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Knauf is a worldwide leader in building materials and construction systems with more than 45,000 products to choose from. Its diverse range of products includes plasterboard, mineral fibre tiles, acoustic boards, internal and external plasters and glass and mineral wool insulation. Founded in 1932, the company has not only manufactured plasterboard for over 80 years – meeting some of the most stringent sustainability and manufacturing regulations worldwide – but its engineering department is recognised as one of the globe’s leading plant designing teams.

**Knauf experience**

Knauf’s experience can be demonstrated through numerous major projects it has worked on across the globe including the Water Cube in China, the London Olympics, the Beijing Olympics, the Alliance Arena in Germany, and the Washington State Stadium.

In Australia, Knauf operates two manufacturing facilities, employs over 220 employees and manages a national franchise, the PlastaMasta network. Products sold to the local market are primarily Australian-manufactured.

**Expert engineers**

Knauf also has its own team of expert engineers who can add significant value and financial savings. By ensuring Knauf engineers are engaged in the early stage of design, a building can be designed as efficiently as possible from the outset, avoiding the costly and unnecessary changes that typically occur throughout the tender and construction process.

**Advanced range**

Knauf’s advanced product range enables significant performance improvements to be designed into health facilities. For example, Knauf’s high-density wall linings can significantly reduce damage from knocks and bumps to the walls, reducing maintenance costs for the life of the building.

**Knauf promise**

Recognising that builders, contractors and architects strive to create the best for their clients, Knauf is driven by a determination to produce innovative products and systems that are exceptionally engineered to meet the requirements of the Australian health sector.
"It made our foreman’s life easier because they knew there was only one product on the job."

**PROJECT:** Queensland Children’s Hospital (QCH), Brisbane, designed by Conrad Gargett and Lyons. Lining installation by Superior Walls & Ceilings.

**KEY FACTS:** The $1.5bn facility is currently in construction and due for completion in 2014. Commercial contractor Superior Walls & Ceilings countered an initial specification for over 120 wall types with a proposal to use Knauf’s 4-in-1 plasterboard in its successful tender bid. Using the multifunctional plasterboard not only met the requirements of architect and builder, but also achieved cost savings and reduced the number of wall types and ongoing maintenance.
KEY TO SPECIFYING

Building performance and functionality, up-front versus life-cycle costs, sustainability; these are three of the key issues facing designers, builders and manufacturers in the Australian health sector.

The continued development of world-class healthcare facilities throughout Australia presents a number of key challenges to stakeholders. New needs have emerged which centre on area-specific performance, ease of construction, ongoing maintenance costs and stringent safety and sustainability requirements. Knauf is catering to them all.

Upfront vs. life-cycle cost
The scale of many health care projects exacerbates the dilemma of balancing upfront investment with long-term building performance.

Once a secondary consideration for a facility’s builder, the health sector’s development procurement processes have brought ongoing maintenance costs to the forefront of preliminary construction calculations, with maintenance teams becoming heavily involved in the design process.

“With the consortium approach, the builder is responsible for ongoing maintenance throughout the life of the facility,” Mark Micallef, National Project Manager at Knauf Plasterboard, says. “So they now have a vested interest in ensuring maintenance costs are kept to a minimum rather than just keeping construction costs low.”

Micallef explains that upgrading to more durable lining products not only ensures the integrity and longevity of these vital facilities, but presents significant savings when taking into account long-term maintenance costs.

Sustainability
Knauf takes a two-tiered approach to sustainability: the manufacture of best-practice sustainable products and an onsite ‘dematerialisation’ process. Knauf products are independently certified by Global GreenTag to GreenRate Level A, and will achieve 100% points for relevant materials categories.

Another of Knauf’s key sustainability solutions focuses on reducing the amount of product on site, a process called dematerialisation, which can potentially reduce the total amount of material on a project by 30-40%. Undertaken through Knauf’s value engineering process, dematerialisation reduces the amount of material used in construction and is critical to the sustainability of a building.
HEALTH: KEY ISSUES & REQUIREMENTS

From impact resistance to acoustics and security, designing for the health sector requires an awareness of several key issues.

