PLAINTIFF'S EXHIBIT

USG-2038

For Quality... For Color

TEXOLITE Paint Products

Property owners know that color is a "must" . . . that it creates an attractive atmosphere and expresses pride of possession. They are not satisfied with good design, structure, and comfort alone; they willingly spend money and effort for good finishes that provide beautiful colors and better appearance.

United States Gypsum long ago recognized the need for better paints for interior surfaces—particularly for paints readily applicable to new plaster and wallboard. The first TEXOLITE, a powder material, was formulated to meet this need. Later paste TEXOLITE was introduced, followed by a complete line of products bearing the TEXOLITE name. The performance of these early members of the TEXOLITE family soon won recognition, and TEXOLITE acceptance has been growing ever since.

The TEXOLITE Paint line now includes flat and semi-gloss paints for exterior and interior, masonry paints, texture paints, varnishes, and surface preparation materials. TEXOLITE products are leaders in their fields because of their outstanding beauty, adaptability, ease of application, dependability, endurance, and inherent economy.

Made always to the consistently high standards of U.S.G., TEXOLITE paints have won the acceptance of painters and decorators from Coast to Coast. The TEXOLITE slogan is the buying guide of millions:

"*For Quality . . . For Color . . . Buy* TEXOLITE"

GP038 2163

UNITED STATES GYPSUM CO.
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CHICAGO



TEXOLITE Accent Colors

Full range of deep colors. An oil resin paint for use by itself or for tinting other TEXOLITE products.

Characteristics

Offers unlimited color possibilities because of the wide selection of true, brilliant colors and their intermixes to produce blends. Clarity of vehicle allows color pigments their full brilliance. Quickly recoatable and non-bleeding.

Form

Paste

Priming

Seal surfaces with TEXOLITE Sealer or other high grade pigmented oil sealer when Accent Colors are to be used in full intensity or in strong tints. See directions.

Uses

Use as a deep brilliant paint, or for tinting and blending TEXOLITE Seven Star Imperial, TEXOLITE Imperial and TEXOLITE Standard. Can be intermixed for tinting casein points, resin emulsion paints, washable calcimine, and ordinary calcimine. The Deep Colors can be intermixed themselves in any proportion. Ideal for display backgrounds, show cards, scenic studios, interior decoration.



TEXOLITE Semi-gloss

White and tints. A durable semi-gloss enamel for interior walls and ceilings. For use in kitchens, bathrooms and other rooms where a semi-gloss finish is desired.

Characteristics

Thinned with water. Dries to touch in two hours. Large brush can be used for fast application. No objectionable painty odor. Recoatable. Cuts painting time and costs. Excellent washability.

Form

Semi-paste

Priming

Some surfaces do not require. Where necessary, TEXOLITE Sealer is suggested. See directions.

Uses

Over old or new interior walls in homes, apartments, offices, stores, shops, schools, hospitals and other buildings. Can be used over wood trim if wood is sealed.



TEXOLITE Stipple Finish

Provides soft attractive stipple. Available in white only.

Characteristics

Ready to use as it comes in the can. Dries overnight to a soft sheen. Easy to apply—use roller, brush or sponge for stippling. Highly washable. May be tinted with colors in oil or japan colors only.

Form

Ready to use.

Priming

TEXOLITE sealer is recommended.

Uses

Over old and new interior walls and ceilings in homes, hotels, apartments, hospitals, factories and warehouses. Can be used on any sealed surface.



USG Interior Cold Water Paint

An economical utility paint for renewing and brightening interior surfaces. Furnished in white only.

Characteristics

Starch-bound cold water paint Easily applied and readily washed off when repainting is necessary. Best results when surfaces are prepared according to good painting practice.

Form

Powder

Priming

Seldom used.

Uses

To brighten interiors of factories warehouses, garages, other industrial structures, and farm buildings at low cost. Excellent for coating pipe covering. More economical than calcimine.

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INTERIOR TEXTURE FINISHES, VARNISH AND CEMENT FLOOR PAINT



TEXTONE

A plastic paint meeting the demand for a dependable, economical, easily applied texture medium capable of satisfying every requirement of modern decoration.

Characteristics

TEXTONE properly applied forms a texture surface of superior insolubility and hardness. Furnished in white only. Can be integrally tinted with TEXOLITE Accent Colors or coated with another paint.

Form

Powder

Priming

Prime surface as needed.

Uses

For producing light, soft, modern textures as well as the more rugged period designs over any dry, solid, clean interior surface. For decorating work over new plaster, gypsum wallboards, and insulating wallboards. Especially useful in refinishing cracked plaster surfaces; for producing stone effects, antique effects and stencil work.



USG Texture Paint

A popular plastic paint that is easy to use. It provides a wide range of texturing possibilities and is lower in price than TEXTONE paint.

Characteristics

A good working plastic paint for uses similar to those secured with TEXTONE. Somewhat less coverage per pound. Provides excellent textures in both modern and period styles.

Form

Powder

Priming

Prime surface as needed.

Uses

For interesting textures over dry, clean, solid surfaces such as new plaster, gypsum wallboards, insulating wallboard surfaces, etc. Also on old cracked plaster surfaces.



TEXOLITE Spar Varnish

A high quality general purpose varnish for interior and exterior use. Available in high gloss or satin finish.

Characteristics

Dries to the touch in four hours. Protects and beautifies all wood finishes with a tough, durable film. Highly resistant to alkali, alcohol, scuffing and abrasion. Easy to apply.

Form

Ready to use.

Priming

May be used as a sealer when thinned with a maximum of one pint turpentine or mineral spirits per gallon. On open-grain woods, such as oak, use wood-filler.

Uses

For floors, woodwork, furniture, porches, doors, decks, spars, etc.



TEXOLITE Cement Floor Paint

A breather type paint for cement floors. Available in six attractive colors.

Characteristics

Dries to a beautiful, washable flat finish. Thins with water. Dries overnight. Applied with large brush. Excellent base for wax coatings. For interior or semi-protected interior surfaces.

Form

Paste

Priming

Prime surfaces with TEXOLITE Primer.

Uses

For basements—cement floors—porches—steps.

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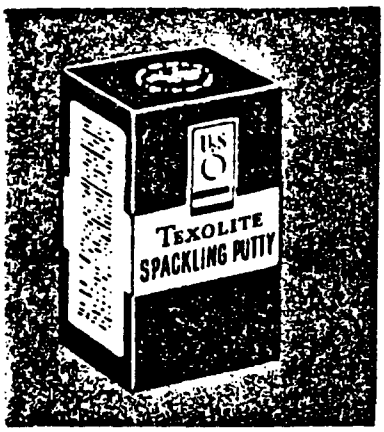


TEXOLITE Spackling Putty

Used for preparatory treatment of surfaces before painting or decorating to build up or fill imperfections, and to produce a smooth, even surface.

Characteristics

Exceptionally fine grind. Grit-free. Adaptable to knife or brush application. Can be sanded. Adheres to any properly cleaned, solid surface. Hardens in a few hours, forming a tough durable surface.

Form

Powder

Priming

Takes any standard priming material.

Uses

Filling small cracks, scars, slight imperfections in plaster, nicks, cracks, knotholes, or nail holes in wood trim. Spotting nail holes, cracks or joints in wallboards. To fill voids or imperfections in concrete, cracks in tile or mosaic, for treating canvas and wall fabrics. For household repairs on mouldings, furniture, toys, etc. For making Swedish Putty.



RED TOP Patching Plaster

A plaster scientifically compounded for patching cracks in walls and ceilings easily and efficiently at minor expense.

Characteristics

Very white. No harmful shrinkage. Contains no lime. Sets in 1 to 1½ hours. Uniform set and quality. Smooth and plastic because of special ingredients.

Form

Powder

Priming

Takes ony standard priming material.

Uses

For patching cracks and larger breaks in plaster walls and interior concrete surfaces. Can be decorated with any decorating material.



RED TOP Painter's Plaster

Plaster of Paris for general painters' use. Made from specially selected white gypsum.

Characteristics

Mixes readily, works easily, but requires more careful handling than RED TOP Patching Plaster. Provides hard, dense and strong surfaces. Setting time approximately 30 minutes.

Form

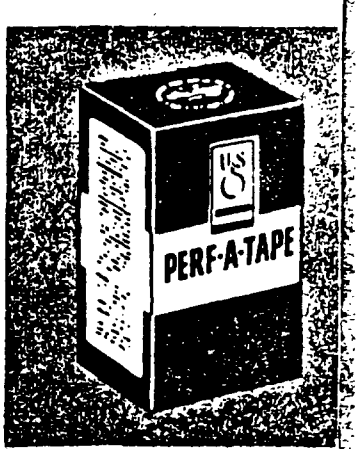
Powder

Priming

Takes any standard priming material.

Uses

Recommended for patching cracks and breaks in plaster and wherever a painter's plaster is used.



PERF-A-TAPE Joint System

Designed to conceal and reinforce cracks. Package contains all needed materials.

Characteristics

Provides complete concealment and adequate reinforcement. Combines sturdy fiber reinforcement and plastic cement.

Form

Powder and Reinforcement.

Priming

None.

Uses

Used in both new and old construction. Developed for treating joints in wallboard. Used to reinforce cracks in all kinds of wall surfacings especially in corners or at angles before redecorating.

GP038 2166

GP038 2175

Veneer Finishes

Veneer finishes offer the opportunity to trim days from interior finishing schedules and provide strong, highly abrasion-resistant surfaces. These products are designed for one- or two-coat work over gypsum bases or directly to concrete block or properly prepared monolithic concrete. Formulated for hand or machine application (DIAMOND Finish—hand only), they provide a thin, lightweight veneer that sets rapidly.

advantages

Rugged, Abuse-resistant Surfaces—High-strength IMPERIAL Finishes (3,000 psi compressive strength) provide hard, durable interiors that require minimum maintenance.

Quicker Completion/Faster Occupancy—Veneer finishes apply rapidly, set fast, dry quickly to save days in finishing interior walls and ceilings. DIAMOND Interior Finish can be decorated in 24 hrs. with breather-type paint or left undecorated if desired.

Competitive Costs—Veneer finishes are easily applied and cover more area per ton than conventional plasters. Joints and interior angles are pre-set with the same veneer finish that goes on the walls and ceilings, eliminating need for joint compound and resultant drying time.

Easily Decorated—Veneers are readily finished in smooth-trowel, float or texture surfaces. The hard, smooth surface is decorated easily and economically with paint, fabric, wallpaper or texture.

Versatile—A wide choice of assemblies is available to meet design requirements. Fire and sound-rated systems for wood or steel framing, hard and abuse-resistant surfaces for high-traffic areas, electrically heated ceilings.

products available

IMPERIAL Basecoat—For use as a basecoat in two-coat veneer application finished with proper lime or gypsum finishes. Can be applied to either IMPERIAL Gypsum Base, directly to concrete block, or over a bonding agent on monolithic concrete. Formulated as the basecoat for high-strength IMPERIAL Finish, gauged lime putty. DIAMOND Interior Finish, STRUCTO-GAUGE-lime-smooth trowel, or Keenes-lime-sand float finishes. Available in hand- and machine-application formulations. Complies with ASTM C587 and Federal Specification SS-P-00402B, Type VI. Available in 80-lb. bags.

