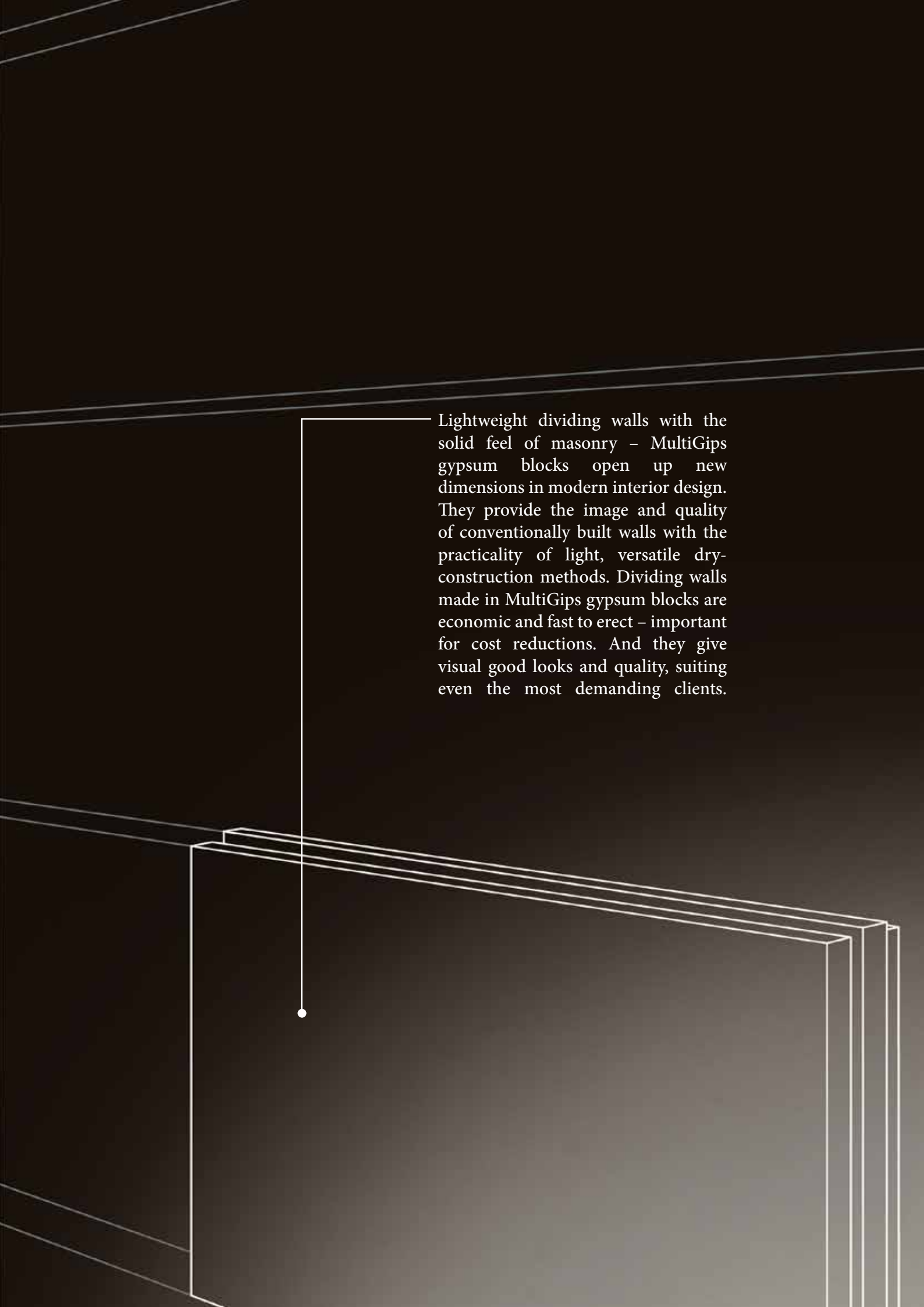
MultiGips

Gypsum Blocks

Solid drywalls for domestic construction



Lightweight dividing walls with the solid feel of masonry – MultiGips gypsum blocks open up new dimensions in modern interior design. They provide the image and quality of conventionally built walls with the practicality of light, versatile dry-construction methods. Dividing walls made in MultiGips gypsum blocks are economic and fast to erect – important for cost reductions. And they give visual good looks and quality, suiting even the most demanding clients.











The Gypsum Block Wall From Germany

Solid gypsum blocks are straightforward: Because of the many benefits that they provide as a system in the construction of internal walls, we are passionate about solid gypsum blocks for free standing walls. Of course, experts downplay this passion and just call it solid drywall: Solid because of the 100 per cent mineral gypsum blocks, which are up to 100 mm thick and solid all the way through. No studding required. Dry, because gypsum bonding compounds are all you need to bind them together and the surface is ready in no time at all. In summary, it's dry because no additional interior plaster is required other than a skim coat of 1.5 mm to obliterate the block joints.

Solid gypsum blocks EN 12859
For single- and double-leaf non-load-bearing partition walls
For creating spaces, sound insulation and fire protection
Highly efficient construction of shaft walls

As hybrid walls, solid gypsum blocks are a combination of the best parts of robust solid construction and lightweight drywall. From this perspective, it's the most economic form of modern room construction. Taking a closer look, the effective sound insulation and relatively lightweight wall structures are particularly welcome in domestic construction. This means that you don't always have to have heavy masonry. At the same time, the fundamentally solid quality of gypsum blocks adds value to properties and shows them in a better light. It may be just a wall, but you will want to take a second look.

Contents

The Company

Exclusive Distributor - Kwan Tai

Kwan Tai Engineering Co., Ltd (Member of Twintek Group) is the sole and exclusive distributor of MultiGips Gypsum Block in the territory of Hong Kong, Macau, Singapore and Malaysia. Our team of experienced engineers and technical are fully dedicated in providing both supply and installation services of MultiGips gypsum block.

MultiGips Gypsum Block is highly recognised amongst developers, contractors, architects in the Hong Kong construction market. We ranked first in the gypsum block supply industry in Hong Kong in 2016 with an approximately 76.3% market share (Ipsos Industry Report 2017).

About Kwan Tai

Established in 1988, Kwan Tai Engineering Co., Ltd has grown to become a leading building material supplier and contractor in the Hong Kong Construction industry. Kwan Tai has successfully listed on the main board of Hong Kong Exchanges and Clearing Limited in January 2018 (HKG: 6182).

Over the past thirty years, Kwan Tai has strived to attain and maintain a cutting edge technology with wide recognition in the field. We render technical support to architects and designers throughout all stages of project development including production, installation and maintenance. Our project portfolio to date spans a wide ranging prestigious projects in the government, residential, commercial and institutional sectors.

We are committed to comply with the most stringent standards of safety, quality control and environmental protection. Our management system has been certified to accord with the standard of ISO9001:2015 (quality management).

The Manufacturer

Values

The VG-ORTH GmbH & Co. KG is the only manufacturer of gypsum-based products in Germany whose brand focus exclusively on the extraction of gypsum, the production of gypsum-based building materials and the refinement of special gypsum for industrial applications.

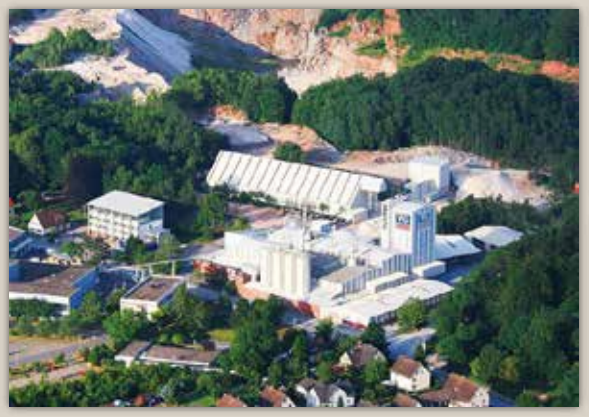
VG-ORTH offers numerous system solutions for modern interior fittings. For national and international markets, the MultiGips brand develops, produces and sells quality-constant gypsum dry mortars for high-quality interior plasters and solid gypsum blocks for non-load-bearing interior partition walls as well as system-coordinated components for both applications. MultiGips building materials and systems stand for easy to apply, economically favourable and measured by the longevity of their mineral basis-sustainable solutions for room design, fire protection and sound insulation.

VG-ORTH combines experience, values and know-how from over 160 years of industrial plaster production. The outstanding technical expertise in the manufacture of gypsum and gypsum products has been maintained and developed since the foundation and construction of extraction and production facilities in Stadtoldendorf in 1856, and continues purposefully into the future over historically difficult terrain.

Year	Milestone
1860	First Gypsum Mill in Stadtoldendorf
1922	First Gypsum Plant of Orth
1928	First Gypsum Plant of VG Vereinigte Gipswerke
2004	Merger of VG and Orth

Production Plants

Plant Location	Products	Headcount
Stadtoldendorf	Plaster, Gypsum Blocks, Raw Stone	142 employees
Hundelshausen	Plaster, Gypsum Blocks, Casonic DIY	64 employees
Schwäbisch Hall	Gypsum Blocks, Plaster of Paris	45 employees
Schwarze Pumpe	Gypsum Blocks	9 employees
Jawornzo	Gypsum Blocks	39 employees





The Material

Sources of Raw Material

Natural gypsum

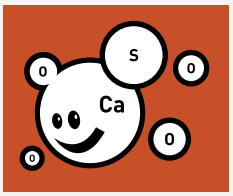
- Natural gypsum is a sedimentary mineral. It is found in stone layers that were formed under salt water millions of years ago.
- Gypsum is produced from open-cast mines that give extraction rates of up to 75%.
- VG-ORTH's sources of natural gypsum are saved at least 30 years.
- MultiGips uses FGD gypsum whenever possible, in order to save natural gypsum resources and to increase the quality.

FGD gypsum

- The main synthetic substitute to natural gypsum is FGD gypsum (Flue Gas Desulphurisation gypsum; in German: REA gypsum). It is generated by coal-fired power plants.
- FGD gypsum is the end product of a wet purification procedure with natural lime that is generated according to the same laws as natural gypsum – but in a speeded-up process taking only a few hours.
- FGD gypsum has a very high purity rate. It has a different origin but identical results compared to natural gypsum.

Naturally Healthy Material - Gypsum

The main component of gypsum products is the mineral binder gypsum, also known as calcium sulphate (CaSO4)



MultiGips Gypsum products are also low in environmental impacts, interior emissions and radioactivity. All values are approved by external laboratories in accordance with ISO 14025 and EN 15804. The results are written down in Environmental System & Product Declarations. These documents can be downloaded in English from the website www.multigips.de/en/

Free from Radioactive Material - Phosphogypsum

Phosphogypsum refers to the gypsum formed as a by-product of processing phosphate ore into fertilizer with sulfuric acid. It is radioactive due to the presence of naturally occurring uranium and radium in the phosphate ore. This by-product is mostly disposed of without any treatment and cause serious environmental damage. Phosphogypsum is mainly composed of gypsum but also contains a high level of impurities such as phosphates, fluorides and sulphates, naturally occurring radionuclides, heavy metals, and other trace elements.

Up to 15% of world Phosphogypsum production is used to make building materials as in the manufacture of Portland cement; uses that have been banned in most countries. The presence of radioactive elements in freshly cast concrete where Portland cement being an ingredient has been of growing concern to health hazards in the last 2 decades.

While Hong Kong as yet to establish legislature controlling or banning its use, the USEPA (United States Environmental Protection Agency) has already classified Phosphogypsum as a "Technologically Enhanced Naturally Occurring Radioactive Material" (TENORM).

To eliminate the presence of hazardous elements in gypsum block product, the process could only be facilitated through scrupulous screening of raw material sources at the outset.

That is the reason why MultiGips has limited its selection of pure natural raw material from a handful of carefully selected ore in Europe. Endeavour has been made to set up production plants near the Hong Kong and PRC vicinity but an acceptable raw material source that could satisfy this environmental concern has yet to be identified.

MultiGips Gypsum products are Non-TENORM, safeguarding the health and safety of the environment and user.

See our Super high density R48 gypsum block, specially formulated models for radiation protection.

