

Contractor Performance and Certification Programs: Do They Result in Better Roofs?

**By Kevin Kennedy and Jeff Manser
Evans Service Co. Inc.
Elmira, New York**

Abstract

This presentation examines the externally-generated contractor certification programs (Factory Mutual, ISO 9000, GM pre-qualification, and state licensing programs) and compares them to a company's internal Total Quality Management (TQM) program. The presenters tout the ability of a TQM program to provide a superior roof system, and explain the process in detail.

Kevin J. Kennedy

Kevin Kennedy joined Evans Service Co. in 1979 as a project manager, and is currently its executive vice president, with overall responsibility for the firm's sales and marketing program and the TQM Customer Satisfaction Program. Kennedy authored, "A Guide to Roofing Contractor Pre-Qualification," published in Interface, and is an industry member of RCI. She serves on the board of the New York State Roofing Contractors Association.

Jeff W. Manser

As director of Evans' TQM program since its inception in 1991, Jeff Manser has been responsible for creating and implementing many of its programs and processes. He serves as in-house instructor for all quality training activity, as well as facilitator for quality-related team meetings. Manser authored, "TQM: A Contractor's Perspective," published in the February 1998 issue of Interface. He is a member of RCI and the American Society for Quality (ASQ).

CONTRACTOR PERFORMANCE AND CERTIFICATION PROGRAMS:

DO THEY RESULT IN BETTER ROOFS?

It has been suggested in some quarters that contractor certification programs result in better roofs. While we are aware of externally generated *certification* programs, and comply with them when required, we do not believe they necessarily result in “better roofs.” Let’s briefly examine four of them:

STATE LICENSING PROGRAMS

Our firm is licensed or registered in 46 states. However, the licensing process does nothing more than test the general construction and business knowledge of the person being tested. State licensing programs do not ensure better roofs. They merely protect the public by preventing unqualified contractors from doing business in a given state.

GENERAL MOTORS PROGRAM

The General Motors Program is essentially a purchasing pre-qualification process that requires prospective bidders to provide basic information such as financial viability and safety performance. We applaud building owners like GM who invest the time to “pre-qualify” contractors. And although a pre-qualifying process helps weed out prospective bidders who install poor roofs, it does not ensure that a “qualified” one will install a better roof.

ISO 9000 CERTIFICATION PROGRAM

ISO 9000 certification is virtually non-existent in the roofing industry. None of our clients require or have even suggested it. While there is obvious value in creating, documenting, and complying with the “standard” procedures this process requires, ISO certification is a costly and time-consuming way of skinning that cat.

FACTORY MUTUAL PROGRAM

Factory Mutual is currently developing a contractor certification program, with input from the National Roofing Contractors Association. FM can reduce their insured losses by establishing minimum training and education standards. But establishing standards *before* a job starts is no guarantee they will have been met when the job is done.

TQM PERFORMANCE PROGRAM

The balance of our presentation describes a program with proven results in “better roofs”—the Total Quality Management program. This program, initiated by our company in 1991, establishes the principles and processes that enable companies to provide customers with “better roofs.” We will share some of the standards and protocols that have been created to ensure that our goals of safety, quality, and customer satisfaction are met. But first, let’s expand the definition of a “better roof.”

What distinguishes a better roof from a so-so or poor one? As roofing professionals, we trust you would agree that it’s a roof that has been professionally designed, utilizes quality materials, and is applied by a fully-qualified, professional contractor.

If these three elements—design, materials, and application—are in place, the odds are that the finished “product” will pass the test everyone understands—no leaks!!! And while we agree that “no leaks” is a good definition as far as it goes, our concept of a good roof is much broader than that.

Just as a fine restaurant’s reputation isn’t built solely on the quality of its food, a contractor’s reputation isn’t earned entirely by the expert application of a well-designed and leak-free roof.