IMPERIAL Finish Plaster—For single-coat application composed of scratch coat and immediate doubling back (except in suspended or furred ceilings), directly over special[1] IMPERIAL Gypsum Base, glass-fiber tape or PERF-A-TAPE and DURABOND Compound or over IMPERIAL Basecoat Plaster in two-coat system. Available for hand application—provides a smooth-trowel or float or spray-texture finish ready for decoration. Complies with ASTM C587 and Federal Specification SS-P-00402B, Type VI. Available in 80-lb. bags.

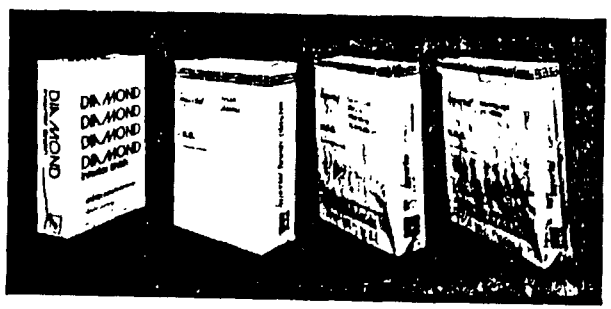


When abraded 2,500 cycles with weighted wire brush (273 psi) in laboratory test, IMPERIAL Veneer finish showed virtually no penetration—proof of outstanding abrasion resistance

IMPERIAL Finishes—Coverage

product	ft²/ton		m²/ton (metric)[1]	
	gypsum base	masonry	gypsum base	masonry
IMPERIAL Basecoat	3250–4250	2700–3600	335–435	275–370
IMPERIAL (1-coat) Finish	3500–4000	not recommended	360–410	not recommended
IMPERIAL (2-coat) Finish	3200–3600	not applicable	330–370	not applicable

[1]Coverage rounded to nearest 5m²



DIAMOND Interior Finish—A white finish formulated for hand application directly over IMPERIAL Gypsum Base or in a two-coat system over IMPERIAL Basecoat Plaster. Applied to a nom 1/16" thickness, this finish is *unaggregated* for a smooth or skip-trowel finish; may be job-aggregated for float or other textures. Fast-applying, can be decorated in 24 hours with breather-type paint or left undecorated. Not recommended over portland cement basecoat. Complies with ASTM C587 and Federal Specification SS-P-00402B, Type VI. Available in 50-lb. bags.

DIAMOND Interior Finish should be applied only to IMPERIAL

dhesive Lamination (Double Layer)—Produces the finest in-erior surfaces. Adhesive attachment of face layer to base layer double-layer construction and of single-layer board to in-rior masonry walls usually requires only supplemental me-hanical fastening until adhesive attains full bond. Reduces or iminates nails or screws required, saves finishing labor and inimizes fastener pops and joint ridging. DURABOND 210 *oint* Compound is required for adhesive lamination with fire-ted assemblies.

erpendicular vs. Parallel Application

/psum board may be applied perpendicular (long edges of ard at right angles to the framing members) or parallel (long ges parallel to framing). Fire-rated partitions may *require* rallel application (see Chapter 3 for specific systems).

rpendicular application generally is preferred because it ers the following advantages

Reduces the lineal footage of joints to be treated up to 25%.

Strongest dimension of board runs across framing members.

Bridges irregularities in alignment and spacing of frame mbers.

Better bracing strength—each board ties more frame mem-s together than does parallel application.

Horizontal joints on wall are at a convenient height for shing.



rting at ceiling line. horizontal board is screw-attached) Parallel application (right) is used in special situations.

all application, if ceiling height is 8'1" or less, perpendicu-plication results in fewer joints, easier handling and less g. If ceiling height is greater than 8'1" or wall is 4 ft. wide or parallel application is more practical. For ceiling applica-use whichever methods results in fewer joints, or is ed by frame spacing limitations.

For double-layer ceiling application, apply base-layer boards perpendicular to frame members, apply face layer parallel to framing with joints offset. On wall, apply base layer parallel with long edges centered on framing, apply face layer perpendicular *Exception* when using TEXTONE Vinyl-Faced Panels for face layer, apply base-layer boards at right angles to studs

drywall and veneer base application

General Recommendations for gypsum panels and gypsum bases applied to wood and steel framing:

1. Apply ceiling boards first.
2. Cut boards so that they slip easily into place.
3. Butt all joints loosely. *Never* force panels into position.
4. Place tapered or wrapped edges next to one another.
5. *Never* place a butt end or a cut edge next to a tapered or rounded edge. Wherever possible, apply boards perpendicular to framing and in lengths that will span ceilings and walls without creating end (butt) joints. If butt joints do occur, stagger and locate them as far from the center of walls and ceilings as possible.
6. Support all ends and edges of gypsum board on framing, except long edges at right angles to framing for face layer of some double-layer applications (exceptions are specified in Chapter 3 system descriptions), and where end joints are to be floated between frame members and back-blocked (Back-Blocking is covered later in this chapter).
7. If metal trim is to be installed around edges, doors, or windows, determine if trim is to be installed before panel application. Refer to Chapter 1 for description of products, and Chapter 2 for installation.
8. Do not anchor panel surfaces across the flat grain of wide dimensional lumber such as floor joists and headers. Float panels over these members or provide a control joint to compensate for wood shrinkage.
9. To insure level surfaces at joints, arrange board application so that the leading edge of each board is attached to the open or unsupported edge of a steel stud flange. To do this, all studs must be placed so that their flanges point in the same direction. Board application is then planned to advance in the direction opposite to flange direction. When this simple procedure is followed, attachment of each board holds the stud flange at the joint in a rigid position for attachment of the following board.

If the leading edge of gypsum board is attached to the web edge of a flange, the open edge of the flange can deflect under the pressure of attachment of the following gypsum board. Friction between the tightly abutted board edges can then cause them to

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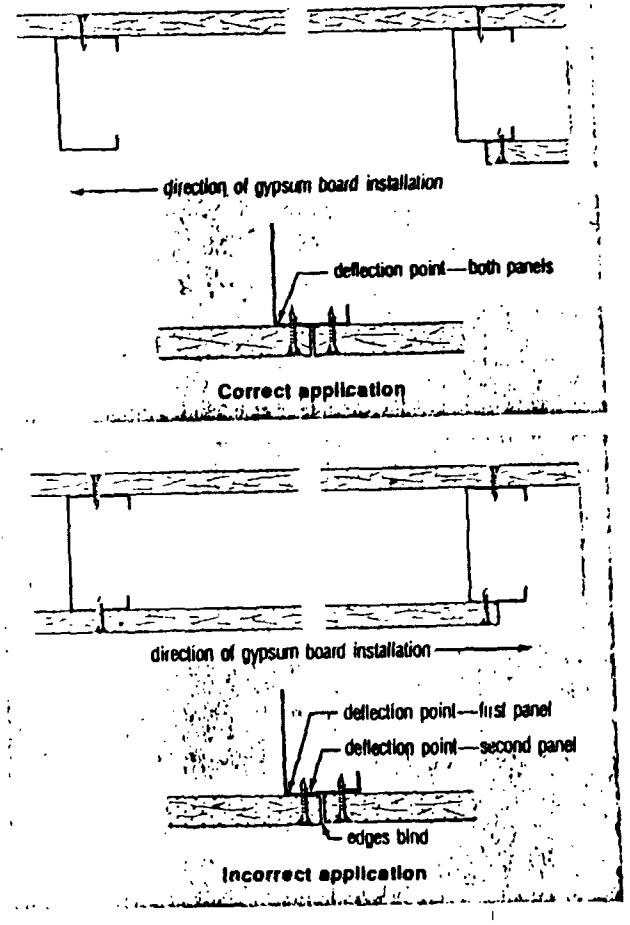
bind, preventing return of the second board to the surface plane of the first. A stepped or uneven joint surface results.

This recommended application procedure is absolutely essential for good results in steel-framed veneer and drywall assemblies. (See drawings following for correct methods.)



Measurements—All measurements must be accurate. Make two measurements as a check. This procedure will usually warn of partitions or door openings that are out of plumb or out of square. Then, framing corrections can be made before the board is hung. A 12- to 25-ft. steel power tape is recommended. Tools for measuring and cutting are shown in Chapter 8.

Cutting—Make straight-line cuts across full width or length of board by scoring the face paper, snapping the board core and then cutting the back paper. The common tool used to score and cut gypsum board is a utility knife with replaceable blade. Regardless of the type knife used, its blade should be kept sharp so that score will be made through paper without tearing or rolling it up, and into the gypsum core.

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For cuts across the board width, a straightedge is recommended. An aluminum 4-ft. drywall T-square, ruled on both edges, facilitates clean, straight cuts. For cuts along the long length of the board, use a steel tape with an adjustable edge guide and a tip that accepts the utility knife blade. With this tape the edge guide is set for the desired width and placed against the board edge. The knife blade is then inserted into the slotted tape tip, and by moving both hands together the tool is drawn down the full length of the board to make a smooth and accurate cut.



Left to right, gypsum board is cut by scoring with utility knife against drywall T-square, then snapping toward back (top), cutting back paper with same knife and separating sections (below)—quick method to obtain clean edges and precise fit.

int treatment application—
eneer construction

nventional Method

Normal Drying Conditions—Align IMPERIAL Type P (pres-e-sensitive) Tape over joint and press into place over entire gth. Eliminate wrinkles and assure maximum adhesive bond pressing entire length of tape with steel finishing knife or vel. Press tape into corners with corner tool; do not overlap.



Simplified, wrinkle-free attachment of self-stick Type P IPERIAL Tape speeds joint reinforcing, boosts production.

attach IMPERIAL Type S Tape with spring-driven hand stapler ıg 3/8" staples. Use two staples at each end of tape; staple ainder at staggered 24" intervals. At wall-ceiling angles, ıle every 18" to 24" along ceiling edge only. For wall-to-wall rior angles, staple every 18" to 24" on one edge only, working ı top to bottom. Position tape to bridge the joint at all rior corners without overlapping.

Lower-cost Type S IMPERIAL Tape is ıidly stapled over flat joints at staggered ervals. High-strength ılass fibers and open eave of tape provide r excellent keying of veneer finish during embedding.



ed tape and fill beads with coat of Interior Finish being l, and allow to set—*but not dry*—prior to finish application. ıtly underfill in the bead by screeding along the bead with : of trowel after setting the bead. (Best results are obtained by planning the finishing to permit continuous application from angle to angle.)

Alternate Method

For Rapid Drying Conditions—When building temperature-humidity conditions fall in the "rapid drying" area of the graph (below), use PERF-A-TAPE Joint Reinforcing Tape embedded with DURABOND Joint Compound.

Mix the compound in a clean 5-gal. container (plastic is preferred for DURABOND). Use a commercial potato masher or a 1/2" heavy-duty 200- to 300-rpm electric drill with a cage-type paddle. Drill speed must not exceed 400 rpm. Use the amount of water shown on the bag and *always* sift the powder into the water to insure complete wetting: Stir vigorously for 3 min.; if lumps remain, allow the mix to soak for 15 to 20 min., then re-stir until smooth. *Note:* Do not contaminate compound with other materials, dirty water or previous batches. Do not retemper batches

Butter joints with compound using a trowel or steel finishing knife to force compound into the joints. Center PERF-A-TAPE over joint and press it into the fresh compound with trowel held at a 45° angle. Draw trowel along joint with sufficient pressure to remove excess compound.

