Thistle plaster
Non-residential buildings
Homogeniser, Barrow-upon-Soar, Leicestershire, where mined gypsum is stored
About British Gypsum

We’re the only UK manufacturer to offer a full range of integrated internal lining solutions.

Whether they’re plaster-based, or involve one of our many drylining systems, they meet and exceed Building Regulations, for enhanced performance and prolonged building life. We’ll work alongside you and your contractors to pick the best solution for your project.

Did you know?

We’ve built a business with five major UK manufacturing sites (M); four training centres (T), research, development and testing facilities that rank amongst the best in Europe, a technical support infrastructure that leads the industry and a network of 3500 stockists to ensure national product availability.

1. East Leake (M,T)
2. Kirkby Thore (M,T)
3. Clevedon (T)
4. Erith (T)
5. South Lanarkshire College (Satellite) (T)
6. Robertsbridge (M)
7. Sherburn (M)
8. Barrow-upon-Soar (M)
Our promise: sustainable solutions

We ensure that our solutions don’t just meet your needs today but that they meet all of our needs for tomorrow too.

Sustainability is a challenge we embrace. It enables us to balance our responsibilities to customers, suppliers, employees and our local communities. The way we manage our business and care for our employees is as important to our future as the way we care for the environment.

**Highlights**

– First UK manufacturer to achieve zero plasterboard waste to landfill
– First UK manufacturer to gain ISO 14001 certification across all sites
– First to be certified ‘Very Good’ to BES 6001 – Responsible Sourcing of Construction Products, UK manufactured Gyproc plasterboards, Glassroc specialist boards, Thistle plasters, Gypframe metal and Gyproc cove products
– More than 55,000 hours employee and customer training last year
– Awarded ‘Most Improved Safety Performance’ and ‘Best Overall Safety Performance’ 2011 across all Saint-Gobain global businesses

**Did you know...?**

British Gypsum donated ancient woodland in Bunny Wood, Nottinghamshire to the Nottinghamshire Wildlife Trust
Social
Our people are our business. We ensure a safe, healthy workplace, give them respect and nurture their talents to take our business forward. We train for leadership and build employee knowledge through a ten-stage Technical Development Programme at our Saint-Gobain Technical Academy.

Economic
We work hard to ensure our business remains viable. We work closely with our supply chain to source materials responsibly and sustainably and drive issues such as Health and Safety and responsible business management throughout our supplier base. Our Responsible Sourcing Strategy means our plasters and UK manufactured plasterboards qualify for extra credits in leading environmental schemes.

Environmental
We were the first UK plaster and plasterboard company to gain ISO 14001 and use this standard for managing key areas like compliance, energy management, water usage and waste reduction across our business.

For more details on our full sustainability agenda and achievements see www.british-gypsum.com/sustainability
Choosing linings

Commercial buildings need to comply with a wide range of regulatory and legal requirements whilst providing a hard working environment which stands the test of time.

It is important, therefore, to choose linings that will perform to standard, yet are robust and easy to repair for long life. With funding and budgets becoming tighter, economy is also a priority.

We’ve been making high quality plasters for over a hundred years. Today’s Thistle plasters provide all of the performance needed, whether you’re building new, or repairing or maintaining older buildings. They’re not just designed to provide high quality wall linings. They are technical solutions, developed to meet the needs of designers and facilities managers.

You can select from a range of different plasters and accessories. They’ll provide the demanding lining and finish properties you need.

Thistle Durafinish for example, is a finish plaster that provides 60% more scratch resistance in high traffic areas such as corridors, foyers and communal spaces.

If you choose two-coat systems, you can be sure of a robust finish that will improve sound performance and cut air leakage. They’ll help you to meet regulations and environmental requirements, and make learning spaces more effective and economic to manage.

Thistle plasters; for performance today, and tomorrow.

Advice and Support

When you’re making key product decisions, we’re there to support you every step of the way. Our technical Advice Centre and market-based specification teams can provide full drawing packs, NBS specifications, typical details and on site technical assistance. The WHITE BOOK and SITE BOOK and associated literature is also available via our website. For more information please visit www.british-gypsum.com.
Non-residential buildings

Non-residential by sector, including:

Healthcare
Healthcare environments are designed to provide protection and support for patients, who are often vulnerable. Regular repair and maintenance needs to be carried out with the minimum level of disruption. Buildings also need to meet specified levels of fire and acoustic performance as well as energy efficiency. Thistle plasters provide high levels of abrasion resistance, acoustic and thermal performance, contribute to air tightness and can be used for simple and quick repairs to damaged walls.

