Conventional Plaster Systems

**Conventional Gypsum Lath and Plaster Systems** are the industry standard for historic preservation.

Lath and plaster deliver exceptional beauty and durability in interior partitions and non-loadbearing exterior walls. Conventional plaster systems are also commonly used as the panel material for radiant heating systems in ceilings.

Apply as two-coat systems (base or scratch and finish) or three-coat systems (scratch, brown and finish) over gypsum plaster base or expanded metal lath.

1. L-Runner
2. Sealant
3. Casing Bead
4. Sanded Gypsum Plaster
5. Metal Lath
6. Channel Stud
7. Tie Wire
**Basic Uses**

**APPLICATIONS**

Use gypsum plaster systems for all interior plastering except areas directly exposed to free water or severe moisture. When used with expanded metal lath, conventional plasters create a mechanical bond for maximum strength and durability. A gypsum plaster base such as Kal-Kore® Plaster Base is also very suitable as a base for conventional basecoat plasters. Gypsum moulding plasters are excellent for sculpting, casting decorative objects, and historic restoration matching and repair.

**CONVENTIONAL PLASTER ADVANTAGES**

- Provides a smooth, high-quality surface
- Requires no joint taping and finishing
- Resists nail pops better than gypsum board
- Enhances overall wall strength
- Offers high-impact and abrasion resistance
- Applications in multiple fire-rated assemblies, including column fireproofing
- Applications in STC-rated assemblies

**Installation Recommendations**

**GENERAL**

- A top-quality plastering job requires not only top-grade plaster but also careful planning, handling and storage of material. Plumb and true framing and properly installed plaster bases are equally vital. Examine the framing and bases carefully before proceeding with work.

- Install plaster base, plaster and accessories consistent with methods described in the noted standards, including ASTM C841 and ASTM C842, additional references listed in this document, and as indicated below.

- Apply reinforcement to areas of potential stress concentration, such as the intersection of door heads and jambs.

- Apply bonding compound on unit masonry and concrete substrates.

- Bring plaster to a true level surface without the application of additional water.

- Leave base-coat plaster surface rough to receive the finish coat.

- Tolerances: For flatness of surface, do not exceed 1/4 in. (6.4 mm) in 8 ft. (2,438 mm) for bow or warp of surface and for plumb and level.

- National Gypsum plaster products are formulated for hand and machine use. They may be pumped and machine-spray applied where appropriate.

- Do not retemper plaster mix.

- Keep tools and mixing equipment clean.

**Gypsum Plaster Base Installation**: Refer to Kal-Kore Plaster Base on page 145.

**Expanded-Metal Lath and Accessory Installation**: Refer to product manufacturer’s written instructions.
Gold Bond® BRAND
Two-Way Hardwall Plaster

DESCRIPTION
Gold Bond® BRAND Two-Way Hardwall Plaster is a basecoat gypsum neat plaster that requires the jobsite addition of an aggregate and water. When properly proportioned with aggregate, Two-Way Hardwall Plaster forms a hard, durable base for the finish coats of another gypsum plaster. Complies with ASTM C28.

Use Two-Way Hardwall Plaster with sand or expanded lightweight aggregate conforming to ASTM C35. It is mechanically mixed at the jobsite and the mortar conveyed to the work area. Apply it by hand or use it through pump/spray plastering machines.

Two-Way Hardwall Plaster consists of unaggregated gypsum plaster, and contains no asbestos.

APPLICATIONS
Two-Way Hardwall Plaster is designed for interior use over all accepted plaster bases as described in ASTM C842.

Two-Way Hardwall Plaster is intended to serve as a basecoat plaster for finish plasters, such as:
- Gold Bond® BRAND Gypsum Gauging Plaster
- Gold Bond® BRAND Kal-Kote® Smooth Finish
- Gold Bond® BRAND Kal-Kote® Texture Finish
- Gold Bond® BRAND Uni-Kal®
- Gold Bond® BRAND X-KALibur®

ADVANTAGES

Controlled Uniformity: Two-Way Hardwall Plaster is set-stabilized and adjusted for market requirements and seasonal changes. When mixed with sand or other aggregates, it has uniform working qualities and excellent spread.

Strength: Two-Way Hardwall Plaster properly proportioned with aggregate forms a hard, durable base for the finish coat that provides increased resistance to minor structural movements, impacts and abrasions.

Fire Resistant: Two-Way Hardwall Plaster is essentially mineral in composition and will not support combustion.

