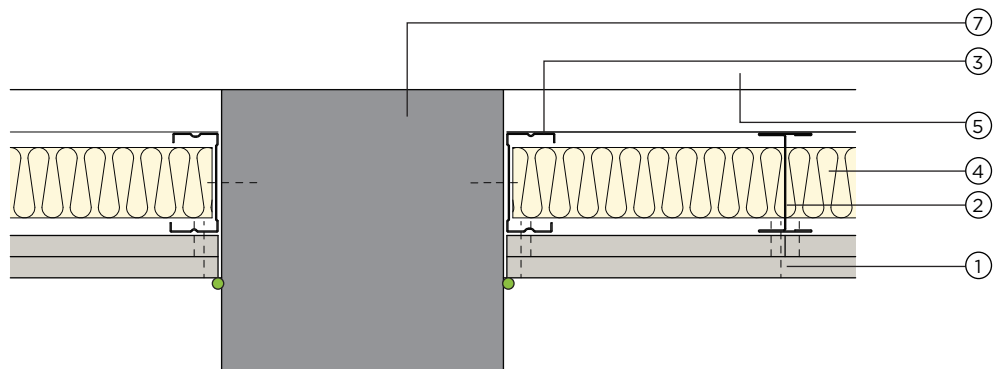
Partition junction detail to optimise acoustic performance and reduce flanking transmission

7



Lining detail around steel column

8



Concrete column junction detail

1. Gyproc plasterboard
2. Gyframe 'I' Stud
3. Gyframe 'C' Stud
4. ISOVER Eco APR

5. Wall structure
6. Steel column
7. Concrete column
8. Gyproc Sealant





Ceilings



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Introduction

Gyproc offers a full range of specifications from simple plasterboard ceilings through to a range of high performance acoustic and fire rated suspended ceilings and lay-in grid systems.

They cover all building categories, including residential, apartments, healthcare, educational facilities, recreational and industrial properties in both new-build and refurbishment and can satisfy the most demanding performance requirements.

When specifying ceiling solutions, a number of performance characteristics are normally used to determine the required solution. Depending on the project or construction type, these performance parameters could be set by minimum regulatory standards, or a client or customer requirements at levels achieving basic up to the highest standards of performance and comfort.

Good practice specification guidance

Gyproc's systems are designed and tested to meet every performance requirement and are fully supported by our SpecSure® system warranty.

This means that when our systems are installed following our guidance they will achieve every performance claim we make. To maximise the performance achieved on site, consider the following good practice specification guidance:

- Consider flanking transmission at the design stage and ensure construction detailing is specified to eliminate, or at least to minimise, any downgrading of the acoustic performance. The sound insulation values quoted in system performance tables are laboratory values and the practicalities of construction will mean that acoustic performances measured in the laboratory will be difficult to achieve on site
- Small openings such as gaps, cracks or holes will conduct airborne sounds and can significantly reduce the sound insulation of a construction. For optimum sound insulation a construction must be airtight
- When designing spaces requiring separation by sound insulating floors and ceilings that are abutting structural steelwork, consideration should be given to isolating the steelwork within cavity spaces, or where exposed, box out appropriately dependent on the required fire protection, to help reduce any transfer of structure borne sound

Design

Planning – key factors

Gyproc concealed grid ceiling systems offer a wide range of performance benefits and come in a number of different construction variations.

Gyproc MF ceiling system comprises Gypframe MF7 primary channels and MF5 secondary channels supported from vertical hangers taken from the soffit and is designed to take a range and number of Gyproc, Glasroc specialist, Gyptone and Rigitone plasterboards dependent on the performance requirements of the project. Gyproc MF ceiling system has a minimum cavity depth of 100mm.

Gyproc MF CURVE ceiling system is a variation of the standard MF ceiling system using the same components but demonstrates how the system can be formed for both concave and convex structures and matched with specialist boards such as Gyptone Curve boards to create an aesthetic feature and have good levels of sound absorption.

GypLyner UNIVERSAL ceiling system comprises Gypframe GL1 channels fixed back to the structure using Gypframe GLB85 / 135 brackets. This system provides a much smaller cavity depth of minimum 25mm up to 135mm and is useful when space is limited.

Cavity barriers

Where cavity barriers are required, these can be formed using Gyproc FireStop, DuraLine, Habito or Glasroc X screw-fixed to a simple frame. The framing should be fixed to the structure to avoid undue loading of the ceiling suspension grid or, alternatively, additional hangers should be incorporated to support the ceiling alongside the cavity barrier.

Relative humidity

Gyproc concealed grid ceiling systems lined with Gyproc, Gyptone or Rigitone are suitable for use under normal occupancy conditions. Buildings in which they are used should be dry, glazed and enclosed, with environmental conditions of no greater than 70% RH. For high humidity and high moisture conditions use Gyproc MR or M2TECH variants or Glasroc specialist boards.

Refer to Robustness for further information.

Vapour control

For areas other than where perforated Gyptone or Rigitone boards are used, the application of two coats of a vapour control sealer (by others) to Gyproc plasterboards after installation and jointing should provide a water vapour resistance of at least 15MNs/g. Alternatively using an appropriate vapour control layer such as a polythene membrane, prior to installing the plasterboard lining will significantly reduce the risk of interstitial condensation.

Acoustic performance

Gyptone and Rigitone boards are perforated and designed to provide sound absorption when used in conjunction with an airspace behind the ceiling. Increased levels of sound absorption can be achieved by including ISOVER Eco APR over the back of the

ceiling. Where sound insulation from room-to-room is required, sound attenuation $D_{n,c,w}$ of 39dB can be achieved by the inclusion of 100mm ISOVER Eco APR over the back of the ceiling lining board. Alternatively, other design considerations should be adopted such as extending adjoining partitions into the plenum void, installing a plenum barrier or lining the ceiling with two or more layers of Gyproc SoundBloc dependent on the specification of the separating partition. For further guidance, please contact the Gyproc Technical Team.

Thermal performance

ISOVER insulation can be laid over the suspension grid to provide the required standard of thermal insulation. For further guidance, please contact the Gyproc Technical Team.

Imposed loads

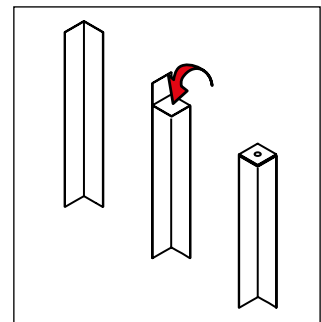
Table 2 in the Gyproc MF Ceiling section provides loading data for the suspension grid for Gyproc and Glasroc specialist boards. The data is based upon Gypframe MF5's installed at 400mm centres. Maximum loads will be reduced by 20% when Gypframe GA1 Steel Angle is fixed directly to the soffit (modified loads are shown in brackets) but must only be used in non-fire rated constructions. The layout of the Gypframe framework described in the Gyptone and Rigitone acoustic ceiling sections are designed for single boarded applications only. **Table 3** in the Gyproc MF Fire Performance Ceiling section provides loading data for the suspension grid and is based upon higher gauge Gypframe components with Gypframe MF5's installed at 400mm centres. For further guidance, please contact the Gyproc Technical Team.

Suspension – Gyproc, Glasroc specialist & Gyptone board linings

Fixing points for suspending Gyproc MF ceiling system for the most common single boarded solutions are required at 1200mm centres in each direction. It is important that the correct fixing method is used to secure the hangers to the structural soffit. For normal concrete soffits, Gyproc Wedge Anchors should be used.



Suitably fix Gypframe GA1 hangers to soffit using Gypframe Soffit Cleat with Nut & Bolt.



Alternatively, Gypframe GA1 Steel Angle can be cut, bent and drilled to facilitate direct fixing to the structure (maximum loads will be reduced by 20% if using this method).

NB For double layer ceiling please refer the Table 3 and 4 on page 258

Design (continued)

The ceiling grid is suspended from a concrete soffit using Gypframe Soffit Cleats and Gypframe GA1 Steel Angles to provide a robust suspension support which restricts any flexing of the lining when pressure is applied from below.

Gypframe GA1 hangers can also be fixed direct to the soffit. The angle should be cut along the spine with both flanges bent over. However, this will reduce the maximum loads that the grid is capable of supporting by 20%. Fixing Gypframe GA1 hangers direct is also not suitable if the ceiling is likely to deflect due to varying pressures and is not suitable for fixing to a sloping substrate.

GypLyn^{ER} UNIVERSAL CEILING system uses two lengths of bracket to suspend the main runners, Gypframe GL1 Channels. The GLB85 gives a minimum cavity depth of 25mm up to 85mm, and the GLB135 from 25mm up to 135mm allowing sufficient adjustment for levelling the ceiling.

Suspension – Rigitone board linings

Gyproc MF ceiling system - Gypframe MF7 Primary Support Channels are fixed at 1000mm centres. Fixing points to the structure for the Gypframe MF7 Primary Support Channels are required at 900mm centres. In addition to this, the Gypframe MF5 Ceiling Section should be installed at nominal 330mm centres. GypLyn^{ER} UNIVERSAL CEILING system - Gypframe GLB brackets are installed at 1200mm centres with Gypframe GL1 Channels at nominal 330 centres.

Partition to suspended ceiling junction

GypWall metal stud partitions can be fixed to the underside of a Gyproc MF ceiling through to the framework, in accordance with Gyproc's installation instructions, noting that additional Gypframe MF5 Ceiling Sections may be required. The maximum permissible heights for partitions in this scenario are claimed exactly as they would be when fixed to a normal concrete or steel beam structural soffit.

It is important to consider the room to room performance achieved by the partition and to ensure that these performances, such as fire and acoustic performance are maintained when the partition is built to the underside of the Gyproc MF ceiling. Where this is not possible due to the specification of the ceiling, then the partition should be designed to be installed to the full height of the room up to the underside of structural soffit. For further guidance, please contact the Gyproc Technical Team.

In situations where a Gyproc MF ceiling abuts and is fixed to the side of a GypWall partition, the ceiling will provide lateral restraint. Assuming that this Gyproc MF ceiling system is suitably fixed to a structural element / full height partition to the opposing side and there are no level changes or special designs such as large openings that would weaken this ceiling system, then this lateral restraint can be considered when developing the partition specification in terms of maximum heights.

The relevant maximum height of the partition therefore, is the greater of the floor to Gyproc MF ceiling or ceiling to structural soffit height.

Care should be taken during installation of tall partitions and either the ceiling framing should be in place at the time of installation or temporary restraint should be used. For further guidance, please contact the Gyproc Technical Team.

Services

The position of services, access panels and heavy fixtures should be pre-determined and their installation planned into the frame erection stage. The plenum can be used to route all service requirements including ducting, pipework, electrical cables and conduit. All services should be independently supported from the building structure. Where light weight light fittings, access panels and similar components are incorporated as part of the design requirements, consideration must be given to maintaining the integrity of the ceiling to meet fire resistance and sound insulation requirements.

Refer to **Table 2** in the Gyproc MF Ceiling section and **Table 3** in the Gyproc MF Fire Performance Ceiling section for maximum recommended loads.

Access for maintenance

Gyproc, Gyptone or Rigitone Access Panels can be used to provide access for maintenance.

Fixtures

Fixings to the system should always be made into the metal grid or to supplementary framing. Some adjustment of the primary grid may be required to support heavier fixtures, refer to **Table 2** in the Gyproc MF Ceiling section and **Table 3** in the Gyproc MF Fire Performance Ceiling section. Where loads outside this range are anticipated, independent suspension should be provided from the structure.

Where it is not possible to predetermine the exact location of fixtures hanging from a ceiling, or where additional fixtures may be added or moved around the area in the future, Gyproc Habito board should be considered as the ceiling lining board where medium and / or heavy weight fixtures are to be included. Gyproc Habito board has a screw pull-out safe working load (SWL) of 30kg per screw. Refer to GypWall HABITO on page 118 for further information.

Control joints

Control joints (by others) may be required in the ceiling to relieve stresses induced by expansion and contraction of the structure. It is recommended that they coincide with movement joints within the surrounding structure.

Rigitone expansion joints

Rigitone boards should be cut 10mm short of the perimeter wall and should not be fixed to the perimeter channel. Refer to construction details 1 and 2.

Design (continued)

Rigitone Board Layout

Install the first board in the centre of the room. Use an alignment line or preferably a fixed edge guide to ensure the board is properly aligned before screwing it into place.

Work outwards from the centre of the room in a star pattern when installing subsequent boards, making sure that they are all laid in the same direction (see markings on the ends and lettering on the long edges of the boards).

Boards should be stored in the room/space where they will be installed for at least 24 hours prior to installation to allow conditioning of the boards.

Jointing - Rigitone boards

Use appropriate aids to ensure the boards are properly aligned and check the alignment before screwing them into place along the perforation rows (straight and diagonal). Fill the joints generously and completely so that the filler just starts to exude from the reverse of the board. Slightly overfill the screw heads using the Rigitone screw head template. Once the Rigitone Mix 600ml has begun to harden, remove any excess carefully using the Rigitone scraper and then pass the scraper back over the joints in the other direction to smooth the surface. The joints and covered screw heads can be sanded after 24 hours. Further finishing work may be continued once the Rigitone Mix 600ml has fully dried.

Board finishing

Additional care and attention should be exercised when jointing Gyptone and Rigitone boards so as not to fill the perforations and impair the acoustic performance of the finished ceiling. Refer to Finishing systems.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc SoundBloc MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc SoundBloc M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables in the following ceiling sections (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc SoundBloc Activ'Air.

All Gyptone and Rigitone boards come with Activ'Air technology.

Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire or acoustic performances listed.

Construction details

For Gyproc ceiling construction details, refer to the construction details shown at the end of each ceiling section. For more typical or example details, please contact the Gyproc Technical Team.

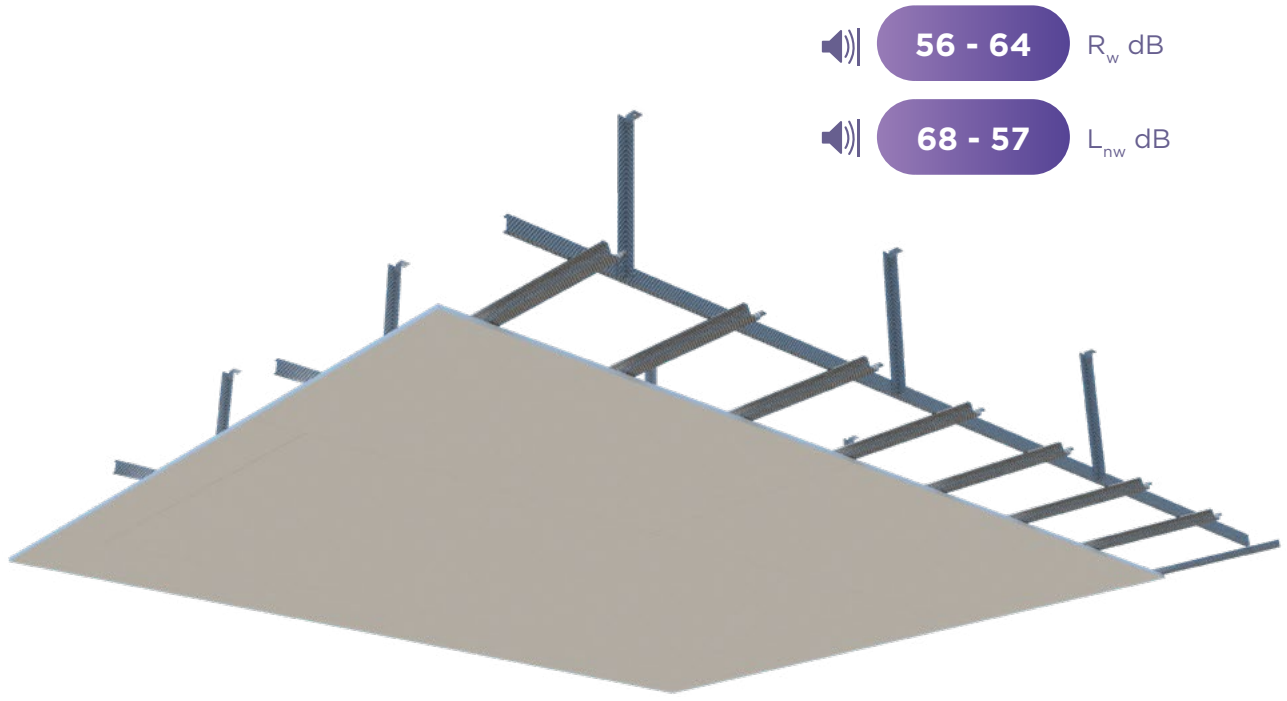
Gyproc MF ceilings

—
The monolithic metal framing gypsum ceiling system



Gyproc MF ceilings

Gyproc MF is a suspended ceiling system suitable for most internal drylining applications. The fully concealed grid can be used in conjunction with Gyproc plasterboards to create a seamless and monolithic appearance.



Key Benefits

- 

Monolithic appearance
- 

Simple accommodation of access panels
- 

Durable ceiling lining
- 

Easy to create bulkheads and level change
- 

Ventilation ducts and other services accommodated in plenum
- 

Suitable for wet environments



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe MF5 Ceiling Section
Secondary section supported by Gypframe MF7, used to receive board lining



Gypframe MF7 Primary Support
Primary section to support Gypframe MF5 Ceiling Section



Gypframe Shadow Angle
A primed, pre-formed aluminium trim for design effects on Gyproc MF ceilings



Gypframe GA1 Steel Angle
Primarily used as a perimeter wall angle and ceiling hanger in the Gyproc MF Ceiling system



Gypframe Soffit Cleat with Nut & Bolt
Cleat for suspending MF ceiling Gypframe GA1 Steel Angle hangers from soffit.

Board products



Gyproc Regular^{1, 2, 3}
(12.5, 15mm)
Standard gypsum plasterboard



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc SoundBloc^{1, 2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



Fixing products



Gyproc Drywall Screws
Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws
Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor
Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix
Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

System components (continued)

Plasterboard accessories



Gyproc Jointing Compound
Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape
Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc Sealant
Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape
Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

Corners



Gyproc Drywall Corner Bead
Provides corner reinforcement and protection to plasterboards and plasters



Levelline Flex
Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Metal Corner Tape
High quality paper joint tape strengthened with two corrosion-resistant galvanised steel strips for the finishing of internal and external angles in drywall construction



Gyproc Drywall Metal Edge Bead
A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



ISOVER Eco Acoustic Partition Roll (APR) (100mm)*
Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

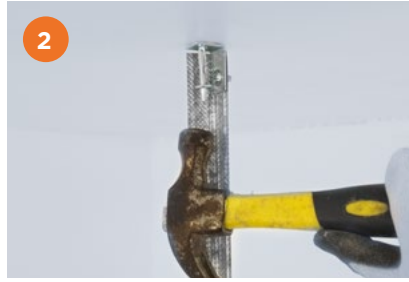
Minimum density: 16 kg/m³

* Available in other thickness and density

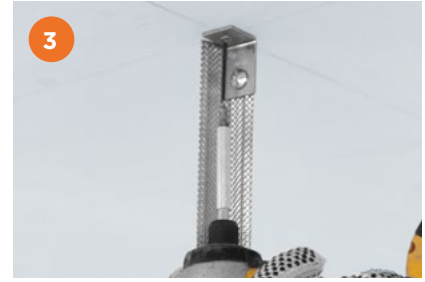
Installation overview



Gyproc GA1 Perimeter Angle is fixed to the wall at maximum 600mm centres using Gyproc Hammer Fix.



Secure Gyproc Soffit Cleat using Gyproc Wedge Anchor.



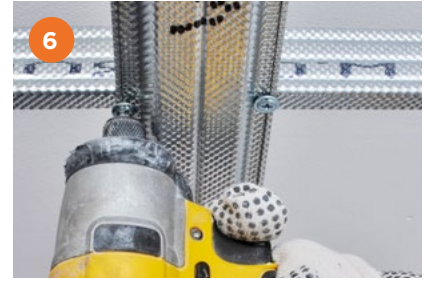
Gyproc GA1 Steel Angles are pre-cut and secured to the Gyproc Soffit Cleats with Nut & Bolt (supplied).



Gyproc MF7 Primary Support Channels are installed over the Gyproc GA1 Perimeter Angles. Fix hangers (two per fixing) to Gyproc MF7 Primary Support Channel using Gyproc Waferhead Jack-Point Screws.



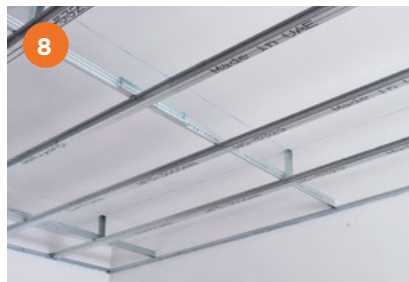
Extend Gyproc MF7 Primary Support Channels by overlapping back-to-back by 150mm minimum and fix together using two Gyproc Waferhead Jack-Point Screws.



Gyproc MF5 Ceiling Sections are fixed to the underside of the Gyproc MF7 Primary Support Channels to form a grid with two Gyproc Waferhead Jack-Point Screws.



Extend Gyproc MF5 Ceiling Sections closely butting together with a further short (minimum 300mm) section of Gyproc MF5 nested centrally over the joint and fixed using two Gyproc Waferhead Jack-Point Screws to each flange (8 screws in total) to reinforce the splice.



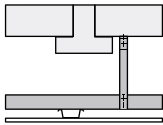
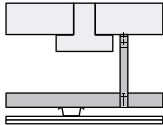
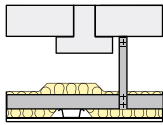
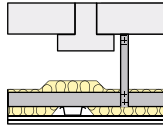
Gyproc boards are fixed to the secondary grid to form single or multi-layer linings as specified.



Screw fixings should be at 150mm centres at board-ends, and at 230mm centres within the field of the board.

Sound insulation

Table 1 – Gyproc MF upgrading the sound insulation of concrete floors

1		2		3		4	
	Gyproc MF ceiling suspended beneath basic floor to give 240mm cavity. Ceiling linings as in table.		Gyproc MF ceiling suspended beneath basic floor to give 240mm cavity. Ceiling linings as in table.		Gyproc MF ceiling suspended beneath basic floor to give 240mm cavity, with 100mm ISOVER Eco APR in the cavity. Ceiling linings as in table.		Gyproc MF ceiling suspended beneath basic floor to give 240mm cavity, with 100mm ISOVER Eco APR in the cavity. Ceiling linings as in table.

Detail	Board type	Ceiling lining thickness mm	Approx. weight kg/m ²	Sound insulation	
				Airborne R _w dB	Impact L _{nw} dB
1	Regular	1 x 12.5	10	56	68
2	Regular	2 x 12.5	20	58	66
3	SoundBloc	1 x 12.5	16	61	60
4	SoundBloc	2 x 12.5	27	64	57

NB Basic floor construction is a lightweight concrete joist floor with insulated concrete infill panel (surface density of infill is 90 kg/m²) and total depth 150mm. Sound insulation is R_w 35dB (airborne) and L_{nw} 91dB (impact) as tested.

Table 2 – Maximum recommended loads on Gyproc MF Ceiling with 0.5mm suspension framework

Maximum load including weight of board and any insulation kg/m ² (modified load) ¹		Suspension - GA1 hanger centres mm	MF7 channel centres mm
41.4	(33.1)	1000	600
37.8	(30.2)	900	900
24.4	(19.5)	1000	1000
19.1	(15.3)	900	1200
11.1	(8.9)	1200	1200
12.5 ²	(10.0) ²	1200	1200

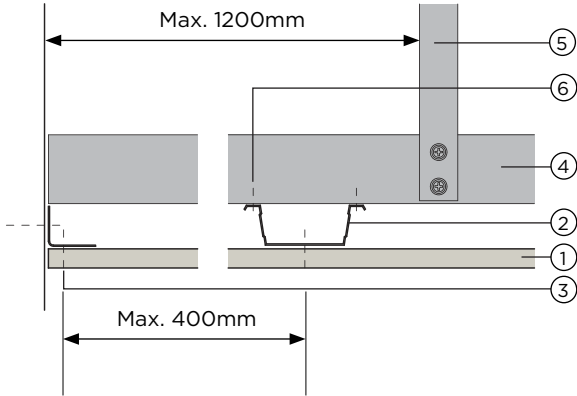
¹ Modified loads are used when Gypframe GA1 Steel Hangers are fixed to soffit using snip and bend method. Refer to imposed loads in the design sections.

NB Gypframe MF5 Ceiling Sections are installed at 400mm centres
Maximum loads are based on a limiting deflection of L/400, except for note ² which is based on L/360. Refer to **Products section - Boards** for weights of Gyproc plasterboards.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

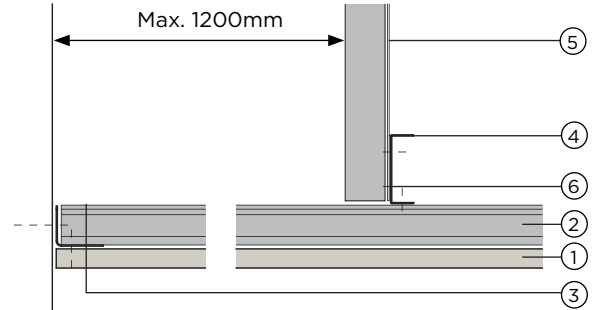
Construction details

1



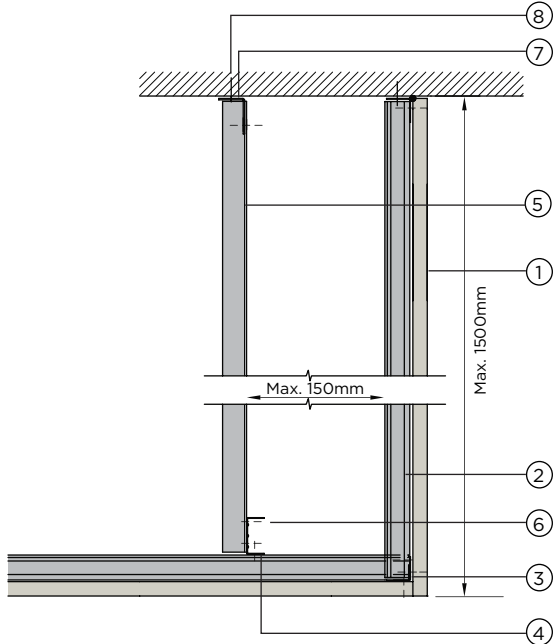
Perimeter detail parallel to Gyproframe MF5

2



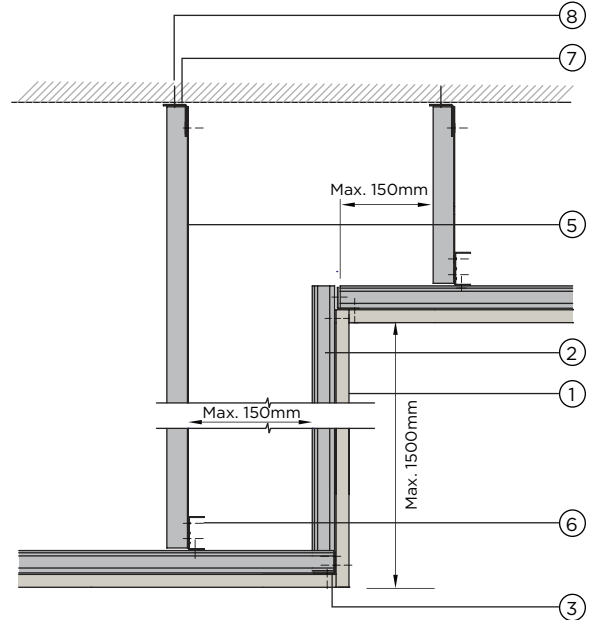
Perimeter detail perpendicular to Gyproframe MF5

3



Bulkhead detail

4



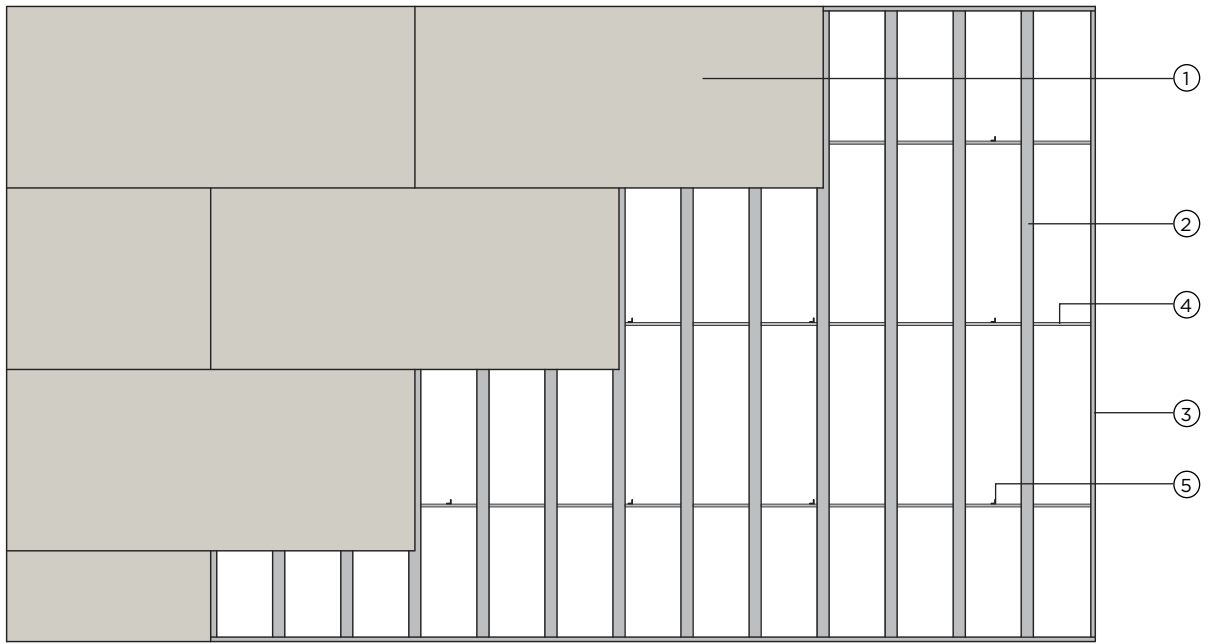
Change of level detail

1. Gyproc plasterboard
2. Gyproframe MF5 Ceiling Section
3. Gyproframe GA1 Perimeter Angle
4. Gyproframe MF7 Primary Support Channel

