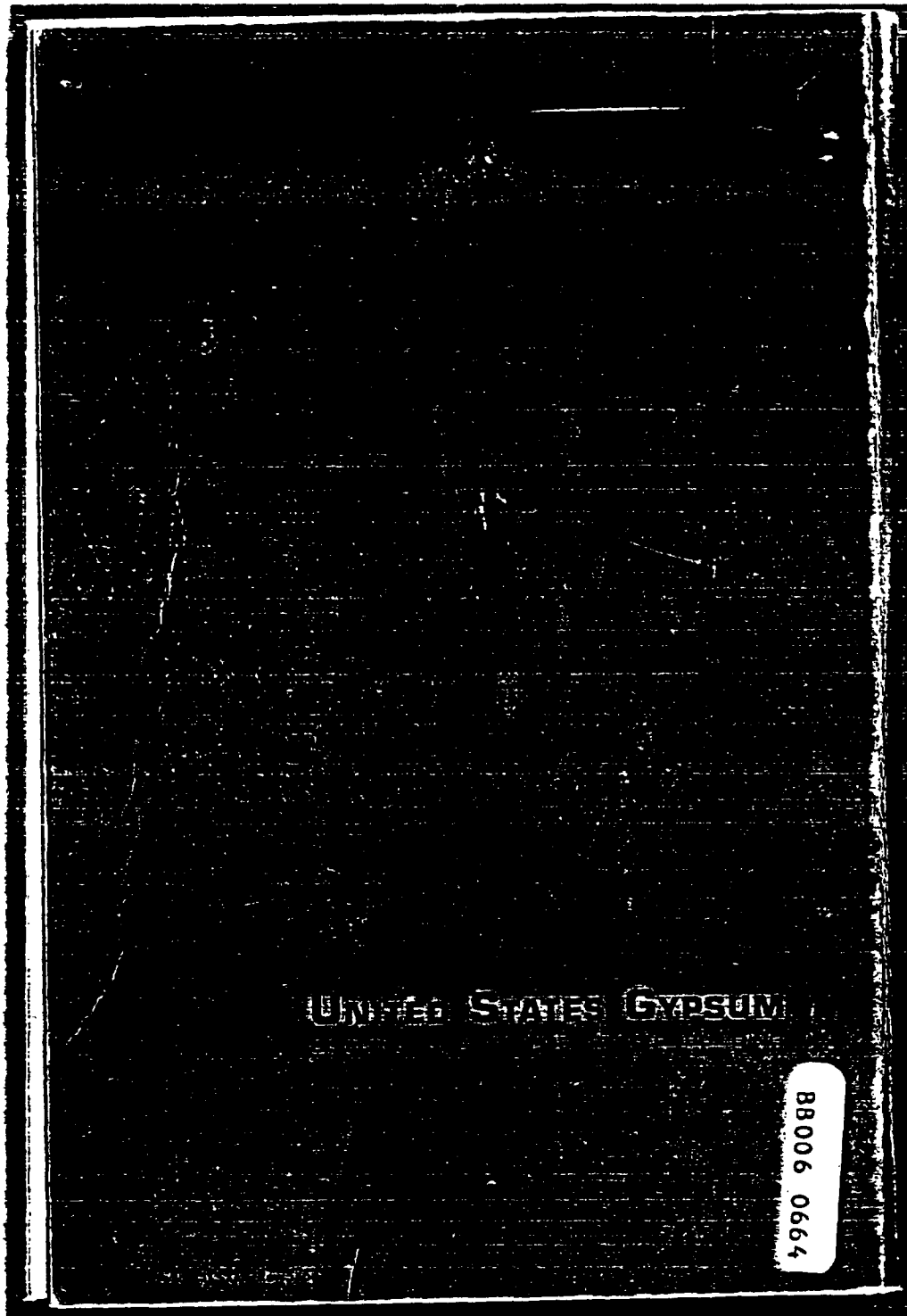
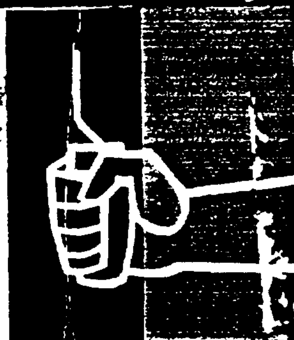


PLAINTIFF'S EXHIBIT

USG-1991

THE RED BOOK



of good lathing and plastering practice

UNITED STATES GYPSUM

This book is published as a guide to good lathing and plastering practice *on the job*. Why? Because we all know that a good plastering job is still the most potent sales promoter we in the plastering industry possess!

The RED BOOK is not intended as a complete architectural specification, which is available on special request in another form. Instead, it is designed for Contracting Lathers and Plasterers, Journeyman Lathers and Plasterers, Builders, General Contractors, and Architect's Superintendents—all in the interest of turning out the finest possible plastering work.

Let me remind you that any one of the distinguished USG trademarks listed below is your assurance of: (1) products of uniformly high quality; (2) products carefully researched and rigidly tested; (3) products accepted and trusted by trade and customers alike.

And, you can be sure that United States Gypsum will keep right on guarding the reputation of these products —just as it has been doing ever since the first one was developed and sold 'way back 50 years ago!

PLASTER... TO BE SURE!

Red Topper

YOUR USG SALESMAN

TRADE-MARK NOTICE: The following trade-marks identify the particular products manufactured only by the United States Gypsum Company.

RED TOP Plaster, Finishes and Lime
ROCKLATH Gypsum Lath
BONDCRETE Plaster for Concrete Surfaces
ORIENTAL Colored Plaster and Stucco Finishes
SABINITE Acoustical Plaster
CHAMPION Gauging Plaster
STAR Gauging Plaster
COVER COAT* Finishing Plaster
GRAND PRIZE Finishing Lime
IVORY Finishing Lime
MORTASEAL Masons Lime
PYROBAR Gypsum Partition Tile
COLOR-RITE* Metal Lath
TRUSSTEEL Truss Designed Studs
BRACE-TITE* Attachment Clips
BRIDJOINT Attachment Clips
TEXOLITE Paint Products
USG Gypsum, Lime and Steel
STRUCTO-LITE PLASTER

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The Red Book

of Good Lathing and Plastering Practice

UNITED STATES GYPSUM COMPANY

300 West Adams Street, Chicago 6, Illinois

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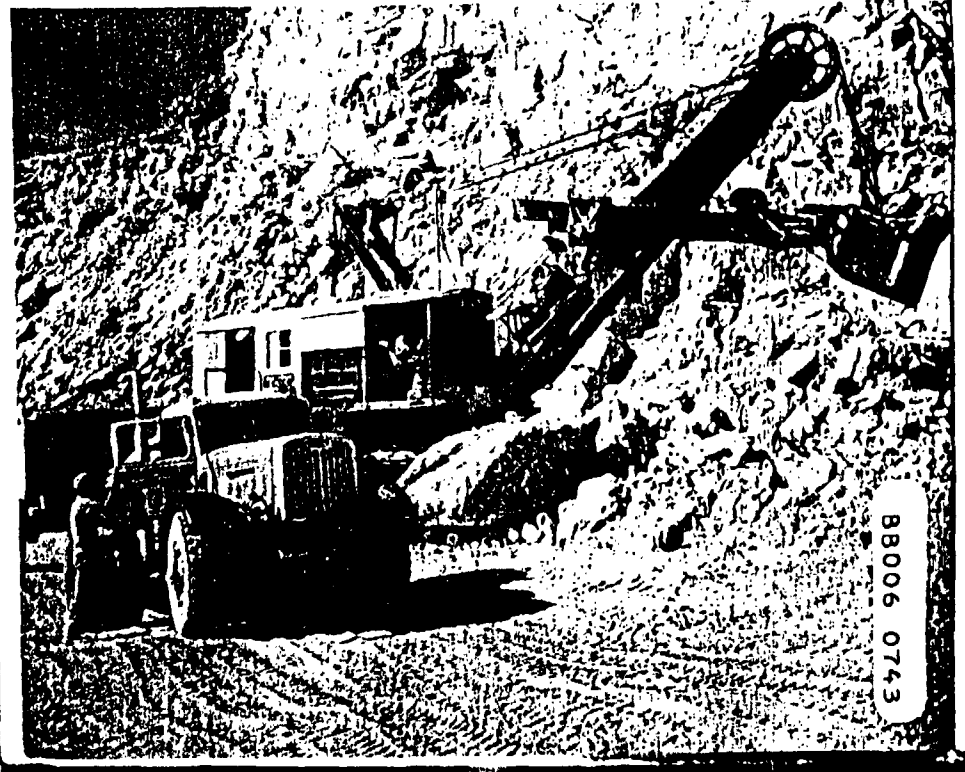
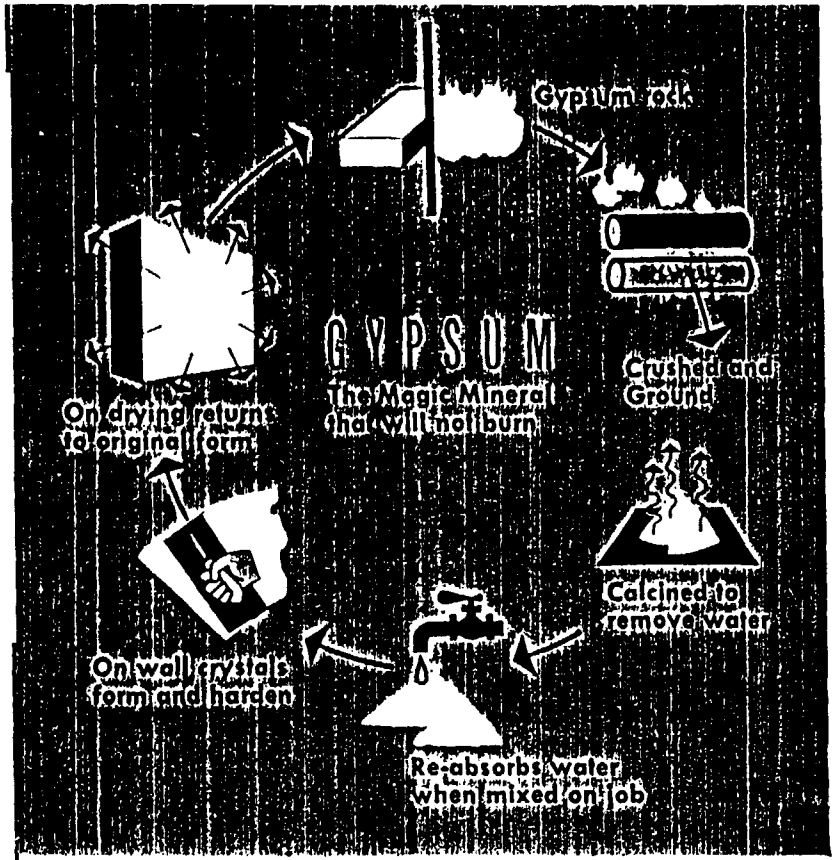


Gypsum...the basic material for lathing and plastering

What is Gypsum?

Gypsum is one of the most common minerals of the earth. Non-metallic, it is usually in the form of grey or white rock, found in veins varying from a few feet to 20 and 30 feet in thickness. Chemically, gypsum is a mineral composed of calcium sulphate combined with water of crystallization. This "dry" water makes up approximately 20 percent of the weight of raw gypsum rock, and it is this feature which gives gypsum its fire-protective qualities and makes it so adaptable for the manufacture of building materials.



How Gypsum is Processed

After gypsum is mined or quarried, it is crushed and ground and then calcined (or cooked) to remove the greater part of the chemically combined water. This calcined product, or Plaster of Paris, is the basic ingredient of all gypsum materials. Combined with other materials and water, it is used for the manufacture of gypsum lath, partition tile and gypsum plasters. When it is mixed with water to make gypsum lath or to make a plaster mix on the job, it re-absorbs the water removed in processing and reverts to gypsum. This recombination with water is why gypsum materials give such excellent fire protection to buildings.

BB006 0745

How Gypsum Protects Against Fire

When fire heats a gypsum wall or ceiling to about 212 F., the water of crystallization is gradually converted into steam. The water of crystallization effectively retards the spread of flame. For instance, in an average room 10 feet square finished with gypsum lath and plaster, the heat of a fire could convert the water of crystallization in the gypsum into sufficient steam to fill the room *three times*. The back of the gypsum wall will not be much hotter than 212 F. until all the water is gone—a slow process. This protects the wood framing, which doesn't start to burn until about 400 F.

Setting Action of Gypsum

Water is added to gypsum plaster on the job until the material is sufficiently plastic to spread easily under the trowel. After it is applied, the gypsum particles re-absorb part of the water from the mix and the plaster reverts through crystallization to the chemical form it originally had when taken from the ground.

Giant calciner in which crushed gypsum is cooked or boiled to form Plaster of Paris.

BB006 0746

The balance of the mixing water is dried out of the plaster slab through ventilation and evaporation. When crystals begin to form in gypsum plaster, it starts to harden; this is known as the "setting action" of gypsum. Gypsum which has been calcined begins to set soon after water is added.

RED TOP—Stabilized Set

Mill addition of special ingredients developed by USG Research has resulted in the famous "Stabilized Set" of all RED TOP plasters. RED TOP minimizes variability in sets often caused by sand and water impurities which would accelerate or retard the set of ordinary plaster. Whether machine or hand mixed—applied over *metal, wood, gypsum,* insulating lath, cement block, brick, clay or gypsum tile—a scratch or brown coat of RED TOP mixed with sand or lightweight aggregates (vermiculite, perlite) sets more uniformly. It also sets to more uniform hardness, providing a better surface for application of white coat. The set progresses evenly from the base out to the surface.

Why gypsum is better for building

In addition to its outstanding fire-protective qualities, the mineral gypsum will not rot nor decay and combines light weight *with strength.* It builds durable walls that last a lifetime, and may be economically adapted to any architectural design.

Plaster Bases

Proper use and application of USG plaster bases is important in the construction of strong durable finished walls and ceilings.

A secure bond between the plaster and plaster base is essential to develop strength and resistance to abuse and cracking.

Gypsum plaster adheres to a plaster base because a bond is developed which virtually makes the two materials a solid unit. A "mechanical" bond is formed when plaster is pressed through the mesh or holes of the lath, forming keys on the other side. The keys actually "rivet" the plaster and lath together. This mechanical bond results when plastering over metal lath or perforated gypsum lath.

A "suction" bond is formed when gypsum plaster is applied over gypsum lath, fiber insulation lath and masonry bases. In this case the tiny needle-like plaster crystals penetrate into the surface pores of the base by suction. When the plaster sets, the base becomes "welded" to the plaster. When perforated gypsum lath is used, both suction and mechanical bonds are developed.

ROCKLATH Plaster Bases

Plain ROCKLATH

Plaster Base is a gypsum lath made in sheet form in thicknesses of ⅜ in. and ½ in. It consists of a core of gypsum pressed and rolled between two layers of special absorptive paper, and is the standard of excellence for receiving gypsum base coat plaster.

ADVANTAGES

Fireproof—ROCKLATH has an incombustible gypsum core and will not transmit temperatures much over 212 degrees F. until completely calcined.

Resistant to Sound Transmission—Wood stud partitions with ROCKLATH and gypsum plaster on both sides have a high resistance to sound transmission. (*See* ROCKLATH Resilient System *page 58* for higher sound transmission resistance.)

Strong Bond—Gypsum plaster bonds to ROCKLATH with a safety factor of 144—far higher than required to meet usual construction standards.