For architects, the construction and renovation of hospitals, health centres, doctors’ surgeries and nursing homes is a challenge. On the one hand the objective is to increase the comfort level of patients and staff through great design. On the other hand, functional requirements such as sturdiness, hygiene and durability must be satisfied.

Knauf provides constructive support and product solutions that are both intelligent and performance-orientated for the health sector. As a company it recognises that each part of a hospital holds unique challenges, and Knauf’s comprehensive range of quality products are developed to specifically address – and master – those challenges.

KEY CONSIDERATIONS INCLUDE

> **ACOUSTICS** could be said to play the most crucial part in creating hospital environments: they facilitate patients’ recovery through maintaining privacy and keeping noise levels low.

> **IMPACT RESISTANCE** Products in the health sector must be able to withstand damage to wall surfaces as well as the ‘wear and tear’ of knocks to walls from both people and equipment.

> **SHELF LOADING** Hospital walls must be able to support a wide range of fittings and fixtures, from waiting room artwork and bathroom washbasins to heavy equipment in specialty rooms.

> **AESTHETICS** Hospitals are not only places of medicine, they are spaces of excellence and spaces in which to recover and recuperate. Family, patients and visiting experts feel confident in a polished environment; medical staff work best in a professional environment; and patients recover faster in a quiet environment.

> **HYGIENE AND INFECTION CONTROL** Robust internal surfaces and finishes are essential to maintaining hygiene and reducing infection, with areas such as operating rooms requiring particular attention.

> **FIRE PROTECTION** Resistance and protection from fire is a critical factor in plasterboard throughout hospitals, particularly in lift shafts.

> **WATER RESISTANCE** In wet areas including toilets, showers, laundries and kitchens, low maintenance water resistance solutions reduce moisture damage and mould growth.

> **SECURITY** Safeguarding equipment, and pharmacy rooms is important. Metal-reinforced linings are a key solution for this.

> **SERVICE PENETRATIONS** Metal pipes, UPVC pipes and electric cables all need to be installed, without negatively impacting acoustic and fire ratings.

> **RADIATION PROTECTION** Vital to protect staff and patients, radiation protection is needed in X-ray diagnostic centres.
CASE STUDY: FIONA STANLEY HOSPITAL/WACI

“I was just thinking I hope this stuff works, and it absolutely did.”

> PROJECT: Fiona Stanley Hospital, Perth, designed by architects Hassell. Installation by WA Commercial Interiors.

> KEY FACTS: The $2bn facility open since 2014. Originally designed with 135 different wall systems, the value engineering process was able to decrease the number of wall systems to 80. WACI recommended Knauf’s multifunctional plasterboard to reduce the job’s overall cost — driven by increased efficiency.
challenging traditions

With stringent rating requirements and ease of installation top of mind, the contractor responsible for a refurbishment of Angliss Hospital’s Nuclear Medicine Unit found the right solution in Knauf’s GIB X-Block® System.

First and foremost, we had to get the technical rating right,” says Angliss Hospital in-house engineer, Harris Woodhouse. “But we wanted to get away from the traditional lead lined walls which are excessively heavy and hard to work with, and find a lighter and cheaper alternative.”

The Nuclear Medicine Unit at Victoria’s Angliss Hospital has undergone a complete refurbishment. The facilities have been extended and a new ‘hot laboratory’ added that allows for radioactive materials to be prepared and dispensed to patients as part of their diagnostic procedures.

The redevelopment had specific structural and environmental requirements to ensure the safety of patients and staff as well as job efficiency. Knauf’s X-ray shielding plasterboard GIB X-Block® was selected as it not only met technical specifications but was also easy to handle; the sheets weighed significantly less than lead-lined plaster.

“We used two sheets of GIB X-Block® plasterboard to achieve Technetium 140 keV gamma level, which is equivalent of 2mm lead lining,” Woodhouse says. “Even though we were using more sheets, the X-Block was far easier to handle and install than conventional linings.”

The use of GIB X-Block® can also ensure ratings are upheld throughout future refurbishments, according to Woodhouse. He says, “If there’s a change of the machines used in the unit, or a change in ratings, you can simply put in another sheet of X-Block and the integrity is upheld.”

> PROJECT: Angliss Hospital, Victoria, designed by Nancy Telfer. Installation by RP & RL Building Services.