5. Gyproframe GA1 Steel Angle hanger
6. Gyproc Waferhead Jack-Point Screw
7. Gyproc Soffit Cleat with Nut & Bolt
8. Gyproc Wedge Anchor

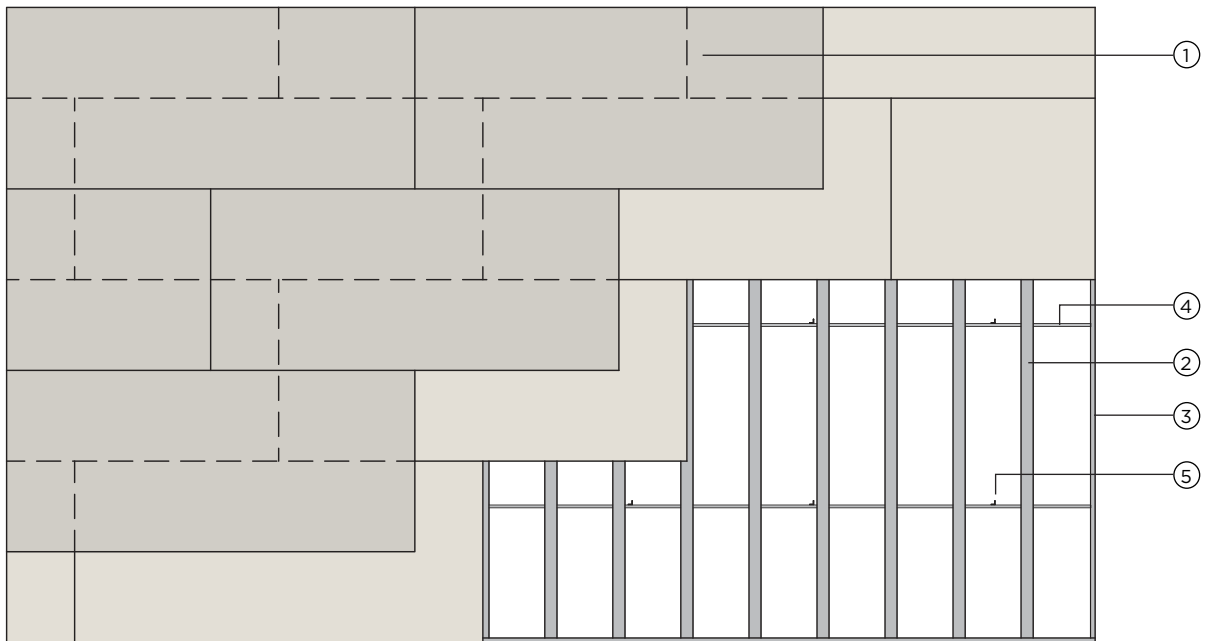
Construction details

5



Reflected ceiling plan - single layer

6

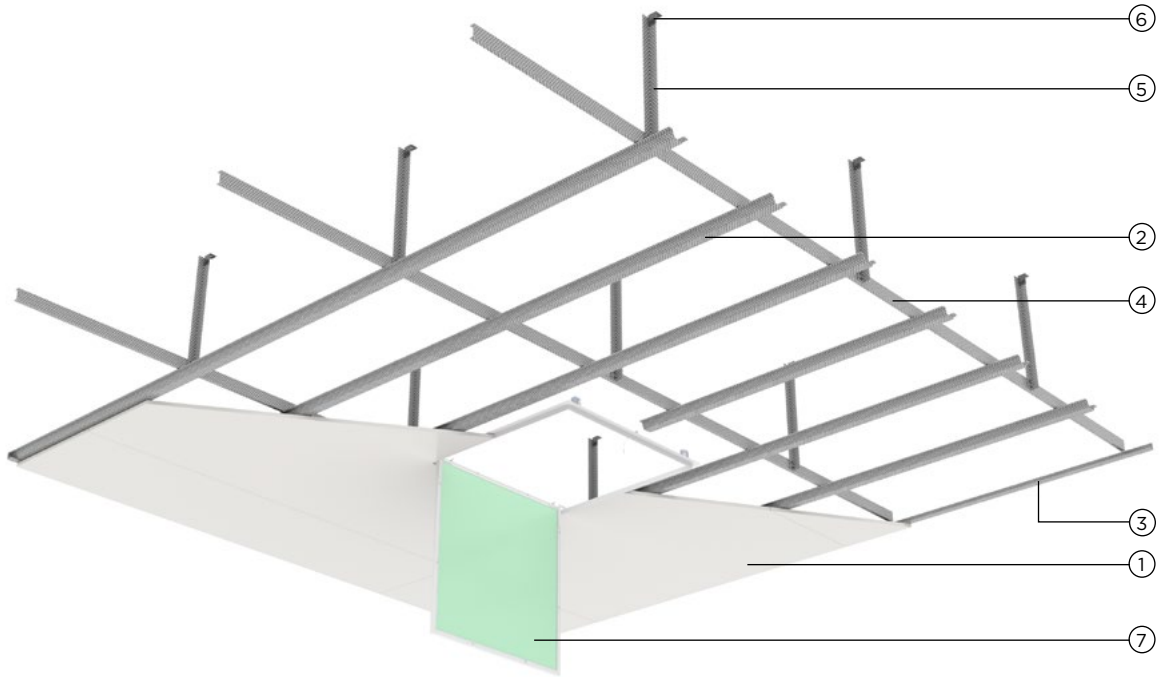


Reflected ceiling plan - double layer

- 1. Gyproc plasterboard
- 2. Gypframe MF5 Ceiling Section
- 3. Gypframe GA1 Perimeter Angle
- 4. Gypframe MF7 Primary Support Channel
- 5. Gypframe GA1 Steel Angle Hanger

Construction details

7



Gyproc Access Panel installation detail

- | | |
|---|--|
| 1. Gyproc plasterboard | 5. Gypframe GA1 Steel Angle Hanger |
| 2. Gypframe MF5 Ceiling Section | 6. Gypframe Soffit Cleat with Nut and Bolt |
| 3. Gypframe GA1 Perimeter Angle | 7. Gyproc Standard Access Panel |
| 4. Gypframe MF7 Primary Support Channel | |

Notes

Gyproc MF CURVE

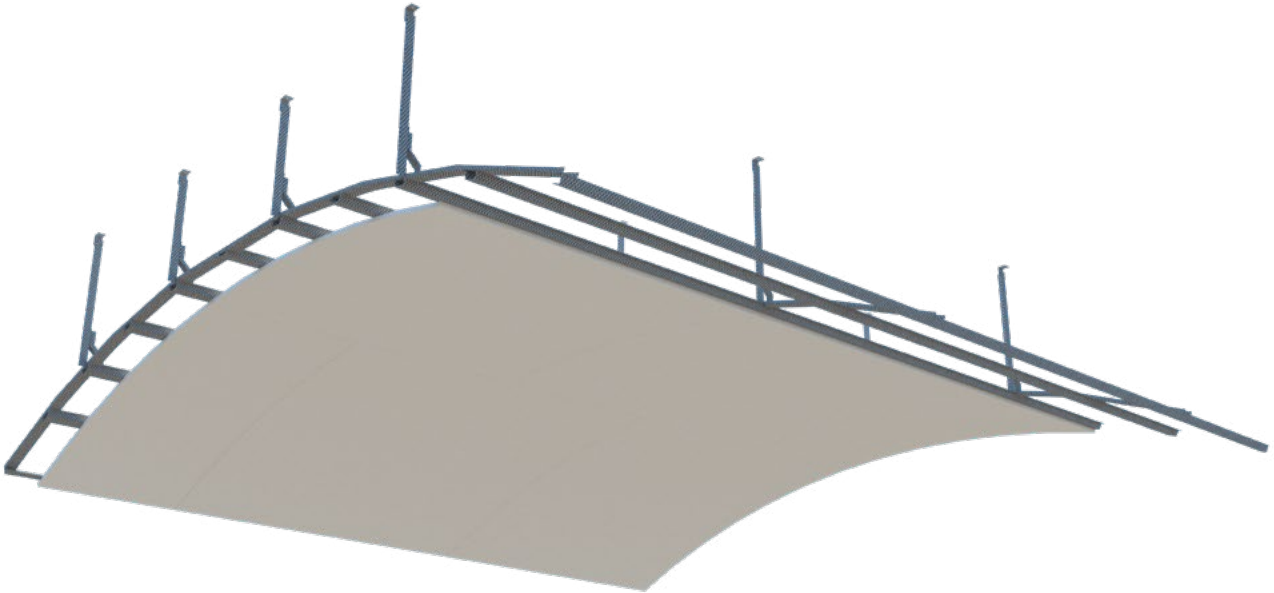


Concealed grid curved
ceiling system



Gyproc MF CURVE

Gyproc MF CURVE is a lightweight, non-loadbearing, suspended ceiling system for constructing curved ceilings and soffit linings. It can be used in conjunction with Gyproc perforated and non-perforated boards to create convex or concave ceilings.



Key Benefits



Can be used to create a unique, creative ceiling design using concave or convex curves



No board pre-wetting required



Minimum radius 1200mm



Normal jointing techniques apply



Ventilation ducts and other services accommodated in plenum



Compatible with wide range of Gyproc, Glasroc, Gytone and Rigitone boards



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe MF5 Ceiling Section
Secondary section supported by Gypframe MF7, used to receive board lining



Gypframe GA1 Steel Angle
Primarily used as a perimeter wall angle and ceiling hanger in the Gyproc MF Ceiling system



Gypframe MF7 Primary Support
Primary section to support Gypframe MF5 Ceiling Section



Gypframe Soffit Cleat with Nut & Bolt
Cleat for suspending MF ceiling Gypframe GA1 Steel Angle hangers from soffit

Board products



Gyproc Regular^{1, 2, 3}
(9, 12.5, 15mm)
Standard gypsum plasterboard



Aquaroc FC
(6, 9, 12, 15mm)
Fibre cement board with excellent moisture resistant characteristics and mechanical strength



Gyproc FireStop^{1, 2, 3}
(12.5, 15mm)
Gypsum plasterboard with fire resistant additives



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc SoundBloc^{1, 2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Gyptone BIG board
A range of perforated acoustic plasterboard with geometric set pattern with Activ'Air functionality



Gyproc DuraLine^{1, 2, 3}
(15mm)
Gypsum plasterboard with fire resistant additives and a high density core for enhanced sound insulation and impact resistance performance



Rigitone board
A range of perforated acoustic plasterboard with set or random design for continuous, jointless and borderless pattern with Activ'Air functionality



Gyproc Habito²
(12.5mm, 15mm)
Next generation plasterboard which consists of a specially reinforced gypsum core designed for high strength and fixing capability

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Habito Screws

Corrosion resistant self-tapping screw with counter sunk cross heads specifically used for fixing Gyproc Habito plasterboard to Gypframe framework



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards



Rigitone Mix 600ml

Rigitone Mix is a ready filler for Rigitone perforated panel joints. It forms part of the Rigitone Ready Mix Set and is used in the Joint Filling Technique



Rigitone ReadyMix Set

The set contains 1 pistol, 2 ReadyMix adapters, 2 Fix joint nozzles, 1 scraper and 1 screw head template



Rigitone Installation Kit

Installation aid to ensure the boards are properly aligned. Should be selected as per the board perforation

Insulation products



ISOVER Eco Acoustic Partition Roll (APR)

(25, 50, 75 and 100mm)* Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³



KIMMCO ISOVER Stone mineral wool

(50 and 70mm)* For fire stopping, where required

Minimum density: 50 kg/m³

* Available in other thickness and density

Installation overview



Gyproframe GA1 Perimeter Angle is fixed to the wall at maximum 600mm centres using Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems).



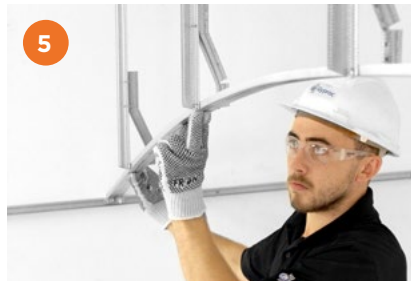
Secure Gyproframe Soffit Cleat using Gyproc Wedge Anchor.



Gyproframe GA1 Steel Angles are pre-cut and secured to the Gyproframe Soffit Cleats using Nut & Bolt (supplied).



Gyproframe MF7 Primary Support Channel is to be rolled to the required radius at site. Fix Gyproframe GA1 Hangers to Gyproframe MF7 Primary Support Channel using Gyproc Waferhead Jack-Point Screws.



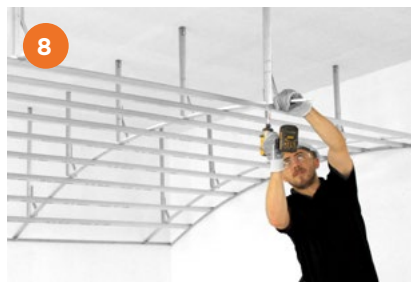
The rolled Gyproframe MF7 Primary Support Channel is installed over the Gyproframe GA1 Perimeter Angles and secured to Gyproframe GA1 Hangers.



Secure the Gyproframe MF7 Primary Support Channel by returning Gyproframe GA1 hanger around it.



Gyproframe MF5 Ceiling Sections are run at right angles to the underside of the rolled Gyproframe MF7 Primary Support Channel to form the secondary grid.



Gyproframe MF5 Ceiling Sections are fixed to the underside of the Gyproframe MF7 Primary Support Channels to form a grid.



Gyproc plasterboards, Glasroc specialist boards, Gyptone boards or Rigitone boards are then screw fixed to the secondary grid with Gyproc Drywall screws to form the curvature of the ceiling.

Design

Planning - key factors

Gypframe MF7 Primary Support Channel is to be rolled at site to the radius required. Board joints should be avoided on the apex of the curve for the exposed layer of board. Gypframe MF5 Ceiling Section positions should therefore be pre-determined at the design stage.

Degree of curvature

In common with other sheet materials, board-ends have a tendency to remain straight, and so the minimum achievable radius will be influenced by the board characteristics, the length of curve, the support centres, and the occurrence of board joints. See Table 1.

Table 1 - Minimum radii and framing centres

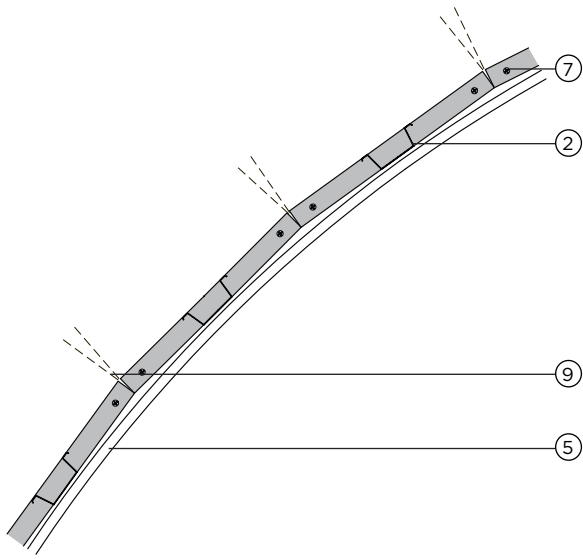
Board type	Board thickness mm	Minimum radius ¹ mm	MF5 support centres mm	Suspension - GA1 hanger centres mm	MF7 ² support centres mm
Gyptone Quattro 41 Gyptone Quattro 42 Gyptone Quattro 43 Gyptone Quattro 46 Gyptone Quattro 47 Gyptone Line 6 Gyptone Line 5	12.5	6000	300	900	1200
Gyptone Curve Line 6 Gyptone Curve Sixto 63 Gyptone Curve Quattro 41	6.5	2200	300	900	1200
Rigitone boards	12.5	2870	330	900	1000
Glasroc X	12.5	1200	300	1200	600
Regular	9 12.5 15	1800 3600 4800	300 300 300	1200 1200 1200	750 600 600
SoundBloc	12.5 15	2900 3600	300 300	1200 1200	600 600
FireStop	12.5 15	4800 5700	300 400	1200 1200	600 600
Habito	12.5 15	6000 7000	400 400	1200 1200	600 600
DuraLine	15	5700	400	1200	600
Aquaroc FC	6 9 12 15	1400 3000 6000 7000	300 300 400 600	1200 1200 1200 1200	600 600 600 600

¹ Concave or convex.

² Gypframe MF7 Primary Support Channel - rolled to the required radius at site.

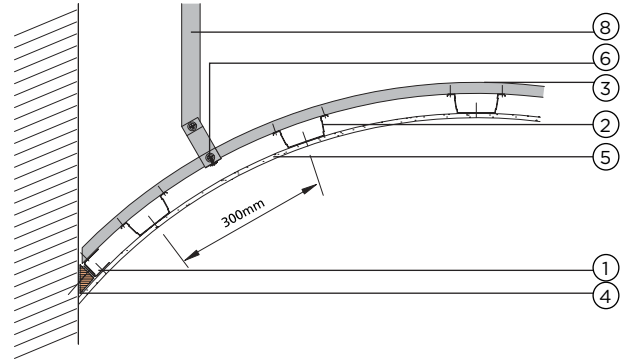
Construction details

1



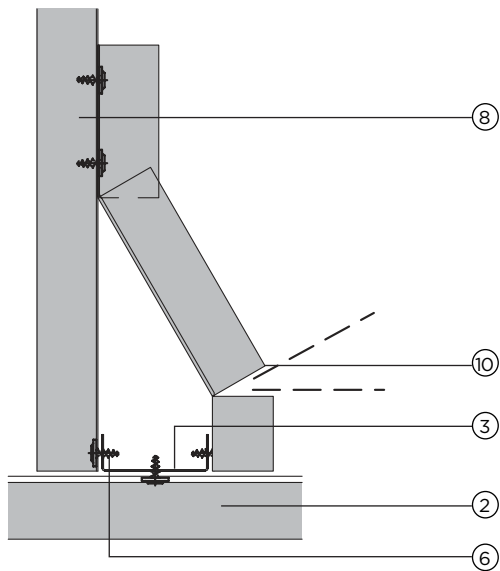
Gyproframe GA1 Steel Angle cut and fixed to line of curve at perimeter

2



Perimeter detail

3

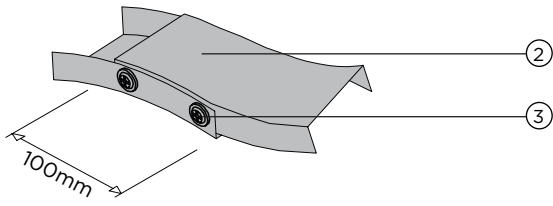


Gyproframe GA1 Hanger connection details with Gyproframe MF7 Primary Support Channel (rolled to required radius at site)

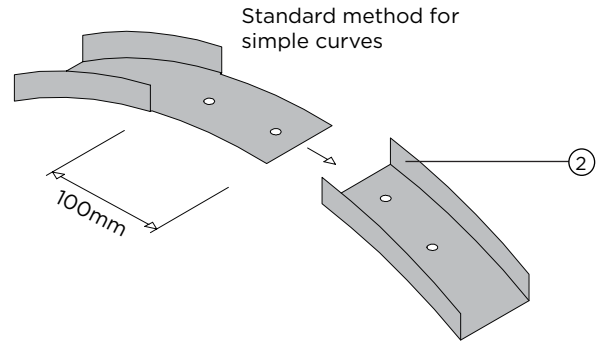
1. Gyproframe GA1 Steel Angle
2. Gyproframe MF5 Ceiling Section
3. Gyproframe MF7 Primary Support Channel - rolled to the required radius at site
4. Timber fillet
5. Gyproc lining board
6. Gyproc Waferhead Jack-Point Screw
7. Gyproc Wedge Anchors (for fire rated systems) or Gyproc Hammer Fix (for non-fire rated systems)
8. Gyproframe GA1 Steel Angle Hanger
9. Gyproframe GA1 Steel Angle cut and bent to required curve
10. Gyproframe GA1 Steel Angle cut, bent and fixed to GA1 Hanger and Gyproframe MF7

Construction details

4

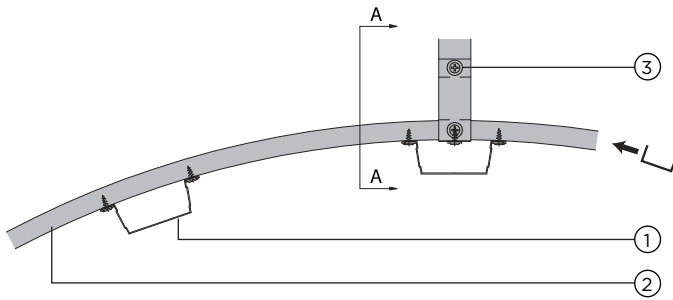


Method: where curvature changes from convex to concave additional hanger is required.

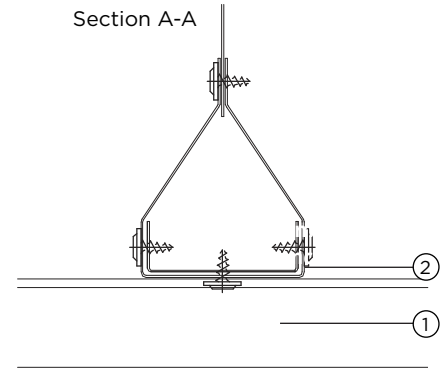


Methods of joining Gyproframe MF7 Primary Support Channels

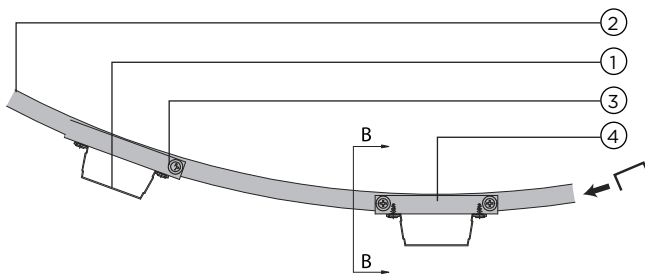
5



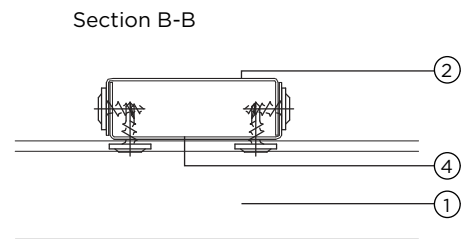
Concave curvature



6



Convex curvature



- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Gyproframe MF5 Ceiling Section 2. Gyproframe MF7 Curved Support Channel - rolled to the required radius at site | <ol style="list-style-type: none"> 3. Gyproc Waferhead Jack-Point Screw 4. Small section of Gyproframe MF7 Primary Support Channel fixed to provide a flat, positive fixing for the Gyproframe MF5 Ceiling Section positions |
|---|--|

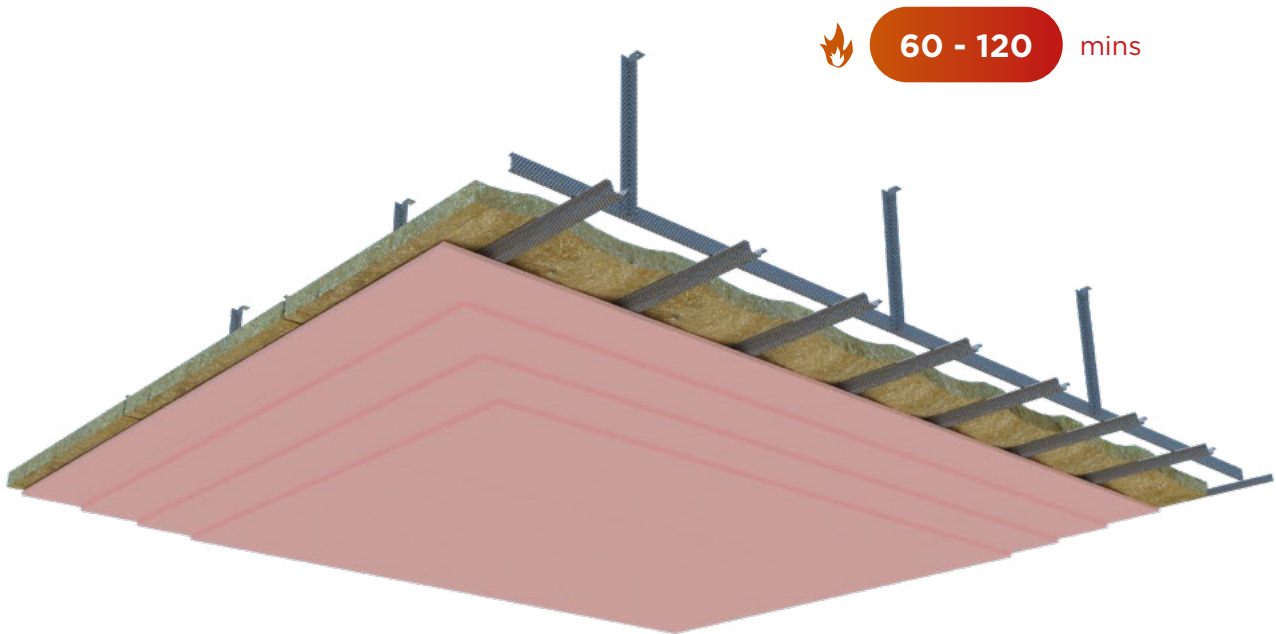
Gyproc MF fire performance ceiling

—
The monolithic fire rated
metal framing ceiling system



Gyproc MF fire performance ceiling

Gyproc MF fire performance ceiling is a suspended ceiling system with a fully concealed grid that can be used in conjunction with Gyproc plasterboards to create a seamless, monolithic appearance where fire performance is required.



Key Benefits



Suitable for fire compartmentation in the building



Durable ceiling lining



Monolithic appearance



Ventilation ducts and other services accommodated in plenum



Suspension from concrete floors and purlins



Easy to create bulkheads and level change



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe MF5 Ceiling Section
Secondary section supported by Gypframe MF7, used to receive board lining



Gypframe GA1 Steel Angle
Primarily used as a perimeter wall angle and ceiling hanger in the Gyproc MF Ceiling system



Gypframe MF7 Primary Support
Primary section to support Gypframe MF5 Ceiling Section



Gypframe Soffit Cleat with Nut & Bolt
Cleat for suspending MF ceiling Gypframe GA1 Steel Angle hangers from soffit

Board products



Gyproc FireStop^{1, 2, 3}
(12.5, 15mm)
Gypsum plasterboard with fire resistant additives

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



Fixing products



Gyproc Drywall Screws
Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws
Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater



Gyproc Waferhead Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and



Gyproc Wedge Anchor
Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry

System components (continued)

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking

Corners



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Metal Corner Tape

High quality paper joint tape strengthened with two corrosion-resistant galvanised steel strips for the finishing of internal and external angles in drywall construction

Insulation products



KIMMCO ISOVER Stone mineral wool

(50 and 70mm)*
For fire stopping, where required

Minimum density: 50 kg/m³

* Available in other thickness and density

Installation overview

Please refer to Gyproc MF ceiling installation guidelines for basic framing instructions.



Please note: Gypframe GA1 Perimeter Angle must be fixed to masonry backgrounds using Gyproc Wedge Anchors.



KIMMCO ISOVER Stone Mineral Wool insulation is laid over the back of the Gypframe MF5's.

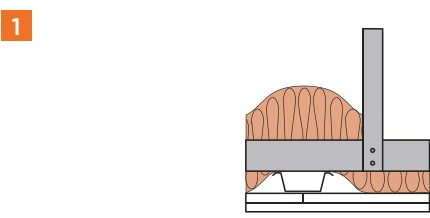


Fix required layers of Gyproc FireStop plasterboard as per the reflected ceiling plan. Cover all Gyproc screws heads with Gyproc Jointing Compound.

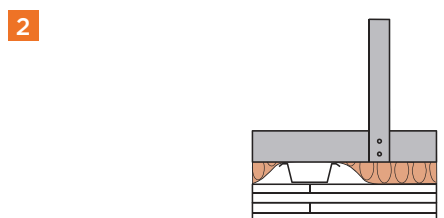


Cover all joints with Gyproc Paper Tape and Gyproc Jointing Compound.

Table 1 – Gyproc MF fire protection to floor or roof cavity above suspended ceiling. Solutions to satisfy the requirements of ASTM E119



Gyproc MF suspended ceiling fixed to structure. Fixing centres for Gypframe MF5's and MF7's as per table below. 50mm stone mineral wool slab (50 kg/m³) laid over Gypframe MF5's. Ceiling linings as in table.



Gyproc MF suspended ceiling fixed to structure. Fixing centres for Gypframe MF5's and MF7's as per table below. 50mm stone mineral wool slab (50 kg/m³) laid over Gypframe MF5's. Ceiling linings as in table. The MF5's, MF7's and GA1's are 0.9mm gauge.

