Training Crisis in the Plastering Industry

A National Study: Training Challenges for 21st Century Plastering Contractors Part 3 of 3: Trends Identified

by Joseph A. Scarcella, PhD.

his is the third and final installation of a three part series that examines the need for a comprehensive approach to training in the plastering industry.

Plastering contractors come from different educational backgrounds and have different experiences both in and out of the plastering industry. Still, those who start plastering contracting without the proper training and experience have little chance for success. Considering this, the nature of the plastering industry requires that plastering contractors have a basic understanding of business management/administration skills and technical skills. They must comply with codes of ethical conduct and have the skills necessary to build a solid reputation and efficient organization. Moreover, they must have the ability to plan, direct, and control the techniques for job-site construction.



Having said this, plastering contractors must have knowledge of sound fiscal policies, including adequate accounting and cost controls, maintaining records, etc., and be able to purchase materials and perform plastering techniques wisely and economically while operating as a busi-

ness owner to gain a profit as well. To this end, the following provide insight and direction related to the management/administration and technical skills affecting plastering contractors.

Managerial Skills

The plastering contractor functions differently from many other product producing industries. Plastering contractors move from location to location setting up construction site before producing one of a kind products. Plastering contractors must be able to draw on a diverse background, knowledge, and experience, and they must have the ability to adjust to new and different situations arising on each job. A lack of experience and flexibility will erode their profit and reputation, and additional opportunities may not materialize.

Successful plastering contractors must have knowledge and compe-



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tence in the plastering industry as well as in the related building trades. The literature indicates that there are distinct managerial skills that plastering contractors need to know. Some examples of these skill categories are business management/administration, construction law, construction operations, office automation, employee/employer relations, quality control, and safety. An understanding of these skills is important because these will signifi-

cantly impact the success of contractors and companies.

Business Management/Administration—Securing the award of a construction contract is the first responsibility of a contractor. Contracts are secured by negotiation. Thereby, sound business management/administration practices are essential. A plastering contractor should be able to estimate the type of contract being sought through competitive bidding practices. The most practical approach is communication in both written and oral form (record keeping) with those individuals the plas-

tering contractor is working with (i.e., developer, builder, general contractor, employees, etc.). Job accounting and constant cooperation between management/administration and accounting in a prompt and accurate form is essential for success. This means that the plastering contractor, in order to make a profit, cannot neglect the importance of production follow-up through good communication skills with clients, workers, and vendors.

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A lack of experience and flexibility will erode their profit and reputation, and additional opportunities may not materialize.

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Maintaining a level of capital in order to cover overhead costs is also important when operating a business. However, numerous factors are critical to this end. For instance, keeping proper accounts and accurate costs, as well as maintaining adequate reserves for legal issues, payroll procedures, claims and disputes, insurance issues, labor issues, construction operations, marketing and sales, etc. are minimum requirements. Even the most carefully prepared plastering contractor cannot predict all hidden-costs associated with construction operations. The potential for underestimating material usage, encountered safety problems, or employee overtime can alter production costs. Thus, considerable knowledge and experience are necessary in order to bid and estimate the exact capital expenditures required for any given job.

Construction Law—Plastering contracting endeavors are regulated by law. Contract law, regulations governing the execution of work being performed under contracts, laws relating to the settling of differences and disputes that may develop out of the performance of contracts, and licensing laws that govern not only the business practices but also the personal qualifications standards of the various people involved in the construction process must also be considered. Attention must be given to the fact



that a project cannot be built without regard for the regulations of the many jurisdictional agencies affected by the contractors of the trade.

Accordingly, federal, state, county, city, special districts, including many federal and local bureaus have a legal interest in the effects of the proposed work on the area they have legislative

mandate to control, and all others who have a legitimate interest in the work that affects the facilities or improvements represented in the uniform building codes.