Structurally Strong—Large units add resistance to racking of framing members.

Durable—Not harmfully affected by decay, dry rot or normal moisture. Will not attract vermin.

Economical—The low cost of ROCKLATH, its ease and speed of erection and savings in plastering are outstanding.

LIMITATIONS OF USE

1. Gypsum lath, ⅜ in. thick, is designed for supports not to exceed 16 in. o.c. For framing spaced more than 16 in. o.c. but not more than 24 in. o.c., ½ in. thick ROCKLATH should be used.
2. One-half inch ROCKLATH on supports over 16 in. o.c. must be plastered in three coat method.
3. Use with gypsum plaster only. Bond between lime or portland cement plaster and ROCKLATH is inadequate.
4. Gypsum lath and plaster, painted with 3 coats of lead and oil, has a vapor permeability of about 3¾ Perms (grains of water per square foot per hour per inch of mercury vapor pressure difference). For higher resistance to vapor transmission, use Insulating ROCKLATH plaster base.
5. Do not use in areas exposed to excessive moisture for long periods of time. Use galvanized metal lath and portland cement-lime plaster.
6. Where one hour fire resistive ratings are required, Perforated ROCKLATH plaster base should be used.

Perforated ROCKLATH

is identical to plain ROCKLATH except that ¾ in. round holes are punched through the lath 4 in. o.c. These perforations allow the applied plaster to "mushroom" through the holes and form "rivets" to mechanically key the plaster to the ROCKLATH, providing both mechanical and suction bonds.

ADVANTAGES

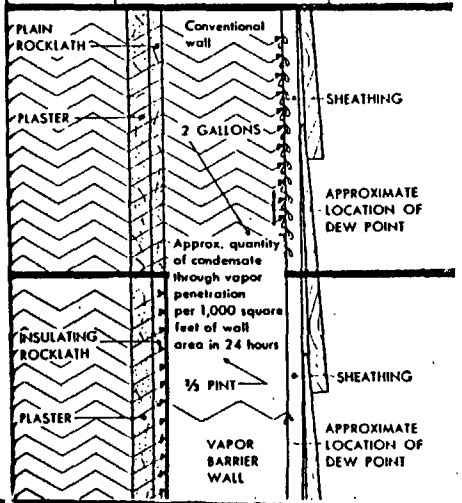
Same as plain ROCKLATH but with higher fire rating. Gives one hour fire rating on partitions with ½ in. gypsum plaster sanded 1:2-1:2 by weight, or gypsum-perlite plaster 100 lbs. to 2½ cu. ft. and a one hour rating on ceilings, with ½" gypsum perlite plaster proportioned 100:2½.

LIMITATIONS OF USE

Same as for plain ROCKLATH plaster base, except perforated ROCKLATH should not be used on ceilings with Resilient ROCKLATH clips or other side suspended clip systems.

Illustration of Importance of Vapor Barrier

Inside Atmosphere		Outside Atmosphere
70°F	Temperature	10°F
45%	Relative humidity	90%
3.63	Grains moisture per cu. ft.	0.69
0.332 in. HG.	Resultant vapor pressure	0.067 in. HG.



Insulating ROCKLATH

is manufactured with a sheet of bright aluminum foil laminated to the back of plain ROCKLATH. It provides insulation against heat and cold and is an effective vapor barrier.

ADVANTAGES

All those of plain ROCKLATH plus:

1. Insulating value equal to ½ in. fiber insulation board.
2. Aluminum foil is one of the best vapor barriers known and used commercially.
3. Economical—one material, one application provides plaster base, insulation, vapor barrier.

LIMITATIONS OF USE

Same as plain ROCKLATH plaster base. Use only on the interior of exterior walls and top floor ceilings.

IMPORTANT

When Insulating ROCKLATH is installed with at least a ¾ in. air space next to the foil, it has the same insulating value as a half inch of fiber insulating board. When used on horizontal surfaces, its insulating value is increased three times in retarding downward flow of heat.

An efficient vapor barrier should be installed in all exterior walls and ceilings where freezing weather occurs for extended periods of time. The vapor barrier should be located on the warm side of the exterior wall or top floor ceiling.

TECHNICAL DATA

PARTITIONS

Construction	Total Weight Lbs. per Sq. Ft. Lath and Plaster Only	Plaster & Aggregate	Thickness	Fire Rating Reference	Sound Transmission Loss & Reference
⅜" Plain ROCKLATH, nail-on 2" x 4" studs.	12.0	Gypsum-Sand 1:2—1:2	½"	45 min. (1)	41.1 (1)
⅜" Plain ROCKLATH nail-on, 2" x 4" studs.	11.0	Wood fiber plaster.	½"	1 hr. (1)	41.1 (2)
⅜" Perforated ROCKLATH nail-on, 2" x 4" studs.	12.0	Gypsum-Sand 1:2—1:2	½"	1 hr. (1)	41.1 (2)
⅜" Perforated ROCKLATH nail-on, 2" x 4" studs.	8.0	Gypsum-Perlite 100:2½	½"	1 hr. (1)	
⅜" Perforated ROCKLATH nail-on, 2" x 4" studs.	8.0	Gypsum-Vermiculite 100:2½	½"	1 hr. (1)	

CEILINGS

⅜" Perforated ROCKLATH nailed to 2" x 10" wood joists with ⅜" headed nails. ¾" sub floor—disphragm of asbestos paper—T&G finished floor.	6.0	Gypsum-Sand 1:2—1:2	½"	30 min. (1)	
Same as above except nails had ⅜" head.	6.0	Gypsum-Sand 1:2—1:2	½"	45 min. (1)	
⅜" Perforated ROCKLATH nailed to 2" x 10" wood joists with ⅜" headed nails (5 per lath per joist). Striplath applied to joists with ¾" nails having ½" head.	6.0	Gypsum-Sand 1:2—1:2	½"	1 hr. (1)	
⅜" Perforated ROCKLATH nailed to 2" x 10" wood joists with 1⅝" head nails—4 per lath per joist.	4.0	Gypsum-Perlite 100:2½	½"	1 hr. (1)	
		Gypsum-Vermiculite 100:2½	½"	1 hr. (1)	
⅜" Plain ROCKLATH nailed to 2" x 10" wood joists with 1⅝" head nails—4 per lath per joist—20 ga. 1" hex. wire mesh nailed to joists through lath.	4.0	Gypsum-Perlite 100:2½	½"	1½ hr. (1)	

(1) National Bureau of Standards BMS 92.

(2) Estimated to be same as plain ROCKLATH with sanded plaster.

ROCKLATH Plaster Base

Types—Recommended Stud Spacing—Special Uses

Recommended Stud Spacing for thickness indicated.

TYPES	SIZES	⅜"	½"	COMMENTS
Plain	⅜", ½" thick 16" x 48"	16" o.c.	24" o.c.	½" ROCKLATH is particularly adaptable to nailable steel framing spaced 24" o.c.
Perforated*	⅜", ½" thick 16" x 48"	16" o.c.	24" o.c.	Required for higher fire rating
Insulating	⅜", ½" thick 16" x 48"	16" o.c.	24" o.c.	Recommended for side walls and top floor ceilings for insulation and as a vapor barrier.
Plain Long Length V-edge	½" thick 24" wide by ceiling height up to 12'.			For constructing 2" Solid and 4" Long Length ROCKLATH and plaster partitions. (See pages 62, and 70)
Insulating Long Length Square Edge	⅜" thick 24" wide by ceiling heights up to 12'.			For application to exterior masonry walls using USG wall Furring brackets and ¾" channels. (See page 65.)

Perforated ROCKLATH is not recommended for ceiling applications when side-suspension clip attachments are used.

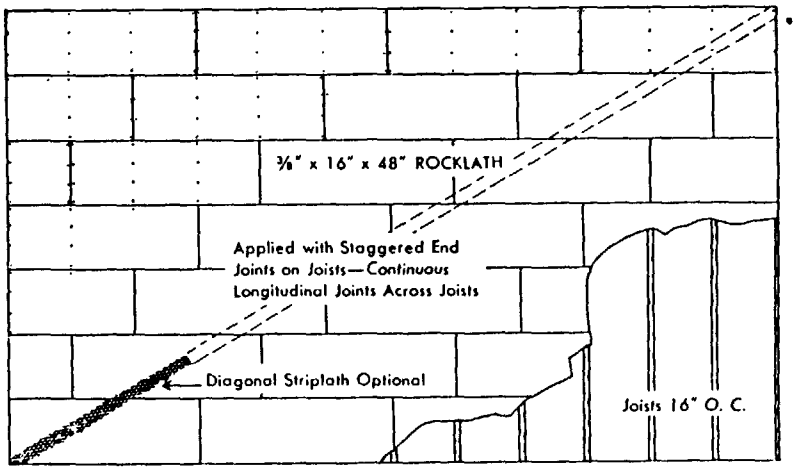
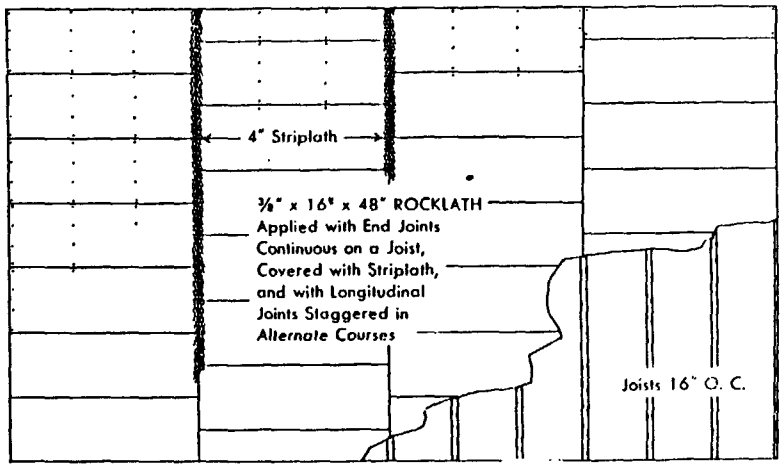


FIG. 1. (Ashlar pattern)

Sidewall and Ceiling Application
Apply 16 x 48 in. ROCKLATH with staggered end joints on studs or joists, spaced 16 in. o.c. Apply 4 nails per board per support—space approximately 5 in. apart, ⅜ in. from edges and ends.

FIG. 2. Alternate Ceiling Application (Canadian system)



Long Length ROCKLATH

plaster base ½ in. thick, 24 in. wide with V edges is used to construct 2 in. Solid ROCKLATH and plaster partitions and 4 in. Long Length ROCKLATH partitions. (*See pages 62, and 70*). Long Length Insulating ROCKLATH, ⅜ in. thick, is used as an economical furring application for exterior masonry walls, providing ease of erection, insulation and an excellent vapor barrier (*See page 65*).

ADVANTAGES

The same fire protection as other ROCKLATH plaster bases of corresponding thickness, as well as economy and ease of application.

APPLICATION of ROCKLATH

Proper Nails—For ⅜ in. ROCKLATH, nails should be 1⅝ in., 13 gauge blued, $^{19}/_{64}$ in. flat head, smooth diamond point. For ½ in. lath, use 1¼ in. length. For nailable steel framing (spaced not more than 24 in. o.c.) use nails of proper gauge with not less than ⅜ in. heads and long enough to develop the proper nail holding of the framing.

Nailing (Sidewalls and ceilings)—Space nails approximately ⅜ in. from the edges and ends, approximately 5 in. apart, using four nails per lath per support. For ½ in. ROCKLATH with supports more than 16 in. o.c., nails must be spaced approximately 4 in. apart using 5 nails per lath per support. For a one hour ceiling fire rating when using sand as the aggregate, 5 nails per lath per support plus striplath on joints must be used.

Sidewall and Ceiling Application—ROCKLATH plaster base should always be applied face out with the long dimensions at right angles to the framing members. On walls, the end joints should be made to fall on different supports in alternate courses. On ceilings, end joints are staggered as for side walls (*See Fig. 1*), or the ROCKLATH should be erected so that the end joints are made continuous on a support, in which case the end joints must be covered with 3 in. striplath and the long or edge joint offset or staggered (*See Fig. 2*). In all cases, ROCKLATH joints should be butted together.

Cornerite and Corner Bead Application—All inside corners should be reinforced over the ROCKLATH plaster base with cornerite. Staple or nail cornerite to retain position until secured by the plaster. Apply corner bead to all exterior corners by nailing through to the framing, or by stapling flanges firmly to ROCKLATH.

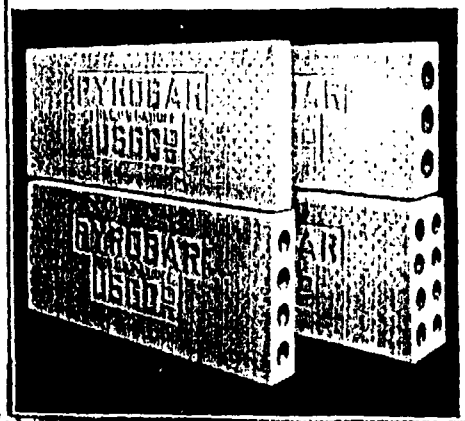
PYROBAR and Other Masonry Plaster Bases

PYROBAR

Gypsum Partition Tile — A precast gypsum tile for building non-load bearing fireproof partitions, either in new construction or alteration work. Because it is made of gypsum, it has a strong natural bond with gypsum basecoat plaster. PYROBAR is available in several types and thicknesses (*See chart, page 19*).

ADVANTAGES

Fireproof—3 in. hollow PYROBAR plastered two sides has 3 hour fire rating. 4 in. hollow PYROBAR plastered two sides has 4 hour fire rating.
Lightweight—30 to 50% lighter than other commonly used masonry units.
Plaster Bond—safety factor of 173.
Saves Plaster—large size, machine molded units lay accurately. Require 20% less plaster, as grounds are ½ in. instead of ⅞ in. or ¾ in. as with other masonry partitions.
Sound Resistant—3 in. hollow PYROBAR plastered two sides has a sound transmission loss rating of 39.2 decibels. 4 in. hollow PYROBAR plastered two sides has rating of 42.8 decibels.
Economical—low material cost . . . goes up fast . . . fewer joints, saves up to 20% of plaster and up to 40% of mortar . . . easy to cut, less waste.



LIMITATIONS OF USE

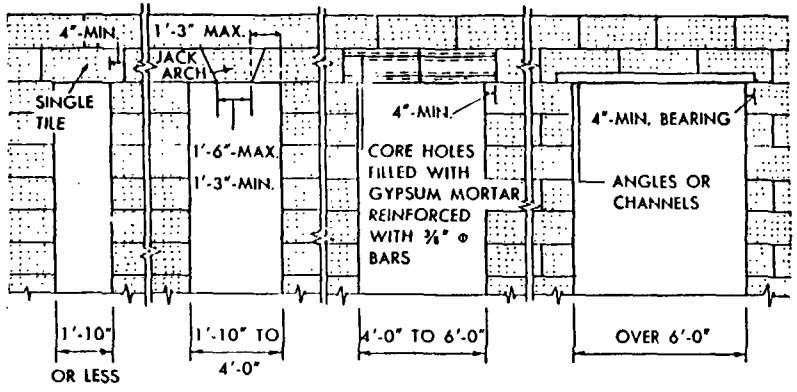
1. Do not use PYROBAR for load-bearing construction.
2. Portland cement and lime mortars do not bond adequately with PYROBAR. Use RED TOP Partition Tile Cement.
3. Do not use portland cement or lime plasters over PYROBAR. Use RED TOP Cement Plaster. Before applying portland cement bedding for ceramic tile, nail or staple metal lath to PYROBAR. Other types of masonry, such as structural clay tile also may be used as backing for ceramic tile.
4. Do not use as a base, or starter course, where there will be excessive water or moisture. Use clay tile or cement block.

