THE ULTIMATE CINEMA EXPERIENCE

Gyproc Cinema Solutions for Acoustic Comfort

Gyproc
SAINT-GOBAIN

INTRODUCTION

Part of Saint-Gobain, the world leader in habitat and construction products, Gyproc Middle East is leading the drive to deliver high-performance buildings faster, more efficiently and more sustainably than ever before.

Our focus on continuous research and intimate knowledge of building science has enabled us to work with customers to develop leading edge lightweight wall and ceiling systems to meet demanding applications in all types of buildings.

Our expertise in acoustics, for instance, has helped us create unique environments that aid concentration and support learning in schools, and improve convalescence rates in hospitals where patients can recover in peace.

So, when multi-screen cinemas arrived, it was Gyproc that international cinema designers approached to develop the high-performance separating wall structures needed. And we've worked alongside them ever since to develop improved solutions as sound systems become more powerful and sophisticated.

With the opening of our state-of-the-art manufacturing plant in Abu Dhabi in 2010, we have added the convenience of product availability and trained technical support teams with international expertise.

In addition to our fully tested Gyproc partition and lining systems, we also offer a complete range of Saint-Gobain ceilings to help manage and control sound. Ecophon, Gyptone & Rigitone ceiling systems are all designed to reduce reverberation and give greater clarity to the sound within the cinema and public spaces, creating the ultimate cinema experience.

VOX Cinemas
Muscat City Center, OMAN

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A CHANGING **EXPERIENCE**

Film makers today have recognised the importance of sound and are using increasingly sophisticated techniques and equipment to create an enhanced listening experience for audiences.

In the digital age, with the latest films now available to viewers at the tap of a smart phone or tablet, cinema designers and operators have seen this as an opportunity to differentiate themselves – optimising the use of sound to create atmosphere and emotion that can only be experienced in a big screen environment.

Some operators are now going further, with specialised equipment to create sound pressure along with fogs, fragrances and vibration sensations – all designed to enhance the physical experience.

WHY ARE CINEMAS **SPECIAL?**

"Acoustic design and implementation (specifically sound insulation) in modern cinemas is a critical element in the perception of quality to the operator and end-user.

Expectations are that there should be no audible noise from adjacent auditoria or the external environment which may disturb or interrupt. Cinema operators are keen to distinguish the professional movie-going experience from domestic and amateur events; full acoustic isolation from the outside world is a key element of this expectation.

Modern cinema standards demand stringent performance criteria (noise ingress is barely above the threshold of adult hearing for optimal design). Continual developments in sound quality, power and the demand for increasing auditoria volume and scale mean that the performance requirements on the architectural shell – specifically the walls and ceilings – are continually increasing in parallel. With this increase in performance, so does the likelihood of composite system weaknesses and flanking noise paths.

It is not enough to just meet the high demands of today's design criteria, the architecture and complimentary systems must be carefully engineered and intelligently considered to be future-proof, with the ability to anticipate the next generation of design needs and expectations."

Paul Schwarz
Technical Director

DESIGN CONFIDENCE
DUBAI ACOUSTIC RESEARCH LABORATORY

KRRISH: HERO'S FLIGHT
Bollywood Parks Dubai, UAE

Why is **NOISE CONTROL** important in cinemas?

Noise is unwanted sound, the things we don't want to hear, such as what's playing in the next cinema, noisy customers in corridors and even external traffic noise. No matter how good a movie is, having noise intrusion can ruin the cinema experience.

The development of specialist high performance acoustic partitions and linings to separate auditoria has been key to the success of the multi-screen format. Screens must be acoustically isolated to stop sound leakage and to prevent sound interference from busy lobbies and other noisy spaces.

Films today have a high quality digital audio output that is particularly focused on bass frequencies. Cinema partitions and linings therefore need to be specifically designed to deal with this extreme performance. It is also essential to ensure correct design of MEP penetrations, junctions and abutments to minimise transmission loss and acoustic flanking for optimum movie engagement.

Cinema operators will generally provide guidelines for acoustic performance at different frequencies for separating elements. Gyproc partitions, linings and ceiling systems help operators achieve their objectives by providing tailored solutions to control noise and allow audiences to become fully immersed in the movie without any unwanted distractions.

Why is **SOUND CONTROL** important in cinemas?