Construction Operations—Starting a construction project involves many details to be completed before the plastering contractor moves materials, equipment, and employees to a job-site. When awarded a contract, plastering contractors are expected to

make the necessary arrangements for the required policies of insurance and numerous other tasks. Pre-construction meetings must be scheduled to secure key personnel, identify areas of responsibility, establish job manpower needs, discuss special sequence of operations and scheduling limitations, etc. Every activity must have a legitimate purpose and objective.

One essential task of the plastering contractor during the construction operations phase is to maintain control of job-site construction. The amount of field costs is a function of the size and classification of the support staff assigned to the project, field office, material suppliers, etc.

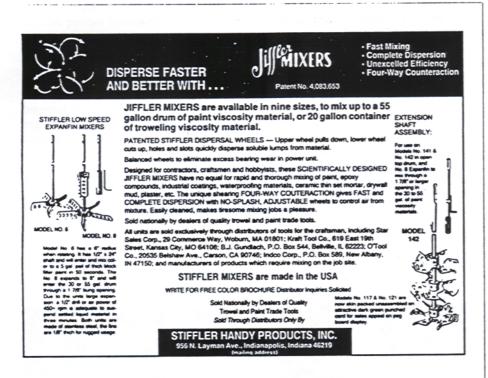
Regular inputs related to field costs and hours of work completed are required by the plastering contractor and from the resident project representatives. Arrangements must be made by the plastering contractor to ensure that all such data are received from the field on a regular, scheduled basis at the end of each day, week, of month.

Office Automation—Managing multiple projects, labor, personnel, and equipment, and material suppliers are some of many concerns a plastering contractor faces on and off a job-site. For this reason, office automation and computerized project scheduling has made it possible for contractors to effectively analyze the information necessary to monitor and control progress

Office automation and computerized project scheduling have made it possible for contractors to effectively analyze the information necessary to monitor and control progress of their company and job performance.

of their company and job performance. Scheduling tools such a the Gannt Charts, Histograms, Scatter Grams, and others are some of many ways computers can be utilized to provide a visual means for measuring performance (i.e., job scheduling, estimating, cost-

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accounting, monitoring and tracking project progress, etc.) against goals.

The computer can provide timely management information in an easily understood and immediately usable form. Streamlining office automation, operations management, estimation practices, and architectural design functions has affected the way architects, developers, builders, and contractors process information. Through the use of computer systems, survival will increasingly depend on efficient and effective processing of information. Perhaps, being able to communicate using computer technology (i.e., Internet and E-mail) will give plastering contractors the edge, making them better able to compete in a global and competitive market.

Office automation, operations management, estimation, design and blueprint reading, etc. are among the many applications of computer technology that are changing general construction and business practices across the plastering industry. In order to be competitive today, businesses must

have access to and be able to analyze vast amounts of information.

Some might agree that most companies are still three to five years away from tapping into and understanding the full capabilities of computers. Keep in mind, computers are not specific to any business or company and all businesses will need to consider, at some point, using computers in the future.

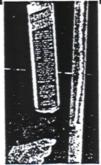
omputers, whether we agree or disagree, are changing the business world and the way contractors are operating their companies. They are excellent tools for tracking accounting, cost-estimating, and job scheduling. Such office technology has made significant advancements in making computers easier to use. Consequently, large and small plastering contractors are recognizing their value and uses.

As contractors become better educated and more proficient with office automation technologies, it is forecasted that trends will continue to move away from obsolete and traditional office management methods. Through their personnel, plastering contractors constantly strive to complete jobs, and be awarded new jobs through cost estimating and job-site construction. If the construction functions of a plastering contractor are efficient and organized from the start of a project, and if the personnel (labor force) performs as expected, a profit will be obtained. For a contractor to obtain a profit, they must successfully lead their workers. properly plan and schedule work, finish a job on-time, and accurately estimate the work to be done.

Employee/Employer Relations— Plastering contractors confront many labor-relations issues when performing construction operations. Successful contracting requires diversity of project experience, involving more and different job specialties and on various job assignments. Considering this, personnel staffing and employment issues are constantly in a state of flux.

