

RED TOPICS

A UNITED STATES GYPSUM PUBLICATION // A SERVICE TO LATHERS AND PLASTERERS

ISSUE 11 • 1967

PLAINTIFF'S EXHIBIT

USG-794



BB018 2424

TESTING THE SOUND BARRIER

PAGE 4

treating subjects

vital to lathing and plastering

a UNITED STATES GYPSUM publication
101 S. Wacker Dr., Chicago, Ill. 60606

WILLIAM R. FOWLER, JR., Editor
GEORGE E. HARPER, Editor-in-chief
DAVID I. PANAMA, Art director

NOTICE: The following trademarks are owned and/or registered in the United States Patent Office by United States Gypsum Company and are used throughout this magazine to designate products manufactured by this company: TRUSSTEEL (studs); IMPERIAL (plaster, plaster base, tape); ORIENTAL (stucco); MORTASEAL (mason's lime); USG (metal lath, control joints); RED BOOK.

Photographs in this issue by: Don Jurick, Tulsa, Okla.; Ray Jacoby, Oklahoma City, Okla.; Double-Sixteen, Wheaton, Ill.; and staff.

Copyright 1967, United States Gypsum Company

FULL INFORMATION about the many products manufactured by United States Gypsum Company is available from the nearest of the following district offices or from your local United States Gypsum sales representative.

ALABAMA
Birmingham, 871-6136

ARIZONA
Phoenix, 274-5461

CALIFORNIA
Fresno, 233-1102
Los Angeles, 386-8230
San Leandro, 483-7500
Sacramento, 481-0383
San Diego, 295-5191

COLORADO
Denver, 388-6301

CONNECTICUT
Hamden, 288-1607

FLORIDA
Jacksonville, 764-2546
North Miami, 949-3436

GEORGIA
Atlanta, 261-8520

ILLINOIS
Chicago, 321-4111

INDIANA
Indianapolis, 546-4777

KENTUCKY
Louisville, 897-2529

LOUISIANA
New Orleans, 943-3374

MARYLAND
Baltimore, 355-2200

MASSACHUSETTS
Cambridge, 491-6310

MICHIGAN
Detroit, 357-2000
Grand Rapids, 459-4477

MINNESOTA
Minneapolis, 929-5591

MISSOURI
Kansas City, 931-1388
Clayton, 721-1133

NEBRASKA
Omaha, 551-6166

NEW JERSEY
Clifton, 472-3900

NEW MEXICO
Albuquerque, 268-2457

NEW YORK
Albany, 489-2559
Buffalo, 854-3427
De Witt, 446-1291
Jericho, L.I., 938-4320
New York, 935-5806

NORTH CAROLINA
Charlotte, 332-5023
Raleigh, 828-5441

OHIO
Cincinnati, 961-4090
Cleveland Heights, 932-5033
Columbus, 486-2933

OKLAHOMA
Oklahoma City, 525-6645

OREGON
Portland, 227-3731

PENNSYLVANIA
Harrisburg, 234-3251
Philadelphia, 525-7500
Pittsburgh, 341-0364

TENNESSEE
Nashville, 254-1928

TEXAS
Dallas, 351-5386
Galena Park, 675-3136
San Antonio, 824-4534

UTAH
Salt Lake City, 359-3751

VIRGINIA
Arlington, 525-3300
Richmond, 359-4008

WASHINGTON
Seattle, 282-8292
Spokane, 624-3311

WISCONSIN
Milwaukee, 276-5672

MULTI-MULTI MULTILINGUAL

Hip Pocket File Cabinet

Just off the press is the new hip pocket edition of the RED BOOK of Lathing and Plastering—with nearly 50% more content to help you troubleshoot your jobs before they begin. This latest edition of RED BOOK—224 pages of product data, application methods and problem remedies—details all materials and accessories for commonly used plastering and lathing systems. Important fire and sound test listings have been revised and expanded to help you stay on top of market requirements.