Creating the perfect acoustic environment within a cinema is the ultimate challenge for designers. Not only is it essential to manage sound within individual spaces to ensure that screen voices can be distinguished and music can be clearly heard, special considerations have to be made to reduce the effect of audience chatter as well. Within the auditorium, designers will generally aim to minimise sound reverberation through the use of sound absorbent materials and surfaces along with special acoustic linings. Whilst building design and layout are important, the balance of acoustic absorption and reverberation control has been key to the success of the modern day cinema experience.

HOW CAN CINEMA OPERATORS/DEVELOPERS DIFFERENTIATE IN TERMS OF **DESIGN/ACOUSTICS?**

"In a planet of awesome, mind-blowing, exemplary, along with worlds best and world beating terms being used to place companies one up on their competitors a better approach for a key differentiator is to claim to be accurate.

As cinema rooms are being built faster and corners are being cut to build them cheaper, a cinema that is world leading is not necessarily the best.

As people are becoming more attuned to the quality of sound and vision their senses are also becoming more attuned to visual and auditory accuracy in the delivery of content. An accurate room is therefore the room that people will end up frequenting more than another and it is this accuracy that ultimately defines a better cinema through return seat sales.

Acoustic materials and the behind the scenes testing and retesting, confirming and reconfirming and crosschecking that Gyproc Saint Gobain undertake, allows acoustic consultants, like me, to develop an accurate shell design that can then be built simply and quickly on site. This accuracy translates to a no fuss approach that enables surety in the fundamental box design of a cinema venue.

As a movie goer since the late 60's the changes I have seen in rooms has always seen me attending the more accurate room over the one claiming to be the best. I'm normally disappointed in the latter and normally because I can hear the audio track from the cinema space next door or worse...from the foyer."

Gerald Stewart
Principal - Acoustics

INHABIT ACOUSTICS

OSCAR CINEMAS
Sharjah, UAE

How can we contribute toward the **FIRE SAFETY** of your building?

Cinemas cater for large audiences in restricted spaces and therefore fire-safety is paramount. Gyproc conform to local and international regulations with regards to fire, life and safety. Our partitions provide up to three hours of fire resistance between auditoria and two hours for suspended ceiling elements as tested to American and European standards. This is to ensure timely evacuation of audiences in the event of fire and safe access for fire-fighting personnel.

Where modern steel frame constructions are used, our plasterboard systems deliver up to three hours of fire protection to the structure of the building too.

Plasterboards and mineral wool insulation used in Gyproc solutions achieve the highest Class A rating described in the International Building Code (IBC) when tested to ASTM E84 for surface burning characteristics.

WHAT ARE THE **DEMANDS** OF CINEMA GOERS AND HOW ARE WE ANSWERING TO THOSE NEEDS?

"There are so many options for cinema goers these days, particularly in this region where there are multi-screen cinemas in every mall. In order to ensure loyalty it is therefore essential to give customers the best experience, not just in terms of comfort and food and beverage options but also in terms of audibility, sound clarity and an overall acoustically enveloping experience. In my experience, customers rarely realise that their experience was enhanced by the acoustic design and implementation, however they are very clear about it when the acoustics are poor and it is a common cause of complaint. We therefore need to keep acoustics at the forefront of the design and construction process, paying attention to the critically important, and sometimes over-looked, details that can be the difference between an average experience and a GREAT experience!"

Sarah Huskie
Head of Acoustics - Middle East

WSP

CINEMA WORLD
Lisov, Czech Republic

Structural **INTEGRITY**

Walls must be sufficiently strong and robust to maintain integrity and performance when installed at different heights. Twin frame constructions are generally preferred for cinema wall applications as better acoustics, increased strength and stability are achieved which allows designers the flexibility to attain greater heights.

Gyproc framing components are manufactured using a patented UltraSteel technology that alters the characteristics of plain steel, providing improved yield strength, improved load carrying capacity, improved screw retention and strip out strength.

Gyproc pride themselves in providing innovative solutions for enhanced acoustic performances. The GAB3 acoustic bracing, RB1 resilient bar, AcouStuds are few examples. Additionally, Gyproc partitions achieve the highest duty rating, Severe Duty, when tested in accordance with BS 5234.

