

Knauf DenseShield

Product Data Sheet (07/2025)



Knauf DenseShield is a high-performing plasterboard for designed for partitions requiring superior robustness and fire resistance.

PHYSICAL PROPERTIES		
Thickness and Nom. Weight	13 mm	12.2 kg/m ²
	16 mm	14.9 kg/m ²
Length x Width	1220 mm x 2440 mm	
Edge	Tapered, Squared	
Color	Yellow	

KEY FEATURES

- **Can achieve up to Severe Duty** (highest rating per BS 5234 Pt 2) rating when installed to light gauge steel stud, maximizing robustness of partition.
- **Fire Protection:** Can achieve up to 138 minutes of fire resistance when used as a system
- **Low VOC:** Emits less than 20 µg/m²·hr of TVOC for better indoor air quality, tested per **ASTM D5116**
- **Manufactured in accordance with ASTM and BS standards:**
 - ▶ **ASTM C1396** - Standard Specification for Gypsum Board
 - ▶ **ASTM E84** - Standard Test Method for Surface Burning Characteristics of Building Materials
 - ▶ **ASTM E1360** - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
 - ▶ **ASTM D5116** - Standard Test Method for Small-Scale Organic Emissions from Indoor Materials/Products
 - ▶ **BS 5234 Pt 2** - Partitions (including matching linings). Specification for Performance Requirements for Strength and Robustness Including Methods of Test.
- **Environmental Safety:** Contains no hazardous substances; made using eco-friendly processes

APPLICATIONS

Suitable for high-traffic and demanding areas that need robust partitions such as high-rise buildings, retail spaces, hotels, schools, and offices.

Limitations:

- Avoid exposure to sustained temperatures exceeding 40 °C and 95% RH
- Avoid exposure to excessive, repetitive, or continuous humidity, chemical fumes, freezing temperature, corrosive substance or vibration before, during, and after installation.
- Ensure wall, floor cavities, and enclosed areas are dry before closing up or applying finishes.

KNAUF PLASTERBOARD INSTALLATION SYSTEM

Proper fireproofing and waterproofing are crucial for fire resistance, moisture protection and plasterboard durability. See the [Systems+ Manual](#) for your detailed user guide.

DESIGN CONSIDERATIONS

ROBUSTNESS

Impact Resistance: DenseShield can withstand different types of impacts, ensuring its integrity in various settings:

- **Soft Body Impact:** Resistance to deflection from objects such as body forces or furniture.
- **Hard Body Impact:** Protection against sharp, concentrated forces like tools or equipment.
- **Abrasion Resistance:** Prevents wear and visual degradation due to scuffing or rubbing.

DenseShield can achieve:

- **Heavy Duty (HD):** Achieved in systems like SB.120.1c (two layers of 13 mm DenseShield with 76mm studs at 610mm centers).
- **Severe Duty (SD):** Achieved in systems like SB.120.2c (two layers of 16 mm DenseShield with 76mm studs at 610mm centers)—the highest grade for impact resistance per BS 5234 Pt 2.

For greater robustness, increasing stud depth or using thicker gauge steel further enhances partition strength, especially in high-use environments.

Refer to Figures 21, 23, 27, 29, and 30 for visual examples of DenseShield in robust applications.

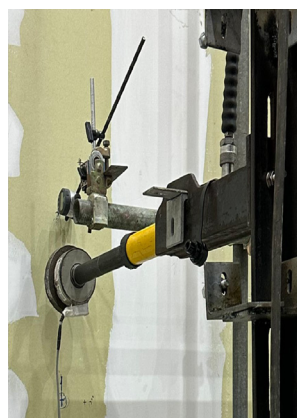


Figure 21: Wall stiffness



Figure 23: Perforation by small hard body



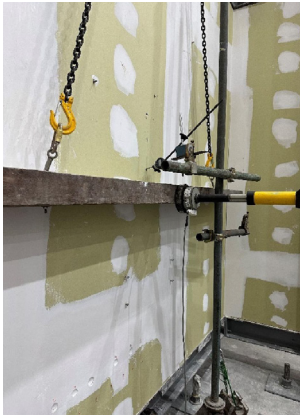


Figure 27: Crowd pressure



Figure 29: Light weight anchorage (pull down)



Figure 30: Heavy weight anchorage (downward loading - wash basin)

Impact Resistance: Partition Grades by Category of Duty: To further clarify robustness levels, DenseShield performance corresponds to these categories from BS 5234 standards:

Grade	Category of Duty	Examples
Light Duty (LD)	Adjacent space is only accessible to persons with a high incentive to exercise care. There is a small chance of an accident occurring or of misuse.	Domestic accommodation
Medium Duty (MD)	Adjacent space is moderately used primarily by persons with some incentive to exercise care. There is some chance of accidents occurring and of misuse.	Office accommodation
Heavy Duty (HD)	Adjacent space is frequently used by the public and others with little incentive to exercise care. Chances of accidents occurring and of misuse.	Public circulation areas, Industrial areas
Severe Duty (SD)	Adjacent space is 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

Fire-Rated Walls & Ceilings: DenseShield also excels in fire-rated system applications, enabling compliance with the Fire Code of the Philippines. Systems can achieve up to:

- **138 minutes fire resistance** in double-layer configurations (when joints and fasteners are correctly spaced and taped). Supporting structures should meet or exceed the required Fire Resistance Level (FRL) for the system to function optimally.

