Plaster systems

High quality lining solutions providing the perfect finish for your walls

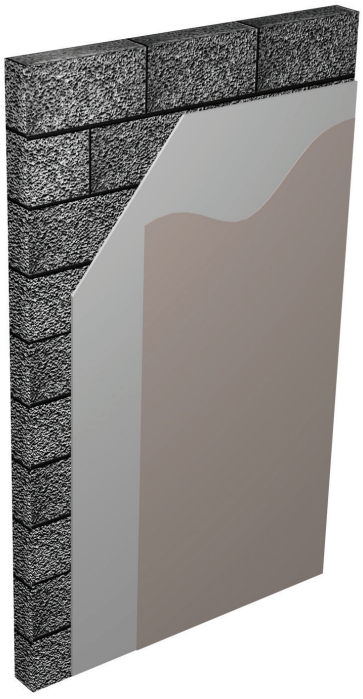
Plaster systems

Gyproc plasters offer a full range of specific and multi-purpose solutions for a wide range of internal plastering needs and backgrounds; including concrete, brick, blockwork, expanded metal lath and plasterboard. They are designed to suit either hand or machine application.

Backed up by a range of compatible, high quality accessories, Gyproc plasters produce a high quality surface that's tough and durable.

Key benefits

- Gyproc plasters provide a long term high quality appearance. They range from extra durable plasters that resist scuffs and knocks, to plasters specifically designed for different types of background
- Gyproc plaster is ideal for use where thermal mass is an integral part of the design of the building. Plaster provides the desired decorative finish whilst also enabling efficient heat transfer between the air and the fabric of the building
- Plastering contributes to the overall airtightness of masonry walls
- Gyproc two-coat plasters are highly durable and resistant to damage, reducing whole life costs and potentially extending maintenance cycles



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Plaster skimming to plasterboards is a popular method of providing a smooth, seamless surface ready to receive decorative treatment. Skim plastering gives many of the advantages of a traditional solid plaster finish combined with quick turnaround on site. Surface preparation simply involves joint reinforcement and, if tapered edge board is used, flushing-out the tapers. The plaster is applied to the wall or ceiling surface to a nominal 2mm thickness. Refer to page C08. S02. P511 for further information.

Plaster selection

Table 1a — Gyproc plaster selector

G Use **Gyproc GypPrime** for suction control where you see this symbol

B Use **ThistleBond-it** as a bonding agent where you see this symbol

Background Surface	Undercoat Plasters			One Coat Plaster
	 Gyproc Hard Coat	 Gyproc Bonding Coat	 Gyproc Bonding Coat Short Set	 Gyproc OneCoat Plaster
Low density thermal blocks	G To control suction where appropriate			
Common concrete blocks				
Medium density concrete blocks				
Dense concrete blocks	Not on smooth low suction blocks	B On smooth low suction blocks	B On smooth low suction blocks	Not on smooth low suction blocks
Dry mature sand/cement Suitably scratched to provide key				
Dry gypsum based undercoats Suitably scratched to provide key				
Set but not fully dry gypsum based undercoats Suitably scratched to provide key				
Standard Gyproc Plasterboards and Glasroc F Boards (not 6mm)				
Moisture Resistant (MR) Gyproc Plasterboards and Glasroc F MULTIBOARD				
Rear (grey paper side) face of Gyproc Plasterboards e.g. WallBoard, etc.		B On MR boards	B On MR boards	
Flat, smooth in-situ and pre-cast concrete		B	B	B
Thickness applied - Walls	11mm	10mm	10mm	10-13mm
Thickness applied - Ceilings	N/A	8mm	8mm	N/A
Coverage per bag	3.0m² @ 11mm	3.0m² @ 10mm 3.7m² @ 8mm	3.0m² @ 10mm 3.7m² @ 8mm	3.0m² @ 10mm
Approx water requirement (per bag)[1]	15L	16L	16L	18L

High — Suction — Low

1 Adjust water ratio to achieve preferred mixed consistency

Plaster selection (continued)

Table 1b — Gyproc plaster selector

Finishing Plasters			Specialist Plasters	
				
Gyproc Skimcoat	**Gyproc Carlite Finish**	**Gyproc Carlite Ultra Finish**	**Gyproc Airtite Quiet**	**Gyproc Magnetic Plaster**
Dampen walls first to achieve appropriate suction	Dampen walls first to achieve appropriate suction	Dampen walls first to achieve appropriate suction		
Dampen walls first to achieve appropriate suction	Dampen walls first to achieve appropriate suction	Dampen walls first to achieve appropriate suction		Dampen walls first to achieve appropriate suction
B	B	B		
B	B	B		B
2mm	2mm	2mm	6mm	3-6mm
2mm	2mm	2mm	-	-
9.4m² (Undercoat) 11.25m² (Plasterboard)	9.4m² (Undercoat) 11.25m² (Plasterboard)	9.4m² (Undercoat) 11.25m² (Plasterboard)	4.5m² @ 6mm	5.1m² @ 3mm
13L	13L	13L	16L	8.5L

Plaster systems design

Building design

In general, normal thicknesses using undercoat / finish plaster systems are 11mm to walls or up to 8mm to ceilings, plus 2mm of finish plaster.