After tape is embedded, apply a skim coat of joint compound to reduce possibility of edge wrinkling or curling. Allow skim coat to harden, then apply a fill coat, feathering 3" to 4" beyond edges of tape. Allow to harden before finishing. Plaster pre-fill is not required over DURABOND Compound.

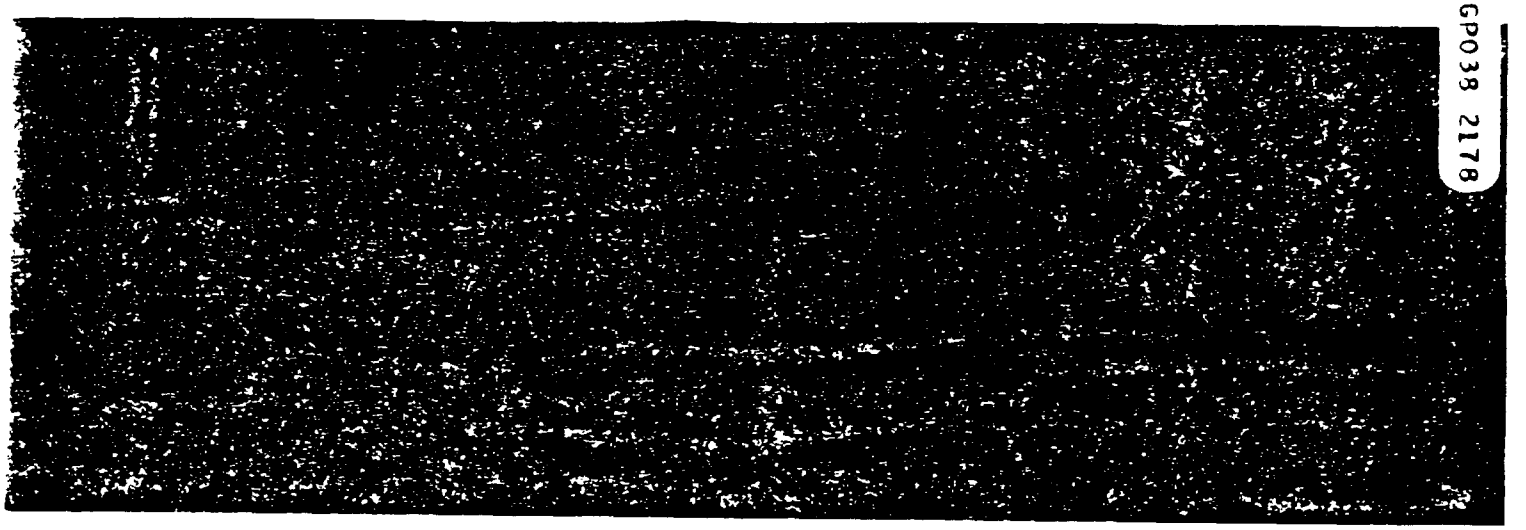
Note: Under the following conditions DURABOND Compound and PERF-A-TAPE Reinforcement (alternate method) must be used: (1) where 2-coat finish is applied over 1/2" base on 24" o.c. framing; (2) where 1-coat DIAMOND Interior Finish or IMPERIAL Finish is applied over 5/8" base on 24" o.c. framing.

veneer finish application

Veneer finishes can be used in one- or two-coat applications and can be given smooth or textured surfaces. Each method has its particular advantage.

Two-Coat Veneer Finish—Compared to many other finishes, two-coat veneer provides a more durable, abrasion-resistant surface and can be finished to a truer plane than one-coat applications. These finishes can be used with steel or wood framing wherever the ultimate in appearance is desired Ready for next-day decorating, assemblies with these monolithic gypsum surfaces offer excellent fire and sound ratings.

One-Coat Veneer Finish—Provides a hard monolithic surface at low cost. Complete application—from bare studs to decorated walls and ceilings—takes no more than 48 to 72 hr. Assemblies with one-coat veneer application meet fire and sound requirements, and shorten construction schedules for added profit.



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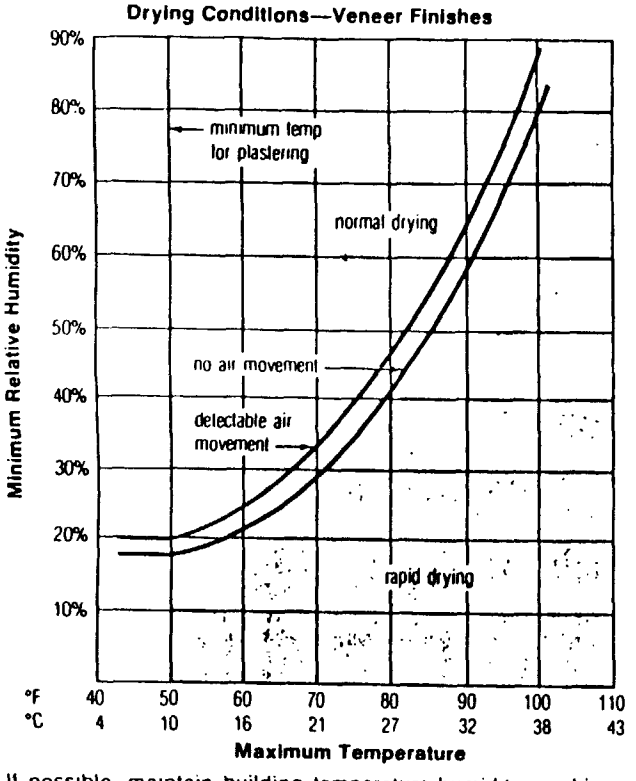
Job Environment

Maintain building temperature in minimum comfortable working range, about 55 to 60°F ; keep air circulation at minimum level prior to, during and following application until finish is dry.



If possible, maintain building temperature-humidity combination in the "normal drying" area of the graph. When dry conditions exist, relative humidity often can be increased by wetting down the floor periodically. During these periods, make every effort to reduce air movement by closing windows and deflecting heater blower and duct output away from the surfaces being plastered.

If building temperature-humidity combination is in the "rapid drying" area of the graph, special joint treatment measures must be taken These include the use of DURABOND 210 Joint Compound and PERF-A-TAPE Reinforcing Tape.

Grounds

Correct thickness of veneer finish is one of the most important factors in obtaining good results. To insure proper thickness, all corner beads, trim and expansion joints must be of the recommended type and be properly set

Accessories must provide grounds for the following minimum plaster thicknesses:

1. Over veneer gypsum base, one coat . . . . . 1/16 in (1 6 mm)
2. Over veneer gypsum base, two coats . . . . . 3/32 in (2.4 mm)

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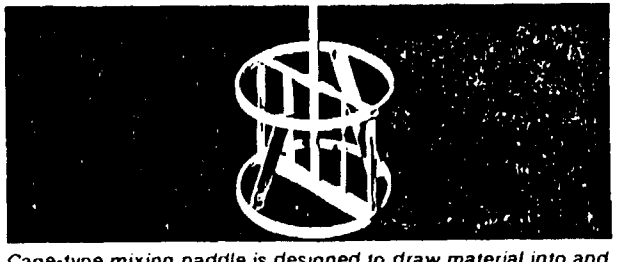
Mixing and Proportioning

All veneer finishes require the addition of water on the job. Water should be clean, fresh, suitable for human consumption, and free from mineral and organic substances that affect the plaster set. Water used for rinsing or cleaning *is not suitable* for mixing because it accelerates the plaster set.

Mechanical mixing is mandatory for veneer finishes and RED TOP Radiant Heat Plaster. Mix no more material than can be applied before set begins Since veneer finishes set more rapidly than most conventional plasters, always consult bag directions for specific setting times.

Veneer plasters and finishes will produce mortar of maximum performance and workability when the correct equipment is used and mixing directions carefully followed. Proper mixing is one of the most important factors in producing mortar of maximum workability.

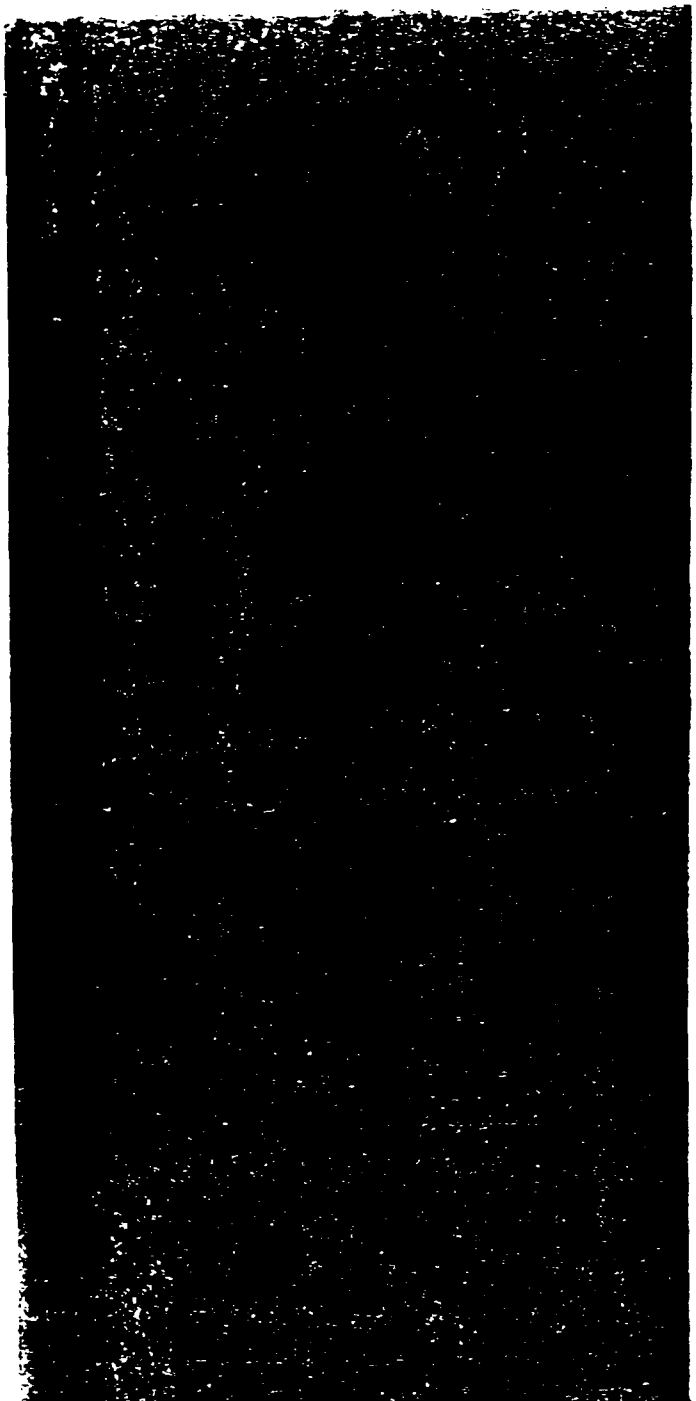
Use a *cage-type mixer paddle* driven by heavy-duty 1/2" electric drill with a rating of 900 to 1,000 rpm. Do not use propeller-type paddle or conventional mortar mixer. (For details of the cage-type mixing paddle and available electrical drills, see U.S.G. technical data sheet P-502.)



Cage-type mixing paddle is designed to draw material into and through paddle blades to disperse and blend ingredients by shear action rather than folding action of conventional mixers.

