

2.3.8. Quality management plan

Quality management is not an event - it is a process, and a mindset. It is a continuous process of improvement involving all aspects of business including Quality control or Quality assurance. A consistently high quality product cannot be produced by a faulty process. There needs to be a repetitive cycle of measuring quality and updating processes. Thus the wider aim of Quality Management is to prevent mistakes before they happen and the focus of the quality management process is to build the right processes so that the entire team can produce high quality deliverables. Therefore, if a particular deliverable has a quality problem, the project manager and project team should focus on how the deliverable building process can be improved, not on trying to determine who is to blame. Most problems with quality are the result of processes put into place by management, not because of the malicious act of a particular people.

In all businesses quality is ultimately defined by the client, and represents how close the project and deliverables came to meeting the client's requirements and expectations. Our goal is to meet the client's requirements and expectations. There is a tendency to think that 'quality' means the best material, the best equipment and absolutely zero defects. However, in most cases, the client does not expect, and cannot afford, a perfect solution. If there are just a few bumps in the project, the client can still say that the project was delivered to a high level of quality. On the other hand, a flawlessly designed, defect-free solution that does not meet the client's needs is not considered high quality.

Since quality is defined by the client, it may seem that it is completely subjective. However, there is a lot about quality that can be made objective. For instance, one of the features of a quality solution may be that it has a minimum amount of errors. This characteristic can be measured by counting errors and defects. If you want to do a good job managing quality, you need to be measuring. If you are not going to capture metrics, then it will be hard to improve processes through a quality management initiative.

One of the purposes of quality management is to find errors and defects as early in the project as possible. Therefore, a good quality management process will end up taking more effort hours and cost up-front in the project. However, there will be a large payback as the project progresses.

Implementation

The management of every construction company implementing the rules of quality management must be aware of the fact that TQM is more than just a simple philosophy. In addition to proposing new theories about the workplace it points out specific changes that managers need to make if they want to improve the existing system.

Modern managers must concentrate their efforts on:

- customer relations: customers can be either internal or external to an organisation. Just as a customer is the person buying a product in a store or someone buying a new apartment, an employee (worker, fitter, site engineer) is the customer of management. Managers of construction companies need to realise that quality work will not be done unless they provide employees with quality products to work with,
- employee empowerment: TQM starts at the top of a company but should include the workplaces. It will fail without strong employee involvement, since it often happens that workers and site engineers know more about their jobs than management does and their input is important to improve the system. It is a manager's responsibility to continually train employees in the methods of TQM and listen to their suggestions for system changes, and try to implement those changes,
- creating an environment that promotes unity and change: people need to feel comfortable discussing problems and suggesting solutions. Top executives of construction companies need to work at breaking down the barriers between departments so that discussion can take place. Also managers of construction companies shall eliminate slogans or goals because these encourage competition between workers and put the focus on individual efforts instead of promoting common results,
- continuing gathering and use of data: most companies monitor the quality of their products by doing inspections that determine how many low-quality products or services are being produced. Modern managers in the building industry should rather monitor the production (construction) process by continually gathering technical data so that the problems can be identified as they happen on the construction site, instead of when it is too late to solve them once customers have claims against the company. The process needs to be proactive rather than reactive.

ISO 9000 requires documentation of quality processes but this standard does not explicitly require continuous improvement, benchmarking, and other quality management principles. ISO 9000 is a Quality System Management Standard. The ISO Quality Standard sets in place a system to deploy policy and verifiable objectives. ISO implementation is a basis for Total Quality Management implementation. (Where there is an ISO system, about 75 percent of the steps are in place for TQM. The requirements for TQM can be considered ISO plus). Another aspect relating to the ISO Standard is that the last changes, implemented in years 1999-2001, contain customer satisfaction and measurement requirements.

Included in the most popularly used ISO 9000 standards are:

- ISO 9000:2000 – Quality management systems – Fundamentals and vocabulary,
- ISO 9001:2000 – Quality management systems – Requirement,
- ISO 9004:2000 – Quality management systems – Guidelines for performance improvements,
- ISO 19011 – Guidelines on Quality and/or Environmental Management Systems Auditing.

Quality refers to the combination of characteristics of a product, process or service that determines the product's ability to satisfy specific needs. Quality is a construction company's ability to conform to specifications where specifications represent the customer's needs. The attainment of quality in a product is the responsibility of every employee in an organisation. The production and preservation of quality is always a commitment that stretches from the producer to the customer. Construction company's managers should remember that the ultimate judge for the quality of a product is the perception of the user.