WHAT IS THE IMPORTANCE OF A GOOD ACOUSTIC CINEMA DESIGN IN **TODAY'S ENVIRONMENT**?

People are becoming more demanding, and expectations are constantly rising. When I grew up, we were used to having 28" TVs with questionable sound and picture quality. Now you find high quality surround sound systems and 4k projectors/TVs in many homes. Video streaming sites are making it possible to watch a wide range of movies and series from our homes, and the industry is continuously improving their services.

A good cinema design is therefore particularly important in today's competitive environment to be able to offer an outstanding and encompassing experience that will ensure repeat business. Film is a visual medium, but a poor acoustic design can ruin even the best visual experience. It is imperative that a qualified acoustic consultant is appointed at the start of the project and that the work does not stop there. Cinemas are specialist areas that require acoustic input not just in the design stage, but throughout the construction stage and commissioning of the project. Attention to detail and build quality must be top-notch and the appropriate use of qualified and tested material (e.g. plasterboard cinema walls) is key.

Only a cinema that fulfils all the various design aspects including acoustics will thrive in today's competitive market.

Andreas Lejholm
Acoustic Section Manager, Associate Director,
MEA

RAMBOLL MIDDLE EAST

WARNER BROS. WORLD
Abu Dhabi, UAE

Why is **INDOOR AIR QUALITY** important in cinemas?

Industry knowledge of the environmental risks to public health due to poor air quality has increased drastically in recent years. Cinema goers spend two to three hours continuously in cinema halls necessitating good indoor air quality for their comfort & wellbeing. Choosing the right building products in cinemas then, are of particular importance. Building products often emit Volatile Organic Compounds (VOC's) and exposure to such pollutants can cause sickness, allergies and respiratory illnesses to occupant's over time.

Gyproc's sustainable and environment friendly solutions are tested to international standards for VOC emission and have been certified to Clean Air Gold for indoor air quality. When coupled with our patented Activ'Air technology, Gyproc plasterboards help remove 70% of formaldehyde in buildings for a better and safe indoor air environment and enhanced cinema experience.

ACTIV air

How can we prevent **MOLD GROWTH** in cinemas?

Across the Middle East we deal with hot and humid environmental conditions. Humid air will condensate onto cold surfaces leaving unwanted moisture which if left untreated can turn into mold. Other areas, particularly back of house, kitchens, washrooms, and especially around AC vents are also prone to mold growth particularly in hard to reach areas or where cleaning is difficult.

With our M2TECH technology, Gyproc plasterboards can be formulated to include a water resistant core for superior moisture protection with an anti-microbial technology to resist the development of a range of mold and fungus, helping minimise health risks to building occupants.

Gyproc Moisture and Mold Resistant Boards are tested and achieved the highest rating for mold and fungal resistance with a score of 10 when tested to ASTM D3273 giving designers solutions to combat problem areas and safeguard against mold growth.

M2TECH MOISTURE & MOLD RESISTANT

Sustainability is becoming an increasingly important issue in all buildings. It is therefore important to consider reducing the carbon emissions during the manufacturing process of building materials as well as ensuring the final products and systems conform to sustainability standards and green building regulations.

As part of our initiative towards sustainability Gyproc plasterboards have been verified through Environmental Product Declaration (EPD) allowing us to measure the contribution of products to the overall environmental footprint of the building. This helps provide cinema designers with concise and transparent information on the impact of the products being used.

Gyproc plasterboards along with associated metal framing components form the basis of our high performance partition, lining and ceiling systems, and are considered as non-hazardous and are inherently recyclable. In addition to this, our manufacturing plants across the group, including the UAE, have dedicated recycling facilities to recycle plasterboard waste collected from construction sites including waste produced in our own manufacturing process and turn it into a new product.

Always promoting initiatives to help the construction industry reduce its impact on the environment.

Think about the **ENVIRONMENT**

EPD VERIFIED

GYPROC RECYCLING

Tadweer APPROVED

ENERGY Efficiency

Maintaining an optimum temperature and a good internal climate is an essential element in any occupied building. The right selection of products and systems can help save energy allowing cinema operators to benefit from lowered heating and cooling costs.

Gyproc solutions for example have a low thermal conductivity, particularly when our mineral wool insulation is included within partitions, linings and ceilings.