And, there's detailed information on veneer plaster systems. For the first time in RED BOOK, you have all the details on high-performance IMPERIAL plaster systems. Read about the importance of perimeter caulking, perimeter relief and requirements for maximum sound control. See door frame details and illustrations on fabrication, installation and grouting procedures, and have finger-tip information on fixture attachment—including fastener types and load capacities. There's also lists of tools and where to buy them, as well as information about equipment to reduce materials handling problems and costs.

Bonus feature is the new chart that selects paint for different materials, surfaces and finished appearance.

Make sure you get your copy of the "plastering industry bible," it's the file cabinet you can carry to the job.

Binder Booklet

Now, in one pamphlet on TRUSSTEEL studs are complete component data, erection details, fire and sound ratings and installation procedures. This handy office reference is chock-full of answers to the most commonly asked questions about partition systems. There are special sections devoted to features and benefits of TRUSSTEEL studs of interest to the lathing and plastering contractor. The booklet also provides an inside look at competitive systems, both metal and wood stud. Detailed drawings highlight vital areas of TRUSSTEEL stud superiority for door frame anchorage and available chase space.

A handy partition selector makes this the most comprehensive booklet yet on TRUSSTEEL stud partition systems.

For your free copies of "RED BOOK of Lathing and Plastering" and "TRUSSTEEL Stud Partition System," mail the coupon to: Editor, RED TOPICS, 101 S. Wacker Dr., Chicago, Ill. 60606

____ Yes, please have a U.S.G. representative bring my copy of "RED BOOK of Lathing and Plastering"

____ Please send me a copy of "TRUSSTEEL Stud Partition System" booklet

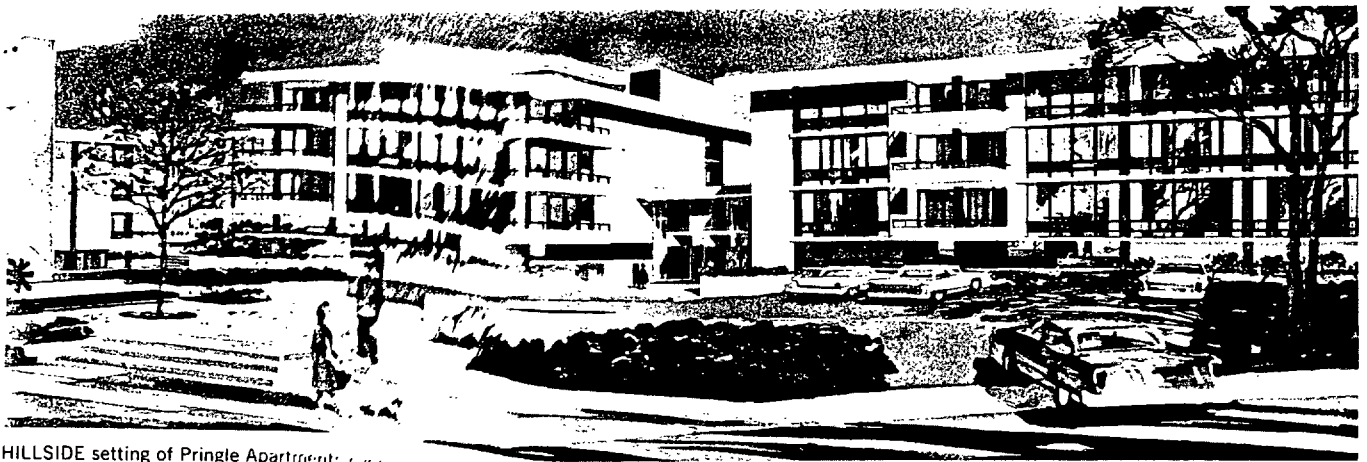
Name _____ Title _____

Firm _____

Address _____

City _____ State _____ Zip _____

BB018 2425



HILLSIDE setting of Pringle Apartments.

San Francisco Bay and airport.