Mix plaster in 12 to 15-gal smooth-sided container strong enough to withstand impacts that could cause gouging Do not use brittle containers for mixing

Correct mixing—rapid and with high shear action—is essential for proper dispersion of plaster ingredients Slow mixing can reduce plasticity of material. Overmixing can shorten working time. Operated at correct speed, the cage-type type paddle mixes thoroughly without introducing excess air into the mix.



DIAMOND interior finish

Water requirement for DIAMOND Interior Finish is 12 to 15 qt. of clean water per 50-lb. bag. Place all but 1 or 2 qt. of water into mixing container; then with mixer operating, slowly add one bag of material. If desired, up to 50 lb. clean silica sand may be added per 50-lb. bag of finish. When material is wetted, add more water (1 to 2 qt.) to obtain desired consistency. Mix for minimum of two minutes, but *no longer than five minutes.*

IMPERIAL plasters

Water requirements for IMPERIAL Veneer Plasters:

IMPERIAL Basecoat—8 to 10 qt./80 lb. bag

IMPERIAL Finish—11 to 13 qt./80 lb. bag.

Place water in a 12- to 15-gal. smooth-sided container. Start mixer, slowly add plaster and mix at least 2 min. to disperse lumps completely. Do not mix more than 5 min.

For sand float finish, add up to 20 lb. clean silica sand per 80-lb bag of IMPERIAL Plaster to achieve desired texture. The use of more than 20 lb. of sand per bag will decrease hardness of surface. (Apply plaster in normal manner but omit final troweling. After surface has become firm, float to desired texture, using sponge, carpet or other float. Use water sparingly.)

RED TOP radiant heat plaster

RED TOP Radiant Heat Basecoat—Place approx. 11 to 13 qt. of clean water in a 12- to 15-gal. smooth-sided container, and with mixer operating slowly add 80-lb. bag of plaster. Mix for a minimum of two minutes, but not longer than five minutes to disperse all lumps completely.

Keep mixing equipment and tools clean. Do not mix more than can be applied in 30 minutes. Do not retemper.

RED TOP Radiant Heat Finish—Place approx. 12 to 15 qt. of clean water in a 12- to 15-gal. smooth-sided container, and with mixer operating, slowly add one bag of plaster. Mix for a minimum of two minutes, but not longer than five minutes to disperse all lumps completely.

Keep mixing equipment and tools clean. Do not mix more than can be applied in 30 minutes. Do not retemper.

Application

Maintain temperature in all work areas at min. 55 to 60°F. Keep air circulation at minimum level during and after application until finish is dry.

DIAMOND interior finish

All finish materials and finish surfaces must be protected from contact with DIAMOND Interior Finish. This includes glass, ce-

GP038 2180

GP038 2181

DURABOND 90 Joint Compound

DURABOND 90 Compound is equally suitable for filling form offsets and voids left in interior concrete. As with COVER COAT, DURABOND Compound should not be applied over moist surfaces or surfaces subject to moisture, or any abnormal condition.

application

1. Grind off all projections on concrete surfaces.
2. Remove all dirt, grease and form oil from concrete surface.
3. Mix compound according to bag directions.
4. Apply to fill all offsets and voids in concrete.
5. After DURABOND has hardened (not necessarily dry), apply a skim coat of USG Ready-Mixed All Purpose or Topping Compound over entire surface.
6. When dry, sand surface as necessary.
7. Paint or decorate surface as desired.

special applications and constructions

Integral Plaster Chalkboards

Plaster chalkboards offer maximum freedom in design. There is no limiting sheet size as is the case with fabricated boards; therefore, entire walls can be utilized as chalkboards. Maintenance is accomplished as easily as with conventional fabricated chalkboards. (Requirements for control joints in chalkboard surfaces are the same as for other gypsum surfaces.)

chalkboard with steel stud-IMPERIAL partitions

Follow directions for system construction, Chapter 3. Locate floor and ceiling runners and position studs 16" o.c. Attach 1/2" IMPERIAL Gypsum Base using 1" USG Type S Screws spaced 16" o.c. When chalkboard area does not extend from floor to ceiling, use 701-A or 801-A Metal Trim to frame the 1/2" IMPERIAL Base face layers that will be used as chalkboard. *(All chalkboard surfaces must have two layers of IMPERIAL Gypsum Base.)* Miter corners of the metal trim to form a neat joint. Attach chalkboard using 1 5/16" Type S Screws, driven through IMPERIAL base layer into the studs.

Veneer Application: use one- or two-coat plaster for chalkboard surface. With one-coat work, apply IMPERIAL Finish Plaster to 1/16" to 3/32" thickness. Cover entire area with a tight, thin coat, then double back to full thickness. After surface has become firm, final-trowel to a smooth surface, using water sparingly.

For two-coat application, apply IMPERIAL Basecoat Plaster to 1/16" to 3/16" thickness as described for single-coat application. Allow basecoat to set and dry, then apply IMPERIAL Finish Plaster, DIAMOND Interior Finish or STRUCTO-GAUGE-lime smooth-trowel finish plaster. Leave surface very hard and polished.

Paint chalkboard, when dry, with one coat primer-sealer and two coats chalkboard paint.

Install chalktrough with USG 1 5/16" Type S Screws, driven through the two layers of IMPERIAL Gypsum Base and into the steel studs.

Vapor Barriers

Foil-Back SHEETROCK Panels when applied with their foil surface next to exterior framing provide an effective vapor barrier that helps prevent interior moisture from penetrating into stud and joist spaces.

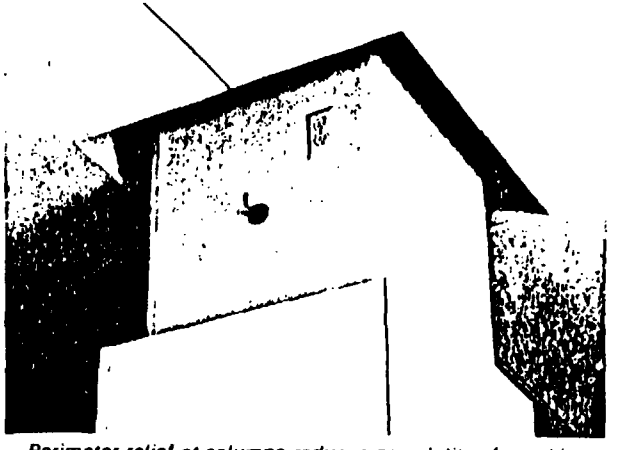
This system helps to maintain comfortable room humidity year 'round. Generally, during cold weather, a 10% increase in indoor relative humidity allows a 1°F. lower temperature with no decrease in comfort.

In addition, thermal insulating value is obtained when the foil backing faces an air space of min. 3/4".

Foil backing is not recommended in air-conditioned buildings located in the hot, humid climates of southern Atlantic and Gulf Coast areas, where a vapor barrier is required on the exterior side of walls and ceilings.

Perimeter Isolation

The perimeter of non-load bearing gypsum board surfaces should be isolated from all structural members, except the floor. Isolation is important to reduce potential cracking in partitions, ceilings, wall, column, and beam furring. Generally, methods for



Perimeter relief at columns reduces possibility of cracking.

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2. Check accuracy of alignment and position of framing according to plans and details

3. See that partitions are straight and true; ceilings level.

4. Measure spacing of studs and joists Spacing should not exceed maximum allowable for the system.

5. Look for protrusions of blocking, bridging, or piping, and twisted studs and joists that would create an uneven surface. Correct situation before board attachment

6. Make sure there are appropriate blocking and support for fixtures and boards.

7. See that window and door frames, electrical and plumbing fixtures are set for the board thickness used.

8. Check for proper position and attachment of resilient and furring channels.

9. Review all wood framing for compliance with minimum framing requirements outlined in Chapter 2.

10. Examine steel studs at corners, intersections, terminals, shelf-walls, door and borrowed light frames for positive attachment to floor and ceiling runners.

11. Inspect spliced steel components for proper assembly.

12. See that steel stud flanges all face the same direction.

13. See that preset door and borrowed light frames are securely attached to stud and runner rough framing at all anchor clips.

14. Make sure that door and borrowed light frames will be spot-grouted, as required.

suspended grillage

1. Measure spacing of hangers, channels and studs to see that they are within allowable limits.

2. Check ends of main runner and furring channels. They should not be let into or supported by abutting walls, and should extend to within 6" of the wall to support a furring channel.

3. Make sure furring channel clips are alternated and that furring channel splices are properly made.

4. See that mechanical equipment is independently supported and does not depend upon the grillage for support.

5. Inspect construction around light fixtures and openings to see that recommended reinforced channel support is provided.

drywall and veneer installation

Base Layer

1. Verify that material being used complies with specifications and fire or sound-tested construction.

2. Make sure that proper perpendicular or parallel application of board is being used, and that joints are staggered

3. Check for cracked and damaged-edge panels, and see that they are not used.

4. See that the recommended fasteners are being used and spaced properly

5. Check for proper use of acoustical sealant.

6. Inspect installation to make sure insulating or sound attenuation blankets are properly attached and fitted

7. Be certain vapor barrier is installed as required.

8. Review appropriate system construction and application, and inspect for compliance with laminating recommendations and other construction procedures On fire-rated assemblies, be sure that DURABOND Joint Compound is used for lamination

9. See that required control joints are properly located and installed.

Face Layer

1. Verify material compliance.

2. Look for high-quality workmanship. Cracked or damaged-edge boards should not be used. Board surfaces should be free of defects; joints correctly butted and staggered.

3. Check for proper application method—perpendicular or parallel.

4. Examine fasteners for compliance with specifications, proper spacing and application.

5. Review adhesive application method and see that recommendations and specifications are being followed

6. Inspect trim, corner beads and related components for alignment, grounds, secure attachment and proper installation

7. Make sure that acoustical sealant is applied around electrical outlets and other penetrations and completely seals the void.

Fasteners

1. Make sure recommended or specified fasteners are used

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2. See that fasteners are applied starting in center of board and working to ends and edges.

3. Observe whether board is held tightly against framing. Test for loose board by pushing adjacent to the fastener. See that face paper is not broken when fastener is driven. If necessary, a second fastener should be driven within 1½" of the faulty one.

4. Examine fastener positions. Fasteners should be at least ⅜" in from edges and ends.

5. Make sure that fastener heads in veneer assemblies are flush with the gypsum base surface, not dimpled.

Adhesives

1. See that adhesive is applied to clean, dry surfaces only.

2. Make sure that board is erected within allowable time limit after adhesive is applied so proper bond can be obtained.

3. Measure size of bead and spacing, and see that a sufficient quantity is applied.

4. Observe impacting blows for proper spacing and positioning.

5. Make sure temporary fastening and shoring holds panel tightly in place.

6. Review appropriate adhesive application methods (Chapter 2) and inspect for compliance.

Joint Treatment—Drywall

1. Make sure panel surface is ready for joint treatment. Fastener heads should be properly seated below panel surface. Protrusions should be sanded below level of surface. Joints between panels should be filled with joint compound before taping.

2. See that recommended mixing directions are followed (see Chapter 2). Only clean water and mixing equipment should be used. DURABOND Joint Compounds cannot be held over or retempered.

3. Inspect joints and corners to see that tape is properly embedded and covered promptly with a thin coat of joint compound. Only compounds suitable for embedding should be used. Heavy fills should be avoided.

4. Make sure that compound is used at its heaviest workable consistency and not overthinned with water.

5. Check to see that joint compound is allowed to dry thoroughly between coats (see Drying Time Guide, Chapter 2). *Exception:* DURABOND Joint Compounds need only have hardened prior to the fill coat application.