Gyproc innovative solutions are also lightweight in nature meaning easy logistics and transportation to and around site compared to other building products, meaning less electricity and fuel consumption during the entire project duration.

"We are committed to managing our impact on the environment and reducing waste-to-landfill. We have partnered with Gyproc and the Centre for Waste Management (CWM) – Abu Dhabi to recycle plasterboard through the only approved plasterboard recycling initiative in the Middle East. We are now looking at recycling plasterboard waste from all our project sites in the UAE."

Hari Kishan Meka
Regional Sustainability Manager
LEED® GA, Estidama PQP

AL FUTTAIM CARILLION LLC

Gyproc
CINEMA SOLUTIONS

CINEMA DESIGN - THE BIG PICTURE

Cinema has long been and remains today a favourite source of entertainment for communities around the world. The MENA region is currently experiencing a surge in consumer demand encouraging new Cinema developments and extension and refurbishment of existing facilities. With this higher demand comes higher customer expectations. It is no longer just about watching a movie but about creating engaging experiences right from the entrance door to the auditorium seat. From VIP lounges, specialist kids auditoria or outdoor cinemas to new viewing technology like 3D and 4D experiences, cinemas are now becoming a destination rather than just a movie theatre.

For cinema developments to be competitive today they require not only engaging and memorable customer experiences but also to provide facilities that are cost-efficient to build and operate for owners and tenants. Early stakeholder engagement is required to understand the needs of the client, specific base-build and warm shell requirements where relevant and understanding of project team structure, given the common trait of multi-national design teams for cinema developments, especially in the MENA region.

Following on from this is the importance of high quality audio/visual systems to deliver faithful representations of program material originally intended by the movie producers. Acoustics is a key consideration in making this happen, whilst structural challenges with the load on the systems when retrofitting as well as how to value engineer throughout project delivery. The use of drywall is key to achieving minimal dead loads which allow the building structure greater flexibility to cope with higher than normal variable live loads imposed during operation. Finally, understanding the aspirations and guidelines of each cinema operator is also important whether local or international and we simply need to remember not all operators are the same.

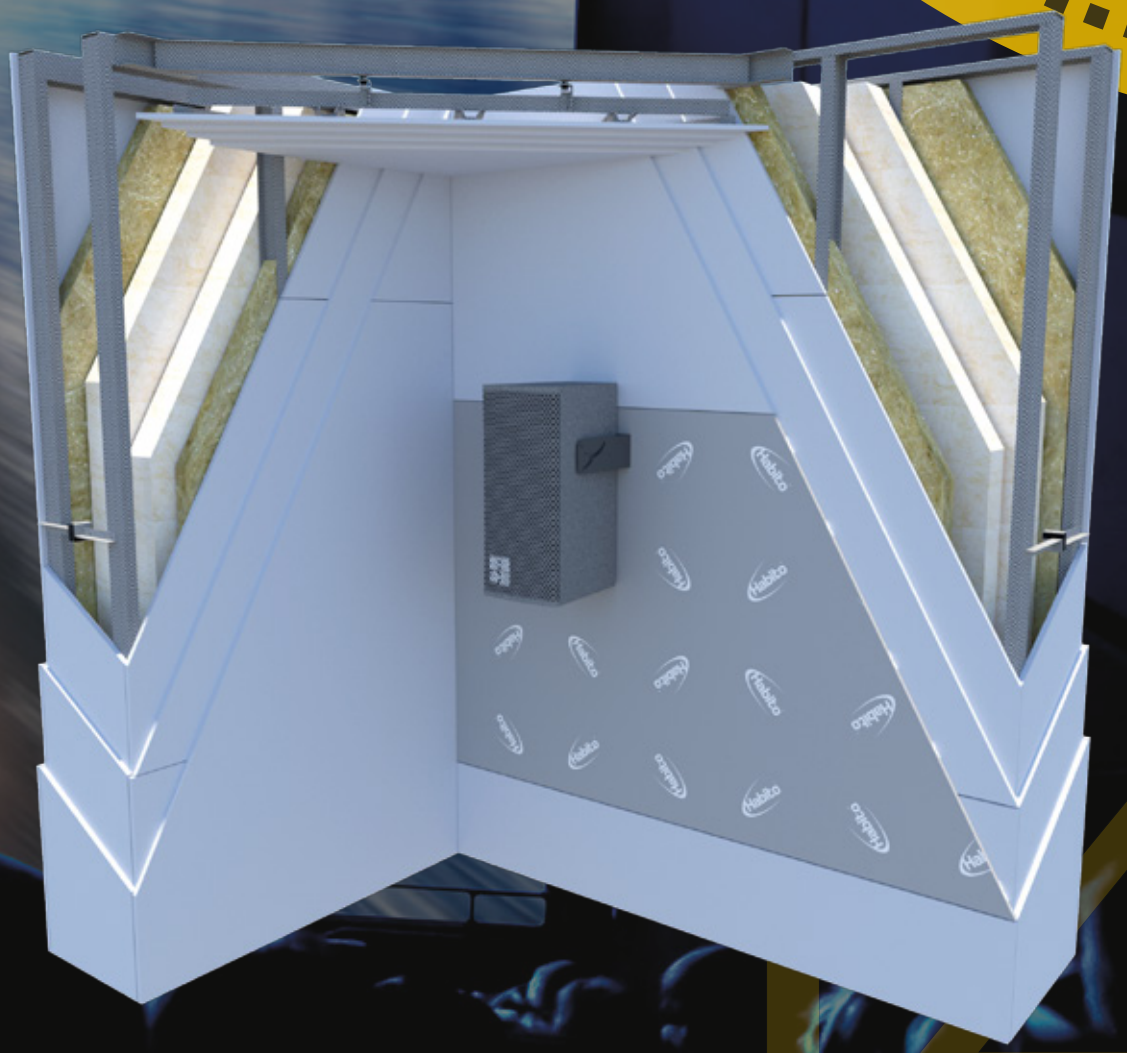
Jon Lee
Head of Acoustics (MENA)