Load Bearing & Attachments: While designed primarily as a non-load-bearing system, DenseShield can safely support specific light static loads with cavity anchors:

- **13mm boards:** Supports up to 12 kg
- **16mm boards:** Supports up to 15 kg

For heavier loads, consult a structural engineer for design recommendations to ensure safety and performance.

Jointing: Use Knauf Premium Jointing with paper tape for fire-rated partitions and ceilings, and Knauf setting-type compounds with paper tape for wet areas. Paper tape must be used in fire-rated and wet area systems to ensure optimal performance.



PERFORMANCE

Knauf MultiShield has undergone rigorous testing to ensure it meets high standards for performance and fire-resistance. Here's a summary of the test results along with the benefits of each aspect:

Test	Results	ASTM C1396 Requirement		Benefits
		13 mm	16 mm	
Robustness Test	Passed			
Flexural Strength – Longitudinal	Passed			Provides durability and resistance to bending forces, allowing the plasterboard to withstand structural loads and impacts without sagging or breaking
Flexural Strength – Transverse	Passed			
Hardness	Passed			Provides resistance to surface damage, helping walls maintain their appearance and integrity in high-traffic areas
Nail Pull Resistance	Passed			Secures fastening of fixtures and fittings, preventing tearing and enhancing the stability of installations.
Humidified Deflection	Passed			Helps maintain shape and structural integrity even in humid conditions, making it ideal for use in moisture-prone areas like kitchens and bathrooms

*Knauf gypsum boards are manufactured in accordance with ASTM C1396

System Type	Fire Resistance Rating (FRR) when used as a system
Single-Layer System	Up to 64 minutes
Double-Layer System	Up to 138 minutes

GENERAL HANDLING TIPS

- Always use Personal Protective Equipment (PPE) during handling.
- To safely carry a gypsum board, two people should hold it at both ends.
- The gypsum board should rest on the carriers' shoulders while being carried.
- Use both feet to turn instead of twisting your waist or back.
- Ensure gypsum boards are securely positioned on pallets.

UNLOADING WITHOUT FORKLIFT TRUCKS

- A minimum of two people is required to manually unload the gypsum boards.
- One person must remain inside the truck to hand over the boards to the others on the ground.
- While carrying gypsum boards, ensure they rest on the carriers' shoulders.

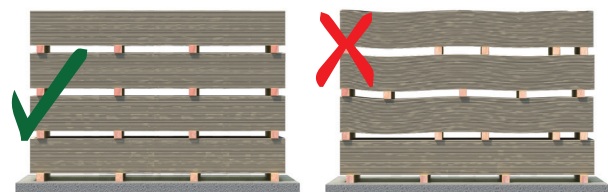
UNLOADING USING FORKLIFT TRUCKS

- Use a forklift truck with a minimum capacity of 3.5 tons to unload gypsum boards from the delivery truck.
- The unloading should be performed by a certified forklift operator.
- Position the forklift's "forks" between the billets. Secure proper placement of the boards to avoid accidents.
- Prepare billets in the desired storage location beforehand.

PROPER STORAGE

- Store gypsum boards in a covered area, free from water leaks and excessive moisture. Boards should be kept in neat, flat stacks off the ground to prevent sagging and minimize damage to edges and surfaces.
- Position billets at right angles to the gypsum boards, with stacking supports spaced no more than 600 mm apart. Use five evenly spaced billets.
- The length of the billets should match the length of the gypsum board to properly support its weight.
- Gypsum boards can be stacked up to a maximum of five layers, with the following maximum number of sheets per layer:

13 mm - 70 sheets
 16 mm - 58 sheets



Submittal Sheet

PROJECT INFORMATION	
Project Name	
Project Location	
Contractor Name	
Date of Submission	

REVIEW AND APPROVAL SECTION				
Reviewer Name and Signature				
Product Name	Approved	With Revisions	Rejected	For Further Deliberation
FOR INTERIOR				
<i>Gypsum Boards</i>				
StandardShield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SpanShield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MoistureShield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FireShield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DenseShield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MultiShield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EchoStop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Compounds & Finishing</i>				
Premium Jointing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Premium Premix	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper Tape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FOR EXTERIOR				
<i>Cement Board</i>				
Aquapanel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes				