ISO 9001:2000 in a European Construction Company

In the case of construction companies, the basic ISO standard is ISO 9001:2000. The first step the construction company has to perform in order to obtain ISO 9001:2000 certification is to apply for the ISO 9001 certificate. The average time that European companies need for preparation of all documents, organisational changes and finally for passing of the appropriate audit, is about two years. During the process of applying for the ISO 9001:2000 Certificate a chosen group of managers has to prepare the "Quality Manual". After ISO 9001:2000 is granted and the Construction Company holds the Certificate, this manual is the guideline for

all procedures which are regulating nearly the whole “life” of Company. This chapter includes a short presentation of the ISO 9001:2000 standard, which concerns quality problems encountered by each European Construction Company.

ISO 9001 is the Certificate of a Quality System which confirms that the Construction Company is in conformance with the standard ISO 9001 in the following scope of activities:

- general contracting home and abroad on the “turn-key” basis,
- development activity,
- design, execution of civil and assembly works,
- export and import of building materials,
- financial services for the customer,
- other services (depends on the scope of activity of a given company).

The appointed manager, called the Quality Management Proxy / Representative, is responsible in the name of the whole company for complying with the rules of ISO 9001. He is empowered to plan, prepare and implement the procedures and to control all departments of the Company on how ISO 9001 is used.

Quality Systems of a European construction company include:

- responsibility, duties and power division (fragmentation) between managers, taking into consideration their scope of work,
- written normalisation of all activities, which are important from the quality point of view,
- written confirmation of the execution of such activities (all notes and reports should be kept),
- permanent controlling of the chosen departments,
- proper training of the chosen management staff.

The most important procedures actually used in the European Construction Company concern:

- administration and management of construction projects,
- preparation of contract documentation with the Employer,

- management of technical documentation,
- control of purchases,
- subcontract's form,
- checking of goods delivered by other companies,
- supervision of subcontractors' services,
- quality control of own production,
- rejection of goods not fulfilling quality requirements,
- internal control of knowledge about ISO 9001 in the Company,
- marking of products,
- storage of construction materials,
- start of the site activities,
- time-schedule control during execution of contracts,
- transport and insurance of goods,
- training of the staff,
- services and maintenance of complete industrial plants during the guarantee period,
- the choice and evaluation of subcontractors.

CE Directives for ISO 9000 Series of Standards in a Construction Company

First of all, it should be mentioned, that during the last few years the European economic environment has changed. As international and domestic competition develops, it has become much stronger than it was some years ago. Many construction companies applied for ISO 9001:2000, and by getting it they have already improved their market position. It is now very hard to compete and to be accepted during qualification for the organisation that is not certified. Organisations that have already obtained the ISO Certificate prefer to deal with companies which also have such a certification. Customers also began to look for construction companies able to build according to the highest technical standards. Many large international tenders require applicants to present ISO Certification.

It is therefore easy to point out the benefits, which the ISO 9001:2000 Certificate has brought to construction companies which have received it. But on the other hand, there are also some problems:

- the very strict way of acting (based on ISO procedures) during preparation of commercial offers, negotiation of contracts and executing of construction works,
- the need for increasing personnel dealing with internal controls (audits) for complying with the ISO procedures,
- the obligatory controls from the domestic Centres for Testing and Certification (every 12 months), whether all the ISO requirements and procedures are known by the staff. In case of 3 discrepancies noted the ISO Certificate can be revoked.

Many international bodies have been either newly organised or expanded to cater for emerging quality issues. The emergence of ISO 9000 series of standards is one of the results of heightened awareness about quality and standardisation. ISO 9000 series of standards reflects the current global trend towards the ever-increasing stringent consumer expectations with respect to quality. Political and economic changes emerging around the world are affecting how products perform in a globally competitive market. Product quality will be a common basis for trade.

Also European business organisations, including construction companies, have to prepare for the following:

- transition of some countries from trade allies to trade competitors,
- reduction of production cycle time to keep up with the multilateral introduction of products around the world,
- increased efforts to cope with the reduction in the life span of products,
- increased responsiveness to the needs of an international work force,
- problems associated with overlapping cultural barriers,
- increased need for multinational communication and cooperation,
- need for multi-company and multi-product coordination,
- disappearance of trade boundaries.

Quality standards also provide a common basis for global commerce. Without standards it is impossible to achieve product compatibility, customer satisfaction, and production efficiency. Just as quality cannot be achieved overnight, compliance with standards cannot be accomplished instantaneously. The process must be developed and incorporated into regular operating procedures over a period of time. Standards define the critical elements that must be taken into consideration to produce a high-quality product. Each construction company must then develop the best strategy to address these elements.