The Production

VG-ORTH Fast & Computerised Production Process

1. Filling of fluid gypsum into moulds

2. Handling of blocks by cranes out of casts after pressing for controlled curing in drying chambers at constant temperature under fully controlled environment (no manual handling by labour)

3. Automated packaging after drying process under full environmental controlled conditions (3 days)

Fluid gypsum

Extrusion

Packaging

Curing

From factory to site

On site

The Product

Standard Block

740/850/1000 (kg/m3)
Medium Density

1100/1200 (kg/m3)
High Density

1400 (kg/m3)
Super High Density

Special Performance Block

Radiation Protection
40% baryte

Water Repellent
Hydro Version

MultiGips Gypsum Block Products - Product Classification

MultiGips Block Products are specified under the following fields: Class/ Density/ Thickness/ Special Performance

Class /	Density (kg/m3) /	Thickness (mm) /	Special Performance
Medium High Super High	740 850 1000 1100 1200 1400	60 70 80 100	Radiation protection blocks with 40% baryte Water Repellent Hydro Version

Physical Properties Data

	70mm Medium Density (L70)	70mm Medium Density Hydro (LH70)
Performance feature	Building Material	Building Material
European standard	EN 12859	EN 12859
Building element thickness	70	70
Length x Height (mm)	640 x 500	640 x 500
Block requirement (blocks/m^2)	3	3
Color	Natural white	Bluish
Density class	Medium density	Medium density
Density (kg/m^3)	740	740
Unit Weight (kg) - dry	17	17
Weight per unit area without adhesive (kg/m^2) of building element, incl. its components	52	52
Strength class	Type A	Type A
Bending strength (kN), minimum average breaking load	approx. 1.8	approx. 1.8
Moisture content (% by weight) at time of delivery	⩽ 8	⩽ 8
pH level	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
Water absorption class	H3 class	H2 class
Water absorption rate	No requirement	⩽ 5%
Reaction to fire EN13501-1, Euro class	A1, no contribution to fire	A1, no contribution to fire
Areal thermal resistance R	R 0.29 m2.K/W	R 0.29 m2.K/W
Thermal conductivity (W/mK)	0.24 (W/mK)	0.24 (W/mK)
Water vapour diffusion resistance (μ)	5 - 10	5 - 10

80mm Medium Density (80)	80mm Medium Density Hydro (HY80)	80mm Medium Density 1.0 (M80 1.0)
Building Material	Building Material	Building Material
EN 12859	EN 12859	EN 12859
80	80	80
666 x 500	666 x 500	666 x 500
3	3	3
Natural white	Bluish	Natural white
Medium density	Medium density	Medium density
850	850	1000
24	24	27
70	70	80
Type A	Type A	Type A
approx. 2.7	approx. 2.7	approx. 2.7
⩽ 8	⩽ 8	⩽ 8
6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
H3 class	H2 class	H3 class
No requirement	⩽ 5%	No requirement
120mins, A1, no contribution to fire	120mins, A1, no contribution to fire	A1, no contribution to fire
R 0.29 m2.K/W	R 0.29 m2.K/W	R 0.24 m2.K/W
0.28 (W/mK)	0.28 (W/mK)	0.34 (W/mK)
5 - 10	5 - 10	5 - 10

Physical Properties Data

	80mm Medium Density 1.0 Hydro (MH80 1.0)	100mm Medium Density (100)
Performance feature	Building Material	Building Material
European standard	EN 12859	EN 12859
Building element thickness	80	100
Length x Height (mm)	666 x 500	666 x 500
Block requirement (blocks/m^2)	3	3
Color	Bluish	Natural white
Density class	Medium density	Medium density
Density (kg/m^3)	1000	850
Unit Weight (kg) - dry	27	30
Weight per unit area without adhesive (kg/m^2) of building element, incl. its components	80	87
Strength class	Type A	Type A
Bending strength (kN), minimum average breaking load	approx. 2.7	approx. 4.0
Moisture content (% by weight) at time of delivery	⩽ 8	⩽ 8
pH level	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
Water absorption class	H2 class	H3 class
Water absorption rate	⩽ 5%	No requirement
Reaction to fire EN13501-1, Euro class	A1, no contribution to fire	240mins, A1, no contribution to fire
Areal thermal resistance R	R 0.24 m2.K/W	R 0.35 m2.K/W
Thermal conductivity (W/mK)	0.34 (W/mK)	0.28 (W/mK)
Water vapour diffusion resistance (μ)	5 - 10	5 - 10

100mm Medium Density Hydro (HY100)	100mm Medium Density 1.0 (M100 1.0)	100mm Medium Density 1.0 Hydro (MH100 1.0)
Building Material	Building Material	Building Material
EN 12859	EN 12859	EN 12859
100	100	100
666 x 500	666 x 500	666 x 500
3	3	3
Bluish	Natural white	Bluish
Medium density	Medium density	Medium density
850	1000	1000
30	33.3	33.3
87	100	100
Type A	Type R	Type R
approx. 4.0	approx. 8.0	approx. 8.0
⩽ 8	⩽ 8	⩽ 8
6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
H2 class	H3 class	H2 class
⩽ 5%	No requirement	⩽ 5%
240mins, A1, no contribution to fire	240mins, A1, no contribution to fire	240mins, A1, no contribution to fire
R 0.35 m2.K/W	R 0.29 m2.K/W	R 0.29 m2.K/W
0.28 (W/mK)	0.34 (W/mK)	0.34 (W/mK)
5 - 10	5 - 10	5 - 10

Physical Properties Data

	70mm High Density (Z70)	70mm High Density Hydro (ZH70)
Performance feature	Building Material	Building Material
European standard	EN 12859	EN 12859
Building element thickness	70	70
Length x Height (mm)	450 x 500	450 x 500
Block requirement (blocks/m^2)	4	4
Color	Reddish	Bluish
Density class	High density	High density
Density (kg/m^3)	1100	1100
Unit Weight (kg) - dry	17	17
Weight per unit area without adhesive (kg/m^2) of building element, incl. its components	77	77
Strength class	Type R	Type R
Bending strength (kN), minimum average breaking load	approx. 9.0	approx. 9.0
Moisture content (% by weight) at time of delivery	⩽ 8	⩽ 8
pH level	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
Water absorption class	H3 class	H2 class
Water absorption rate	No requirement	⩽ 5%
Reaction to fire EN13501-1, Euro class	120mins, A1, no contribution to fire	A1, no contribution to fire
Areal thermal resistance R	R 0.17 m2.K/W	R 0.17 m2.K/W
Thermal conductivity (W/mK)	0.43 (W/mK)	0.43 (W/mK)
Water vapour diffusion resistance (μ)	5 - 10	5 - 10

60mm High Density (S60)	60mm High Density Hydro (SHY60)	80mm High Density (S80)
Building Material	Building Material	Building Material
EN 12859	EN 12859	EN 12859
60	60	80
666 x 500	666 x 500	500 x 500
3	3	4
Reddish	Bluish	Reddish
High density	High density	High density
1200	1200	1200
24	24	24
74	74	74
Type R	Type R	Type R
approx. 2.2	approx. 2.2	approx. 3.0
⩽ 8	⩽ 8	⩽ 8
6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
H3 class	H2 class	H3 class
No requirement	⩽ 5%	No requirement
120mins, A1, no contribution to fire	120mins, A1, no contribution to fire	120mins, A1, no contribution to fire
R 0.14 m2.K/W	R 0.14 m2.K/W	R 0.14 m2.K/W
0.43 (W/mK)	0.43 (W/mK)	0.43 (W/mK)
5 - 10	5 - 10	5 - 10

Physical Properties Data

	80mm High Density Hydro (SHY80)	100mm High Density (S100)
Performance feature	Building Material	Building Material
European standard	EN 12859	EN 12859
Building element thickness	80	100
Length x Height (mm)	500 x 500	500 x 500
Block requirement (blocks/m^2)	4	4
Color	Bluish	Reddish
Density class	High density	High density
Density (kg/m^3)	1200	1200
Unit Weight (kg) - dry	24	31.25
Weight per unit area without adhesive (kg/m^2) of building element, incl. its components	74	120
Strength class	Type R	Type R
Bending strength (kN), minimum average breaking load	approx. 3.0	approx. 7.0
Moisture content (% by weight) at time of delivery	⩽ 8	⩽ 8
pH level	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
Water absorption class	H2 class	H3 class
Water absorption rate	⩽ 5%	No requirement
Reaction to fire EN13501-1, Euro class	120mins, A1, no contribution to fire	240mins, A1, no contribution to fire
Areal thermal resistance R	R 0.14 m2.K/W	R 0.19 m2.K/W
Thermal conductivity (W/mK)	0.43 (W/mK)	0.43 (W/mK)
Water vapour diffusion resistance (μ)	5 - 10	5 - 10

Commonly used in Hong Kong (In shade)

100mm High Density Hydro (SHY100)	80mm Super High Density (D80 Rmax)	80mm Super High Density Hydro (DH80 Rmax)
Building Material	Building Material	Building Material
EN 12859	EN 12859	EN 12859
100	80	80
500 x 500	500 x 500	500 x 500
4	4	4
Bluish	Reddish	Bluish
High density	Super High density	Super High density
1200	1400	1400
31.25	28	28
120	112	112
Type R	Type R	Type R
approx. 7.0	approx. 4.3	approx. 4.3
⩽ 8	⩽ 8	⩽ 8
6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
H2 class	H3 class	H1 class
⩽ 5%	No requirement	⩽ 2.5%
240mins, A1, no contribution to fire	A1, no contribution to fire	A1, no contribution to fire
R 0.19 m2.K/W	R 0.16 m2.K/W	R 0.16 m2.K/W
0.43 (W/mK)	0.51 (W/mK)	0.51 (W/mK)
5 - 10	5 - 10	5 - 10

Physical Properties Data

	100mm Super High Density (100 R50)	100mm Super High Density Hydro (100 RH50)
Performance feature	Building Material	Building Material
European standard	EN 12859	EN 12859
Building element thickness	100	100
Length x Height (mm)	400 x 500	400 x 500
Block requirement (blocks/m^2)	5	5
Color	Reddish	Bluish
Density class	Super high density	Super high density
Density (kg/m^3)	1400	1400
Unit Weight (kg) - dry	28	28
Weight per unit area without adhesive (kg/m^2) of building element, incl. its components	142	142
Strength class	Type R	Type R
Bending strength (kN), minimum average breaking load	approx. 9.4	approx. 9.4
Moisture content (% by weight) at time of delivery	⩽ 8	⩽ 8
pH level	6.5 ⩽ 10.5 ⩽	6.5 ⩽ 10.5 ⩽
Water absorption class	H3 class	H2 class
Water absorption rate	No requirement	⩽ 5%
Reaction to fire EN13501-1, Euro class	240mins, A1, no contribution to fire	240mins, A1, no contribution to fire
Areal thermal resistance R	R 0.2 m2.K/W	R 0.2 m2.K/W
Thermal conductivity (W/mK)	0.51 (W/mK)	0.51 (W/mK)
Water vapour diffusion resistance (μ)	5 - 10	5 - 10

Commonly used in Hong Kong (In shade)

100mm Super High Density R48 Radiation (100 R48)
Building Material
EN 12859
100
400 x 500
5
Greyish
Radiation protection / Super high density
1400
28
142
Type R
approx. 21.5
⩽ 8
6.5 ⩽ 10.5 ⩽
H3 class
No requirement
120mins, A1, no contribution to fire
R 0.19 m2.K/W
0.51 (W/mK)
5 - 10

Comparison of Performance between MultiGips Gypsum Block Wall and Traditional Concrete Block Wall

Item	Gypsum Block	Concrete Block	Advantages of Gypsum Block
Thickness	80mm / 100mm	100mm + 15mm cement sand plastering of each side = 130mm thick	Save 30mm - 50mm wall thickness comparatively low per unit area
Sound Insulation	STC 41 & STC45	STC16 - STC18	Much better acoustic insulation
Fire Resistance	2 - 4 Hours	1 Hour	Better FRP
Compressive strength	7 -14 Mpa	5 - 7 Mpa	Better strength
Thermal conductivity	0.43W/mK	1.3W/mK	2 - 3 times better insulation than normal block work
Density	1,200kg/m ^{3}	2,200kg/m ^{3}	Much lighter for floor loading, easier to handle
Construction Time	3 Days Cycle - 20m^2/man day without plastering	9 Days Cycle - Steel frame+pipe & services installation+block work+plastering both sides	3 times faster
Surface Treatment	Norminal 1.5mm skim coat to smoothen out joints	Generally 15mm plastering is required	Saving on time & cost of plastering and better workmanship control
Alignment Tolerance	0.5mm afforded by tongne & groove joints	3mm - 5mm difference on plastering	Better alignment of wall for good workmanship control
Defects & Maintenance cost	No cement sand rendering required, and hence no risk of de-bonding	Risk of de-bonding of the cement sand rendering accused by poor workmanship	Saving on defects remedial cost
Maximum Height Without Steel Frame	7m Height	Up to 3m - 4m Height	Saving on time & cost through eliminating
Flexibility to changes	Easy to cut for retrofit source conduits after wall installation	Messy chipping & wet trade works involved. Pipes and services need to be installed before wall erection.	Saving on time & cost involved with fitting out change the need for steel reinforcement
Wastages / Debris	1% - 2% (cut blocks can be used)	3% - 5%	Less construction wastages
Transportation of Material	Minimal plastering material required	Steel frame & cement sand required	Reduce carbon footprint
Environmental Friendly	Known as clean, fast & neat construction / BEAM Plus credits can be awarded	Relatively messy construction	Classified as Green Product
Compliance to Environmental Product Declaration	Fully Complied with ISO 14025	Not Complied	Green Product
Sustainability in Building Construction	Fully complied with CEN/TC 59 SC17	Not complied	Sustainability in building construction
Healthy Construction	Yes	No	Will not create dusty environment during installation