Manpower planning and manpower availability, selecting and assigning personnel, employee recruitment, hiring and discharge practices, training, leadership, and maintaining up-todate employment records are important. In fact, personnel responsibilities in a construction company are widely distributed, depending on the size and location of the project. Finding the best qualified personnel for the start of

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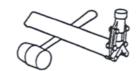
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a new project is a major task for a plastering contractor. Ensuring that present employees maintain excellence in technical skills is an essential task and must be a goal for all contracting establishments. From an economic standpoint, sound employee/employer relations can reduce safety problems, injury, employee turnover, or other misfortunes on a job-site.

Quality Control-Phrases suggesting that workmanship should be of the highest quality are almost useless because the term cannot precisely be defined. Under inspection, about all that can be rejected is a lack of craftsmanship that is so obvious that even an apprentice can recognize it. Obviously, the plastering contractor is obliged to produce a quality product. Persons coming onto a job-site wearing proper safety devices and clothing and conducting their operations in a safe manner are not enough. Quality workmanship and control are essential to continued success.

Needless to say, plastering contractors can enforce quality control

through follow-up techniques to assure that the established quality levels are being met on the job-site. Quality assurance may be by visual

standards. Thus, plastering contractors should be aware of this problem.

Noting the importance of a safe working environment, plastering con-

Plastering contractors can enforce quality control through follow-up techniques to assure that the established quality levels are being met on the job-site.

inspection, testing, certifications, samples, reports, shop drawings, and similar procedures.

Safety—Keep in mind, construction sites can be considered as being one of the most hazardous types of working environments due to the working conditions, materials, and equipment on a job-site. In order to ensure an accident-free environment, an accident prevention program supported by management is essential. Regardless of the legal responsibilities of plastering contracting, each contractor has an obligation to insure the health and safety of his/her employees. In general, many employees choose to ignore recognized safety and health

tractors need to know how to establish a meaningful and successful program. It is necessary for contractors to accept change and the legal and moral responsibility to ensure a safe and healthful workplace. The plastering contractor must support such a program before expecting others to follow and cooperate.

Technical Skills

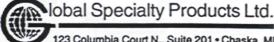
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Training Crisis

How plastering contractors are educated can provide valuable insight into the direction of the trade and to future job site operations well into the 21st century. Some major technological trends facing the plastering industry are discussed in this section. Similar to the management and administration trend sections, an understanding of these trends are important because these will also significantly impact training.

Equipment, Materials, and Tool Innovations—New innovations in equipment, materials (acrylics and polymers), and tools, are advancing interior and exterior materials. These products are increasingly becoming recognized by reducing labor cost due to their installation efficiency. Moreover, multiple fasteners, components, and mechanical systems are being used to construct curtain walls, drop ceilings, etc. Sealants, finishes, elastomeric-based products and coatings are being used to cover cracks in structural surface reducing water damage, and urethane molds are being installed to enhance the aesthetics of new and existing structures. While expanded angle, prefabricated panelization, prefabricated material such as metal lath, drywall, trim, etc. are not new to the industry, more contractors are using them to enhance job-site production. For example, gypsum board and metal lath, perhaps the most versatile of all plaster bases, offers a better key when applying plaster material base coats.

Manufacturers have simplified, standardized, and unified tooling used by the plastering industry to minimize the steps

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in jobs. Although the traditional tools such as the hawk, trowel, darby and others are still common to the trade, different applications require different tools. For example, lasers are commonly used tools for squaring walls and ceilings. Aerial hydraulic panel lifts are replacing man-power and steel frame pneumatic fasteners are replacing electric drill guns. The use of these newer materials, tools, and equipment have provided cost-effective alternatives for trade members when bidding and doing a job of the trade.

Additionally, computer robot-type automation technology is being considered abroad. For example, a computer robot-type automation technology is currently being developed by Byggergonomiskt Laboratorium (BELAB AB) in Germany and efforts are being made to automate plastering of concrete surfaces during the construction of residential and commercial structures.