RECOMMENDATIONS
Use sand mix plaster for general application and compressive strength.

Use vermiculite plaster for additional fire resistance.

Use perlite mix plaster for lightweight and fire resistance, including columns and beams.
Gold Bond® BRAND Gypsolite® Plaster

DESCRIPTION
Gold Bond® BRAND Gypsolite® Plaster is a lightweight gypsum basecoat plaster mixed at the plant with correctly sized and proportioned perlite aggregate, requiring only the addition of water on the job. Gypsolite Plaster meets ASTM C28.

Gypsolite Plaster contains no asbestos.

APPLICATIONS
Gypsolite Plaster is designed for interior use in trowel application over gypsum or metal lath as described in ASTM C842.

Gypsolite Plaster is intended to serve as a basecoat plaster for finish plasters, such as:
- Gold Bond® BRAND Gypsum Gauging Plaster
- Gold Bond® BRAND Kal-Kote® Smooth Finish
- Gold Bond® BRAND Kal-Kote® Texture Finish
- Gold Bond® BRAND Uni-Kal®
- Gold Bond® BRAND X-KALibur®

ADVANTAGES

Controlled Uniformity: Gypsolite Plaster assures uniformity through exact proportioning and thorough mixing of graded perlite and gypsum plaster at the mill. Gypsolite provides a uniform base for the finish coat.

Lightweight: Gypsolite Plaster weighs less than half as much as sanded gypsum plaster, thus reducing the dead-load on framing as well as jobsite handling costs.

High Insulating Value: With a “k” factor of 1.5, Gypsolite provides about 3-1/2 times the insulating value of sanded plaster.

Fire Resistant: Gypsolite has excellent fire-resistant qualities and generally provides fire ratings higher than sanded plaster.

LIMITATIONS
Do not use smooth-trowel finish over metal lath, as the combination of a relatively soft (perlite aggregated) basecoat and a hard (smooth-trowel lime/gauging) finish has the potential for cracking and spalling of the finish coat. Instead, specify a sand float finish.
Gold Bond® Brand Super-White Gauging Plaster

DESCRIPTION
Gold Bond® Brand Super-White Gauging Plaster, quick set type or slow set type, is intended for jobsite mixing with hydrated lime. It consists of specially ground, calcined gypsum, which readily mixes with water and hydrated lime.

Proper proportioning is essential, since gauging adds strength and hardness to the finish surface by reinforcing the plastic non-setting lime against shrinkage and cracking.

APPLICATIONS
A finish coat of gypsum gauging plaster and hydrated lime, job mixed 2 parts hydrated lime to 1 part plaster by weight, is intended primarily for interior smooth trowel application over a gypsum plaster basecoat.

Apply smooth finish plasters at a thickness of not more than 1/16 in. (1.6 mm). Texture finishes should be applied at a thickness of not more than 1/8 in. (3.2 mm).

LIMITATIONS
Do not use a smooth-trowel finish over metal lath, as the combination of a relatively soft (perlite aggregated) basecoat and a hard (smooth-trowel lime/gauging) finish has the potential for cracking and spalling of the finish coat. Instead, specify a sand float finish.

TECHNICAL DATA

<table>
<thead>
<tr>
<th>Packaging</th>
<th>49.5 lb. (22.5 kg) / Bag</th>
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<tr>
<td>Approx. Coverage*</td>
<td>225 – 315 sq. ft. / Bag (21 – 29 m² / Bag)</td>
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*Based on 1 part plaster to 2 parts hydrated lime.
Gold Bond® BRAND
Super-White Moulding Plaster

**BASECOAT PLASTER APPLICATION**

**Two-Coat Work**

Apply first coat with firm pressure to form a good bond on the Gypsum Plaster Base or masonry base; then immediately double back (without cross-raking first coat) using material of same proportion to build proper basecoat thickness. Straighten to a true surface (without applying water) to receive the second (finish) coat.

Leave surface sufficiently rough and porous to provide suitable bond of the finish coat.

**Three-Coat Work**

**Scratch and brown coats:** Used for metal lath or direct masonry bases, and are performed in discrete steps.

**Scratch (first) coat:** Apply with sufficient material and pressure to obtain good bond over solid bases or form full keys through metal lath. Provide suitable material thickness for scratching (raking) to obtain good mechanical keying of the brown coat.

**Brown (second) coat:** Apply after the scratch (first) coat has set hard and is still damp. Apply to give mass and surface as for double-back in two-coat work.