6. Inspect second and third coats over joints for smoothness and proper edge feathering.

7. See that fastener heads and metal trim are completely covered.

8. Make sure that all finished joints are smooth and dry before decoration. Sand smooth if necessary.

Joint Treatment and Finish—Veneer

1. See that corner bead is properly attached and aligned at all outside corners.

2. See that control joints are properly installed where required.

3. See that proper joint reinforcement is used—IMPERIAL Tape for normal conditions, PERF-A-TAPE plus DURABOND Joint Compound for abnormal job or weather conditions.

4. See that IMPERIAL Tape is *not* overlapped at intersections.

5. Be sure that all taped IMPERIAL Base joints are preset before finish application begins.

conventional plaster installation

Plaster Base

1. See that material being used complies with specifications and fire or sound-tested construction.

2. Review appropriate system construction and application, and inspect for proper installation practices.

3. Check for proper application of base perpendicular to framing members, and see that joints are staggered.

4. Check for cracked and damaged edges of plaster base. These should not be used.

5. See that the recommended fasteners or clips are being used and spaced properly.

6. Check for proper use of acoustical sealant.

7. Inspect installation to make sure that insulating blankets are properly attached and fitted.

8. Be sure that adequate supports are in place for fixture and cabinet application.

Grounds for Plastering

The thickness of basecoat plaster is one of the most important elements of a good plaster job. To insure proper thickness of

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plaster, grounds should be properly set and followed. The following points should be checked:

1. All openings should have specified plaster grounds applied as directed.

2. If plaster screeds are used, the dots or continuous strips of plaster must be applied to the ground thickness to permit proper plumbing and leveling.

3. Grounds should be set for recommended min. thickness for particular plaster base being used (see Chapter 5).

Job Conditions for Plastering

This phase of inspection is also important. An accurate check of the following points should be made periodically:

1. At no time should plastering be permitted without proper heating and ventilation. Circulation of air is necessary to carry off excess moisture in the plaster, and a uniform temperature in a comfortable working range helps to avoid structural movement due to temperature differential.

To prevent "dryouts," precautions must be taken against rapid drying before plaster set has occurred. Check temperature during damp, cold weather where artificial heat is provided. During hot, dry summer weather, cover window and door openings to prevent rapid drying due to uneven air circulation.

2. Inspect plaster surfaces during drying. Setting of basecoat plaster is indicated by hardening of plaster and darkening of surface as set takes place. Plaster that has set but not yet thoroughly dried will be darker in color than the unset portion, which accounts for the mottled effect as the plaster sets.

Plaster Application

After determining what materials are to be used on the job, refer to correct mixing and application procedures described in Chapter 5.

The visible success of the job is at stake with the finish plaster coat, and required measures should be taken to finish correctly:

1. Check plaster type and mixing operation.

2. See that proper plaster thickness is maintained.

3. Consult architect's specifications to see that proper surface finish method is being used.

4. Check temperature of building for proper finish plaster drying conditions.

Cleanup

For a complete job, cleanup is the final stage. All scaffolding, empty containers and excess materials should be removed from the job site. Floors should be swept and the building and site left in good condition for decoration and finishing.

problems: their cause, remedy and prevention

The first part of this chapter deals with problems associated with gypsum construction, many of which are beyond the control of contractors working from construction documents.

Other problems, resulting from improper job conditions and application practices, are the direct responsibility of the contractor and can be controlled by him. These are discussed fully in the following section, together with corrective action to remedy the problem and prevent future recurrence.

Drywall Construction

Almost invariably, unsatisfactory results show up first in the areas over joints or fastener heads. Improper application of either the board or joint treatment *may* be at fault, but other conditions existing on the job can be equally responsible for reducing the quality of the finished gypsum board surface.

To help determine the exact problem cause, the physical appearance of each defect is described here along with a discussion of the factors causing unsatisfactory results. The checklist following contains possible causes for the irregularity and serves as an index to the numerically listed problems, causes, remedies and preventions. By checking each numerical item listed for the defect, the exact problem cause can be determined and appropriate correction action taken.

description of defect

Fastener Imperfections—A common defect which takes on many forms. May appear as darkening, localized cracking or a depression over fastener heads, pop or protrusion of the fastener or the surface area immediately surrounding the fastener. Usually caused by improper framing or application of fasteners.

Joint Defects—Generally occur in a straight-line pattern and appear as ridges, depressions or blisters at the joints, or darkening over the joints or in adjacent panel areas. Imperfections may be result of incorrect framing or joint treatment, or climatic conditions if remedial action has not been taken.

Loose Panels—Board does not have tight contact with framing, rattles when impacted or moves when pressure is applied to the surface. Caused by improper application of panels, framing out of alignment or improper fastening.

Joint Cracking—Appears either directly over the long edge or butt ends of boards, or may appear along the edge of taped joints. Often caused by structural movement and/or hygrometric

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and thermal expansion and contraction, or by excessively fast drying of joint compounds.

Field Cracking—Usually appears as diagonal crack originating from a corner of a partition or intersection with structural elements. Also seen directly over a structural element in center of a partition. May originate from corners of doors, light fixtures and other weak areas in the surface created by penetration. Caused by structural movement described earlier in this chapter. Also see Perimeter Isolation and Framing—Door and Window in Chapter 2 for use of control joints to minimize cracking.

Angle Cracking—Appears directly in the apex of wall-ceiling or interior angles where partitions intersect. Also can appear as cracking at edge of paper reinforcing tape near surface intersections. Can be caused by structural movement or improper application of joint compound in corner angle.

Bead Cracking—Shows up along edge of flange. Caused by improper bead attachment, faulty bead or joint compound application.

Wavy Surfaces—Boards are not flat but have a bowed or undulating surface. Caused by improper board fit, misaligned framing, hygrometric or thermal expansion. Also refer to Chapter 2, Handling and Storage, for proper procedure to keep boards flat before installation.

Board Sag—Occurs in ceilings, usually under high-humidity or moisture conditions. Caused by insufficient framing support for board, board too thin for span, poor job conditions, lack of or mislocated vapor barrier, or improperly fitted panels. Refer to Chapter 2 for proper job ventilation, storage and frame spacing—particularly with spray-applied texture finishes.

Surface Defects—Fractured, damaged or crushed boards after application may be caused by abuse or lumber shrinkage. Also see Discoloration below.

Discoloration—Board surface has slight difference in color over joints, supports or fasteners. Caused by improper paint finishing, uneven soiling and darkening from aging or ultraviolet light.

Water Damage—Stains, paper bond failure, softness in board core or mildew growth are caused by sustained high humidity, standing water and improper protection from water leakage during transit and storage. Refer to Chapter 2 for proper handling, storage and environmental conditions.

checklist for drywall problems

To find the specific cause for a problem described above, check, on the following pages, all numerical references listed in the particular category.

fastener imperfections	3, 9, 10, 11, 12, 22, 23, 24, 25, 26, 27
joint defects	1, 2, 7, 8, 9, 11, 13, 14, 18, 19, 20, 21
loose panels	1, 3, 10, 11, 12, 22, 23, 24, 25, 26, 27
joint cracking	1, 11, 15, 16, 17, 19
field cracking	4
angle cracking	15, 17
bead cracking	15
wavy surfaces	1, 10, 16
board sag	1, 6, 25
surface defects	4, 5, 8, 9
discoloration	7, 8, 9
water damage	5

1. PANELS—Improperly Fitted

Cause: Forcibly wedging an oversize panel into place bows the panel and builds in stresses preventing it from contacting the framing (Fig. 1). Result: following nailing, a high percentage of nails on the central studs probably will puncture the paper. May also cause joint deformation.

Remedy: Remove panel, cut to fit properly, and replace. Fasten from center of panel toward ends and edges. Apply pressure to hold panel tightly against framing while driving fasteners.

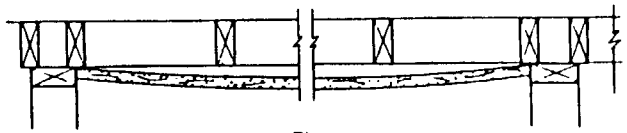

Fig. 1

2. PANELS—Damaged Edges

Cause: Paper-bound edges have been damaged or abused; may result in ply separation along edge or in loosening of paper from gypsum core, or may fracture or powder the core itself. Damaged edges are more susceptible to ridging after joint treatment.

Remedy. Cut back any severely damaged edges to sound board before application.

Prevention: Avoid using board with damaged edges that may easily be compressed, or can swell upon contact with moisture. Handle SHEETROCK Panels with reasonable care.



Fig. 2

3. PANELS—Loosely Fastened

Cause: Framing members are uneven because of misalignment or warping; lack of hand pressure on panel during fastening. Head of fastener alone cannot pull panel into firm contact with uneven members. Also see PANELS—Improperly Fitted.

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ture content may aggravate nail cutting. Raise moisture content of board and humidity in work area.

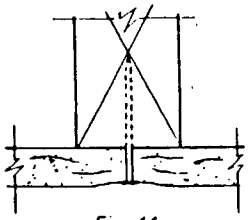

Fig 11

23. FASTENERS—Nails Loosened by Pounding

Cause Applying panels to the second side of a partition can loosen nails on opposite side. This is particularly true when lightweight, soft lumber, undersized studs or furring are used.

Remedy: Check panels for tightness on the partition side where panels were first applied. If looseness is detected, strike each nailhead an additional hammer blow, being careful to not overdrive the nail.

Prevention: Use proper framing, USG Type W Screws or adhesive application

24. FASTENERS—Nail Pops from Lumber Shrinkage

Cause Improper application, lumber shrinkage or a combination of both With panels held reasonably tight against framing member and with proper-length nails, only severe shrinkage of the lumber normally will cause nail pops. But if nailed loosely, any inward pressure on panel will push nailhead through its thin covering pad of compound. Pops resulting from "nail creep" occur when shrinkage of the wood framing exposes nail shank and consequently loosens panel (see Lumber Shrinkage described earlier in this chapter).

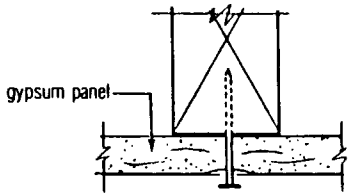

Fig. 12

Remedy: Repairs usually are necessary only for pops which protrude .005" or more from face of board (Fig. 12). Smaller protrusions may require repair if they occur in a smooth gloss surface or flat-painted surface under extreme lighting conditions Those which appear before or during decoration should be repaired immediately. Pops which occur after one month's heating or more are usually caused wholly or partly by wood shrinkage, and should not be repaired until near end of heating season Drive proper nail or USG Type W Screw about 1½" from popped nail while applying sufficient pressure adjacent to nailhead to bring panel in firm contact with framing Strike popped nail lightly to seat it below surface of board Remove loose compound, apply finish coats of compound and paint

Prevention Proper nail application, use of lumber meeting Framing Requirements (Chapter 2), attachment with USG Type W Screws or by adhesive application (Chapter 2).

25. FASTENERS—Unseated Nails

Cause Flexible or extremely hard framing or furring does not permit nails to be properly driven. May result from undersized framing members, type of wood used or supports which exceed the maximum allowable frame spacing

Remedy: Replace nails with 1¼" USG Type W Screws

Prevention: Use proper framing (Chapter 2), Type W Screws or adhesive application.