Cost Comparison Between Concrete Block & MultiGips Gypsum Block for wall height up to 7m

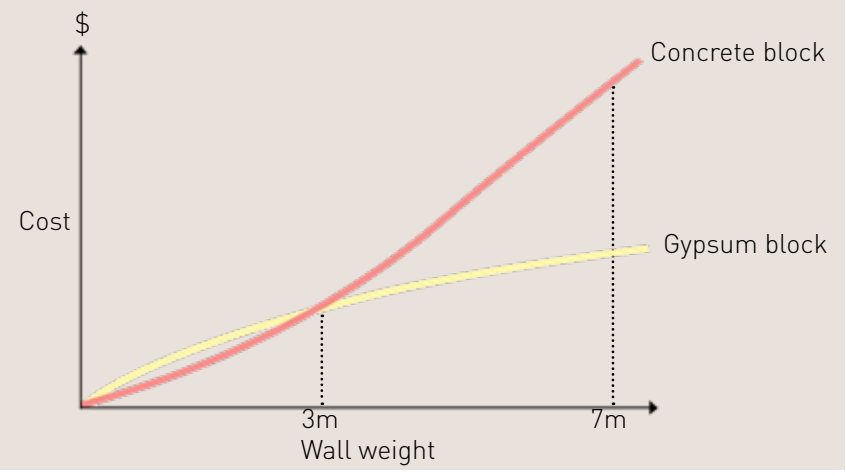
Indexed against Feb 2016

Description	100mm Thick Traditional Block Wall + 15mm Rendering/Plastering on each side	100mm Thick MultiGips Gypsum Block
Cost of Block	Rate per m^2 HKD 186	Rate per m^2 HKD 398
Cost of mortar	15	25
Labor for Erection	350	450
Conduit Formation & Patch Up	90	
Metal Lathing & Sundries Metal	30	0
Steel Frame, if exceed 3m height, assume 7m	350	0
12mm Rendering (both side)	240	0
3mm Plastering (both side)	200	200
Floor Slab Cleaning	25	15
Construction time say 4.5m height x 10m width	9 Days	3 Days
Total Amount (HKD)	1486 / m^2	1088 /m^2

Cost Comparison Between Concrete Block & MultiGips Gypsum Block for wall height up to 3m

Indexed against Feb 2016

Description	100mm Thick Traditional Block Wall + 15mm Rendering/Plastering on each side	100mm Thick MultiGips Gypsum Block
Cost of Block	Rate per m^2 HKD 186	Rate per m^2 HKD 398
Cost of mortar	15	25
Labor for Erection	350	450
Conduit Formation & Patch Up	90	
Metal Lathing & Sundries Metal	30	0
NO Steel Frame required if wall is not exceeded 3m	0	0
12mm Rendering (both side)	240	0
3mm Plastering (both side)	200	200
Floor Slab Cleaning	25	15
Construction time say 4.5m height x 10m width	9 Days	3 Days
Total Amount (HKD)	1136 / m^2	1088 /m^2



The Features

Easy and fast

A single building material, few components, simple to construct. That reduces the number of possible errors onsite and speeds up the project.

Solid but light

A solid, quality construction for demanding clients, modern dry construction, low weight and even less moisture.

Elastically supported and quiet

Excellent acoustic insulation thanks to solid, homogenous components and acoustic separation at the elastic wall connection.

Non-combustible and safe

Proven fire-protection qualities. Passive – rated building materials class A1. Active – because the crystal water contained in the gypsum is a 'built-in' fire extinguisher. As highly efficient cladding for columns for fire protection.

Honest and practical

What you see is what you get – solid gypsum. It can be drilled at any point and ordinary dowels can be used for fixing.

Flexible and versatile

Free choice of floor plan, not limited by structural considerations. Versatile, as door openings can be inserted where required and walls repositioned at any time after construction.

Compatible and complete

Internal dividing walls of gypsum for every situation and every type of construction. Accessories and detail solutions for all connections, junctions and built-in units.

Water-resistant and surface-finished

Hydrophobic for lasting protection in kitchens and bathrooms. Ideal base for all subsequent cladding and coatings (e.g. tiles) – no additional primer coats needed.

Economical and successful

User-friendly, solid dividing wall system with positive building-physics properties for profit-oriented cost calculation.

Green and sustainable

Resistant to ageing, duration of use more than 50 years. Recyclable, no downcycling, extremely low emissions during production.

Radiation protection

Lead free, specially formulated for use in hospital and clinical health care projects.

Simply **Quick**

No matter whether it's at the same time as building the shell, or just before the building is completed, solid gypsum blocks are easy to integrate into any stage of the construction process. They work well with air conditioning, ventilation, heating and electrical systems. The gypsum is solid, but easy to work with, and is quick to adapt to any kind of basic or detailed assembly work. One thing that gypsum blocks have no time for is waiting for the right weather. Using hydrophobic blocks or hydro-footing means that you don't have to rely on the weather when building walls. This means that the internal fit out can be started before the building envelop is closed in, allowing the building programme to be shortened.

One of the flexibility of MultiGips Gypsum Block is it could be installed with or without RC Curb. In general MultiGips Hydro Gypsum Block could be used for the replacement of RC Curb. This was adopted for quite a number of projects in Hong Kong.

Not dependent on the weather and more protection against rising damp: Components made from solid gypsum blocks can also be built using the MultiGips HydroSockel as hydro-footing made of foamed glass. The footer elements also improve the thermal insulation at the base of the component and prevent thermal bridges at floor panels or ceilings through unheated rooms.


Gypsum wall on RC curb


Gypsum wall with hydrophobic blocks at the base

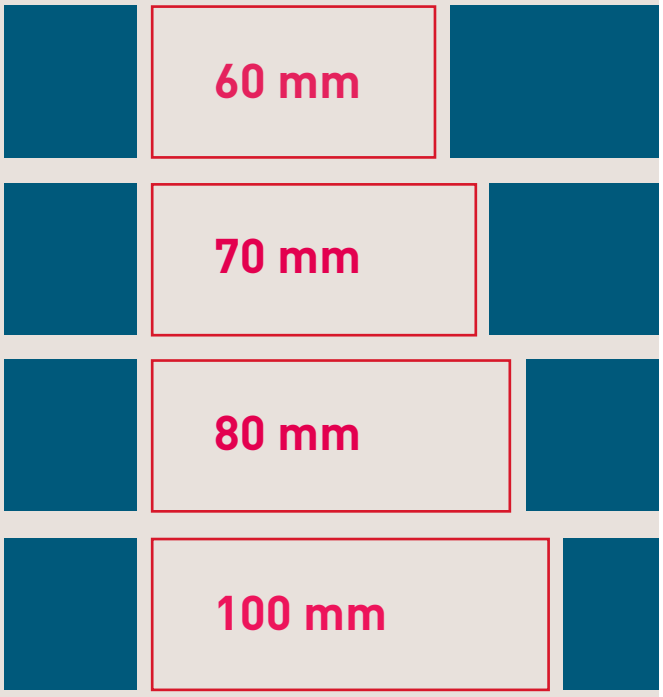

Gypsum wall on hydrofooting

Maximum space utilisation

Slim structures, more floor space, higher returns
Lightweight construction with simplified structural analysis
Outstanding performance in terms of sound insulation, fire protection and stability

Simply **Slim**

Solid doesn't have to mean corpulent. This is particularly true for solid gypsum blocks, which are particularly slim at 60, 70, 80 or 100 mm. An 80 mm partition wall usually is thinner than conventional masonry with plaster on both sides-enough space to have a significant impact on the value of floor space. This is rare case where a slim figure can lead to a fat wallet.



Simply **Quiet**

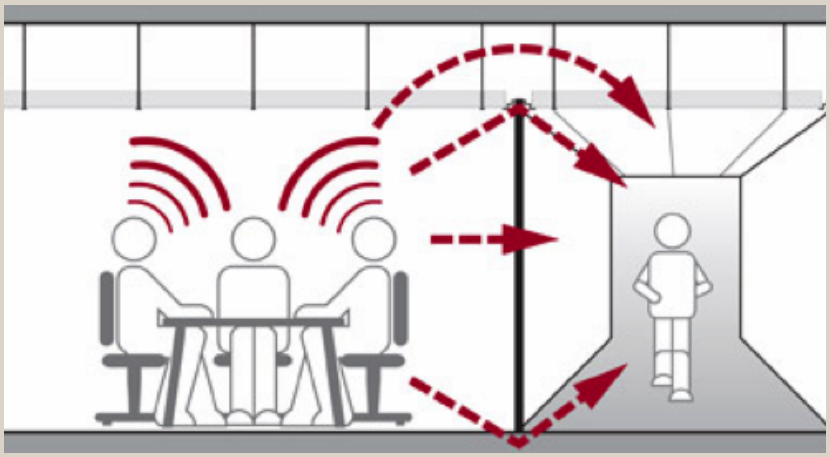
ISI
interlayer
sound
insulation

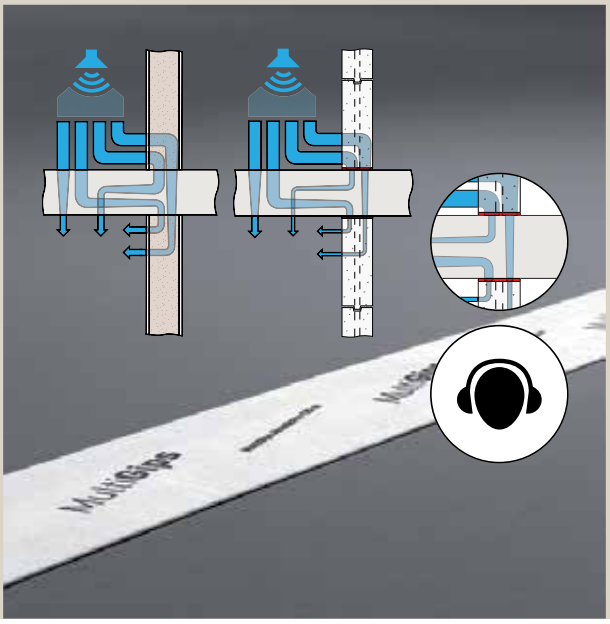
Future-proof sound insulation has to deal with challenging impact points now. For some time, gypsum block partition walls have countered this issue with ISI. The technical basis of Interlayer Sound Insulation (optional item) comprises elastic interlayers, which join with the blocks to form an acoustically effective unit with impact point optimised edge mounting, a decoupled partition wall and flanking and direct sound insulation. This means that ISI leads to hardly any impact on the insulation provided by ceilings and walls between apartments in multi-storey apartment buildings. This makes it easy for you to incorporate sound insulation into your house.

Modern sound insulation

- ► Elastic impact point optimised component joints
- ► Effective against direct airborne and structure-borne sound
- ► Also proven to be suitable as installation walls

Sound Insulation

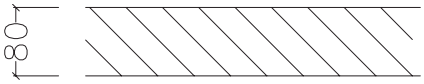
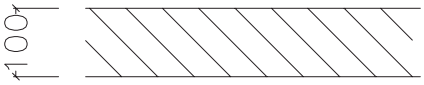
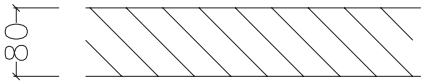
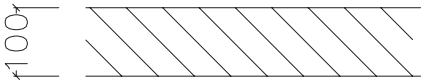
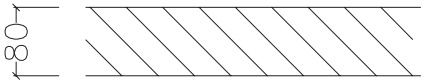
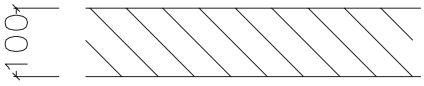
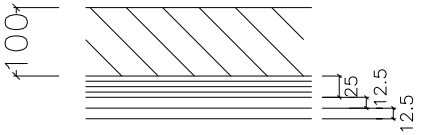
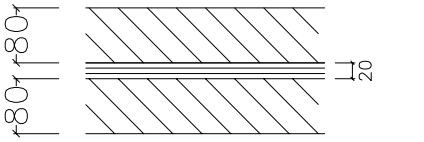
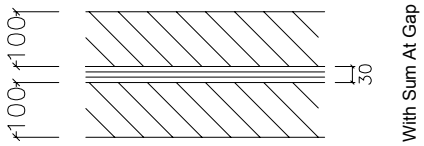




ISI – modern sound insulation

The sound insulation between two rooms depends on the installation situation of the components involved in transmitting the sound. Gypsum blocks only make a small contribution to the transmission of sound via side paths because they are effectively decoupled from adjacent components thanks to the elastic interlayer.

