Plastering and Problems

By J. R. “Dick” Gorman

Plastering and problems—are they synonymous? Do they necessarily go together? Many times I get the feeling that this is true. As director of architectural services for the Plastering Information Bureau in Los Angeles, I am often asked to give an architect or owner a list of good jobs I have seen. Since plastering contractors seldom call about their good jobs—only their problems—I many times wonder if there are good jobs. Of course there are, and they far outnumber the bad or problem jobs.

The pluses of lath and plaster assembly are many. The design potential of plaster is really only limited by the imaginations of the architect and the designer. There are certainly limitations of use, places when plaster, whether it be Portland cement or gypsum, should or should not be used. While we in the industry may be fully aware of the limitations, too often the design industry is not. Therefore, it is our responsibility to get this information out. Too often, in their zeal to sell their products, some manufacturers and/or their representatives may make claims which could and many times do cause problems for the plastering contractor.

When we have problems with a plaster job, are they always the result of bad lathing or plastering? Not necessarily, and in most cases, not at all. Too many times the problems occur due to circumstances beyond the control of the lath and plaster contractor—job conditions he has no control over such as weather, poor design, specifications, etc. What are they, and more importantly, what can be done about them?

Following is a partial summation of problems I seem to encounter over and over again, and various suggestions which might help alleviate the problems.

Solutions to common plastering problems associated with wood studs, paper over plywood sheathing, furring and lapping, flashing, details, expansion joints, weather conditions, mixing, texture and more.

Wood Studs

The versatility of lath and plaster allows us to use our products over metal studs, wood studs, concrete block, brick, etc. While metal studs seldom create problems when installed improperly, wood construction, more often than not, has become a constant problem in the past several years within our industry. While it would be nice to think that all wood used, particularly in residential construction, meets all the grading requirements such as moisture content, etc., required by the wood industry, it frequently does not. If studs are warped, sappy, or split, problems will ultimately occur with plaster application and the resulting finish. Wet or green lumber moves as it cures, and when it moves the plaster usually cracks, thus becoming a plaster problem, not a framing problem. The framing contractor has long since left the job. What can a plastering contractor do? He can take pictures of the framing, write letters and make the problem known before covering it up. If a second floor stud is an inch and a half out of plane with the floor joists and/
or the first floor studs, a plaster wall can’t be straight to even the minimum 1/4” in five feet that most building codes require. You can’t put an inch and a half of plaster in one place on a wall and the normal 7/8” in another and expect acceptable results.

Paper Over Plywood Sheathing

Plywood sheathing is usually a plus for plastering by providing strength, a flat surface for uniform thickness, and other advantages. By building code and industry recommendation, plywood sheathing must be covered with two layers of building paper before being covered with plaster. If not, moisture from the plaster can affect the plywood, causing movement and substantial problems in the plaster--usually cracks radiating off the angles. If paper isn’t specified properly, put it in writing that a design deficiency exists.

The old standby--“don’t worry about it, we will take care of it later”--doesn’t hold much water. Nine months later, when the plaster is cracked and you have gone through three general superintendents, nobody remembers. Where installed, plywood should also, according to the Plywood Industry recommendations, be gapped 1/8” in dry areas and 1/4” in wet areas. If not, problems with plaster will follow.

Furring and Lapping

Our industry is fortunate to have many types of metal and gypsum laths available to us. Application of gypsum lath seldom seems to be a problem. However, metal lath application, if not done properly, can be a serious problem for the plastering contractor. The various building codes, as well as the manufacturers’ recommendations, are very specific as to metal lath and paper application with regard to lapping of paper and metal, metal to metal contact, furring, attachment spacing, etc. Improper lapping of paper can, of course, cause water problems. Improper lapping of lath will usually cause cracking problems.

If the lath is not properly furred as required by local building codes, particularly over solid sheathing, problems will usually occur with the plaster. Most metal lath we see has been pre-furred. If attachments are put in locations other than the furring, the lath will not be properly imbedded in the plaster. As a plasterer sees these problems, they should be noted and corrected. The old standard--when you put the first nail of the lath in the wall you accept the wall and when you put the first trowel of mud on the lath you are accepting the lath--can, and usually does, come back to haunt you. When the wall and lath are covered it is hard to blame someone else. A shear wall with attachment spacing less than the furring in the metal lath should require furred attachments. And an experienced lather with a staple gun can, by over-stapling create problems with the plaster--usually a vertical crack running down the stud.