26. FASTENERS—Loose Screws

Cause. Using the wrong type screw for the application or an improperly adjusted screwgun results in a screw stripping or not seating properly.

Remedy: Remove faulty fastener and replace with a properly driven screw.

Prevention: Use USG Screws with combination high/low threads for greater resistance to stripping and pullout; set screwgun clutch to proper depth.

27. FASTENERS—Bulge Around Fastener

Cause: Overdriving fasteners or driving them with the wrong tool can puncture and bulge face paper and damage core of board. Following application of joint compound or texture finish that wets the board paper can result in board bulging or swelling around fastener.

Remedy: Drive screw fastener close to damaged area, clean out damaged paper core, repair with DURABOND Joint Compound and refinish.

Prevention: Use correct tool and drive fasteners properly.

Veneer Construction

Many problems associated with veneer construction have the same cause, remedy and prevention as with drywall systems. The similarity appears in application of the base, framing irregularities, cracking due to structural movement, hygrometric and thermal expansion, and fastener imperfections. The additional problems shown below are those specifically relating to veneer finish construction. If solutions to your problems in veneer

construction are not shown, check similar problems for drywall construction found earlier in this chapter.

application

1. MIXING—Foaming Action In Mixer

Cause Use of alum as an accelerator when limestone aggregate is used.

Remedy: None—dispose of batch.

Prevention: Use moulding plaster or quick-set gauging plaster as an accelerator when limestone aggregate is used. Or, use sand aggregate.

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2. SETTING TIME—Variable Set Time Within Batch

Cause: Insufficient or excessive mixing.

Remedy None—dispose of batch.

Prevention: Use proper drill speed; follow recommended mixing times (see Chapter 2).

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3. SLOW SET—DIAMOND Interior Finish

Cause: Temperature below 40°F. or in excess of 100°F.

Remedy: None—dispose of batch.

Prevention: Avoid extremes of air and mix water temperatures.

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4. QUICK SET—DIAMOND Interior Finish

a. *Cause:* Contamination; rusty mixing equipment.

Remedy: None—dispose of batch.

Prevention: Use potable water; clean set plaster residue from equipment after each batch. *Always* use clean mix equipment.

b. *Cause:* Excessive use of aggregate and/or accelerator.

Remedy None—dispose of batch.

Prevention. Follow recommendations for mix proportions and use of additives.

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5. QUICK SET—IMPERIAL Finish

a. *Cause:* Excessively low temperatures.

Remedy: None—dispose of batch.

Prevention: Maintain min. 55°F air and mix water temperature.

b. *Cause:* Contamination; excessive use of aggregate and/or accelerator

Remedy None—dispose of batch.

Prevention: Same as for DIAMOND Interior Finish.

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6. WORKABILITY—Stiff Working

Cause: Mixing action has improper or insufficient shear.

Remedy None—use remainder of batch if at all workable.

Prevention: Follow recommendations for mixing time, drill speed and type of mixing paddle (see Chapter 2).

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in-place

7. BOND FAILURE—Delamination of Finish Coat

Cause: Basecoat too smooth; finish coat not properly scratched into basecoat to have necessary keying.

Remedy: Remove loose material, brush basecoat thoroughly, apply bonding agent and refinish.

Prevention: Follow application recommendations (Chapter 2).

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8. BOND FAILURE—DIAMOND Interior Finish

Cause: Application over faded (not normal blue color) gypsum base.

Remedy: Remove loose material, brush base clean, apply bonding agent and refinish.

Prevention. Do not store or apply base where it will be exposed to sunlight for an extended period of time. Where exposed, spray faded base with alum solution before finish is applied.

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9. CRACKS—Joint Cracking

a. *Cause:* IMPERIAL Tape overlapped at joint intersections

Remedy: Large cracks—apply PERF-A-TAPE Reinforcement and USG Ready-Mixed Joint Compound-All Purpose or Taping over the cracks. Minor cracking—flush out area with USG Ready-Mixed Joint Compound-All Purpose.

Prevention: Avoid overlapping tape at all joint intersections, including those at angles.

b. *Cause.* Improper steel stud placement; gypsum base application advanced in wrong direction relative to flange direction

Remedy: Repair with PERF-A-TAPE Reinforcement and USG Ready-Mixed Joint Compound-All Purpose.

Prevention: Install steel studs with all flanges pointing in same direction; arrange gypsum base application so lead edge of base is attached to open edge of flange first (see No. 13 under Drywall Framing Problems)

c. *Cause:* Overly rapid drying conditions

Remedy. Repair with PERF-A-TAPE Reinforcement and USG Ready-Mixed Compound-All Purpose.

Prevention: Liberally sprinkle floor with water to raise humidity.

Use PERF-A-TAPE Reinforcement and DURABOND Joint Compound on all joints. Allow compound to dry thoroughly before applying finish.

10. CRACKS—Field Cracking

Cause: Gypsum base installed with vertical joints extending from corners of door and window openings

Remedy: Apply PERF-A-TAPE Reinforcement and DURABOND Joint Compound finished with USG Ready-Mixed Joint Compound-All Purpose, prime and seal (this is a cosmetic treatment, there is no guarantee that cracks will not reopen).

Prevention: Install USG Control Joints or cut base to fit around openings with joints centered above openings, *not* at corners.

11. CRACKS—Craze and Map Cracking

Cause: Veneer application too thin. Also can be caused by too rapid drying.

Remedy: Apply spackling putty, prime and seal.

Prevention: Apply recommended thicknesses for both one- and two-coat work. Avoid excessive ventilation which may cause rapid drying. When weather is hot and dry, sprinkle floor with water to raise humidity.

12. BLEMISHES—Blistering

a. *Cause:* Loose paper on gypsum base as a result of improper cutting or from "peelers" caused by careless handling.

Remedy: Cut and remove unbonded paper, apply bonding agent if gypsum core is exposed, and refinish.

Prevention: Follow proper handling and cutting procedures.

b. *Cause:* Troweling too early and lack of absorption; excessive material buildup

Remedy: Minimize troweling and allow finish to become firm. Finish-trowel over freshly set surface to eliminate blisters.

Prevention: Apply material in uniform thickness with minimum amount of troweling to produce smooth surface.

13. BLEMISHES—Joint Ridging and Beading

Cause: Joints not preset; excessive ventilation and poor heat control. Most likely to occur with one-coat applications.

Remedy: Repair with PERF-A-TAPE Reinforcement and USG Ready-Mixed Joint Compound-All Purpose.

Prevention: Preset all joints before veneer finish application; keep ventilation to minimum and control heat. In extremely hot, dry weather use PERF-A-TAPE Reinforcement and DURABOND Joint Compound as alternate joint reinforcement.

14. BLEMISHES—Spalling at Exterior Corners

Cause: Use of solid-flange drywall corner bead

Remedy: Remove all loose material and corner bead. Install expanded-flange corner bead and refinish

Prevention: Use expanded-flange corner bead

15. STAINS—Staining and Rusting

Cause: Use of improper fasteners, or exposed, improperly prepared metal trim.

Remedy: Apply rust-locking primer over stains

Prevention: Use recommended coated fasteners (see Chapter 1). Apply rust-locking primer to all exposed metal.

16. SOFT, WEAK SURFACE—Dryouts

Cause: Too rapid drying conditions.

Remedy: Fog-spray surface with water to provide setting action. When set, apply USG Ready-Mixed Joint Compound-All Purpose for acceptably smooth surface.

Prevention: Avoid extending set and/or temperature and humidity conditions which cause rapid drying.

17. SOFT, WEAK SURFACE—Crumbly Areas

Cause: Use of excessive amount of sand aggregate and/or retarder.

Remedy: Treat soft areas with penetrating sealer.

Prevention: Allow minimum ventilation; use recommended amounts only of aggregate or retarder. Avoid prolonged set.

Texture Finishes

U.S.G. texturing materials offer a wide range of decorative yet practical finishes. Properly used, they can provide interest and variety in decoration while covering minor defects in the base surface. However, certain working conditions, application techniques or equipment problems can cause unsatisfactory results. The following list describes the problem, probable cause and remedy for particular situations.

1. MIXING—Lumping of Wet Mix

Cause: Too much water added to initial mix, making lumps difficult to break up.

Remedy and Prevention: Initial amount of water added to mix should be slightly less than recommended. After lumps are broken up, add remaining water.

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2. MIXING—Slow Solution Time

Cause: Insufficient soaking and/or use of very cold water.

Remedy and Prevention: Allow materials to soak for up to two hours, as necessary, if using cold water.

3. MIXING—Wet Mix Too Thin

Cause: Addition of excessive water during initial mix. Also, insufficient soaking time in cold water.

Remedy and Prevention: Use recommended amount of water to insure proper consistency. Allow materials to soak up to two hours, if necessary, when using cold water.

4. APPLICATION—Excessive Aggregate Fallout In Spraying

Cause: Excessive air pressure at nozzle, or holding gun too close to surface being sprayed.

Remedy and Prevention: Use proper air pressure for type of material to be sprayed; low for IMPERIAL QT Texture Finish, high for USG Spray Texture. (Consult appropriate U.S.G. product data sheet for recommended air pressure.) Hold spray gun at proper distance from surface to prevent excessive bounce or fallout of aggregate.

5. APPLICATION—Flotation of Aggregate

Cause: Overdilution of job mix and/or lack of adequate mixing after water is added to control consistency.

Remedy and Prevention: Add correct amount of water as directed on bag to insure proper suspension of materials in mix. Make certain that water is blended into mix.

6. APPLICATION—Poor Coverage with Spray Finishes

Cause: Not enough water to bring texture material to proper spray viscosity and/or improper application such as moving spray gun too slowly, overloading spray surface and using incorrect spray pressures.

Remedy and Prevention: Add proper amount of water as directed on bag. Use correct spray gun pressures and application technique to insure uniform texture with maximum coverage.

7. APPLICATION—Poor Hide

Cause: Overdilution of mix causing reduction in hiding power. Insufficient water in spray finishes causes poor material atomization, resulting in surface show-through. Also caused by overextending material or choosing incorrect spray pressures.

Remedy and Prevention: See above.

8. APPLICATION—Poor Bond or Hardness

Cause: Overdilution of job-mix results in thinning out of binder in texture. Contamination or intermixing with other materials can destory bonding power.

Remedy and Prevention: Add proper amount of water as stated in bag directions. Always use clean mixing vessel and water. Never intermix with other products (except tinting materials as recommended).

9. APPLICATION—Stoppage of Spray Equipment

Cause: Contamination of material or oversize particles can cause clogging of spray nozzle orifices. Also caused by using incorrect nozzle size for aggregate being sprayed.

Remedy and Prevention: Prevent contamination during mixing. Use correct nozzle for aggregate size of texture material.

10. APPLICATION—Unsatisfactory Texture Pattern

Cause: Improper spray pressures and/or worn spray equipment, either fluid or air nozzle. Also improper spraying consistency of mix and/or spraying technique.

Remedy and Prevention: Use recommended amount of water to insure proper spraying consistency. Handle spray equipment correctly to achieve best results. Make certain that spray accessories are in good working condition; replace when necessary.

11. APPLICATION—Unsatisfactory Pumping Properties

Cause: Mix too heavy. Pump equipment worn or of insufficient size and power to handle particular type of texture.

Remedy and Prevention: Use recommended amount of water to insure proper spraying consistency. Make sure that equipment is in good repair and capable of pumping heavy materials.