PLASTER SYSTEM BEATS THE CLOCK



CLOCK BEATERS Michael J. Ruane (right), Joe Acero, president of Martin Ruane, Inc., Burlingame, and his foreman, Joseph R. Acero (center) plan schedule-beating strategy on next unit, with Pringle Construction Co.'s Job Superintendent John Dirnhofer. The \$12.5 million complex will have 117 units with rents from \$185 to \$465.



SMOOTH TROWELING—Joseph R. Acero, Martin Ruane's foreman, checks troweling consistency of IMPERIAL base coat. At 16 sq. yds. per hour with IMPERIAL finish, job includes colorant. Finish texture resembles simulated acoustical materials.

man, checks troweling consistency of IMPERIAL base coat. At 16 sq. yds. per hour with IMPERIAL finish, job includes colorant. Finish texture resembles simulated acoustical materials.

Behind-time construction schedules are costly to building owners, general contractors and subcontractors. Being ahead of schedule, however, can be profitable. And that's what Plastering Contractor Martin Ruane, Inc., Burlingame, Calif., likes about the IMPERIAL plaster system.

According to Joseph R. Acero, foreman for Martin Ruane on the 117-unit Pringle Apartments there, the IMPERIAL plaster system has saved them two months on an 18-unit building of the complex. They expect to pick up about four months on the entire project. "We like the 'in twice and out' feature with IMPERIAL, it's the real time saver. Basecoat work moves at about 16 yards an hour per man," Acero says. The finish is a spray-applied dash coat.

Time isn't the only savings. Martin Ruane estimates the IMPERIAL plaster system as applied costs the owner about 1/4 less than competitive systems. The finish coat, a mixture of Keenes cement, lime, sand and color, is another savings. Pastel colorants in the finish coat predecorates the apartment. Only the door frames need painting. (Renters have a choice of colors if they come early.) This spray-applied finish has the appearance of simulated acoustical materials on the walls.

Labor- and time-saving systems have taken over other parts of the project, too. An unusual scallop feature on the exterior of the buildings is stucco work done on the ground then lifted into place. This eliminates time-consuming sacking and grinding after scallops are in place.

By beating the schedule clock on this project, Martin Ruane will be able to take on additional projects this year—still another benefit from the IMPERIAL plaster system. The time-saving aspects of the system also give a competitive edge to the alert plastering contractor. And beating the clock helps beat the competition.

Plastering contractor: MARTIN RUANE, INC.
General contractor: PRINGLE CONSTRUCTION
Architect: MOGENS MOGENSEN, A.I.A.

BB018 2426

Thirty-five years ago, when few gave much thought to sound control, and fewer were doing anything about it, U.S.G. pioneered the resilient clip for plaster lath attachment. Today, lighter-weight constructions and a more demanding clientele team up to intensify the need for greater privacy in apartment structures. As more personal privacies are invaded, the tenant demands greater privacy at home. To meet this demand, U.S.G. is researching and marketing improved sound-rated partition and floor-ceiling assemblies.

An important part of that research is U.S.G.'s new Acoustical Research Facility at Round Lake, Ill., the only one of its kind in the world. For more than two years, U.S.G. has been conducting field tests on partition systems in an effort to evaluate actual on-the-job performance. The process was time-consuming and subject to many distracting influences—ambient noises caused by jets or trucks, a workman pounding in the next unit, electrical disturbances and delays by subcontractors who frowned on disrupted work schedules. The logical answer was to build an on-the-job test facility where none of these distractions could delay important research. The Round Lake Lab is built on a 40-acre rural site about 50 miles from Chicago. Insects or frogs are the only noise.

On-the-job testing has become a vital need of the construction industry in view of requirements by both national and local code bodies who insist on assurance of job performance. Until recently, sound ratings were based on tests by the classical acoustical laboratories. But the validity of selecting a partition system on the basis of laboratory tests alone is uncertain. In fact, it created a "numbers game" which turned into a deadly trap. For job results may be 10 to 15 db below lab findings. Since little is known of the effect of installation methods, detailing and many adjoining elements in a structure, architects, builders and owners have little assurance they can achieve laboratory sound ratings.