> KEY FACTS: The project value was $100,000 and completed in 2008. An alternative to traditional lead lined wall was found for the Hospital’s Nuclear Medicine Unit, in Knauf’s GIB X-Block® System. GIB X-Block® has greater design flexibility, is cost-efficient, easier to handle and, with 0% lead, environmentally friendly for later disposal.
If there is one place where hundreds, perhaps thousands, of patients will stare for hours daily at a ceiling, it is a hospital.

The ideal ceiling construction in a hospital balances practical access to installations with aesthetics and acoustics. Ceiling systems from Knauf and Knauf AMF incorporate both functionality and design elements, with lighting and maintenance components harmoniously integrated.
HIGH TRAFFIC AREAS

By their very nature, hospitals are subject to extreme wear and tear. Hundreds of people may pass through an emergency room every hour. Thousands of trolley beds will bump corridors every year. And hundreds of thousands of hands will lean on walls over their lifespan.

High traffic areas are literally those with high traffic: spaces through which large numbers of people and equipment move. For high traffic areas, key considerations include aesthetics, impact resistance, load-bearing strength, acoustics and maintenance.

Knauf provides robust wall constructions that withstand virtually all types of traffic. In practice, this means long-life, maintenance-free walls that delay the need for renovation offering extremely favourable operating costs.

> IMPACT RESISTANCE
Emergency situations, hospital bed scrapes, transport damage — high traffic areas have to endure the rigours of day-to-day life in a hospital.

Walls in high traffic areas simply must perform — they must be durable and impact-resistant. How durable and impact-resistant will depend on how much traffic is expected in the region and what kind of traffic: soft (people) or hard (wheelchairs and trolleys). Impact damage can add significantly to maintenance costs over a period.

> SHELF LOADING STRENGTH
Hospital walls support a range of attachments from mirrors and artwork in waiting rooms to heavy medical equipment in specialty rooms. Knauf has numerous solutions and mounting systems, allowing load-bearing walls to perform within permissible levels of safety and serviceability.

> AESTHETICS
Hospitals can often have practical and sombre designs — yet more and more architects are proving it doesn’t have to be that way. Elements with greater visual impact not only make a space more attractive but promote patients’ healing processes. No matter whether round, curved or formed with special edges, Knauf has endless design options for plasterboard construction to enable greater aesthetic appeal.
PRIVATE AREAS

Acoustics, privacy and hygiene control are all vital factors in designing private areas within the health sector.

Acoustics
Good acoustics are vital in a hospital environment. Speech intelligibility is one factor: if a patient only has five minutes with his doctor he needs to be able to hear her clearly. Patient recovery is another: rest aids recuperation and studies have shown that noise reduction helps improve recovery times. An overall controlled environment is a third: in operating theatres doctors need their instructions to be clearly heard; in wards and communal areas, patients and staff need a calm and controlled environment.

Acoustic considerations include sound isolation between spaces and sound absorption within spaces. Interior environments must be protected from external noise sources, noise from interior areas should not adversely intrude on other interior areas, and internally generated noise should not adversely affect the external environment.

Likewise, acoustic reverberation times and acoustic absorption are important in common areas such as canteens. Acoustic absorption minimises reverberation times on the other side of walls, for example in wards, accident and emergency and sleep areas.

Privacy
An important factor in calculating the airborne sound insulation performance requirements for internal partitions is privacy. This is the extent to which conversation and activities in one area are audible in an adjacent area. The privacy factor is subject to both the subjective privacy requirement for the area under consideration and the mechanical services noise levels (noise from all service installations) for the area under consideration.

Hygiene and infection control
The emergence of new strains of drug-resistant bacteria has meant hospitals have had to strengthen their infection control measures. According to the Australasian Health Facility Guidelines, internal surfaces and finishes are integral to the overall management of infection control risks in healthcare buildings.

In operating theatres, hygiene is critical. Hygienically clean surfaces are first and foremost the result of design details that do not allow the formulation of dust or the accumulation of dirt. This is why Knauf primarily focuses on flush-mounted surface solutions when dealing with the subject of hygiene. This guarantees that the surfaces, while aesthetically appealing, remain hygienically clean over the long term and are easy to maintain.