DIRECTIONS FOR ERECTING

Mortar Requirements: use RED TOP Partition Tile Cement. Mix 1 part cement with 3 parts sand by weight. Mortar must *not* be retempered.

LINTEL SCHEDULE:

SCALE: ¼"=1'-0"



Erection: after door bucks are erected and rough plumbing and wiring are in place, lay the first course, with core holes horizontally, by bedding in mortar to a true and straight line. Lay succeeding courses in approximately ½ in. thick mortar beds, uniformly level in each course, and with vertical joints staggered. Cut all joints flush. Anchor partitions to intersecting masonry walls 12½ in. o. c. vertically, with corrugated wall ties or 16d or 20d cut nails in mortar joints. Wedge tightly at ceiling and slush all chinks and crevices full with mortar.

Anchor wood door bucks to the PYROBAR, laid in the mortar joints, with 16d cut nails or three buck ties each side (approximately 12 in. from top and bottom and at center). Jack-arch or lintel construction (*See above*) should be held about ⅛ in. above head of buck and not slushed with mortar.

Anchor steel door frames with proper ties, minimum of three each side (approximately 12 in. from top and bottom and at center), in mortar joints and slush space between tile and hollow frame with mortar.

APPLICATION OF BASECOAT PLASTER

Apply RED TOP Cement Plaster proportioned 3 to 4 parts of sand by weight or 3 to 4 cu. ft. lightweight aggregate per 100 lbs. plaster. (*See page 31.*)

Other Masonry Bases

Clay Tile and Brick—materials produced by exposing a clay putty to extreme heat until hardening has taken place. Clay tile is produced in 12 x 12 in. size in thicknesses usually 2 to 6 in. with scored faces.

Concrete Block—precast in molds using a slurry composed of cementitious materials and an aggregate. It is generally produced in 8 x 16 in. size in thicknesses usually 3 to 12 in. and must have rough, porous faces. Such units must be properly cured to minimize volume changes during and subsequent to plastering.

These masonry plaster bases are available in units for constructing interior bearing and non-loadbearing partitions and should be used as a backup for ceramic tile, terrazzo and cement bases. Portland cement-lime sand mortar is generally used for laying up, although RED TOP Partition Tile Cement can be used* where construction will not be exposed to undue wetting.

They are 30-50% heavier in weight than PYROBAR Partition Tile, and thickness for thickness, have a lower fire resistance rating.

Gypsum plaster may be applied direct to these units providing the surface is porous to develop proper suction or scored to develop adequate mechanical bond with plaster.

Monolithic Concrete—many class A multiple story fireproof buildings are constructed of poured reinforced concrete. Frequently, specifications require application of plaster basecoats direct to the concrete.

It is important, in order to secure proper bond between the concrete and gypsum plaster, that specifications for this particular application be *strictly* adhered to. (*See page 38.*)

PYROBAR Partition Tile Data

Size of PYROBAR Partition Tile	Limiting Partition Height	Approximate Weight per sq. ft. Tile	Partition Tile Cement Required per M sq. ft. Tile
2x12x30 in. solid	10 ft.	10 lbs.	500 lbs.
3x12x30 in. hollow	13 ft.	10 lbs. *8½ lbs.	700 lbs.
4x12x30 in. hollow	17 ft.	14 lbs. *12 lbs.	900 lbs.
6x12x30 in. hollow	30 ft.	20 lbs.	1300 lbs.

**Available only in areas serviced by U.S.G. mills producing this weight tile.*

WEATHERWOOD Fiber Insulating Plaster Base

A lath manufactured in size ½ x 18 x 48 in. from wood fibers which are felted together to produce a strong, rigid sheet having high thermal insulation value.

ADVANTAGES

Easy to Handle—rigid, lightweight and easily applied to studs or joists spaced not more than 16 in. o. c.

Excellent Insulation—"k-factor" is .33 Btu. Saves approximately 21% of heat normally lost through uninsulated exterior walls and top floor ceilings.

Superior Bond—with gypsum plaster.

Sound Resistance—when used on both sides of a wood stud partition and plastered with gypsum plaster, is approximately equal to 4 in. hollow clay tile partition, plastered both sides.

LIMITATIONS OF USE

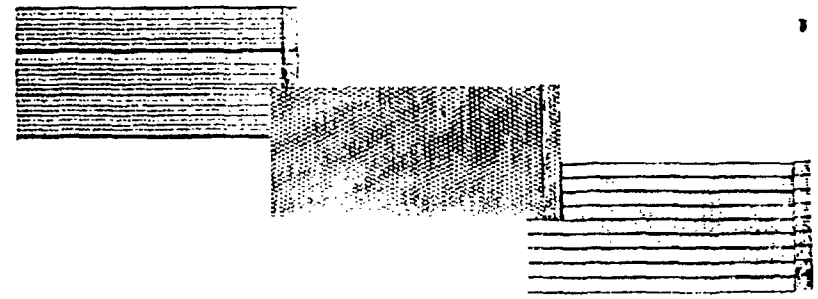
1. Apply only gypsum plaster basecoats to WEATHERWOOD. Portland cement and lime mortars do not bond properly.
2. It is not recommended to receive vermiculite aggregate plaster.
3. A full ½ in. plaster thickness is necessary.
4. Should not be used where exposed to excessive moisture or humidity.

LATHING DIRECTIONS

Apply WEATHERWOOD Plaster Base with the long dimension at right angles to the framing members, butted with staggered vertical joints. Joints between walls and ceilings should be staggered so that vertical joints on walls will not meet ceiling joints. Use regular 1⅛ in. blued lath nails; space nails approximately 4 in. apart, using 5 nails per support. Center end joints on framing members. Cut accurately and fit lath neatly around all electric outlet boxes, etc. Reinforce all interior angles with cornerite. Fasten the cornerite only sufficiently to retain its position until secured by the plaster. Apply corner bead to all exterior angles by nailing through to framing.

PLASTERING

See page 34, Basecoat Plaster Application, for plastering directions.



USG COLOR-RIGHT METAL LATH

USG COLOR-RITE Metal Lath is rust-resisting copper alloy sheet steel, slit and expanded to form a multitude of small mesh openings. It is further protected by dipping the expanded sheet into black asphaltum paint. (Exception: 3.4 lb. diamond mesh when made from galvanized sheets.)

ADVANTAGES OF USG COLOR-RITE METAL LATH

1. Strength and Reinforcing—Metal lath embedded within the plaster provides tensile strength in a manner similar to steel reinforcement in concrete slabs, thus providing high resistance to transverse impact. It decreases the hazards of serious cracks and failures due to structural movement of the frame.

2. Flexible—Readily shaped to ornamental contours to a degree not possible with other plaster bases.

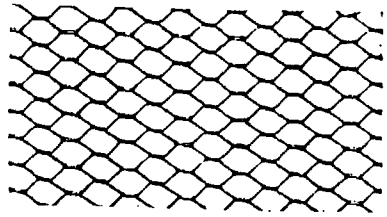
3. Quality Plastering—It makes the use of over-aggregated plaster in the scratch coat impractical.

4. Economy—Intended for highest quality, fire resistant, durable plastering with low maintenance costs.

5. Fire Resistance—Metal lath and gypsum plaster provide high fire ratings.

USG COLOR MARKING SYSTEM

USG COLOR-RITE Metal Lath is the newest development in the metal lath industry. Ends of bundles are spray painted *red* for all 3.4 lb. lath, *white* for 2.5 lb. diamond mesh and 2.75 lb. 3/8" riblath, *blue* for 4.0 lb. 3/8" riblath. This makes warehousing, inventory and job distribution easier and positive. An architect may quickly and visually inspect a job to make sure the weight lath he specified is used. When the lather erects the colored end to the right as we recommend, the plasterer saves up to 25 percent of the scratch coat; saves time and effort because of the uniform "drag" on his trowel since all sheets lay in the same direction.



USG COLOR-RITE Diamond Mesh Lath Size: 27 in. x 96 in.

A small mesh (approximately 11,000 meshes per yard) diamond pattern metal plastering base.

A general all purpose lath. Best for ornamental, contour plastering. The small meshes conserve plaster and reduce droppings.

Weights: 2.5 lbs. (End Painted White) and 3.4 lbs. (End Painted Red) per square yard. Galvanized available in 3.4 lb. weight only.

Limitations of Use—Specify "self-furring" for use as stucco base and 3.4 lb. galvanized where additional corrosion resistance is required.

USG COLOR-RITE 1/8 in. Riblath (Flat Riblath)

Size: 24 in. x 96 in.

A herringbone mesh pattern, with ⅛ in. deep Z-shaped ribs running lengthwise of the sheet at 1½ in. intervals.

Stiffening ribs and herringbone pattern increase rigidity, thus permitting a wider spacing of supports or a saving in the weight of lath required. Particularly suitable for attachment by nailing. Small meshes conserve plaster materials.

Weights: 2.75 lbs. (End Painted White) and 3.4 lbs. (End Painted Red) per square yard.

Limitations of Use—Its rigidity makes it unsuitable for contour lathing. Use Diamond Mesh.

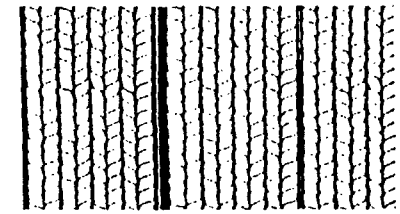
USG COLOR-RITE 3/8 in. Riblath Size: 24 in. x 96 in.

A herringbone pattern mesh with ⅜ in. deep V-shaped ribs running lengthwise of the sheet at 8 in. intervals, with inverted intermediate ⅛ in. ribs.

The heavy ribs provide exceptional rigidity. Used when supports are spaced more than 16 in. o.c. and not more than 24 in. o.c.

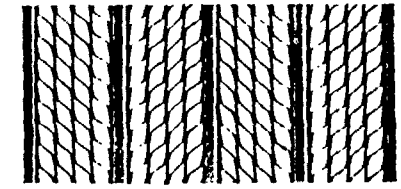
Desirable as a plaster base for heavy duty plastering.

Used as centering and reinforcement for concrete floor and roof slabs.



Weights: 3.4 lbs. (End Painted Red) and 4.0 lbs. (End Painted Blue) per yard.

Limitations of Use—Its extreme rigidity makes ⅜ in. Rib-lath unsuitable for contour lathing. Use Diamond Mesh Lath.



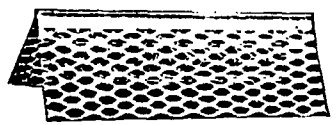
USG COLOR-RITE 4-Mesh Z-Riblath Size: 27 in. x 96 in.

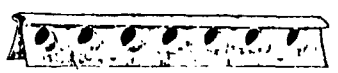
A "flat rib" type of lath with smaller mesh openings. An excellent nail-on lath, or for tie-on work on flat ceilings.

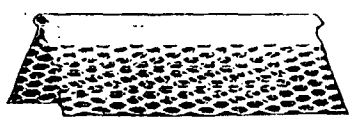
Weights: 2.75 lbs. (End Painted White) and 3.4 lbs. (End Painted Red) per square yard.

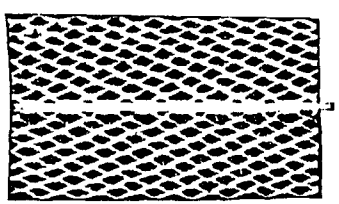
Limitations of Use—Use Diamond Mesh lath for contour plastering.

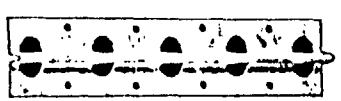
STRUCTURAL AND TRIM ACCESSORIES

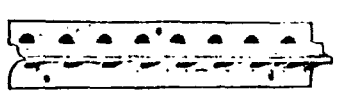












In order to assure a quality job throughout, USG offers a complete line of accessories. All beads, base screeds and picture mould made from 26 gauge galvanized steel.

1-A *Expanded* Corner Bead — Its wide expanded flanges are easily flexed. Preferred for irregular corners. Provides increased reinforcement close to nose of bead.

4-A Flexible Corner Bead — The general purpose corner bead. Economical and most generally used. By snipping flanges, this bead may be bent to any curved design (for archways, telephone niches, etc.).

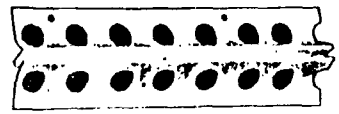
5-A Bull Nose Corner Bead — A ¾ in. radius bull nose bead with short flange. Used for rounded corners. Can be secured to corners with No. 9-A Corner Bead Clips attached to flanges, where wide nailing flanges are required.

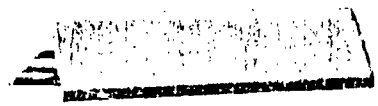
10-A *Expanded* Bull Nose Corner Bead — A bull nose bead similar to above, but with 2½ in. wide expanded flanges. Especially suitable on irregular corners.

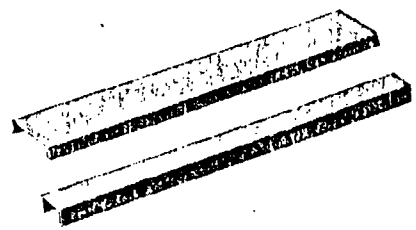
3-A *Expanded* Wing Base Screed — A flush type ½ in. ground with wide flexible expanded flanges for added reinforcement or for attachment to uneven surfaces. Used as a dividing point between plastered surfaces and portland cement or terrazzo.

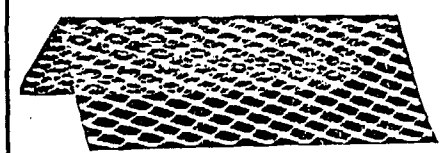
6-A Plain Base Screed — A flush type ½ in. ground (job shimmed for ¾ in. grounds), used at the juncture of differing finishes; as between plaster and terrazzo surfaces.

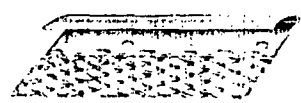
7-A Curved Point Base Screed — For use where base or wainscot is to project beyond the plastered surface. Made for ½ in. plaster ground (job shimmed for ¾ in. grounds) with ½ in. projection for base or wainscot.

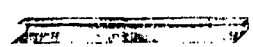












8-A Picture Mould — A concealed mould. Attached to lath and plastered flush to the slotted opening. Grounds ½ in. (job shimmed for ¾ in. grounds).

USG 2 in. Partition Terminal — A terminal for use as a partition cap and plaster ground in 2 in. solid plaster partitions with either metal lath or ROCKLATH plaster base. Cap is formed of 18 gauge steel, welded to 24 gauge punched runner assembly prime coated. Length 8 ft. 2 in.

Lathing Channels — Strong, lightweight channel sections used for furring, suspended ceilings, partitions, etc. Sizes: ¾ in. or 1½ in. deep, 16 ft. or 20 ft. lengths. Weights: ¾ in. 300 lbs. per M Lin. Ft., 1½ in., 475 lbs. per M Lin. Ft. Made of 16 gauge steel, black asphaltum painted.