**FINISH COAT PLASTER APPLICATION**

**General (Basecoat Condition)**

Application over a partially dry basecoat is preferred. If basecoat is thoroughly dry, wet with even application of water to a semi-dry condition. Avoid excess water. Do not apply finish to basecoats having free water on the surface.

**Smooth Troweled Finishes**

Scratch in tightly over the basecoat, covering the surface completely, then double back immediately with material from the same gauge, filling out to a true, even surface with total thickness of not more than 1/16 in. (1.6 mm).

Allow finish to "draw" (lose moisture to basecoat and ambient air) and firm up – then trowel it well to compact and close the surface under the edge of the trowel. Dash water on the surface for lubrication and development of soft material along trowel’s edge to fill surface depressions or other blemishes.

When finish plaster setting action is under way, a second (final) water troweling can be done with strong pressure to obtain a polished surface, if desired.

**DESCRIPTION**

Gold Bond® BRAND Super-White Moulding Plaster is a very white, finely ground gypsum, primarily used for all kinds of ornamental plaster work. Because of its low expansion, excellent strength and hardness, it is specially adaptable for casting in rubber, gelatin and other types of moulds. For casting purposes, only water is added. For run-in-place ornamental work, such as cornices, the moulding plaster is used with lime putty, mixed 2 parts lime to 1 part moulding plaster by weight. Complies with ASTM C59.

**TECHNICAL DATA**

<table>
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<tr>
<th>Packaging</th>
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<tbody>
<tr>
<td>Water Ratio*</td>
<td>15-18 qts. / Bag</td>
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</table>

*For casting purposes.
Texture Finishes

Apply finish as above to a true, even surface with total thickness not more than 1/8 inch (3.2 mm).

Allow finish to “draw” (lose moisture to basecoat and ambient air). Then begin floating, texturing or skip troweling to achieve desired texture. Additions of clean, graded silica may be required to achieve desired texture.

Drying

Allow conventional plaster systems to dry 30 days minimum under ambient conditions prior to final decoration. Variances in humidity or poor drying conditions may affect the drying process.

Painting Plaster

Various job conditions, such as suction differences, wet or only partially dry walls, and reactions between paint and lime, have caused unsatisfactory paint finishes, particularly on new construction.

Alkali-resistant primers specifically formulated for use over new plaster will permit decorating with oil- or latex-type paints.

Quality paint products should be used and paint manufacturer’s recommendations followed. Finished plaster should be painted or covered to conceal possible discoloration. The paint system should be suitable for use over plaster surfaces that contain lime, which has a pH of 10-13.

It is essential that plaster be sound and completely dry before painting. Conventional plaster may require 30 to 60 days to fully dry.

Limitations

- Not for exterior use.
- Do not use in interior areas where directly exposed to free water or severe moisture conditions.
- Do not use in areas subjected to temperatures exceeding 125°F (52°C) for extended periods.

Handling and Project Conditions

- Avoid water exposure during shipping, handling, storage and installation.
- Keep plaster material dry. Take adequate care while transporting, storing, applying and maintaining plaster. Store products off the ground, under cover and away from moisture sources.
- Maintain a temperature of at least 55°F (13°C) and not more than 80°F (27°C) before, during and after plastering.
- Provide adequate but not excessive ventilation.
- Prevent dryouts by covering heat ducts and window openings where necessary until material has come to a final set.
- Protect adjacent materials from soiling and spattering.

ASTM C59   Standard Specification for Gypsum Casting Plaster and Gypsum Molding Plaster
ASTM C472   Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete
ASTM C516   Standard Specification for Vermiculite Loose Fill Thermal Insulation
ASTM C549   Standard Specification for Perlite Loose Fill Insulation
ASTM C841   Standard Specification for Installation of Interior Lathing and Furring
ASTM C842   Standard Specification for Application of Interior Gypsum Plaster
National Gypsum Company   NGC Construction Guide
Expanded Metal Lath Types*

**PAPER-BACKED EXPANDED METAL LATH**
Available for use where more control over "push-through" or "blow-through" of plaster is desirable.

**DIAMOND MESH LATH**
Use as a plaster base and reinforcement on most types of walls and ceilings, over wood or steel framing, flat or curved surfaces. Diamonds are 5/16 in. (7.9 mm) wide.

**SELF-FURRING DIAMOND MESH LATH**
Use in stucco work, as a plaster reinforcement over interior masonry walls, or in steel column fireproofing. The self-furring dimples hold the metal lath 1/4 in. (6.4 mm) away from the plaster substrate.