ACOUSTICS: Rw RATINGS
Rw is a laboratory-measured value that applies to walls, ceiling/floors, ceiling/roofs, doors or windows. The higher the number, the greater the sound insulating power of the building element. Rw ratings in hospitals vary from low ratings of around 35 up to high ratings above 50.

The Knauf Plasterboard Specification team can calculate the Rw and recommend the product solution.

> Rw 30-40 Typical low performance health partitions: For areas with no specific privacy requirements.
> Rw 40-50 Typical medium performance health partitions: For areas with medium level acoustic requirements to prevent sound transfer in general areas.
> Rw >55 Typical very high performance health partitions: For specialised areas.
WET AREAS

WHY IS WATER-RESISTANCE SO IMPORTANT?

Damaged plasterboard, sagging wall cladding covered in mould and mildew, flaking paint and detached ‘waterproof’ tiling can all occur without the right protection. Without the right plasterboard providing protection from long-term exposure to water, moisture build-up or water spills can drastically affect the appearance of wet areas. Cost of rectification in these areas can be in the tens of thousands of dollars, not to mention the financial cost of closing areas whilst they are being repaired. A small upfront cost penalty in these areas is well worth the investment.

MOULD AND MILDEW

On any surface with a food source or level of moisture, mould and mildew will grow. This is an issue particularly in the northern states, where humid environments and excess air moisture increase the likelihood that mould and mildew will grow. This can happen during or post the construction phase.

SOLUTIONS

Knauf has a variety of options available, from water resistant boards to mould- and mildew-resistant board and additives.

No matter whether it is water in patient rooms, public toilets, rehabilitation rooms or canteen kitchens, Knauf has a solution for all wet areas.

Knauf provides plasterboard designed especially to keep wet areas dry. The plasterboard’s resistance to water and humidity ensures walls stay in excellent condition, preventing mould growth and ensuring areas remain hygienically clean. Every hospital includes a variety of wet zones, from those occasionally exposed to splashing water, like staff areas, to those constantly exposed to water, like showers and kitchens.

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SECURITY AREAS

Security for areas that store medications, documents and infrastructure is a key aspect to health design.

Every hospital demands a range of ‘security’ rooms. These include technical centres, equipment and document storage rooms, and pharmacy rooms holding medication and drugs. One of the challenges in medical buildings is the integration of these rooms. Another is that these rooms need both a high level of security and fire protection.

Walls in these areas need to be built with extra strength to prevent break-ins and the theft of highly valuable medical equipment, medications and patient information.

> THEFT RESISTANCE  Knauf systems make it extremely difficult for people to get through walls. In a typical new system security scenario, a layer of sheet steel or expanded mesh is placed between two layers of plasterboard, making wall penetration highly unlikely. Razors, knives and even sledgehammers won’t penetrate these walls because they can’t break through the plate of steel. A number of tests have proven it’s easier to get into a masonry or hollow block wall than it is through a lightweight Knauf-style wall.

> FIRE RESISTANCE  Security areas need to be protected not only from theft but also from fire. Extra strength Knauf Plasterboard with fire protection can be installed in security areas to help prevent break-ins and minimise the risk of damage by fire.

X-RAY AREAS

Hospitals with equipment such as X-ray machines need to protect not only patients and staff inside the X-ray room but also those immediately outside the room.

Hospitals use various types of diagnostic equipment and radiation therapies that require shielding hospital personnel and the general public from radiation exposure. Radiation intensity depends on the application; government authorities set minimum requirements.

In order to minimise the risk of exposure of patients and staff to X-rays in diagnostic and therapy departments, special consideration needs to be given to the design of the systems and materials used in these areas.

Traditionally, the solution to radiation protection has been a sheet of lead and then a layer of plasterboard: lead-lined plasterboard. Yet lead is not only extremely heavy, it is extremely expensive and only increasing in cost. What’s more, there have been a number of health hazards associated with lead, not to mention significant environmental concerns about its disposal at the end of its life.