USG Selv-Edge Cornerite and Striplath — Cornerite is a 4 in. or 6 in. wide strip of 2.5 lb. copper alloy painted diamond mesh lath, bent to form a 100° angle, length 96 in.

Striplath is a 3 in., 4 in. or 6 in. wide strip of 2.5 lb. diamond mesh lath, copper alloy, painted, 96 in. long.

Metal Door and Window Casing Beads Used as a plaster stop and ground at window and door openings, eliminating wood trim.

Available in expanded flange in No. 4, Quarter round, No. 60, Semi-square and No. 66, Square, ½″ and ¾″ grounds only; in short flange, No. 138, Quarter round, No. 60, Semi-square, No. 66 Square, in ½″ ¾″ and ⅞″ grounds. All casings furnished in 7′, 8′ and 10′ lengths. No. 4 and No. 138 made from 22 gauge and No. 60 and No. 66 from 24 gauge galvanized steel.

APPLICATION of METAL LATH

IMPORTANT

Observe the minimum weights of lath for spacing of supports listed in tables at the end of this section. Use *only clean sand, perlite or vermiculite* for plastering. Do not use unwashed salt water sand. When humidity is higher than normal and moisture or acid fumes are anticipated, contact your nearest USG Sales Office for proper recommendations.

How to Erect COLOR-RITE METAL LATH

1. Lath ceilings first with sheets carried down six inches on to the walls and partitions. If metal lath is not used on the ceiling, then carry out metal lath six inches from the walls onto the ceiling joists.
2. Apply metal lath with long dimension of the sheet running across the studs, joists or furring channels. Secure sheets by nailing or stapling along studs or joists and tieing to channels at not more than six inch intervals.
3. On sidewalls, begin lathing at top and continue downward. Place sheets so that the lower sheet laps over the upper sheet. Diamond mesh lath is carried around corners at least one stud spacing.
4. Riblath on both sidewalls and ceilings is applied with ribs against the supports.
5. Lap diamond mesh at sides not less than ½ in. and at ends not less than 1 in. Riblath is lapped at sides by nesting outside ribs, and at ends by lapping not less than 1 in.
6. Tie all side laps with 18 gauge tie wire at least midway between joist or stud supports, but at not more than 9 in. intervals.
7. Ends of sheets generally should occur over supports; if between, ends of sheets must be securely laced together with 18 gauge tie wire.
8. Staggering of sheets is preferred, but not essential.

How to Nail COLOR-RITE METAL LATH

DIAMOND MESH and FLAT RIBLATH

On walls—4d common nails driven ¾ in. and bent to engage three strands, or 1 in. 7/16 in. head roofing nails, or 1 in. No. 14 wire staples.

On ceilings—1½ in. No. 11 gauge, 7/16 in. head barbed roofing nails.

⅜ IN. RIBLATH

On walls—4d common nails driven through the rib or 6d common nails driven ¾ in. and bent over the rib.

On ceilings—1½ in. No. 11 gauge 7/16 in. head barbed roofing nail driven through the rib.

Lathing nails—for 16 in. stud spacing, nailing 6 in. o.c. requires approximately 17 nails per sq. yd.

ERECTION DATA

Type of Lath	Weight Per Square Yard	Type of Steel
Diamond Mesh	2.5 lb.	Copper Alloy (1)
Diamond Mesh	3.4 lb.	Copper Alloy
Diamond Mesh	3.4 lb.	Galvanized (2)
⅛" Z-Rib	2.75 lb.	Copper Alloy
⅛" Z-Rib	3.4 lb.	Copper Alloy
⅜" Rib	3.4 lb.	Copper Alloy
⅜" Rib	4.0 lb.	Copper Alloy
STUCCOMESH	1.8 lb.	Copper Alloy
STUCCOMESH	3.6 lb.	Copper Alloy

Notes

(1) Copper alloy lath contains from 0.2% to 0.25% pure copper.
(2) Galvanized lath is cut from galvanized sheets.
(3) STUCCOMESH generally applied over exterior sheathing.

MAXIMUM ALLOWABLE SPACINGS

Size Sheets	VERTICAL SUPPORTS METAL: Wood	Solid Partitions	Others (5)	HORIZONTAL SUPPORTS: Wood or Concrete	Metal
27" x 96"	16"	16"	12"	(4)	(4)
27" x 96"	16"	16"	16"	16"	13½"
27" x 96"	16"	16"	16"	16"	13½"
27" x 96"	16"	16"	16"	16"	12"
27" x 96"	19"	24"	19"	19"	19"
24" x 96"	24"	24"	24"	24"	24" (6)
24" x 96"	24"	24"	24"	24"	24"
48" x 99"	16" (3)				
48" x 99"	16" (3)				

All metal lath (except galvanized) is painted with a rust-inhibitive black asphaltum paint.

(4) Not recommended, except for fireproofing of steel shapes.
(5) Including vertical furring.
(6) ASA recommends 19 inch centers.

Nail Data

	Length	Gauge	No. per lb.
Large Headed Barbed Roofing Nails			
7/16 in. head	1 in.	No. 11	275
	1½ in.	No. 11	188
Common Nails	4d	No. 12½	316
	6d	No. 11½	181

Tie-Up Work

For tying metal lath to channels use 18 gauge galvanized annealed tie wire. For tying channels to channels (horizontal or vertical construction) use 4 strands of 18 gauge or 2 strands of 16 gauge galvanized annealed tie wire. (Types and weights of Metal Lath, and Spacing of Supports)

Estimating Quantities

For Suspended Ceilings—The following "rule of thumb" method will be found helpful in making a quick approximate quantity estimate.

1. Determine surface area in square feet. Example: ceiling area 30 x 100 feet = 3,000 square feet. Divide by 9 to determine square yards of metal lath required.

Assume standard suspended ceiling construction of 1½ in. runner channels 4 feet apart, and ¾ in. furring channels either 12 in. or 16 in. apart, depending on type and weight of metal lath used.

2. Quantity of 1½ in. channels 4 feet apart—divide square foot area by 3½ (3,000 divided by 3½ = 860 lineal feet)

3. Quantity of ¾ in. channels 12 in. apart—multiply square foot area by 1.1. (3,000 x 1.1 = 3,300 lineal feet)

4. Quantity of ¾ in. channels 16 in. apart—multiply square foot area by 0.8. (3,000 x 0.8 = 2,400 lineal feet)

5. Figure tie wire at approximately 10 pounds per 100 square yards of lathing.

Ceiling Height	Lineal Feet of Ceiling Member Required	Lin. Ft. of Floor Member Required
7 ft.	127 ft.	127 ft.
8 ft.	113 ft.	113 ft.
9 ft.	100 ft.	100 ft.
10 ft.	90 ft.	90 ft.
11 ft.	82 ft.	82 ft.

Lath one side—100 sq. yds.
Lath two sides—200 sq. yds.

With Spacing of Studs	Approx. Lineal Feet of Studs Required
12 in.	912 ft.
16 in.	690 ft.
19 in.	590 ft.
24 in.	460 ft.

Basecoat Plasters

Basecoat plasters are applied to bases of masonry or lath and support the finish coat. Their primary functions are to cover the base, receive the finish coat, and tie together all units into a durable continuous slab.

Of the three general types of basecoat plasters, gypsum plaster is by far the most modern and widely used. Portland cement plaster excels for a few specialized uses, while lime plasters—very limited in use—have been largely replaced by gypsum and portland cement.

RED TOP Gypsum Basecoat Plasters

ADVANTAGES

Uniform—setting time is stabilized. Hazards due to job conditions and variables in water and aggregates are minimized. Controlled set assures maximum hardness and high tensile strength.

Fireproof—gypsum is incombustible, will not transmit high temperatures until completely calcined. It actually fights fire by retarding spread of flame.

Plastic—gypsum base coats are highly workable and easy to apply.

Strong—capable of withstanding normal wear and abuse for the lifetime of the building.

Adaptable—gypsum bonds firmly to any approved plaster base and will take any type of finish coat.

Economical—high coverage with minimum effort. Easily worked and mixed.

GENERAL LIMITATIONS OF USE

1. Aggregate must be added strictly according to specifications. Use of too much aggregate reduces the strength of the plaster slab.
2. Red Top Cement, Sanded, Structo-Lite or Wood Fiber Plasters should never be applied to concrete. Use Bondcrete or Cover Coat as required according to directions.
3. Red Top Plasters should not be used on exteriors exposed to the elements, or on interiors where excessive water or moisture is expected. Use Portland cement-lime plaster.
4. Bituminous compounds do not provide a good base for gypsum plaster basecoats. Therefore, do not apply such plasters to masonry walls and concrete that have been treated with these compounds.
5. Because of possible moisture condensation or water seepage, direct plastering to the inside of exterior masonry walls is not recommended. Such walls should be furred prior to plastering.
6. When used in conjunction with Radiant Heating systems, the temperature at the surface of plaster shall not exceed 115° F, nor shall water in the pipes embedded in the plaster exceed 125° F. Gypsum-sand plaster has approximately three times the conductivity of gypsum-lightweight aggregate plasters.

Aggregates

Aggregates in the form of sand—and more recently, perlite and vermiculite—are added to gypsum cement plasters to extend coverage and reduce cost. They also act as a gauging agent to minimize shrinking of gypsum in setting.

The proper use and proportioning of aggregates with gypsum plaster determine the ultimate strength and hardness of a plastered wall. Typical compressive and tensile strengths that result with use of sand and lightweight aggregates (perlite, vermiculite) in varying plaster mixes are shown in the following chart:

The American Society for Testing Materials in ASTM Designation C35-39 has established the following specifications which are regarded as standard for the proper gradation of good plastering sand:

Size of Sieve	Percentage of Sand Retained Max.	Min.
No. 4 (4760-micron)	0	—
No. 8 (2380-micron)	10	0
No. 30 (590-micron)	80	15
No. 50 (297-micron)	95	70
No. 100 (149-micron)	—	95

The amount of material finer than a No. 200 (74 micron) sieve shall not exceed 5%.

SAND

Sand is the most commonly used plaster aggregate because it is economical and widely available. Proper proportioning and gradation of sand are most important in determining bulk and working qualities of plaster, and the ultimate quality of the finished wall. Over-sanding or the use of an excessive amount of fine sand reduces the strength and hardness of gypsum plasters.

VERMICULITE

is mined as a mica rock, ground and expanded under heat into lightweight granules for use as a plaster aggregate. It should weigh between 7½ lbs. and 10 lbs. per cubic foot and comply in gradation with ASTM specification for sand. (*See below.*)

Walls plastered with gypsum plaster containing vermiculite as an aggregate have lower strength and re-

Recommended Proportioning & Coverage

Plaster Base	Gypsum Cement Plaster (weight) Sand (weight) Gypsum Lath	Insulation Lath	Metal Lath	Gypsum Cement Plaster (100 lbs.) or Perlite or Vermiculite (cu. ft.) Brick-Clay Tile	Gypsum Tile
Two Coat Work Scratch-Double Back	1:2½	—	—	1:3 to 1:4	1:3 to 1:4
Three Coat Work Scratch Coat	1:2	1:2	1:2	—	—
Brown Coat	1:3	1:3	1:3	—	—
Coverage Range Sq. Yds. Per Ton	175-220	175-220	90-125	175-200	200-240

Note: Vermiculate Aggregate is not recommended for use over fiber insulation lath.

Relative Strength of Various Plaster Mixes

	Wood Fiber	Cement Plaster			Cement Plaster			
		Plaster to sand by weight			Vermiculite per 100 lbs. Cement Plaster		Perlite per 100 lbs. Cement Plaster	
Mix	Neat	1:1	1:2	1:3	2 cu. ft.	3 cu. ft.	2 cu. ft.	3 cu. ft.
Compressive Strength lbs. per sq. inch.	2600	2100	1200	750	500	300	1000	650
Tensile Strength lbs. per sq. inch.	440	245	170	120	130	90	165	105

When the proper amount of aggregate has been used, each grain of aggregate is cemented on all sides to its neighbors by the gypsum. When the proportion of aggregate to plaster is excessive, the aggregate is not properly cemented. See illustrations below.

quire a longer period for drying than walls of sanded plaster, but are lighter in weight and have greater fire resistance.

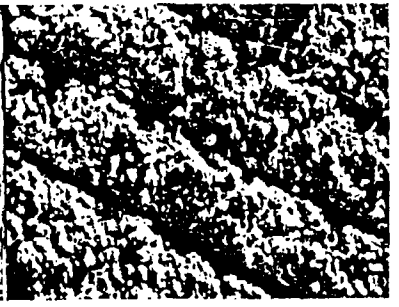
Where hard finish coats (Keenes cement) are to be used, reduce the proportion of vermiculite to gypsum plaster in the basecoat. Vermiculite is proportioned with gypsum plaster on a volume of aggregate to weight of plaster basis, and strict compliance with the table on Page 31.

PERLITE

Perlite is a relatively new lightweight plaster aggregate produced from a volcanic rock. The perlite ore is ground and screened to proper size, then expanded to produce a light grey or white colored aggregate. Perlite aggregate for plastering should weigh between 7½ and 15 lbs. per cubic foot. It should meet ASTM C35-39 gradation requirements except that the minimum percentage

PROPER AMOUNT OF AGGREGATE

EXCESSIVE AGGREGATE



retained on a No. 100 sieve shall be decreased from 95 to 90 percent. It has excellent fire-resisting qualities and when mixed with gypsum plaster it provides a higher strength plastered wall than does vermiculite. (*See* comparative strengths of various basecoat plasters, *page 32.*)

Perlite is added to gypsum plaster on a volume of perlite to weight of plaster and should be proportioned in accordance with the same specifications as for vermiculite.

Note: See precautions, page 34, if perlite or vermiculite aggregate is to be used with plaster on radiant heating jobs.

WATER

All gypsum plasters require the addition of water on the job. Water provides lubrication and workability to permit application to the plaster base. It also induces the proper setting of gypsum. As a general rule, any water fit to drink is suitable for mixing with plaster.

MIXING

Gypsum basecoat plasters may be machine or hand mixed. The former is preferred because it disperses the plaster, the aggregate and the water more evenly.

Machine Mixing—place the required water in the mixer. Add approximately half the required aggregate. Add all the plaster. Add the balance of the aggregate. If necessary add more water to obtain the proper consistency. Mix not less than 1 minute or more than 3, depending on the speed of the mixer. Dump the entire batch at once. Clean the mixer thoroughly when not in use or continuous operation.

Box Mixing—dry mix plaster and aggregate together until completely blended. Add water, and hoe plaster into the water until thoroughly mixed to proper consistency.

PLASTER GROUNDS AND THICKNESS

To attain proper wall strength it is essential that the plaster slab be applied to the proper thickness. This is controlled by the use of grounds.

Grounds should be set to provide a minimum plaster thickness of: (a) ½ inch over gypsum lath, fiber insulation lath and gypsum partition tile; (b) ⅝ inch over brick, clay tile or other masonry, (c) over metal lath when measured from the face of the lath, to provide a total minimum thickness of ¾ in.

APPLICATION of RED TOP PLASTERS

Plastering specifications may require either two-coat or three-coat work.

Two-Coat Work consists of one base coat and one finish coat. It is generally used over a masonry plaster base and often over gypsum lath. The basecoat plaster is applied in one coat by either the "single-foot" or the "scratch-double-back" method to slightly less than the thickness of the grounds. It is rodded and darbied to a true, even surface left rough enough to take the finish coat.