Acoustic Performance Summary

STC	Thickness (mm)	Type of Wall Section Drawings	Report no. Date Remarks	Type of Gypsum Block
38	80		AP110-021-CR001 27 May 2010 By Assessment in Hong Kong	Medium Density
41	100		AP110-021-CR001 27 May 2010 By Assessment in Hong Kong	Medium Density
41	80		APJ10-064-PR001 29 May 2012 Tested in Hong Kong	High Density
45	100		APJ10-075-PR001 11 Aug 2010 Tested in Hong Kong	High Density
44	80		PB2.3/20-257-1 24 Aug 2020 Tested in Germany	Super High Density
50	100		PB4.2/13-388-1 9 Dec 2014 Tested in Germany	Super High Density (used with special bitumen felt-MultiGips AkustikBit 1000, and joints filled with MultiGips FG700)
54	150		APJ13-098-RP002A 8 Nov 2013 Tested in Hong Kong	100 mm High Density Plus 26 mm Rockwool Plus 2 Layers of 12.50 mm Plasterboard
55	180		AP110-021-CR001 27 May 2010 By Assessment in Hong Kong	2 x 80 mm High Density Plus 20 mm Rockwool
63	230		APJ10-093-RP-001 23 Aug 2010 Tested in Hong Kong	2 x 100 mm High Density Plus 25 mm Rockwool Plus 5 mm Air Grap

STC: Sound Transmission Class

Simply **Strong and Stable**

- Precise interlocking design by Tongue and Groove provisions
- Full compliance with BS5234 - Part 2, withstand crowd pressure & effect of door slamming
- Capable of mounting heavy brackets for fittings and fixtures

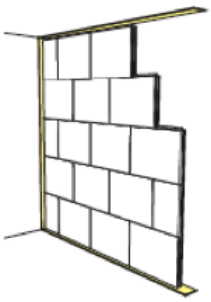
MultiGips is suitable for Heavy Duty use. (Supporting the fixing bracket of Pipe Duct and the mounting of pipe services.)

Wall Height up to 7m without need for Stiffening Protective Crowd Load (BS 6399 : Part 1 : 1996)

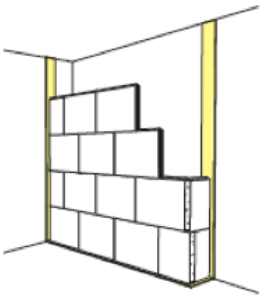
- 0.75 kN/m : Conditions without obstacles
- 1.5 kN/m : Conditions susceptible to overcrowd

Simply **Safe**

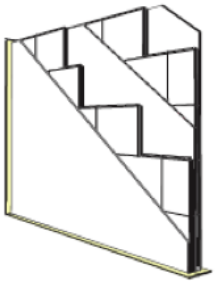
Effective fire protection with gypsum blocks is based on the following assumption: the more solid the wall, the less risk there is for components, lines and installations. It is also true that gypsum blocks are perfectly suited for shaft walls – no need for special designs and lengthy work to access the difficult to reach interiors.



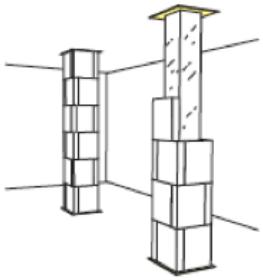
For partition walls with fire protection requirements up to EI 180-A



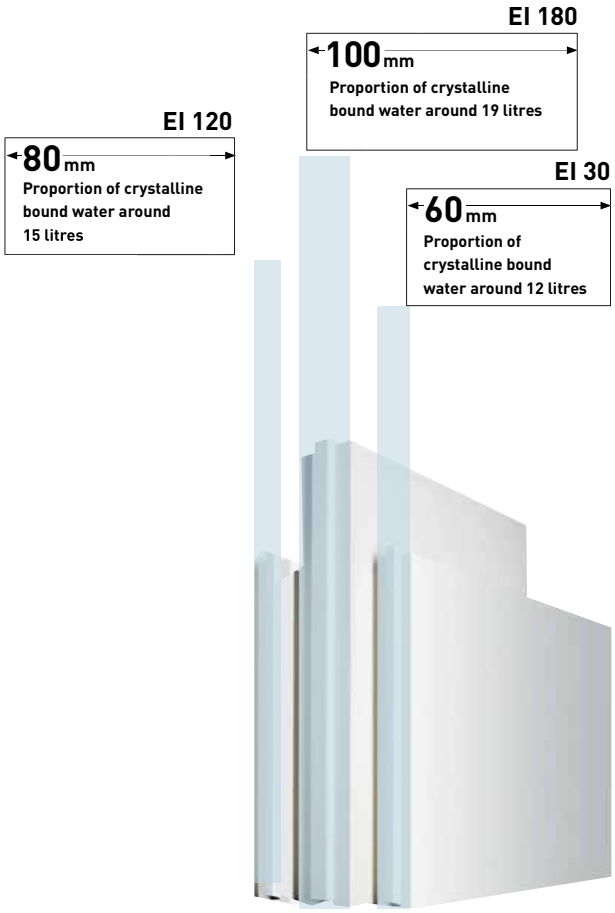
Seal shafts properly and enclose them for fire protection purposes



Tested and certified design: MultiGips Brandwand EI 90-M



Fire resistant cladding for wood and steel columns on up to four sides



First class fire extinguishing

A square metre of 100 mm thick partition wall contains around 19 litres of crystalline bound water which is released in a fire to protect the component.

Simply **Water Resistant**

MultiGips Gypsum Blocks with water repellent (Hydro) type are impregnated against moisture penetration along their entire mass. It is well designed for high-humidity interior spaces such as basement, bathrooms and toilets.

Water Absorption Capacity Test of Hydro Gypsum Block*
Complied with BS EN 12859: 2011

After a 2-hour water immersion, their absorbability is 0.53%, fulfilling the Class H1 classification with absorption ⩽ 2.5%.

There is no competitive technology that would guarantee such low absorbability.

* Tested sample is MultiGips High Density Hydro gypsum block

MultiGips Gypsum Blocks with water repellent (Hydro) type can be applied for the first course of wall to prevent water absorption. (Below 2.5%~ H1 class)

Simply **Healthy**

Whether or not the air in buildings makes people ill is an issue that is gathering more and more design and legal attention. This means that afflicted individuals shouldn't hold their breath until these health issues are sorted out. Pure gypsum partition walls, on the other hand, let you breathe easy: Neither gypsum blocks nor any gypsum-based or construction-related system components contain any worrying harmful substances. This means that costly disputes related to illnesses that were caused by construction materials could be a thing of the past.




People are spending more and more time in enclosed areas. The quality of the air in these areas therefore has a significant impact on our well-being and health. Biologically safe materials have hardly any impact on the air.

Certified low level of hazardous substances

System walls for certifiable healthy living concepts
TVOC level well under legal limits
Free from carcinogens and formaldehyde

Laboratory Test Results

Sample	Sample No.	Parameters	Test Results	Acceptable Limited	Units
German-made "MultiGips" Gypsum Blocks	001	Arsenic	Not Detected	<5	mg/L
		Barium	Not Detected	<100	mg/L
		Cadmium	0.040	<1	mg/L
		Chromium (VI)	Not Detected	<5	mg/L
		Lead	Not Detected	<5	mg/L
		Mercury	Not Detected	<0.2	mg/L
		Cyanide (Total)	Not Detected	<10	mg/L
		Organic Phosphorus	Not Detected	<1	mg/L
		Tetrachloroethylene	Not Detected	<0.1	mg/L
		Trichloroethylene	Not Detected	<0.3	mg/L
		Phenolic Compounds	Not Detected	<0.2	mg/L

Simply **Sustainable**

Gypsum blocks not only meet the functional requirements for modern construction materials, but also society's modern demand for resource-efficient and sustainable construction. This includes sourcing raw materials domestically and minimising CO_2 emissions during the manufacturing process, conserving gypsum resources, using secondary raw materials and recycling as much of the gypsum as possible at the end of the blocks' service life. The ecological parameters of gypsum blocks were independently verified and have been published in environmental product and system declarations for transparency and comparison.

Functional Sustainability

- Mineral construction material, produced in a way that conserves resources and protects the environment
- Much lower CO_2 emissions than other construction materials
- Complete gypsum recycling possible

Environmental Friendly

- Compliance with Environmental Product Declaration, full compliance to ISO 14025/ DIN EN ISO 1400/ DIN EN ISO 50001
- Sustainability in Building Construction, full compliance with CEN/TC 59 SC17
- Compliance with the Assessment Standard of the G-PASS (Platinum-rated) under the Hong Kong Green Building Council
- Credit Contribution to LEED/Beam Plus for New Building

Simply **Versatile**

Universal fixing, repair and opening: Solid gypsum blocks are user friendly to workers and do not require a great deal of specialist knowledge from service technicians. The surface and cross-section of each wall have the same properties. Even heavy bracket loads can be fixed with standard dowels. Gypsum blocks are extremely easy to repair: Fillers (optional item) integrate completely into the component and gypsum smoothers (optional item) adapts surfaces perfectly. Wall openings can also be rearranged everywhere at any time and existing door openings are easy to expand – the best solutions for your age-appropriate building plans.

MEP Services

Easy to chase/cut for formation of channels/ conduits on site

Special chasing machines available with simultaneous dust extraction

No limitations from grid dimensions, stud widths, cross beams
Even higher bracket loads with standards dowels
Wall openings at any location – even after construction

MEP Services

Geometric Constraints: arrangement and size of installation slits

- Horizontal slits which in their depth are half the thickness of the wall may not be longer than 1 m.
- Longer horizontal cuts may not be deeper than 1/3 of the wall thickness.
- Parallel, horizontal cuts with separation less than 50 cm are to be avoided.
- Vertical pipelines are to be laid singly in slits.
- The separation of two slits on the same side of the wall is to be equivalent to the wall thickness.
- Vertical slits, whose depth does not exceed half the wall thickness may be any length.
- Deeper slits should not be longer than 1 m.
- All installed components are to be closed off with at least 1 cm of covering.
- If slits are executed in another manner this is to be taken into account with the dimensioning of the wall.
- With slits, which are not closed off only the remaining thickness may be applied as wall thickness.

Simply **Free from Radiation Hazards**

The Super High Density R48 Radiation Protection Gypsum Block is specially formulated for radiation protection. It is most suitable for use in hospital and clinical health care projects for imaging methods based on ionizing radiation, which is widely used is in diagnostic medicine: radiography, computed tomography, mammography, and gamma cameras.

Compared to other methods of construction such as with lead infill applied to masonry or studded partitions, the MultiGips gypsum blocks are lighter, more economical, a lot easier and speedier to install, and more importantly, they are lead free.

Solid gypsum also provides protection without baryte

X-ray tube voltages are often only between 25 and 35 kV for mammograms and imaging techniques used in dentistry. Therefore, solid interior walls made from gypsum blocks are sufficient for the vast majority of dental equipment and all mammography equipment, even without baryte!

Advantages of using MultiGips Super High Density R48 (with baryte) in hospital construction:

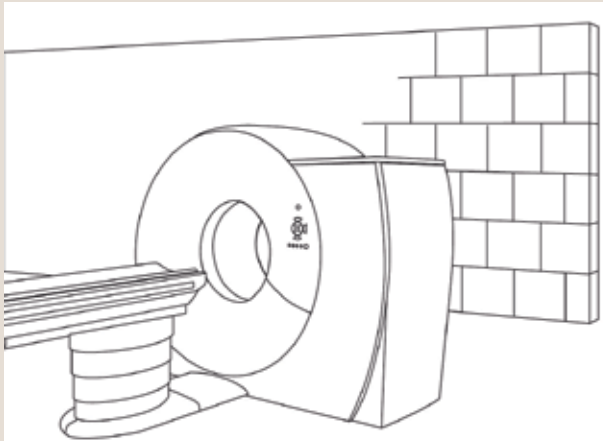
- Ease of installation using unitized components
- Lead-free (non-toxic)
- Can sustain heavy mounting brackets and loading at any position
- Hygienic due to surface smoothness
- Recyclable
- Good sound insulation
- Fire resistance performance
- Time and cost saving (only skim plastering coat of less than 3 mm are required for surface preparation)
- Minimize wet trade and waste disposal

Measurement

The shielding effect of the wall is measured using Lead Equivalence. The tests performed by independent laboratory revealed that MultiGips Super High Density R48 gypsum blocks can provide optimal protection in fulfilling the regulation requirement in radiation shielding. MultiGips Super High Density R48 is supplied in 400 mm(H) x 500 mm(L) x 100 mm thick unit.

Innovation

Traditional solutions for radiation protection walls are either based on lead foils or extremely thick and heavy solid materials such as clay brick wall, or in combination with lead material which could be toxic. The lead-free MultiGips Super High Density R48 gypsum blocks, on the other hand, provide radiation protection with comparatively lighter unitized components that is only 100 mm thick with the inclusion of baryte.



Statutory compliance with Hong Kong Standards:

a) the provisions of the Radiation Ordinance and its subsidiary legislation of Hong Kong;
b) all license conditions stipulated by the Radiation Board of Hong Kong; and
c) the Code of Practice on Radiation Safety and Protection stipulated by the Hospital Authority

Lead Equivalents

of MultiGips Super High Density R48 radiation protection gypsum block according to the TÜV NORD tests

X-ray tube voltages at 2.5 mm aluminium filter (kV)	Lead equivalents[1] in mm Pb[2]	
	100 mm thick Super High Density Gypsum Block without baryte	100 mm thick Super High Density R48 with 40% baryte
60	0.6	1.8
70	0.8	3.3
80	0.7	4.1
90	0.8	5.3
100	0.9	4.2
120	0.8	3.3
150	0.8	2.7

1) Calculation of lead equivalent values according to DIN 6812, intermediate values can be interpolated linearly.
2) Lead equivalent value unit: 1 mm Pb (chem. symbol for lead) corresponds to the radiation protection provided by 1 mm of lead sheet.