Education
The challenge faced by designers is to build schools or colleges that meet demanding sustainability and performance standards, yet are faster to build, with reduced whole life maintenance costs. Learning environments need to be easy to maintain and inspire our students to ever higher education achievements. Thistle plasters provide high abrasion resistance for corridors or stairwells and add to acoustic performance to help prevent noise transference from noisy workspaces.

Offices
The office of today needs to provide far more than simply a workspace. For organisations to retain and get the best from employees, office accommodation needs not only to be highly functional but also provide a pleasant internal environment.

Space is often at a premium, so high performance, narrow wall solutions are desirable. Any remedial work needs to be carried out with the minimum of disruption with products that provide a high quality, durable finish.

Thistle plasters offer thin wall solutions for quick application, durable abrasion resistance and performance enhancing systems for acoustics and air tightness.

High-Rise Multi-Occupancy (HRMO)
Student and key worker accommodation, hotels and care homes are all examples of building types captured within the HRMO sector.

Many of the same challenges exist as with low-rise buildings but with the added demands on fire safety. As access to upper floors is often restricted, repair teams and contractors have to plan repair and maintenance work carefully and use lightweight, easily portable materials where possible.

Thistle plasters provide abrasion resistant solutions which also contribute to fire and acoustic performance and are in ‘one man lift’ bags making it more convenient when working above the first floor or in restricted access areas.
Thistle plaster performance benefits

Airtightness – reduce heat loss

Air leakage can seriously downgrade the overall thermal performance of a building. Unwanted draughts and uncontrolled air flow through gaps cause discomfort and account for a significant proportion of overall energy loss. This results in higher energy bills and higher CO₂ emissions. With Thistle plaster linings many of these gaps are automatically filled, and air loss considerably reduced.

All new buildings must meet a minimum level of air leakage, and must undergo air leakage testing. Thistle plaster finishes will help to achieve the required standards and help make buildings more economical to run.

Don’t just take our word for it

“Direct plastering is the most effective way of providing airtightness for masonry walls...”

BS EN 13914-2:2005: Design considerations and essential principles for internal plastering

“Gyproc Ireland commissioned BSRIA to carry out tests using Gyproc Hard Coat (Hardwall) with a skim finish applied to a block wall. The results showed air leakage of 0.34 m³/(hr.m²) at 50 Pa, well under the 0.6 Passive House Standards. This essentially shows that while blocks have a high porosity, applying a plaster finish dramatically reduces the porosity, thereby increasing the airtightness of the wall.”

BSRIA Air leakage tests C26698

Within Building Regulations Approved Document L1A and L2A an upper limit on air permeability of 10 m³/(hr.m²) is required. In practice, most designs will need to be significantly better than this.

Although air leakage can occur directly, most leaks (circa 75%) occur indirectly.

Air leakage paths are often very complicated, therefore air leakage can be difficult to trace and seal effectively.

However, some of the known main air leakage paths are:
– Cracks, gaps and joints in the structure
– Joist penetrations of external walls
– Internal stud walls
– Windows and doors (and their surrounds)
– Loft hatches
– Skirting boards
– Chimneys and flues
– Service entries, ducts and electrical components
– Areas of un-plastered wall

Don’t forget – Thistle plaster can significantly improve airtightness of fair-faced blockwork walls, helping to increase energy efficiency and enhance acoustic performance.
**Fire resistance**

Gypsum plaster is non-combustible and will slow down the rate of fire spread. It contains water, chemically combined in its crystalline structure, that has to be driven off before the cold face temperature can rise above 100°C. This combines with its Class 0 surface spread of flame rating to hold back the fire spread. Simply applying 13mm of Gypsum plaster to a block wall may increase fire resistance by up to 50%.†

**Existing reinforced concrete structures**

In refurbishment projects where there is a deficit in concrete cover over the reinforcement, Thistle 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 Thistle 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 Thistle Bonding Coat finished with Thistle Multi-Finish to achieve the required performance. Expanded Metal lath should be used to ensure adhesion to the concrete.

**Thermal mass**

Thermal mass usage in building design can help to cut CO₂ emissions by reducing the heating and cooling demands of the building. It may be used as part of the SBEM (Simplified Building Energy Model) calculations for the whole building.

How thermal mass is incorporated into the design depends on the building use. It will generally slow down the rate at which internal temperatures rise or fall. A ‘thermally heavy’ building heats up more slowly, and retains its heat for longer, with the effect that it is cooler during the heating period (day) but warmer during the cooling period (night). This can be very beneficial for buildings such as hospitals, where a fairly constant temperature is needed.

Thistle plaster is ideal for use where thermal mass is an integral part of the design of a building. Plaster provides the desired decorative finish whilst also enabling efficient heat transfer between the air and the fabric of the building.