Three-Coat Work consists of two separate base coats and a finish coat. Three coats are required over fiber insulating or metal lath. The first or "scratch" coat properly aggregated is applied to a thickness of approximately ¼ inch over the face of the lath and then cross raked before it sets. This provides a mechanical key for the brown coat.

The brown coat is then applied directly to the *set* scratch coat. The brown coat is used to fill out to just slightly below the grounds and is rodded and darbied to a true, even surface. It is left rough enough to properly receive the finish coat.

IMPORTANT JOB PRECAUTIONS

1. Equipment and Storage of Materials—All successful plaster jobs require adequate equipment (mortar boxes, mortar boards, scaffolding and tools). Every job should be properly planned to provide ample scaffolding to permit continuous application of both basecoat and finish plasters for a complete panel of either a wall or ceiling. Keep all mixing tools clean. Wash them in clear water only. Keep plaster stored in a dry location. Stack on planks raised off the ground and away from damp walls or floors.

2. Heating—Plaster must not be applied to surfaces that contain frost. A minimum temperature of 55° F. should be maintained in the building for an adequate period prior to, during and after the application of the plaster. In cold, damp or rainy weather, properly regulated heat should be provided, but precautions must be taken against too rapid drying before set has occurred. This avoids "dry outs."

3. *Ventilation*—As soon as the plaster has set, free circulation of air should be provided to avoid "sweat outs." After plaster has set, heating should be continued to insure as rapid drying as possible. In hot, dry weather, protect the plaster from wind, and from drying unevenly or too rapidly before set has taken place. If glazed sash are not in position, exterior openings in the building should be screened with cheesecloth or similar material.

4. Finishing Over Lightweight Aggregate Basecoats—The use of lightweight aggregates (perlite and vermiculite) with gypsum basecoat plasters often results in a basecoat having a high suction (because of higher porosity). In applying a finish coat over this high suction base, the water in the finish coat is quickly sucked into the thirsty basecoat making application of finish extremely difficult, due to loss of easy working characteristics of the finish plaster. Furthermore the finish coat is sometimes susceptible to severe check cracking, because water is sucked out before ganging plaster is set—thereby nullifying purpose of the gauging plaster (provide initial set to avoid possible shrinkage of the lime-putty finish).

Necessary precautions should be taken to apply finish coat plaster before the basecoat becomes thoroughly dry. When a basecoat has become bone dry, before finishing, spray lightly with water to eliminate the excessive suction of the basecoat, then apply finish coat.

5. Radiant Heating—The Gypsum Association makes the following recommendations when radiant heating coils are specified for use in a ceiling or are to be embedded in the plaster slab.

a. In all radiant panel heating systems where gypsum plaster or gypsum products are concerned, the surface temperature shall not exceed 115 degrees F. In those systems where pipes are embedded in gypsum plaster, this shall be met by requiring the water temperature in the pipes in contact with the plaster not to exceed 125 degrees F. (*Note: This is in agreement with the maximum surface temperatures listed in the ASHVE Guide which have been established from a comfort standpoint.*)

b. The temperature of the gypsum plaster shall not exceed 90 degrees F. or atmospheric temperature, whichever is greater, until the plaster has set and is thoroughly dry.

c. Where heating elements are embedded in gypsum plaster, a minimum cover of ⅜" shall be maintained over the coils.

d. In radiant panel heating systems where the pipes are to be embedded in plaster applied to metal lath or gypsum lath, these pipes shall be supported by the *framing* and *not* by the lath alone.

e. Gypsum plaster, when used with radiant panel heating systems, shall be mixed and applied in accordance with the ASA A42.1 "Standard Specifications for Gypsum Plastering."

The design of a radiant panel heating system is the responsibility of a heating engineer, and the lathing and plastering specifications *must* be established by the designer. Therefore, lightweight aggregates (vermiculite and perlite) or mill mixed plasters incorporating them (Structolite), should *not* be used unless the heating engineer, heating contractor or architect have designed the heating system for their use, as light weight aggregates offer greater resistance to the flow of heat than plasters mixed with sand.

Radiant heating coils should *not*

be used to heat the building or dry the plaster slab in which they are embedded. The heating system should only be turned on and brought up to operating temperatures very slowly after the plaster slab is thoroughly dry.

RED TOP Cement Plaster

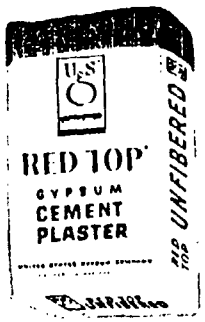
This is a "neat" gypsum plaster which requires the addition of an aggregate (sand, vermiculite, perlite) and water on the job. It is the most common base coat plaster because job-addition of aggregate generally provides lowest cost. It is used for both scratch and brown coat work, and for application over all approved plaster bases.

Red Top Cement Plaster is available in three types: unfibered, fibered, and extrafibered. It is usually desirable to use extra fibered plaster for scratch coat work on metal lath. It helps hold plaster mortar to lath until set takes place. Unfibered plaster is suitable for use over all other bases.

The use of fiber in plaster undoubtedly stems from its use with lime base coat plasters years ago. Lime does not set and requires a long period of time to harden. Consequently fiber was necessary to add cohesiveness to the mass.

ADVANTAGES

Red Top Cement Plaster is fireproof, adaptable, plastic, uniform and strong. It is perhaps the most economical base coat plaster in use today.



LIMITATIONS

see general limitations noted on page 30. Job-addition of aggregates must be in strict accord with gradation and proportioning specifications.

RED TOP Sanded Plaster

This is a mill-prepared base coat plaster containing the correct proportions of well graded plastering sand. It is ready for use with the addition of water only.

ADVANTAGES

particularly adaptable to areas where good plastering sand is not locally available. Avoids possibility of oversanding, or improper gradation, thus assuring proper strength. Eliminates problem of frozen sand in the winter.

LIMITATIONS

see general limitations, page 30. Cost is somewhat higher than job-sanded Red Top Cement Plaster.

RED TOP Wood Fiber Plaster

This is a mill prepared base coat plaster containing a wood fiber aggregate and requiring the addition of water only on the job. Over masonry surfaces, one part sand by weight may be added for easier working qualities, and to minimize shrinkage cracks.

ADVANTAGES

Red Top Wood Fiber Plaster is recommended for use where excessive strength, toughness, or a higher fire rating is required. It has: three times the compressive and tensile strength of plaster sanded 1:3 (*see page 32*); approximately 50% greater surface hardness; 50 to 100% greater fire rating than plasters containing sand.

Highly desirable for use where good plastering sand is not available, and for alteration, patch and repair work.

LIMITATIONS

see general limitations page 30.

RED TOP
BONDCRETE Plaster

This is a specially formulated gypsum base coat plaster requiring only the addition of water on the job. It is the only recommended base coat plaster for application to properly prepared, rough monolithic concrete.

ADVANTAGES

Unlike normal gypsum base coat plasters, BONDCRETE has thermal expansion equal to concrete, which provides continuous bond to this type surface.

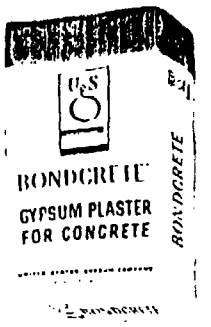
LIMITATIONS

BONDCRETE should be used only on rough concrete that is properly prepared for plastering. It should *never* be applied to smooth concrete (*see* COVERCOAT, *page 52*).

Maximum thickness of BONDCRETE and finish coat should not exceed $\frac{3}{8}$ in. on ceilings, and $\frac{5}{8}$ in. on walls. If additional thickness is required, metal lath must be properly secured to the concrete surfaces before applying the plaster.

Surface Preparation — monolithic concrete surfaces should be brush-cleaned of all dust, loose particles and other foreign matter. Any laitance and efflorescence should be removed by washing with a 10% solution of commercial muriatic acid and water. Grease or form oil should be removed by wiping with naphtha spirits.

If surfaces are not rough enough to provide necessary mechanical key,



they should be hacked or bush-hammered; or a dash-coat of portland cement grout composed of 1 part of cement and $1\frac{1}{2}$ parts of fine sand (mixed to a mushy consistency) may be applied. Keep this coat damp for at least 2 days immediately following application and then allow to dry. Before application of BONDCRETE, the surface should be evenly dampened to provide proper suction.

Application to Concrete Ceilings— apply coat of BONDCRETE, scratching in thoroughly, doubling back and filling out to true, even surface left rough by brooming to receive the finish coat.

Application to Walls and Columns - apply a scratch coat of BONDCRETE. Follow with a brown coat of gypsum plaster (1 part RED TOP Cement Plaster to not more than 3 parts of sand by weight) troweled into the scratch coat *before* it has set. Bring out to grounds and level to true, even surface using rod and darby. It is then ready to receive the finish coat. Total thickness of plaster should not exceed $\frac{7}{8}$ in.

RED TOP
STRUCTO-LITE Plaster

This is a mill-prepared base coat plaster using a properly graded and proportioned perlite aggregate. It is ready for use with the addition of water only on the job.

ADVANTAGES

controlled proportioning of a properly graded and sized perlite aggregate.

Weighs less than half the weight of plaster and sand aggregate. Less than half the weight on wall.

More fireproof. Offers fire ratings almost double those attained with plaster and sand.

Mill formulation reduces suction to that of plaster and sand, assures easy application of the finish coat. Job-mixed lightweight aggregates often create considerable suction for finish coat work. Stabilized set.

LIMITATIONS

see general limitations page 30. Available in limited area only. Consult U.S.G. representative for availability.

Portland Cement
Base Coat Plaster

Portland cement, with the addition of lime to provide working qualities and water resistance, is frequently mixed with sand and water to form a plaster mortar. It is chiefly used as a base coat for exterior stucco and in places subject to excessive moisture, such as swimming pools, showers, dairies and steam rooms. It is also used where an extra hard base coat is desirable, and as a back up material for ceramic tile.

LIMITATIONS

Portland cement-lime base coat plaster is comparatively unplastic and hard to apply, thus high in cost. It must be kept damp to properly cure and prevent drying out and cracking. Several days delay between coats is necessary to assure proper curing and hardening.

Mixing and Application — Mix scratch coat in the proportion of one bag of portland cement, two

bags of MORTASEAL or RED TOP Masons Hydrated Lime (2 cu. ft. lime putty) and not more than 7½ cu. ft. of sand (approximately 45 No. 2 shovels). For application over stucco mesh or self-furring metal lath, approximately two pounds of hair or fiber should be added to each mix.

Mix brown coat in the proportion of one bag of portland cement, two bags MORTASEAL or RED TOP Masons Hydrated Lime (2 cu. ft. lime putty) and not more than 9 cu. ft. of sand approximately 55 No. 2 shovels).

Scratch coat should be applied in a full ⅜ in. thickness with sufficient pressure to form a good bond with masonry surface or to force it through and completely embed the stucco mesh or metal lath. Cross scratch, and after set, damp cure for not less than 48 hours.

Brown coat should be applied over the dampened scratch coat to a full ⅜ in. thickness with sufficient pressure to form good bond. Rod the brown coat level, and broom the surface to provide key for the finish coat. After set, damp cure at least 48 hours before applying the finish coat. (See Oriental Exterior Stucco for finish coat, *page 47*).

Curing—damp cure each coat by applying water in a fine fog spray. Apply only as much water as is readily absorbed. The frequency of spraying depends on the weather, with more frequent applications required during hot, dry or windy weather.

Finishing Plasters

Finish-coat plasters applied to basecoats (generally of gypsum plaster) provide the surface for final wall or ceiling decoration. They are either factory prepared, requiring the addition of water only; or they may be job-mixed by blending lime putty and gauging plaster, or lime putty and Keene's Cement. Finish-coat plasters are normally applied to a thickness of 1/16 to ⅛ in.

Finish-coat plasters are selected according to job requirements: texture, color, hardness, sound absorption and type of base coat.

USG Finishing Plasters

Gypsum Lime Putty Finishes

Finish lime putty into which is blended a gypsum gauging plaster is commonly known as "white coat." It is the most widely used finish coat because of its good working qualities, whiteness, economy and ability to take any form of decoration. Usually it is troweled to a smooth hard surface over a gypsum base coat. With the addition of sand, it is adaptable for sand-float finishes.

FINISHING LIMES

Made from specially selected limestone rock of high purity, the most popular finishing limes come from the dolomitic fields in northwestern Ohio. They have excellent working qualities.

There are three types of finishing limes: (1) quicklime, (2) normal hydrate, and (3) double hydrate. Each requires specific handling in slaking or soaking to produce a good finishing lime putty.

Finish Quicklime

is usually made from high calcium limestone. It is produced and used in areas where it is not economical to ship from the Ohio lime fields.

Quicklime or "hot" lime requires relatively long periods of slaking with water for complete hydration and to develop the plasticity necessary for easy application.

ADVANTAGES

economical because of its high putty yield. Easy working.

LIMITATIONS

Requires long slaking period. Unless handled carefully can cause serious burns in handling.

U. S. G. Brand - RED TOP Finishing Quicklime (Texas and Washington).

Normal Hydrate Finish Lime

generally made from Ohio dolomitic limestone, it is the most widely used today. Although hydrated in manufacture, overnight soaking is still necessary to develop workability and plasticity.

ADVANTAGES

economical, uniform, easy working, white and plastic.

LIMITATIONS

Requires overnight soak. Normal Hydrate Finish Lime has been used many years for lime-gauging finishing plaster, giving generally satisfactory results. Under conditions of continued high moisture or humidity, further hydration may take place in the wall. The resulting expansion can cause blisters and separation of white coat from base coat.

U. S. G. Brands—GRAND PRIZE and RED TOP Dolomitic Hydrate (Genoa, Ohio); RED TOP High Calcium Hydrate (Texas).

Double Hydrate Finish Lime

Usually made from Ohio dolomitic limestone. It is over 92% hydrated during manufacture which eliminates troubles from delayed hydration, expansion and separation in the wall. Upon mixing with water, double hydrate finish lime *immediately* develops high plasticity. Thus, overnight soaking is unnecessary.

ADVANTAGES

Can be mixed with water by hand or with mechanical mixer. Becomes highly plastic right away. Easy working; uniform; white. Eliminates troubles from delayed hydration.

USG Brand—Ivory Double Hydrated Finishing Lime—(Genoa, Ohio)—Lime does not "set" but hardens slowly. It likewise shrinks on drying. Therefore, gauging plaster is blended into the lime putty in proper proportion to provide controlled set and strength, and to avoid shrinkage cracks when used as a finish coat.

GAUGING PLASTERS

RED TOP Gauging Plasters are carefully ground and screened to just the right particle sizes to make this plaster *quick soaking and easy to blend* with lime putty.

Gypsum gauging plasters are available in "quick set" and "slow set," making it possible for the mechanic to use the material which best suits him. It makes it unnecessary to add retarder or accelerator for regulating the set of the finish. They are available as white gauging and local gauging, which is somewhat darker in color. For brilliant white finishes, white gauging plaster should be used.

MIXING & APPLICATION

Gauging plaster is added to the lime putty in the proportion of one part of dry gauging to not more than 3 parts of lime putty by volume, or one part of dry gauging to not more than 2 parts of dry hydrated lime by weight.

After the gauging plaster is sifted into the lime putty ring and allowed to soak a few minutes, the materials are *thoroughly* blended to avoid gauging "streaks" and to provide uniform density in the finish coat.

IMPORTANT

Careful application and sufficient troweling are essential to produce a smooth glossy finish.

