In 2015, Saint-Gobain is celebrating its 350th anniversary, 350 reasons to believe in the future. Backed by its experience and its capacity to continuously innovate, Saint-Gobain , the world leader in the habitat and construction market, designs, manufactures and distributes high - performance and building materials providing innovative solutions to the challenges of growth, energy efficiency and environmental protection. With 2013 sales of €42 billion, Saint-Gobain operates in 64 countries and has nearly 190,000 employees.

Gyproc is a market leader in the interior construction space in India for the last 28 years. The ever expanding product range includes gypsum plaster board systems for false ceiling & drywall applications, ceiling tiles (gypsum, mineral fibre tiles, glass wool and metal) for grid ceiling applications, cement fibre boards, gypsum plasters for internal wall finishes plus a complete range of accessory products.

The entire gypsum plaster board, ceiling tiles and gypsum plaster range of products are approved by CII-IGBC for consideration towards Green Building rating systems (LEED) points.

Sales Offices

Plant Locations

The contents of this manual are covered by copyright laws. Reproduction of all or any part without the owner's permission is prohibited. All illustrations are subject to change. Whilst every care has been taken in the preparation of this product guide, Gyproc expressly disclaims all and any liability to any person whether a purchaser of any product details of which are set out in this product manual, or otherwise in respect of anything done or omitted to be done and the consequences of anything done or omitted to be done, by any such person in reliance, whether in whole or in part upon the whole or part of the within information.

CONTACT US:
E-mail: gyprocindia@saint-gobain.com
Website: www.gyproc.in
Toll-free: Call - 1800 103 7897
(India Toll Free Office Hours: Mon - Sat 10 a.m. to 6 p.m.)

Gyproc SAINT-GOBAIN

Gyproc® Duraline Board

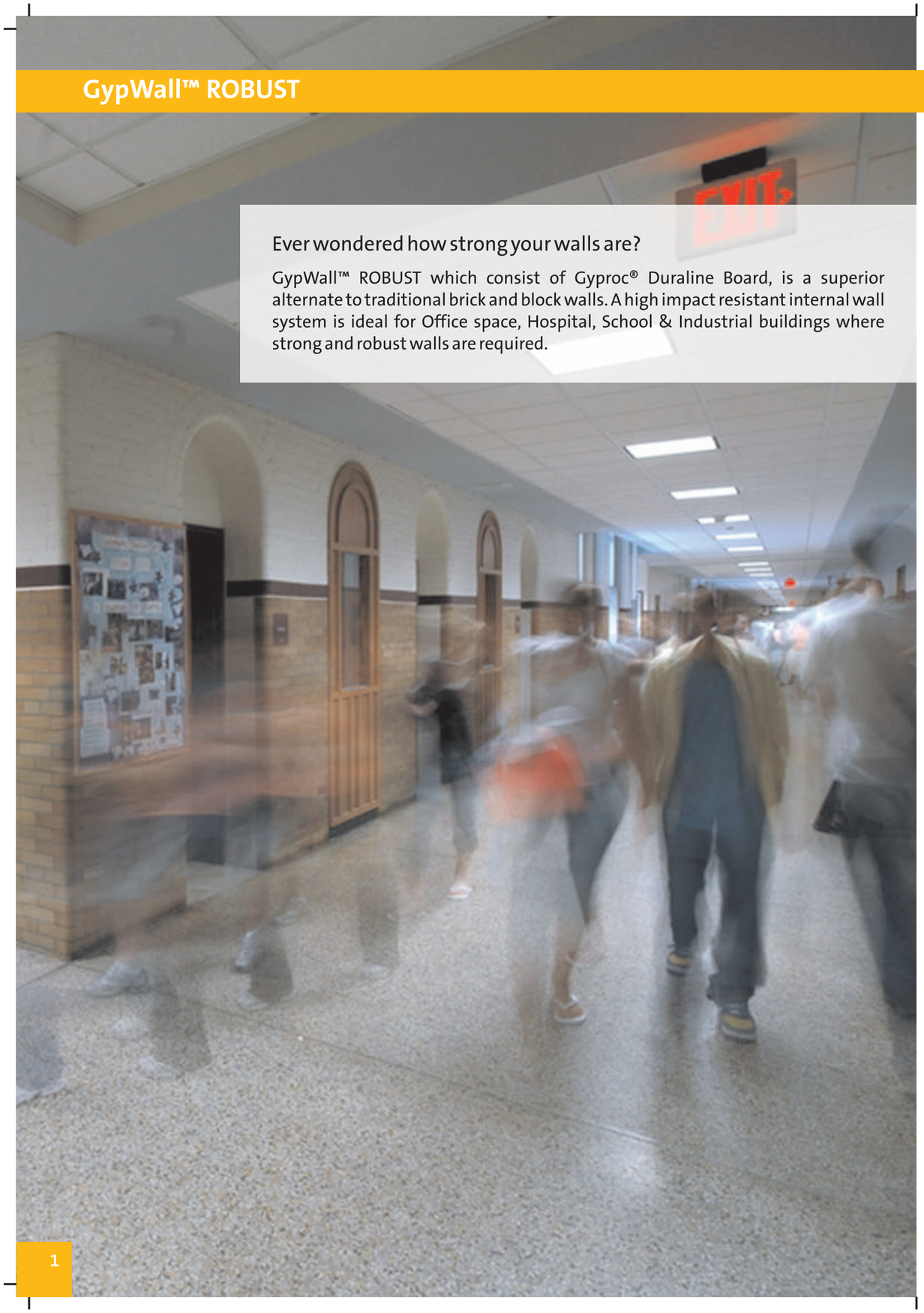
For High Impact Resistance and Heavy Traffic Application