Comparison

of Lead equivalence between Clay Brick / MultiGips Super High Density / Super High Density R48 for low energy x-rays

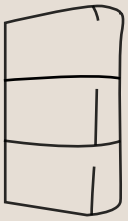
Material	Density (kg m^3)	Material thickness (mm)	Lead equivalent (mm) at applied kilovoltage			Note
			75	100	150	
Clay Brick	1600	100	0.8	0.9	0.8	Reference extracted from Radiation Health Unit Department of Health.
	1600	200	1.7	1.9	1.7	
	1600	300	2.7	3.1	2.6	
	1600	400	3.8	4.5	3.7	
MultiGips Super High Density Gypsum Block without baryte	1400	100	0.75	0.9	0.8	Laboratory data from TUV. NORD Test performed to DIN EN 12859.
MultiGips Super High Density R48 Radiation Protection Gypsum Block with 40% baryte	1400	100	3.3	4.2	2.7	

General Notes:
1. Calculation of lead equivalent values according to DIN 6812, intermediate values can be interpolated linearly.
2. Lead equivalent value unit: 1mm Pb(chem.symbol for lead) corresponds to the radiation protection provided by 1mm of lead sheet.
3. Dental x-ray room may require a nominal shielding of about 1.5mm lead for the direct beam and nominal shielding of about 1.5mm lead for the direct beam and about 0.7mm lead for the scattered field, a diagnositic x-ray room may require a nominal shielding about 3mm and 1.5mm for the direct beam and scattered field respectively.

Application Notes:
Establish performance requirement of the room in terms of lead equivalent (mm). Select wall envelope built up based on the performance figures in the table. MultiGips blocks can be used in combination of layers to achieve the desired result. The Lead equivalents in mm Pb can be added together from the respective performance of the selected blocks.

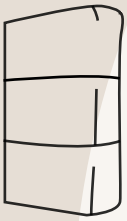
Accessories

Solid gypsum blocks are doers: Easy to work with, no fuss and not unnecessarily complicated. This is mostly due to the fact that the walls can be reliably built with just a handful of components and accessories (some are optional item): the blocks themselves, gypsum-based system components and elastic interlayers. That‘s all you need in principal: You can already start putting your first solid gypsum wall together in your head.



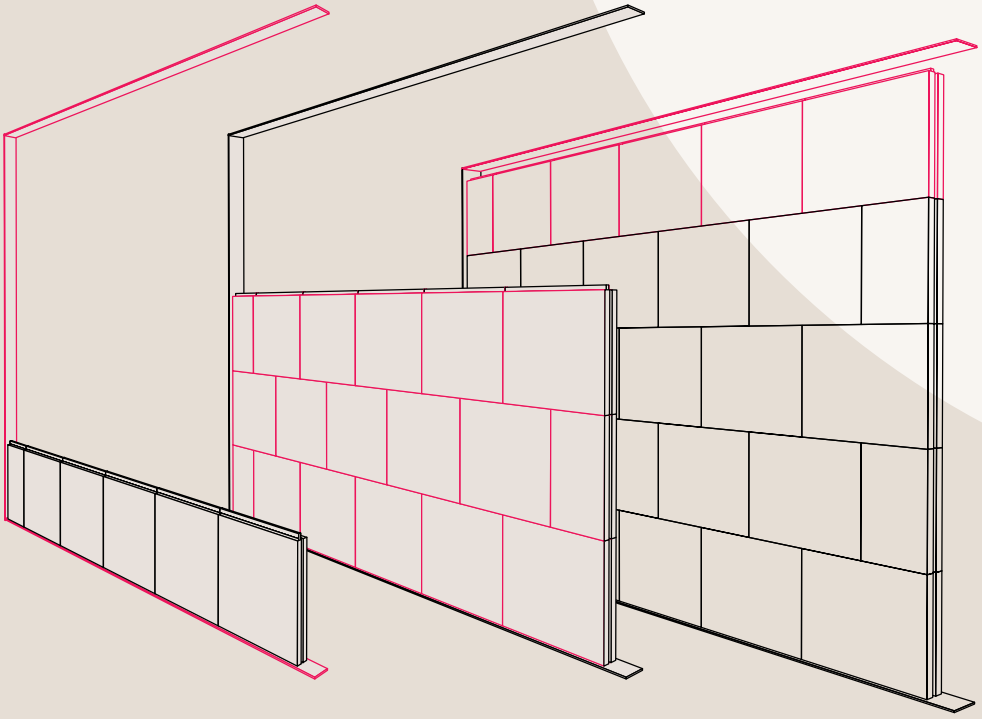
Gypsum-based adhesives

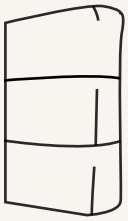
For connecting and jointing components made of solid gypsum blocks. As MultiGips ClassicWhite 90, SuperWhite 120/200 and Hydro 90. No contribution to fire (A1).



Filler (optional item)

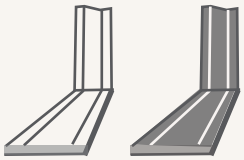
For filling in ceiling joints and frames in components made of solid gypsum blocks. As MultiGips FG 70 and FG 700 Special Filler for components with demanding sound insulation requirements. No contribution to fire (A1).





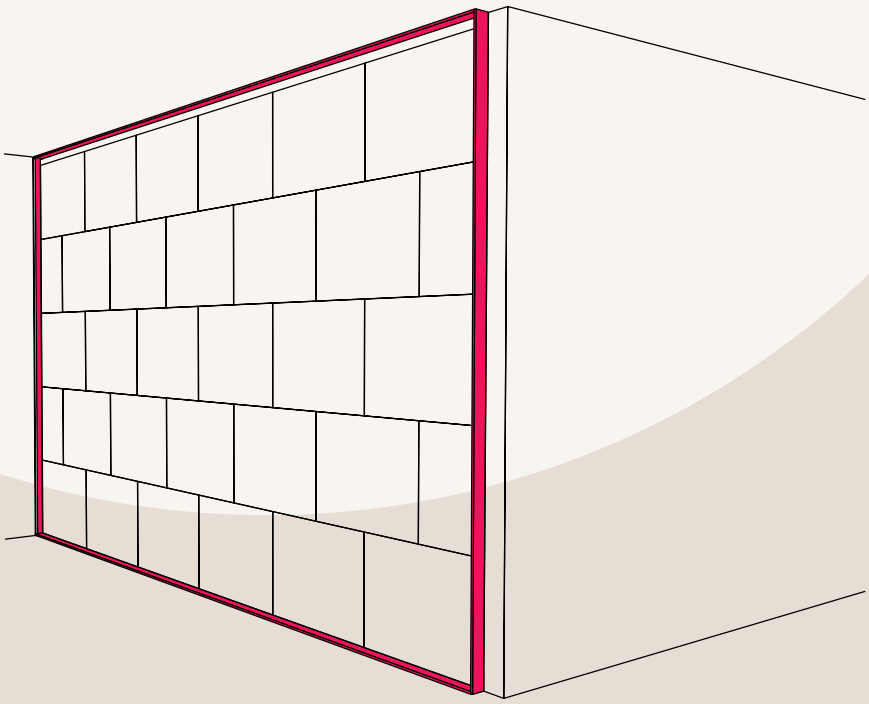
Gypsum smoother (optional item)

As MultiGips SG 90 Uni skim coating for jointing components made of solid gypsum blocks (optional). No contribution to fire (A1).



Elastic interlayers (optional item)

Solid gypsum blocks form an acoustically effective unit with impact point optimised edge mounting, a decoupled partition wall and maximised insulation of direct airborne and structure-borne sound. As the MultiGips AkustikPro 120-3 made from white heavy-duty PE foam or the bitumen-based MultiGips AkustikBit 1000.



Adhesives

MultiGips Adhesive ClassicWeiss 90

MultiGips ClassicWeiss 90 is a factor premixed gypsum plaster in accordance with EN 12860 for the bonding and filling/ smoothing of partition walls made from solid gypsum blocks. Also well-suited for subsequent filling/smoothing of rendered surfaces, for the placing of stucco elements as well as repair filling/smoothing plaster. Bonding time to fit practice of ca. 90 minutes depends on the firm working conditions.

MultiGips Adhesive ClassicWeiss 120
MultiGips Adhesive ClassicWeiss 200

MultiGips ClassicWeiss 120 as well as MultiGips ClassicWeiss 200 is a factor premixed gypsum plaster in accordance with EN 12860 for the bonding and filling/ smoothing of partition walls made from solid gypsum blocks. Also well-suited for subsequent filling/smoothing of rendered surfaces, for the placing of stucco elements as well as repair filling/smoothing plaster. Comfortable bonding time ca. 2 hours (SuperWeiss 120) or extra long 3 to 3.5 hours (SuperWeiss 200) depends on the firm working conditions.

MultiGips Adhesive Hydro 90

MultiGips Hydro 90 is a factor premixed gypsum plaster in accordance with EN 12860 for the bonding and filling/smoothing of hydrophobised gypsum blocks made from solid gypsum blocks. Also well-suited for subsequent filling/smoothing of rendered surfaces, for the placing of stucco elements as well as repair filling/smoothing plaster. Bonding time to fit practice of ca. 90 minutes depends on the firm working conditions.

TECHNICAL DATA

Quality	iaw. EN 12860	iaw. EN 12860	iaw. EN 12860
Application thickness	0-3 mm	0-3 mm	0-3 mm
Gross density	ca. 900 kg/m³	ca. 980 kg/m³	ca. 960 kg/m³
Graining	0.20 mm max.	0.20 mm max.	0.20 mm max.
Material requirement*	1.0-1.5 kg/m² wall	1.0-1.5 kg/m² wall	1.0-1.5 kg/m² wall
Flexural strength	≥ 2.0 N/mm²	≥ 2.0 N/mm²	≥ 2.0 N/mm²
Compressive strength	≥ 3.5 N/mm²	≥ 4.0 N/mm²	≥ 3.7 N/mm²
Water vapour diffusion resistance coefficent μ	ca. 10	ca. 10	ca. 10
Thermal conductivity λ	0.31 W/mK	0,34 W/mK	0,32 W/mK
Reaction to fire	Non-combustible	Non-combustible	Non-combustible
Building material class EN13501-1	A1	A1	A1

* Values can vary depending on thickness of filling/smoothing plaster, background, ambient temperature and working conditions.

Filler

MultiGips FG 70 Füll- und Zargengips (Filling/smoothing plaster)

With MultiGips FG 70 Füll- und Zargengips there is available a secure solution for perfect ceiling connections with walls made from MultiGips gypsum blocks. The high water retention capacity prevents deflagration. At the same time special adhesive additives ensure outstanding adhesive tensile strength. Through this the Füllgips forms a connection free of cracks between the uppermost row of the gypsum blocks and the elastic ceiling connection strips. MultiGips FG 70 Füll- und Zargengips is in addition suitable for the closure of joints or openings in gypsum blocks.

Edges and cut surfaces of gypsum blocks must be free of dust and frost. Remove residues and contamination of any type. No working of the Füllgips below +5°C.

Sprinkle 1.4 parts MultiGips FG 70 Füll- und Zargengips in 1 part water allow to soak and mix homogeneous. Clean cut surfaces of the bevelled uppermost block row. Fill connection joints completely using Füllgips, with this do not plaster over edge strips otherwise separate filling/ smoothing plaster immediately below the ceiling using a trowel cut. Duration of working ca. 70 minutes.

Smoother

MultiGips SG 90 Uni (Surface smoothing plaster)

Filling/smoothing plaster for hand working in interior areas. Outstanding working properties with full-surface filling/ smoothing of MultiGips gypsum blocks. The filling smoothing plaster which can be drawn out to zero enables perfectly smooth surfaces with faultless optics.