> A NEW SOLUTION  To answer these concerns, Knauf has come up with a new product: Knauf GIB X-Block®. It uses a mineral called barium sulphate to perform the same way as lead at a much lower cost and significant weight reduction. Plus, there are no health or environmental concerns.
SERVICE PENETRATIONS

Service penetrations may seem like a small factor in the large world of hospitals, but this small factor can have a large impact. Every wall in a hospital may connect a number of services through its walls: water pipes, gas pipes, electricity or cables. And whenever a service runs through a wall, there is a risk of compromised wall performance – a simple hole in a wall can reduce water and fire resistance, as well as acoustics. The treatment of service penetrations is significant and Knauf has a number of solutions.

LIFT SHAFTS

Lifts and stairwells are vital in case of fire in a hospital: for patients and staff to get out and for fire teams to quickly access and isolate fire-affected areas.

Shaft wall systems are fire-rated, non-load bearing walls used for lift shafts, service ducts, stairwells and fire-isolated passageways.

- Walls that enclose lift shafts, stairwells and other vertical shafts are the most important walls in a building from a life safety standpoint. Should a fire occur, fire services use the lifts to reach the fire. The stairwells provide the only means for people to exit the building. Since these walls contain the lifelines of the building, they must be structurally strong to withstand lateral loads and provide needed fire protection.

- Hospitals are generally designed with compartmentalised fire areas; only specific areas of the building have fire-resistant walls. Should a fire occur, then the aim is to compartmentalise it into a particular area. Fire officials can then concentrate on managing and evacuating that particular area.
overcoming isolation

Using Knauf’s GIB X-Block system helped save $30,000 by streamlining the amount of material and eliminating the need for additional wet trades.

The $11 million upgrade of Queensland’s isolated Baralaba Hospital was completed in 2011, replacing an ageing 77-year-old timber complex that had been closed to overnight patients in April 2009 after it failed to meet fire safety regulations. However, the X-ray linings that were specified presented a number of logistic and installation challenges for the contractors, Thompson Building Group.

“The initial specifications for the X-ray units were for lead-lined plywood, but we challenged this on two grounds: performance and cost,” says Garry Rosetta, Thompson Building Group operations manager. “After demonstrating the material, contractor and subsequent cost savings from using the GIB X-Block system, the architect gave it the go ahead.”

The remoteness of Baralaba meant that using lead-lined ply – regardless of the costs of the initial material – would have increased transportation, supply and installation costs by at least 15%, Rosetta explains.

“If the head contractor had used lead-lined ply in the unit it would have increased costs significantly as we would have had to get another contractor out there to install it,” he says. “But with X-Block, there was no need to engage another contractor. It was just a matter of putting the order in for the material and we could do it ourselves.”

Rosetta adds the additional need to “sheet” lead-lined ply with an impact-resistant lining further strengthened the case for the GIB X-Block system, which has its own impact-resistant characteristics.

“If we had used lead-lined ply we still would have had to sheet an impact-resistant sheet over the top,” he says. “So by using X-Block we streamlined not only the materials needed, but the amount of installation work needed.”

> PROJECT: Baralaba Hospital, Queensland, designed by Thomson Adsett. Installation by Thompson Building Group.

> KEY FACTS: $800k project as part of a $11m upgrade; completed in 2011. GIB X-Block system was installed instead of traditional lead-lined ply. Due to its impact-resistant characteristics and as an additional contractor was not required for installation, the hospital was able to reduce supply and installation costs by at least 15%.
PRODUCTS

CEILINGS
TRADITIONAL
MastaShield Solid Ceilings
Designpanel
WaterShield
AMF THERMATEX Star
AMF THERMATEX Thermofon
SpanGrid Vinyl faced tiles

SPECIALTY
AMF THERMATEX Acoustic & Acoustic dB
AMF THERMATEX Aquatec
AMF THERMATEX Alpha
AMF Hygena and Cleanactive
Stratopanel
TruRock & TruRock HD

WALLS
TRADITIONAL
MastaShield
SoundShield

SPECIALTY
TruRock & TruRock HD
SonaRock

LIFT SHAFTS
TRADITIONAL
Masonry Wall
SPECIALTY
Shaft Wall

RADIATION AREAS
TRADITIONAL
Lead-lined plasterboard
SPECIALTY
Gib X-Block

SECURITY ROOMS
TRADITIONAL
Masonry Wall
SPECIALTY
Security Wall

WET AREAS
TRADITIONAL
WaterShield
SPECIALTY
TruRock TruRock HD
SonaRock
PERMAROCK®
Traditional

Aesthetics, acoustics and maintenance all play their role in the right ceiling choice.