Member of:

India Green Building Council

GRIHA

Gyproc SAINT-GOBAIN



Ever wondered how strong your walls are?

GypWall™ ROBUST which consist of Gyproc® Duraline Board, is a superior alternate to traditional brick and block walls. A high impact resistant internal wall system is ideal for Office space, Hospital, School & Industrial buildings where strong and robust walls are required.

GypWall™ ROBUST

Let's take a brief overview of these situations

In a hospital during emergency, in the bargain to save lives; corridor, passages are exposed to **Accidental Impacts** on partitions due to moving equipments and staff.

In an Industrial space, material movement is common in warehouse and shop floor; making walls more prone to **Impact Damage** due to fork-lift movement etc.

In Offices, need for **Unplanned Loading** on walls often arises in cabins, meeting rooms and common areas which require a strong wall substrate.

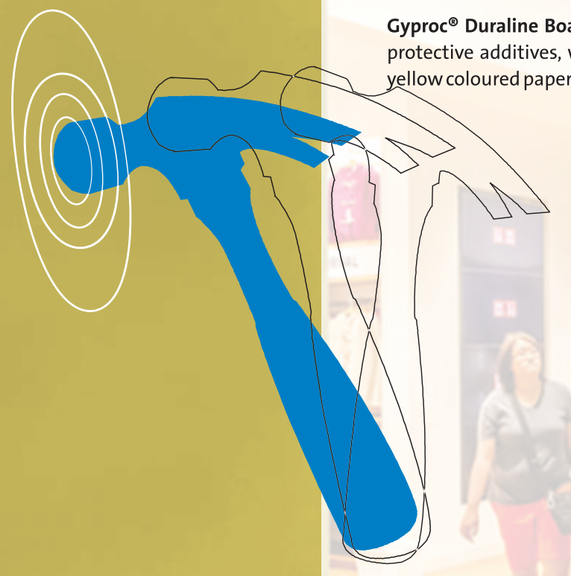
Schools require a strong wall system to be able to accommodate the wear & tear caused due to **Crowd Pressure** and regular shifting of furniture.

Key Performance

- High Impact Resistance.
- Satisfies BS 5234 Part 2 - 1992 Standards of Strength and Robustness of Severe Duty Rating.
- Suitable for application where weight of upto 32kg/m^2 can be directly installed on the wall.
- Achieves high level of sound insulation compared to standard board.
- Ready substrate for most type of paints, wall papers and laminates.

Gyproc® Duraline Board is gypsum based interior wall lining product used in High Impact Resistant Partition System to provide a more durable surface for walls and partitions.

Gyproc® Duraline Board's gypsum core, incorporates glass fibre and other fire protective additives, which are encased and firmly bonded to, strong mustard yellow coloured paper liners.



