What is a Quality Management System?

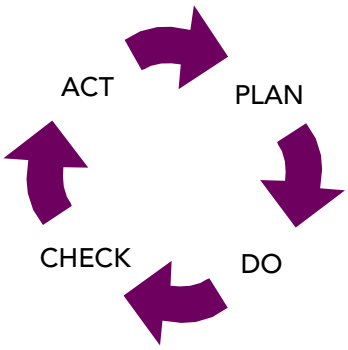
BY TODD ALWOOD, LEED AP

Once identified, the QMS has to be evaluated—and adhered to—for it to be effective.

THE CONCEPT OF A Quality Management System (QMS) is an integral aspect of the AISC Certification program, as it is for pretty much every quality program in every industry—but what does it actually consist of? A Google search turns up a range of definitions based on everything ranging from popular culture to expert, professional opinion. Consider these three examples:

- The American Society of Quality (www.asq.com), the world's leading membership organization devoted to quality, defines it as "a formalized system that documents the structure, responsibilities and procedures required to achieve effective quality management."
- www.businessdictionary.com defines a QMS as "Collective policies, plans, practices, and the supporting infrastructure by which an organization aims to reduce and eventually eliminate non-conformance to specifications, standards, and customer expectations in the most cost effective and efficient manner."
- According to Wikipedia (www.wikipedia.com), a QMS "can be expressed as the organizational structure, procedures, processes and resources needed to implement quality management."

Despite the diversity of sources, these definitions all focus on the same premise: that an organization has a comprehensive collection of processes and procedures in place to define a specific level of quality based on a specification or standard. The diagram below offers a representation of this method, and it is well known to the quality world.



Cycle of Quality for a simplified QMS

Unlike the chicken and the egg conundrum, a QMS does have a first step: Plan your system. Following that, you do the actual production, then check to see if what you're doing is meeting the requirements of your plan. Based on what you find, you act to redefine your plan. If non-conformances are discovered, you refine your processes and improve your overall product.

At AISC Certification, we define a QMS as a fabrication facility or erection company having the personnel, knowledge, organization, equipment, experience, capability, procedures, and management commitment to produce the required quality of work for a given certification category. To put it more simply, our program requires a participant to have a QMS system that is management driven, process based and customer focused.

Who has a QMS?

Everyone does. No one can survive without having some kind of process or system in place to ensure that the products they are producing are of a specific quality and meet a customer's requirements. Regardless of whether you are a fabricator, erector, general contractor, engineer, auto manufacturer, whole food producer, or airline, you have a QMS. It may have a different name and be promoted to your clients by different avenues, but everyone does have a QMS.

How do you check a QMS?

Even though everyone has a QMS, some are better (i.e., more effective) than others. What makes the difference? Aren't all of them created equal? Aren't all of them

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well-maintained and closely followed? Don't all companies understand their shortcomings and constantly engage in self-improvement?

As with any group, the answers are both *yes* and *no*. Some companies in the industry follow their QMSs as the gospel and never deviate; others use a QMS as a loose guide of what they should do if everything were equal. It is because of these executive discrepancies that the AISC Certification program was created. The program acts as a measure of quality and reinforces that a certified company is operating in line with its intentions, as expressed in its QMS.

The primary advantage of the AISC Certification program, compared to others, is that AISC acts as a shepherd with the construction industry to develop the necessary consensus standards and programs. These are written by committees composed of industry leaders (engineers, fabricators, DOTs, building code officials, owners, etc.) and submitted to the public for review and comment. The resulting additional comments are debated and often incorporated into those standards and programs, which are then adopted as the criteria against which a facility or firm is measured.

It is by meeting or exceeding the requirements within a given certification category's standard or program that the participating facility or company demonstrates its commitment to quality and its QMS. Below are the core values we identify during our documentation and on-site audits, and to which we require our certified facilities and firms to adhere.

The initial application submittal and documentation audit addresses the below items, which are required to be submitted and approved before an onsite audit will be scheduled:

- ➜ AISC Certification Application Form
- ➜ Job/Position Descriptions
- ➜ Welding Procedure Specifications and Welder Qualifications
- ➜ Quality Manual and Procedures
- ➜ Internal Audit
- ➜ Record of a Management Review Meeting

The onsite audit checks to make sure that a company's operations match its QMS in the following areas:

- ➜ Management Responsibility
- ➜ Contract and Specification Review
- ➜ Detailing
- ➜ Document and Data Control
- ➜ Control of Quality Records
- ➜ Purchasing
- ➜ Material Identification
- ➜ Process Control
- ➜ Inspection and Testing
- ➜ Calibration of Equipment
- ➜ Control of Non-Conformance
- ➜ Corrective Action
- ➜ Handling & Storage
- ➜ Training
- ➜ Internal Audit

The certification program looks at not only the operational aspects, such as the three "Cs" of process control—cutting, connecting, and coating—but also the entire QMS as it applies to meeting contract requirements. A company is required to have documented procedures for each of the elements listed above. It is important to note that when auditors visit a company's location, they interview the executive management as well as the individuals on the shop floor to verify that these requirements are being met.

This does not mean 100% inspection. Planning to take that approach is a common misconception of the true purpose of a QMS, because inspection only points out the error without the means to address the process that is causing an error. A QMS focuses on the specific process to make sure that it is defined and followed correctly. If an error or non-conformance does occur, steps are enacted to fix the problem at the root and to prevent its recurrence.

In conclusion, a QMS helps guide a company to define a specific level of quality, knowing that processes are in place and the customers are receiving what they require and expect. AISC Certification defines the quality criteria against which the specific company's QMS is measured and through auditing confirms the overall system is working correctly and meeting management intention. It's the combination of these two that results in a fabricator or erector becoming AISC certified, enabling the design community and the construction industry as a whole to readily distinguish them from their non-certified counterparts. MSC