One coat products are applied to the same total thickness, i.e. 13mm to walls or up to 10mm to ceilings.

When using Thistle Bond-it or plastering ceilings, do not exceed the thicknesses given. In cases involving both the use of a bonding agent and a sloping or horizontal background, e.g. the underside of concrete stair or floor units, it is strongly advised to reduce thickness further to minimise stress placed on the bonding agent. Greater thickness requires the use of a support for the suitable plaster, e.g. bonding coat onto metal lathing.

▶ Refer to table 1a.

For plaster systems used on walls that do not use a bonding agent, thicknesses up to a maximum of 25mm, may be built up in a series of fully keyed coats of nominally 8mm using the same undercoat product throughout. Total thickness over 25mm normally requires the use of expanded metal lathing for Gyproc Bonding Coat. If necessary this can be spaced away from the background, e.g. by fixing to timber battens.

Fire resistance

In refurbishment projects, where there is a deficit in concrete cover over the reinforcement, Gyproc plasters can be used to restore the required fire resistance specification. This is particularly relevant if an increased level of fire protection due to change of use is required.

Using Gyproc plaster can offer fire protection and enhanced cosmetic appearance. The tables in BRE Report 128 can be used to determine the level of performance achieved by the existing construction and advise on the required thickness of gypsum plaster, e.g. Gyproc Bonding Coat finished with Gyproc Finish Plasters to achieve the required fire performance. Expanded metal lath should be used to ensure adhesion to the concrete.

Important information

BRE report BR128 "Guidelines for the construction of fire-resisting structural elements" is recognised in regulatory requirements.

Reaction to fire

Gypsum plaster is non-combustible and achieves EN Euroclass A1. Gypsum plaster also achieves Class 0 spread of flame as defined by Building Regulations. It contains water, chemically combined in its crystallize structure, that has to be driven off before the cold face temperature can rise above 100°C.

Background preparation

All surfaces should be reasonably dry and protected from the weather. Backgrounds need to be suitable with regards to:

- It's strength – can it take the weight of the plaster
- Suction – how quickly will it pull the moisture out of the plaster as it sets
- Bonding properties – does it have a texture for a key
- Shrinkage – will it continue to shrink underneath a layer of plaster
- Thermal movement characteristic – will it expand or contract causing the plaster to crack
- Water and soluble salt content – are the levels likely to cause problems to the key or finish

If there is any doubt about the suitability of a background for direct plastering, a trial panel should be plastered and tested for adhesion once dry. If adhesion is inadequate, the appropriate preparation and bonding agent must be applied to the background prior to plastering.

Important information

- Gyproc plasters should only be applied to backgrounds where the minimum temperature will remain at 5°C or above until dry
- Gyproc plasters should not be specified for use where temperatures exceed 49°C

Preparation

Backgrounds such as smooth concrete or concrete made from limestone and certain lightweight aggregates, will require preparation and pre-treatment with Thistle Bond-it bonding agent prior to plastering. The surface should be thoroughly cleaned and allowed to dry before pre-treatment.

Gyproc GypPrime bonding agent should be used to pre-treat surfaces where suction is extremely high. With some very porous surfaces, wetting alone may be insufficient as the water is almost immediately absorbed.

If there is any doubt about the suitability of a background for direct plastering, a trial panel should be plastered and tested for adhesion once dry. If adhesion is inadequate, the appropriate bonding agent must be applied to the background prior to plastering.

The surface must be clean, dry and suitable to receive gypsum plaster.