Both restaurant owners and roofing contractors set themselves apart from the crowd not just by the food they serve or the roofs they apply, but rather by creating a total quality experience for their customers—one that begins with initial contact and is sustained throughout the entire process and beyond. To carry the analogy just a bit further, consider a few of the components that make for a fine dining experience:

There is no question that the quality of the food is critical. Without that, chances are you won't go back for a second visit. However, many restaurants serve fine food. But not all provide a total quality experience that includes a friendly voice when you call for your reservation, adequate parking, attractive decor, a pleasant greeting, prompt seating, knowledgeable and timely service during the meal, prompt presentation of the check, and a farewell thank you.

Similarly, providing building owners and their representatives with a better roof requires that contractors deliver much more than leak-free performance. Consider the following additional components we consider essential in providing customers with a total quality roofing experience, i.e., truly a better roof”:

- No Surprises**before and during the construction process.
- No Trainees**who lack the skill and experience to do the job right.
- No Injuries**to anyone, on or off the roof.
- No Shortcuts**in executing the roof details as specified.
- No Substitutions**of inferior materials.
- No Mess**on the roof or on the grounds.
- No Disruptions**to occupants or operations in occupied buildings.
- No Loose Ends**at the conclusion of the project..
- No Disappearing Act**if service is required after the job is done.

And finally, a user-friendly project manager and crew who are fully committed to providing uncompromising customer satisfaction.

Now that we’ve provided our definition of a better roof, let’s examine how a TQM program contributes to consistently delivering better roofs.

We have been involved in contractor performance programs since 1985 when we were one of 14 contractors to be admitted into NRCA's “Academy of Roofing Contractors.” Our internally-generated TQM program was initiated in 1991 and has enabled us to achieve substantial improvements in safe work practices, quality workmanship, labor productivity, and customer satisfaction.

Sustaining the program requires a major commitment of both time and money on the part of the management team. Annual costs exceed \$100,000.

We believe the processes and culture that have been created as a result of the program provide a way of defining customer requirements, achieving continuous improvement, minimizing errors, and ensuring consistent quality performance.

This enables us to install roofing systems that meet all quality requirements, the first time. Equally important, these processes have improved our understanding of customers, and have provided us with guidelines for ongoing performance enhancements.

In simple terms, the TQM program was established to improve internal performance, raise the level of customer satisfaction, and strengthen our position in the commercial roofing marketplace.

A nine-member quality management team was formed and has been meeting twice a month since the program began in 1991. Chaired by the CEO, the team includes the COOs of the four operations, marketing and financial officers, and the safety and quality directors. This team is responsible for driving the TQM process and providing financial and leadership support to the effort.

A logo and mission statement were created that established three primary goals: **safety, quality, and customer satisfaction.**

The definition of total quality has three components: "...knowing what needs to be done... having the tools to do it. and then doing it right the first time, every time." Let's examine each component:

According to our classroom training and borne out by years of experience, most errors occur because customer requirements are not fully understood *prior* to beginning a task or activity. As a result, our two-day basic training program emphasizes the need to clarify requirements *before* starting a task. All employees are encouraged to ask questions if they aren't entirely clear about what needs to happen; to take notes as needed; and to listen carefully when others are speaking. In fact, a special four-hour course is used to help all employees learn about and develop good listening skills.

Once requirements are clearly understood, people must be provided the tools with which to do quality work. The word "tools" takes on added meaning within the context of the TQM program. As it relates to roofing, the word tools brings to mind the tangible tools of the trade—things like drills, rollers, and heat-guns. What TQM teaches us is that it is equally important that people be provided with the intangible tools they need in order to do quality work—principally knowledge. Providing both kinds of tools requires an investment. Tangible tools must be purchased and maintained. Intangible tools are acquired with a different kind of investment, an investment of time and money for formal education and training programs.

Once customer requirements are clearly understood and the necessary tools are in place, the final ingredient for achieving total quality is that all associates embrace the concept of *error-free work*. This requires a personal commitment on everyone's part to do things right the first time, every time. Perfection is neither required nor expected. Rather, training programs emphasize the need for relentless pursuit of error reduction and continuous improvement.