**Indoor air quality**

Though we don’t notice them, impurities, such as volatile organic compounds (VOCs) are often present in the air we breathe – emitted from furniture, carpets and building materials. Long-term exposure to these can potentially cause health problems and reduce general wellbeing.

Clean air, on the other hand, can speed up patient recovery in hospitals, reduce absence at work, and increase pupils’ concentration at school.

ACTIVair is our latest technology designed specifically to convert VOC emissions into non-harmful inert compounds, making the air around you up to 70% cleaner. This clever technology continues to work for over 50 years, and whilst alternative solutions absorb VOCs, they don’t decompose them like ACTIVair risking re-emission at a later date.

**Thistle PureFinish plaster containing ACTIVair technology for skim finishing undercoats and plasterboards.**

† Source: Thomas Armstrong Ltd
**Stability**

With Thistle undercoat plasters there’s very little shrinkage. There is no danger of cracks appearing days or weeks later, due to shrinkage of the plaster. There is a risk of ‘shelling’ if a plaster finish is applied over sand and cement. The BRE recommend that ‘cement based undercoats must be allowed to dry sufficiently to develop some suction if good adhesion is to be ensured.’ This could cause a significant delay before the finish coat can be applied.

"Because of the inherent nature of Portland cement, most rendering products shrink on drying out. If a final coat is applied too early before the undercoat has sufficiently dried out, then the problem of shelling is likely to occur."

**Building Employers Confederation – Technical Advisory Service Bulletin**

**Resistant to damage**

Thistle plasters are great at resisting accidental damage, glancing blows or repeated abrasion. For ultimate protection you can choose Thistle Durafinish, a plaster that protects from impacts, reducing the number, scope and frequency of repairs. Two-coat plasters are ideal for high traffic areas, such as corridors, entryways or stairwells. They offer additional resistance to damage for areas where doors are repeatedly banged against walls, or where walls have to withstand regular abrasion. This helps to cut both the cost and disruption of responsive repairs or maintenance.

Thistle Durafinish is 60% tougher than standard Thistle Multi-Finish

*Minimum 5°C for Thistle Durafinish*
The benefits of Thistle two-coat plasters in blockwork construction

In areas where blockwork has been specified, Thistle two-coat plaster finishes deliver real performance benefits.

– Two-coat plasters are highly durable and resistant to damage, reducing whole life costs and potentially extending maintenance cycles

– Where repairs are required, these are quick and easy to complete, minimising disruption and disturbance to building users

– Fixing heavy equipment such as screens and cabinets is quick and reliable and does not require reinforcements or specialist fixings

– Thistle two-coat plasters assist with creating thermally efficient buildings, sealing constructions for better airtightness and supporting high thermal mass designs

“When specifying solutions for the project, the life-cycle and durability of the products were a priority. They were for use in a busy environment with high amounts of traffic, so we needed a solid plaster system that would not only look good and perform well in application, but needed minimum maintenance once applied.”

**Michael Saunders, Construction Manager, for Lovell**

**Quick and simple repair**

With Thistle plastered walls, repairs, when needed, are fast and effective. They cause minimum disturbance to building users and bring a damaged wall back to its original performance levels, ensuring the long term performance of the structure.

In many cases, repairs, or even complete refurbishment, can be completed without the need for expensive scaffolding, saving both time and cost (see case study below).

Repairs can be carried out using a part bag of plaster or Gyproc Easi-Fill. There is no need to sand the repair to achieve a flat surface in readiness for decoration. This is a real bonus when working around sensitive equipment and removes the need for dust extraction machinery, so clean-up time is minimal.

Plaster will fit any gap, so there’s no need to measure up the job first. Small repairs can often be completed with a part bag of plaster left over from a recent job, which helps keep costs down.

Even difficult repairs to a corner, or to a door or window opening, can be easily feathered to a good finish.

<table>
<thead>
<tr>
<th>Case study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project:</strong> Lining to double flight concrete stair core in School (surface area 216m²)</td>
</tr>
</tbody>
</table>

**Option A: Plasterboard lining (Dot and Dab)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 weeks scaffold hire, including erection and removal</td>
<td>£800</td>
</tr>
<tr>
<td>Installation time, including plaster skim</td>
<td>9.6 days</td>
</tr>
<tr>
<td>Additional installation time if tape jointed</td>
<td>2 days</td>
</tr>
</tbody>
</table>

**Option B: Two-coat plaster**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 weeks hire of stair tower</td>
<td>£80</td>
</tr>
<tr>
<td>Installation time</td>
<td>8.6 days</td>
</tr>
<tr>
<td><strong>Saving using plaster</strong></td>
<td>£720 hire charges plus 3 days labour (Plus lower material wastage)</td>
</tr>
</tbody>
</table>
Finishing to plasterboard

Where plasterboard has a square edge, or a cut edge, skimming is the best way to provide a smooth finish ready for decorating. It is much harder to achieve a smooth result with a tape and joint method when the board edge is not tapered. Skimming with a finish plaster can also provide the installer with added flexibility where screw fixings are not perfectly flat.