Product Specification

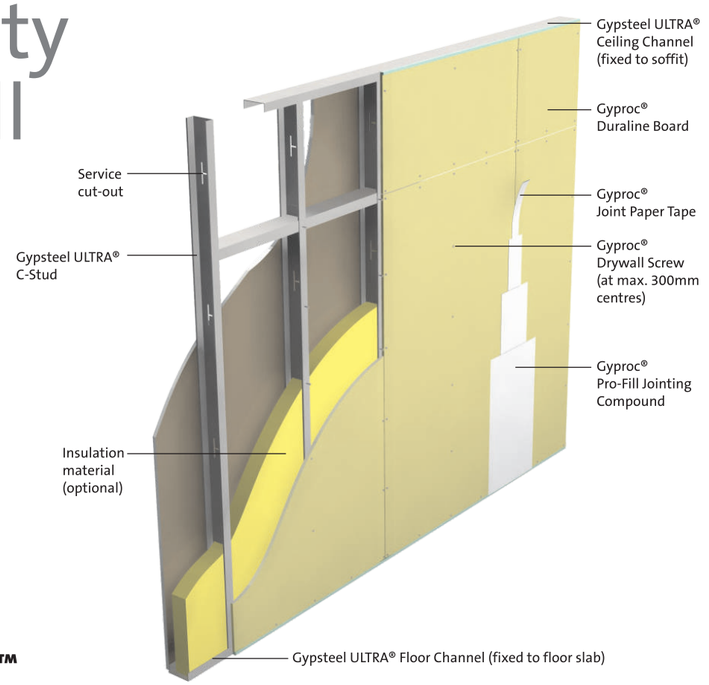
- Thickness 13mm
- Edge Type T. E/S.E
- Dimensions 1220mm x 2440mm
- Thermal conductivity (λ) = 0.24 W/mk
- Thermal resistance (R) = 0.05m^2 K/w
- Standards IS 2095 & BS 5234 Part 2 - 1992

Sectors

Commercial | Education | Office | Healthcare | Industrial

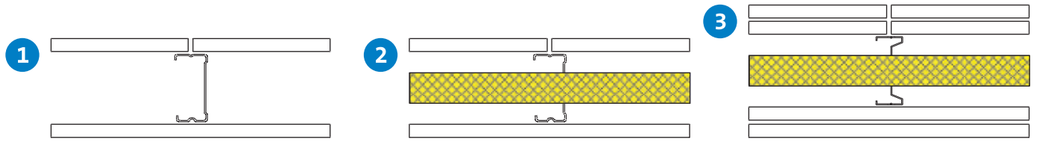
Severe Duty Rated Wall

GypWall™ ROBUST is high impact-resistant partition system complies with the requirement of **BS 5234: Part 2: 1992** to achieve Severe Duty Rating.



Performance of GypWall™ ROBUST System Designs

40 to 55 | 30 to 60



1. Single Layer of Gyproc® Duraline Board 13mm on each side of Gypsteel ULTRA® C-Stud
2. Single Layer of Gyproc® Duraline Board 13mm on each side of Gypsteel ULTRA® with 50mm Insulation in the cavity
3. Double Layer of Gyproc® Duraline Board 13mm on each side of Gypsteel ULTRA® Acou-Stud with 50mm Insulation in the cavity

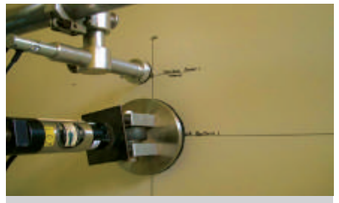
Detail	Stud/ Track Size (mm)	Lining Thickness (mm)	Partition Thickness (mm)	Max. Partition Height (mm)	Fire Resistance (min)	Sound Insulation Rw (dB)	Partition Duty
1	48/50	1x13	76	2500	30	38	Severe
2	48/50	1x13	76	2500	30	45	Severe
1	70/72	1x13	98	3600	30	40	Severe
2	70/72	1x13	98	3600	60	48	Severe
1	92/94	1x13	120	4500	30	41	Severe
2	92/94	1x13	120	4500	60	50	Severe
3	70/72	2x13	124	4700	60	55	Severe

GypWall™ ROBUST has been tested to the following tests and has passed all requirements of BS 5234: Part 2: 1992

Summary of Strength and Robustness tested to BS 5234: Part 2; 1992	
Requirement Tested	Severe Duty
Stiffness	Passed
Surface damage by small hard body impact: Straight Partition Right angle partition	 Passed Passed
Surface damage by large soft body impact: Straight partition Right angle partition	 Passed Passed
Perforation by small hard body impact: Straight partition Right angle partition	 Passed Passed
Resistance to structural damage by large soft body impact:	Passed
Door slamming	Passed