Simply put, our goal is to meet or exceed customer requirements on a consistent basis. TQM expands the traditional definition of "customer" to include fellow employees. The logic here is that if we do a good job meeting each other's requirements, we will automatically achieve better results in meeting those of the customers for whom we do the work.

"Management by prevention" is a key TQM concept. Practicing management by prevention enables us to prevent errors from occurring. It requires a major cultural change in that it shifts emphasis from the traditional "ready, fire, aim" mentality to one where potential errors are anticipated in order to prevent them from happening. This cultural change has been accomplished largely through an increased investment in and commitment to planning and training activities.

Studies by IBM and others have shown that for every hour invested in planning activities, a minimum of eight hours worth of wasted time and frustration will be prevented. Our own experience suggests that this is a very conservative estimate of the value of planning ahead as opposed to hurrying our way into problems.

Since perfection is not possible, mistakes happen. A process called corrective action is used to help prevent errors from recurring. It involves a simple three-step process—investing time to identify problems and their causes, developing written corrective action plans, and communicating them to all affected associates. And the process works. Try it in your firm. Pinpoint a handful of recurring problems, identify the causes, agree on a corrective action plan, and let everyone know about it. You'll be pleased with the results.

We want to share with you a number of programs, processes, and accomplishments that have their origins in the TQM program, and that have enabled us to improve performance in all areas of our business:

One of the first steps we took in 1991 was to begin development of a comprehensive **operations manual** which now includes all procedures which must be followed to ensure a successful project from pre-bid activities through completion and beyond. The manual serves as our standard for meeting customer requirements and establishes the level of quality we seek to achieve. Some examples:

- A comprehensive check list for associates doing roof takeoffs or attending pre-bid meetings. Included are such items as taking photographs not only of the roof, but also the building exterior and access points for staging and disposal, measuring the roof to verify dimensions, taking core cuts, noting existing conditions, clarifying specifications, and recording the names and phone numbers of both customer personnel and local fire and

police entities.

- A project task list utilized by project managers listing all tasks that must be completed to effectively plan and manage jobs. The list is arranged in chronological order from submittal of shop drawings and development of a detailed safety and fall protection plan through mailing a customer satisfaction survey to the owner and his representatives after the job is done. Responsibility is assigned and deadlines established for each task.
- We utilize a computerized MIS system to set up and monitor projects. The operations manual includes detailed instructions on how to utilize the system to set up job cost and revenue items, as well as how to create and update a daily job tracking report. This report is a valuable tool for the roofing crew, the project manager, and management. It lets us know how we're doing vs. the project plan. It also triggers corrective action plans if we fall behind schedule.

Another critical component of our TQM program is that of safety. Based on an early TQM idea from our field superintendents, a full-time safety professional was hired in 1992. We now have a comprehensive **Safety and Health Program** which has enabled us to substantially improve safe work practices, upgrade equipment, enhance employee safety and well-being, reduce insurance costs, and enhance the bottom line. Some elements of the safety and health program:

- Extensive education and training including a new-hire orientation program, a comprehensive safety manual, an internally-produced, on-the-roof safety video with both English and Spanish narration, annual safety refresher courses, and weekly job-site safety meetings. Strong management support and financial commitment. Enforcement programs including frequent on-roof and in-shop and yard inspections and audits.
- Investment in state-of-the-art personal protective equipment and fall protection systems.
- Safety committees at each location who meet periodically to review federal, state, and company requirements, evaluate safety ideas and suggestions, and discuss ways to improve safety awareness and performance. Consistent with the TQM concept of seeking ideas and input from all levels of the organization, 50% of the committee members are field roofing and sheet metal workers.

As a result of these and other safety initiatives, we have been able to reduce our experience modification rating from 1.00 to .80. Working safely makes everyone a winner—our customers, the company, and most importantly, the well-being of our valued associates.

One of the most fruitful dimensions of the quality effort is our **TQM Idea Program**. A core TQM concept is that the best source for ideas about better ways to do things is not management, but rather the people who do the work. The idea program is designed to encourage all employees to share their ideas for better ways to do things. Ideas typically fall into one of the following categories: enhancing safety or quality, eliminating errors, increasing productivity, or improving external customer satisfaction. To make it easy for field associates to participate, a simple idea form is printed on the back of time cards.