Detail	Board type	Ceiling lining thickness mm	MF5 support centres mm (gauge)	MF7 support centres mm (gauge)	Suspension - GA1 Hanger centres mm (gauge)	System weight kg/m ²
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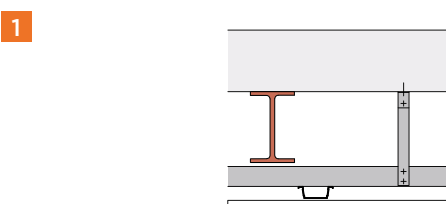
60 minutes fire resistance

1	FireStop	2 x 15	400 (0.5)	900 (0.5)	900 (0.5)	28
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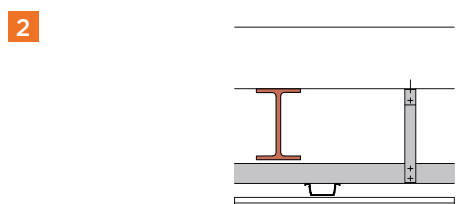
120 minutes fire resistance

2	FireStop	4 x 15	400 (0.9)	900 (0.9)	900 (0.9)	51
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Table 2 – Gyproc MF fire protection to steel beams supporting concrete floors¹. Solutions to satisfy the requirements of BS 476: Part 23: 1987



Gyproc MF ceiling suspended beneath steel beams supporting a concrete floor. Ceiling linings as in table.



Gyproc MF ceiling suspended beneath steel beams supporting a concrete floor. Ceiling linings as in table.

Detail	Board type	Ceiling lining thickness mm	Approx. weight kg/m ²	MF5 support centres mm	MF7 support centres mm	Suspension - GA1 Hanger centres mm
--------	------------	--------------------------------	-------------------------------------	---------------------------	---------------------------	---------------------------------------

30 minutes fire resistance

2	Regular	2 x 12.5	18	400	1000	1000
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60 minutes fire resistance

1	FireStop	1 x 12.5	11	400	1200	1200
----------	----------	----------	----	-----	------	------

120 minutes fire resistance

2	FireStop	2 x 15	25	400	900	900
----------	----------	--------	----	-----	-----	-----

¹ Concrete floors as described in BS 476: Part 23. The steel beams subjected to test had a section factor A_v/V (H_p/A) of 205m⁻¹ calculated on the basis of three sided profiled exposure. The suspended ceiling will also provide adequate protection to steel beams with a lower section factor.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout, and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

Table 3 - Maximum recommended loads on Gyproc MF Ceiling with 0.5mm suspension framework

Maximum load including weight of board and any insulation kg/m ²	Suspension - GA1 Hanger centres mm	MF7 channel centres mm
41.4	1000	600
37.8	900	900
24.4	1000	1000
19.1	900	1200
11.1	1200	1200
12.5 ²	1200	1200

Table 4 - Maximum recommended loads on Gyproc MF Ceiling with 0.9mm suspension framework

Maximum load including weight of board and any insulation kg/m ²	Suspension - GA1 Hanger centres mm	MF7 channel centres mm
66.2	900	900
107.4	800	800
184.8	700	700
294.8	600	600

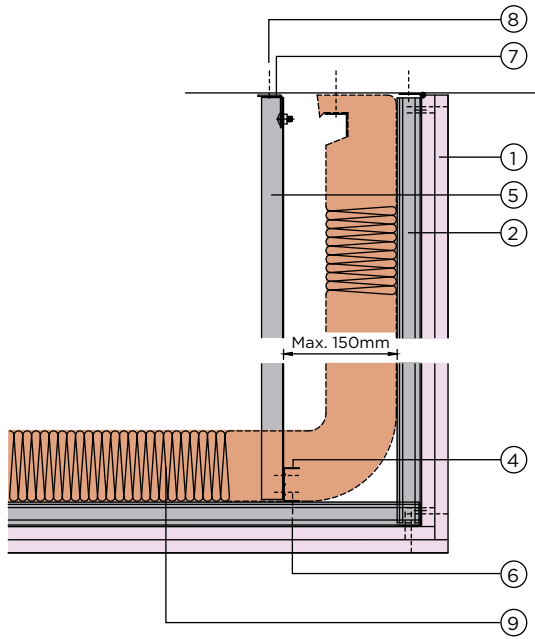
NB Gypframe MF5 Ceiling Sections (0.9mm gauge) are installed at 400mm centres

NB Gypframe MF5 Ceiling Sections are installed at 400mm centres

Maximum loads are based on a limiting deflection of L/400, except for note ² which is based on L/360. Refer to **Products section - Boards** for weights of Gyproc plasterboards

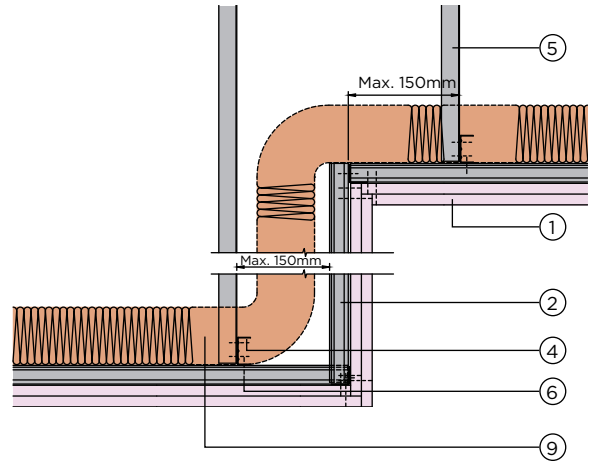
Construction details - Double layer

1



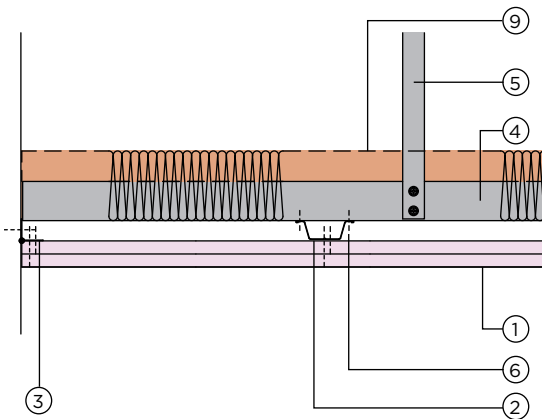
Bulkhead detail - 60 mins

2



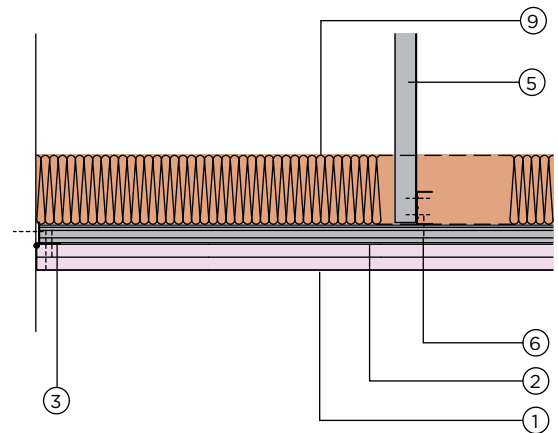
Change of level - 60 mins

3



Perimeter detail parallel to Gypframe MF5
- 60 mins

4



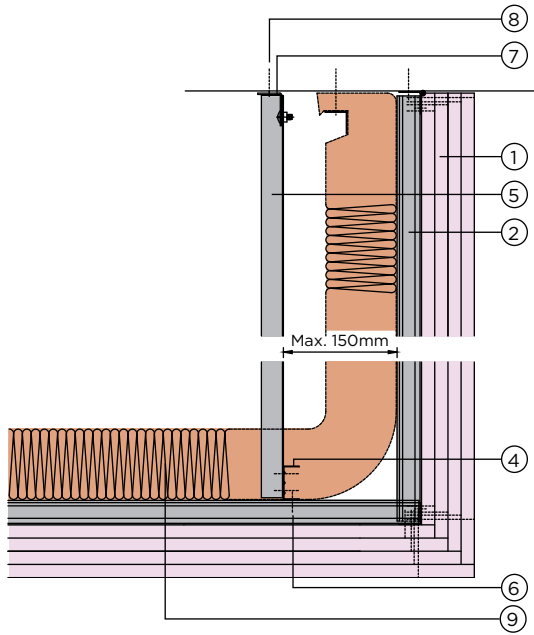
Perimeter detail perpendicular to Gypframe MF5
- 60 mins

1. 15mm Gyproc FireStop
2. Gypframe MF5 Ceiling Section
3. Gypframe GA1 Perimeter Angle
4. Gypframe MF7 Primary Support Channel

5. Gypframe GA1 Steel Angle Hanger
6. Gyproc Waferhead Jack-Point Screws
7. Gypframe Soffit Cleat with Nut & Bolt
8. Gyproc Wedge Anchor
9. 50mm Stone mineral wool (Density 50 kg/m³) by KIMMCO ISOVER

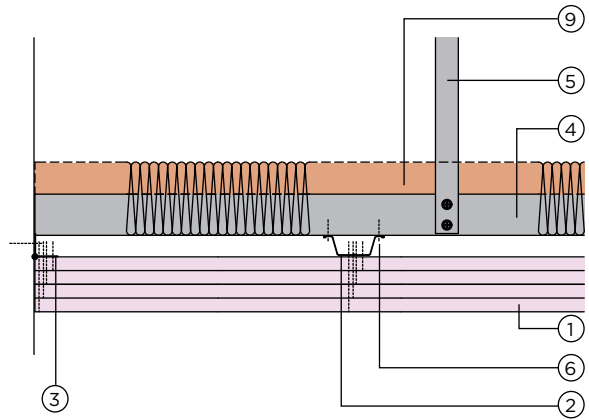
Construction details - Four layer

5



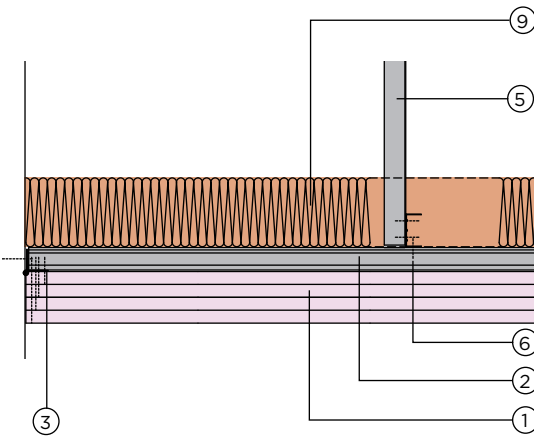
Bulkhead detail - 120 mins

6



Perimeter detail parallel to Gypframe MF5
- 120 mins

7



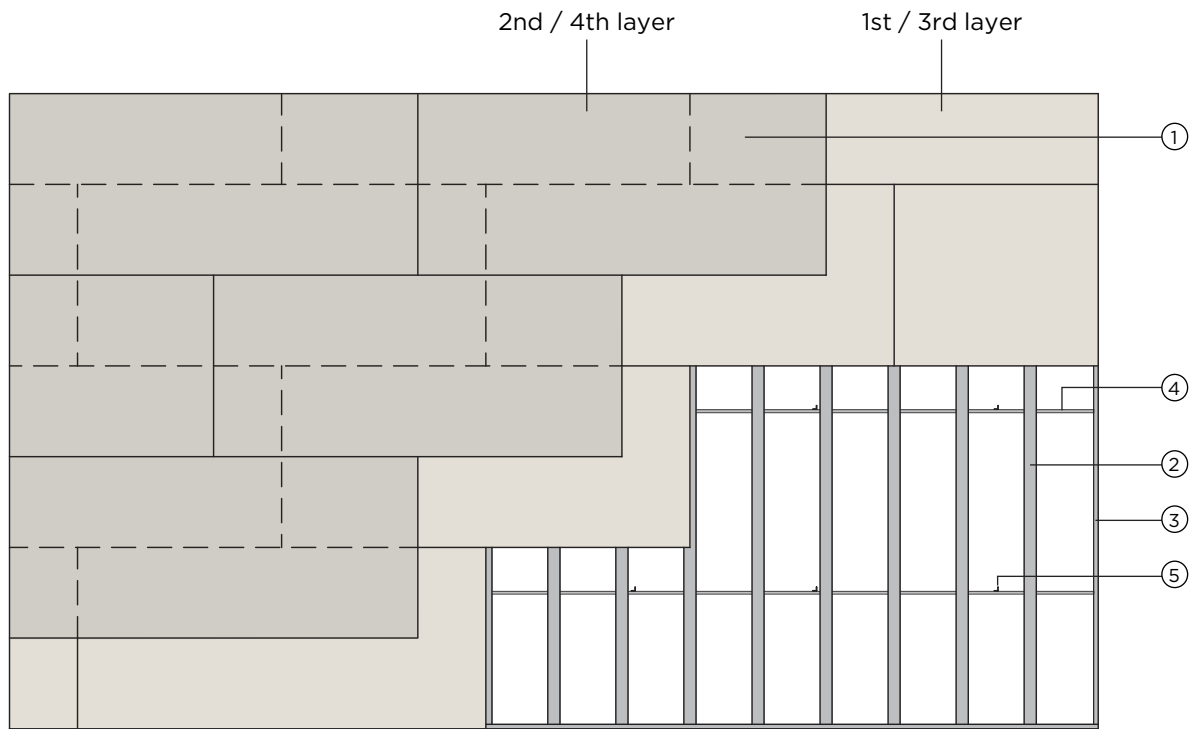
Perimeter detail perpendicular to Gypframe MF5
- 120 mins

1. 15mm Gyproc FireStop
2. Gypframe MF5 Ceiling Section (0.9mm thick)
3. Gypframe GA1 Perimeter Angle (0.9mm thick)
4. Gypframe MF7 Primary Support Channel (0.9mm thick)

5. Gypframe GA1 Steel Angle Hanger (0.9mm thick)
6. Gyproc Waferhead Jack-Point Screws
7. Gypframe Soffit Cleat with Nut & Bolt
8. Gyproc Wedge Anchor
9. 50mm Stone mineral wool (Density 50 kg/m³) by KIMMCO ISOVER

Construction details

8



Reflected ceiling plan - 60 mins (double layer) and 120 mins (four layers)

1. 15mm Gyproc FireStop
2. Gypframe MF5 Ceiling Section
3. Gypframe GA1 Perimeter Angle
4. Gypframe MF7 Primary Support Channel
5. Gypframe GA1 Steel Angle Hangers

Gyptone acoustic ceilings - BIG boards

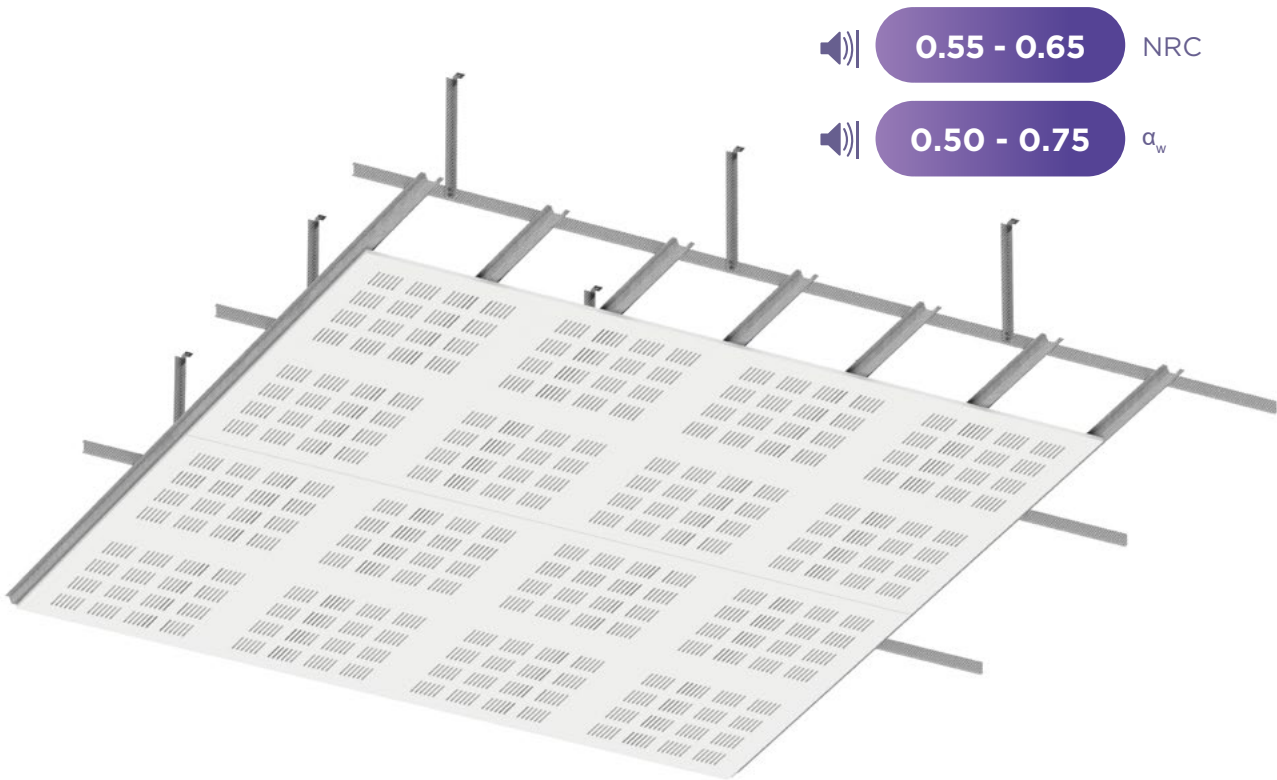
Perforated acoustic solution
with geometric set pattern
and Activ'Air functionality



Gyptone acoustic ceilings - BIG boards

Gyptone BIG Boards are the ideal solution for large rooms that need an acoustic ceiling without any visible joints between the boards. The boards have a strong surface and even stronger connections, which makes them suitable for walls as well.

With Gyptone BIG Boards, you combine attractive design with excellent documented acoustic performance, in full compliance with the most stringent requirements for reverberation and speech intelligibility.



Key Benefits



Sound absorbing solutions with reverberation control



Easy cleaning & maintenance



Fast and easy installation



Improves indoor air quality



Sustainable & 100% recyclable



Gyptone boards are made with tapered edges on all sides



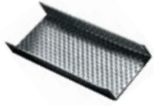
Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe MF5 Ceiling Section
Secondary section supported by Gypframe MF7, used to receive board lining



Gypframe MF7 Primary Support
Primary section to support Gypframe MF5 Ceiling Section



Gypframe Shadow Angle
A primed, pre-formed aluminium trim for design effects on Gyproc MF ceilings



Gypframe GA1 Steel Angle
Primarily used as a perimeter wall angle and ceiling hanger in the Gyproc MF Ceiling system

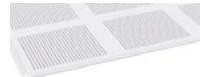


Gypframe Soffit Cleat with Nut & Bolt
Cleat for suspending MF ceiling Gyproc GA1 Steel Angle hangers from soffit

Board products



Gyptone BIG Quattro 41
Achieves high levels of acoustic absorption with a 12mm square cut out design giving a total perforated area of 16%



Gyptone BIG Sixto 63
Perforated plasterboard with hexagonal perforation that, together with acoustic backing tissue, provides good acoustic properties. Perforation area 15%



Gyptone BIG Line 6
A line cut out design of 6mm x 80mm giving a total perforated area of 13% and high levels of acoustic absorption



Gyptone BIG Quattro 71
Perforated plasterboard with 3x3mm small square perforations that, in combination with acoustic backing tissue, provides good acoustic properties. Perforation area 9%



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Corners



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Metal Corner Tape

High quality paper joint tape strengthened with two corrosion-resistant galvanised steel strips for the finishing of internal and external angles in drywall construction



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking

Insulation products



ISOVER Eco Acoustic Partition Roll (APR) (25, 50, 75 and 100mm)*

Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³

* Available in other thickness and density

Installation overview

Please refer to Gyproc MF ceiling installation guidelines for basic framing instructions and refer to the steps below for installation instructions of Gyptone BIG boards.



Install Gyproframe ceiling framework as described in the Gyproc mf ceiling section ensuring that Gyproframe MF5's are installed at 600mm centres. Set out the ceiling ensuring Gyptone boards are installed perpendicular to the MF5's and Gyptone patterns are aligned.



Fix Gyptone BIG boards using 25mm Gyproc Drywall Screws. Screws are inserted at 200mm centres, 15mm from board edges and 50mm from corners.



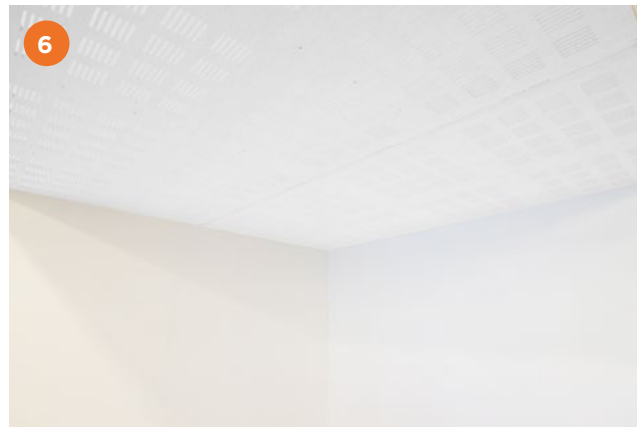
Gyptone BIG boards have all four edges tapered to allow for true flat joints to be created at each board interface to give a perfectly flat finished ceiling. Bed Gyproc Paper Tape firmly into Gyproc Jointing Compound and bulk fill the taper edge joints.



When set, sand if necessary and apply a further coat of Gyproc Jointing Compound and trowel flat taking care not to fill the perforations in the board. Lightly sand to a flat finish and dust off.



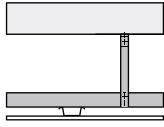
Screw heads are then filled with Gyproc Joint Compound and sanded back to a smooth finish.



Painting of Gyptone BIG boards is to be done with a short haired mohair roller. Boards should not be spray painted as this affects the sound absorption performance.

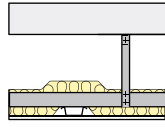
Table 1 - Gyptone sound absorption performance based on ISO 354

1



Gyptone ceiling beneath basic floor. Ceiling linings as in table.

2



Gyptone ceiling suspended beneath basic floor, with Insulation in the cavity. Ceiling linings as in table.

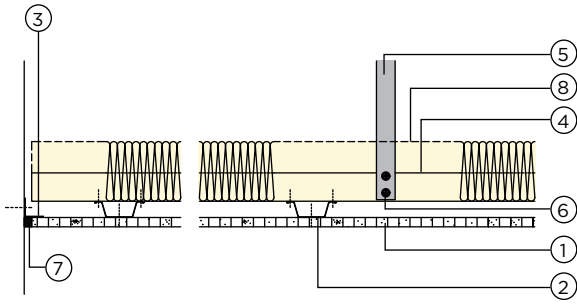
Suspension frame work:

- Gypframe MF7 Primary Support Channel: 1200mm centres
- Gypframe GA1 Hangers fixed to soffit using Gypframe Soffit Cleat: 1200mm centers
- Gypframe MF5 Ceiling Section: 600mm centres

Detail	BIG Board type	Insulation	Plenum depth mm	Sound absorption	
				NRC	α_w
1	Quattro 41	-	200	0.65	0.65
2	Quattro 41	50	400	0.65	0.75
1	Line 6	-	200	0.55	0.50
2	Line 6	50	400	0.55	0.60
2	Line 6	100	400	0.65	0.65
1	Sixto 63	-	200	0.60	0.60
2	Sixto 63	25	200	0.60	0.65
2	Sixto 63	75	300	0.65	0.70
1	Quattro 71	-	200	0.55	0.55
2	Quattro 71	75	300	0.55	0.55

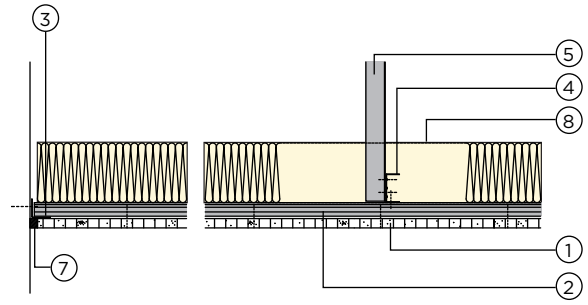
Construction details

1



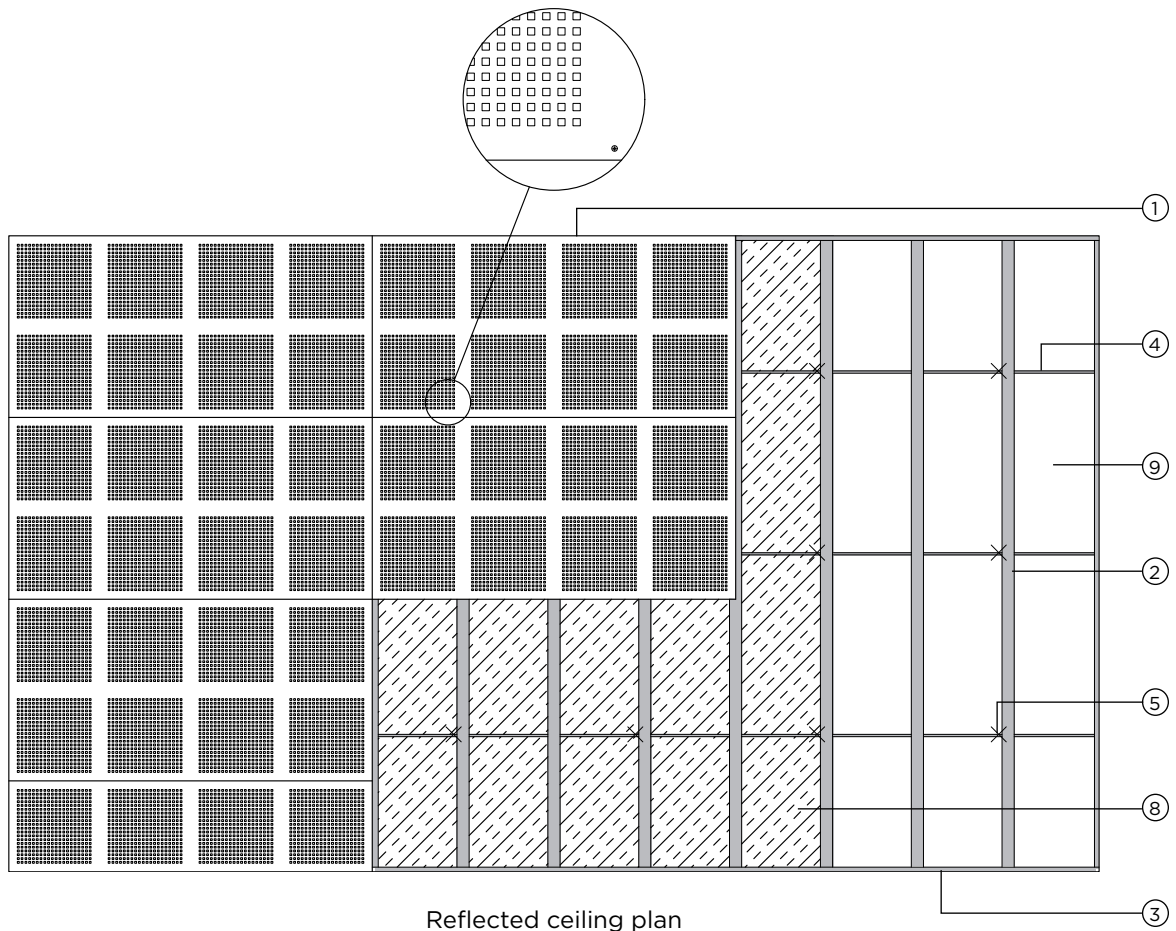
Perimeter detail parallel to Gyprock MF5

2



Perimeter detail perpendicular to Gyprock MF5

3



Reflected ceiling plan

- | | |
|--|---------------------------------------|
| 1. Gyptone BIG board | 6. Gyprock Waferhead Jack-Point Screw |
| 2. Gyprock MF5 Ceiling Section | 7. Gyprock Jointing Compound |
| 3. Gyprock GA1 Perimeter Angle | 8. ISOVER Eco APR |
| 4. Gyprock MF7 Primary Support Channel | 9. Concrete soffit |
| 5. Gyprock GA1 Steel Angle hanger | |

Notes

Rigitone acoustic ceilings

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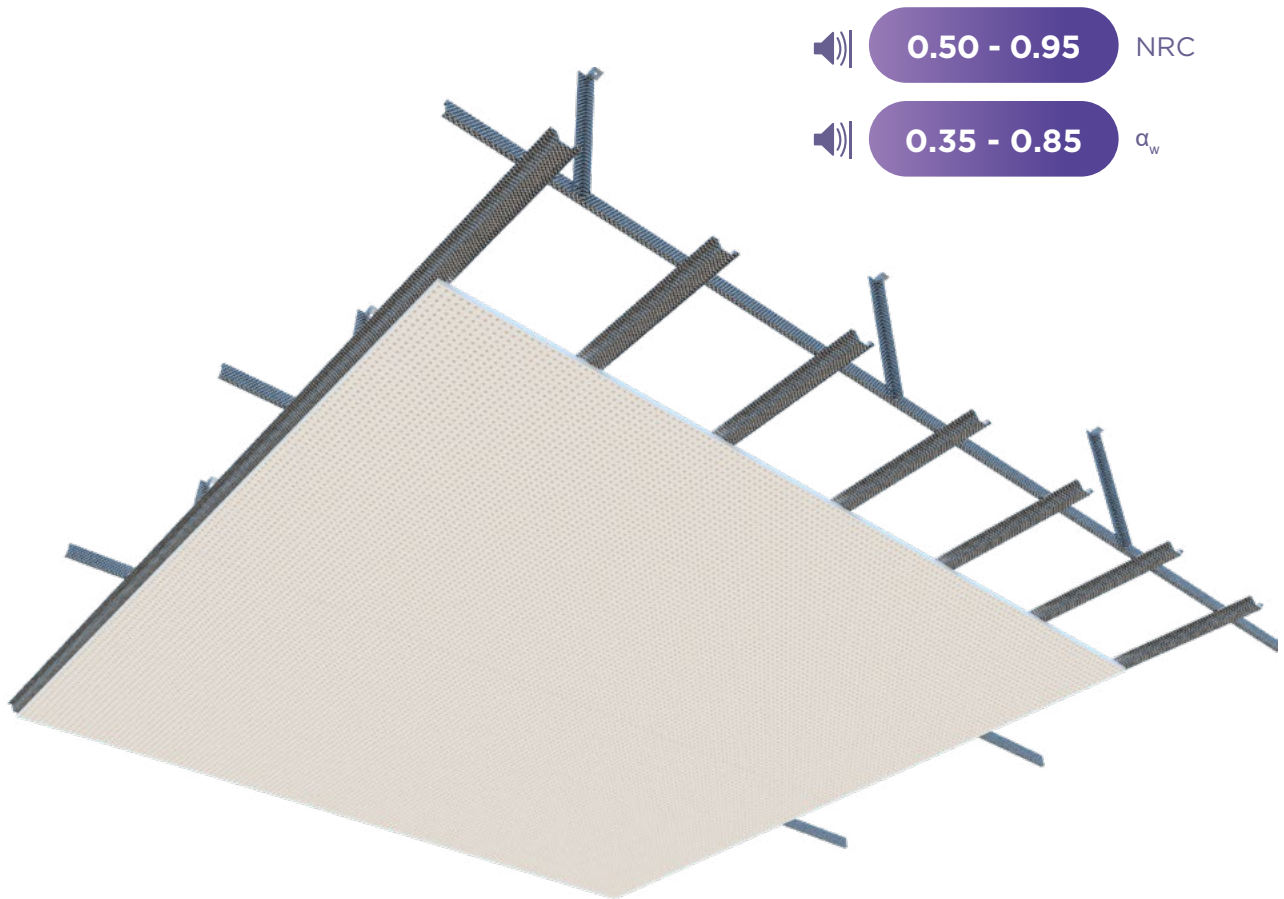
Perforated acoustic solution
with set or random design
with borderless pattern and
Activ'Air functionality



Rigitone acoustic ceilings

Rigitone boards are premium-quality perforated plasterboards with detailed design combining function and aesthetics: In addition to their wide range of perforation patterns, Rigitone Activ'Air boards also demonstrate optimum acoustic properties, particularly in the frequency range of the human voice.