CUNDALL JOHNSTON &
PARTNERS LLP

10 reasons why you should work with Gyproc

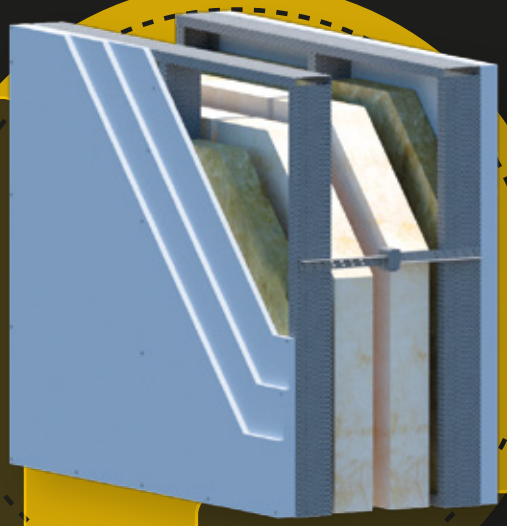
1. Global company with locally developed solutions
2. International technical resource and R&D teams
3. Our brand promises
   - Sustainable solutions from an ethical company
   - Our focus on health and well-being
   - Support you can rely on
   - Collaboration at every stage of your project
4. Engineered, tested & certified systems
5. Local availability – defined distributor network
6. Understanding & adding value to your project
7. Experienced design team – detailed problem solving
8. Complete solution provider
9. Lifetime warranty on our product & systems
10. Trusted partner