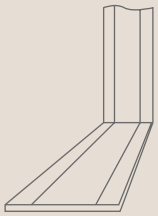
TECHNICAL DATA

Quality	Hand gypsum plaster iaw. EN 13279-1
Gross density	ca. 870 kg/m³
Graining	1.25 mm max.
Material requirement *	ca. 2.0 kg/m² for filling/smoothing ca.17 kg for frame filling
Flexural strength	≥ 1.0 N/mm²
Compressive strength	≥ 2.0 N/mm²
Water vapour diffusion resistance coefficient μ	ca. 10
Thermal conductivity λ	0.28 W/mK
Reaction to fire	Non-combustible
Building material class EN13501-1	A1

Quality	Surface filling/ smoothing plaster iaw. EN 13279-1
Attribute	C7
Application thickness	0-4 mm
Gross density	ca. 975 kg/m³
Graining	0.20 mm max.
Wet mortar yield from 100 kg	ca. 125 l
Material requirement *	0.8 kg / m² / mm
Flexural strength	≥ 4.0 N/mm²
Compressive strength	≥ 8.0 N/mm²
Water vapour diffusion resistance coefficent μ	ca. 8
Thermal conductivity λ	0.32 W/mK
Reaction to fire	Non-combustible
Building material class E13501-1	A1

Technical Data Sheet

Elastic interlayer AkustikPro 120-3 / AkustikPro 120-3 sk



Main Features

Building material	Heavy PE foam elastic interlayer for creating elastic connections between building elements of gypsum blocks and adjacent elements
Properties	Heavy PE foam elastic interlayer Density approx. 120 kg/m³ As MultiGips AkustikPro 120-3 roughened on both sides As MultiGips AkustikPro 120-3 sk roughened on one side and self-adhesive on one side
Performance as building element	For decoupling of building elements of gypsum blocks For reducing structure-borne noise
Special features	Certified low level of hazardous substances for improved interior air quality helps eliminate health risks. Fulfils the requirements for use in interiors according to the Federal Environmental Agency in the Federal Ministry for the Environment, Nature. Conservation and Nuclear Safety in the Federal Republic of Germany. Extremely low emissions.
Documentation	**EN** multigips.com

Self-adhesive or fleece-pasted

Simply cut off

Visual appearance

Application Principles

Site prerequisites

Building elements of gypsum blocks are primarily connected to adjacent building elements with an elastic connection using elastic interlayer and without masonry anchors, wall brackets or other rigid connection elements.

Installation of elastic interlayer

The precise positioning of building elements of gypsum blocks is achieved by snapping a chalk line onto the floor slab along the path of the wall and following this line up onto the adjacent building elements with a plumb line.

The elastic interlayer MultiGips AkustikPro 120-3 is affixed with gypsum based adhesive for gypsum blocks (permits compensation for slight unevenness in the floor). The elastic interlayer MultiGips AkustikPro 120-3 sk is affixed with the pre-fabricated adhesive layer after removing the covering film (best used on smooth substrates). In both cases, press the elastic interlayer evenly onto the substrate by hand or with the roll to prevent air inclusions.

It must be ensured that

- exclusively MultiGips elastic interlayer is used,
- the interlayer is installed with tight butt joints and without cavities, and
- the strips are not plastered over (avoidance of sound bridges) or – otherwise – the covering plaster must be separated again directly at the adjacent building element with a separation cut.

Technical Features

Performance feature	Building material	
	MultiGips AkustikPro 120-3	MultiGips AkustikPro 120-3 sk
Width x length (mm)	140 x 25,000	140 x 25,000
Thickness (mm)	3	3
Material requirement per m² wall (m)	1.3	1.3
Colour	White	White
Density (kg/m³)	approx. 120	approx. 120
Coating	Roughened on both sides	Roughened on one side, self-adhesive on one side
Finishing	As roll	As roll
Packaging unit	4 rolls of 25 m each; 100 m/bag	4 rolls of 25 m each 100 m/bag
Reaction to fire	Normal flammability (as installed)	

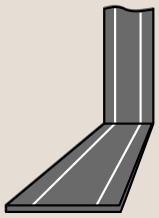
Environmental Data

Performance feature	Building material, building element
Chemical characterisation	Polyethylene, hydrocarbon resins, synthetic rubber (heavy PE foam)
Emissions of volatile organic compounds (mg/m³ TVOC after 28 days)	0 [1)]
Carcinogenic substances (mg/m³ after 28 days)	0 [1)]
Formaldehyde of emissions class (mg/m³ after 28 days)	0.002 (A+) [1), 2)]
Persistence, bio-accumulation potential, toxicity	No known skin or eye irritation or allergenic reactions to the product
Toxicity	-
Carcinogenicity, mutagenicity and toxicity to reproduction	-
Bio-accumulation potential	-
Ecology	Not biodegradable

1) Investigation report on emissions of volatile organic compounds from MultiGips AkustikPro 120-3 sk, Fraunhofer IBP 08.2012
2) Evaluation according to the French VOC ordinance according to investigation report, see above

Technical Data Sheet

Elastic interlayer AkustikPro 1000



Main Features

Building material	Bitumen-based elastic interlayer for creating elastic connections between building elements of gypsum blocks and adjacent elements
Properties	Bitumen-based elastic interlayer (bitumen-impregnated wool felt board) Density approx. 1,000 kg/m³
Performance as building element	For decoupling of building elements of gypsum blocks For reducing direct and structure-borne noise Satisfies the requirements for construction materials of class B2 (normal flammability) The designations (abbreviated codes) for gypsum blocks DIN EN 12859 (for densities ≥ 600 kg/m³) according to DIN 4102-2 in connection with MultiGips AkustikBit 1000 are F 30-AB, F 60-AB, F 90-AB, F 120-AB and F 180-AB
Special features	Certified low level of hazardous substances for improved interior air quality helps eliminate health risks. Fulfils the requirements for use in interiors according to the Federal Environmental Agency in the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety in the Federal Republic of Germany. Extremely low emissions.
Documentation	**EN** multigips.com

Application Principles

Site prerequisites	Building elements of gypsum blocks are primarily connected to adjacent building elements with an elastic connection using elastic interlayer and without masonry anchors, wall brackets or other rigid connection elements.
Installation of elastic interlayer	The precise positioning of building elements of gypsum blocks is achieved by snapping a chalk line onto the floor slab along the path of the wall and following this line up onto the adjacent building elements with a plumb line. The elastic interlayer MultiGips AkustikBit 1000 is affixed with gypsum-based adhesive for gypsum blocks (permits compensation for slight unevenness in the floor). The elastic interlayer can be cut manually or with a guillotine shear. It must be ensured that ► exclusively MultiGips elastic interlayer is used, ► the interlayer is installed with tight butt joints and without cavities, and ► the strips are not plastered over (avoidance of sound bridges) or – otherwise – the covering plaster must be separated again directly at the adjacent building element with a separation cut.

Technical Features

Performance feature	Building material
Width x length (mm)	80/100 X 1,000
Thickness (mm)	3
Material requirement per m² wall (m)	1.3
Colour	Black
Density (kg/m³)	approx. 1000
Coating	Self-adhesive on one side
Finishing	As strips
Packaging unit	50 strips of 1 m each; 50 m/package
Reaction to fire	B2, normal flammability (as installed)

Environmental Data

Performance feature	Building material, building element
Chemical characterisation	Bitumen-impregnated wool felt board
Emissions of volatile organic compounds (mg/m³ TVOC after 28 days)	0 [1)]
Carcinogenic substances (mg/m³ after 28 days)	0 [1)]
Formaldehyde of emissions class (mg/m³ after 28 days)	0.002 (A+) [1), 2)]
Persistence, bio-accumulation potential, toxicity	No known skin or eye irritation or allergenic reactions to the product
Toxicity	-
Carcinogenicity, mutagenicity and toxicity to reproduction	-
Bio-accumulation potential	-
Ecology	Not biodegradable

1) Investigation report on emissions of volatile organic compounds from MultiGips AkustikPro 1000, Fraunhofer IBP 08.2012
2) Evaluation according to the French VOC ordinance according to investigation report, see above

Installation Details

MultiGips gypsum block can be easily worked and precisely cut according to specifications using straight-back, chain or alligator saw. Thanks to the groove and tongue profile as well as the simple working using gypsum adhesive, half blocks can, for example, be used further. Through this, MultiGips gypsum blocks are particularly economical; waste material and disposal costs are saved.

General information on design

All cut surfaces of matched or beveled gypsum blocks are to be cleaned thoroughly of gypsum dust. Do not chisel out openings, breaches or slits but produce them using saws, cutters or scoring tools.

Doors and other openings can be omitted with the erection of the wall or subsequently sawed out of the finished wall. All metal items built into the wall, e.g. supporting reinforcements or door frames, must be protected against corrosion.

Mortar containing cement may under no circumstances be used in the walls, not even with the installation of door frames.

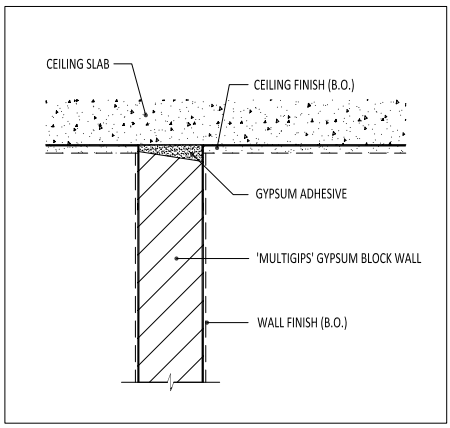
Gypsum blocks can be worked and securely connected so far as the adjacent surfaces are sufficiently firm and free of frost. The recommended level is 5 °C. The roof should already be closed in order to avoid moisture loading in building phase.

Cement or anhydrite floor covering, respectively as liquid flooring, can be applied subsequently so far as the covering (screening layer) is laid correctly up the walls and the projecting material is cut off after hardening.

With poured asphalt flooring a good cross-ventilation is to be ensured so that the heat released can escape. In interior rooms without sufficient ventilation one should avoid using poured asphalt.

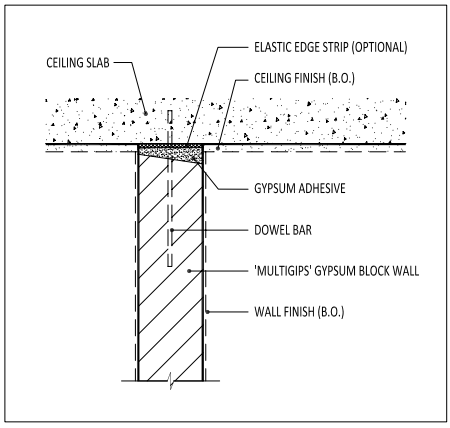
One-sided wall gypsum blocks attached only at the bottom are to be anchored using suitable profiles on the floor.

Installation Drawing in Different Scenarios



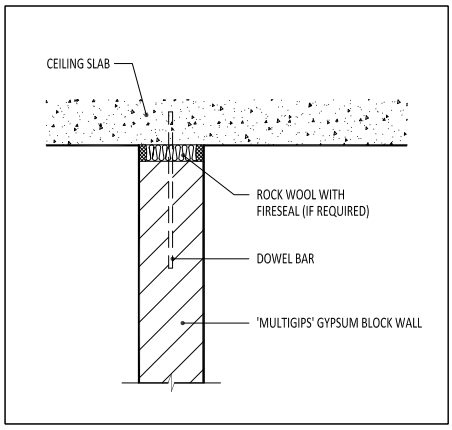
Fixed head

- Fully bonded with Gypsum adhesive
- Recommended for A&A /fit-out work in existing structure
- Height below 3.5m



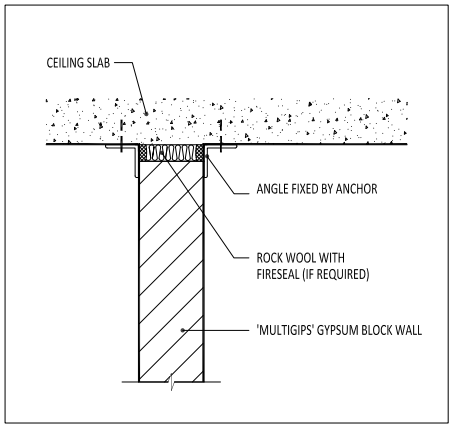
Fixed head with restraint

- Fully bonded with Gypsum adhesive
- Recommended for A&A /fit-out work in existing structure
- Metal dowel bar added for head restraint
- Height below 3.5m



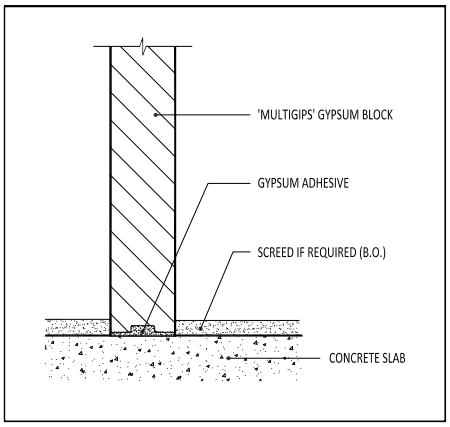
Flexible head

- Recommended for high wall where structural deflection is expected
- Subject to verification for specific projects



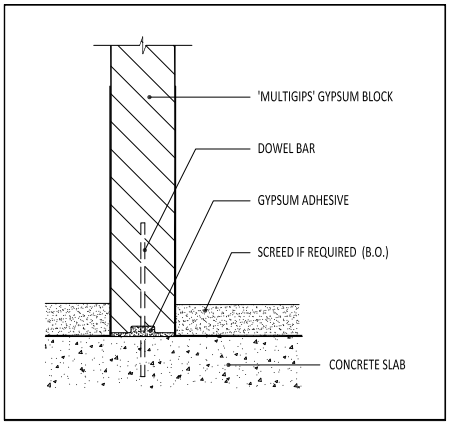
Flexible head

- Recommended for high wall & long span structure
- Subject to verification for specific projects