MastaShield Solid Ceilings is a standard plasterboard that can be used for ceilings.

Designpanel is a precision-engineered perforated plasterboard delivering both absorption and sound diffusion – creating enhanced audibility and a high quality sound experience. Designpanel also incorporates a built-in air purification system: Cleaneo TECHNOLOGY. Available in four styles, offering a unique aesthetic, Designpanel is ideal for use in a range of applications including canteens and receptions where controlling the sound reverberation time is required.

WaterShield is a water-resistant plasterboard ideal for ceilings and walls in hospital wet areas including kitchens, bathrooms and laundries. It is a moisture-resistant solution and protects framing members against water damage.

AMF THERMATEX Star ceiling tiles are attractive general-purpose acoustic tiles that offer an adequate level of acoustic performance for general-purpose areas.

AMF THERMATEX Thermofon ceiling tiles are attractive fleece-faced acoustic ceiling tiles that offer excellent acoustic absorption for large, high circulation areas.

Knauf SpanGrid vinyl faced ceiling tiles are quality plasterboard tiles with a durable surface that can be cleaned and wiped for high maintenance zones.

Specialty

Knauf has a range of hi-tech ceilings ideal for use throughout hospitals.

AMF THERMATEX Acoustic is made from specially perforated mineral board with an attractive acoustic fleece facing. The perforations provide excellent sound absorption while the fleece offers a smooth, elegant surface finish. It is ideal for areas that require a high level of privacy and speech intelligibility such as consulting rooms.

AMF THERMATEX Acoustic dB tiles are a higher density and come in both 24mm and 30mm thicknesses for increased acoustic resistance in critical areas.

AMF THERMATEX Aquatec is ideal in hospital rooms with permanently high humidity, such as bathrooms or large kitchens; special demands are placed on the ceiling in terms of humidity resistance. Due to its special composition, THERMATEX Aquatec resists humidity up to 100% RH. This means that it is dimensionally stable when exposed to high humidity and temperatures from 0°C to 40°C. For thorough cleaning the Aquatec tiles can be washed. They also have outstanding sound absorption providing an optimal solution for most hygiene applications.

AMF THERMATEX Alpha is a newly developed mineral acoustic ceiling tile with a tissue facing. In addition to its Class A sound absorption rating THERMATEX Alpha also offers both fire protection and the option of hygienic treatment. As a wet-felt mineral tile it has excellent physical properties, assisting handling and installation.

Hygena for AMF THERMATEX products is a special additive and an anti-microbial treatment. It has been developed to prevent both the contamination and spread of fungi and bacteria, and the growth of mould and mildew. This makes it particularly suitable for use in healthcare facilities, especially in areas such as emergency wards.

Cleanactive for AMF THERMATEX products can be added to assist in breaking down airborne pollutants and improving air quality (excludes Thermofon).

Stratopanel is ideal for hospital ceilings as it has outstanding acoustic performance, a range of seamless aesthetic designs and the world’s first acoustic wall and ceiling lining with built-in air purification Cleaneo TECHNOLOGY. Stratopanel ensures low frequencies are absorbed to avoid distraction from excessive noise while at the same time the high consonant frequency range is well reflected for good speech intelligibility. This ensures patients have an optimum environment in which to recover.

TruRock is the lining of choice for safe and high performance commercial construction. The perfect all round plasterboard, TruRock incorporates impact, water and fire resistance as well as sound insulating properties. Durable and easy to handle TruRock is economical and ideal for multi-purpose applications.

TruRock HD incorporates enhanced impact, water and fire performance, sound insulation properties and has the added benefits of mould resistance. In addition to its heavy duty paper, TruRock HD has a continuous fibreglass mesh embedded in the high density core limiting damage even under large impact forces.
**Traditional**

Impact resistance, durability and acoustics all play a major role in health sector walls.