TESTED SYSTEMS UPTO
81dB



LOW FREQUENCY PERFORMANCE like no other

THE ULTIMATE CINEMA WALL



450 - 570mm
partition thickness

R_w 76 – 79dB
STC 76 – 81dB
Acoustic performance

Up to 180 mins
Fire performance

SEVERE
Duty rating

17500mm
*Maximum partition heights

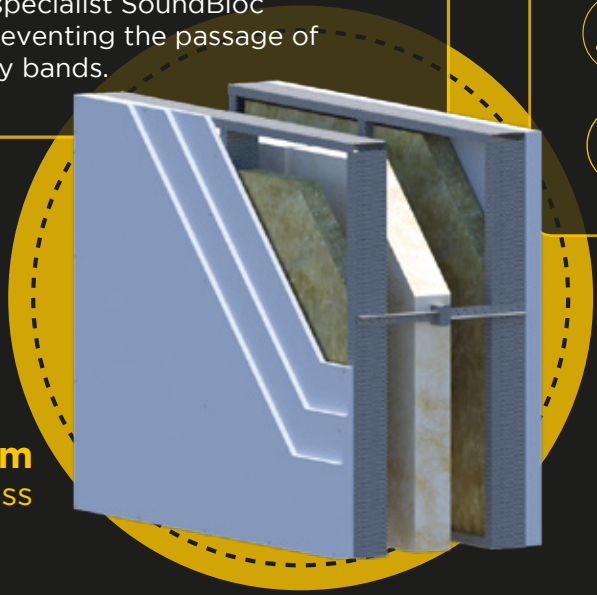
*Note: Greater heights can be achieved by increasing stud size and gauge, reducing stud centres and adapting the type and centres of cross bracing.

Kindly contact Gyproc Technical Team for guidance.

GYPWALL AUDIO

The ultimate non-loadbearing twin frame acoustic separating wall developed for multi-screen cinemas and other multi-use facilities where very high levels of sound insulation are required between adjacent auditoria or activity spaces.

The ongoing growth of Dolby®, 4DX® and other extreme sound systems in today's cinemas puts extra demands on sound performance - particularly at lower frequencies. The twin-frame design of our GypWall AUDIO system coupled with our specialist SoundBloc plasterboard is particularly effective in preventing the passage of sound, especially in these lower frequency bands.



300 - 450mm
partition thickness

R_w 65 - 76dB
STC 66 - 76dB
Acoustic performance

Up to 180 mins
Fire performance

SEVERE
Duty rating

17500mm
*Maximum partition heights

*Note: Greater heights can be achieved by increasing stud size and gauge, reducing stud centres and adapting the type and centres of cross bracing.

Kindly contact Gyproc Technical Team for guidance.

GYPWALL QUIET

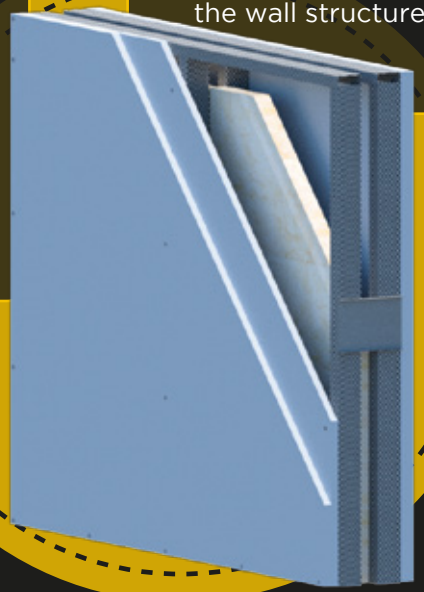
Twin frame high performance separating wall for use where improved acoustics are required. Ideal for use where greater heights are needed or where large services or columns need to be accommodated within the wall structure.

R_w 51 - 61dB
STC 51 - 63dB
Acoustic performance

90 – 120 mins
Fire performance

SEVERE
Duty rating

9400mm
*Maximum partition heights



*Note:
Greater heights can be achieved by increasing stud size and gauge, reducing stud centres and adapting the type and centres of cross bracing.

Kindly contact Gyproc Technical Team for guidance.

GYPWALL QUIET SF

Single frame high acoustic partition with a narrow footprint. Used to maximise floor space in areas requiring a comfortable level of separation. Sound transmission is reduced through the use of Gypframe RB1 Resilient Bars which provide a high degree of isolation between the Gypframe ‘C’ Studs and the Gyproc plasterboard lining.

R_w 59 - 64dB
STC 60 - 66dB
Acoustic performance

90 – 120 mins
Fire performance

SEVERE
Duty rating

5100mm
Maximum partition heights

GYPWALL CLASSIC

Cost-effective general-purpose partition used with standard studs and plasterboard facing options to meet most performance requirements. Can be upgraded with our new Gypframe AcouStuds for enhanced acoustic performance.

Ideal for use in most public and back-of-house areas.

R_w 33 - 59db
STC 34 - 58dB
Acoustic performance

30 – 180 mins
Fire performance

MEDIUM - SEVERE
Duty rating

7900mm
*Maximum partition heights

*Note: Greater heights can be achieved by reducing stud centres, using boxed studs and/or substituting board type with Gyproc Habito plasterboard.