The gauged lime putty is applied over a partially dry gypsum base coat. Scratch in a thin coat, well ground into the base coat, and immediately double back with a second coat filling imperfections. (A third or thin "sweetening coat" is sometimes applied to fill in any further imperfections that remain after the second coat has "taken up.")

After the base coat has sucked most of the excess water from the finish, it is troweled to densify the surface and help eliminate check cracks. As final set takes place, it is water-troweled thoroughly to provide a dense, smooth surface suitable for decoration.

Keene's Cement-Lime Finish

RED TOP Keene's Cement is a high strength, white gypsum plaster used with finish lime putty for extremely hard, dense surfaces.

Although Keene's Cement is a gypsum material, it differs from other gypsum plasters in several particulars; it is slow-setting; it is the *only* gypsum plaster that can be re tempered; and the finish coat requires more troweling.

RED TOP Quick-Troweling Keene's sets faster and requires less troweling. It *must* be used with a minimum of 25 lbs. of dry hydrated lime per 100 lbs. of Keene's Cement.

Keene's-lime finish is similar in many respects to a lime-gauging finish except that Keene's Cement is used in varying proportions, depending on hardness required, in place of gauging plaster. Keene's-lime finish should be used where greater resistance to moisture, and greater surface hardness and resistance to abrasion are desired—as in hospitals, kitchens, bathrooms and corridors.

For medium hard finish, mix in the proportion of 50 lbs. of dry hydrated lime (100 lbs. lime putty) to 100 lbs. of Keene's Cement.

For hard finish, limit the quantity of lime to 25 lbs. of dry hydrated lime (50 lbs. lime putty) to 100 lbs. of Keene's Cement.

APPLICATION

the finish coat is applied over a set base coat which has been broomed and is partially dry. (If base coat has dried out, spray with water before finishing; do not soak). Scratch in a thin coat well ground into the base coat and immediately double back with a second coat filled out to a true, even surface. Allow to draw up a few minutes, then trowel with water to a smooth glossy finish, free of cat faces and other blemishes. Complete troweling before finish has set.

AVAILABLE U.S.G. BRANDS	SET WITH LIME PUTTY
RED TOP CHAMPION Gauging Plaster (white)	Quick set—20-30 min.
RED TOP STAR Gauging Plaster (white)	Slow set—45-60 min.
RED TOP Gauging Plaster (gray)	Slow set—45-60 min.
RED TOP Gauging Plaster (gray)	Quick set—20-30 min.
RED TOP Regular Keene's Cement (white)	3-6 hours
RED TOP Quick Troweling Keene's Cement (white)	1-2 hours

LIMITATIONS

for interior uses only. Where exposure to water is extreme or continuous, use Portland cement-lime plaster. Apply RED TOP Keene's Cement only over gypsum base coats of high compressive strength.

Gypsum White Trowel Finish

RED TOP Gypsum White Trowel Finish is mill prepared and requires the addition of water only. It is recommended for use over gypsum base coats where extreme hardness and immediate decoration are required. RED TOP White Trowel Finish is available in most areas and is recognized for its easy working qualities and pure white finish.

ADVANTAGES

rated the hardest of all finish plasters, it provides protection against the most severe wear. It has approximately twice the strength of ordinary lime-gauging finishes. Non-alkaline, it will not injure paint or decoration and may be decorated as soon as it has set and dried. Made of gypsum, it provides a durable and natural bond to gypsum base coat plaster.

MIXING AND APPLICATION

RED TOP White Trowel Finish requires the addition of water only. Allow to soak 10 or 15 minutes and then mix to a smooth, lump-free mortar of the desired consistency.

Apply over a gypsum base coat which has set, but is not bone dry. (If base coat has dried out, spray lightly, before the finish coat is applied. Do not soak.) Scratch in thoroughly, double back and fill out to true, even surface. The finish should not exceed $\frac{1}{8}$ in. thickness.

Trowel the surface free of cat faces and other blemishes, using water sparingly. Troweling must be complete before final set occurs. Work from unset edges to avoid joining marks.

Gypsum Sand-Float Finish

RED TOP Gypsum Sand-Float Finish is similar in every respect to gypsum trowel finish, except that it is carefully formulated with the correct proportion of properly graded sand. This provides a uniform, easy-working material which eliminates the uncertainty of job-mixed sand-float finishes. Available in its natural gray color, which requires painting for final decoration. Select lime-proof

colors may be added which eliminates further decoration.

APPLICATION
same as for gypsum trowel finish except that the final coat is finished with a wood, carpet, cork or rubber float depending on texture desired.

Colored Finish Plasters

Colored gypsum finish plasters are frequently used to produce a predecorated finish of either a finely floated or textured surface. Use of colored gypsum finish plasters eliminates the need for further surface decoration. This speeds the plastering job and results in lower costs. Colored gypsum finish plasters are available in either factory-prepared colors or they can be produced on the job.

JOB PREPARED FINISHES
require addition of limeproof color pigments on the job to proper proportions of lime putty, aggregate and Keene's Cement. In mixing a batch of this material for a job, the limeproof color should be thoroughly blended and mixed with the plaster to prevent color streaking and variation. It is also necessary to mix job-prepared colored interior finishes in sufficient quantities to complete a job. This eliminates color variation which would result from having to mix a second batch to match the first.

Oriental Interior Colored Finish

a factory prepared colored finish containing properly graded aggregate and select limeproof colors to insure easy working qualities and uniformity in results. Available in 11 pastel colors and white, it requires no further decoration and may be applied to produce many types of surfaces ranging from a very fine sand-float finish to a ragged texture. Highly resistant to abrasion because of its great hardness. Avoids variations of color intensity which sometimes occur when colors are mixed on the job. Permits early occupancy.

MIXING AND APPLICATION
add clean water only, hoe stucco into the water. Allow to soak 20 or 30 minutes and mix thoroughly to a smooth, creamy easy-working consistency. Must be applied to a set, "half-green" base coat of gypsum plaster. If the base coat is exceptionally dry, it should be sprayed uniformly with clean water the night before finishing.

Application is made in a two coat double back operation. Scratch in a thin coat well ground into the base coat and double back with a second coat, filling out to a true even surface. The surface can be floated with a sponge, sponge rubber float or carpet float. The finish can also be applied in any desired texture except a smooth trowel finish. Do not use water while floating.

Oriental Exterior Stucco

factory formulated to insure color uniformity. Applied to exterior surfaces over a base coat of portland cement-lime and sand.

ORIENTAL Exterior Colored Finish is available in 11 pastel colors and white. Suitable for application on new work or for remodeling, it is an economical means for beautifying in two ways—texture and color.

MIXING AND APPLICATION
ORIENTAL Exterior Stucco requires only the addition of water on the job. When it is mixed and applied in the following manner, excellent finished results may be obtained:

1. The suction of the base coat must be uniform, therefore, the base coat should be in a "half-green" condition. If it is too dry, spray lightly. (See detailed instructions for mixing, applying, and curing of Portland cement-lime base coat, page 40.)

2. Remove loose and projecting particles from base coat, then apply a thin coat well ground into the base and completely covering it. Double back and fill out to a uniform surface about ⅛ in. thick, covering area from top to bottom, where practical, in one operation to eliminate joinings. Trowel three or four times before starting to texture.

3. For a float finish, use a cork, wood, carpet or sponge rubber float, and float the surface to an even texture.

4. Do not use water in floating.

5. After setting, spray the surface periodically for several days to cure the finish.

6. Do not apply in freezing weather or before or during a rainstorm.

FINISH PLASTER DATA

	Gauging Plaster to Lime	Quick Troweling Keene's to Lime		Gypsum Trowel Finish	Gypsum Float Finish	ORIENTAL Finish
Mix by weight of dry materials	1:2	2:1 Medium Hard	4:1 Hard	Neat	Neat	Neat
Color	White or Gray (1)	White	White	White	Gray	12 colors
Finish Texture	Smooth	Smooth	Smooth	Smooth	Float	Float
Hardness in Kilograms (2)	34	50	70	55	(See Note 3)	(See Note 3)
Workability	1	3	6	2	5	4
Coverage	1 ton gauging 2 tons lime cover approx. 1000-1400 yds.	2 tons Keene's 1 ton lime cover approx. 850-1200 yds.	4 tons Keene's 1 ton lime cover approx. 1300-1700 yds.	1 ton will cover approx. 350-400 yds.	1 ton will cover approx. 250-275 yds.	1 ton will cover approx. 250-300 yds.

1. Gray with "local" gauging plaster. 2. Kilograms required to force a 10 MM ball .01" into plaster face. 3. These are hard finishes but the aggregate in the surface does not permit an indication with this test.

RED TOP Acoustical Plaster

RED TOP Acoustical Plaster is a highly sound absorbent, highly paintable acoustical plaster for application over a properly prepared gypsum base coat. It may be finished in either a stippled or a stippled-perforated surface. It is manufactured in oyster white only.

ADVANTAGES

Excellent Sound Absorption—stippled surface, .55 NRC; stipple-perforated, .60 NRC.

Improved Paintability—even after 6 spray coats of resin-emulsion paint, stipple-perforated surface retains its .60 NRC rating.

Fire Resistant—incombustible, mineral composition.

Adaptable—blends with any architectural design; stippling aids in concealing minor trowel marks or joinings.

Easily Applied—goes on quickly-develops a *strong bond* to base coat if ordinary precautions are observed.

Economical—applied in two successive coats, 16 to 24 hours apart—eliminates re-scaffolding.

LIMITATIONS

Mixing and application directions *must* be strictly adhered to.

Should be applied to areas *not* subject to rough usage or moisture.

When perforating, use special U.S.G. perforator with rust-proof nails.

MIXING AND APPLICATION

Machine mixing *required*. Use 31 qts. clean water for each bag of RED TOP. Add plaster to water. Mix until mortar weighs 15 to 17 lbs. net per 12-qt. pail (usually 10 to 15 minutes mixing required, depending on speed of *mixer*).

Apply RED TOP in 2 coats to a uniform total thickness of ½ in. over a base coat of RED TOP gypsum plaster. A full scratch and brown coat are required over metal lath, ROCKLATH plaster base and masonry bases to provide proper rigidity, strength, and a solid base for the acoustical plaster.

Apply first coat ⅜ in. thick over a set, cross-raked, semi-green brown coat. Darby lightly to a level surface. Allow to set and dry (at least overnight) before applying finish coat.

Apply finish coat ⅛ in. thick, scratching in and doubling back, leaving surface free of trowel marks. Work from wet edge to avoid joinings.

When surface gloss has disappeared, stipple with a rice stippling brush to a uniform texture.

For stipple-perforated finish, perforate the surface about 30 minutes later, and before set, with a perforator furnished by United States Gypsum. Perforations should number approximately 500 per sq. ft. and should be 3/16 in. deep.

SABINITE Acoustical Plaster

TROWEL OR FLOAT

a highly sound absorbent acoustical plaster which can produce a trowel or float. It is applied over a properly prepared gypsum base coat, and is available in oyster white and four standard colors.

ADVANTAGES

High Sound Absorption—carries a .60 NRC in Trowel and .55 NRC in Float Finish.

Readily Maintained—cleans with brush or wallpaper cleaner; may be spray-painted with only moderate loss of acoustical efficiency.
Fire Resistant—incombustible, mineral composition.
Adaptable—blends with any architectural design.
Easily Applied—any good mechanic, provided ordinary precautions are observed, can apply SABINITE.
Economical—applied in two successive coats, 16 to 24 hours apart—eliminates re scaffolding.

LIMITATIONS

Mixing and application instructions *must* be closely followed.

Should be applied only to areas *not* subject to rough usage or moisture.

MIXING AND APPLICATION

Machine mixing recommended. Put 24 quarts clean water in mixer for each bag of SABINITE. Mix until SABINITE weighs 15 to 17 lbs. net per 12-qt. pail (usually 3 to 5 minutes, depending on speed of mixer). To hand mix, place SABINITE in one end of clean mixing box. For each bag, add 25 qts. of clean water in other end. Hoe SABINITE into water. The mix will appear dry, but do not add more water. Hoe until SABINITE weighs 15 to 17 lbs. net per 12-qt. pail (approximately 15 minutes per 2-bag batch).

Apply in 2 coats to a uniform total thickness of ½ in. over a base coat of RED TOP gypsum plaster. A full scratch and brown coat are required over metal lath, ROCKLATH plaster base, and masonry bases (excluding monolithic concrete) to provide proper rigidity, strength, and a solid base for the acoustical plaster.

Apply first coat ¼ in. thick by scratching in and doubling back over a set, semi-green gypsum base coat that is level and thoroughly broomed or cross raked. If base coat is dry, spray lightly to reduce suction. Follow immediately with a wood or metal darby, leveling SABINITE to provide a true, even surface for finish coat. Allow to set and to partially dry (at least overnight or longer depending on job drying conditions) before applying finish coat.

Apply finish coat to a thickness of ¼ in. by scratching in and doubling back, over a set, partially dry base coat of Sabinite. Bring total thickness to ½ in. Leave surface uniformly level and free of trowel marks, working from wet edge. Finish ceiling panels in one continuous operation to avoid joinings.

Trowel Finish—After water sheen leaves surface (about 30 minutes) trowel lightly to a uniform texture. *Do not use water during troweling.*

Float Finish—float second coat 5 to 10 minutes after water sheen has left surface. Use a shingle, cork, or rubber float. Do not use water in floating.

Directions for Applying RED TOP or SABINITE Acoustical Plasters to Existing Ceilings or Smooth Monolithic Concrete: RED TOP or SABINITE may be applied over existing plaster and over new or existing concrete ceilings, using asphalt emulsion (Type N-13 HPC or C-13 HPC) as a bonding agent.

On existing painted plaster or concrete ceilings, the surface must be dry, clean and sound. Calcimine or similar powder paints must be washed off and wax, grease or oil removed. Loose or improperly bonded plaster or paint must be removed and such areas repaired with wood fiber or patching plaster. Allow patch to dry 2 or 3 days.

On new concrete ceilings which are *smooth*, level, and dense, the surface must be dry, free of dust, oil, grease or efflorescence.

Size any porous concrete or porous or unpainted plaster surface with cutback asphalt, shellac or varnish to reduce suction before asphalt emulsion is applied.

Trowel on asphalt emulsion in thin coat not to exceed ⅛ in. thick. Cover entire ceiling area. The first ⅜ in. coat of RED TOP or ¼ in. coat of SABINITE should follow application of the emulsion as closely as possible and while the emulsion is still soft and plastic.

Darby first coat of RED TOP or SABINITE to a true even surface with a minimum amount of pressure. Allow to set and partially dry. Apply RED TOP or SABINITE finish coat as specified.

Directions for Applying RED TOP or SABINITE Acoustical Plasters Over Rough Monolithic Concrete: Over properly prepared *rough* monolithic concrete surfaces apply BONDCRETE plaster not to exceed ¼ in. thickness on ceilings and ⅜ in. on side walls. Apply the RED TOP or SABINITE over the set, semi green or dry BONDCRETE basecoat, as specified.

Directions for Painting SABINITE or RED TOP Acoustical Plaster: Remove all loose dirt or dust from SABINITE or RED TOP by use of a hand vacuum cleaner. (Putty type cleaner may be used to clean SABINITE trowel finish.) Paint should be water-thinned. Imperial TEXOLITE is recommended. First coat, mix one part TEXOLITE paste to one part water by volume. Second coat (if required), mix one part TEXOLITE paste to two parts water by volume. Spray on with any gun with a medium fine spray. DeVilbiss spray gun, type MBD, with a No. 30 nozzle or equivalent, is recommended. Use 30 to 40

lbs. pressure in the gun and 20 to 30 lbs. on the paint.