*MastaShield* is standard plasterboard suited to a wide range of applications including hospital public spaces such as canteens, receptions and waiting rooms. It is an economical lightweight construction available in a range of sizes including long sheets to minimise joints.

*SoundShield* is plasterboard with a high-density core providing excellent sound insulation for private areas throughout hospitals. By providing superior sound resistance and reducing noise transfer between rooms, it is ideal for wall and ceiling systems in wards, treatments rooms and consultation rooms.

**Specialty**

Upgrade to a specialty option for advanced performance in high traffic and private areas.

*TruRock* is the ideal all-in-one multifunctional plasterboard solution for walls in high-traffic and private areas in hospitals. TruRock is a 4-in-1 Global Green Tag certified plasterboard (GreenRate Level A) incorporating impact, water and fire resistance, and its high-density core provides excellent sound insulation properties.

Apart from the obvious benefits of ensuring every wall is both fire and water resistant, TruRock helps to simplify installation, reduce the amount of products onsite as well as simplify the maintenance process and reduce maintenance costs.

Knauf TruRock can support loads of up to 25kg directly off the board, without the need for costly noggins or framing behind the wall. When combined with Knauf Hartmut cavity dowels, this load-bearing strength can be increased to over 60kg.

*Knauf TruRock HD* is on top of that manufactured with mould-resistant additives, which offer protection against the growth of mould and mildew.

Its heavy duty paper and a continuous fibreglass mesh embedded in the high density core of TruRock HD makes it even stronger, limiting damage even under large impact forces.

*SonaRock* is a high-density gypsum fibreboard wall lining, manufactured from a mix of recycled and natural gypsum, and cellulose fibre made from premium recycled paper. It has a much higher density than both SoundShield and TruRock, offering acoustic resistance that’s the highest in its class. It provides extremely high hard body impact and gouge resistance, and creates durable walls requiring low maintenance. SonaRock is suited to wet area installations and its fire resistance meets Building Code of Australia requirements.
**LIFT SHAFTS**

**Traditional**

Lift shafts must be resilient to duress, heavy loads and fire risk.

**Plasterboard** can be installed with masonry walls in traditional lift shaft construction. The masonry walls are made of brick or cement and then covered with plasterboard to increase their fire rating.

**Specialty**

The Knauf Shaft Wall boasts several advantages compared to masonry construction.

**Knauf Shaft Wall** systems are fire-rated, non-load bearing walls used for lift shafts, service ducts, stairwells and fire isolated passageways. Shaft Wall systems are ideal when constructing a wall where access is only possible from one side (this side is referred to as the storey side).

Shaft Wall has several advantages compared to masonry construction:
> 75% lighter.
> No wet trades required.
> Faster TO INSTALL
  No scaffolding required inside the shaft.
> Thinner Typically less than 100mm wide using 64mm CH-Studs.

**RADIATION AREAS**

**Traditional**

A simple and effective solution for protecting against radiation.

**X-ray lead-lined shielding Knauf metal stud partitions** provide a simple and effective solution when used in conjunction with lead plasterboards. The Knauf Plasterboard technical service team can recommend specialist companies that pre-bond lead of the required thickness to Knauf plasterboard, ensuring a high-quality and stable product.

**Specialty**

A unique, lead-free alternative to conventional X-ray shielding walls.

**Knauf GIB X-Block®** is a unique lead-free alternative to conventional X-ray shielding walls. Designed to provide X-ray radiation protection in X-ray diagnostic rooms within medical facilities and dental clinics, it must be installed in conjunction with the Knauf X-ray shielding system using GIB X-Block® Jointing Compound. GIB X-Block® Jointing Compound has been specifically formulated to give lead-equivalent joints on walls and ceilings when using GIB X-Block® plasterboard.

The distinct advantage of GIB X-Block® is it is a safe, lead-free X-ray shielding board that can be installed just like a ‘normal’ plasterboard. With folding and bending technology to provide greater design flexibility, GIB X-Block® is cost-efficient, easier to handle and, with 0% lead, environmentally friendly for later disposal.
**SECURITY**

**Traditional**
A combination of plasterboard and masonry creates effective security.

*Plasterboard* is available with masonry walls to increase fire ratings and acoustic ratings. Knauf has developed a number of plasterboard lining solutions for use in conjunction with masonry or blockwork walls where security, impact, fire or acoustics is of concern. Systems are outlined in the Knauf Technical Manual.