**1/8" FLAT RIB LATH**
Use as a plaster base in all types of work where greater rigidity is required, such as reinforcement for basecoat in ceramic tile work. Sheets are reversible.

**3/8" RIB LATH**
Use for ceilings under steel joist construction and metal reinforced concrete floors. Also recommended for ceilings under concrete slab floors over steel joists.

*Metal products are not manufactured by National Gypsum Company.
Conventional Plaster Accessories*

**DOUBLE V EXPANSION JOINT**
Minimizes cracking in large plaster areas. Also provides ground to ensure proper plaster thickness.

**EXPANDED FLANGE SQUARE CASING**
Has short, 90-degree return at plaster surface, serving as a plastering stop.

**EXPANDED CORNERBEAD**
The 2-1/2 in. (63.6 mm) expanded flange ends 1/4 in. (6.4 mm) from the nose of the bead, providing reinforcement where needed most.

**COLD-ROLLED STEEL CHANNEL**
Used as studs for attaching metal lath in 2 in. (50.8 mm) solid partitions. For furring or runners in suspended ceilings.

**BEAM FURRING CLIP**
Used to attach lath to flanges of steel beams, joists and columns. Tempered spring steel.

**L RUNNER**
*Perforated* – Ceiling or floor support for 2 in. (50.8 mm) solid lath and plaster partition.

*Plain* – Ceiling support for 2 in. (50.8 mm) solid board partition using 1 in. (25.4 mm) shaftliner.

*Metal products are not manufactured by National Gypsum Company.*
Fire-Proof Columns And Beams With Metal Lath

**BEAM – 3-HOUR**

1. Concrete
2. Steel Deck
3. Plaster
4. Beam Furring Clips
5. Steel Beam
6. 3.4 lb. Diamond Mesh Metal Lath

**COLUMN – UL X402**

1. 3.4 lb. Diamond Mesh Metal Lath
2. Steel Cornerbead
3. Steel Column
4. Gypsum Perlite Plaster

Minimum Thickness
2 Hour – 1”
3 Hour – 1-3/8”
4 Hour – 1-3/4”

Suspended Metal Lath Details

**SUSPENDED METAL LATH CEILING**

1. Concrete Floor
2. Steel Joist
3. Hanger Clip
4. Hanger Wire
5. 1-1/2” C.R. Channel
6. 3/4” C.R. Channel
7. Metal Lath
8. Plaster

**BEAM PROTECTION**

1. Steel Beam
2. Hanger Wire
3. 1-1/2” C.R. Channel
4. Tie Wire
5. 3/4” C.R. Channel
6. Metal Lath
7. Beam Furring Clips
   No. 11 W and M-Gauge Spring Steel
8. Expanded Corner Bead
9. Gypsum Plaster
**Suspended Metal Lath Details**

**LIGHTING TROFFER**

1. 1-1/2” C.R. Channel
2. Casing Bead
3. Metal Lath

![Diagram of Suspended Metal Lath Details: LIGHTING TROFFER](image)

**SUSPENDED METAL LATH AT WALL – UNRESTRAINED**

1. Hanger Wire
2. 1-1/2” C.R. Channel
3. 3/4” C.R. Channel
4. Tie Wire
5. Metal Lath
6. Casing Bead
7. Flexible Dust Seal
8. Finished Wall Line

![Diagram of Suspended Metal Lath Details: SUSPENDED METAL LATH AT WALL – UNRESTRAINED](image)

**SUSPENDED METAL LATH AT WALL – RESTRAINED**

1. Hanger Wire
2. 1-1/2” C.R. Channel
3. 3/4” C.R. Channel
4. Tie Wire
5. Metal Lath
6. Casing Bead
7. Caulk
8. Finished Wall Line

![Diagram of Suspended Metal Lath Details: SUSPENDED METAL LATH AT WALL – RESTRAINED](image)

**SUSPENDED METAL LATH CONTROL JOINT**

1. Hanger Wire
2. 1-1/2” C.R. Channel
3. 3/4” C.R. Channel
4. Metal Lath
5. Gypsum Plaster
6. Expansion Joint

![Diagram of Suspended Metal Lath Details: SUSPENDED METAL LATH CONTROL JOINT](image)

**FURRED METAL LATH CEILING**

1. Bar Joist
2. Tie Wire
3. 3/4” C.R. Channel
4. Metal Lath
5. Gypsum Plaster

![Diagram of Suspended Metal Lath Details: FURRED METAL LATH CEILING](image)
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