Each company location has a quality improvement team which is charged with leading the quality effort. They review every TQM idea on a monthly basis. Actionable ideas are implemented. And every associate submitting an idea is recognized in some way. An idea of the year program recognizes the best idea of the year. The winner is selected not by management, but rather by roofers based on nominations by the local quality improvement team.

Literally hundreds of ideas have been implemented since 1992. Some have had a minor impact on the company. However, a substantial number have resulted in significant safety enhancements, cost savings, productivity improvements, and customer services.

Here are some examples of ideas gleaned from every corner of the organization:

- The design and fabrication of a PVC pipe structure enabling fast and simple erection of interior protection systems. It is used on deck replacement projects and others requiring strict interior protection.

- The design of a simple ramp mechanism installed on roof carts which allows removal of roll materials from the carts to avoid dropping them on the roof deck.
- A procedure for ordering a small quantity of 4' x 4' insulation boards, eliminating the need to cut boards for staggering the insulation joints.
- A replacement parts kit for each roofing crew which contains an inventory of parts requiring frequent replacement. The on-site availability of these spare parts enables the crew to make immediate tool and equipment repairs which minimizes down time.
- A merit increase program for roofing associates. This program rewards field associates who take the initiative to learn new skills on the job. Each associate is periodically rated on a 10-point scale. A rating of (1) indicates the employee has had some exposure to a given task. A (5) rating means he or she completes the task without supervision. And a (10) rating indicates the employee has not only mastered the skill, but is also capable of training others.

Recognition of quality performance is a cornerstone of the TQM program. Recognizing the good works of others creates positive feelings for both the recognized and the recognizer. Formal, public recognition takes at least four forms in our company:

1. A **fellow associate recognition program** encourages employees to provide written recognition of fellow employees who perform quality acts.
2. A **monthly newsletter** recognizes individual and team or crew accomplishments.
3. **Positive written feedback** from customers about a team's performance on a given project is published or posted.
4. An annual **TQM event banquet** or picnic is attended by all employees and their families or significant others. The purpose of the event is to have some fun and fellowship, celebrate and recognize both individual and team accomplishments, and encourage continued improvement in all areas. Gifts and door prizes are provided by both the company and valued suppliers.

Another key component of the TQM effort is our **customer satisfaction program**. This program is designed to ensure good communication with and responsiveness to our customers throughout the construction process. "CSP" procedures enable us to better understand customer needs, anticipate and avoid potential problems, monitor performance, and measure the level of customer satisfaction after the job is done. Some key components include:

- A pre-job meeting involving the owner, his representatives, and our project manager and on-site team leader. The purpose of the meeting is to discuss the project plan and schedule, clarify the owner's needs and expectations, and resolve any potential problems that can be anticipated.
- An innovative bonus program has been developed for our roofing team leaders and crew members. Bonus amounts are based on the following criteria: labor hours saved versus the project estimate, safety performance, and the level of satisfaction expressed by our customers after the project is completed. No bonuses are awarded unless an "excellent" rating is achieved. Also, payouts are not made until six months after the project is completed so that the cost of any repair call backs can be deducted from the bonus pool. Needless to say, this program provides extra incentive for our crews to focus on our goals of safety, quality, and customer satisfaction.
- Another aspect of the customer satisfaction program is a **key account program** which identifies key customers and prospects and assigns responsibility for maintaining an ongoing dialogue with them.

The final component of the customer satisfaction program is that when each project is substantially complete, a one-page, user-friendly questionnaire is mailed to our customers and their representatives asking them to evaluate the performance of both our on-site crew and our project management support team. Responses come directly to our CEO, and copies are distributed to the management team, the safety and marketing departments, and to the team leader and crew who did the work. These surveys are an invaluable source of information about how we're doing,

what's important to our customers, and how we can improve.