Kindly contact Gyproc Technical Team for guidance.

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GYPLYNER IWL

Fully independent wall lining system used to improve sound insulation and fire performance of an existing base wall. In addition, GypLyner IWL provides fire resistance to structural steel elements and it can easily accommodate services within the framework.

Up to 19dB
Acoustic improvement of existing base wall

30 – 120 mins
Fire performance

MEDIUM - SEVERE
Duty rating

7500mm
*Maximum partition heights

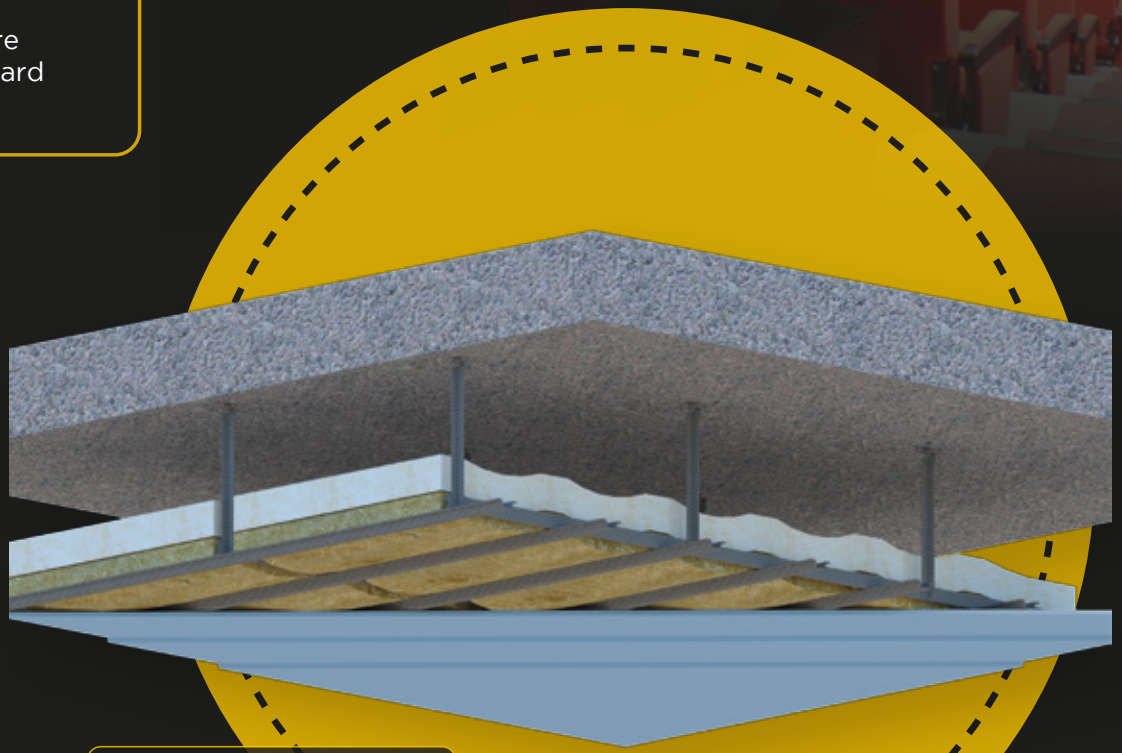
*Note: Greater heights can be achieved by reducing stud centres and/or using boxed studs..

Kindly contact Gyproc Technical Team for guidance.

Gyproc MF ceiling system - Mass Barrier Ceiling

Gyproc MF ceiling systems are used to conceal services and provide an aesthetic finish to the space. Standard systems improve the acoustic performance of the soffit and help provide room to room sound insulation. Mass barrier systems comprise multiple layers of Gyproc SoundBloc plasterboard with mineral wool insulation to provide the ultimate barrier against sound break in / out and to help minimise flanking in high performance buildings, perfect for auditoria.

Gyproc MF ceilings are also designed to provide up to two hours fire resistance dependent on the specification of the Gyproc plasterboard and mineral wool insulation.



Up to 120 mins
Fire performance

ECOPHON ACOUSTIC CEILINGS

Ecophon has developed and provided acoustic solutions for cinemas for many years, and has extensive competence in this field. Many cinemas around the world have chosen acoustic systems from Ecophon to be able to offer their visitors the best possible sound experience.