Hold nozzle 14 to 18 in. away from work. Use a slow, uniform motion. Cover surface in one pass. Do not pass over same area several times as this builds up paint unnecessarily.

Allow at least overnight drying between coats. If weather is extremely humid, allow additional drying as necessary.

RED TOP COVER COAT Finishing Plaster

Designed for application to smooth unpainted monolithic concrete. Bonds directly to such surfaces and provides a smooth gray-white finish ready for decoration.

ADVANTAGES

Bonds as It Finishes—ready for final decoration as soon as dry.

Fire Resistant—incombustible, mineral composition.

Easily Applied—any good mechanic, provided ordinary precautions are observed, can apply COVER COAT.

Economical—eliminates buffing concrete lap joints . . . eliminates spackling . . . eliminates bush hammering concrete to provide mechanical bond for bond plaster and white coat.

LIMITATIONS

Mixing and application instructions *must* be closely followed. Use *only* over dry, smooth, unpainted monolithic concrete surfaces. Do *not* use as a texture eradicator over other types of surfaces. Never use on interior of exterior poured concrete walls, or below grade level where moisture may be present.

MIXING AND APPLICATION

All surfaces must be clean and sound. Remove all laitance and efflorescence by dry brushing. Scrub surface with naphtha or mineral spirits to remove grease and form oil. Spray or wipe with a 5% solution of COVER COAT

Bonder in water and allow to dry. Patch holes and surface defects with paste of COVER COAT.

Mix in clean box, tub or mechanical mixer using 15 quarts *warm water* (70°F) per bag. *Caution:* If box or mixer has been used for mixing other materials, it must be scraped or wire brushed and rinsed with a 5% solution of alum followed by a clear water rinse.

Add plaster to water and mix until a uniform putty, free of all lumps, is obtained. Do not mix more material than can be applied in one hour.

Apply COVER COAT in two coats over properly prepared concrete surfaces.

Trowel Finish First Coat—Apply to a dry surface in sufficient thickness to cover existing imperfections. Trowel as smooth as possible after application to provide a level surface for the second coat. Allow to set and dry (normally, drying will take one or two days).

Trowel Finish Second Coat—After first coat is thoroughly dry, apply finish coat as thin as possible, using only sufficient material to cover trowel marks. Smooth out as application proceeds. Allow 10 to 15 minutes for material to take up; then water trowel to a smooth finish. Average total thickness should not exceed 1/8 in.

COVER COAT may be applied in one coat over a properly prepared and dry concrete surface by scratching in a thin coat completely covering the concrete; doubling back with a thin coat and levelling out the surface with light troweling. When it has taken up, trowel with water to a smooth level surface. Average total thickness should not exceed 1/8 in.

Sand Float Finish—Mix 1½ parts white silica sand and one part COVER COAT by weight to lump-free mortar. Use as a finish coat over set, dry first coat. Lay on smooth and level; allow to take up, then float with sponge rubber float. *Do not use sand in first coat.*

Caution: COVER COAT *Bonder must be applied over concrete prior to application of* COVER COAT *to assure satisfactory bond.*

Do not apply when temperature is below 55°F. Provide heat and ventilation after set. Protect against dry-out during hot, dry weather. Do not use in damp or humid locations such as basements, shower stalls, laundry rooms, swimming pools, or for application to exterior masonry walls. Avoid contamination with alkaline materials (lime, portland cement, etc.) which interfere with proper setting and bonding action.

COVER COAT Bonder

For use prior to application of COVER COAT to assure development of satisfactory bond.

MIXING

Add 2½ lb. package to five gallons of water or one-half pound (approximately 1½ cups) to one gallon of water. Stir until completely dissolved.

These proportions represent a 5% solution. One gallon of solution properly applied should cover approximately 50 yards.

APPLICATION

All concrete surfaces must be clean and dry, free of grease, form oil,

efflorescence and laitance. Spray or brush all concrete surfaces with COVER COAT Bonder, being sure to completely cover all areas to which COVER COAT Finishing Plaster is to be applied. Allow to dry.

CAUTION

1. Avoid soiling or spattering other surfaces to which COVER COAT is not being applied. Wipe off with damp cloth any areas spattered with COVER COAT Bonder prior to painting. **2.** Make fresh solution for each day's use. **3.** Thoroughly rinse solution drums, pails, and spray guns after use.

COVER COAT PAINTING SPECIFICATIONS:

1. Do not paint COVER COAT until dry.

2. Apply one coat of any good quality pigmented sealer. Where second coat is to be colored, best results may be secured by tinting sealer coat to approximate shade of finish coat. Follow manufacturer's instructions for tinting.

Caution: Sealer coat is necessary when unprotected steel in the surface of concrete results in rust spots on COVER COAT. Properly applied pigmented sealer prevents rust from bleeding through the decoration.

3. For finishing, any of the following may be used:

—Apply one coat of a good quality Stipple finish paint. Stipple effect may be obtained with a stippling roller. If a lighter texture is desired, use a lamb skin roller.

—One coat STANDARD TEXOLITE.

—One coat IMPERIAL TEXOLITE.

—One coat any good grade flat wall or ceiling paint.

ROCKLATH Lathing Systems

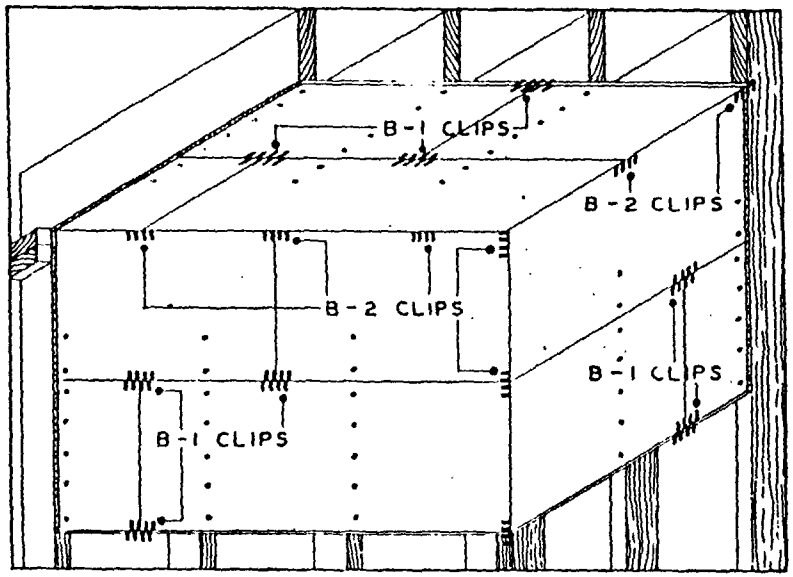
USG has developed a complete line of attachment systems employing the use of clips for attaching ROCKLATH Plaster Base to wood framing, metal grillage, TRUSSTEEL Studs and masonry walls. These systems are designed to provide performance and economy in the construction of plastered walls and ceilings which offer:

1. Greater resistance to cracking
2. Reduced sound transmission
3. High fire resistance
4. Insulation
5. Vapor barrier
6. Economy

BRIDJOINT Lathing System

DESCRIPTION

The BRIDJOINT lathing system uses BRIDJOINT clips to apply ROCKLATH Plaster base on walls and ceilings in such a manner that the ends (16-inch dimension) of the lath fall between and not on the framing members. The 3/8" B-1 field clip and 3/8" B-2 corner clip are used for 3/8" ROCKLATH. A 1/2" B-1 field clip is used when 1/2" ROCKLATH is applied over nailable steel framing.

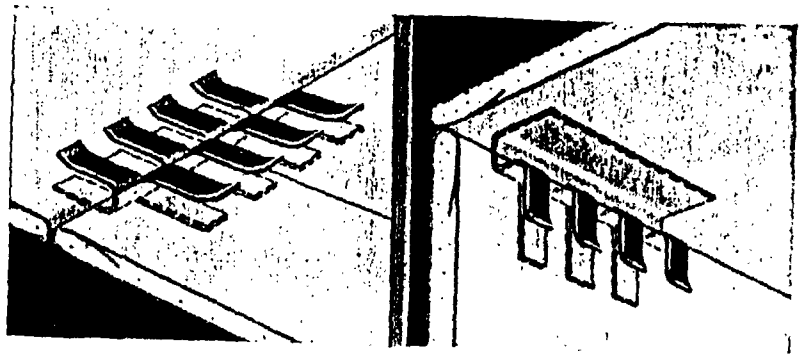


ADVANTAGES

Crack Resistant—because ends of gypsum lath do not fall on framing members, resistance to cracking is increased at these vulnerable points.

Adaptable—this system permits application of ROCKLATH over nailable steel framing if framing members are not spaced more than 24 inches o.c. and if 1/2-inch thick ROCKLATH is used in place of 3/8-inch.

Economical—25% less nailing is required than conventional nailing of ROCKLATH plaster base to wood studs. On wood frame construction Cornerite and nailing are eliminated in the internal corners.

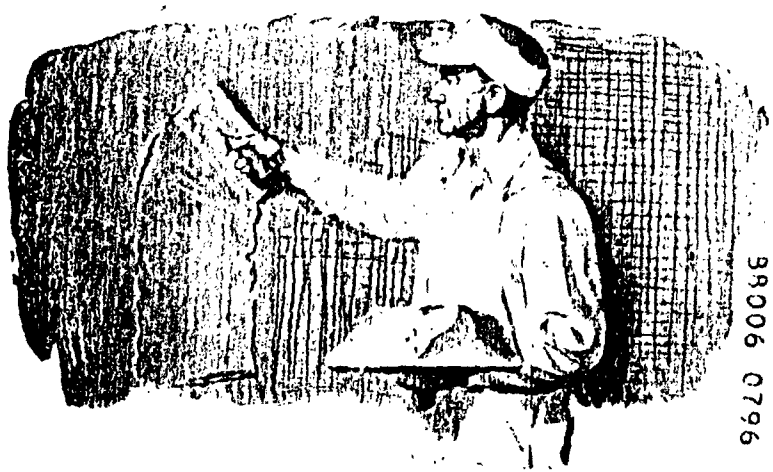


DIRECTIONS FOR LATHING AND PLASTERING

Lathing—ROCKLATH is applied in such a manner that the ends of the lath do not fall on the framing members. End joints are staggered in alternate courses. A BRIDJOINT clip is used at corners of each piece of lath to support the lath ends which fall between the framing members. ROCKLATH is nailed to the wood or steel framing. (*See page 16* for nail specifications.)

Plastering—plaster in two or three coats to 1/2-inch thickness. (*See page 34* for plastering specifications.)

Estimating Quantities—B-1 clips, three per square yard; B-2 clips, one for each 16 inches of corner angles (or 75% of total lineal feet of corner angles).



ROCKLATH RESILIENT Lathing System

DESCRIPTION

ROCKLATH Resilient Lathing System uses steel spring clips for attaching ROCKLATH plaster base to wood framing, steel channels or masonry. These resilient clips float the ROCKLATH and plaster free from framing members.

ADVANTAGES

Resistant to Sound Transmission—National Bureau of Standards assigns average sound transmission loss rating of 52.2 decibels to a wood stud partition with R-1 resilient clips, gypsum lath and plaster both sides.

Crack Resistant—plaster cracking due to framing movement is greatly reduced. Where framing movement occurs back of lath and plaster, it is absorbed by the spring clips in much the same manner as automobile springs soften road shocks.

One Hour Fire Rating—wood stud partitions with R-1 Resilient Clips, perforated ROCKLATH, and ½ inch gypsum-perlite plaster proportioned 100 lbs : 2½ cu. ft. (scratch and brown coats) have a one hour fire rating.

Economical—For a nominal increase in the lathing cost, the ROCKLATH Resilient Lathing System provides outstanding sound and crack resistance features.

DIRECTIONS FOR LATHING AND PLASTERING

Lathing—apply ROCKLATH plaster base face out with the long dimensions at right angles to the framing members 16 inches o.c. Stagger end joints. ROCKLATH ends must occur over framing members and be secured with clips. Place a clip at every intersection of ROCKLATH edges and framing members. Staple or wire-tie all corner bead to ROCKLATH. Do not nail ROCKLATH or accessories to framing.

Where Resilient ROCKLATH ceiling joins conventional nail-on walls or partitions, a ⅜-inch thick furring strip (usually a strip of ROCKLATH 2 inches wide) should be nailed to joists at ceiling angle to compensate for the ⅜-inch furring of R-1 Resilient Clips. Use a B-2 BRIDJOINT Corner Clip in place of R-2 Resilient Corner Clip. If walls are resilient and ceilings nail on, nail furring strip to the studs at the ceiling line. Do not use nails in corner angles.

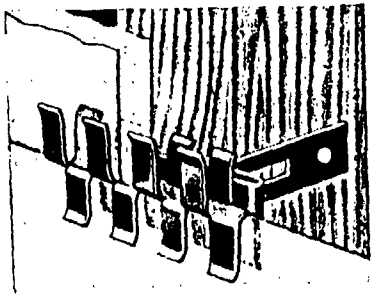
CAUTION

Perforated ROCKLATH is not recommended for use on ceilings when applied with resilient clips.

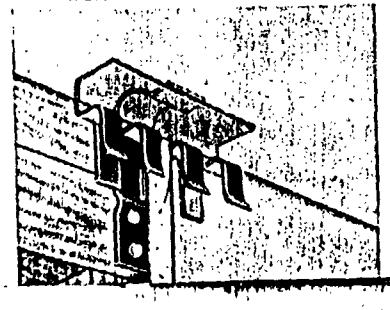
Plastering—plaster to ½-inch grounds with sand or perlite aggregates. On ceiling work use *only* plain ROCKLATH and apply plaster in three coats (do not "scratch-double-back"). Where one hour fire rated wood stud partition is required, plaster to ½-inch grounds with gypsum-perlite plaster proportioned 100 pounds gypsum plaster to 2½ cubic feet perlite (scratch and brown coats).

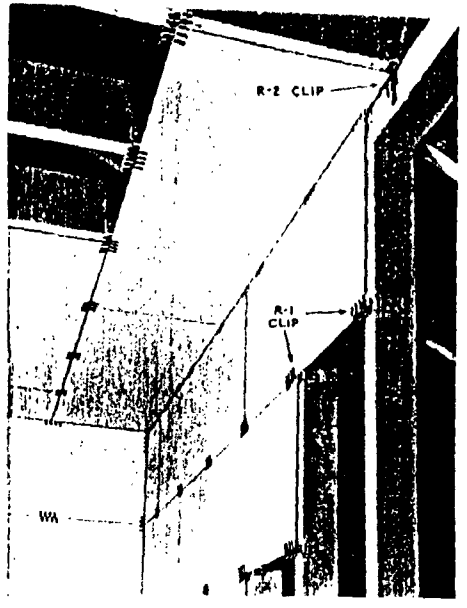
Estimating Quantities—R-1, R-3, R-5 clips- Estimate 5½ to 6 per square yard. R-2 clips—1 for each 16 inches of corner angles (or 75% of total lineal feet of corner angles). R-1 and R-2 combined, 6 per square yard.

R-1 for wood stud or joist framing.