This range enables the creation of seamless ceiling systems with harmonious and architecturally appealing ceiling patterns, and outstanding acoustic properties.



Key Benefits



Sound absorbing solutions with high reverberation control



Robust design



Monolithic appearance with set or random patterns



Improves indoor air quality



Sustainable & 100% recyclable



Simple accommodation of access panels



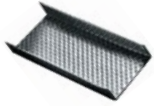
Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe MF5 Ceiling Section
Secondary section supported by Gypframe MF7, used to receive board lining



Gypframe MF7 Primary Support
Primary section to support Gypframe MF5 Ceiling Section



Gypframe Shadow Angle
A primed, pre-formed aluminium trim for design effects on Gyproc MF ceilings

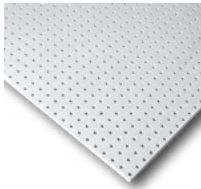


Gypframe GA1 Steel Angle
Primarily used as a perimeter wall angle and ceiling hanger in the Gyproc MF Ceiling system

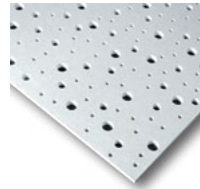


Gypframe Soffit Cleat with Nut & Bolt
Cleat for suspending MF ceiling Gypframe GA1 Steel Angle hangers from soffit

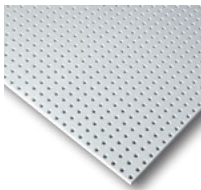
Board products



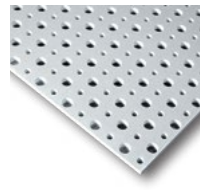
Rigitone 6/18
(12.5mm)
Achieves high levels of acoustic absorption with 6mm regular round perforations at 18mm c/c distance giving a total perforated area of 8.7%



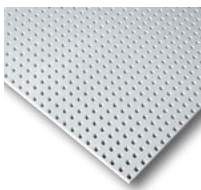
Rigitone 8-15-20 Super
(12.5mm)
Achieves high levels of acoustic absorption with 8, 15 and 20mm dia. irregular scattered round perforations giving a total perforated area of 10%



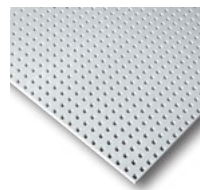
Rigitone 8/18
(12.5mm)
Achieves high levels of acoustic absorption with 8mm regular round perforations at 18mm c/c distance giving a total perforated area of 15.5%



Rigitone 12-20/66
(12.5mm)
Achieves high levels of acoustic absorption with 12 and 20mm dia. regularly staggered round perforations at 66mm c/c distance giving a total perforated area of 19.6%



Rigitone 8/18 Q
(12.5mm)
Achieves high levels of acoustic absorption with 8mm regular square perforations at 18mm c/c distance giving a total perforated area of 19.8%



Rigitone 12/25 Q
(12.5mm)
Achieves high levels of acoustic absorption with 12mm regular square perforations at 25mm c/c distance giving a total perforated area of 23.0%



Rigitone 8-15-20
(12.5mm)
Achieves high levels of acoustic absorption with 8, 15 and 20mm dia. irregular scattered round perforations giving a total perforated area of 6%



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Corners



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Metal Corner Tape

High quality paper joint tape strengthened with two corrosion-resistant galvanised steel strips for the finishing of internal and external angles in drywall construction



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Rigitone accessories



Rigitone Mix 600ml

Rigitone Mix is a ready filler for Rigitone perforated panel joints. It forms part of the Rigitone Ready Mix Set and is used in the Joint Filling Technique



Rigitone Installation Kit

Installation aid to ensure the boards are properly aligned. Should be selected as per the board perforation



Rigitone ReadyMix Set

The set contains 1 pistol, 2 ReadyMix adapters, 2 Fix joint nozzles, 1 scraper and 1 screw head template

Insulation products



ISOVER Eco Acoustic Partition Roll (APR) (75mm)*

Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³

* Available in other thickness and density

Installation overview

Please refer to Gyproc MF ceiling installation guidelines for basic framing instructions and refer to the steps below for installation instructions of Rigitone boards.



Install the Gypframe ceiling framework as described in the Gyproc MF ceiling section ensuring that Gypframe MF5's are installed at approximately 330mm centres - see Table 1 for guidance. Set out the ceiling ensuring Rigitone boards are installed perpendicular to the MF5's and the Rigitone patterns are aligned using the Rigitone Installation Kit to correctly space the boards.



Fix Rigitone boards using 25mm Gyproc Drywall Screws at a maximum of 170mm centres. Screw fix the board perimeter prior to fixing the field of the board.



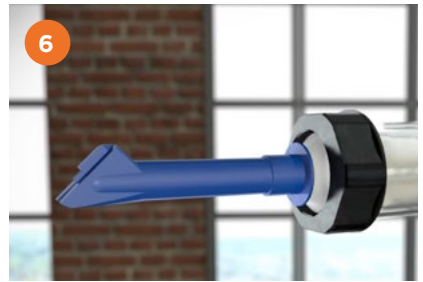
Rigitone® ReadyMix Set



Cut the end of Rigitone Mix 600ml tube.



Insert the Rigitone Mix 600ml tube in the Rigitone ReadyMix pistol.



Screw the Rigitone Fix joint nozzle onto the adapter. Screw the Rigitone Fix joint nozzle and attached adapter tightly onto the Rigitone ReadyMix pistol.



Screw heads are then filled with Gyproc Joint Compound using the Rigitone screw head template to help ensure no jointing compound enters into the perforations of the board.



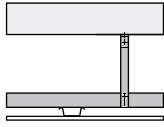
Once the Rigitone Mix between the boards has begun to harden, remove any excess carefully using the Rigitone scraper. Pass the scraper back over the joints in the other direction to smooth the surface.



The joints and covered screw heads can be sanded after 24 hours. Further finishing work may be continued once the Rigitone Mix has fully dried.

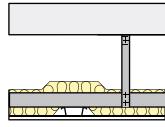
Table 1 - Rigitone sound absorption performance based on ISO 354

1



Rigitone ceiling beneath basic floor. Ceiling linings as in table.

2



Rigitone ceiling suspended beneath basic floor, with Insulation in the cavity. Ceiling linings as in table.

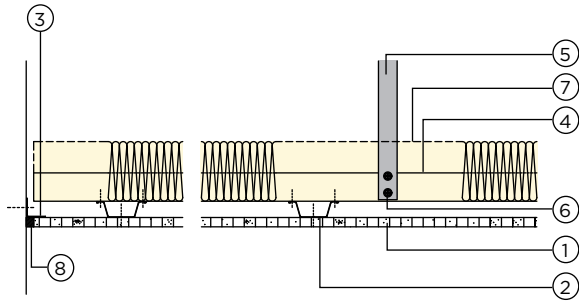
Suspension frame work:

- Gypframe MF7 Primary Support Channel: 1000mm centres
- Gypframe GA1 Hangers fixed to soffit using Gypframe Soffit Cleat: 900mm centers

Detail	Board type	Insulation	MF5 centres	Plenum depth	Perforated area	Sound absorption	
		mm	mm	mm	%	NRC	α_w
1	Rigitone 6/18	-	333	200	15.5	0.65	0.45
2		75					
1	Rigitone 8/18	-	333	200	15.5	0.70	0.65
2		75					
1	Rigitone 12-20/66	-	330	200	19.6	0.75	0.65
2		75					
1	Rigitone 8-15-20	-	327	200	6.0	0.50	0.35
2		75					
1	Rigitone 8-15-20 Super	-	327	200	10.0	0.60	0.50
2		75					
1	Rigitone 8/18Q	-	333	200	19.8	0.65	0.60
2		75					
1	Rigitone 12/25Q	-	333	200	23.0	0.75	0.65
2		75					

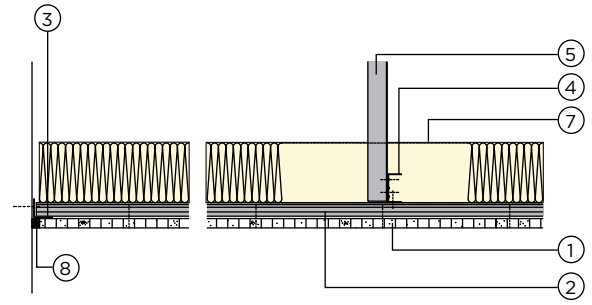
Construction details

1



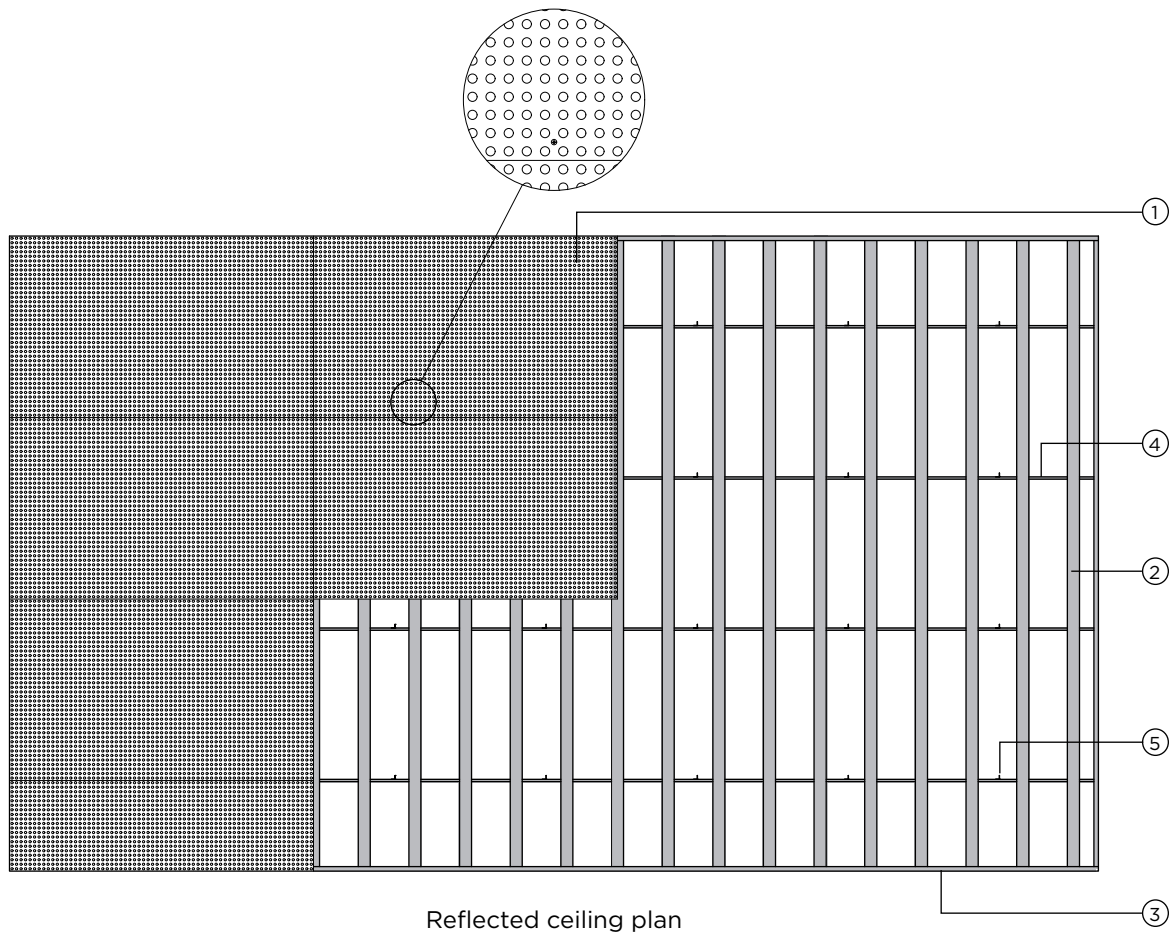
Perimeter detail parallel to Gyprock MF5

2



Perimeter detail perpendicular to Gyprock MF5

3



Reflected ceiling plan

- | | |
|--|---------------------------------------|
| 1. Rigitone board | 5. Gyprock GA1 Steel Angle Hanger |
| 2. Gyprock MF5 Ceiling Section | 6. Gyprock Waferhead Jack-Point Screw |
| 3. Gyprock GA1 Perimeter Angle | 7. ISOVER Eco APR |
| 4. Gyprock MF7 Primary Support Channel | 8. Rigitone Mix 600ml |

Notes

GypLyner UNIVERSAL ceilings



Concealed ceiling
lining system



St. Regis Residences
Amman, Jordan

GypLyner UNIVERSAL ceilings

GypLyner UNIVERSAL ceilings is a general purpose ceiling lining system suitable for most internal applications. It is used in all types of buildings from residential properties to large commercial developments and is equally suited to both new-build and refurbishment.



Key Benefits



A versatile system utilising same components for wall or ceiling lining



Commonality of ceiling and wall lining components



Suitable for all concrete soffits



Ceiling void accommodates small service routings



Minimum loss in room space with as little as 25mm cavity



Compatible with wide range of Gyproc, Glasroc, Gypstone and Rigitone boards



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe metal components



Gypframe GL1 Lining Channel
Main support channel to receive fixing of board



Gypframe GLB85 Bracket
For connecting the GL1 Lining Channel to the soffit with a maximum of 85mm cavity depth



Gypframe Shadow Angle
A primed, pre-formed aluminium trim for design effects on Gyproc MF ceilings



Gypframe GLB135 Bracket
For connecting the GL1 Lining Channel to the soffit with a maximum of 135mm cavity depth



Gypframe GA1 Steel Angle
Primarily used as a perimeter wall angle

Board products



Gyproc Regular^{1, 2, 3}
(9, 12.5, 15mm)
Standard gypsum plasterboard



Aquaroc FC
(12, 15mm)
Fibre cement board with excellent moisture resistant characteristics and mechanical strength



Gyproc FireStop^{1, 2, 3}
(12.5, 15mm)
Gypsum plasterboard with fire resistant additives



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc SoundBloc^{1, 2}
(12.5, 15mm)
Gypsum plasterboard with a high density core for enhanced sound insulation performance



Gyptone BIG board
A range of perforated acoustic plasterboard with geometric set pattern with Activ'Air functionality



Gyproc Habito²
(12.5mm, 15mm)
Next generation plasterboard which consists of a specially reinforced gypsum core designed for high strength and fixing capability



Rigitone board
A range of perforated acoustic plasterboard with set or random design for continuous, jointless and borderless pattern with Activ'Air functionality

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



System components (continued)

Fixing products



Gyproc Drywall Screws

Corrosion resistant self-tapping steel screws for fixing board to metal framing less than 0.8mm thick



Gyproc Waferhead Screws

Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick



Gyproc Habito Screws

Corrosion resistant self-tapping screw with counter sunk cross heads specifically used for fixing Gyproc Habito plasterboard to Gypframe framework



Gyproc Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and



Gyproc Jack-Point Screws

Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry

Plasterboard accessories



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Gyproc Sealant

Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

Corners



Levelline Flex

Adjustable corner reinforcement that flexes to any angle and gives high levels of impact protection



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Metal Corner Tape

High quality paper joint tape strengthened with two corrosion-resistant galvanised steel strips for the finishing of internal and external angles in drywall construction

Installation overview



Gypframe GA1 Perimeter Angle is fixed to the wall at maximum 600mm centres using Gyproc Hammer Fix Anchor.



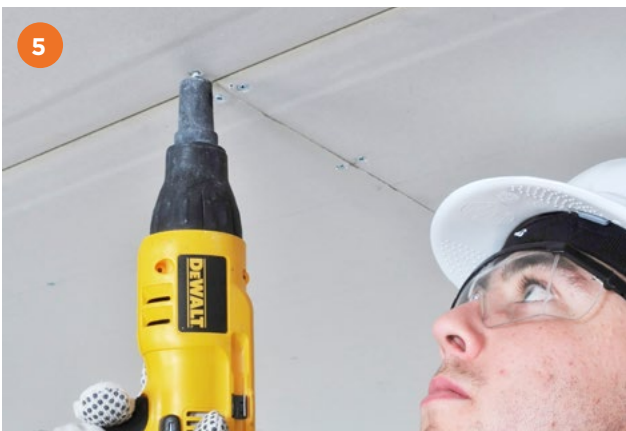
Gypframe GLB85 or GLB135 Brackets are fixed to the soffit at the required centres using Gyproc Wedge Anchor.



Gypframe GL1 Lining Channels are located into the perimeter track and each leg of the Gypframe GLB85 or GLB135 Brackets are screw-fixed to the Gypframe GL1 Lining Channels with Gyproc Waferhead Screws.



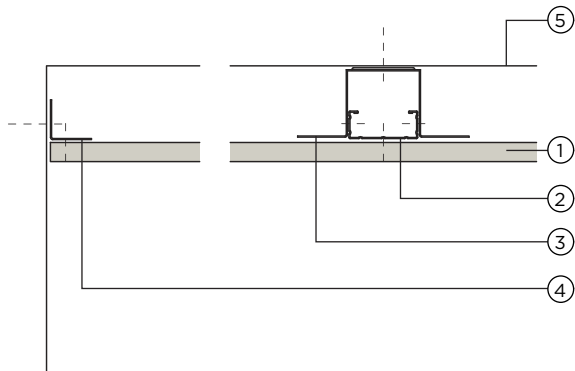
The protruding legs of each bracket are bent to sit back from the channel face. Additional angle or supplementary framing is installed if required to support fixtures.



Gyproc Boards are fixed to the Gypframe GL1 Lining Channels to form single or multi-layer linings as specified.

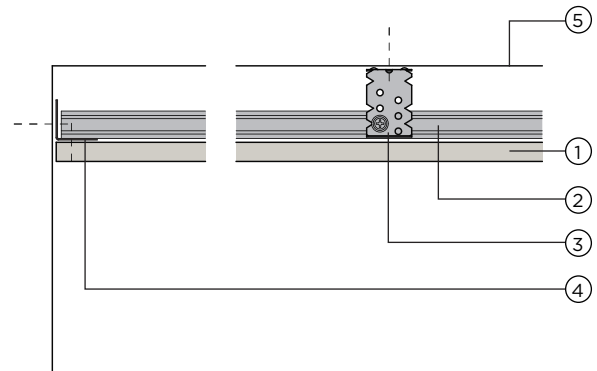
Construction details

1



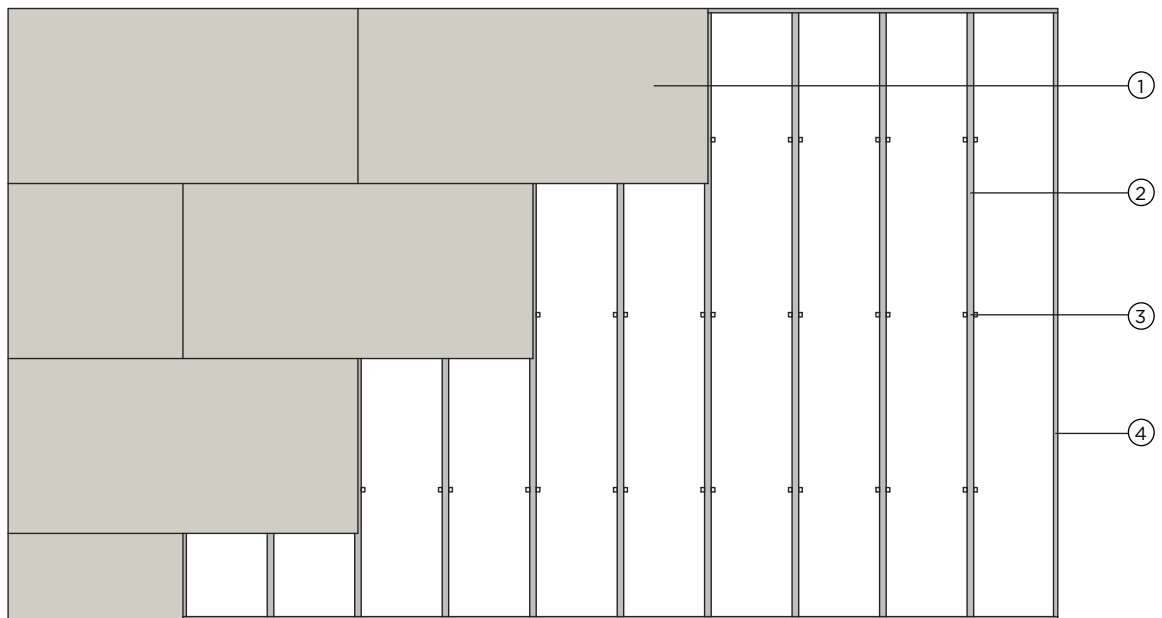
Perimeter detail parallel to Gyproframe GL1 Lining Channel

2



Perimeter detail perpendicular to Gyproframe GL1 Lining Channel

3



Reflected ceiling plan

- | | |
|---|-------------------------------|
| 1. Gyproc plasterboard | 4. Gyproframe GA1 Steel Angle |
| 2. Gyproframe GL1 Lining Channel (at 400mm centres) | 5. Concrete Soffit |
| 3. Gyproframe GLB85/GLB135 Bracket (at 1200mm centres for single layer application) | |

Gyptone GRID acoustic ceilings

Demountable suspended
grid ceiling system

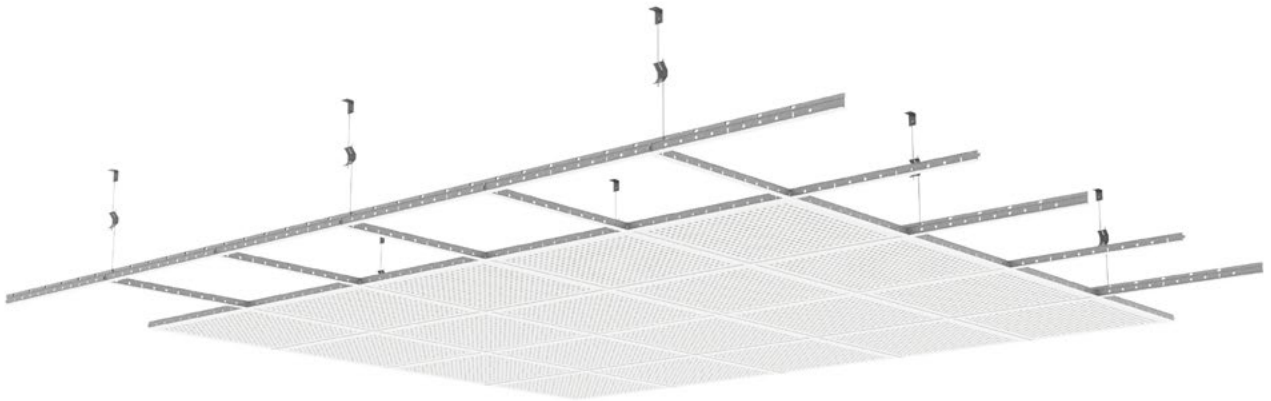


Masdar Neighbourhood
One Residence
Abu Dhabi

Gyptone GRID acoustic ceilings

Gyptone GRID is a lightweight ceiling system available in concealed or exposed grid. Gyptone tiles are pre-finished in white and are available in a wide range of perforations.

 **0.60 - 0.75** NRC
 **0.65 - 0.80** α_w



Key Benefits



Good Acoustics - Absorption and diffusion up to α_w 0.80 - NRC 0.75



Hassle-free access to the ceiling cavity



Improves indoor air quality



Fast and easy installation - Simple and easy to cut and adapt



Easy cleaning and maintenance



Robust design - high load-bearing capacity of up to 3kg per tile



Eligible for the SpecSure warranty from Gyproc

System components

Gypframe T Grids metal products



Gypframe 15mm T Grid Sections
(15mm Main T 3600mm /
15mm Cross T 600mm /
15mm Cross T 1200mm)

Galvanised steel sections with a 15mm width that provide the main grid components of the exposed suspended ceiling system. They are suitable to receive Edge A and Edge E15 ceiling tiles



Gypframe 24mm T Grid Sections
(24mm Main T 3600mm /
24mm Cross T 600mm /
24mm Cross T 1200mm)

Galvanised steel sections with a 24mm width that provide the main grid components of the exposed suspended ceiling system. They are suitable to receive Edge A and Edge E24 ceiling tiles



Gypframe T Wall Angle
(3600mm)

Steel perimeter track screw fixed to the wall to secure the suspended ceiling system



Gypframe T Shadow Angle
(3600mm)

Steel perimeter track screw fixed to the wall to secure the suspended ceiling system. The Shadow Angle provides a stepped design border where a premium finish is required



Gypframe T Adjustable Hangers
(Adjustable Clips / 3mm Hanger Rod:
750mm / 1000mm / 1500mm)

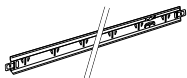
High-strength adjustable steel hangers for suspension of Gypframe T Grid system. It consists of two identical Hanger Rods (top and bottom) connected by an adjustable clip



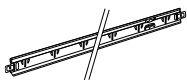
Gypframe Soffit Cleat with Nut & Bolt

Cleat for suspending Gypframe T Adjustable Hangers from soffit

Gyptone Edge D2 Cross-Lock Unipro grid system



Main beam unipro
L: T-24 3600 mm



Cross profile unipro
L: T-24 3600 mm



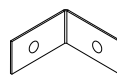
Wall angle
L: 3000 mm



Cross Lock connector



Adjustable Hangers
for length between 90-1500 mm



Connecting bracket



Wall springs

System components (continued)

Gyptone Tiles



Gyptone Point 11

Pre-finished white tile with 6.5mm diameter round perforations at 15mm centres, giving a total perforated area of 12%



Gyptone Line 4

Pre-finished white tile with 6mm x 95mm line perforations, giving a total perforated area of 18%



Gyptone Quattro 20

Pre-finished white tile with 9mm square perforation at 19.5mm centres, giving a total perforated area of 18%



Gyptone Quattro 50

Pre-finished white tile with 12mm square perforation at 25mm centres, giving a total perforated area of 18%



Gyptone Quattro 70

Pre-finished white tile with 3mm square perforation at 8.33mm centres, giving a total perforated area of 11%

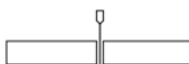


Gyptone Sixto 60

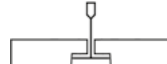
Pre-finished white tile with 11mm hexagonal perforations at 20mm centres, giving a total perforated area of 17%



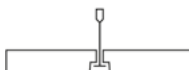
Edge Details



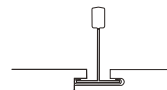
A
T15/T24



E24
24mm T sections



E15
15mm T sections



D2
T24 - D2

Fixing products



Gyproc Wedge Anchor

Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry



Gyproc Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry

Insulation products



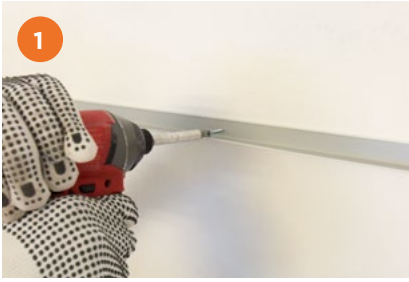
ISOVER Eco Acoustic Partition Roll (APR) (75mm)*

Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

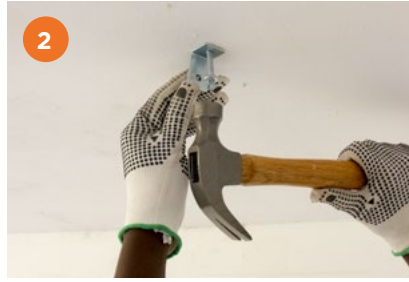
Minimum density: 16 kg/m³

* Available in other thickness and density

Installation overview



The Gypframe T Wall or Shadow Angle is mounted with a Gyproc Hammer Fix or a Gyproc Drywall Screw as suitable at maximum 300mm centres.