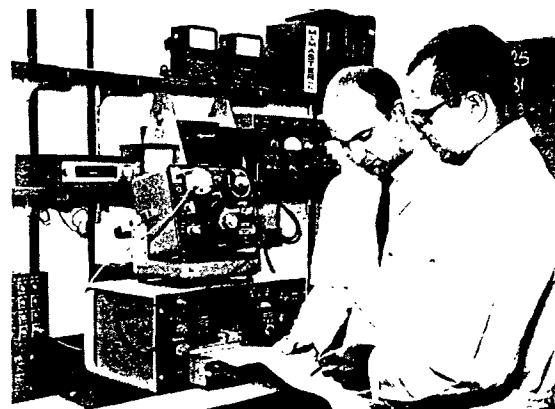
The concept of a simulated field test facility will provide many of the answers. In the conceptual design of the Round Lake facility are four buildings, each representing a typical construction, plus a central control building for instrumentation and offices. The four test buildings are two-story structures with two rooms to a floor. Two are typical wood-frame construction, one with joists bearing on the center partition, the other with joists supported by exterior walls. The third is of steel-frame construction and the last of reinforced concrete. Each building is designed so that the effect of window openings at various locations can be studied. These openings can be enlarged to become door openings along a corridor. The effects of wing walls and parapets,

as well as attics and crawl spaces, will be evaluated.

Testing of partitions and allied systems will conform to present ASTM and AMA Procedures as well as the European ISO tests, with modifications clearly noted. ASTM is presently compiling a test procedure for conducting field sound tests, and the Round Lake tests will conform to those specifications. The new facility will not develop new partition systems per se, but rather evaluate systems installed in a particular type of structure. The continued objective is to assign transmissivity ratings to various components. These, in turn, will be applied to establish room-to-room attenuation for a wide range of partition-structure combinations.

In addition to these present facilities, a classical acoustical laboratory similar to the commercial ones now in operation is now being designed, with construc-

U.S.G. PIONEERS ON-THE-JOB TEST LAB



ROUND LAKE Facility Manager Allen Shiner (right) translates reverberation measurements on graphic-level recorder with Technician Ralph Michael.

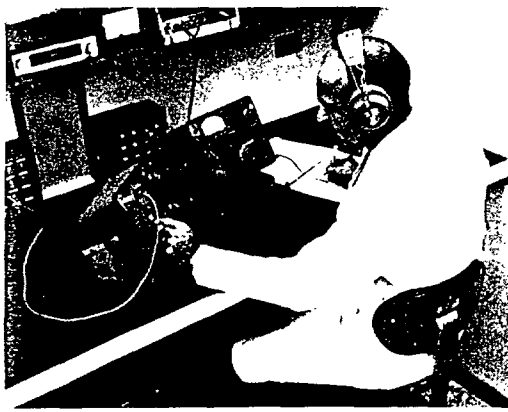
begin soon. In this structure's reverberation chambers and source rooms engineers will be able to make airborne and impact noise measurements as well as absorption measurements on acoustical tile and other products. To insure maximum isolation, the classical lab will be floated on air springs and surrounded by a concrete shell. All panels will be conditioned to resist the variable effects of temperature and humidity. As far as is known, this is the only laboratory to claim both this concise control and large partitions.

Round Lake is one more step in U.S.G. pioneering help the customer with answers to many problems that plague the industry. Subsequent issues of this magazine will keep you up-to-date on research at Round Lake.

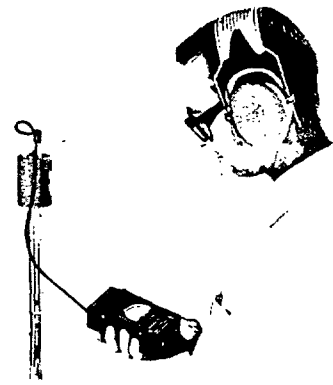
ONE OF ITS KIND—new U.S.G. Acoustical Research Facility at Round Lake, Ill. Main building on left houses sound generating and analyzing instrumentation and offices. Four buildings on right, each of different construction, are on-the-job labs for sound testing. Classical lab will occupy space to left of main building. No windows—four receiving structures were built with control joints where openings should be. Panels can be removed later to study effect of flanking sounds.