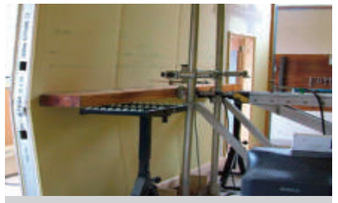
Summary of other tests on partition specimen	
Requirement Tested	Performance achieved
Lightweight anchorage - Pull out	Passed
Lightweight anchorage - Pull down	Passed
Crowd Pressure	Passed
Heavy weight anchorage - Wash basin	Max Rating
Heavy weight anchorage - Wall cupboard	Max Rating

Stiffness Test



500N static horizontal point load at 1500mm height.
(500N = 50Kg = 2 bags plaster

Crowd Pressure Test



The loads applied to the beams.
• 0. 75kN/m (75Kg = 3bags plaster/m)
• 1. 5kN/m (150Kg = 6bags plaster/m)

Door Slam Test

Door leaf weights & No. of Impacts:
• Light & Medium Duty
35Kg = 20 Impacts
• Heavy & Severe Duty
60Kg = 100 impacts

Small Hard Body Impact Test

Surface Damage /Perforation - A 3Kg impactor, with its head being a 50mm diameter steel sphere, is swung 10 times against the face of the partition.

Large Soft Body Impact Test

Damage - Partition is subjected to two impacts from 400mm diameter canvas bag filled with glass beads of 50Kg, swung against the face of the partition. **Structural Damage** - Partition is subjected to three impacts of greater energy on the stud and between the studs.

Lightweight Anchorage Test

Pull Out Test - 100N (10Kg) load at 90° to the partition surface applied through a bracket secured with a single fixing device with a 1mm thick stainless steel shim plate positioned between the bracket and the partition.

Pull Down Test - 250N (25Kg) load parallel to the partition surface applied through a bracket secured with a single fixing device with a 1mm thick stainless steel shim plate positioned between the bracket and the partition.

Heavyweight Anchorage Test

Wash Basin - 500N (50Kg) load representing the basin weight + 1000N (100Kg) or 1250N (125Kg) or 1500N (150Kg) representing additional loads, applied through a pair of linked brackets with 1mm stainless steel shim plates positioned between the brackets and the partition.

Cupboard - 2000N (200Kg = 8 bags plaster) 0r 4000N (400Kg = 16 bags plaster) applied through a pair of linked brackets with 1mm stainless steel shim plates positioned between the brackets and the partition.

Test Report No. 54S075248/TWL
dated 20 Sep 2007

Note: This report is issued subject to TÜV SÜD PSB's "Terms and Conditions Governing Technical Services". The terms and conditions governing the issue of this report are set out as attached within this report.

PARTITION PERFORMANCE OF GYPWALL ROBUST PARTITION SYSTEM WITH WALL THICKNESS OF 98 MM

TESTED FOR: BPB Asia Limited
Gypsum Metropolitan Tower
539/2 Si Ayutthaya Road
Ratchathewi, Bangkok
10400 THAILAND

Attention: Mr. Sanguansak (Sam) Sarangkasiri

PREPARED BY: Tay Wei Liang
Associate Engineer

APPROVED BY: Raymond Tan
Senior Engineer
Building & Industrial Products,
Testing Group

SUMMARY OF TEST RESULTS:

Summary of strength and robustness tests to SS492 :2001 & BS 5234 : Part 2 : 1992 (Details of partition specimen and test report are attached)				
Tests for grade compliance				
Requirements tested	Grade performance achieved Pass/Fail			
	LD	MD	HD	SD
Stiffness	-	-	-	Passed
Surface damage by small hard body impact : [1]				
Straight partition	-	-	-	Tested*
Right angle partition	-	-	-	Tested*
Surface damage by large soft body impact:				
Straight partition	-	-	-	Passed
Right angle partition	-	-	-	Passed
Perforation by small hard body impact: [1]				
Straight partition	-	-	-	Passed
Right angle partition	-	-	-	Passed
Resistance to structural damage by large soft body impact	-	-	-	Passed
Door slamming	-		-	Passed
*refer to page 12				

Summary of other tests on partition specimen	
Requirement tested	Performance achieved
Crowd pressure	1.5 kN/M
Light weight anchorage – Pull-out	Passed
Light weight anchorage – Pull-down	Passed
Heavy weight anchorage – (Wash basin)	1500 N
Heavy weight anchorage – (Wall cupboard)	4000 N

PSB TEST ®
Your Peace of Mind

Laboratory:
TÜV SÜD PSB Pte. Ltd.
Testing Group
No.1 Science Park Drive
Singapore 118221