Size matters

The minimum requirement for a classroom (General Teaching) is 56m² as specified in SSLD1 (Standards Specification, Layouts & Dimensions). By using a two-coat plaster finish, the floor slab can be reduced by 0.36m² per classroom, thereby reducing overall build costs.

Typical doctors surgery ground floor layout - where to use a skim finish

A skim finish not only provides a better finish, it is also more robust, providing additional resistance to damage in high traffic areas or rooms subject to greater wear and tear.
A great finish

Homeowners are quick to notice a poor quality finish. With Thistle finishing plasters, you get a superior, smooth surface whether you’re skimming on plasterboard or using a two-coat plaster system. And it’s ready to take whatever decorative treatment you choose.
## Thistle Plaster Selector Guide

### Undercoat solid plaster

| What is the background surface? | Aircore blocks | Common bricks | Medium-density blocks | Dense blocks | Engineering bricks with fixed joints | Plasterboard & Gypsum boards | Grit in situ & pre-cast concrete | Painted/thick surfaces | Metal lathing | Thickness applied – walls | Thickness applied – ceilings | Coverage per bag (at 2mm) | Water requirement (litres per bag) | Dry set weight (at 2mm thickness) |
|--------------------------------|----------------|--------------|----------------------|-------------|-------------------------------------|-----------------------------|----------------------------------|------------------------|--------------|-------------------|----------------|---------------------|----------------|------------------------|-----------------------------|
| High                            |               |              |                      |             |                                     |                             |                                  |                        |              |                   |                |                     |                |                        |                             |
| Low                             |               |              |                      |             |                                     |                             |                                  |                        |              |                   |                |                     |                |                        |                             |

### Two coat

**Thistle Hardwall**
- High impact resistance for most masonry backgrounds.
- Can be spray applied.

**Thistle Tough Coat**
- High coverage for most masonry backgrounds.
- Can be spray applied.

**Thistle Browning**
- For solid backgrounds with adequate key.

### One coat

**Thistle Universal One Coat**
- For hand or spray application to most backgrounds.

### Specialist plasters

**Thistle Dri-Coat**
- Cement based plaster for replastering after a damp proof course.

Setting times: Thistle undercoat plasters – 1½ to 2 hours. Thistle finish plasters – 1½ to 1¼ hours.

Coverage refers to hand application.
## Skim finish plaster

<table>
<thead>
<tr>
<th>What is the background surface?</th>
<th>Thistle Multi-Finish</th>
<th>Thistle PureFinish</th>
<th>Thistle Board Finish</th>
<th>Thistle Durafinish</th>
<th>Thistle Spray Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dry undercoats</td>
<td>Damp undercoats</td>
<td>Plasterboard</td>
<td>Flat smooth concrete</td>
<td>Waterproofed cement-based undercoats</td>
</tr>
<tr>
<td>Thickness applied</td>
<td>2mm</td>
<td>2mm</td>
<td>2mm</td>
<td>2mm</td>
<td>2mm</td>
</tr>
<tr>
<td>Coverage per bag (at 2mm)</td>
<td>10m²</td>
<td>10m²</td>
<td>10m²</td>
<td>10m²</td>
<td>10m²</td>
</tr>
<tr>
<td>Water requirement (litres per bag)</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
</tr>
<tr>
<td>Dry set weight (at 2mm thickness)</td>
<td>3.4kg/m²</td>
<td>3.4kg/m²</td>
<td>3.4kg/m²</td>
<td>3.4kg/m²</td>
<td>3.4kg/m²</td>
</tr>
</tbody>
</table>

### Minimum temperature to be maintained until dry is 2°C for Thistle Multi-Finish, Thistle PureFinish, Thistle Board Finish and Thistle Spray Finish, and 5°C for Thistle Durafinish.

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### Suction control

**Thistle GypPrime**

Suction control primer used to reduce suction on very dry backgrounds. Use diluted (up to 5 parts water to one part Thistle GypPrime) or undiluted if severe suction control is required. Plaster is applied after Thistle GypPrime has soaked into the background.

Use Thistle GypPrime where you see this symbol

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### Bonding agent

**ThistleBond-it**

Bonding agent for smooth low suction backgrounds. Apply undiluted, in one coat. Plaster when dry.

Use ThistleBond-it where you see this symbol

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ACTIVair technology is designed specifically to convert volatile organic compounds (VOC) emissions into non-harmful inert compounds, making indoor spaces healthier.
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