Secure Gypframe Soffit Cleat using Gyproc Wedge Anchor.



Gypframe T Adjustable Hangers are fixed into the Gypframe soffit cleat at 1200 mm centres.



Position the first Gypframe Main T max. 600 mm from the wall. First Gypframe Adjustable Hanger in Gypframe Main T max. 400 mm from the wall. The other hangers are at per max. 1200mm.



Extend the Gypframe Main T by pushing them together until they click.



Gypframe Cross T is mounted at 600mm centres. The length of the Gypframe Cross T closest to the wall is adjusted. The grid system is adjusted to the accurate height.



When placing the Gyptone tiles, use cotton gloves. Lift the tiles square through the grid system and lower it onto its place. Please note that all Gyptone tiles are directional (see the installation method inserted in the Gyptone package). All installations should be finished before mounting the tiles.



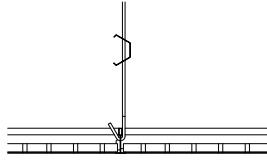
The perimeter tiles against the wall can be cut with either a knife or with a saw. When using a saw, cut the tile from the front side of the tile. When using a knife cut the front side paper liner first.



Once the front side paper liner is cut, break the tile and cut through the backside paper liner. The perimeter tiles should not be cut with an undersize of more than max. 5mm.

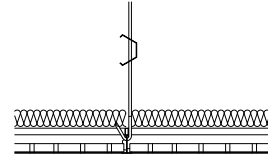
Table 1 - Gyptone sound absorption performance based on ISO 354

1



Gyptone ceiling tiles beneath basic floor. Ceiling tiles linings as in table.

2



Gyptone ceiling suspended beneath basic floor, with ISOVER Eco APR in the cavity. Ceiling tiles linings as in table.

Detail	Tile type	Insulation mm	Plenum depth mm	Sound absorption	
				NRC	α_w
1	Point 11	-	200	0.65	0.65
2	Point 11	75	300	0.70	0.75
1	Quattro 70	-	200	0.60	0.65
2	Quattro 70	75	300	0.60	0.65
1	Quattro 50	-	200	0.70	0.70
2	Quattro 50	75	300	0.75	0.75
1	Quattro 20	-	200	0.70	0.75
2	Quattro 20	75	300	0.75	0.80
1	Line 4	-	200	0.70	0.65
2	Line 4	75	300	0.70	0.70
1	Sixto 60	-	200	0.65	0.75
2	Sixto 60	75	300	0.75	0.80

Design

Product description

Edge A

Gyptone edge A is a pre-painted, removable, acoustic suspended ceiling tile mounted in an exposed grid system (T15 or T24). The visible width of the grid system is 15 or 24mm. Gyptone edge A is a fully demountable ceiling so it provides good opportunities for inspection in the cavity above the ceiling. Gyptone edge A is available with perforated and non-perforated surface. Available in thickness of 10mm and 12.5mm with the tile size of 600x600mm.

Edge E15

Gyptone edge E15 is a pre-painted, removable, acoustic suspended ceiling tile mounted in a semi exposed grid system (T15). The visible width of the grid system is 15 mm. Gyptone edge E15 is a fully demountable ceiling so it provides good opportunities for inspection in the cavity above the ceiling. Gyptone edge E is available with perforated and non-perforated surface. Available in thickness of 10mm and 12.5mm with the tile size of 600x600mm.

Edge D2

Gyptone edge D2 is a pre-painted, acoustic suspended ceiling tile mounted in a concealed 24mm grid system. Gyptone edge D2 is a fully demountable ceiling. Gyptone edge D2 is available with perforated and non-perforated surface. Available in thickness of 12.5mm with the tile size of 600x600mm.

Plenum depth - T-grid system with adjustable hangers

To ensure an easy-going mounting of the tiles in the grid-system, the distance between the lower surface of the grids and the above element of building should be min. 100mm. The depth is measured without any Gyptone tiles and without attachment to the slab above the ceiling. The distance is from the top of the hanger, to the bottom of the painted grid system.

Surfaces

The tiles surface is painted from the factory. Each Gyptone tile is painted with the colour NCS0500, with a gloss value of 5-9 according to ISO 2813. Future treatment is to be executed with a short-haired roller as spray painting will impair the acoustic performance. The colour of the grid system is snow-white (close to RAL9016 or RAL9003).

Grid system

Edge A and E15

Gyptone edge A and edge E15 are installed on a Gypframe T grid system. The system is suspended using Gypframe T Adjustable Hangers. Gyptone edge A and edge E15 need to be installed in accordance with Gyproc installation guidance as well as the general specification of the project.

Edge D2

Gyptone edge D2 is installed in a Gyptone Cross-Lock Unipro system. The system is suspended using Gyptone Adjustable Hangers. Gyptone edge D2 needs to be installed in accordance with Gyproc installation guidance as well as the general specification of the project.

Fire classification

A2-s1, d0.

Loading

Edge A and E15

Maximum point load for each tile, with a deflection of max 2mm is 3kg. If higher loading is needed the fixtures need to be fixed to the slab above with dedicated suspensions.

Edge D2

Gyptone edge D2 has a maximum point load of 1kg for each tile, with a deflection of max. 2mm. If installations with a higher load is required, the fixtures should be fixed to the slab above with dedicated suspensions.

Stability - Relative Humidity

Gyptone tiles are to be installed and used in rooms with relative humidity not exceeding permanently 70% or temperatures exceeding 49 degrees celcius.

Weight

Edge A and E15 - 10mm thickness

Non perforated Gyptone edge E15 approx. 8 kg/m².
Perforated Gyptone edge E15 approx. 7 kg/m²

Edge A, E15 and D2 - 12.5mm thickness

Non perforated Gyptone D2 approx. 9 kg/m²
Perforated Gyptone D2 approx. 8 kg/m²

Maintenance

Gyptone ceiling tiles can be cleaned using a damp cloth or soft brush. Most standard mild detergents can be used. Tiles can be re-decorated if required using a suitable emulsion paint and a short-haired brush or roller (spray painting will impair sound absorption).

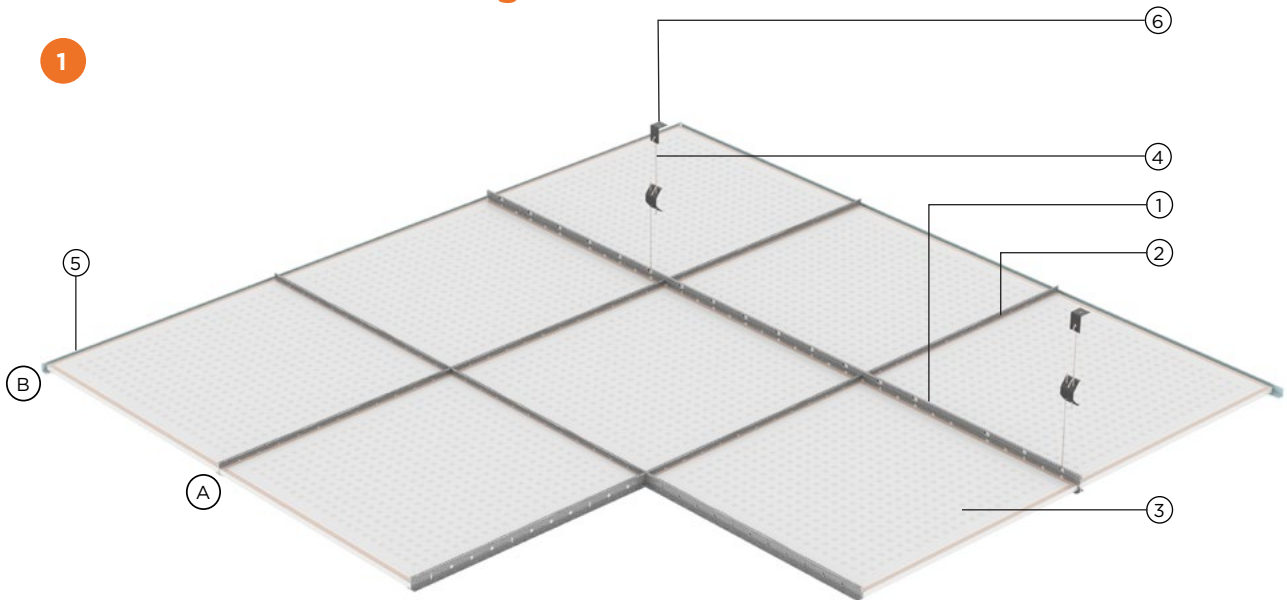
Gyptone tiles with Activ'Air

Though we don't notice them, impurities are often present in the air we breathe - emitted from furniture, carpets and building materials. Long-term exposure to these can potentially cause health problems and reduce general wellbeing.

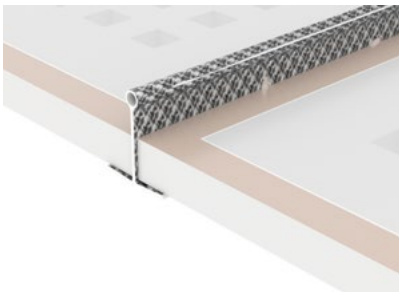
Clean air, on the other hand, can speed up patient recovery in hospitals, reduce absence at work, and increase pupils' concentration at school.

Activ'Air is our latest innovative technology that improves indoor air quality by permanently removing formaldehyde circulating indoors. Formaldehyde concentration will be reduced by 70% when 1m² of Activ'Air is installed per m³.

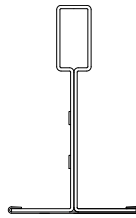
Construction details - Edge A



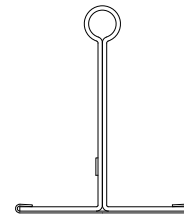
(A)



Supporting tile detail with Gyptone tile Edge A

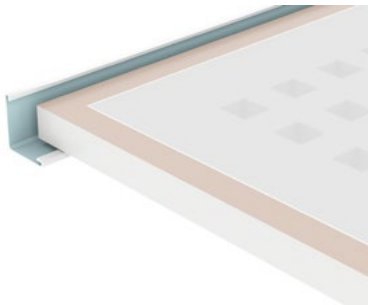


Gyptone Main T Grid Section



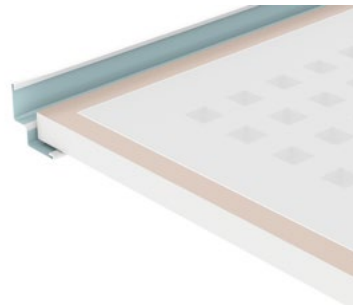
Gyptone Cross T Grid Section

(B) Option 1



Perimeter detail with Gyptone T Wall Angle

(B) Option 2



Perimeter detail with Gyptone T Shadow Angle

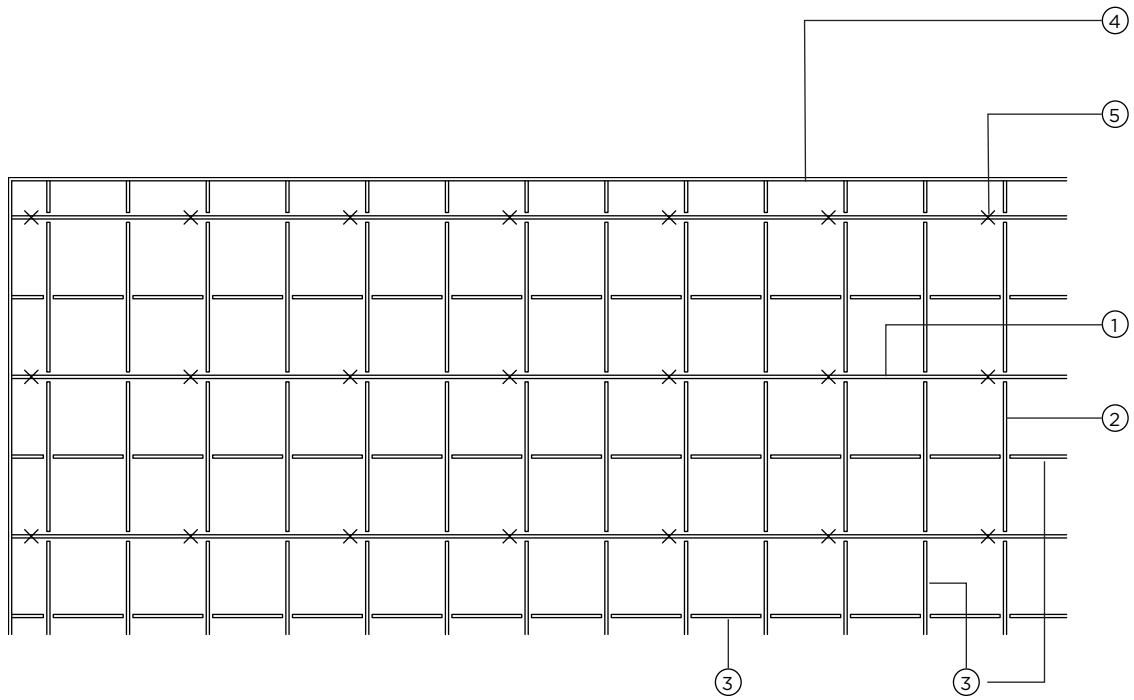
15mm and 24mm exposed lay-in grid with interlocking Main and Cross 'T's
- for Edge A tiles

1. Gyptone Main T Grid Section
2. Gyptone Cross T Grid Section
3. Gyptone tiles

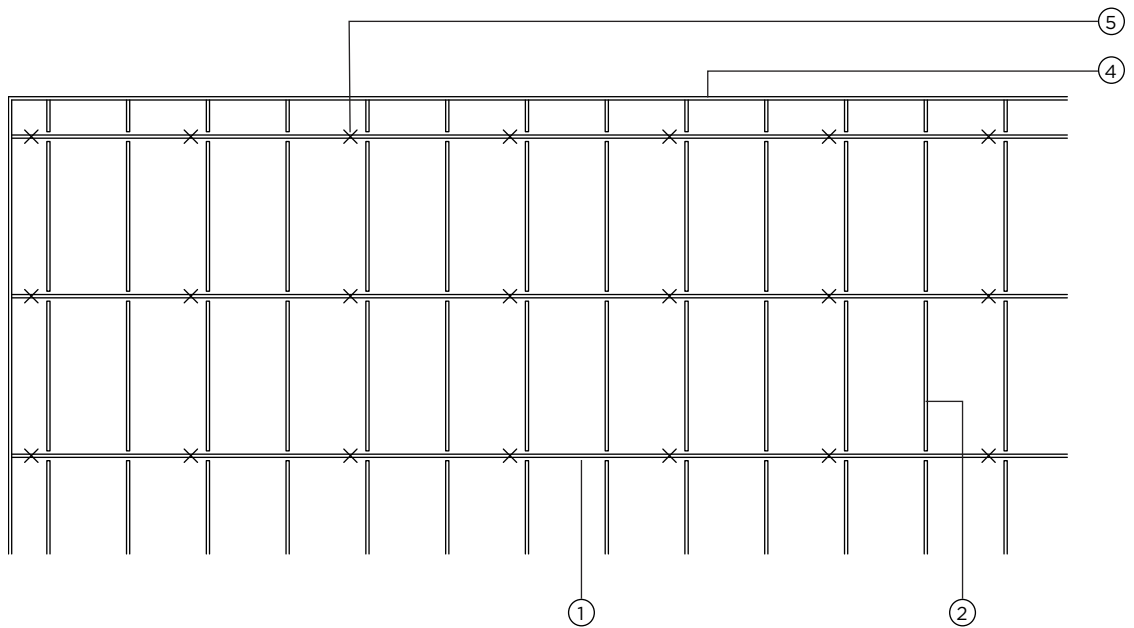
4. Gyptone T Adjustable hanger
5. Gyptone T Wall Angle
6. Gyptone Soffit Cleat with Nut & Bolt

Construction details - Edge A (continued)

2



Gyptone tile Edge A
Grid layout 600x600



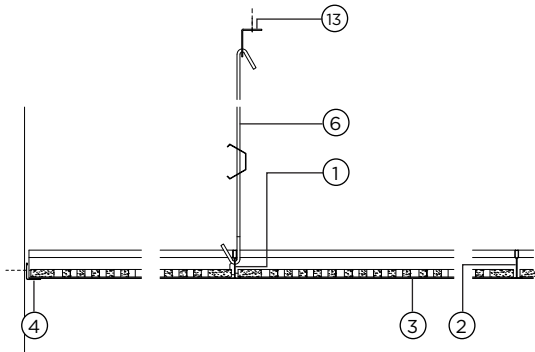
Gyptone tile Edge A
Grid layout 1200x600

- | | |
|--|--|
| 1. Gyptone Main T Grid Section | 4. Gyptone T Wall Angle / Gyptone T Shadow Angle |
| 2. Gyptone Cross T Grid Section 1200mm | 5. Gyptone T Adjustable Hanger shown as 'x' |
| 3. Gyptone Cross T Grid Section 600mm | |

NB These details are for illustrative purposes only. Precise details will vary according to the proprietary grid system used.

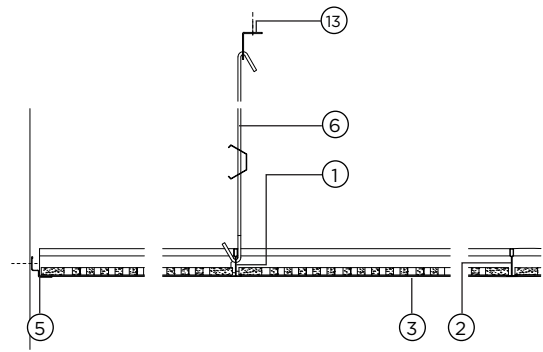
Construction details - Edge A (continued)

3



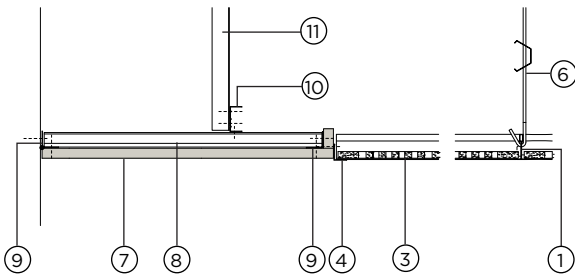
Perimeter detail with Gypframe T Wall Angle

4



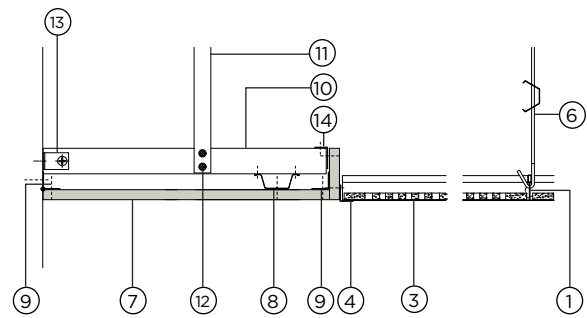
Perimeter detail with Gypframe T Shadow Angle

5



Lay-in grid abutting a plain plasterboard perimeter - perpendicular to MF5

6



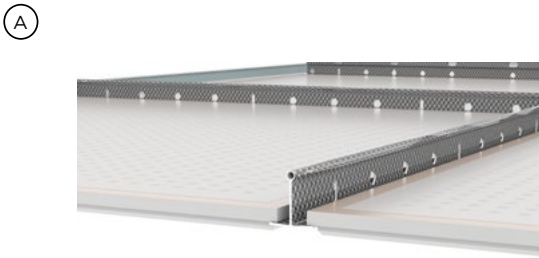
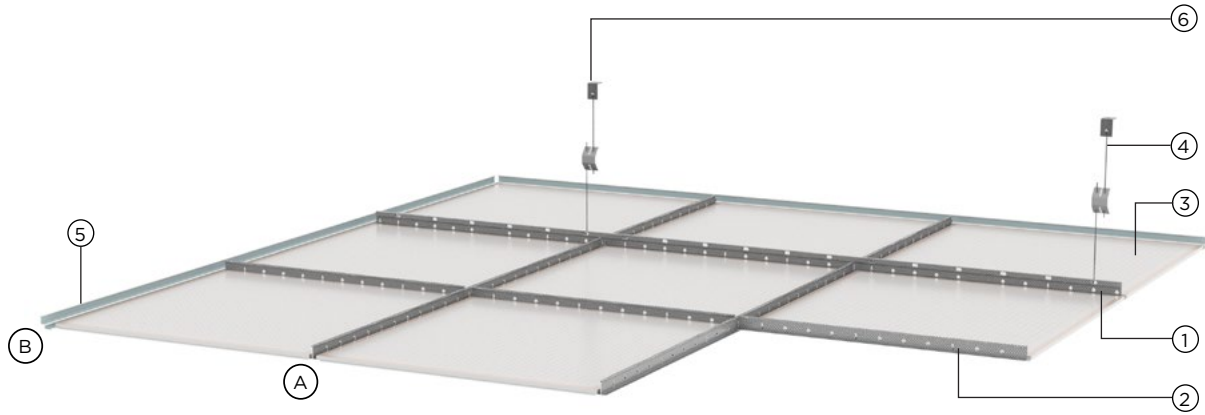
Lay-in grid abutting a plain plasterboard perimeter - parallel to MF5

1. Gypframe Main T Grid Section
2. Gypframe Cross T Grid Section
3. Gyptone tiles
4. Gypframe T Wall Angle
5. Gypframe T Shadow Angle
6. Gypframe T Adjustable Hanger
7. Gyproc plasterboard

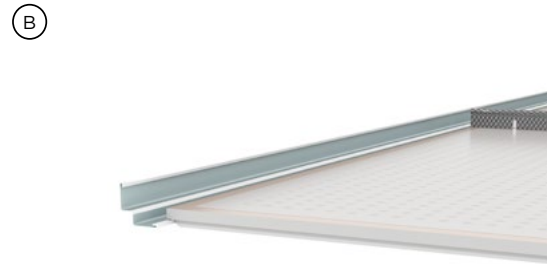
8. Gypframe MF5 Ceiling Section
9. Gypframe GA1 Steel Angle
10. Gypframe MF7 Primary Support Channel
11. Gypframe GA1 Steel Angle hanger
12. Gyproc Waferhead Jack-Point Screw
13. Gypframe Soffit Cleat with Nut & Bolt
14. Gypframe GA3 Steel Angle

Construction details - Edge E15

7



Supporting tile detail with Gyptone tile Edge E15



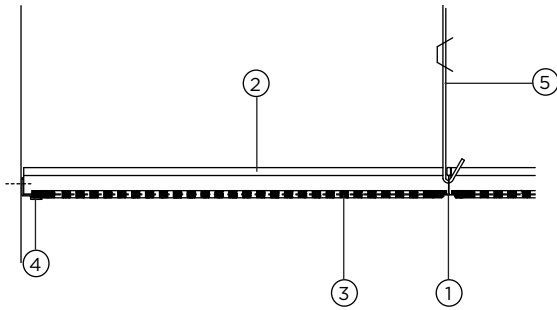
Perimeter detail with Gypframe T Shadow Angle

15mm and 24mm exposed lay-in grid with interlocking Main and Cross 'T's
- for Edge E15 tiles

- | | |
|----------------------------------|--|
| 1. Gypframe Main T Grid Section | 4. Gypframe T Adjustable hanger |
| 2. Gypframe Cross T Grid Section | 5. Gypframe T Shadow Angle |
| 3. Gyptone tiles | 6. Gypframe Soffit Cleat with Nut & Bolt |

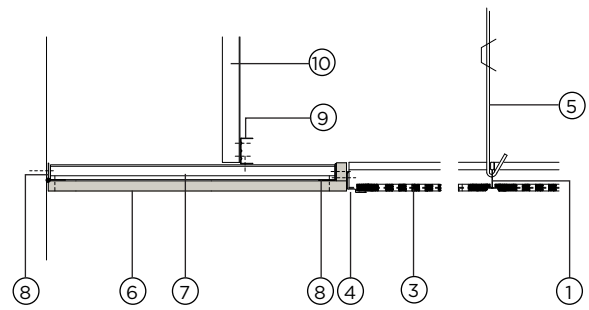
Construction details - Edge E15 (continued)

8



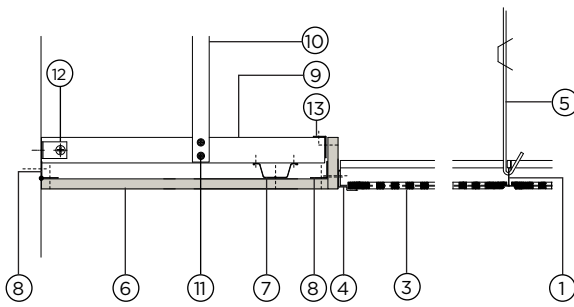
Perimeter detail with Gypframe T Shadow Angle

9



Lay-in grid abutting a plain plasterboard perimeter - perpendicular to MF5

10



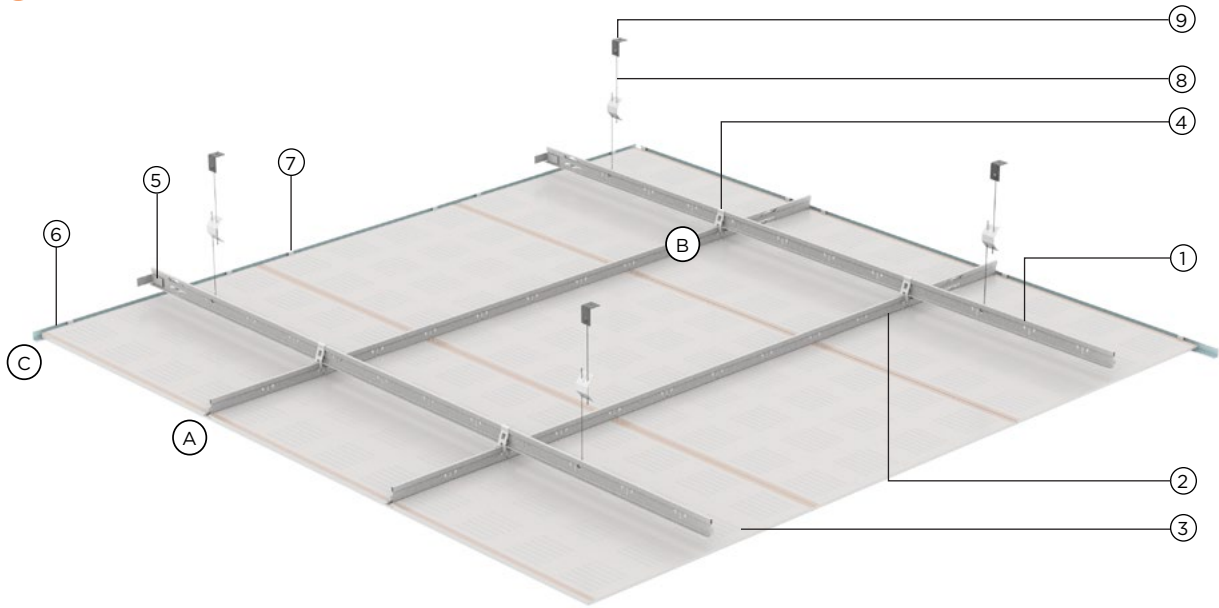
Lay-in grid abutting a plain plasterboard perimeter - parallel to MF5

1. Gypframe Main T Grid Section
2. Gypframe Cross T Grid Section
3. Gyptone tiles
4. Gypframe T Shadow Angle
5. Gypframe T Adjustable Hanger
6. Gyproc plasterboard
7. Gypframe MF5 Ceiling Section

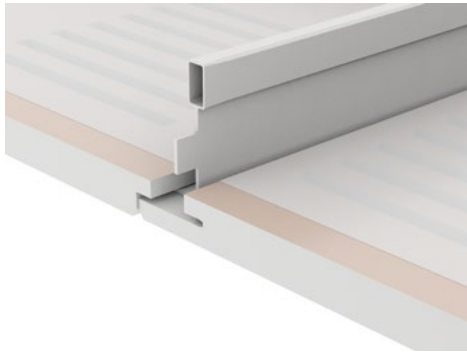
8. Gypframe GA1 Steel Angle
9. Gypframe MF7 Primary Support Channel
10. Gypframe GA1 Steel Angle hanger
11. Gyproc Waferhead Jack-Point Screw
12. Gypframe Soffit Cleat with Nut & Bolt
13. Gypframe GA3 Steel Angle

Construction details - Edge D2

12



(A)



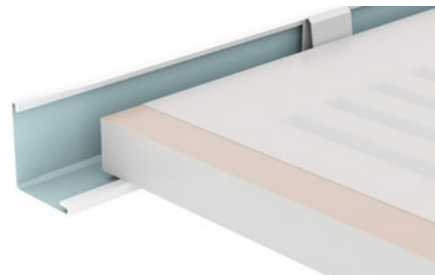
Supporting tile detail with Gyptone tile Edge D2