Very high or low suction substrates should be pre-treated.
The use of Thistle Bond-it is recommended for smooth and / or low suction backgrounds. Thistle Bond-it bonding agent is specially formulated for use on smooth backgrounds. It has many advantages over PVA and is the only bonding agent recommended for use with Gyproc gypsum plasters (excluding Gyproc Hard Coat). Benefits include:

- Contains fine aggregates for better mechanical adhesion

Plaster systems design (continued)

- Applied in one coat only
- Plaster is applied when Thistle Bond-it is dry, allowing flexible timing of application
- Plaster can be applied at normal thickness, i.e. up to 13mm
- Maximum 8mm on soffits
- No dilution required, ensuring consistent product application
- Green coloured for ease of identification in application

The high suction of certain backgrounds can be suitably adjusted by sprinkling with water but some very porous surfaces, wetting alone may be insufficient as the water is almost immediately absorbed.

Gyproc GypPrime bonding agent is specially formulated for the pre-treatment of very high suction backgrounds. It is the only suction control primer recommended for this use with Gyproc plasters. It can be diluted as required, giving total flexibility, for different levels of suction control, and is yellow coloured for ease of identification.

Thistle Bond-it and Gyproc GypPrime should be applied strictly according to the user instructions. Care should be taken not to exceed the recommended plaster thickness otherwise bond failure may occur. Where a greater thickness of plasterwork is required, due to an uneven background for example, expanded metal lathing and Gyproc Bonding Coat should be specified.

Brickwork / blockwork

On high suction brickwork / blockwork the use of Gyproc Hard Coat is recommended. Aerated concrete blocks can give rise to high suction. Suction can be controlled with water or, if severe, pre-treated with Gyproc GypPrime.

Low suction backgrounds provide minimal absorption. The joints should be raked thoroughly to give an adequate mechanical key. Smooth backgrounds should be pre-treated with Thistle Bond-it. Dense aggregate concrete blocks typically do not require wetting prior to plastering, but the plaster should be applied with very firm pressure to ensure intimate contact with the background.

Concrete

The surface must be clean, dry and suitable to receive gypsum plaster. Any mould, oil or other release agents present must be thoroughly removed from the surface.

Normal ballast concrete should be given sufficient time to mature before applying plaster. The plaster should not be applied onto a green background or when any free water is visible. Mature concrete will require wetting to displace the air before plastering. Clean water should be applied 5 - 10 minutes before plaster application. In-situ or precast concrete that is smooth will require pre-treatment with Thistle Bond-it.

No-fines concrete does not typically require wetting prior to plastering. Pre-cast concrete units should be plastered with Gyproc Bonding Coat.

With composite ceilings, the concrete beams should be pre-treated with Thistle Bond-It. If required, the suction of the infill panels can also be controlled.
To reduce the risk of cracking, the floating coat should be applied with sufficient pressure to fill all gaps between the units.

Combination backgrounds

The right product for each part of the background should be used, with joints formed using back-to-back Gyproc stop beads, but this can be impractical, e.g. narrow concrete columns or lintels within block walls. These should be bridged using metal lathing and the plaster isolated from the concrete using building paper. Refer to Annex B3 of *BS EN 13914-2*.

Control joints

It is common for movement joints to be included in masonry construction. Where these occur, back to back Gyproc plaster Stop Beads should be used.

Expanded metal lath / beads

Gyproc plasters should only be applied to galvanised steel or epoxy coated stainless steel. Before plastering, all cut edges, damaged metal lath, staples, nail heads and ends of tying wire should be bent inwards and adequately protected by galvanising, painting or by applying a thick coat of lacquer.

Normal application to expanded metal lath employs a pricking-up coat, which should be forced through the metal lath to provide a good key to the background. The surface of the pricking-up coat must be wire-scratched to provide a good key for a floating coat of the same undercoat plaster. The pricking-up coat must be allowed to set but not too dry before the floating coat is applied.

Floating coats should be applied at a thickness of 8mm, up to a total plaster thickness of 25mm, and wire-scratched between each coat. The final floating coat should be ruled to an even surface and lightly scratched to form a key for Gyproc Finish Plasters.

Machine applied undercoat requires the use of spray lath.

Sand / cement undercoats

Cement based undercoats shrink on drying, usually with some cracking, which can appear several days or even weeks after application. If a Gyproc Finish Plaster is applied before the shrinkage is complete there is an increased risk of delamination or cracking of the finish, particularly if the undercoat was not thoroughly keyed.

The key provided to cement-based undercoats needs to be much deeper and the drying time allowance much longer than for gypsum-based undercoats. Retarded ready-mixed sand / cement mortars may have delayed shrinkage, and may contain additives that interfere with the setting or strength of Gyproc Finish Plasters.

Plaster systems design (continued)

Mixing

Gyproc plasters should be mixed by adding to clean water using clean mixing equipment. Contamination from previous mixes can adversely affect the setting time and strength. Fresh contamination has more effect than old, so equipment should be washed immediately after mixing.