**Specialty**
The Knauf Security Wall is a superior product for security spaces.

*Knauf Security Wall* is an upgrade solution that will improve security for any wall system including common walls in hospitals and partitioning. The system uses a sheet metal barrier that is installed as part of the framing construction. The construction is cost-effective and the security wall upgrade may be applied to any Knauf single, staggered or double stud wall system without reducing fire and acoustic performance.

**WET AREAS**

**Traditional**
A classic solution to wet area issues, protecting framing members against water damage.

*WaterShield* is water-resistant plasterboard suitable for use in internal wet areas and as a substrate for tiles. It protects framing members against water damage, and is easy to install and repair compared with other water resistant internal lining materials. It also has a lower risk of cracking and fewer control joints required compared with fibre cement with a smooth finish that is easy to paint.

**Specialty**
A super-smart material designed for maximum water protection.

*TruRock & TruRock HD* are manufactured to high internal standards that meet or exceed the requirements for water resistant gypsum board within Australian Standard AS 2588, Gypsum Plasterboard. In addition to being water resistant TruRock has the added benefit of fire resistance, a high-density core for impact resistance and sound insulating properties. TruRock HD is also mould and midew resistant.

*PERMAROCK*® is a solid, engineered wall lining made from inorganic aggregated cement embedded with coated glass fibre mesh and is 100% water resistant making it an ideal tile substrate to areas that are constantly exposed to water, like showers, rehabilitation pool areas and commercial kitchens.
### PARTITION PERFORMANCE REQUIREMENT

<table>
<thead>
<tr>
<th>ACOUSTIC PERFORMANCE REQUIREMENT/ADDITIONAL REQUIREMENT</th>
<th>ACOUSTIC RATING</th>
<th>FIRE RATING</th>
<th>WATER RESISTANT</th>
<th>IMPACT RESISTANT</th>
<th>TRADITIONAL SYSTEM</th>
<th>SPECIALTY SYSTEM A</th>
<th>ALTERNATIVE SPECIALTY SYSTEM WHEN ACOUSTICS ARE KEY</th>
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<td><strong>Low</strong></td>
<td>Rw 35 - 40</td>
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<td>KSW15 1 x 13mm MastaShield 92mm Steel Stud 1 x 13mm MastaShield</td>
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<td>KSW710 1 x 13mm SonaRock 92mm Steel Stud 1 x 13mm SonaRock</td>
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<td><strong>Low/Fire-rated 60 minutes</strong></td>
<td>Rw 35 - 40</td>
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<td><strong>Low/Fire-rated 120 minutes</strong></td>
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<td>KSW710 1 x 13mm SonaRock 92mm Steel Stud 1 x 13mm SonaRock</td>
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<td>KSW710 1 x 13mm SonaRock 92mm Steel Stud 150mm Earthwool 11kg 1 x 13mm SonaRock</td>
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<td>KSW717 2 x 16mm SonaRock 92mm Steel Stud 2 x 16mm SonaRock</td>
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<td>KSW710 1 x 13mm SonaRock 92mm Steel Stud 1 x 13mm SonaRock</td>
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In general the advantages of Knauf specialty systems are much increased sound resistance, added fire resistance (improving safety), impact resistance (reducing maintenance costs) and water resistance. They are GreenRate Level A certified (by Global Green Tag) and Australian made, so satisfy AIPP requirements. The specialty systems fulfill all the specifications with just one product and three systems. The reduction in product and systems means less materials on-site, an easier installation process and simplified maintenance management.
<table>
<thead>
<tr>
<th>PARTITION PERFORMANCE REQUIREMENT</th>
<th>ACOUSTIC RATING</th>
<th>FIRE RATING</th>
<th>WATER RESISTANT</th>
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NEXT STEPS

The complete Plasterboard Technical Manual provides comprehensive information on all our products and systems, including non-sector specific details not included in this brochure. The manual should be used in conjunction with this brochure in the specification process. To access the manual, go to knaufplasterboard.com.au/technical-manual