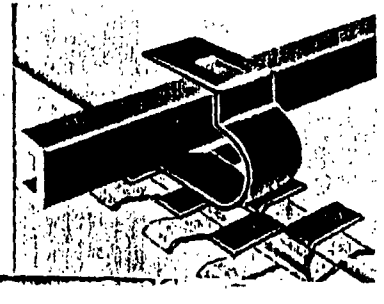


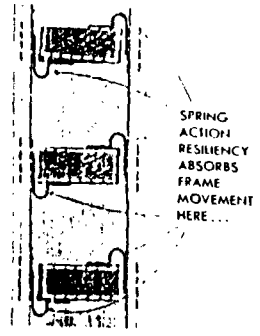
R-2 for corners and angles of wood frame construction.





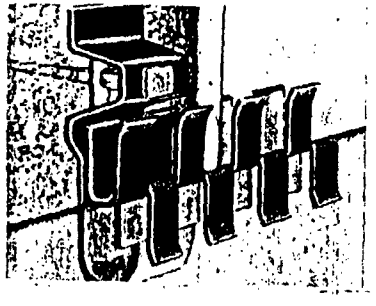
R-3 for ¾ inch steel furring channels, in ceiling construction.





FLEXIBILITY replaces rigidity without loss of strength; walls and ceilings are thus able to compensate for normal frame movement, and the plaster surfaces are protected against cracking.

R-5 for masonry or solid concrete construction.



BRACE-TITE Lathing System

DESCRIPTION

The BRACE-TITE Lathing System attaches ROCKLATH plaster base to standard metal grillage (¾-inch hot or cold rolled channels not over 16 inches o.c.). This system is also used as a base for direct application of acoustical tile.

ADVANTAGES

Strong—gives support across the full width of ROCKLATH. Clip provides spring tension to the center.

Easy to Erect—requires no special tools. Channels need not be spaced under 16 inches o.c.

Two-Coat Plastering—permits use of scratch double-back method over plain or perforated ROCKLATH. Plaster thickness is ½-inch.

One Hour Fire Rating—when plastered ⅝-inch thick over perforated ROCKLATH with gypsum-perlite plaster proportioned 100 lbs : 2½ cu. ft.

DIRECTIONS FOR LATHING AND PLASTERING

Lathing—1. Place starter clip over ¾-inch channel at juncture of channel and side wall. (*Note: If hot rolled channels are used, hand crimp clips to fit snugly over channel legs.*) (*See A.*)

2. Place ROCKLATH plaster base on top of starter clip loop and at right angles to channel. Engage BRACE-TITE field clip over channel and hook it into starter clip loop.

On first course of lath, crimp field clip wire to accommodate slack caused by starter clip loop projecting from wall. Use B-1 BRIDJOINT clip at each end joint, *see* (*B*).

End joints should be staggered to fall between channels. Use a B-1 BRIDJOINT clip on both sides of lath end joints, *See* (*C*). Upon completing a course of ROCKLATH, slip a B-1 BRIDJOINT clip over each end joint so that it is firmly supported.

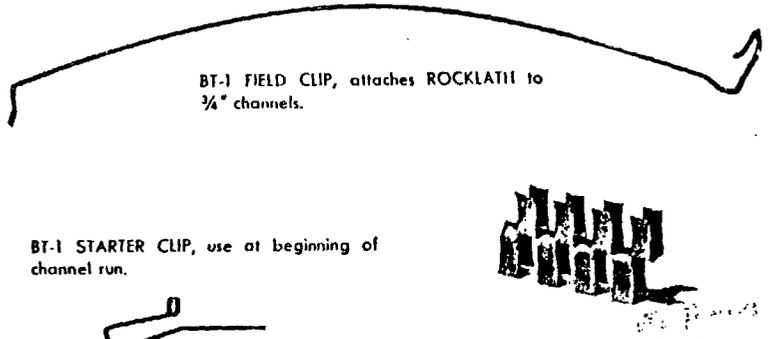
3. After first course of ROCKLATH is completed, no further crimping of wire is necessary. Succeeding courses are rapidly applied by looping each field clip over channel and inserting hook into eye of preceding field clip.

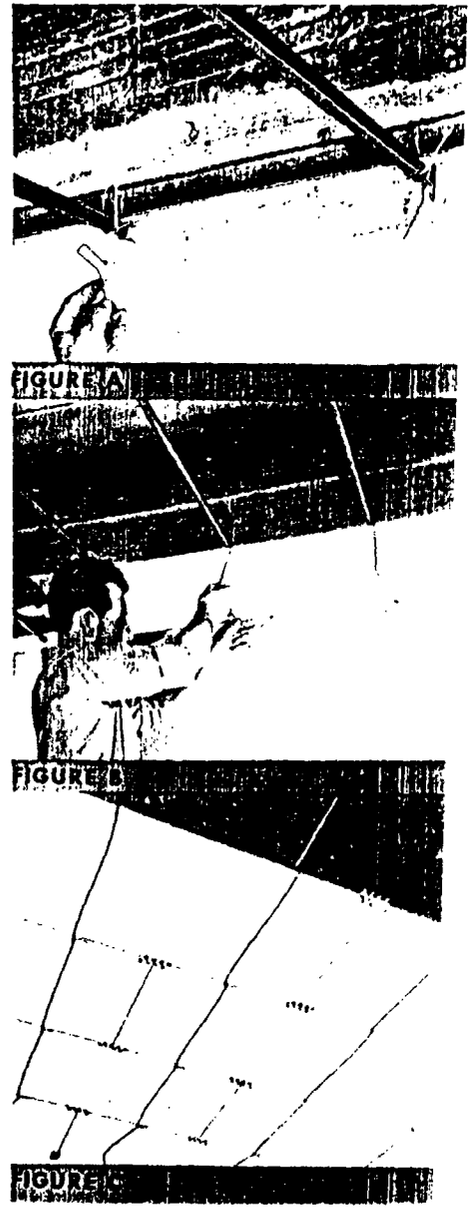
Complete last course by cutting ROCKLATH to fit remaining space. Hang field clip over channel end, insert hook end under preceding clip, pull back and snip off excess length.

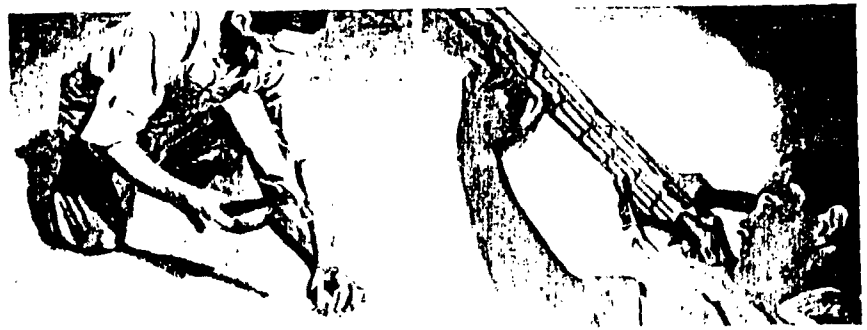
Plastering—apply gypsum plaster in two or three coats ½-inch thick, using sand or perlite as aggregate. If one hour fire rating is required, apply gypsum-perlite plaster proportioned 100 lbs : 2½ cu. ft., ⅝-inch thick over perforated ROCKLATH.

Estimating Quantities—for ¾-inch channels, 16 inches o.c.: one BT-1 Starter Clip for each channel abutting a vertical plane and at any interruption of channel. 5½ to 6 BT-1 Field Clips per yard. 4 B-1 BRIDJOINT Field Clips per yard.

For ¾-inch channels, 12 inches o.c.: BT-1 Starter Clips, same as for 16-inch spacing. 7½ to 8 BT-1 Field Clips per yard. B-1 BRIDJOINT Field Clips, same as for 16-inch spacing.







2-IN. SOLID ROCKLATH and Plaster Partition

DESCRIPTION

A studless non load bearing partition consisting of ½ inch V-edge, Long Length Rocklath plaster base, held vertically by floor and ceiling runners, up to 12 feet in height, and plastered on both sides.

ADVANTAGES

Save Space—Saves 40 to 60 per cent of space occupied by conventional partitions. In every five lineal feet a 2" partition creates one extra square foot of usable space over a 4½" partition.

Lightweight—only 16 pounds with gypsum-sand plaster and 9 pounds with gypsum-perlite per square foot of finished partition (25% to 40% lighter than commonly used masonry partitions).

Strong—official impact test records show that a 60 pound weight traveling through a full arc fall of 4 feet failed to produce a discernible crack on a full size partition after three successive blows.

One Hour Fire Rating—with gypsum plaster sanded 1:1 for scratch and 1:2 for brown coat or gypsum-perlite proportioned 100 lbs. to 2 cu. ft. on scratch coat and 3 cu. ft. on brown coat. Where one hour fire rating is not required, plaster may be sanded 1:2 for scratch and 1:3 for brown coat.

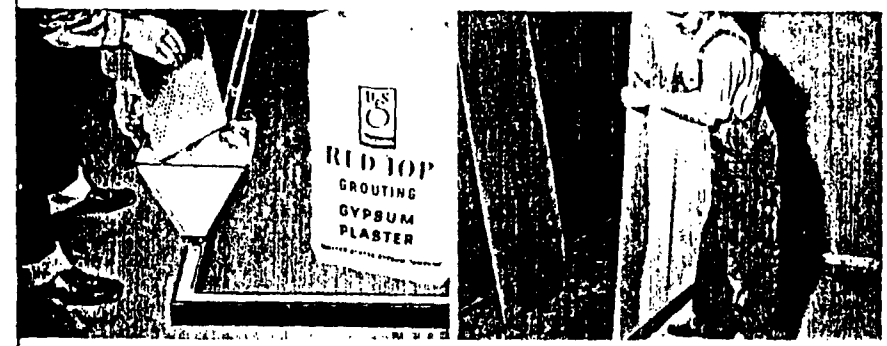
DIRECTIONS FOR LATHING AND PLASTERING

Floor Runner—USG Metal base or wood runner. Indicate positions of floor runners with chalk lines.

When USG Metal base is used, metal floor clips should be nailed approximately 24 inches o.c. Snap metal base side plates over shoulders of the clips.

Wood runner should be milled 1⅝ x 2 inches from select stock resistant to splitting.

Ceiling Runners—Apply USG



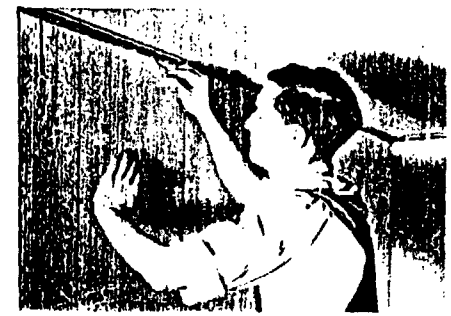
L-shape ceiling runner using ½-inch concrete stub nails or power driven nails approximately 24 inches apart. Nail to a line plumbed up from center line of floor runner. If ceiling is suspended type, wire-tie L-shape runner to lath.

Grouting—Fill metal base with gypsum grout using uniform V-groove. Recommended grout mixtures: 100 lbs. gypsum plaster to 3 cu. ft. of perlite, or 300 lbs. of sand.

Lathing—Cut Long Length Rocklath to allow a minimum of ¼ inch and a maximum of 1¼ inches top clearance. Set in V-grooved base section with top edge against vertical flange of ceiling runner. Edges should be plumb and butting. To hold lath to ceiling runner, snap two USG Ceiling Runner Clips through the *top or center row* of slots.

Lath is cut and fit *closely* around conduits, outlet boxes and steel door buck struts. One side of opening is covered with metal lath strips backed with No. 30 asphalt felt (usually 3 to 5 inches wide) applied with hand stapling machines.

Partitions (up to 9 feet high) are then horizontally braced in the following manner, see photo at left:



(1) Punch hole in center of each lath slightly below mid-point for bracing clip; (2) insert bracing clip; (3) spring a partition length ¾-inch cold rolled channel into bracing clip with channel legs pointing *down;* (4) insert remaining bracing clips and spring channel into place; (5) wire-tie channel ends at abutting partition angles to concrete; (6) partitions 9 to 12 feet high require two horizontal braces at third points installed as described above; (7) wedge vertical brace (usually wood 1x4's or 1½"x1½" angle iron) between floor and ceiling every 6 feet and wire-tie to horizontal channel.

Plastering—Apply a full ⅜-inch thick scratch coat of plaster to each side of the lath. In no case should application of scratch coat to second side of lath be delayed longer than the setting time of the scratch coat applied to the first side. Scratch lightly in horizontal direction only. *Let scratch coat set a minimum of 16 hours before browning.*

Apply the brown coat as follows: (1) After the scratch coats have set firmly and have partially dried, the brown coat should be applied to the *unbraced* side, bringing it out to within 1/16-inch of ground dimension for finish coat to bring over-all partition thickness to 2 inches. (2) When this brown coat has set firmly, (not less than 3 hours) remove braces *carefully* from opposite side and apply brown coat to that side in similar manner.

EXTERIOR WALL FURRING System

DESCRIPTION

A simple practical system for furring exterior masonry walls using USG Adjustable Wall Furring Brackets, ¾-inch channels and Long Length Insulating ROCKLATH (⅜-inch thick by 24-inch x ceiling height).

ADVANTAGES

USG Furring Bracket—Heavy gauge galvanized steel with serrated edge which holds channel firmly in place. Permits proper wall alignment.

Adjustable—uneven walls can be furred quickly to true, even surface without expensive, time consuming "shimming."

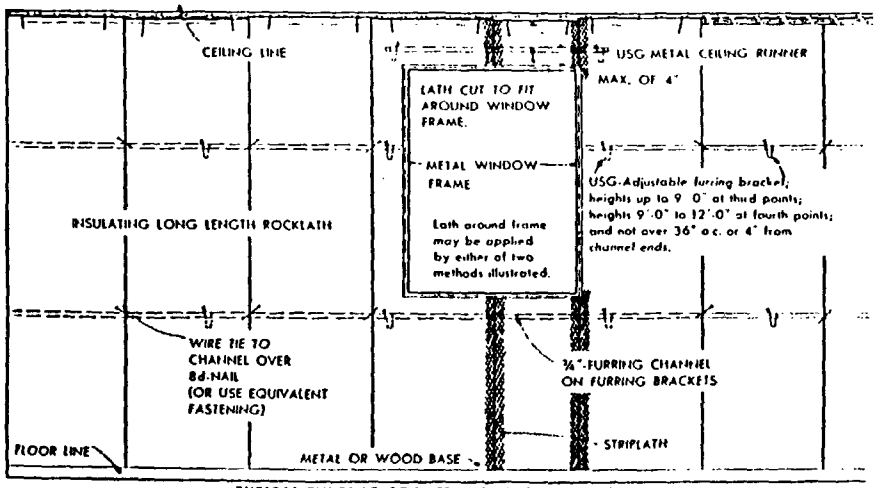
Low Cost—large 2 ft. wide ceiling high sheets of long length ROCKLATH plaster base go up quickly. Uniformly even plaster base saves plastering material and labor.

Vapor Barrier—provides inexpensive and efficient safeguard against condensation within the wall.

Insulation—offers the equivalent of ½-inch of fiber insulation board when erected with the required ¾" minimum air space between exterior wall and lath.

DIRECTIONS FOR LATHING AND PLASTERING

Application of Metal or Wood Floor Runner—Nail single metal base clips to rough floor not over 24 inches o.c. Snap the sideplate over the clips. Fill the back of the base with grout and form a V-groove as grout stiffens and before it sets providing a ¾-inch



TYPICAL FURRING OF EXTERIOR MASONRY WALL