(B)



Main beam & Cross beam profile junction detail

(C)



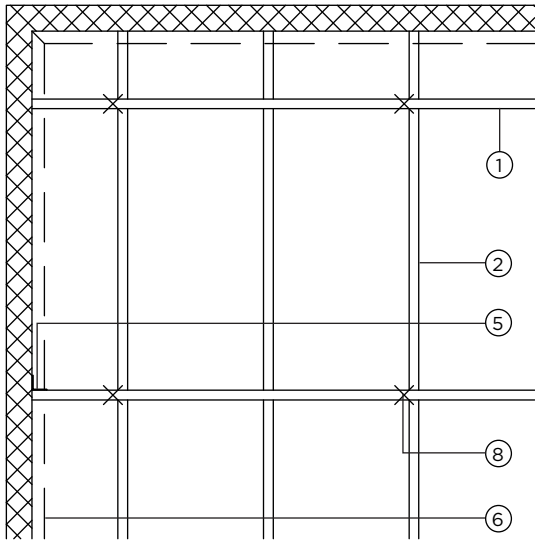
Perimeter detail with Gypframe T Wall Angle

Gyptone T24D2 concealed grid system consisting of interlocking Main 'T's and Cross 'T' spacers - for concealed / demountable edge Gyptone D2 edge tiles

- | | |
|---------------------------------|--|
| 1. Gyptone Main Beam Unipro | 6. Gyptone Wall Angle |
| 2. Gyptone Cross Profile Unipro | 7. Gyptone Wall Spring |
| 3. Gyptone tiles | 8. Gyptone Adjustable Hanger |
| 4. Gyptone Cross-Lock Connector | 9. Gypframe Soffit Cleat with Nut & Bolt |
| 5. Gyptone Connecting Bracket | |

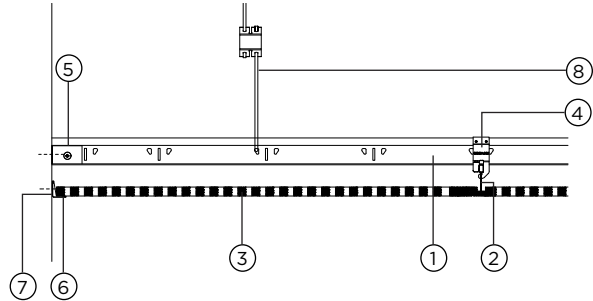
Construction details - Edge D2 (continued)

13



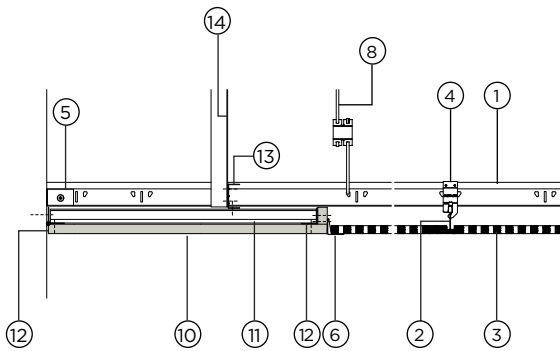
Gyptone grid - Tile edge D2
Grid layout - 600 x 600

14



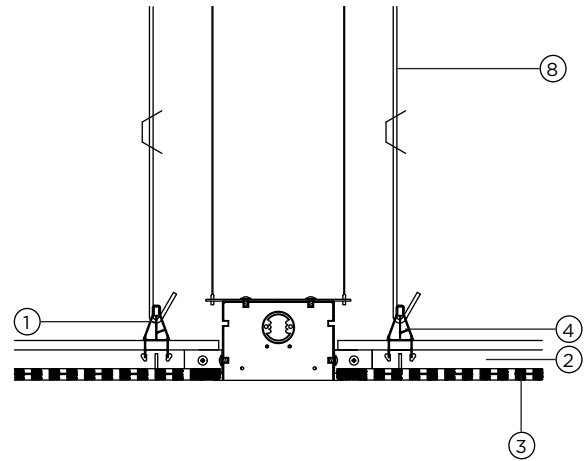
Perimeter detail with Gyptone Wall Angle

15



Lay-in grid abutting a plain plasterboard perimeter

16



Light recess

1. Gyptone Main Beam Unipro
2. Gyptone Cross Profile Unipro
3. Gyptone tiles
4. Gyptone Cross-Lock Connector
5. Gyptone Connecting Bracket
6. Gyptone Wall Angle
7. Gyptone Wall spring

8. Gyptone Adjustable Hanger
9. Gypframe Soffit Cleat with Nut & Bolt
10. Gyproc plasterboard
11. Gypframe MF5 Ceiling Section
12. Gypframe GA1 Steel Angle
13. Gypframe MF7 Primary Support Channel
14. Gypframe GA1 Steel Angle Hanger

Jointing

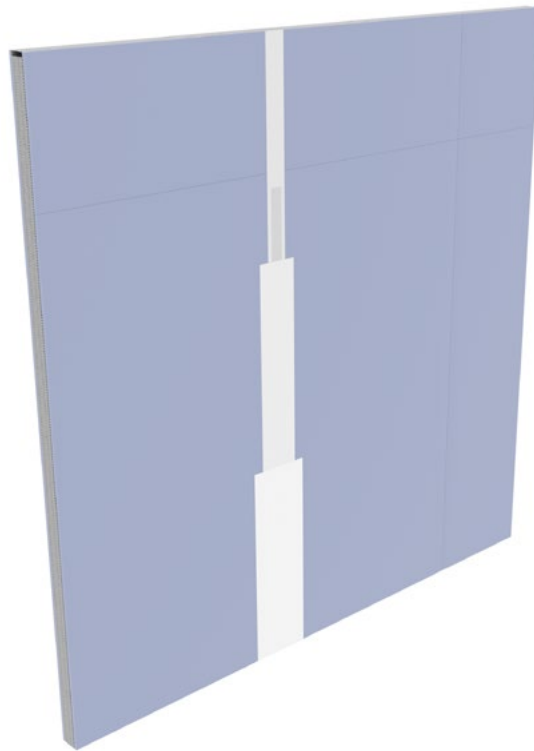


For durable joint reinforcement and smooth finishing



Jointing

Gyproc Jointing Compound and accessories produce durable joint reinforcement and a smooth, continuous and crack-resistant surface ready for priming and final decoration. They also seal the lining, a prerequisite if the building element is to achieve specified levels of fire resistance and sound insulation. The jointing process normally involves three application stages; bedding the tape and bulk filling the joint, secondary filling to take up shrinkage and finishing.



Key Benefits



Produces a seamless surface ready for decoration



Suitable for wet area applications



Ready-mixed for ease of application



Improves site productivity



Eligible for the SpecSure warranty from Gyproc

System components

Fixing and finishing products



Gyproc Jointing Compound

Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Levelline Flex

Drywall corner which flexes to any inside or outside corner angle. Perfect partition corners, ceiling bulkheads and any obtuse angles. Available in a 30m roll



Gyproc Paper Tape

Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Rigitone ReadyMix Set

Jointing kit specially designed for the installation of Rigitone boards. It contains a jointing pistol, two ReadyMix adaptors, a nozzle, a multi-purpose brush, a nozzle cleaning brush, a scraper and a screw head template.



Gyproc Fibre Tape

Suitable for flat joint reinforcement



Rigitone Mix 600ml

Rigitone Mix is a ready filler for Rigitone perforated panel joints. It forms part of the Rigitone Ready Mix Set and is used in the Joint Filling Technique



Glasroc X Tape

Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards



Rigitone Installation Kit

Installation aid to ensure the boards are properly aligned. Should be selected as per the board perforation



Habito Flex 83

Drywall corner fitting every angle, with a structural laminate system giving a strong structural bond. Available in a 30m roll

Gypframe metal products



Gyproc Drywall Corner Bead

Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead

A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Installation overview



Apply Gyproc Jointing Compound to the board joints and internal corners.



Bed Gyproc or Glasroc X joint tape firmly into the jointing compound.



Trowel apply a second coat of jointing compound feathering out beyond the previous application and spot the screws head. Allow to dry.



Trowel apply a third coat of jointing compound feathering out beyond the previous application and spot the screws head. Allow to dry.



For external corners, repeat step 1 to 4 using Habito 83 Flex, Levelline Flex or Gyproc Drywall Corner Bead for corner reinforcement. Use Gyproc Edge Bead to protect cut ends of boards.



Sand each joint application as required to achieve a smooth surface.

Design

Preparation - general

Board finishing should be completed as soon as possible after the boards have been fixed. Board surfaces should be reasonably dry, clean and protected from the weather. Boards should be securely fixed with no steps between adjacent boards. The correct fixings must be used and properly located with their heads just below the liner surface. Any protruding screw heads should be driven home with a hand screwdriver prior to jointing. Gaps between boards greater than 3mm should be pre-filled using Gyproc Jointing Compound.

Gyproc plasterboards

Gyproc Paper Tape and Gyproc Glasroc X Tape are bedded into the Gyproc Jointing Compound. See Table 1. If Gyproc Fibre Tape is used, bedding is not required, but the joint compound should be pressed through the holes in the tape, particularly if there is a gap between board joints. This is important to achieve a satisfactory appearance to the finished joint. For Gyproc ceiling systems, we would recommend Gyproc Paper Tape, as tests have shown that it provides superior resistance to cracking.

Two or three applications of jointing compound are trowel applied, each feathered out beyond the previous application. An equal number of applications are made to spot screw heads. The joint treatment is sanded as necessary to achieve a smooth surface. At internal angles, Gyproc Paper Tape is creased to the angle to provide reinforcement and bedded using a knife or trowel. For reinforcement of external angles, Habito 83 Flex, Levelline Flex or Gyproc Corner bead options are available. Gyproc Edge Bead is normally used to protect cut ends of boards, e.g. at reveals.

Aquaroc FC - Fibre Cement board

Where jointing is required, e.g. direct painting, we recommend the use of a fit for purpose jointing system by others.

Jointing - Gyptone boards

Gyproc Paper Tape is bedded in Gyproc Jointing Compound to all four tapered edges and bulk-filled. When set, a finish coat of Gyproc Jointing Compound is applied to all joints. Care must be taken not to fill the perforations in the board and thereby impair the sound absorption performance. The joint treatment is lightly sanded and dusted off. A drywall primer can then be applied by roller to the entire surface ready for decoration.

Jointing - Rigitone boards

Insert the bag containing the Rigitone Mix 600ml into the Rigitone Pistol and cut off the seal. Screw the Rigitone nozzle onto the adapter, then screw the adapter tightly onto the Rigitone Pistol. Fill the joints generously and completely so that the filler just starts to exude from the reverse of the board. Slightly overfill the screw heads using the Rigitone screwhead template. Once the Rigitone Mix 600ml has begun to harden, remove any excess carefully using the Rigitone scraper and then pass the scraper back over the joints in the other direction to smooth the surface.

The joints and covered screw heads can be sanded after a minimum of 24 hours. Further finishing work may be continued once the Rigitone Mix 600ml has fully dried.

To finish a joint where the room layout or design detail has required a Rigitone board to be cut, apply Rikombi Sperre Neutral primer to all cut edges (factory edges are already primed), fill all holes falling on the joint using Rigitone Mix 600ml. Cover surrounding perforations with a suitable masking tape to avoid unwanted filling with excess joint compound. Once dry, apply a second coat to create a flush finishing. Make sure the masking tape is removed quickly. Lightly sand once dry. Remove dust from the board surface and roller apply primer (by others) to the entire surface ready for decoration. When roller applying primer and paint finishes, care should be taken to ensure primer or paint does not fill the perforations in the board, as this will impair acoustic performance.

Cleaning equipment

All equipment should be thoroughly cleaned after use. Small residual amounts of set or part-set material will accelerate the set of freshly mixed setting jointing compounds, and residues of compounds left in a wet state will be subject to microbial attack. Where using Rigitone ReadyMix Set, the Rigitone brush should be used to clean the Rigitone nozzle.

Decoration

Painting

After the jointing treatment has set and dried, and any final sanding is complete, the surface should be dusted down. A drywall primer applied by brush, roller or, except for Gyptone or Rigitone perforated boards, suitable spray equipment. The primer evens out differences in surface texture and absorption between the board and jointed areas, to create the ideal surface to receive final decoration. Its early application helps to prevent plasterboards from yellowing.

As with all wall and ceiling areas, high sheen gloss finishes will highlight variations of the surface, particularly with shallow angle lighting. The use of low sheen or matt finishes minimises this risk. For the correct specification in respect of any applied decorative material, reference should be made to the manufacturer of that material.

Wall coverings

If primer (by others) is applied in a single coat, steam-stripping at a later date becomes a simple operation. Decoration should follow with the minimum of delay. Most paints and papers can be applied after primer has dried.

Vinyl or other low-permeable wall coverings restrict drying of water-based adhesives. This combination should, therefore, not be applied direct to plasterboard treated with primer. The use of specialist adhesives, for example with cloth backed or solid vinyl wall covering, may result in damage to the plasterboard surface during subsequent stripping. If the use of such adhesives is necessary, consideration should be given to cross-lining with lining paper before applying the wall covering.

For the correct specification in respect of any applied decorative material, reference should be made to the manufacturer of that material.

Design (continued)

Table 1 - Combinations and coverage data (kg/100 linear metres)

Jointing system	Reinforcement	Taping coat / 1st coat	2nd coat	3rd coat
	Coverage kg / 100 linear metres			
Flat joint (tapered edge)	Gyproc and Glasroc X tapes	20	6	4
Flat joint (square edge)	Gyproc and Glasroc X tapes	22	16	4
External angle	Habito 83 Flex	16	12	4
	Levelline Flex	28	16	4
	Gyproc Drywall Corner Bead	36	20	8
	Gyproc Metal Corner Tape	28	4	4
Internal angle	Gyproc Paper Tape	24	16	4

NB Above referred coverage does not include any wastage. It is for guidance purposes only.

Tiling

—
Guidance on applying tiling to the full range of Gyproc partition and lining systems



Tiling

Tiles can be applied to drylined walls or to the surface of lightweight partition systems. Tiling can be carried out in any type of building, either in dry areas or in areas subject to intermittent moisture conditions. Typical applications include domestic and commercial shower areas, toilets, bathrooms and kitchens. Tiles up to 12.5mm thick with a maximum weight of 32 kg/m² (including grout and adhesive) for Gyproc Plasterboard and 60 kg/m² (including grout and adhesive) for Glasroc X and Aquaroc FC boards can be accommodated. The tiles are fixed using a suitable tile adhesive from Saint-Gobain Weber.



Key Benefits



Suitable for domestic and commercial showers, toilets, bathrooms and kitchens



A range of board types including M2TECH and Glasroc X solutions are available



Accommodates tile weights upto 60 kg/m² depending on board lining type



Eligible for the SpecSure warranty from Gyproc

System components

Board products



Gyproc Moisture Resistant¹
(12.5, 15mm)
Gypsum plasterboard with moisture resistant additives in the core and special green lining paper for easy recognition



Gyproc M2TECH¹ 
(12.5, 15mm)
Gypsum plasterboard with water repellent and mold resistance additives



Gyproc FireStop MR^{1,2}
(12.5, 15mm)
Gypsum plasterboard with fire resistant and water repellent additives



Glasroc X¹
(12.5mm)
High performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc SoundBloc MR¹
(12.5, 15mm)
Gypsum plasterboard with a high density core and water repellent additives for enhanced sound insulation performance in wet areas



Aquaroc FC
(6, 9, 12, 15mm)
Fibre cement board with excellent moisture resistant characteristics and mechanical strength



Gyproc DuraLine^{1,2}
(15mm)
Gypsum plasterboard with fire resistant additives and a high density core for enhanced sound insulation and impact resistance performance

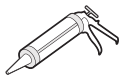
¹ Available with Activ'Air
² Available with M2TECH technology

NB In dry conditions any paper faced Gyproc board is a suitable substrate for tiling.

NB Tapered edge plasterboards are normally used where part-height tiling occurs. Square edge boards can be used to suit full height and width tiling.



Fixing and finishing products



Waterproof sealant (by Saint-Gobain Weber)
Provides corner reinforcement and protection to plasterboards and plasters.



Tile adhesive (by Saint-Gobain Weber)



Tiles (by others)

Weight¹

- For Gyproc Plasterboards - 32 kg/m² for tiles upto 12.5mm thick
- For Aquaroc FC board - 60 kg/m² for tiles upto 20mm thick
- For Glasroc X - 60 kg/m² for tiles upto 20mm thick

¹ Maximum including adhesive and grout

Design

Planning - key factors

Gyproc moisture resistant (MR), mold & moisture resistant (M2TECH) grade boards or Glasroc X, Aquaroc FC boards are recommended for intermittent moisture applications, including splashbacks.

Alternatively, for splashbacks, boards may be coated with two coats of sealer (by others) to prepare for tiling. Cut edges of plasterboards must be appropriately sealed / caulked at abutments.

The tolerance on the finished tile surface quoted in BS 5385: Part 1, i.e. 3mm under a 2m straightedge with thin-bed adhesives, is such that it will reflect very accurately the standard of the background surface. Tolerance standards for drylining and partition systems are also given in BS 8212.

Two coats of sealer applied to the face of standard grade plasterboards, with the edges adequately protected from moisture, may also be suitable to receive a tile finish. The application of sealer provides additional surface water absorption resistance only when applied directly to a plasterboard, and does not meet the performance requirements for moisture resistant grade boards as defined in BS EN 520: Type H1, ASTM C1396 - Type 7, ASTM C1658. The surface water absorption of cement based products, including Aquaroc FC will vastly improve after applying two coats of sealer.

Detailing at junctions

Designers must give consideration to the precautions necessary at junctions to ensure that moisture is not allowed to penetrate or collect, e.g. at the base of walls where showers are specified with tiling to plasterboard, and at other junctions such as bath edges.

Services

The cavity above the metal framework facilitates the incorporation of services. Pipes and conduits should be fixed in position before installing the framing. Where light fittings, access panels and similar components are incorporated as part of the design requirements, consideration must be given to maintaining the integrity of the ceiling to meet fire resistance and sound insulation requirements. Refer to Service installations - section 3.4

Fixtures

Fixtures with a maximum weight of 3kg, e.g. single lights, can be fixed into the channels. For other fixtures, independent suspension should be provided from the structure.

Board finishing

Refer to Finishing systems.

Table 1 - Tiling on partition systems

Partition system	Board type	Stud centres mm	Additional support / comments
GypWall CLASSIC	1 x 12.5mm Glasroc X	600	-
	Inner layer 12.5mm (minimum) Gyproc plasterboard and outer layer 6mm (minimum) Aquaroc FC board each side	400	-
	1 x 15mm Gyproc plasterboard each side or 2 x 12.5mm (minimum) Gyproc plasterboard each side	400	If using Gypframe 150mm studs, they can be located at 600mm centres to full partition height with extra studs to give 300mm centres up to tiling height
GypWall ROBUST and GypWall HABITO	1 x 15mm Gyproc plasterboard each side or 2 x 12.5mm (minimum) Gyproc plasterboard each side	400	If using Gypframe 150mm studs, they can be located at 600mm centres to full partition height with extra studs to give 300mm centres up to tiling height
	GypWall QUIET and GypWall AUDIO	Inner layer 12.5mm (minimum) Gyproc plasterboard and outer layer 12.5mm Glasroc X board each side	600
2 x 12.5mm (minimum) Gyproc plasterboard each side or 2 x 12mm (minimum) Aquaroc FC each side		400	-
GypWall QUIET SF	Tiles over double layer lining board fixed on Gypframe RB1 Resilient Bar side	600 ¹	Horizontal Gypframe RB1 Resilient Bar at 400mm vertical centres
	Tiles over double layer lining board fixed to studs (non Gypframe RB1 Resilient Bar side)	400 ¹	-
ShaftWall	1 x 15mm Gyproc FireStop	300	-
	Inner layer 12.5mm (minimum) Gyproc plasterboard and outer layer 6mm (minimum) Aquaroc FC board each side	300	-
	2 x 12.5mm (minimum) Gyproc FireStop	600	Gyproc Sealant applied in a full height continuous vertical bead midway between studs

¹If the tiling side is unknown, or tiling is to both sides, the studs should be at 400mm centres and the horizontal Gypframe RB1 Resilient Bars at 400mm vertical centres.

²Moisture Resistant variant should be used unless in a totally dry area.

NB An outer layer of Glasroc X 12.5mm can be added if appropriate to the system.

NB Reducing the centres of the metal studs within GypWall partition systems can have a detrimental effect on the sound insulation performance of the system.

NB The recommendations given are based on experience and laboratory / site testing. In practice, performance will be dependent on factors such as workmanship and site conditions.

Table 2 - Tiling on wall lining systems

Partition system	Board type	Stud centres mm	Additional support / comments
DriLyner BASIC ¹	12.5mm (minimum) Gyproc plasterboard or 12mm or 15mm Aquaroc FC board	400	Horizontal dabs of Gyproc Plasterboard Adhesive at mid-storey height
	12.5mm Glasroc X board	600	Horizontal dabs of Gyproc Plasterboard Adhesive at mid-storey height
GypLyner UNIVERSAL	12.5mm Glasroc X board	600	Fixing brackets at 600mm vertical centres
	12mm (minimum) Aquaroc FC board	400	Fixing brackets at 600mm vertical centres
	12.5mm or 15mm Gyproc plasterboard (single or double layer)	400	Fixing brackets at 600mm vertical centres
GypLyner IWL	1 x 12.5mm Glasroc X board	600	Mid-height support from background structure to framework
	Inner layer 12.5mm (minimum) Gyproc plasterboard and outer layer 6mm (minimum) Aquaroc FC board each side	400	Mid-height support from background structure to framework
	1 x 15mm Gyproc plasterboard	400	Mid-height support from background structure to framework
	2 x 12.5mm (minimum) Gyproc plasterboard or 2 x 12mm (minimum) Aquaroc FC board	400	-

¹ Should be left to stand for seven days before tiling begins.

² Moisture Resistant variant should be used unless in a totally dry area..

NB The recommendations given are based on experience and laboratory / site testing. In practice, performance will be dependent on factors such as workmanship and site conditions.





Products

The extensive range of Gyproc boards is fully supported by high grade metal system components and accessories, and a wide range of ceiling tiles and boards. This unrivalled choice of products enables the designer to specify complete integrated systems with total confidence.

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Plasterboards

—
Ultimate lining solutions for
lightweight construction



GYPROC PLASTERBOARDS

Gyproc plasterboards are the ultimate lining solution for today's buildings, providing high levels of fire, sound, thermal, moisture and impact resistance to create modern internal environments that offer comfort and safety for occupants. They offer high quality, high performance linings for walls and ceilings, lift shafts and stairwells, corridors and auditoria, in buildings as diverse as residential, education, hospitality, healthcare and cinemas.

Bespoke products

Gyproc offers a comprehensive bespoke service for the Gyproc plasterboard and Gypframe metal product ranges. Whether you require a non-standard length, alternative edge profile or other specification change, we will try to provide you with the best solution for your project.

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All our systems are covered by SpecSure® when using genuine Gyproc® products

GYPROC STANDARD PLASTERBOARDS

Gyproc® Regular

Gyproc Regular consists of an aerated gypsum core, firmly bonded to strong paperliners, suitable for drylining internal surfaces. It is designed for use in Gyproc partition, lining and ceiling systems where normal fire, structural and acoustic levels are required.



Standards

BS EN 520: 2004+A1: 2009 - Type A
ASTM C1396-17 - Section 5

Board Colour

- Ivory face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
9mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc® Regular Ceiling

With sag resistant properties, Gyproc Regular Ceiling is primarily designed for Gyproc ceiling systems. It is not tested for fire or acoustic applications, but may be used on partitions and linings where no specific fire or acoustic performance is required.



Standards

BS EN 520: 2004+A1: 2009 - Type A

Board Colour

- Ivory face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

GYPROC PERFORMANCE PLASTERBOARDS

Gyproc Activ'Air®



available with



Gyproc Activ'Air actively improves indoor air quality by permanently removing 70% of formaldehydes. It is suitable for most system applications where normal fire, structural and acoustic levels are specified.



Standards

BS EN 520: 2004+A1: 2009 - Type A
ASTM C1396-17 - Section 5

Board Colour

- Ivory face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc® Moisture Resistant

available with



With water repellent additives, Gyproc Moisture Resistant is designed for use in Gyproc partition, lining and ceiling systems where greater level of moisture resistance is required.



Standards

BS EN 520: 2004+A1: 2009 – Type A & H1
ASTM C1396-17 – Section 7

Board Colour

- Green face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc® Moisture Resistant - H2

With water repellent additives, Gyproc Moisture Resistant - H2 is designed for use in Gyproc partition, lining and ceiling systems where greater level of moisture resistance is required.



Standards

BS EN 520: 2004+A1: 2009 – Type A & H2

Board Colour

- Green face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc M2TECH®



available with



With water repellent and mold resistant additives, Gyproc M2TECH is designed for use in Gyproc partition, lining and ceiling systems where greater level of mold and moisture resistance are required. They are ideally suitable for use in hospitals, schools and all types of wet areas.



Standards

BS EN 520: 2004+A1: 2009 – Type A & H1
ASTM C1396-17 – Section 7
ASTM D3273-16¹

Board Colour

- Green face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

¹The boards achieve score of 10 as per ASTM D3273-16: Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber, the best possible score for these tests.

Gyproc® FireStop

available with



With glass fibre additives, Gyproc FireStop is designed for use in Gyproc partition, wall lining and ceiling systems to give increased fire protection. It is also used for protection to structural steel.



Standards

BS EN 520: 2004+A1: 2009 - Type F
ASTM C1396-17 - Section 5 & Type X

Board Colour

- Pink face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc® FireStop MR

available with



With glass fibre and water repellent additives, Gyproc FireStop MR is designed for use in Gyproc partition, wall lining and ceiling systems where great level of fire protection and moisture resistance are required. It is also used for protection to structural steel.



Standards

BS EN 520: 2004+A1: 2009 - Type F & H1
ASTM C1396-17 - Section 7 & Type X

Board Colour

- Pink face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc CoreBoard®

available with



Gyproc CoreBoard consists of plasterboard with glass fibre, water repellent and other additives, designed for use in Gyproc ShaftWall system to provide fire protection with temporary moisture protection during construction.



Standards

BS EN 520: 2004+A1: 2009 - Type D, F & H1
ASTM C1396-17 - Section 6, 7 & Type X

Board Colour

- Green face side paper
- Green reverse side paper

Width (mm)	Length (mm)	Edge Type
19mm		
598	3000	S/E, T/E

Gyproc® SoundBloc™

available with



With its high density gypsum core and special additives, Gyproc SoundBloc is designed for use in Gyproc partition, lining and ceiling systems where greater levels of sound insulation is required.

**Standards**

BS EN 520: 2004+A1: 2009 – Type D
ASTM C1396-17 – Section 5

Board Colour

- Blue face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc® SoundBloc™ MR

available with



With its high density gypsum core and special additives in combination with water repellent additives, Gyproc SoundBloc MR is designed for use in Gyproc partition, lining and ceiling systems where greater levels of sound insulation and moisture resistance are required.

**Standards**

BS EN 520: 2004+A1: 2009 – Type D & H1
ASTM C1396-17 – Section 7

Board Colour

- Blue face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Gyproc DuraLine®

available with



Gyproc DuraLine consists of a high density gypsum core plasterboard with glass fibre additives. It is designed for use in the Gyproc partition, lining and ceiling systems to give greater impact resistance in heavy use areas.

**Standards**

BS EN 520: 2004+A1: 2009 – Type D, F, I & R
ASTM C1396-17 – Section 5 & Type X

Board Colour

- Yellow face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc DuraLine® MR

available with

ACTIV
air

Gyproc DuraLine MR consists of a high density gypsum core plasterboard with glass fibre and water repellent additives. It is designed for use in the Gyproc partition, lining and ceiling systems to give greater moisture resistance and impact resistance in heavy use areas.



Standards

BS EN 520: 2004+A1: 2009 – Type D, F, I, R & H1
ASTM C1396-17 – Section 7 & Type X

Board Colour

- Yellow face paper
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Gyproc Habito®

available with

ACTIV
air

Gyproc Habito consists of a specially reinforced gypsum core plasterboard designed for high strength and fixing capability. It is designed for use in Gyproc partition, lining and ceiling systems where greater levels of sound insulation, impact resistance and fixing capability are required.



Standards

BS EN 520: 2004+A1: 2009 – Type D, F, I & R
ASTM C1396-17 – Section 5 & Type X

Board Colour

- Grey face paper bearing the Habito logo
- Brown reverse side paper

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E
15mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths and thicknesses available upon request

Glasroc® X

available with **ACTIV air**

Glasroc X is a high performance gypsum based sheathing board with glass mat reinforcement embedded into its core for improved strength, fire and weather resistance also making it suitable for external applications. The board contains a special additive that provides high resistance to mold and water penetration combined with a UV resistant surface for long term protection. It is especially designed for weather protection to structural frame steel (SFS) constructions and is an ideal substrate for ETICS (External Thermal Insulation Composite System) / EIFS (External Insulation Finishing System) or direct render application. This board is a perfect solution for external ceilings / soffits, wall systems, curved applications, facade cladding systems and internal wet area applications.