Navigation among, and the observation of, walls to be plastered are performed using a scanning range measuring laser and camera. Plastering and grinding the plastered surface are two of the heavier components of plastering a structure. Robots could alleviate many health problems encountered by workers (i.e., back problems from lifting 100 pound sacks; respiratory problems from breathing the dust created from mixing cementing materials).

sing robots in the future for this task would reduce waste of up to 50 percent because, during normal plastering, excess plaster comprises as much as 50 percent of what is actually utilized to finish a surface. Still, the use of robots will not likely prove to be economically feasible until working conditions and plastering environments are modified to accept such processes.

Metal-Stud Framing In Residential and Commercial Construction-Many builders are switching from wood to metal-stud framing and are finding they can produce a better quality product at a lower cost. Steel offers plastering trade contractors numerous advantages over wood. Metal-studs, for example, can be designed for installation at 24 inches on center, resulting in a dramatic reduction in the use of wood framing material installation (at 16 inches on center), without compromising structural integrity. Moreover, better built homes are coming about through the use of steel. Improvements to design and construction techniques are being utilized in an already tested market for commercial and residential construction. Since lumber prices rose in 1992, steel in the plastering industry has been valued and augmented. Plastering contractors, demonstrating the value of steel for years, promoted metal-stud framing to be a valuable option to traditional construction methods for residential home builders.

In fact, in 1995, light gauge steel was used in a development (Discovery Creek), in San Marcos, California by Presley Homes as well as many other developments across the state. These residential construction projects included the construction of numerous units framed with steel. Since this time, builders, architects, and others have used this as a method of residential construction. The uniform building code and engineers have accepted steel as a viable solution to increasing the structural integrity of buildings, and solution to the fluctuating wood prices.



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According to a majority of respondents to an "American Metal Market" Chilton Research Service poll indicated that they would consider purchasing a home built with metal framing rather than wood due to its cost and durability. According to the poll results published in December 3, 1993, 52.6 percent of respondents were open-minded about using steel

in residential construction. In 1990, there was no measurable level of metal-stud framing. By 1995, the level was 55,000 metal-stud framed homes. The goal set by the Iron and Steel Institute is to increase to 325,000 homes annually for residential metal-stud framing by the year 2000.

Light gauge steel offers builders, architects, and designers the ability to configure walls and ceiling panels in large spans. Also, steel offers innovation when designing buildings. It can

be used to maintain visual continuity, to create structural interiors, and add ornamental and decorative work.

Specialties— Exterior Insulation Finish Systems (EIFS)—EIFS is a non-load-bearing, barrier wall, exterior cladding system generally consisting of the following components: insulation board; an adhesive and or mechanical attachment of the insulation board to a substrate; glass fiber reinforcing mesh; base coat on the face of the insulation board that functions as the weather barrier; and a textured protective finish coat.

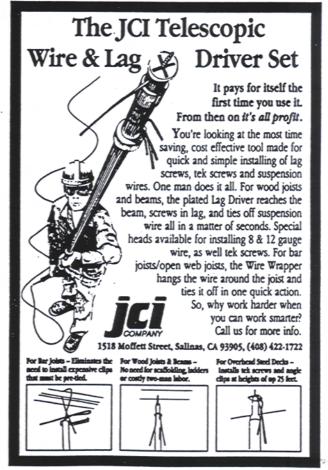
Research suggests more than 12 percent of the commercial plastering industry is devoted to specialty contracting, with a rapidly growing share of the residential construction utilizing these systems. Furthermore, it has been noted by the walls and ceilings professional membership that there was approximately 75 million square feet of exterior insulation finish system (EIFS) being installed annually in 1993. In 1996, EIFS exceeded 285 million square, up more than 10 percent over 1995. This dramatic increase reflects the continuing popularity of EIFS among home owners, architects,



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and builders throughout the country.

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alternative to creating ornamental elements in an efficient period of time. Design versatility, quality, installations, energy conservation value, and cost-effectiveness contributed to the technologies known by the plastering industry will offer tremendous growth opportunity and acceptability in the future.