Based on ideas from foremen, crew members, and shop and yard associates, a variety of roofing equipment has been invented or modified by our own people. A number of these have resulted in increased productivity, enhanced safety or worker comfort, and improved quality. Here are some examples:

- A self-propelled wire brush machine was “invented” by one of our employees long before similar machines were commercially available. It enables roofing crew members to remove rust from steel decks quickly and comfortably. Prior to development of this machine, this work had to be done with hand-held wire brushes and a lot of elbow grease. This machine has created a classic win-win situation, increased worker comfort and productivity. And it's used frequently, because one of our specialties is replacing roofs with metal decks damaged by phenolic foam insulation.
- A PVC pipe sleeve designed to store fire extinguishers on the roof and protect them from accidental discharge or damage.
- Custom-designed and fabricated steel safety stands for perimeter protection on built-up roofing projects. The stands feature eight-foot high posts. Cables stretched between the posts provide anchorage for safety lanyards. The unique posts enable the roofers to hook up and work without dragging their lanyards through the hot asphalt. This eliminates a safety hazard as well as protecting the newly-installed roof.

One of the major changes that has occurred in the company as a result of the TQM program is a vastly expanded **education and training program**.

Prior to 1991, formal training consisted largely of on-the job safety training and manufacturer-sponsored seminars teaching application techniques for various roofing systems. Today, each associate participates in at least 40 hours of annual training covering a range of topics.

Safety training is conducted every week on every job site. In addition, annual refresher courses are given, as are optional courses like defensive driving and asbestos-abatement certification.

TQM training is conducted annually. Phase 1 consists of a 16-hour awareness course for all new associates. It teaches the quality principles and how to apply them on the job. A 4-hour refresher course is conducted annually thereafter. Phase 2 consists of a course that focuses on how to improve listening, communications, and people skills. Monthly newsletter articles are used to reinforce the quality message throughout the year.

Roofing and sheet metal skills training seminars are given at least twice a year. Conducted by manufacturers as well as our own field superintendents, a wide range of systems is covered, including single-ply membranes, “hot” roofing systems, ornamental sheet metal, slate, and tile.

Office associate training was virtually non-existent ten years ago. Now, in addition to quality and safety training, managers and support personnel are encouraged to take at least one “individual” needs course each year on subjects ranging from project management to assertiveness training to sales or accounting skills. A number of outside resources are utilized including RCI, NRCA, RIEI, and the American Management Association.

The company has made a substantial and ongoing investment in computer technology, and this in turn requires a major investment in education and training for all users. In fact, the company recently hired a full-time information technology manager to both teach and trouble-shoot.

A successful TQM program requires a major cultural change, and our **project improvement program** is an excellent example of that. In the “old days,” communication was largely top down, flowing from management to the troops. By contrast, TQM seeks to empower people at all levels of the organization. The project improvement program assembles all members of a project team, including foremen, roofers, and sheet metal workers, to critique completed projects and plan ways to eliminate errors encountered on future projects. Fault-finding is prohibited. The objective is to identify problems and their causes and develop corrective action plans for the future. A number of significant ideas have come out of these meetings, including the following:

- A letter which is sent by the project manager to the building owner prior to the start of reroofing projects describing the process in detail and alerting them to some of the potential irritants to occupants such as noise during tear off or when fasteners are being installed. This enables the owner, property manager, or other representative to alert employees or tenants in advance. We've learned the hard way that people don't like surprises, and this letter helps eliminate them.
- A requirement that a written roofing and sheet metal safety plan be developed for every project. The plan is reviewed by both the owner and our entire project team prior to starting the project.
- For projects where built-up roofing is being torn off and replaced by a single-ply membrane, a protective covering is placed over completed areas to prevent tracking of asphalt onto newly-installed membrane.

Another TQM-generated program that has had a beneficial effect involves **supplier partnering**. We now meet at least annually with key suppliers to exchange ideas about ways to improve our relationships, and in so doing, better serve the needs of our common customers. To ensure that meetings will be productive, both parties submit written agenda items in advance, and both parties come to the meetings prepared to respond to any questions or suggestions. Significant improvements have been achieved in a number of areas, including:

- Billing and other accounting practices,
- Shipping and receiving processes,
- Product packaging and labeling, and
- Joint marketing programs.