12. APPLICATION—Texture Buildup

Cause: Texturing over a high-suction drywall joint (surface not properly sealed) and/or allowing too much time between roller or brush application and texturing operation. Overdilution of texture material will produce texture buildup over joint.

Remedy and Prevention: Seal entire surface with white TAL Alkyd Flat Wall Paint before texture application. Use correct amount of water when mixing texture material and allow safe time interval between application and final texturing.

13. APPLICATION—Poor Color Match, Ceiling and Sidewall

Cause: Overspray on ceiling when walls are sprayed with different texture material that is not matched for color.

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2. MIXING—Slow Solution Time

Cause: Insufficient soaking and/or use of very cold water.

Remedy and Prevention: Allow materials to soak for up to two hours, as necessary, if using cold water.

3. MIXING—Wet Mix Too Thin

Cause: Addition of excessive water during initial mix. Also, insufficient soaking time in cold water.

Remedy and Prevention: Use recommended amount of water to insure proper consistency. Allow materials to soak up to two hours, if necessary, when using cold water.

4. APPLICATION—Excessive Aggregate Fallout In Spraying

Cause: Excessive air pressure at nozzle, or holding gun too close to surface being sprayed.

Remedy and Prevention: Use proper air pressure for type of material to be sprayed, low for IMPERIAL QT Texture Finish, high for USG Spray Texture. (Consult appropriate U.S.G. product data sheet for recommended air pressure.) Hold spray gun at proper distance from surface to prevent excessive bounce or fallout of aggregate.

5. APPLICATION—Flotation of Aggregate

Cause: Overdilution of job mix and/or lack of adequate mixing after water is added to control consistency.

Remedy and Prevention: Add correct amount of water as directed on bag to insure proper suspension of materials in mix. Make certain that water is blended into mix.

6. APPLICATION—Poor Coverage with Spray Finishes

Cause: Not enough water to bring texture material to proper spray viscosity and/or improper application such as moving spray gun too slowly, overloading spray surface and using incorrect spray pressures.

Remedy and Prevention: Add proper amount of water as directed on bag. Use correct spray gun pressures and application technique to insure uniform texture with maximum coverage.

7. APPLICATION—Poor Hide

Cause. Overdilution of mix causing reduction in hiding power. Insufficient water in spray finishes causes poor material atomization, resulting in surface show-through. Also caused by overextending material or choosing incorrect spray pressures.

Remedy and Prevention: See above.

8. APPLICATION—Poor Bond or Hardness

Cause. Overdilution of job-mix results in thinning out of binder in texture. Contamination or intermixing with other materials can destory bonding power.

Remedy and Prevention: Add proper amount of water as stated in bag directions. Always use clean mixing vessel and water. Never intermix with other products (except tinting materials as recommended).

9. APPLICATION—Stoppage of Spray Equipment

Cause: Contamination of material or oversize particles can cause clogging of spray nozzle orifices. Also caused by using incorrect nozzle size for aggregate being sprayed.

Remedy and Prevention: Prevent contamination during mixing. Use correct nozzle for aggregate size of texture material.

10. APPLICATION—Unsatisfactory Texture Pattern

Cause. Improper spray pressures and/or worn spray equipment, either fluid or air nozzle. Also improper spraying consistency of mix and/or spraying technique.

Remedy and Prevention: Use recommended amount of water to insure proper spraying consistency. Handle spray equipment correctly to achieve best results. Make certain that spray accessories are in good working condition; replace when necessary.

11. APPLICATION—Unsatisfactory Pumping Properties

Cause: Mix too heavy. Pump equipment worn or of insufficient size and power to handle particular type of texture.

Remedy and Prevention: Use recommended amount of water to insure proper spraying consistency. Make sure that equipment is in good repair and capable of pumping heavy materials.

12. APPLICATION—Texture Buildup

Cause: Texturing over a high-suction drywall joint (surface not properly sealed) and/or allowing too much time between roller or brush application and texturing operation. Overdilution of texture material will produce texture buildup over joint.

Remedy and Prevention: Seal entire surface with white TAL Alkyd Flat Wall Paint before texture application. Use correct amount of water when mixing texture material and allow safe time interval between application and final texturing.

13. APPLICATION—Poor Color Match, Ceiling and Sidewall

Cause: Overspray on ceiling when walls are sprayed with different texture material that is not matched for color.

Remedy and Prevention: Use color-matched USG Spray Texture for sidewalls with IMPERIAL OT Texture Finish for ceilings. (Paint added at job to either wall or ceiling texture can cause color difference.)

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14. FINISH SURFACE—*Poor Touchup*

Cause: It is very difficult to touch-up a textured surface to completely blend with the surrounding texture. A conspicuous touchup is caused either by texture or color variance.

Remedy: Perform touchup operation with extreme care; otherwise, re-texture entire wall or ceiling area.

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15. FINISH SURFACE—*Joint Show-Through*

Cause: Overthinned or overextended texturing material does not adequately hide the normal contrast between joint and gypsum panel paper. Also caused by improperly sealed surface.

Remedy: Use correct amount of water when mixing texture material and apply at recommended rate of coverage until joint is concealed

Prevention: Seal entire surface with white TAL Alkyd Flat Wall Paint before texture application.

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16. FINISH SURFACE—White Band or Flashing Over Gypsum Panels

Cause: High-suction gypsum panel joint causes a texture variation which often appears as a color contrast.

Remedy: Allow texture to dry, and paint entire surface.

Prevention: Seal entire surface with white TAL Alkyd Flat Wall Paint before spray texture application.

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17. FINISH SURFACE—White Band or Flashing Over Concrete

Cause. Damp concrete surface on which leveling compound has dried completely can produce results similar to those of high-suction joint.

Remedy: Allow texture to dry, and paint entire surface.

Prevention Allow concrete to age for at least 60 days for complete dryout; then seal with TAL Alkyd Flat Wall Paint before applying texture

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18. FINISH SURFACE—Joint Darkening

Cause. Application over damp joint compound, especially in cold, humid conditions.

Remedy: Allow texture to dry completely, and paint entire surface.

Prevention Seal surface with white TAL Alkyd Flat Wall Paint before texture application.

Conventional Plaster Construction

All U S G basecoat and finish plasters are carefully manufactured and thoroughly tested before shipment. Along with the functional characteristics provided, U.S G plasters are carefully formulated for use under normal, prevailing weather conditions and with aggregates commonly used in the market.

Plasters are adversely affected by aging and abnormal storage conditions, use of the wrong aggregate and improper proportioning—all of which may affect the set, hardness and working properties of the material. Most plaster problems result from the following situations.

1. Adverse atmospheric and job conditions.
2. Set conditions—too fast or slow
3. Poor quality and incorrect proportioning of aggregate.
4. Improper mixing, application or thickness of basecoat or finish
5. Incorrect lathing practices.
6. Dirty or worn mixing or pumping equipment.

Basecoat and finish coat plasters are so closely interrelated that problems pertaining to their use are treated together No attempt is made here to discuss problems that might occur due to structural deficiencies. These have been covered earlier in this chapter. Plaster problems are classified under the specific type of condition which exists. These are discussed in order, in the following groups:

1. Plaster cracks.
2. Blemishes, color variation, surface stains.
3. Weak, soft walls.
4. Bond failure.
5. Set and working qualities.
6. Gauged lime putty problems.

1. CRACKS—Connecting vertical, horizontal cracks at somewhat regular intervals, often in "stepped" pattern, also diagonal.

Material—Plaster over metal or gypsum lath.

a. *Cause:* Plaster too thin, insufficient plaster grounds.

Remedy: Patch. *Prevention:* Apply plaster to proper thickness.

b. *Cause:* Weak plaster (through dryout or slow set)

Remedy: Spray with alum solution to accelerate set.

Prevention: Add accelerator to plaster mix to bring setting time to normal range.

c. *Cause:* Excessive use of aggregate.

Remedy: Patch. *Prevention:* Use proper proportions of aggregate and plaster.

d. *Cause:* Failure to use Striplath reinforcement at potential weak points.

Remedy: Cut out, reinforce and repair.

Prevention: Install proper reinforcing.

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e. *Cause*: Expansion of rough wood frames.

Remedy Remove plaster and lath as necessary. Seal frames and patch.

Prevention: Seal frames Cut basecoat along grounds prior to set Install control joints over frames.

Material—Plaster over unit masonry.

Cause Structural movement of masonry units.

Remedy and Prevention: Correct masonry construction, install control joint, patch.

Material—Plaster over brick, clay tile or concrete block at door openings.

Cause: Poor lintel construct'on, improper frame construction.

Remedy: Patch. *Prevention:* Use proper frame and lintel construction with self-furring metal lath reinforcement.

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2. CRACKS—Fine cracks, random pattern, generally 1" to 3" apart. Includes shrinkage cracks, crazing, alligatoring, chip cracks

Material—Gauged lime putty finish over gypsum basecoat, used with any plaster base.

Cause Insufficient gauging plaster—shrinkage of lime Insufficient troweling during setting. Applied finish too thick. Basecoat too wet or too dry and too little or too much suction.

Remedy: Apply spackling putty and primer-sealer.

Prevention: Use sufficient gauging plaster, trowel sufficiently, or properly condition basecoat before applying finish.

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3. CRACKS—Fine cracks, irregular pattern, generally 6" to 14" apart, "map cracking".

Material—Trowel finishes over gypsum basecoat—unit masonry plaster base.

a. *Cause:* Finish coat applied too thick.

Remedy: Patch. *Prevention:* Apply finish coat to 1/16" thickness but not more than 1/8".

b. *Cause:* Improper timing of final troweling.

Remedy Patch. *Prevention:* Water-trowel as final set takes place (not before) to provide dense, smooth surface.

c. *Cause* Retempering gauged lime putty.

Remedy Discard batch; make up new gauge.

Prevention Gauged lime putty should not beretempered once it has started final set.

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4. CRACKS—Random pattern, usually less than 12" apart, called map, shrinkage or fissure cracking.

Material—Basecoat over masonry.

a. *Cause*: High suction of masonry base.

Remedy: If bond to base is sound and cracks are open 1/16" or more, fill by troweling across cracks with properly aggregated plasters. If bond is sound, finish over fine cracks with highly gauged trowel finish or float finish. If curled at edges and bond is unsound, remove and reapply using proper plaster method.

Prevention Wet masonry with water to reduce suction before basecoat application.

b. *Cause:* Under-aggregating of basecoat; slow set.

Remedy: Same as above. *Prevention:* Use 3 cu ft. of aggregate per 100 lb. gypsum plaster (see Chapter 4 for proper proportion of aggregates). Discontinue use of job-added retarder and accelerator, if necessary, to obtain proper set.

c. *Cause:* Dryout condition.

Remedy: Spray basecoat either with water or alum solution to thoroughly wet plaster. Proceed same as above.

Prevention: In hot, dry weather, protect plaster from drying too rapidly before set. Spray plaster during set time if necessary.

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5. CRACKS—At wall or ceiling angles.

Material—Plaster over gypsum lath.

a. *Cause:* Thin plaster.

Remedy: Cut out and patch. *Prevention:* Follow correct application procedure.

b. *Cause:* Failure to use Cornerite reinforcement.

Remedy and Prevention: Same as above.

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6. BLEMISH—Water-soluble, powdery crystals on surface, generally white but may be colored. Can be brushed off.

Material—Basecoat and finish plaster over concrete block or clay tile.