Demand for Ornamental and Decorative Work—According to the Minnesota Lathing and Plastering Bureau, there has been an increase in preserving and restoring existing structures. Historical buildings nationally are requiring ornamental and decorative work, and cities throughout the United States are hiring plastering contractors to restore these structures to their original state. Keep in mind, the plastering industry sustains our nation's heritage by helping its citizens reflect on the architecture of our past centuries.

Furthermore, through the development of light gauge steel, metal-stud framing, metal lath, EIFS, and other available materials and applications, the plastering industry will continue to experience an increase in historical preservation. The plastering industry is offering the architect, developer, builder, and general contractor far greater opportunities in design at a considerably lower cost with added advantages.

Renovation and Retrofit Market—The retrofit plastering market has become a viable alternative to new construction for the plastering contractor. Renovations of existing buildings require an extensive understanding of both traditional and con-

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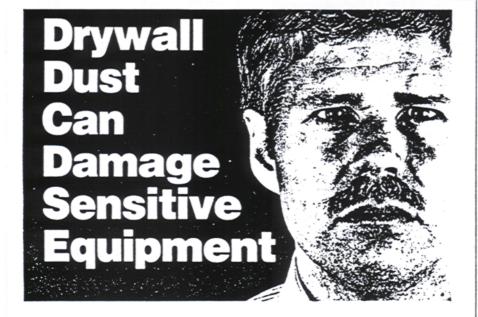


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largely due to unknown or existing hidden conditions. Today, construction industry experts predict that renovation or improvements will outpace new construction well beyond this century. This prediction was supported in 1996. The remodeling market continued to drive both residential and commercial construction.

Remodeling, upgrading, and finishing existing interior and exterior buildings in the commercial and residential market are aspects of the plastering industry that will always be needed in future years. Existing structures are always under review for upgrading to benefit their occupants.

While each project and condition may be different, a basic understanding of materials, applications, and procedures is not. Trade contractors and plasterers must be able to determine proper techniques in the evaluation of costs incurred during construction. These techniques include both the traditional lath, plaster, and drywall, and newer more innovative techniques such as EIFS, metal-stud framing, ornamental and decorative, and specialties. Moreover, more than half of the nonresidential construction expenditures in the United States in 1986, were for retrofit, renovations, maintenance, and repairs with more than 60 percent of that amount going to improvements.

Final Words

The plastering industry requires its contractors have a basic understanding of business management/administration and technical skills, and each skill mastered reduces problems and failures on the job-site. This in turn will undoubtedly motivate apprentices to better understand the trends affecting the plastering industry as they join the ranks of the industry.

In light of this, it is hoped that the more informed plastering industry professionals are, the better able they will be in understanding the conditions and performance criteria expected when conducting plastering operations. With foresight, plastering contractors can avoid potential hazards, customer and employer/employee conflict, and problems in the industry. Let's face it, plastering contractor and employee knowledge is paramount and critical!

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About the author:

Joe Scarcella, a former plasterer and manager in the plastering industry holds a Doctorate of Philosophy from the University of Missouri-Columbia. Currently, he is an assistant professor involved in teaching and research activities related to technology and industry at Southeast Missouri State University.



Note: Literary references will be furnished upon request.

Joseph A. Scarcella, Ph.D., Assistant Professor

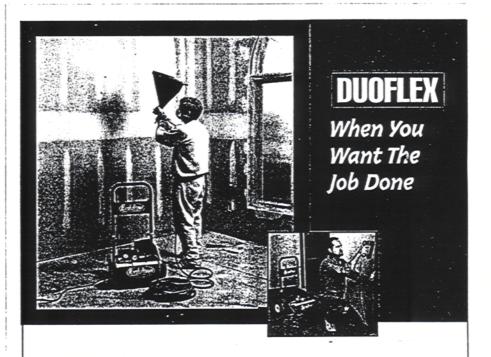
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