Standards

- BS EN 520: 2004+A1: 2009 - Type E & F
- BS EN 15283-1: 2008+A1: 2009 - Type GM-FH1
- ASTM C1177-17 - Type X
- ASTM C1658-18 - Type X
- ASTM D3273-16

Width (mm)	Length (mm)	Edge Type
12.5mm		
1200	2400	S/E, T/E
1200	3000	S/E, T/E

Note - Other lengths available upon request

Board Colour

- White face glass mat bearing Glasroc® X logo
- White reverse side glass mat

Aquaroc® FC

Aquaroc FC is an asbestos-free, cellulose fibre reinforced cement board. The excellent moisture resistant characteristics and mechanical strength of Aquaroc FC board makes it an ideal tile backer board that can be used in wet areas such as kitchens, bathrooms, shower areas and even on spa areas. It is suitable as a base for tiling in wet areas, which can also be used for external and semi-exposed applications.



Standards

- ASTM C1186-08 - Type A Grade II

Board Colour

- Light grey colour

Width (mm)	Length (mm)	Edge Type
6mm		
1200	2400	S/E, T/E
9mm		
1200	2400	S/E, T/E
12mm		
1200	2400	S/E, T/E
15mm		
1200	2400	S/E, T/E

Metal components



Precision engineered for durable framework



METAL COMPONENTS

Gypframe metal stands for quality, strength and durability through a range of components that provide the backbone for our tested and warranted wall, ceiling, lining and encasement systems.

The unique manufacturing process, including the patented UltraSteel™ double helix work hardening process¹, means that Gypframe metal components are precision engineered for premium quality and allow enhanced screw fixing and retention. All Gypframe metal components are available with standard Zinc coating of Z140 and are available in Z275 upon request.

Standards

All Gypframe components are rigorously tested to internationally recognised product standards and conform to:

- BS EN 14195: 2014
- BS EN 10162: 2003
- ASTM C645-18

Benefits of Gypframe

- Zinc coated for corrosion resistance
- Rigidised for extra strength
- Customized length for limited waste
- Interlocking studs design for quick installation
- Improved resistance to screw pull-out

INDEX

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¹Except GA3 Steel Angle, GA4 Steel Angle, 100 S 80 Starter Channel, Fixing Channels and Service Support Plate which are produced in plain metal to fit for purpose.



All our systems are covered by SpecSure® when using genuine Gyproc® products

Bespoke Gypframe

Gyproc offers a comprehensive bespoke service for the Gyproc plasterboard and Gypframe metal product ranges. Whether you require a non-standard length, alternative gauge or other specification change, we'll try to provide you with the best solution for your project. Specifying bespoke metal lengths can speed up construction as there is no need to trim them to the correct length, and will save waste on site, helping with site safety and cost reduction.

Gypframe reference codes and abbreviations

To understand a Gypframe metal product, follow these simple steps:

Step 1

The first 2 or 3 digits refer to the component width

Step 2

The letter refers to the product type i.e.,
S = Stud, C = Channel

Step 3

The last two digits indicate the metal thickness or gauge in mm i.e., 0.50mm

See example below:

70 70		
Component width in mm	Component type	Stud gauge
Example = 70mm	Example = ' I ' Stud	Example = 0.70mm

Key	Gypframe Component	Flange Dimension
S	'C' Stud	One flange = 32mm / Other flange = 34mm
AS	AcouStud	One flange = 41mm / Other flange = 44mm
I	'I' Stud	38mm
C	Floor and Ceiling Channel	25mm
DC	Deep Flange Floor and Ceiling Channel	50mm
EDC	Extra Deep Flange Floor and Ceiling Channel	70mm
SC	ShaftWall Starter Channel	30mm
RC	ShaftWall Retaining Channel	15mm
MF5	Ceiling Section	69mm x 22mm
MF7	Primary Support Channel	38mm x 12.5mm
GA1	Wall Angle	25mm x 25mm
GL1	GypLyner Component	38mm x 12.5mm
GLB	GypLyner Bracket	85mm and 135mm
FC	Fixing Channel	9mm
GFS1	Fixing Strap	70mm

Gypframe® 'C' Studs

Used as the vertical support in wall framing. A range of widths, lengths and thicknesses depending on requirements for strength, height, impact resistance and sound insulation. Manufactured using patented, UltraSteel™ technology giving a rigidised surface for additional strength. Service cut-outs are also placed along the web of Gypframe 'C' Studs providing easy routing of services through the partition.

Component ¹	Length (mm) ²
50 S 50	3000
70 S 50	3000
92 S 50	3000
100 S 50	3000
150 S 50	3000



¹ Also available in increased gauge upto 0.9mm with increments of 0.1mm.
92mm "C" Stud is also available in 1.0mm gauge thickness

² Bespoke lengths available on request

Gypframe® 'AS' AcouStuds

These unique shaped studs are used for increased acoustic performance. The innovative patented profile reduces sound energy as it passes through the partition. Gypframe AcouStuds are available in both 70mm and 92mm sizes and can upgrade the acoustic performance of your partition without using insulation. The Gypframe AcouStud design includes sight lines for both board alignment and added profile strength. Gypframe AcouStuds also have wider flange widths than Gypframe 'C' Studs, providing increased board fixing area.

Component	Length (mm) ¹
70 AS 50	3000
92 AS 50	3000



¹ Bespoke lengths available on request

Gypframe® 'I' Studs

These studs are the strongest available in the Gypframe range. They allow for increased partition height, without increasing the partition width, and provide improved impact resistance. Commonly used in ShaftWall, Gyplyner ¹WL and other GypWall systems. Service cut-outs are also spaced along the spine of the Gypframe 'I' Stud, providing easy routing of services through a partition.

Component ¹	Length (mm) ²
70 I 70	3000
100 I 80	3000
150 I 90	3000



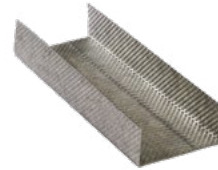
¹ Also available in increased gauge upto 0.9mm with increments of 0.1mm

² Bespoke lengths available on request

Gypframe® Standard Channels

Gypframe channels are used for securing Gypframe 'C' Studs at floor and ceiling junctions. Gypframe Channels (C) are used for partition heights of up to 4200mm.

Component ¹	Length (mm) ²
52 C 50	3000
72 C 50	3000
94 C 50	3000
102 C 50	3000
152 C 50	3000

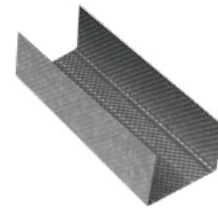


¹ Also available in increased gauge upto 0.9mm with increment of 0.1mm
² Bespoke lengths available on request

Gypframe® Deep Channels

Gypframe Deep Channels (DC) are used for partition heights between 4200mm and 8000mm or in situations where deflection heads or improved impact resistance are required.

Component ¹	Length (mm) ²
52 DC 60	3000
72 DC 60	3000
94 DC 60	3000
102 DC 60	3000
152 DC 60	3000

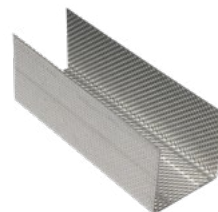


¹ Also available in increased gauge upto 0.9mm with increment of 0.1mm
² Bespoke lengths available on request

Gypframe® Extra Deep Channels

Gypframe Extra Deep Channels (EDC) are used for partition heights over 8000mm or in situations where deflection head details or improved impact resistance is required.

Component ¹	Length (mm) ²
52 EDC 80	3000
72 EDC 80	3000
94 EDC 80	3000
102 EDC 80	3000
152 EDC 80	3000



¹ Also available in increased gauge upto 0.9mm with increment of 0.1mm
² Bespoke lengths available on request

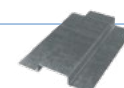
GYPFRAME FIXING CHANNELS

A versatile metal fixing channel used to support medium and heavy weight fixtures on walls.

Component	Thickness (mm)	Length (mm) ¹
Fixing Channels		
103 FC 50	0.5	2400
103 FC 90	0.9	2400
153 FC 90	0.9	2400



Service Support Plate	0.6	130
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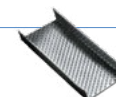
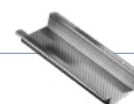


¹ Bespoke lengths available on request

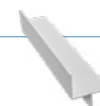
GYPFRAME MF CEILING CHANNELS AND ACCESSORIES

Gypframe MF Ceiling Channels are used for providing a robust false ceiling system. These sections are manufactured using the patented UltraSteel™ process giving a rigidised surface for better screw holding and increased tensile strength.

Component	Thickness (mm)	Length (mm) ² / Unit
MF5 Ceiling Section	0.5 ¹	3000 ²
MF7 Primary Support Channel	0.5 ¹	3000 ²
Soffit Cleat with Nut & Bolt	1.6 (Soffit Cleat)	Box
MF7 Clip & Threaded Rod		
Threaded Rod 3m	6	3000 ²
Clips/Nuts	0.7 (Clip)	Box
Connector	-	Box



Shadow Angle		
Shadow Angle 15mm	1.2	3000 ²



¹ Also available in increased gauge upto 0.9mm with increment of 0.1mm

² Bespoke lengths available on request

GYPLYNER STUDS AND OTHER ACCESSORIES

These components are designed to aid the installation of plasterboard linings directly to concrete and blockwork walls.

Component	Thickness (mm)	Length (mm)
GL1 Stud	0.5 ¹	3000 ²
GLB85 Bracket	0.8	208
GLB135 Bracket	0.8	308
GFS1 Fixing Strap	0.4	3000 ²
GAB3 Acoustic Brace (pair)	1.5	459
RB1 Resilient Bar	0.45	3000



¹ Also available in increased gauge upto 0.9mm with increment of 0.1mm
² Bespoke lengths available on request

GYPFRAME SHAFTWALL CHANNELS

These products are used for the high performance ShaftWall system used to create lift shaft and service riser linings that can be constructed from one side and provide structural and fire protection applications.





Component	Thickness (mm)	Length (mm) ¹
Starter Channels		
70 SC 70	0.7mm	3000
100 SC 80	0.8mm	3000
150 SC 90	0.9mm	3000
Retaining Channels		
RC 70	0.4mm	3000
RC 100	0.5mm	3000
RC 150	0.4mm	3000



¹ Bespoke lengths available on request

GYPFRAME ANGLES

Gypframe steel angles are widely used in framed construction to provide support, protection, fixing and additional strength to wall, ceiling and encasement framing.





Component	Thickness (mm)	Length (mm) ²	
GA1 Steel Angle	0.5 ¹	3000	
GA3 Steel Angle	0.6	3000	
GA4 Steel Angle	0.7 ¹	3000	
GA6 Splayed Angle	0.5	3000	

¹ Also available in increased gauge upto 0.9mm with increment of 0.1mm

² Bespoke lengths available on request

GYPFRAME T GRID COMPONENTS

Gypframe® T is a high-strength lay-in ceiling grid system designed to receive Edge A and Edge E15 ceiling tiles.

Component	Height / Dimension (mm)	Length (mm)	
Gypframe 15mm T Grid Sections			
15mm Main T	38	3600	
15mm Cross T	28	600	
15mm Cross T	28	1200	
Gypframe 24mm T Grid Sections			
24mm Main T	38	3600	
24mm Cross T	28	600	
24mm Cross T	28	1200	
Gypframe T Wall Angle	22 x 19	3000	
Gypframe T Shadow Angle	19 x 9 x 9 x 19	3000	


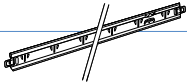
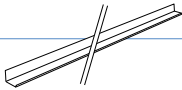


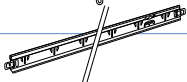
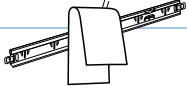
Component	Thickness (mm)	Length (mm) / Unit
Gypframe T Adjustable Hangers¹		
Adjustable Clip	0.5	Box
Hanger Rod	3mm (diameter)	750/1000/1500

¹ For Adjustable Hangers always use 2 Hanger Rods and 1 Adjustable Clip

GYPTONE EDGE D2 CROSS-LOCK UNIPRO GRID COMPONENTS

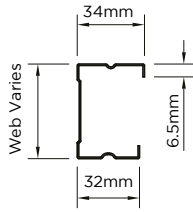
The new concealed T24 grid system Cross-Lock Unipro is easy to install. The installation time of the grid system has been reduced by 20% compared to other concealed systems available in the market reducing installation time and costs significantly.

Ceilings with Edge D2 tiles not only create an optimal acoustic environment, they also open up exciting opportunities for designing light solutions. It allows for perfect integration with a wide range of light fittings ensuring the ideal combination of aesthetics, acoustics and lighting.

Component	Length (mm) / Unit	
Main beam unipro	3600	
Cross profile unipro	3600	
Wall angle	3000	
Cross Lock connector	Box	
Adjustable Hangers	90 - 1500	
Connecting bracket	Box	
Wall springs	Box	

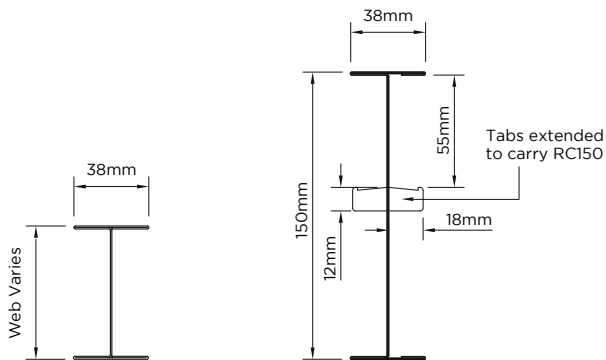
Studs

Gypframe 'C' Studs



50 S 50 100 S 50
70 S 50 150 S 50
92 S 50

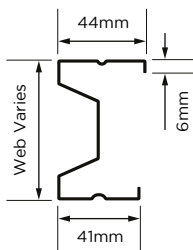
Gypframe 'I' Studs



'I' Studs
70 I 70
100 I 80

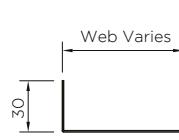
'I' Studs
150 I 90

Gypframe AcouStuds



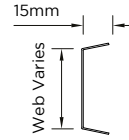
AcouStuds
70 AS 50
92 AS 50

ShaftWall Channels and Accessories



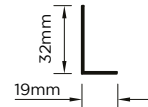
Starter Channel

70 SC 70
100 SC 80
150 SC 90



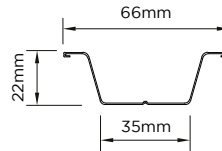
Retaining Channel

RC 70
RC 100
RC 150

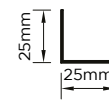


GA3 Steel Angle

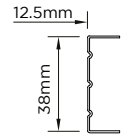
Gypframe MF Ceiling sections



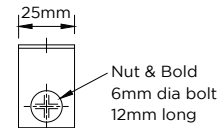
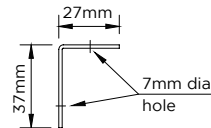
MF5 Ceiling Section



GA1 Steel Angle



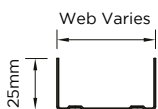
MF7 Primary Support Channel



Gypframe Soffit Cleat with Nut & Bolt

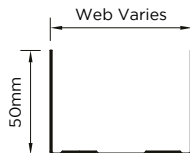
Channels

Gypframe Standard, Deep and Extra Deep Channels



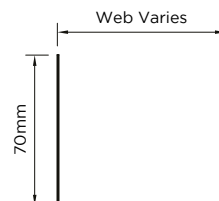
Standard 'C'

52 C 50 102 C 50
72 C 50 152 C 50
94 C 50



Deep Channel 'DC'

52 DC 60 102 DC 60
72 DC 60 152 DC 60
94 DC 60

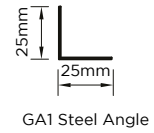
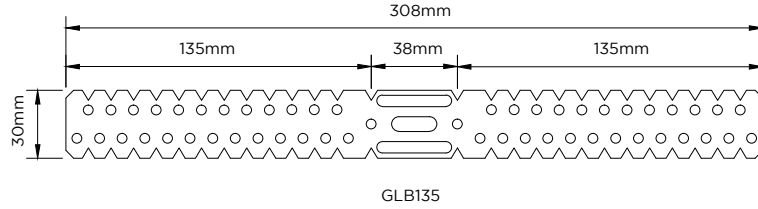
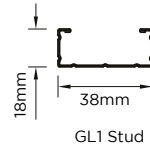
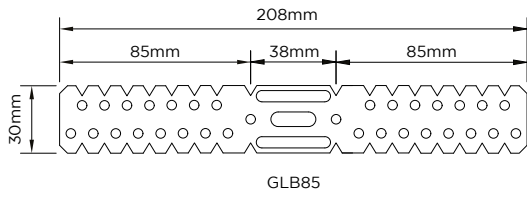


Extra Deep Channel 'EDC'

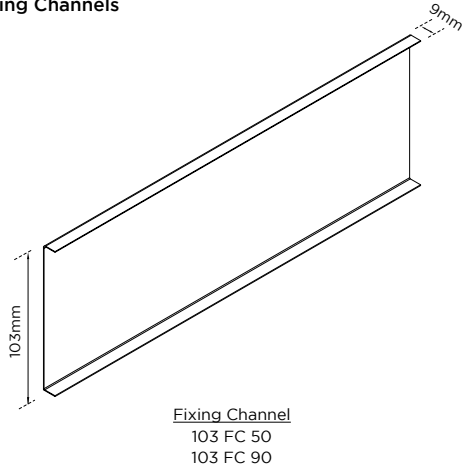
52 EDC 80 102 EDC 80
72 EDC 80 152 EDC 80
94 EDC 80

Gypframe® dimensions (continued)

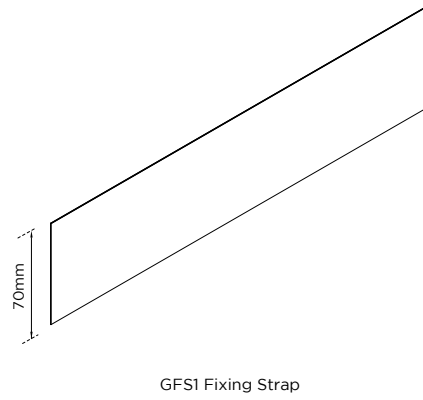
GypLynr sections



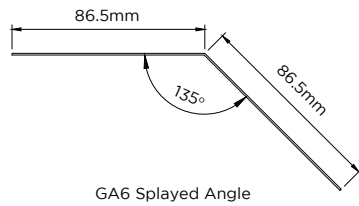
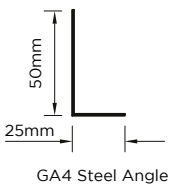
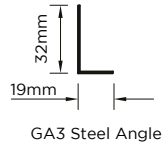
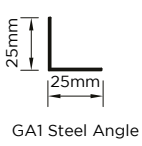
Fixing Channels



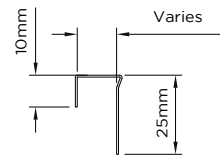
Fixing Strap



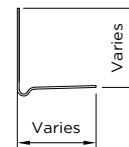
Gypframe Angles



Edge Bead

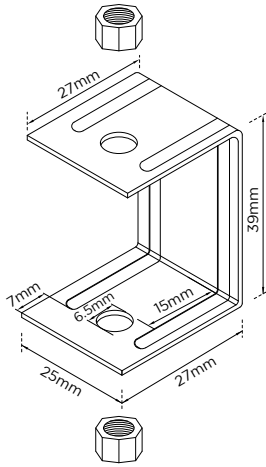


Corner Bead



Gypframe® dimensions (continued)

Gypframe 'C' Clamp
Including 2 nuts

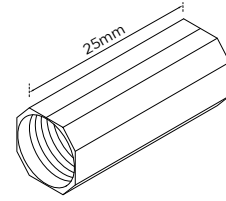


Gypframe Threaded Rod

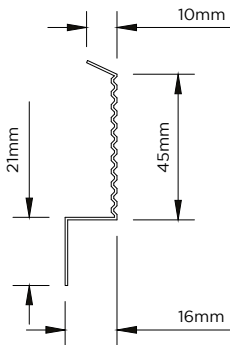


Diameter: 6mm
Length: 3000 mm

Gypframe Threaded Rod
Coupling

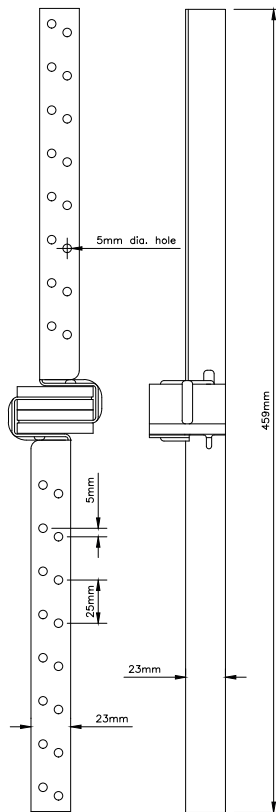


RB1 Resilient Bar



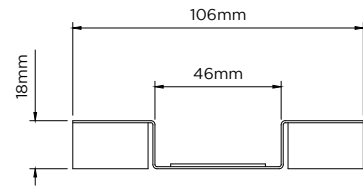
RB1 (0.45mm)

GAB3 Acoustic Brace



GAB3

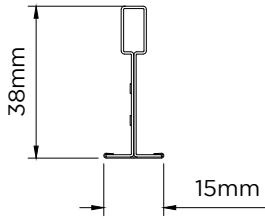
Service Support Plate



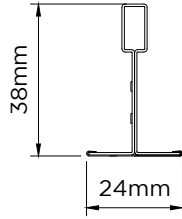
Service Support Plate
(130mm long / 0.6mm thick)

Gypframe® T Grid dimensions

Gypframe Main T Grid sections

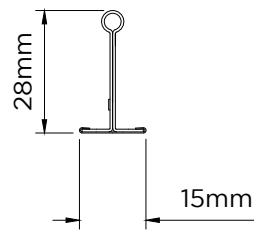


Gypframe Main T Grid
15mm

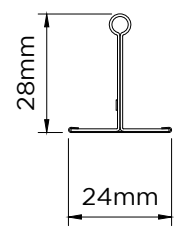


Gypframe Main T Grid
24mm

Gypframe Cross T Grid sections

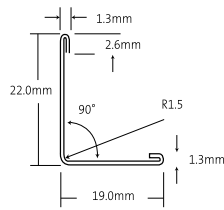


Gypframe Cross T Grid
15mm

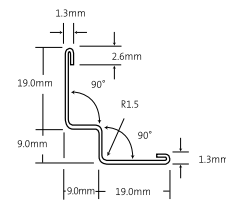


Gypframe Cross T Grid
24mm

Gypframe T Angles



Gypframe T Wall Angle



Gypframe T Shadow Angle

Notes

Fixings

—
Designed for optimum strength and reliability



GYPROC, GYPFRAME AND SPECIALIST FIXING PRODUCTS

Gyproc range of fixing products cater for partition, lining and ceiling applications, from simple yet secure fixing of plasterboard linings to expansion anchors for fixing into masonry for fire rated and non-fire rated applications.

In addition, the range is complemented with high performance specialist screws such as Gyproc Habito Screws & Glasroc X Screws, each designed for specific systems.

Gyproc fixings are designed to deliver optimum performance for all Gyproc systems, and must be specified to ensure compliance with the SpecSure® system warranty.

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All our systems are covered by SpecSure® when using genuine Gyproc® products

BOARD-TO-METAL FIXINGS

Gyproc® Drywall Screws

Corrosion resistant self-tapping steel screws with bugle heads. Ideal for fixing plasterboard to light gauge steel framing up to 0.79mm thick. The length of screw selected should be sufficient to give a nominal 10mm penetration into metal framing.



Standards

- BS EN 14566: 2008+A1: 2009
- ASTM C1002-18
- ASTM C1513-18

Length (mm)	Box Quantity
25	1000
35	1000
42	1000
55	500

Gyproc® Jack-Point Screws

Corrosion resistant self-drilling steel screws with bugle heads. Ideal for fixing plasterboard to stud framing 0.8mm thick or greater and 'I' Studs greater than 0.7mm thick. The length of screw selected should be sufficient to give a nominal 10mm penetration into metal framing.



Standards

- BS EN 14566: 2008+A1: 2009
- ASTM C954-18
- ASTM C1513-18

Length (mm)	Box Quantity
25	1000
35	1000
42	1000
55	500
75	500

METAL-TO-METAL FIXINGS

Gyproc® Waferhead Screws

Corrosion resistant self-tapping steel screws with wafer cross-head. Designed for metal-to-metal fixing of light gauge steel framing up to 0.79mm thick.



Standards

- BS EN 14566: 2008+A1: 2009
- ASTM C1513-18

Length (mm)	Box Quantity
13	1000

Gyproc® Waferhead Jack-Point Screws

Corrosion resistant self-drilling steel screws with wafer cross-head and self-drilling points. Designed for metal-to-metal fixing of light gauge steel framing 0.8mm thick or greater and 'I' studs greater than 0.7mm thick.



Standards

- BS EN 14566: 2008+A1: 2009
- ASTM C1513-18

Length (mm)	Box Quantity
13	1000

Glasroc® X Screws

Self-drilling screws with bugle heads used for fixing Glasroc X board to Gypframe X framing up to 2.3mm thick. Specially designed with a high corrosion performance - 500hrs salt spray accelerated - to suit in external applications. The length of screw selected should be sufficient to give a nominal 10mm penetration into metal framing.



Standards

BS EN 14566: 2008+A1: 2009
ASTM C954-18
ASTM B117-18

Length (mm)	Box Quantity
25	1000
42	1000

Gyproc Habito® Screws

Self-tapping screws with bugle heads used for fixing Gyproc Habito board to Gypframe metal framing with a gauge up to 0.79mm. They have an additional reverse thread design to suit the specially reinforced gypsum core of Gyproc Habito board designed for high strength and fixing capability. The length of screw selected should be sufficient to give a nominal 10mm penetration into metal framing.



Standards

BS EN 14566: 2008+A1: 2009

Length (mm)	Box Quantity
25	1000
35	1000
45	1000

METAL-TO-MASONRY FIXINGS (ANCHORS)

Gyproc® Wedge Anchor

Corrosion resistant anchor used for fixing partitions where fire rating is required, and ceiling systems into masonry.



Pull out loads

Anchor length (mm)	40	70
Design load ¹ (kN)	7.82	8.03
Permissible load ² (kN)	3.12	3.21

Length (mm)	Box Quantity
40	100
70	50

¹Tested on C25/30 uncracked concrete with 30mm embedment depth

²Safety factor of 2.5

Gyproc® Hammer Fix

Corrosion resistant nail, screw engaged in a nylon plug, suitable for fixing non fire rated partition systems and ceiling perimeters into masonry.



Pull out loads

Anchor length (mm)	40	70
Design load ¹ (kN)	1.38	1.65
Permissible load ² (kN)	0.55	0.66

Length (mm)	Box Quantity
40	100
70	100

¹Tested on C25/30 uncracked concrete with 30mm embedment depth

²Safety factor of 2.5

Plasterboard accessories

—
Range of finishing products to complete Gyproc systems



GYPROC PLASTERBOARD ACCESSORIES

To achieve the high performance requirements of a complete Gyproc system solution, a range of superior quality accessories are available. This includes jointing materials, tapes, corners and other accessories such as sealant and plasterboard adhesive.

Gyproc deliver the very best tried and tested products that adhere to stringent international standards as well as Gyproc's own rigorous product performance assessment.

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All our systems are covered by SpecSure® when using genuine Gyproc® products

Gyproc® Jointing Compound

A high quality, ready to use, air-drying jointing compound, that can be applied quickly and easily to fill and finish plasterboard joints. A low shrinkage product most commonly hand applied with a working time of approximately 60 minutes, depending upon environmental conditions. For use in all stages of plasterboard jointing to achieve a fine and smooth finish that can be easily sanded as required.



Standards

ASTM C475-17

Ready Mixed

Weight (kg)

28

Rigitone® ReadyMix Set

Rigitone boards are jointed by caulking a specialised compound into the gap between the boards. The filling method is made possible by the unique Rigitone ReadyMix Set, combined with Rikombi Sperre Neutral primer (for cut edges) and the Rigitone Mix compound.

Rigitone ReadyMix set contains a jointing pistol, two ReadyMix adaptors, a nozzle, a multi-purpose brush, a nozzle cleaning brush, a scraper and a screw head template.



Components per set

7

Rigitone® Mix 600ml

Rigitone Mix is a ready filler for Rigitone perforated panel joints. It forms part of the Rigitone Ready Mix Set and is used in the Joint Filling Technique.



Standards

EN 13963: 2014

Volume (ml)

600

Rigitone® Installation Kit

Installation aid to ensure the boards are properly aligned. Should be selected as per the board perforation.



Pieces per box

2

Gyproc® Fibre Tape

Self-adhesive glass-fibre mesh tape for joint reinforcement in tape and joint situations and also plastered finishes to plasterboard joints. Gyproc Fibre Tape is suitable for flat joints and repairs to small areas of damaged plasterboard.



Standards

ASTM C475-17

Width (mm)

50

Length (m)

90

Gyproc® Paper Tape

A paper tape with micro perforation for joint reinforcement in tape and joint situations and also plastered finishes to plasterboard joints. Gyproc Paper Tape is suitable for flat joints and repairs to small areas of damaged plasterboard. The tape also has a positive crease to simplify application in internal corners. Provides improved crack resistance.



Standards

ASTM C475-17

Width (mm)	Length (m)
50	150

Glasroc® X Tape

Glasroc X tape is a high performance glass mat drywall tape that is ideal for use with Glasroc X board.



Standards

ASTM C475-17

Width (mm)	Length (m)
50	50

GYPROC CORNERS

Habito® 83 Flex



Habito Flex 83 provides a perfect corner by fitting every angle, every time. Applied with Gyproc Jointing Compound, it has a uniform, strong, structural bond thanks to its paper backing. Faced with a tight fibered, high quality paperboard and backed with a joint paper tape, it's ideal for applying paint or texture.