ON THE COVER: Walls have "ears"—because of noise leaks. Wiley Krapf checks possible problem areas in wall surface with stethoscope.

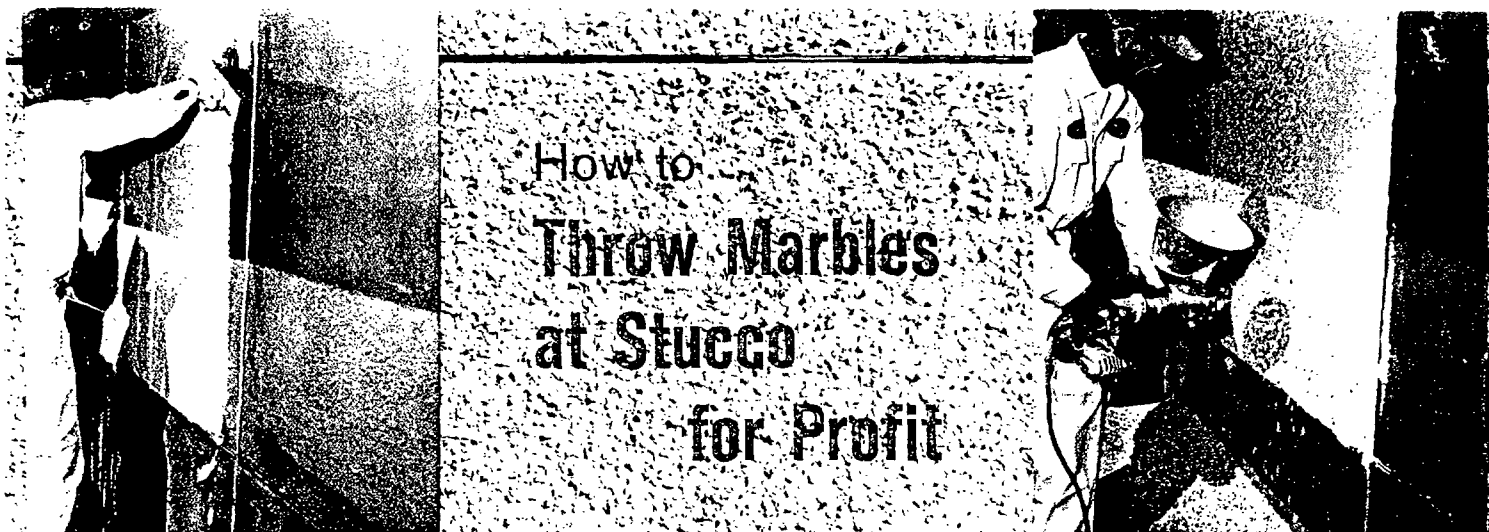


MUSIC GOES IN HERE—random sounds in combination more closely resemble a jet—as Technician Michael determines sound source and frequencies and measures transmission loss at central instrumentation control console.



AND IT COMES OUT HERE—as Wiley calibrates microphone pickup in receiving room. Walkie talkie maintains contact with central control area engineers.

BD018 2428



How to Throw Marbles at Stucco for Profit

PANEL BY PANEL K-Mor plasterer spreads on $\frac{3}{8}$ -in. finish coat of white ORIENTAL exterior stucco. Scratch and brown coats are portland cement and MORTASEAL mason's lime.

THROWING ROCKS with electric powered rock-dash machine is final touch to panels. Marble or quartz chips, glass or pebbles are used to create various effects.

