

ISO 9000: Building Operational Performance Through Quality Management

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EXECUTIVE SUMMARY

More and more owners are requiring contractors and suppliers on construction projects to obtain ISO 9000 registration. The U.S. government plans to limit its base of prime and subcontractors to ISO 9000-registered companies, including contractors. Some states only award highway projects to registered contractors.

By undergoing the ISO 9000 registration process, construction contractors can uncover deficiencies in their systems and demonstrate to project owners that they maintain sound business practices.

The ISO 9000 standards have been embraced by companies around the globe. The standards provide a basis for consistency, and they are replacing individual company and industry-specific requirements.

Achieving ISO 9000 registration is not easy or effortless. Some companies find that involves added bureaucracy, an increase in head count, more cumbersome operating routines, and, as a result, increased operating costs. Importantly, the reasons companies made the decision to undergo the ISO 9000 process in the first place had a sizable impact on their perceived success.

There's a common perception that U.S. construction companies need not comply with the quality management standard ISO 9000 if they don't currently operate or compete in Europe. Unfortunately, that view is fast becoming a misperception.

In reality, more and more sources for construction projects require contractors and suppliers to obtain ISO 9000 registration. General Motors, Ford, and Chrysler are among the major industrial companies that will only consider ISO 9000-registered contractors to build their factories and distribution centers. Additionally, the U.S. government, from the Department of Energy to the Food and Drug Administration to the National Aeronautic and Space Administration, plan to limit their base of prime and subcontractors to ISO 9000-registered companies, including contractors.

Furthermore, some states are only awarding highway projects to you guessed it-registered contractors. Why is there such increasing demand for ISO 9000 certification in the construction industry? While ISO 9000 does not guarantee the quality of companies' services or products, these standards do require companies to define and document their operating practices and determine whether personnel are appropriately trained to perform their designated functions. By undergoing the ISO 9000 registration process, companies can uncover deficiencies in their systems. To achieve certification not only requires correcting those inadequacies, but further involves assessing and analyzing the root cause of each problem to ensure that it won't reoccur in the future. Thus, companies that comply with the standards demonstrate to project owners that they maintain, at a minimum, sound business practices.

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Europe continues to lead the world in awareness of and compliance with ISO 9000.

Contractors not only benefit from what ISO 9000 registration tells others about them, but they can also use the standards to gain insight into the operations of potential business partners. In an era when companies frequently don't have the time or resources to verify the level of service, activities, or products of every supplier and sub, ISO 9000 registration offers reassurance to contractors that companies that perform specific services or products have appropriate quality procedures in place.

Originating in 1979 as British Standard BS 5750, the requirements were adopted by the Geneva-based International Organization for Standardization (ISO) in 1987, leading to the publication of the ISO 9000 series of standards. Today the standards are endorsed by more than 100 countries.

While ISO 9000 does not necessarily demonstrate state-of-the-art quality practices, the world recognizes the standards as a non-prescriptive set of requirements that are based on good and sound business practices, regardless of company size or industry. As a result, the standards have been embraced by companies around the globe. Because they provide a basis for consistency, these standards are replacing individual company and industry-specific requirements, which makes it easier for ISO 9000-registered companies to do business with many of their customers.

With 92,000 registered companies, Europe continues to lead the world in awareness of and compliance with ISO 9000, but North American companies are rapidly getting on board the quality bandwagon, with 16,000 organizations registered at last count.

WHAT THE CRITICS SAY

Of the thousands of companies registered, there have been mixed results. For every five companies that sing the praises of their ISO 9000-conforming system there is another that tells stories of added bureaucracy, increase in head count, more cumbersome operating routines, and, as a result, increased operating costs.

With this in mind it is understandable why some companies resist or even abandon an ISO 9000 program. Before any company launches an ISO 9000 program, lapses one, or even criticizes the process, its top management should be clear on their expectations of the process, the out come, and what ISO 9000 can truly deliver.

An independent survey conducted by the Manchester Business School, in Manchester, England, showed that expectations play a critical role in whether companies are satisfied with the ISO 9000 process. The Manchester study involved more than 1,190 companies in the United Kingdom, the nation that leads the world in total ISO 9000 registrations and from which 41 percent of all registered companies originate. The study showed that more than two thirds (69 percent) of these companies said that their expectations were met once they achieved ISO 9000 registration. About a third were less than satisfied.

The findings of the Manchester Business School's study are telling in their own right, since most companies view the ISO 9000 process positively. But what's particularly interesting is that the reasons companies made the decision to undergo the ISO 9000 process in the first place had a sizable impact on their perceived success.

As the study further showed, companies that were satisfied with ISO 9000 registration tended to pursue implementation for the purpose of operational improvement. On the other hand, companies that were less satisfied engaged the process either in response to pressure from customers or to use their ISO 9000 status as a marketing tool.

Thus, companies that felt forced into the process were less likely to recognize the benefits.

THE BAD NEWS FOR CONTRACTORS

Achieving ISO 9000 registration is not an easy or effortless undertaking. In fact, there are several reasons why ISO 9000 can be more challenging for contractors to implement than for other companies. For

example, manufacturing companies often have quality departments that recognize the benefits of quality procedures in all areas of the organization. For contractors, which tend to not have dedicated quality staffs, there is often no individual or group to shepherd the quality management movement internally or to provide education and training. In the construction industry, it is often customer requests-or requirements-that necessitate the process from the onset.

Often, construction companies are run very lean. There is not a lot of time to plan and discuss business issues.

Most contractors have personnel working at several remote sites. This compounds the problem of communications and makes it more difficult for teams to work together on a regular basis to resolve problems.