Standards

ASTM C475-17

ASTM C840-19

Width (mm)	Length (m)
83	30

Levelline® Flex



Levelline Flex is a drywall corner that flexes to any inside or outside corner angle. It is perfect for partition corners, ceiling bulkheads and any obtuse angles.



Standards

ASTM C475-17

ASTM C840-19

Width (mm)	Length (m)
70	30

Gyproc® Drywall Corner Bead



Perforated galvanised metal bead for reinforcing external 90° angles.



Standards

ASTM C1047-14a

	Length (mm) ¹
25mm x 25mm	3000
30mm x 30mm	3000

¹ Bespoke lengths available on request

Gyproc® Drywall Metal Edge Bead



Galvanised steel channel. Asymmetric profile with one perforated leg and pre-formed arris to accommodate jointing material. Used to protect exposed plasterboard edges and form a defined edge to plasterboard area.



Standards

ASTM C1047-14a

	Length (mm) ¹
9.5mm	3000
12.5mm	3000
15mm	3000

¹ Bespoke lengths available on request

Gyproc® Metal Corner Tape

Gyproc Metal Corner Tape is a high quality paper joint tape strengthened with two corrosion-resistant galvanised steel strips for the finishing of internal and external angles in drywall construction.



Standards

BS EN 14353: 2007+A1: 2010

Width (mm)	Length (m)
50	30

INSULATION PRODUCTS

ISOVER® Eco Acoustic Partition Roll (APR)

Formaldehyde free, non-combustible glass mineral wool for sound insulation in partitions, linings and ceiling systems. The product provides a strong, resilient and flexible insulating mat, which is easy to cut, handle and install and will not slump under its own weight when suspended vertically.

Density: 16 kg/m³



Standards

ASTM C553-13

Thickness (mm)	Length (m) ¹
25	20
50	20
75	10
100	10

¹ Other lengths available upon request

KIMMCO ISOVER® Stone Mineral Wool

Made from volcanic rock, it is a natural material present in large quantities throughout the earth. It combines mechanical resistance with good thermal performance, fire safety and high temperature suitability.



Density: Minimum 33 kg/m³

Standards

ASTM C612-14
BS EN 13162: 2012+A1: 2015

Thickness (mm)	Dimension (mm)
50	600 x 1200
70	600 x 1200

GYPROC MISCELLANEOUS ACCESSORIES

Gyproc® FireStrip

A soft extruded linear intumescent gap sealer, to maintain fire resistance at partition abutments where masonry substrate shows signs of undulation, has small gaps, crack or holes.



Standards

BS 476: Part 22: 1987

Width (mm)	Length (mm)
25	3600

Gyproc® Sealant

An acrylic based sealant used for sealing air gaps in Gyproc systems to maintain optimum acoustic performance.



Standards

ASTM C834-17

Quantity per Unit
255ml

Gyproc® Plasterboard Adhesive

A general purpose gypsum-based adhesive used when directly fixing plasterboards to brick, block-work or cementitious backgrounds.



Standards

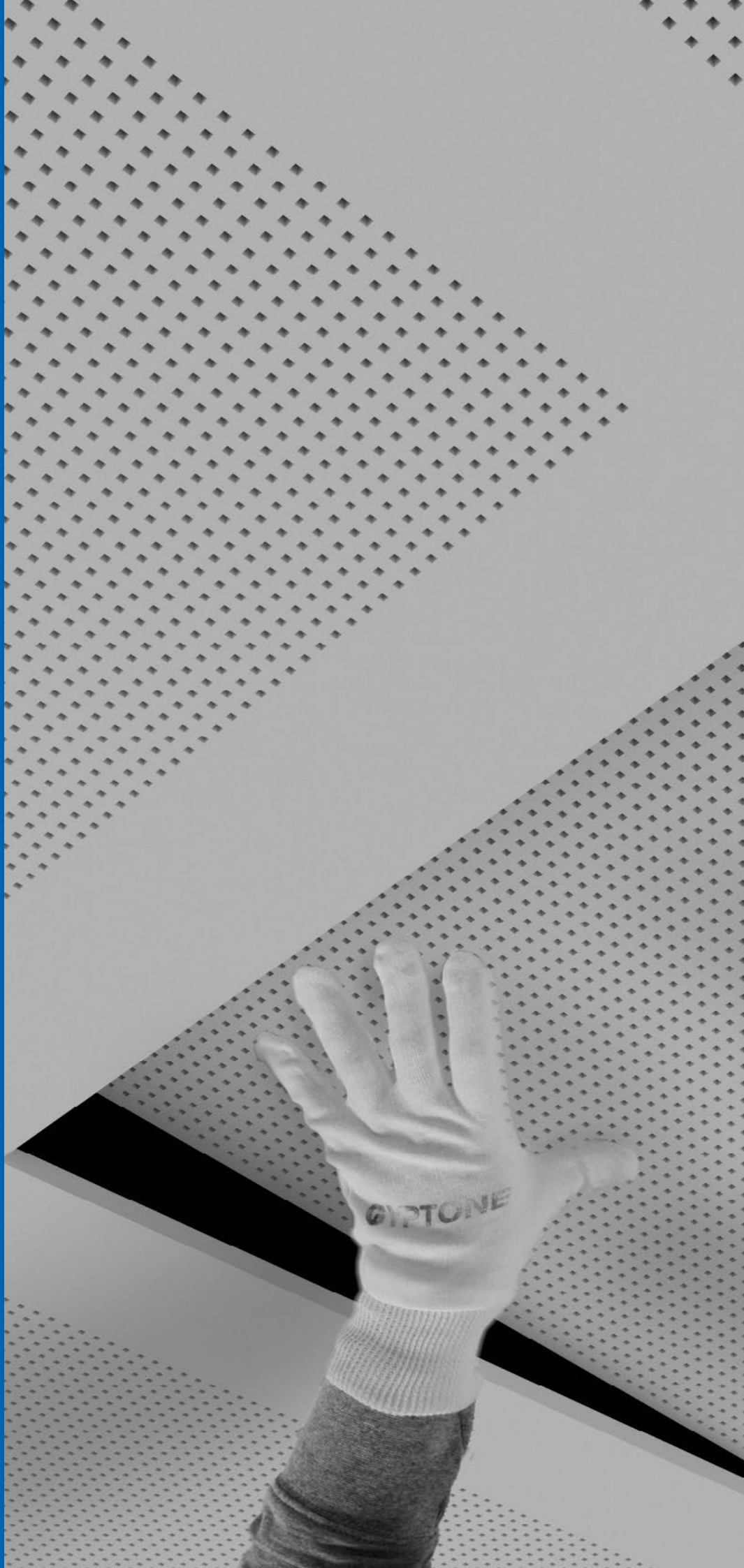
BS EN 14496: 2017

Quantity per Unit
30kg

Access panels



Hassle free access
to services



GYPROC ACCESS PANELS

Gyproc, Gyptone and Rigitone Access Panels are purpose-designed for use in Gyproc framed systems where there is a requirement to access services for maintenance purposes. They can be specified in commercial, industrial, public, residential buildings, etc. They are available for ceiling application, in a range of standard sizes to suit different applications.

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All our systems are covered by SpecSure® when using genuine Gyproc® products

GYPROC ACCESS PANELS

Gyproc Standard Access Panels

Gyproc Standard Access Panel makes access to hidden services quick and easy. It comprises of a powder-coated, aluminium frame and gypsum board door. It is fitted with a push catch lock and cable and hook safety mechanism. Gyproc Standard Access Panel is suitable for non-fire rated system applications where no structural performance levels are specified.



Panel Size (mm) ¹	Door Type	Weight (kg)
300 x 300	Plasterboard	1.6
450 x 450	Plasterboard	2.9
600 x 600	Plasterboard	4.5

¹ Bespoke sizes available on request

GYPTONE BIG ACCESS PANELS

Gyptone BIG Access Panels provide fast and easy access to wires or pipes situated behind the ceiling. They are available in the same patterns as the Gyptone BIG range and are an aesthetic part of a BIG board ceiling, as the access panel is fully integrated into the ceiling surface. The access panels are faster to install than other solutions for access through a gypsum ceiling, thanks to the easy installation method and the adapted measurement of the panel. The access panels have an opening of 510 x 510mm and are almost invisible by providing an optimal solution for easy access to all underlying installations behind a fixed ceiling.

Key benefits

- The access panel fully integrates into the design of the ceiling seamlessly
- Ready to fix for easy installation
- Activ'Air technology comes as standard with all Gyptone BIG Access Panels

Gyptone BIG Access Panel Line 6

Panel Size (mm)	Door Type	Weight (kg) ¹
600 x 600	Gyptone Line 6	4.5

¹ includes frame weight of approx. 0.9kg



Gyptone BIG Access Panel Quattro 41

Panel Size (mm)	Door Type	Weight (kg) ¹
600 x 600	Gyptone Quattro 41	4.5

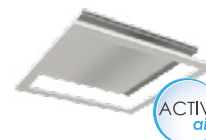
¹ includes frame weight of approx. 0.9kg



Gyptone BIG Access Panel Quattro 71

Panel Size (mm)	Door Type	Weight (kg) ¹
600 x 600	Gyptone Quattro 71	4.5*

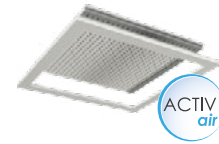
¹ includes frame weight of approx. 0.9kg



Gyptone BIG Access Panel Sixto 63

Panel Size (mm)	Door Type	Weight (kg) ¹
600 x 600	Gyptone Sixto 63	4.5*

¹ includes frame weight of approx. 0.9kg

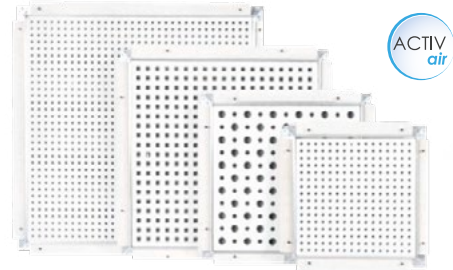


RIGITONE ACCESS PANELS

Rigitone Access Panels are designed to allow easy access for inspection and maintenance of services located above Rigitone perforated plasterboard acoustic ceilings. Available in a range of sizes that are all easily installed into the ceiling. The access panel frame accepts a piece of board to match the perforation pattern of the ceiling to create a seamless look. Activ'Air technology comes as standard with all Rigitone Access Panels.

Rigitone 8-15-20 and 8-15-20 Super

Panel Size (mm)	Door Type	Weight (kg)
300 x 300	Rigitone board	1.3
400 x 400	Rigitone board	2
500 x 500	Rigitone board	2.8
600 x 600	Rigitone board	3.8



Rigitone 6/18, 8/18, 8/18Q, 12-20/66 & 12/25Q

Panel Size (mm)	Door Type	Weight (kg)
305 x 305	Rigitone board	2.2
395 x 395	Rigitone board	3.4
503 x 503	Rigitone board	5.3
593 x 593	Rigitone board	7.5

Perforated acoustic gypsum products



The solution for your
decorative acoustic
ceilings



PERFORATED BOARDS AND TILES

Gyproc's versatile range of ceiling systems combines aesthetic and acoustic performance with the unique environmental properties of gypsum. The Gyproc ceiling range includes lay-in grid tiles and seamless boarded solutions.

All perforated boards and tiles come with Activ'Air technology for improved air quality.



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Rigitone Range

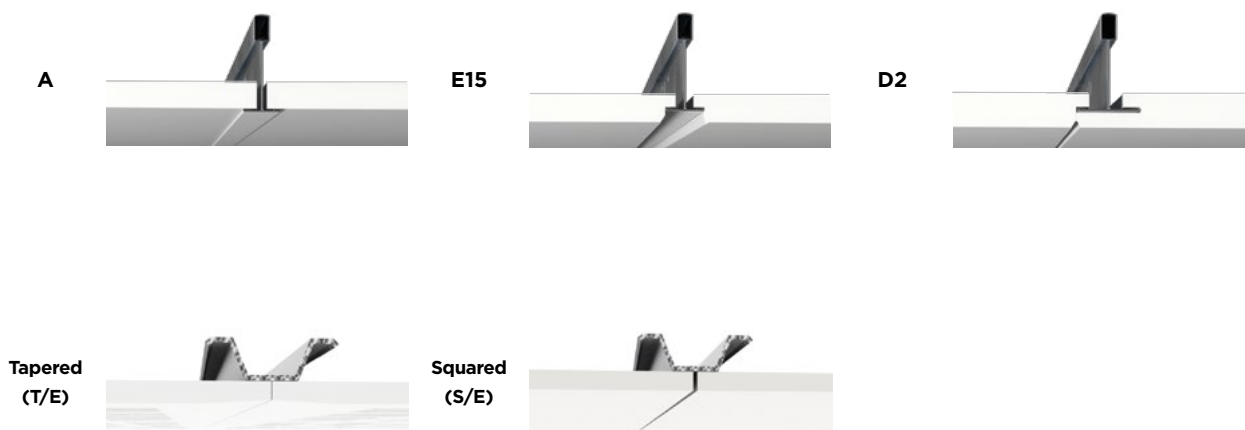
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All our systems are covered by SpecSure[®] when using genuine Gyproc[®] products

Edge details

Gyproc ceiling systems create a new flexibility in design and construction. The wide range of products give fresh and creative freedom for interior designers, enabling them to fully realise the visual and acoustic ambience of their designs. The products are available in five edge profiles as shown below:



GYPTONE BIG BOARDS

Gyptone BIG Boards are the ideal solution for large rooms that need an acoustic ceiling without any visible joints between the boards. The boards have a strong surface and even stronger connections, which makes them the perfect choice for acoustic walls and ceilings. They are manufactured with tapered edges on all sides for easy and seamless jointing.

The range includes four attractive perforation shapes allowing multiple design solutions.

Gyptone BIG Line 6

Acoustic board with 6 x 80mm linear perforations, giving a total perforated area of 13%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1200	2400	4 side T/E

Gyptone BIG Quattro 41

Acoustic board with 12mm square perforations at 25mm centres, giving a total perforated area of 16%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1200	2400	4 side T/E

Gyptone BIG Quattro 71

Acoustic board with 3mm square perforations at 8.33mm centres, giving a total perforated area of 9%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1200	2400	4 side T/E

Gyptone BIG Sixto 63

Acoustic board with a unique 12mm hexagonal perforations at 20mm centres, giving a total perforated area of 15%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1200	2400	4 side T/E

GYPTONE BIG CURVE BOARDS

Gyptone BIG Curve boards provide the opportunity to create curved ceilings with sound absorbing properties. The large format also enable the possibility to create large monolithic ceiling surfaces without visible joints. These boards are made with tapered edges on the long sides and squared edges on the short sides.

The range includes three attractive perforation shapes allowing multiple design solutions.

Gyptone BIG Curve Line 6

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
6.5	1200	2400	T/E



Gyptone BIG Curve Quattro 41

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
6.5	1200	2400	T/E



Gyptone BIG Curve Sixto 63

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
6.5	1200	2400	T/E



GYPTONE TILES

Gyptone tiles are the perfect solution for schools, offices, retail, and other indoor environments combining durability with attractive design and excellent acoustic properties. These tiles, backed by special sound absorbent tissue, are produced in three different edge designs, suitable for both exposed and concealed grids. These demountable tiles allow for hassle free access to the ceiling cavity.

The range includes six attractive perforation shapes allowing multiple design solutions.

Gyptone Point 11

Pre-finished white tile with 6.5mm diameter round perforations at 15mm centres, giving a total perforated area of 12%.

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
10/12.5	600	600	A, E15, D2



Gyptone Line 4

Pre-finished white tile with 6 x 95mm line perforations, giving a total perforated area of 18%.

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
10/12.5	600	600	A, E15, D2



Gyptone Quattro 20

Pre-finished white tile with 9mm square perforation at 19.5mm centres, giving a total perforated area of 18%.



ACTIV
air

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
10/12.5	600	600	A, E15, D2

Gyptone Quattro 50

Pre-finished white tile with 12mm square perforation at 25mm centres, giving a total perforated area of 18%.



ACTIV
air

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
10/12.5	600	600	A, E15, D2

Gyptone Quattro 70

Pre-finished white tile with 3mm square perforation at 8.33mm centres, giving a total perforated area of 11%.



ACTIV
air

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
10/12.5	600	600	A, E15, D2

Gyptone Sixto 60

Pre-finished white tile with 11mm hexagonal perforations at 20mm centres, giving a total perforated area of 17%.



ACTIV
air

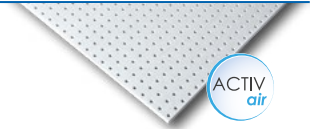
Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
10/12.5	600	600	A, E15, D2

The comprehensive Rigitone range comprises high-quality acoustic perforated boards made from gypsum. It enables the creation of jointless ceiling with harmonious and architecturally appealing patterns, combining outstanding acoustic properties.

The range includes seven individual patterns, consisting of set and random design options.

Rigitone 6/18

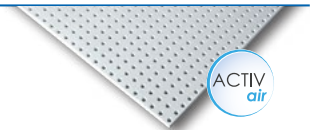
Acoustic board with 6mm diameter round perforations at 18mm centres, giving a total perforated area of 8.7%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1188	1998	S/E

Rigitone 8/18

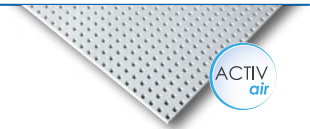
Acoustic board with 8mm diameter round perforations at 18mm centres, giving a total perforated area of 15.5%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1188	1998	S/E

Rigitone 8/18Q

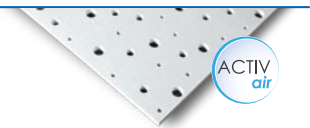
Acoustic board with 8mm diameter round perforations at 18mm centres, giving a total perforated area of 19.8%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1188	1998	S/E

Rigitone 8-15-20

Acoustic board with 8, 15 and 20mm diameter round perforations randomly distributed, giving a total perforated area of 6%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1200	2000	S/E

Rigitone 8-15-20 Super

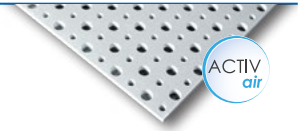
Acoustic board with 8, 15 and 20mm diameter round perforations randomly distributed, giving a total perforated area of 10%.



Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1200	1960	S/E

Rigitone 12-20/66

Acoustic board with 12 and 20mm diameter round perforations at 66mm centres, giving a total perforated area of 19.6%.

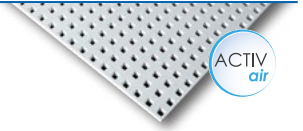


ACTIV
air

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1188	1980	S/E

Rigitone 12/25Q

Acoustic board with 12mm square perforation at 25mm centres, giving a total perforated area of 23%.



ACTIV
air

Thickness (mm)	Width (mm)	Length (mm)	Edge Detail
12.5	1200	2000	S/E

Glossary

Bonding agent

Liquid preparation applied to the wall or ceiling surface prior to applying Gyproc Plasterboard Adhesive or plastering to provide adhesion to challenging backgrounds.

Caulk

A joint sealing material, applied in a plastic state.

Control joint

A joint which accepts movement in the form of lateral expansion or contraction. Allows relatively small movements to occur without damage to the internal surface.

Core board

A version of fire resistant and moisture resistant plasterboard with square edges and green coloured paper liners supplied in 19mm thickness. Used as an inside stud (core) board in shaft wall systems, e.g. Gyproc CoreBoard.

Corner bead

A metal or plastic angle used to reinforce external corners, e.g. Gyproc Corner Bead.

Cove

A concave decorative moulding used at the wall to ceiling angle.

Cut end

End of a gypsum board showing the exposed core.

Decibel (dB)

A unit of magnitude for sound pressure, sound intensity, sound power and, in relation to sound insulation, the measurement of level reduction. For impact sound insulation, dB, is a measure of sound level.

Deflection head

A special design feature at the head of a partition, which allows its integrity to be maintained while allowing movement such as floor slab or beam deflection to take place.

Dew point

The temperature at which air becomes saturated with water vapour and below which condensation occurs.

Door set

A complete unit consisting of a door frame and door leaf or leaves, supplied with essential hardware as a product from a single source.

DPC

A damp-proof course (often abbreviated to DPC) providing a horizontal barrier in a wall designed to prevent moisture rising through the structure by capillary action.

Dry construction

A general term describing wall linings, ceiling linings, lightweight partitions and separating walls in board or sheet materials, either self-finished or jointed as distinct from construction with solid plaster finishes.

Drying shrinkage

Shrinkage caused by the evaporation of water.

Drylining

Creating a wall or ceiling lining using plasterboard as an internal finish instead of solid plaster treatment.

Drywall partition

Lightweight non-loadbearing construction, either self-finished or jointed as distinct from masonry construction with solid plaster finishes.

Drywall

A partition, separating wall or wall lining which uses plasterboard as a lining instead of solid plastering.

DSG

Desulphurised gypsum. A synthetic gypsum produced as a by-product of the desulphurisation process at coal-fired power stations.

Dual-purpose compound

Jointing compound suitable for use as a bedding compound and as a finishing compound in a jointing process, e.g. Gyproc Jointing Compound.

Edge profile of plasterboard

The bound edge of a plasterboard which is commonly square or tapered.

Edge bead

A metal or plastic strip to protect the edges of plasterboard or to form a feature, e.g. Gyproc Metal Edge Bead.

Efflorescence

Formation of crystals on a surface during drying, caused by the presence of soluble salts.

Expansion joint

A permanent joint between different parts of the structure to allow relatively small movements to occur without damage to the surface.

Face

The side of the plasterboard from which the covering paper is carried round the edges, e.g. the exposed side for direct decoration or plastering.

Fibre reinforced Cement Board

Fibre cement is a composite material made of cement reinforced with cellulose fibers (no asbestos). Very dense and resistant to water, it is an ideal tile backer board for wet areas, e.g. Aquaroc Fibre Cement Board

Field of board

The face of plasterboard excluding the perimeter.

Fire door

A door that provides fire resistance.

Fire-resistant and moisture resistant plasterboard

A fire-resistant plasterboard with water repellent and other additives in the core, e.g. Gyproc FireStop MR.

Fire-resistant plasterboard

A gypsum plasterboard with greater fire protection properties than standard plasterboard, e.g. Gyproc FireStop.

Fixed partition

A partition that cannot be demounted without destroying, partially or totally, the integrity of the components.

Flanking sound

The structure-borne transmission of sound between adjacent rooms or spaces, which bypasses the obvious dividing barriers.

Floating floor

Part of a composite floor construction whereby the upper surface membrane (possibly a concrete screed or timber deck) is independently isolated (floated) from the lower structural floor by the use of a resilient underlay, an array of flexible pads, spring isolators or battens.

Furring

Timber or metal channels used to even-up a surface - on a wall for example, to provide a true surface to which plasterboards can be fixed, e.g. GypLyner GL1 channel used with GLB85 brackets.

Glass mineral wool

Mineral wool manufactured from glass used for improved thermal or acoustic insulation, e.g. ISOVER Eco APR

GRG board

A gypsum board having a glass fibre reinforced core and continuous glass fibre membranes just below each surface, e.g. Glasroc X

Gypsum

Calcium sulphate dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$). A natural mineral deposit and the main raw material from which gypsum products are made.

Gypsum adhesive

A gypsum-based compound that, when mixed with water, provides an adhesive for use in drylining systems, e.g. Gyproc Plasterboard Adhesive.

Gypsum fibre board

A building board, complying with BS EN 15283-2:2008+A1:2009, composed of gypsum, reinforced with fibres, e.g. Rigidur H.

Gypsum plaster, hemihydrate

Plaster, mainly of gypsum, from which approximately three quarters of the water has been removed.

Gypsum plasterboard

A building board, complying with EN 520 and ASTM C1396, composed of a core of aerated gypsum plaster bonded between two sheets of strong paper, e.g. Gyproc Regular.

Hacking

The roughening of solid backgrounds by hand or mechanical means to provide a suitable key.

Hairline crack

Crack just visible to the naked eye.

Impact resistant plasterboard

A gypsum plasterboard with a heavier duty face paper, a higher density core than standard plasterboard, and additives in the core to improve impact performance, e.g. Gyproc DuraLine.

Impact sound

Sound produced when short duration sources, e.g. footsteps and door slams, impact directly onto a structure.

Independent wall lining

A lining (often using related partition components), which is erected independently of the external walling, e.g. GypLyner IWL.

Insulating drylining

Drylining using individual pieces or laminates composed of plasterboard and polystyrene, phenolic foam or mineral wool.

Joint tape

Tape that is embedded in the bedding compound to reinforce the joint, e.g. Gyproc Paper Tape.

Jointing

The process of using hand or mechanical systems for achieving a flush seamless surface on dry construction, based on tapered edge plasterboard and applicable to walls and ceilings.

Key

The roughness of a surface that enables plaster to make a mechanical bond with it.

Lath

Expanded metal mesh that is fixed to a smooth surface, or across different types of surface to provide a mechanical key for plaster.

Masonry partition

A partition of brickwork or blockwork complete with any specified surface finishes, such as a drylining or plaster.

Metal stud partition

A partition consisting of a metal stud / channel framework and lined both sides with sheet materials, such as plasterboard, e.g. GypWall CLASSIC

Metal stud separating wall

A metal stud / plasterboard partition that meets the separating wall requirements for multi-occupancy dwellings, e.g. GypWall QUIET.

Moisture resistant plasterboard

A gypsum plasterboard with moisture-repellent additives in the core, which is enclosed in water-repellent green coloured paper liners, e.g. Gyproc MR

Nogging

Cross member between main members of a framed construction. Also known as a 'dwang'.

Noise

Unwanted sound resulting in distraction and disturbance, interference with speech and stress or damage to hearing.

Partition

A non-loadbearing vertical construction dividing space, e.g. GypWall CLASSIC.

Pattern staining

Surface staining that sometimes occurs when the two sides of a composite structure are consistently exposed to different temperatures.

Perforated ceiling

A ceiling incorporating tile or board products available in various edge profiles and with circular, square, hexagonal or rectangular perforations in random or regular pattern designs, typically used in suspended ceilings to provide sound absorption, e.g. Gyptone or Rigitone acoustic ceilings.

Performance partitions

Partitions that have enhanced sound insulation, fire resistance, impact resistance, or a combination of these, e.g. GypWall ROBUST or GypWall QUIET SF.

Plenum

An enclosed chamber, e.g. space between a suspended ceiling and the floor above.

Racking resistance

A measure of a structure's ability to resist horizontal forces, such as wind loading.

Rendering coat

First coat of plaster on a wall.

Reverberation

The persistence of sound in an enclosure, due to its continued reflection or scattering from surfaces or objects, after the sound source has ceased.

Sarking board

Sheet material fixed to roof framework to contribute to weather protection, which may provide a degree of racking resistance.

Sealant

Gap filling material and adhesive, applied in a plastic state, e.g. Gyproc Sealant.

Security partitions

Constructions specifically designed to be resistant to physical attack and explosions, such as those from letter or car bombs, e.g. GypWall SECURE or BlastWall. For guidance, please contact the Gyproc Technical Team.

Self-drilling, self-tapping

Shank and point design of a metal screw that facilitates penetration and grip into a range of light gauge metal sections.

Setting time

The period from initial mixing through to hardening/setting

Shaft wall

A partition / lining used to form fire protective enclosures to all forms of shafts and risers, including service cores and lift shafts. It consists of specialist stud framing with multiple layers of fire rated gypsum plasterboard to give fire resistance and can be built from one side only, e.g. ShaftWall.

Sheathing board

Sheet material used in framed structures. Fixed to external wall framework to contribute to weather protection, it may provide a degree of racking resistance, e.g. Glasroc X.

Skimming coat

A full surface plaster coat to pre levelled backgrounds.

Skin

A single thickness of panelling or cladding or one leaf of a cavity wall. Single skin or double skin are used to describe a lining consisting of one or two skins of plasterboard.

Soffit

Any semi-exposed under-surface.

Sound absorption

Sound absorption is the loss of sound energy on interaction with a surface.

Sound leakage

Airborne sound transmission via gaps or cracks around or through building elements and services that allow sound to escape from one area to an adjacent area, and thus lower the element's potential sound reduction properties.

Square edge boards

Plasterboard with a square edge profile used for special finishes or tiled applications, as well as being suitable to receive gypsum plaster.

Stone wool

Mineral wool manufactured from stone, used to improve fire resistance and acoustic performance.

Stud

Vertical member in framed wall or partition.

Suction

Moisture absorption of a background.

Suspended ceiling

A ceiling formed with boards or tiles fixed into (or onto) a grid with a cavity between the suspension system and the structural soffit, joists or trusses, e.g. Gyproc MF Ceiling.

Suspension system

Grid of metal sections, consisting of primary & secondary channels, main & cross members, hangers & brackets to support ceiling boards and tiles.

T&G

Tongue and groove (often abbreviated to t&g), a method of fitting similar objects together, edge to edge, is used mainly with timber constructions. Tongue and groove joints allow two sections to be joined together to create a single flat surface.

Tapered edge

A design of a board or sheet material applicable to plasterboard particularly, and to its long bound edges to enable flush seamless jointing or plastering to be carried out in dry construction.

Thermal laminate

A laminate consisting of gypsum plasterboard with a backing of factory bonded insulation material, providing enhanced thermal insulation. Used to provide insulated wall and soffit linings or ceilings.

Undercoats

Gypsum plaster or cement render coats other than the final coat.

Vapour control layer

A material (usually a membrane) that reduces the transfer of water vapour through a building element in which it is incorporated.

Working life

The period during which a plaster mix is workable, i.e. does not significantly stiffen.

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Notes



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