All of the framing and lathing conditions noted above must be pointed out and corrected. If not, sufficient documentation must be done to explain future problems, as they undoubtedly will occur.

Flashing

The building codes, as well as our industry recommendations, are very clear as to flashing of all openings (doors, windows, etc.). If not flashed, or improperly flashed, buildings will leak. Generally the statement is made that “the plaster leaks,” not “the flashing is improper.” If proper flashing at windows and doors is not provided for the plasterer to meet, this must be brought to the general contractor’s attention. Correcting an improperly flashed opening after plastering is difficult if not impossible to fix, short of removal. Unfortunately, I have found that water leaks usually destroy only the most expensive wallpaper and carpets available.

Details, Accessories and Expansion/Control Joints

The proper use of accessories, whether they be galvanized, zinc, aluminum or P.V.C., must be specified and detailed by the architect. Double studding, continuous paper and cutting of metal lath are all details which must be considered when expansion/control joints are used. Comer aid, casing and other accessories all serve useful purposes, but must be specified. To date, the only accessory required by most building codes is the drip screed at concrete foundations.

Proper use of expansion/control joints must be addressed during the design process. It is naive to expect a plasterer to complete a three to four story wall 40 to 50 feet wide in any plaster texture without proper expansion/control joints and not experience aesthetic problems (cold joints,
lap lines, etc). Expansion/control joints must be detailed and placed by the architect. To say 10 feet in center with placement by the contractor is inviting trouble.

Weather Conditions

Weather conditions severely effect the application performance of plaster--particularly Portland cement plaster. Extremes, both hot and cold, must either be avoided or necessary precautions must be taken. Temperatures in the 100s create curing problems which will effect both color and texture (crazing) in plaster. Freezing temperatures during mixing, application and curing cannot be tolerated. Too often the daytime temperatures are marginal when the plasterer is on the job, but they drop to unacceptable levels at night or early in the morning. This must all be noted, preferably in writing, by the plasterer if he is told to continue.

Mixing and Curing

Seldom do we have problems with the mixing and application of gypsum plaster. However, this can’t always be said of Portland cement plaster. Proper mixing, application and curing of Portland cement plaster will result in proper results. The various building codes, as well as industry and manufacturers’ recommendations, are very specific regarding mixes, application procedures, curing, etc. If a Portland cement plaster has unapproved products added to it on the job, is over-sanded or the sand does not meet the minimum ASTM requirements, problems will occur. If a poor quality sand is the only material available, it should be pointed out up front so that it doesn’t become the plastering contractor’s problem.

Moist curing of Portland cement plaster is particularly important. Unfortunately, this is one sequence that is generally ignored. Moist curing of both the scratch and brown coats as required by the building codes is imperative.

Texture Samples

Plaster textures are without a doubt our best selling point. As positive a feature as they may be, textures can also be a very negative item. Plaster textures can mean one thing to one person but something totally different to another. While a plasterer might like the swirls in the sand float texture, the architect or owner may not. This is why there must be approved samples of sufficient size (4’ x 8’) on the job. These samples must be saved for comparison at a later date.

Smooth finishes are becoming more and more popular but should never be specified in any way with Portland cement plaster. While elastomeric coatings applied by the painter are very successful in hiding smooth Portland cement problems (bum lines, texture inconsistency, and cracks/crazing), a smooth finish is, in my opinion, a specification to be avoided.

We have one of the best and most versatile building products available to the design profession. Plaster is unlimited in its aesthetic features and will last the life of any building. There are millions and millions of yards done which are outstanding. Unfortunately there are a few yards which can tend to give the entire industry a black eye. As stated above, more often than not it may relate to other products, other contractors and/or job conditions beyond the plasterer’s control.

Unfortunately, I feel it is now imperative for a plastering contractor to purchase a camera and typewriter and use them to back up poor job conditions before he picks up his trowel.

The lath and plaster industry has a core of outstanding technical representatives in the trade promotion segment of our industry throughout the United States. They are readily available to help with advice, specifications and literature.

About the author

J.R. “Dick” Gorman has served as director of technical services for the Plastering Information Bureau, a division of the Southern California Plastering Institute, since 1965. He received his B.A. and B.S. degrees in architecture from Rice University. Mr. Gorman also serves as architectural representative and consultant to several manufacturers of construction products on the West Coast.