Most construction work is seasonal, and when the busy time hits, most managers and workers are forced to endure lots of overtime just to complete projects on time.

People in construction are very independent. The people who are attracted to this type of work do not like constraints. They enjoy challenges and are bored when they solve the same problem more than once.

The environment in the construction industry is less structured. People like the freedom and flexibility that can only be found in their unique environment.

Use of technology throughout the construction industry is usually not as comprehensive as in other industries.

THE GOOD NEWS FOR CONTRACTORS

Meeting these challenges in an effective ISO 9000 program requires forethought and planning. But it is the forethought and planning that makes the ISO 9000 process worth the effort and can enhance a company's operational effectiveness. In particular, a quality management program can improve contract review and design control.

Meeting the contract review requirements of ISO 9000 in a construction environment begins with the estimating process and extends through to the award phase. ISO 9000 requires companies to ensure they have the capability to undertake a job to the customers' or owners' requirements.

Astute project estimating can make or break a project's success, yet the time and effort that is spent to process bids can be excessive and ineffective. Areas where ISO 9000 can improve the process include determining what type of jobs should be pursued. Projects must meet the company's overall objectives. It doesn't make good business sense for a contractor to spend a lot of time developing bids for projects they can't win or would have trouble completing if won. Instead, criteria should be determined for the type of bids to be pursued-and then those criteria should be stuck to.

Estimators need training that can only be provided on the jobsite. This way they gain a better understanding of project challenges. For obvious reasons it is preferable to have the challenges identified, discussed, and accounted for in the bidding process instead of once the project is already budgeted and approved.

the time spent on effective planning. Pilot projects that have incorporated these steps report that effective planning has produced a nearly 20 percent reduction in labor cost.

Not limiting skills development to technical skills. Developing supervisory, mentoring and managerial skills in key people can reduce costly recruiting efforts and improve employee retention.

TRAINING AND PERSONNEL DEVELOPMENT

Labor is a critical resource. It must be developed and managed effectively. Practices that contractors have incorporated into more effective development of personnel include the following:

- Assessing competency and providing effective training to improve skills required to do field work effectively.
- Establishing a skills matrix or using a training management system that identifies the skills required (competency) for each level of employee needed. Personnel are evaluated against these criteria in order to help develop a plan to address skill needs.

Staffing projects with skill requirements in mind. On-the-job training can be the most productive if effective mentors are in place.

CONCLUSION

None of the ideas that are shared here are revolutionary. At the same time, the impact of applying improved processes can be dramatic. Most contractors will readily admit that they could do several of these things better and benefit dramatically from them.

The easy part is identifying improvement opportunities, the difficult part is formulating the improvement. By using an effective approach to analyzing and improving processes, contractors can make significant improvements to their business through a constant evaluation of how they do business and how they can improve. Using ISO 9000 as a framework for improvement can help contractors position themselves to proactively face future challenges. .

An idle crew costs a lot more than the time spent on effective planning.

To avoid making costly mistakes, bids should be reviewed and planned by a cross-functional team. Foremen are able to have input on the materials and hardware to plan and to identify opportunities to reduce labor by modifying the design or identifying work that can be done in the shop and not on the jobsite. An added bonus to be gained from the cross-functional team approach is that the estimator gains a new perspective and the foreman has more confidence in the estimate for and approach to the job.

It's best to use key people's skills and experience to review the proposed design and identify areas to reduce material and labor costs. Contractors can work with the customer to get approval for substitute materials and re-sequencing of activities to save costs. Effective use of such techniques can reduce project cost, shorten the project duration, and improve project quality. Customers will place a value on this type of effort.

PURCHASING AND SUBCONTRACTOR CONTROL

Materials make up a substantial portion of the overall project cost. Savings on materials go directly to the bottom line. Practices that contractors can incorporate into more effective purchasing include the implementation of a supplier and subcontractor monitoring system. The performance (or lack of it) of suppliers and subs can make or break a job. This data can be used to leverage price and performance for the future.

Another practice for effective purchasing is buying in larger quantities to improve buying power with suppliers. Contractors can combine material requirements when the same components are used on different jobs. Some contractors even combine their needs with other contractors (buyer's group) to negotiate a favorable discount that no one contractor could have negotiated alone.

Standardize the use of common hardware and components across projects. By reducing the variety, employees become

more familiar with certain materials. Another benefit is that material left over from one project may be sent to another job instead of requiring an extra handling charge to return unused materials.

Implement a mechanism for the field to provide input/feedback on what standard components to buy based on ease of use and low waste.

PROCESS CONTROL, NONCONFORMANCES, AND CORRECTIVE AND PREVENTIVE ACTIONS

It has been estimated that up to 30 per cent of field labor time is wasted through inefficiencies. The best way to eliminate this is by effective project planning. Planning begins during the estimating process. Some practices that contractors have incorporated into more effective project planning include holding an effective project kick-off meeting early in the planning phase and getting key project personnel involved early.

Scrutinize the project for opportunities to sequence project steps and/or assemble components in a controlled environment instead of in the field.

Identify and provide feedback on inefficiencies and problems from other projects to facilitate future prevention. The foreman should spend enough time on the jobsite ahead of the crew to plan labor, walk out prints, mark up notes and comments, and establish daily production goals for the crews. Materials should be planned in stages and marked effectively for easy identification.

Make sure that personnel assigned to the project have the appropriate skills or at least the right training to be effective.

Set up the appropriate tools needed on the jobsite to manage and report progress. PDAs, PCs, printers, fax machines, and good communications devices can make project communications much more effective. Establish procedures for materials and prints to be planned and reviewed several days in advance. Don't skimp on planning. An idle crew costs a lot more than