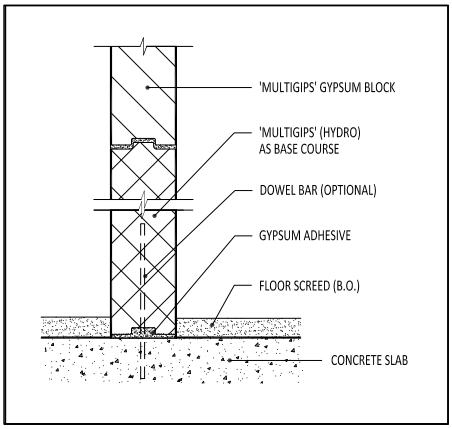
Bonded with restraint

- Recommended for low wall < 3.5m high
- Suitable for A&A and residential projects



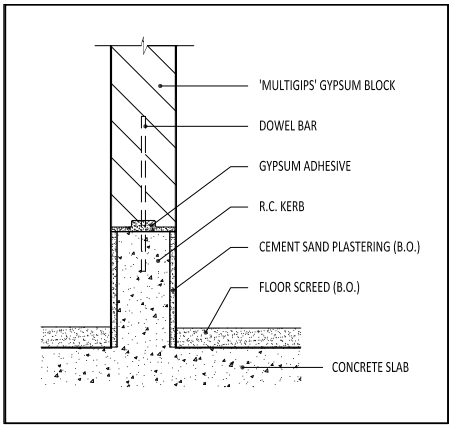
Fixed base with restraint

- Recommended for low wall > 3.5m high
- Subject to verification for specific projects



Base with hydro block

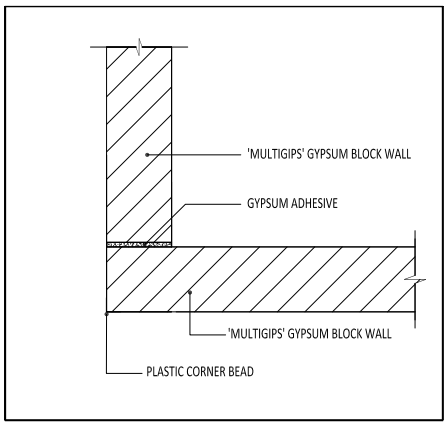
- Recommended for area when there is high moisture during construction



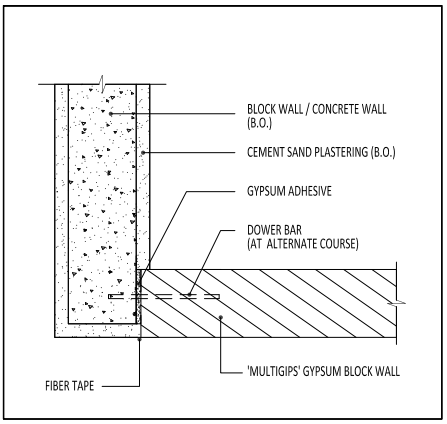
Concrete kerb base

- Optional R.C. upstand is possible to suit project need

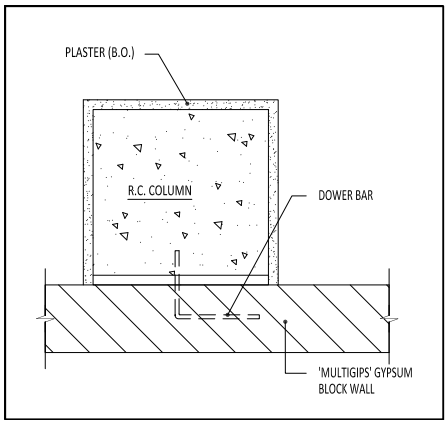
Typical corner



Movement junction

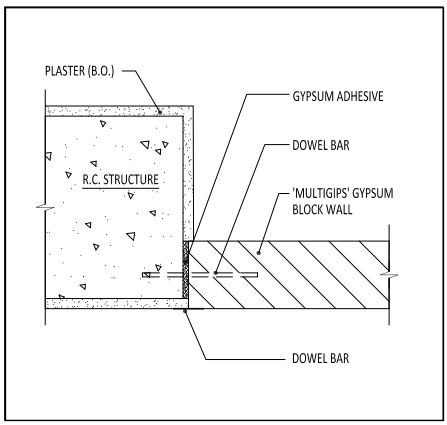


Junction with column

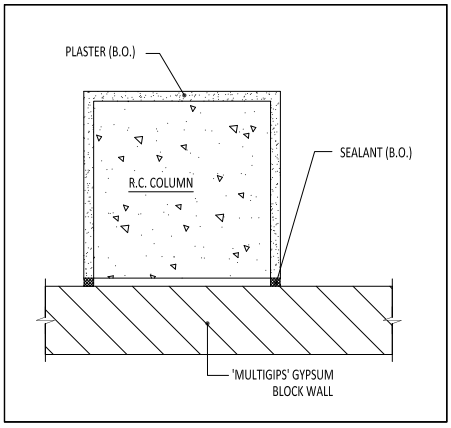


- Side connection with R.C. column without control joint
- Recommended for A&A works or where building structure is stable

Junction with R.C. structure

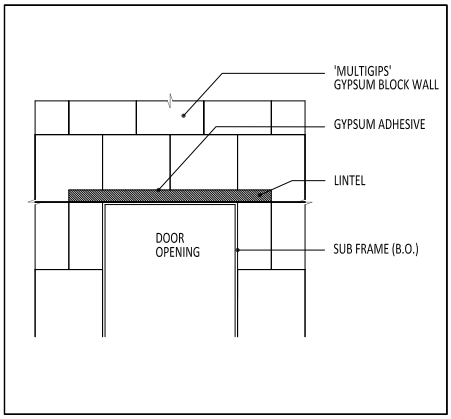


- End connection with structure without control joint
- Recommended for A&A works or where building structure is stable



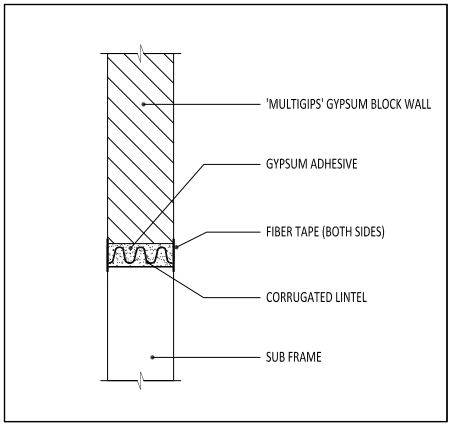
Junction with column

► Recommended for enhanced cracking control

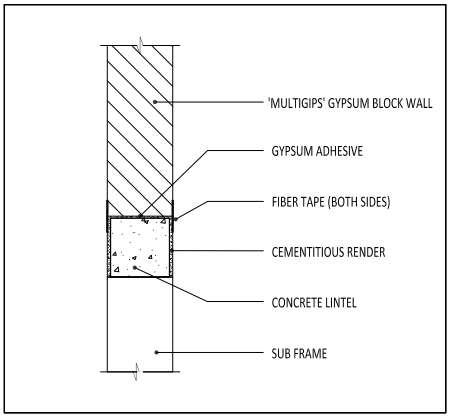


Typical elevation of door opening

► No lintel require for opening <1m wide

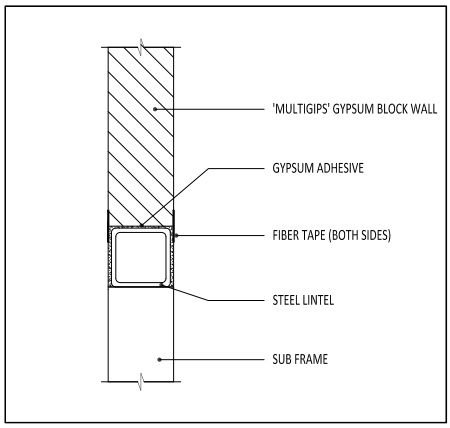


Corrugated lintel

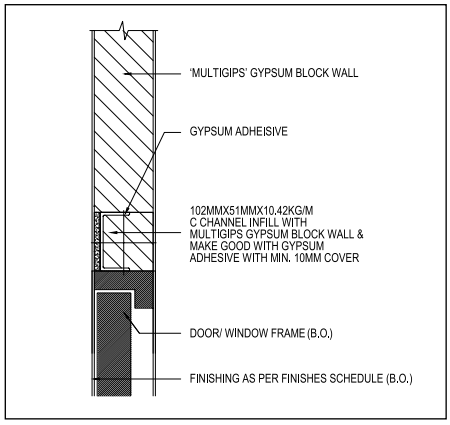


Concrete lintel

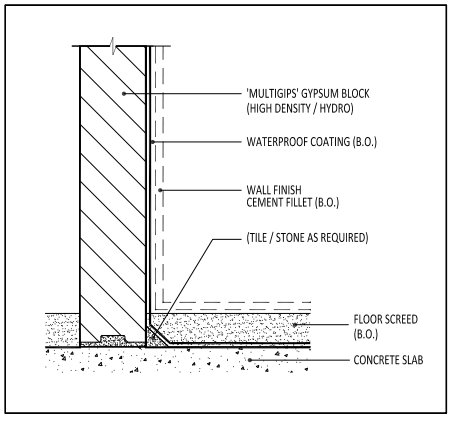
Steel lintel



C-Channel

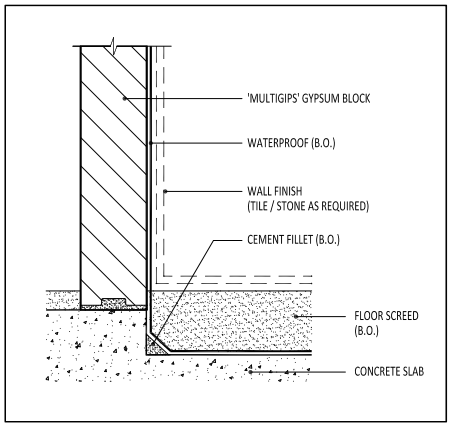


Waterproof base

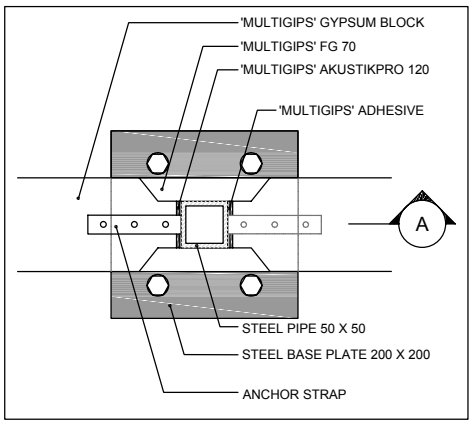


► Hydro Gypsum block recommended for wet area

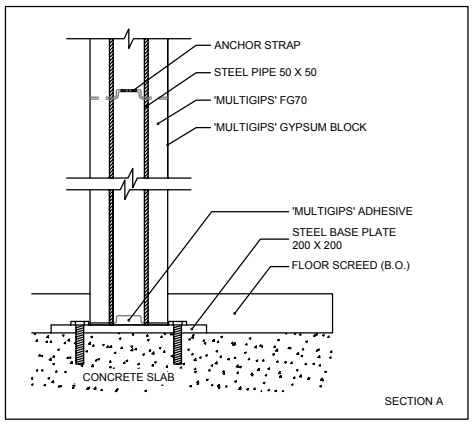
Sunken base



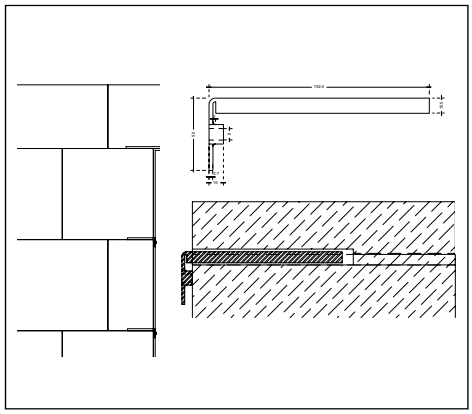
► Hydro Gypsum block recommended for wet area



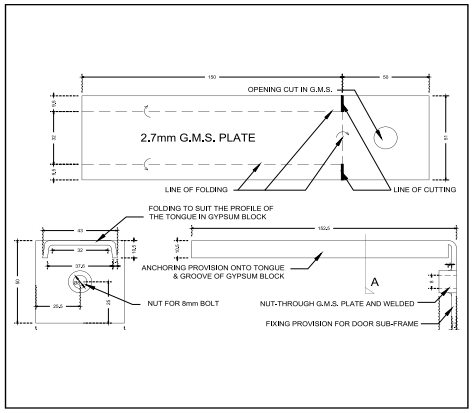
Free standing wall construction plan



Free standing wall construction section



Door fixing lugs



Lugs installation arrangement

Installation Tools

Dicing saw with vaccum cleaner

Grooving machine

Electric stirrer

Mud bucker

Electric drill

Putty knife

Flat water ruler

Lintels

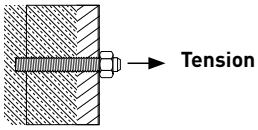
Galvanised branch (8mm diameter, 225mm length)

Plaster corner bead

Edge rule

Axe

Anchor Recommended by HILTI



Anchor Model	Recommended Tension Capacity (kg)*	Recommended Shear Capacity (kg)*
 HUD-1 6X30 Universal anchor	12	12
 HUD-1 8X40 Universal anchor	102	102
 HUD-1 10X50 Universal anchor	100	100
 HRD-C 10 Door frame anchor	134	134
 HUS-H 6X45 Screw anchor	35	35
 HUS-H 10x75 Screw anchor	148	148

Installation Method

1. Provide setting out lines before erection and ensure setting out lines and information provided are adequate and clear.