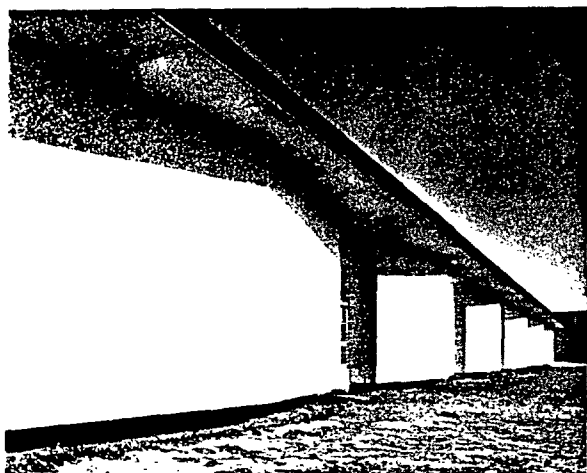
RUGGED BEAUTY of panels blend with modern design of small office building. Panels can vary in size and shape to meet various design requirements.



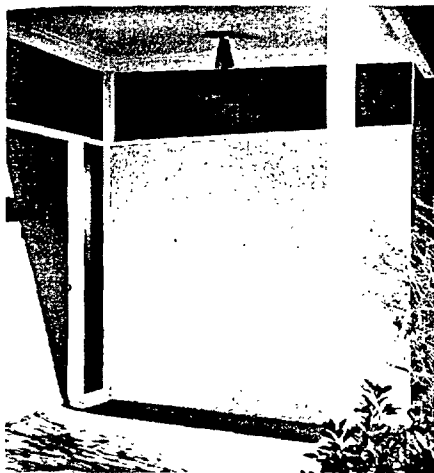
Bob Moore, president of K-Mor, Inc., Tulsa, Okla., put new emphasis on a childhood game of pitching marbles. Bob, a plastering contractor, finds it profitable to throw marbles at stucco—especially ORIENTAL exterior stucco. This unusual activity created a new market for K-Mor in stucco work.

Moore's innovation is a job-applied stucco version of a system known as marblecrete. Moore tried the system, using job-mixed white ORIENTAL stucco for the finish. He found he could save about 25% in labor costs and also get better results. The ORIENTAL exterior stucco gives him a more even color, a controlled set and there is no chance of mismixing materials by laborers.

"The ORIENTAL white is a true color. Other materials can vary in shade due to the sand. ORIENTAL also holds the chips better and gives a more even finish. The controlled set makes it easier to apply chips as the stucco



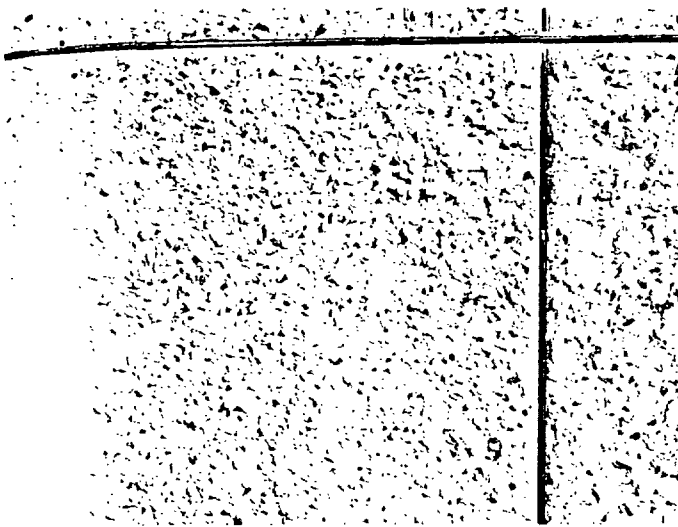
HANDSOME AND FUNCTIONAL panels enhance exterior of school. Acrylic sealers can be used to give higher gloss. USG control joints accent geometric design.



ENTRY ACCENT achieved with just two panels. Variety of chips allows decorator freedom for highlights.



COMPLEMENT AND CONTRAST on apartment exterior was achieved with chips of identical stone imbedded in panels. White background of ORIENTAL stucco contrasts with black rock wall.