A variety of **human resource programs** have been developed which are designed to focus efforts, clarify responsibilities and relationships, evaluate performance, and plan for future improvements. Here are a few examples:

- Written **position summaries** have been created for all associates, as have organization charts for each entity. The position summaries serve several purposes. They spell out each person's responsibilities, serve as a basis for performance evaluation, clarify internal relationships, and are helpful in recruiting and orienting new employees.
- In addition to the basic responsibilities spelled out in the position summaries, all managers, office associates, and field supervisory personnel develop and commit to **annual written goals**. Progress is reviewed throughout the year, and performance versus goals is factored into year-end compensation.
- **Annual performance review and planning meetings** are held between each employee and his or her supervisor. The purpose is two-fold. To evaluate past performance, and (as importantly), to plan for future activities and improvements. The person being reviewed comes to the meeting prepared to evaluate his or her own performance, to identify ways the supervisor or company can be supportive, and to suggest future personal and company goals.

Perhaps the greatest challenge facing today's roofing contractor is finding ways of attracting and retaining good roofing and sheet metal workers. By its very nature, roofing is a dirty, physically-demanding, and potentially dangerous occupation that does not naturally attract young people entering the work force. The new recruits we attract must be well prepared to perform the kind of work we do in a safe, competent, and professional manner. New hires have enough difficulty adjusting to a new work setting without feeling they are a burden on experienced fellow associates. As a result, and based on a suggestion from a newer field associate, a comprehensive new field associate training program has been developed.

This week-long, hands-on program is completed by all new field employees prior to reporting to their first field assignment. This program represents a substantial investment of time and money, but it has helped improve the recruiting process as well as dramatically reducing turnover among new field associates. The course is conducted on company property, and combines both classroom and on-roof sessions to create an awareness and understanding of the following:

- Safety rules, regulations, and equipment,
- Company policies and benefits programs,
- Roofing terminology,
- Basic roof system components, and
- Basic roofing installation skills.

The program concludes with the students actually installing a small single-ply roofing system.

As you know, a new roof represents a major investment for building owners. Although the roof typically represents only 3 - 4% of total construction costs, a large or complicated one can cost from \$100,000 to millions of dollars! And over half of building litigation costs are roof related! These facts alone make a powerful case for the need to insist on a better roof, one that is designed by professionals, utilizes quality materials, and is installed safely, in complete accordance with the specifications, with minimal disruption to building occupants, and in a quality manner by caring craftsmen.

Just as all the components of a quality dining experience must be in place to ensure a memorable meal, so must all the components of a quality roofing installation to ensure the most important result: a satisfied customer.

As discussed earlier, there are three ingredients that make for better roofs: professional design, quality materials and application by an experienced, ethical, and professional contractor.

Contractor certification programs such as state licensing, ISO 9000, the General Motors process, and Factory Mutual all provide certain benefits. However, there is no assurance that a contractor who meets the established standards will, in fact, install a "better roof."

In our view, a contractor's responsibility goes well beyond that of applying a roof that doesn't leak. Obviously, a leak-free roof is a fundamental and absolute requirement. However, through the implementation of TQM principles and practices, we strive to provide owners with a total quality roofing experience, one that includes no surprises, no trainees, no injuries, no shortcuts, no substitutions, no mess, no disruptions, no loose ends, no disappearing act after the job is done, and a project team fully committed to uncompromising customer satisfaction.

Anyone who has ever been involved in a total quality program knows it is an evolutionary and never-ending process. Perfection is not possible. A TQM program is no panacea, and may not serve the needs of all business enterprises. However, the concepts can be applied successfully in any organization. We credit our program with providing the tools, processes, and philosophy needed to educate and empower employees, consistently deliver better roofs, and in so doing, delight customers, and help differentiate ourselves from the competition in today's highly competitive world.