2. Prior of erection, counter check with "Laser Alignment Tools".

3. Prepare the MultiGips adhesive as per the manufacturer's recommendation. Apply the mixed MultiGips adhesive for erection of gypsum block.

4. Installation of dowel bar on to floor slab during the First Row Erection.

5. Verticality check during erection for to ensure the finished gypsum block is comply with the specification.

6. Use of "Laser Alignment Tools" for Door Lintel Installation.

7. Installation of Corner Beat at Outer Corner for the completed gypsum block wall.

Airport Authority Office Tower - Chek Lap Kok

Client: Airport Authority Hong Kong
Contractor: Dragages Hong Kong Limited
Block type used: 100mm High Density
Scope of work: Supply and installation of 10,000m²
Completion: 2021

Liantang/ Heung Yuen Wai Boundary Control Point - Ta Kwu Ling

Client: HKSAR - ASD
Contractor: Leighton Contractors (Asia) Ltd
Block type used: 80mm High Density & Hydro
100mm High Density & Hydro
Scope of work: Supply of 17,000m²
Completion: 2018

Xiqu Centre - Tsim Sha Tsui

Client: HKSAR
Contractor: Hip Hing Engineering Company Limited
Block type used: 100mm High Density
Scope of work: Supply of 8,300m²
Completion: 2018

Hong Kong Boundary Crossing Facilities - Hong Kong-Zhuhai-Macao Bridge

Client: HKSAR - ASD
Contractor: Leighton - Chun Wo Joint Venture
Block type used: 100mm High Density & Hydro
Scope of work: Supply of 66,000m²
Completion: 2017

Temporary Quarantine and Treatment Center at AsiaWorld-Expo - Lantau

Client: Hospital Authority
Contractor: China State Construction Engineering (HK) Ltd
Block type used: 100mm High Density & Hydro
100mm Super High Density & Hydro
Scope of work: Supply & installation of 10,000m²
Completion: 2021

Kwong Wah Hospital - Yau Ma Tei

Client: Hospital Authority
Contractor: China State Construction Engineering (HK) Ltd
Block type used: 100mm High Density Hydro
Scope of work: Supply & installation of 55,000m²
Target completion: 2021

Tuen Mun Hospital - Tuen Mun

Client: Hospital Authority
Contractor: Chevalier (Construction) Company Limited
Block type used: 100mm High Density & Hydro
Scope of work: Supply of 19,800m²
Completion: 2021

Hong Kong Children's Hospital - Kowloon Bay

Client: HKSAR - ASD
Contractor: China State - Shui On Joint Venture
Block type used: 100mm High Density & Hydro
100mm Super High Density & Hydro
Scope of work: Supply & installation of 88,000m²
Completion: 2018

Gleneagles Hospital Hong Kong - Wong Chuk Hang

Client: Parkway Pantai Limited
Contractor: Hip Hing - Chun Wo Joint Venture (GH)
Block type used: 100mm High Density & Hydro
Scope of work: Supply of 39,000m²
Completion: 2016

Queen Elizabeth Hospital - Yaumatei Specialist Clinic - Yau Ma Tei

Client: HKSAR - ASD
Contractor: Yau Lee Holdings Limited
Block type used: 80mm & 100mm High Density
Scope of work: Supply & installation of 9,500m²
Completion: 2016

Hong Kong Adventist Hospital - Wan Chai

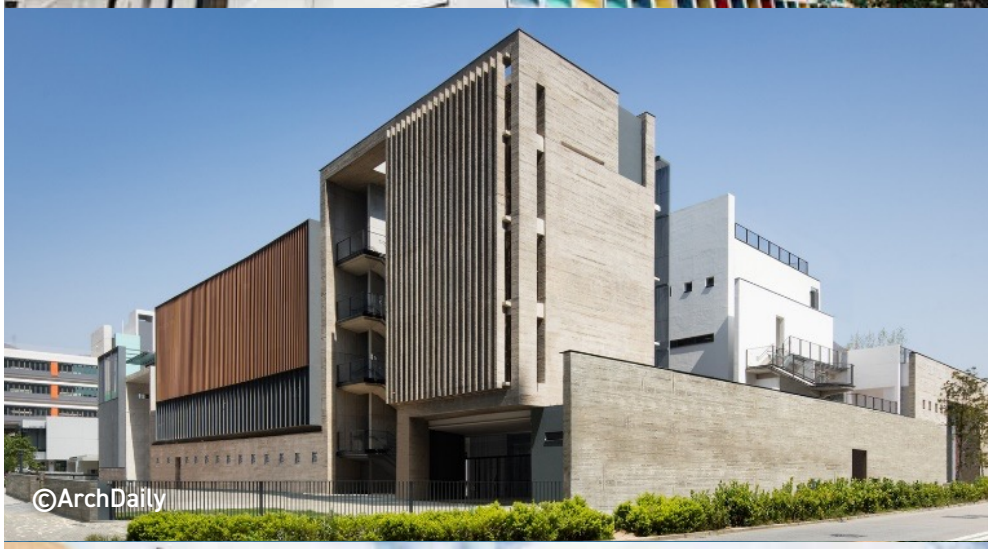
Client: Hong Kong Adventist Hospital
Contractor: In-house Constructor
Block type used: 100mm High Density
Scope of work: Supply & installation of 2,000m²
Completion: 2014

Canossa Hospital - Mid level

Client: Caritas Hong Kong
Contractor: Yau Lee Construction Company Limited
Block type used: 100mm High Density
Scope of work:
Phase 1 - Supply & installation of 9,000m²
Phase 2 - Supply of 5,500m²
Completion: 2013

French International School - Tseung Kwan O

Client: Victor Segalen Association Ltd
Contractor: Paul Y. Builders Limited
Block type used: 100mm High Density & Hydro
100mm Super High Density & Hydro
Scope of work: Supply of 7,360m²
Completion: 2017



Po Leung Kuk Stanley Ho Sau Nan Primary School - Kowloon City

Client: HKSAR - ASD
Contractor: Kaden Construction Limited
Block type used: 100mm High Density
Scope of work: Supply of 1,500m²
Completion: 2015

Hong Kong Academy School - Sai Kung

Client: Hong Kong Academy
Contractor: Leighton Contractors (Asia) Limited
Block type used: 100mm High Density Hydro
Scope of work: Supply & installation of 10,000m²
Completion: 2013

Student Hostel - The Hong Kong Polytechnic University - Hung Hom

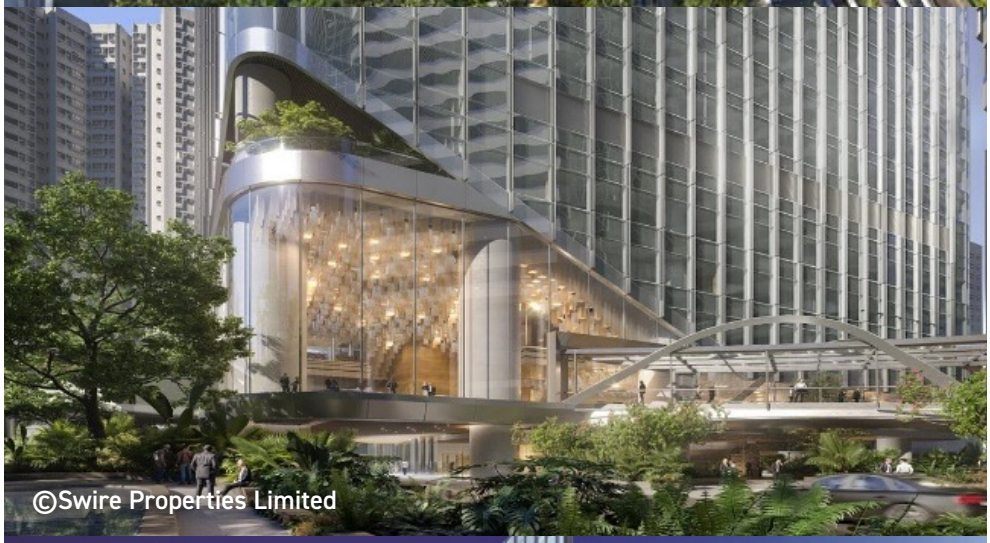
Client: Hong Kong Polytechnic University
Contractor: Hanison Construction Company Limited
Block type used: 100mm High Density
Scope of work: Supply & installation of 3,000m²
Completion: 2012

Commercial Development of AMC Project C - Tseung Kwan O

Client: Hong Kong Science & Technology Parks Corporation
Contractor: Gammon Construction Limited
Block type used: 100mm Super High Density & Hydro
Scope of work: Supply of 65,000m²
Target completion: 2021

AIRSIDE - Kai Tak

Client: Nan Fung Group
Contractor: Hip Hing Construction Company Limited
Block type used: 100mm Super High Density & Hydro
Scope of work: Supply of 27,000m²
Completion: 2021



Two Taikoo Place - Quarry Bay

Client: Swire Properties Limited
Contractor: Hip Hing Construction Company Limited
Block type used: 80mm High Density & Hydro
100mm High Density & Hydro
100mm Super High Density & Hydro
Scope of work: Supply of 34,000m²
Completion: 2021

1 Hennessy Road - Wan Chai

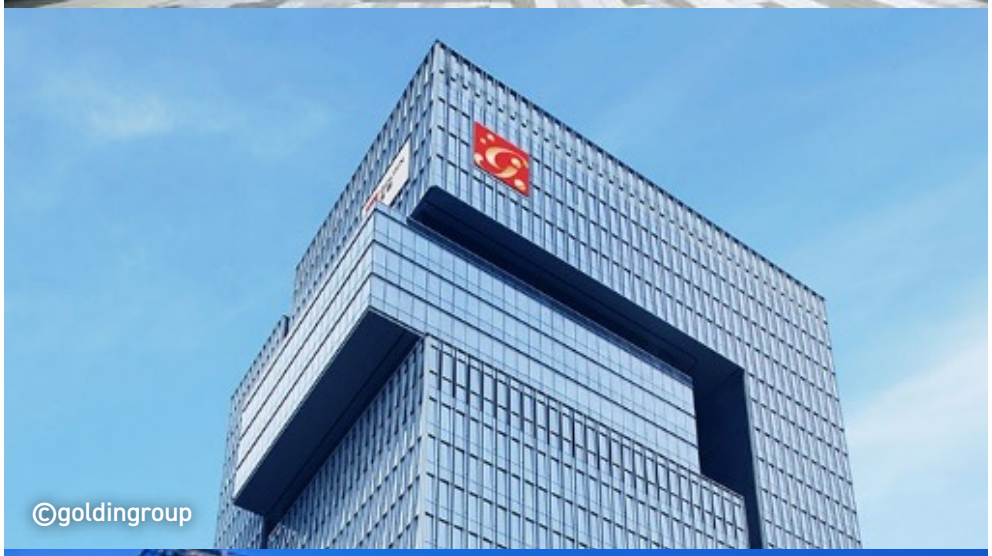
Client: Chinachem Group
Contractor: CR Construction Company Limited
Block type used: 100mm High Density & Hydro
Scope of work: Supply & installation of 11,000m²
Completion: 2019

Water World Ocean Park Hong Kong - Aberdeen

Client: Ocean Park Hong Kong
Contractor: Gammon Construction Limited
Block type used: 100mm Medium Density 1.0 Hydro
Scope of work: Supply of 5,100m²
Completion: 2018

WM Hotel - Sai Kung

Client: Cheer Regal Limited
Contractor: Paul Y. Builders Limited
Block type used: 100mm High Density & Hydro
100mm Super High Density & Hydro
Scope of work: Supply of 35,000m²
Completion: 2018



Goldin Financial Global Centre - Kowloon Bay

Client: Goldin Financial Holdings Limited
Contractor: Hip Hing Construction Company Limited
Block type used: 100mm Medium Density & Hydro
Scope of work: Supply & installation of 27,000m²
Completion: 2015

Studio City - Macau

Client: Melco Crown Entertainment Limited
Contractor: Paul Y.- Yau Lee Joint Venture
Block type used: 100mm High Density & Hydro
100mm Super High Density & Hydro
Scope of work: Supply of 140,000m²
Completion: 2015

Sole & exclusive distributor: (Hong Kong, Macau, Singapore & Malaysia)

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