Phone : +65-6885 1333
Fax : +65-6776 8670
E-mail: testing@tuv-sud-psb.sg
www.tuv-sud-psb.sg
Co. Reg : 199002667R

Regional Head Office:
TÜV SÜD Asia Pacific Pte. Ltd.
3 Science Park Drive
#04-01/05 The Franklin
Singapore 118223

OFFICE SPACES

INTUIT INDIA, BENGALURU

Overview
Intuit's first venture in the Asia–Pacific region was a gigantic India headquarter covering an area of 2,11,000 sq. ft. Owing to the enormity of the project, the architects and contractors were on the lookout for a one-stop solution provider for ceilings and drywalls. High performance acoustic ceiling systems were mandatory.

Project Highlights:
Gyproc was chosen as the preferred partner to provide complete solutions for drywalls and ceilings. GypWall™ ROBUST 98 mm thick drywall with a combination of plasterboard ceiling, grid ceiling and Ecophon acoustic ceiling was used across the office. However, the project highlight was the beautifully designed false ceiling installed at the reception at a height of more than 6 mtrs.

Architect: RSP
Contractor: Craft Int Décor Pvt Ltd

CTS, CHENNAI

Overview:
One of the leading player for local business and technology consulting. In order to create more peaceful working environment for their employees they needed walls with higher STC which their current wall did not suffice.

Highlights:
Thus, to achieve about 48dB sound insulation for most of their common places in office, GypWall™ ROBUST 98mm system with an Gypsteel ULTRA® Acou-Stud was used. Since Gyproc® Duraline Board is more denser than standard board performs better to achieve Acoustic.

Architect: RSP
Contractor: G. V. Mistry

HEALTHCARE

ASIAN HEART INSTITUTE, MUMBAI

Overview
Asian Heart Institute is one of India's premier cardiac care institutes located in the Bandra-Kurla complex, Mumbai. The project involved construction of 2 additional floors on top of a 5 storey building while the hospital was running at full capacity during the construction phase. The project had the restriction of an existing dead load and thus required a lightweight system for its internal partitions.

Project Highlights:
The architects chose GypWall™ ROBUST 98mm & 123 mm systems due to its light weight and severe duty rating. This allowed us to build 2 floors on Asian Heart Institute's existing structural design without any reinforcements. The construction of drywall is a clean, quick and quiet process. These crucial benefits helped us maintain the systematic functioning of the hospital without disturbing patient comfort during the construction phase.

Architect: Edifice Consultants Pvt. Ltd.
Contractor: P S Art

FORTIS HEALTHCARE, KOLKATA

Overview
Fortis Hospital, Kolkata is a 10-storied healthcare facility with a 400 bed capacity. Since there was very little time left for completion of the project, hence fast and efficient drywall technologies was used.

Project Highlights:
Drywalls are 3-4 times faster to construct than masonry walls as they do not need water curing in their process. Hence, GypWall™ ROBUST 98mm system for dry areas was the choice for this project. It also delivers high performance on passive fire protection of 1 hr and sound insulation of 44dB.

Architect: STUP Consultants Pvt. Ltd.
Contractor: Suraj Interior

INDUSTRIAL

TETRA PAK, PUNE

Overview
Tetra pak is the World's leading food processing and packaging solutions company. The plant's design required durable and robust solutions for their interiors. The key selection criteria for the construction technology included sustainability.

Project Highlights:
Gyproc ceilings and drywall systems are sustainable and offer high performance and thus, was the obvious choice for this project.

Walls installed at the shop floor and warehouses were to be designed to take the wear and tear caused by moving material and other equipments. In order to provide robust wall solution Double layer of 13mm Gyproc® Duraline board (High Impact Resistant Board) with 148mm twin Gypsteel ULTRA® c-stud was used.

Architect: Archivista.
Contractor: Rohan Builders Pvt. Ltd.

GREAVES COTTON LTD., AURANGABAD

Overview
Greaves cotton is a manufacturer and supplier of agricultural and industrial equipments and machines. A typical manufacturing setup like Greaves Cotton Ltd. required a robust interior construction technology that could guard against heavy movement of material in and around shop floor, wear and tear caused by forklifts and large soft body impact (human movement).

Project Highlights:
Gyproc drywall technology offers solutions for high impact zones. In this case a GypWall™ ROBUST 98mm system consisting of 13mm Gyproc® Duraline Board (High density board) which is tested as per BS 5234 Part 22.

Architect: In-house.
Contractor: Urja Sales, Aurangabad.