Photographer: Kfir Harbi

Akutex™ FT Dark Diamond, the premium painted surface!

Using the latest technology, Ecophon has created a black surface that perfectly avoids reflections. Akutex™ FT Dark Diamond perfectly matches the black colour of Connect grids, letting you create a cinema that offers the best acoustic and visual experience.

Dark surfaces can often be sensitive to scratches. However, Akutex™ Dark Diamond has a scratch resistant surface, meaning any scratch can easily be removed by wiping the surface with a micro fibre towel.

Why is the surface important?

An acoustic ceiling is often the largest continuous surface in a room. This means that it will affect not only the entire look and feel of the interior, but also the end-users' wellbeing. Ecophon has developed different types of surfaces and in different colours to suit most types of environments.

Learn more at **ecophon.com**

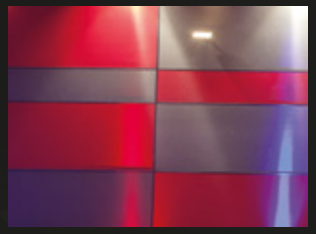
ECOPHON

Cinema Systems

Acoustic wall panels, ceilings and behind the screen

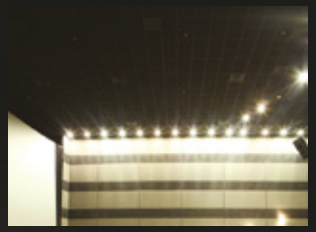
Optimised solution

Ecophon offer a wide range of sound absorbing-systems for different applications within the cinema:



Products for cinema walls

- Ecophon Akusto™ Wall A and Ecophon Akusto ™ Wall C available with a Texona surface and also with an Akutex™ FT surface with reflecting properties (gamma).

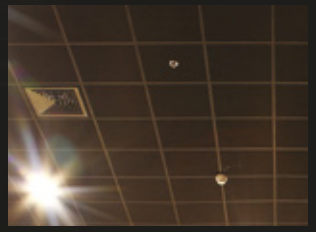


Products for cinema ceilings

- Ecophon Focus™ A Akutex™ Dark Diamond. The Connect grid system is exposed but both panels and grids are offered in painted black to avoid reflections
- Ecophon Focus™ Ds Akutex™ Dark Diamond. The Connect grid system is concealed and the panels are offered in painted black to avoid reflections
- Ecophon Extra Bass is a special low-frequency absorber that can be installed above both Focus A and Focus Ds

Product for cinema screen

- Ecophon Modus™ is a black, 50 mm thick absorber used on the wall behind the screen to avoid disturbing reflections



Connect™ grid systems and wall trims

- Connect high-quality grid systems and accessories are designed to make installations easy, fast and reliable, as well as aesthetically pleasing. The black matt low gloss painted surface eliminates light reflections
- Connect wall trims (WP profiles) are offered in white, black and naturally anodized

ECOPHON PROJECT GALLERY

SYSTEM WARRANTY

SpecSure®

SpecSure is a unique 'off the shelf' warranty to end users that confirms Gyproc proprietary systems will perform to the parameters published in our current literature from the day they are installed SpecSure - a warranty for the future performance of your system.

To qualify for SpecSure:

- ☐ Specify and install Gyproc systems in line with the recommendations in the current WHITE BOOK - Middle East Edition.
- ☐ The systems must comprise only genuine branded Gyproc components (Gyproc, Gypframe, Aquaroc and Glasroc).
- ☐ We cannot guarantee that the use of other manufacturers' components will meet our rigorous performance and quality standards when installed in our tested systems.

For further information on SpecSure system warranty, contact our Gyproc Technical Team on +971 800 GYPROC (497762) or email gyproc-me@saint-gobain.com

TRAINING & TECHNICAL SUPPORT

Backed by the knowledge and expertise of the world's leading manufacturer and innovator of lightweight wall and ceiling systems, Gyproc provides unrivalled support throughout the design and construction phases of the project – and beyond.

From help with system selection and detailing, production of drawings and technical advice, Gyproc will be there to support you and your staff through every stage.

And once the job gets to site, our specialist training team can quickly get your installers up to speed on individual systems and best practice, as well as key issues like safe handling and waste minimisation.

SAINT-GOBAIN

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