Cause: Efflorescence. As masonry units dry, water-soluble salts from units or mortar joints leach out and are deposited on the plaster surface.

Remedy: After plaster surfaces are thoroughly dry, brush off efflorescence, apply oil-base sealer and paint.

Prevention: On interior walls, eliminate source of moisture, remove efflorescence before plastering, decorate with oil-base sealer and paint. On exterior walls, eliminate moisture source, fur out, lath and plaster.

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7. BLEMISH—"Pops", peak-like projections which fall out and create little craters or pits; often with fine radial cracks.

Material—Gauged lime putty finish.

a. *Cause:* Unslaked lime in mortar which slakes and swells after it is applied.

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Remedy: Remove core of "pops" and patch after popping has ceased

Prevention: Allow sufficient soaking time for normal hydrated lime, or use double-hydrated lime or a prepared finish such as RED TOP Finish Lime.

b. *Cause:* Contamination from foreign matter.

Remedy: Same as above. *Prevention:* Eliminate source of impurity

Material—Gypsum basecoat and finish.

Cause: Lumpy or undissolved retarder added on job. Retarder lumps swell or "pop" when wet.

Remedy: Cut out spots and patch.

Prevention: Completely disperse retarder before adding to mix water; mix well to distribute retarder throughout plaster.

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8. BLEMISH—Blisters in finish coat occur during or immediately after application.

Material—Gauged lime putty finish.

a. *Cause.* Base too green (wet); insufficient suction; too much water used in troweling.

Remedy: After finish has set, trowel with very little water.

Prevention: Do not apply finish coat over green basecoat.

b. *Cause:* Finish too plastic.

Remedy: Same as above. *Prevention:* Add small amount of very fine white sand to putty, or increase amount of gauging plaster.

---

9. BLEMISH—Excess material ("slobbers") on finish surface.

Material—Gauged lime putty finish.

Cause. Improper joining technique, excessive or improper troweling leaves excess material on finished surface.

Remedy: Scrape off excess material before decoration. Seal surface when plaster is dry.

Prevention: Previously applied finish should be cut square for completion of finish. Avoid excessive troweling at joining.

---

10. BLEMISH—Peeling paint.

Material—Gauged lime putty finish.

a. *Cause:* Paint applied over wet plaster.

Remedy: Scrape off peeled paint, allow plaster to dry, and redecorate.

Prevention: Be sure plaster is dry before decorating, and use a breather-type paint.

b. *Cause:* Weak finish. Plaster worked through set.

Remedy: Scrape off peeled paint, patch and decorate.

Prevention: Do not retemper or trowel finish after set.

---

11. COLOR VARIATIONS—Streaks and discoloration

Material: Lime finishes, gauged with gauging plaster or Keenes Cement

a. *Cause.* Lime and gauging plaster not thoroughly mixed.

Remedy: Seal and decorate. *Prevention:* Follow recommended mixing procedures.

b. *Cause:* Too much water used in troweling

Remedy: Same as above. *Prevention:* Apply as little water as possible in troweling.

c. *Cause:* Dirty tools or water.

Remedy: Same as above. *Prevention:* Wash tools and use clean water.

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12. COLOR VARIATIONS—Light and dark spots.

Material—Float finish.

a. *Cause.* Improper technique or too much water used in floating.

Remedy: Seal and paint to get uniform color

Prevention: Follow recommended application procedures.

b. *Cause:* Spotty suction on basecoat which was dampened unevenly by throwing water on with a brush rather than by spraying with a fine nozzle.

Remedy: Same as above. *Prevention:* Dampen basecoat uniformly using a fine spray.

---

13. COLOR VARIATIONS—Light or flat spots in light-color paint.

Material—Oil paint over gauged lime putty finish.

Cause: Surface painted too soon after plastering (alkali in lime saponifies paint); paint pigments not limeproof.

Remedy and Prevention: Apply primer-sealer and repaint.

Material—Any colored paint over any plaster finish.

Cause: Non-uniform absorption results in uneven surface gloss and coloration.

Remedy and Prevention: Apply primer-sealer and repaint

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14. SURFACE STAINS: Yellow, brown or pink staining—"yellowing".

Material—Any lime putty finish over any basecoat and plaster base, generally occurs while surface is damp.

a. *Cause:* Contaminated aggregate.

Remedy: Apply primer-sealer and repaint

Prevention: Use clean aggregate.

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b. *Cause:* Smoke fumes from gas heater.

Remedy: Same as above. *Prevention:* Vent heaters to outside.

c. *Cause:* Tarpaper behind plaster base; creosote-treated framing lumber; tar or tar derivatives used around job; sulphur or chemical fumes.

Remedy: Same as above. *Prevention:* Use asphalted paper. Remove source of air contamination.

---

15. SURFACE STAINS—Rust.

Material—Plaster over any plaster base.

Cause: Rusty accessories; or any protruding metal.

Remedy: Apply primer-sealer and decorate.

Prevention: Use accessories made of zinc alloy or with hot-dip galvanizing. *Do not* use accessories that show rust prior to installation.

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16. SOFT WALLS—Soft, white, chalky surfaces, occurring during hot, dry weather, usually near an opening.

Material—Gypsum basecoat over any plaster base.

Cause: Dryout. Too much water has been removed before plaster can set.

Remedy: Spray with alum solution or plain water to set up dryout areas.

Prevention: Screen openings in hot, dry weather; spray plaster during set; raise humidity by sprinkling floor with water.

---

17. SOFT WALLS—Soft, dark, damp surfaces occurring during damp weather.

Material—Gypsum basecoat over any plaster base.

Cause: Sweat-out. Too little ventilation allowed water to remain in wall for an extended period after plaster set. Some plaster has re-dissolved.

Remedy: Dry walls with heat and ventilation. If sweat-out condition continues, there is no remedy; remove and replaster.

Prevention: Properly heat and ventilate during plastering.

---

18. SOFT WALLS—Soft, dark, damp surfaces, occurring in freezing weather.

Material—Gypsum basecoat over any plaster base.

Cause: Frozen plaster.

Remedy: If plaster freezes before set, no remedy except to remove and replaster.

Prevention Close building, supply heat.

---

19. SOFT, WEAK WALLS—General condition, not spotty or due to slow set.

Material—Gypsum basecoat over any plaster base.

Cause Too much aggregate or fine, poorly graded aggregate

Remedy. No remedy, remove and replaster.

Prevention: Use properly graded aggregate and correct proportioning.

---

20. WEAK WALLS—Weak plaster.

Material—Gypsum basecoat.

Cause: Extremely slow set.

Remedy: Spray with alum solution to accelerate set.

Prevention: Add accelerator to plaster mix to bring setting time within normal range.

Material—Gauged lime putty finish over any basecoat.

Cause: Too little gauging with insufficient troweling, retempering, basecoat too wet.

Remedy: No remedy; remove and replaster.

Prevention: Use proper ratio of gauging to lime putty. Do not retemper plaster. Trowel adequately to assure desired hardness.

---

21. BOND FAILURE—Basecoat separation.

Material—Gypsum basecoat over gypsum or metal lath.

Cause: Too much aggregate, plaster application over frost on lath, freezing of plaster before set, or addition of lime or portland cement. Excessive delay in plaster application after mixing, extremely slow set or retempering.

Remedy: No remedy except to replaster.

Prevention: Provide proper job conditions during plastering. Follow correct mixing and application procedures.

---

22. BOND FAILURE—Brown coat separation from scratch coat.

Material—Gypsum basecoat plasters.

a. *Cause:* Weak scratch coat.

Remedy: None; remove and replaster

Prevention: Use proper aggregate amount Avoid retempering

b. *Cause:* Failure to provide mechanical key in scratch coat.

Remedy: Roughen scratch coat and replaster.

Prevention: Cross-rake scratch coat to provide rough surface for brown coat.

a. *Cause:* Dryout of scratch coat.

Remedy: Water-spray scratch coat for thorough set before brown coat application.

Prevention Provide proper job conditions during plastering; screen openings in hot, dry weather. Water-spray plaster during set. Raise humidity by sprinkling floor with water.

---

23. BOND FAILURE—Finish coat separation.

Material—Gauged lime putty finish applied over gypsum brown coat.

a. *Cause*: Brown coat too smooth, too dry, wet or weak; finish improperly applied; incomplete hydration of finish lime.

Remedy and Prevention: Where brown coat is cause, strip off finish, correct condition of brown coat and replaster. Where finish is cause, remove it and refinish using properly proportioned double-hydrated lime or a prepared finish.

b. *Cause*. Frozen finish coat.

Remedy and Prevention: Remove finish, provide sufficient heat during plastering, reapply finish.

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24. SLOW SET—See Soft, Weak Walls.

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25. QUICK SET—Plaster sets before it can be properly applied and worked.

Material—Gypsum basecoat over any plaster base.

a. *Cause:* Dirty water, tools or mixing equipment, or excessive use of accelerator.

Remedy: Discard material as soon as it begins to stiffen; do not retemper. *Prevention:* Use clean water, tools and equipment.

b. *Cause*: Mixing too long.

Remedy: See above. *Prevention:* Reduce mixing time.

c. *Cause*: Poor aggregate.

Remedy: See above. *Prevention:* Use clean, properly graded aggregate or add retarder.

d. *Cause*: Error in manufacture.

Remedy: See above. Send samples to manufacturer's representative. *Prevention:* Add retarder.

e. *Cause*: Machine-pumping and application that exceed limits of time and distance pumped for plaster being used.

Remedy: See above. *Prevention:* Add retarder. Use plaster designed for machine application.

---

26. ERRATIC SET—Lack of uniformity in set.

Material—Gauged lime putty over gypsum basecoat.

Cause. Variable temperature.

Remedy and Prevention: Maintain uniform job temperature. In cold weather, heat building to min. 55°F.

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27. POOR WORKING—Works hard or "short", loses plasticity and spreadability. Does not carry proper amount of aggregate.

Material—Gypsum basecoat over any plaster base

a. *Cause:* Aged or badly stored plaster.

Remedy. Obtain fresh plaster and mix equal parts with aged plaster, or use less aggregate. *Prevention:* Use fresh plaster

b. *Cause*. Over-aggregating.

Remedy: None. *Prevention:* Use proper proportioning

Material—Gauged lime putty over gypsum basecoat.

a. *Cause:* Aged lime, partially carbonated, warehoused too long or improperly.

Remedy: None. *Prevention:* Use fresh material

b. *Cause:* Improper soaking, slaking. Low temperature during putty preparation

Remedy: None. *Prevention*: Use proper lime putty preparation procedure. Do not soak at temperatures below 40°F

---

28. SOUPY LIME—Material too fluid for proper gauging and application.

Material—Lime putty.

a. *Cause:* Soaked too wet.

Prevention: Follow directions for type of lime being used.

b. *Cause:* Cold weather, cold mixing water.

Prevention: The gelling action of lime is retarded when material is soaked in temperatures less than 40°F. with cold water. Use warm water to quicken gelling.

---

29. LUMPY LIME—Material too lumpy for proper blending with gauging plaster.

Material—Lime putty.

a. *Cause:* Old lime.

Prevention: Use fresh lime.

b. *Cause:* Damp lime.

Prevention: Protect lime from moisture on job and in storage.

c. *Cause*: Incorrect soaking.

Prevention: Follow soaking directions for type of lime used.

d. *Cause:* Excessive evaporation

Prevention: Cover lime box with tarpaulin to reduce evaporation.