OPTIONAL FRAME of panels is USG control joint. Control joints let panels expand and contract, serve the duty as clean, sharp frame.

ys soft longer and lets the chips imbed more evenly," Moore said. Moore's application procedure is the standard exterior stucco specification: USG metal lath with USG control joints in place; cover with a scratch coat of portland cement and MORTASEAL mason's lime; follow with brown coat of portland and MORTASEAL; finish with $\frac{3}{8}$ -in. coat of ORIENTAL exterior stucco; blow chips into finish while soft. By appearance or touch Moore's men can tell the right time to apply the aggregate. "It is important that the finish coat be $\frac{3}{8}$ -in. thick so the chips will bed," Moore added. K-Mor uses one and one-half pounds of stone per sq. ft. of wall area.

"Depending upon the size of the job, we hand-trowel or machine-apply the base and finish coats. The chips are applied with an electric powered rock-dash gun. A variety of finishes can be achieved depending on whether we use marble chips, glass, quartz, rock or pebbles," Bob added.

Another feature of the finished job is the clean, even line of each panel, created by the control joints. "The system looks best in panels and with USG control joints. They also give us good start-and-stop points," Bob said.

The speed of Moore's system produces his 25% savings in labor costs. Four men—two plasterers and two laborers finish an average of 30 5x5-ft. panels a day. This compares to a day and a half for the same number of panels with competitive systems.

The popularity of this system opened new stucco markets for K-Mor in schools, clinics, small office buildings, apartments and even decorative panels for homes. About 15% of K-Mor's business now comes from this stucco system.

The cost of starting such an operation is small—the addition of a rock-dash gun to the tool supply. The market possibilities are unlimited. And more important, no new techniques are required for basic application—evidence that a new twist to an old idea can be profitable.

Plaster Problems

PROBLEM: Dry-out—soft, white chalky plaster surfaces which develop during hot, dry weather usually near doors and windows. Too much ventilation has removed water before plaster could set.

REMEDY: Frequent spraying will set up the dry-out areas. Prevention: screen openings in hot, dry, weather. Spray area during set time if necessary.

PROBLEM: Sweat-out—soft, dark, damp plaster surfaces found during damp weather. Insufficient ventilation has allowed water to remain in the wall after plaster has set. Some of the plaster re-dissolved.

REMEDY: Dry the walls with heat and ventilation. When thoroughly dry, if the condition still exists, the only choice is to remove the plaster and replaster. Prevention: proper heat and ventilation during plastering.

PROBLEM: Weak plaster—caused by extremely slow set or slow drying.

REMEDY: Spray with alum water to accelerate set. Add accelerator to the plaster mix to bring the setting time within normal range.

PROBLEM: Random cracks emanating from openings (windows, doors). Problem caused by stress at corners of square or rectangular openings.

REMEDY: Relieve any restraint between the plaster and the opening frame. Prevention: provide relief so there is no restraint between plaster and opening assembly or any load stress on the plaster at opening corners. Trowel cut plaster away from frame prior to set.

PROBLEM: Finish plaster works hard because base coat is too dry.

REMEDY: Apply finish plaster to "half-green" base coat. Spray dry base lightly and uniformly before finishing.

PROBLEM: Too soft plaster from plastering machine.

REMEDY: Check consistency of the plaster mix. Too much water, used to extend pumping distance beyond normal machine capacity or to compensate for loss of pressure, increases water/plaster ratio. This reduces set compressive strength and density. Also be sure to check aggregate density.

WHO NEEDS THREE HANDS?

Staples become obsolete when you use new **IMPERIAL*** tape-Type P.

This new pressure-sensitive tape makes joints ready for **IMPERIAL** plaster in half the time.

Just a light touch and your joints are taped. Ends need for "three hands."

Don't staple it—touch it, with **IMPERIAL** tape.

For details see your U.S.G. representative or write Editor, RED TOPICS,

101 S. Wacker Dr., Chicago Ill. 60606.



*REG. U.S. PAT. OFF.

BB018 2431

UNITED STATES GYPSUM *the greatest name in building*