Gyproc plasters are suitable for mixing by hand or mechanical whisk of a slow speed, high torque type. While mechanical mixing speeds the process up, there is no need to continue mixing after dispersing lumps and achieving the right consistency. Over-mixing wastes time and energy, can affect setting times, lead to deterioration in workability and create difficulty in achieving a flat finish.

Projection plastering

Gyproc Hard Coat is suitable for machine application. Plaster should be sprayed on to the background in the form of a ribbon. The consistency should allow the ribbons to run together. When a substantial area has been covered, the plaster is worked and ruled as in hand plastering. The total thickness should not normally exceed 25mm, subject to background suitability.

Decoration

Gyproc plasters can be decorated with most paint finishes and most wall coverings. Follow manufacturers' recommendations. Impermeable finishes including tiles, should not be applied until the background and plaster are dry. A permeable paint can be used in the interim. Take care with Gyproc Hard Coat as it dries from the surface, appearing surface dry before fully dry in its depth. *BS EN 13914 - 2: Design Considerations and Essential Principles for Internal Plastering* states that plastering should be done under similar or better lighting conditions than the final work will be judged in. This is particularly important for glossy finishes and / or low angle natural or artificial lighting.

Tiling

Tiles up to 20kg/m^2 can be applied to Gyproc Hard Coat once a suitable proprietary tiling primer has been used. If plastering to provide a background for tiles, avoid polishing the surface. Polished plaster surfaces should be roughened and a suitable primer used. Tiles should not be applied directly to Gyproc Finish Plasters.

Plaster systems components

Plaster products

Gyproc Bonding Coat
Undercoat plaster for most smooth or low suction backgrounds.

Gyproc Bonding Coat Short Set
Offers all the benefits of Gyproc Bonding Coat with a reduced set time of 90 - 120 mins, making it ideal for smaller jobs.

Gyproc Hard Coat
Undercoat plaster with high impact resistance for most masonry backgrounds.

Gyproc Airtite Quiet
A specially formulated parge coat to reduce air permeability and to seal background surfaces to enhance sound insulation when drylining.

Gyproc Skimcoat
To provide a plaster skim finish on most common backgrounds including undercoat plasters and plasterboard. Can provide enhanced acoustic performance.

Gyproc Carlite Finish
To provide a plaster skim finish on most common backgrounds including undercoat plasters and plasterboard. Can provide enhanced acoustic performance.

Gyproc Carlite Ultra Finish
Offers all the benefits of Gyproc Skimcoat and Gyproc Carlite Finish with a reduced set time of 90-120mins, making it ideal for smaller jobs.

Gyproc Magnetic Plaster
To provide a plaster skim finish that provides an attraction to magnets used to finish a wide range of backgrounds, including undercoat plasters and plasterboard.

Plaster systems components (continued)

Plaster accessories

ThistleBond-it
Bonding agent for smooth and/or low suction backgrounds providing an adequate key.

Gyproc GypPrime
Primer to reduce suction on very dry backgrounds.

Plasterboard accessories

Gyproc Paper Joint Tape
A paper tape designed for reinforcement of flat joints or internal angles providing superior resistance to cracking.

Plaster systems installation overview

This is intended to be a basic description of how the system is built.
For detailed installation guidance refer to the **Gyproc Installation Guide.**

Gyproc plasters should be mixed by adding to clean water and using clean mixing equipment. Contamination from previous mixes must be avoided as this can adversely affect the setting time and strength.

Gyproc plaster Angle Bead or Gyproc plaster Stop Bead is fixed to the background by embedding in the undercoat plaster.

Where Gyproc Bonding Coat undercoat plaster is to be applied to plasterboard, the board joints are reinforced with Gyproc Paper Joint Tape bedded in Gyproc plaster.

Where necessary, Thistle Bond-it may be required to provide a mechanical and chemical key for the appropriate undercoat plaster.

Once the correct Gyproc plaster has been selected to suit the background suction and surface texture, the plaster is applied in maximum 8mm coats. Each coat is allowed to set before applying the next.

The final coat is ruled to an even surface and lightly scratched to form a key for Gyproc Finish Plasters.

Once the Gyproc undercoat plaster has set, Gyproc Finish Plaster is applied with firm pressure, built out to the required thickness in two applications and trowelled to a smooth matt finish. In some circumstances it may be necessary to control the suction with Gyproc GypPrime. Good site practice should be followed, as outlined in *BS EN 13914 - 2 Design considerations and essential principles for internal plastering.*

Additional information

For full installation details, refer to the **Gyproc Installation Guide,** available to download from gyproc.ie