# codes & standards

## What structural engineers need to know about the AISC Fabricator Certification Program…

*By Bobbi Marstellar, P.E.*

*While quality is always important, in construction it is sometimes a matter of life and death. In an ideal world, an owner's representative would inspect the shop of each fabricator bidding on a given project to ensure each one can do the work. However, in the real world, this would be time consuming, expensive and downright impractical. Because it's easier to build quality into a project and impossible to inspect for it after the fact, The American Institute of Steel Construction (AISC) offers its certification program for specialty steel contractors. Specifying AISC Certification, and resisting the pressures to waive it later, provides engineers with the confidence that the fabricators working on their designs are qualified, capable, and knowledgeable about current codes and specifications.*

AISC Certification is a rigorous examination that confirms that a structural steel fabricating facility has the personnel, organization, experience, procedures, knowledge, equipment and commitment to produce fabricated steel of the quality required for your project. The *Certification Standard for Steel Building Structures* covers the fabricator's entire system, from receipt of contract through final delivery. The fabrication facilities' quality management system, rather than the specific product, is certified based upon a third party audit conducted by people experienced in fabrication and extensively

> *"…certified based upon a third party audit…"*

trained as auditors to bring a hands-on approach to the certification procedure. Auditors review project requirements and project records; interview personnel from the shop to the president; and observe practices and equipment to confidently confirm that proper quality standards and procedures are in place.

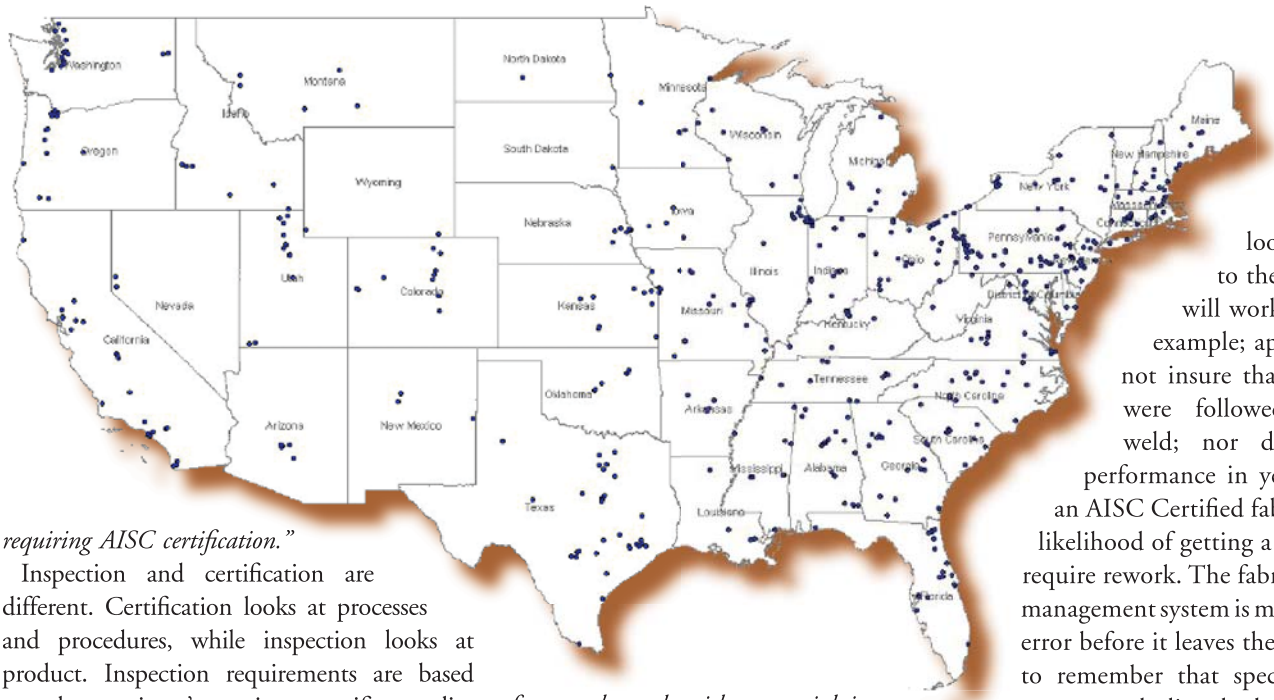
Comments from dozens of structural engineers leading significant steel projects support the value of certification. According to these engineers, by specifying an AISC Certified fabricator you get:

- A company that is so committed to quality they subject themselves to an (rigorous!) outside review.
- A company that has been reviewed by an independent evaluator who has been in literally hundreds of structural steel fabrication plants.
- A company that is familiar with quality systems and has dedicated the resources to provide quality work.
- An easy method of identifying companies that possess the knowledge and experience to build projects to current codes and specifications.
- A tool to help you qualify the fabricators working on your project.
- Peace of mind—you don't have to worry about what happens behind the scenes.
- A consistency across the nation in meeting quality requirements.
- A means to help clients keep costs down for fixes that should have been caught in the shop.
- The right to complain! AISC administers a complaint process that addresses any major concerns regarding an AISC Certified Fabricator that fails to comply with the AISC Certification criteria. The process is available to companies and individuals in the chain-of-command of a construction project for which an AISC Certified fabricator or erector has supplied materials or services.

Many companies do not achieve their certification in their first evaluation. Those that fail an audit are given the chance to address the audit findings, provide corrective actions, and ultimately be certified. The auditor must verify through hard evidence that the nonconformance has been corrected before certification is granted to the company.

Once a fabricator is AISC Certified, they maintain an ongoing relationship committed to quality and process improvement. A third-party auditor visits their shop each year before their certification can be renewed. And fabricators that have participated in the Certification Program for decades undergo the same scrutiny of the audit process as a new fabricator. Not surprisingly, a lot can change in a year—ranging from personnel changes to equipment purchases.

Oversight by the prime can only go so far. According to the *Building Standar*d, the Certified Fabricator is responsible for the quality of any subcontracted product. Section 10.2 of the Building Standard states: *"The structural steel fabricator selected as a subcontractor shall have the required level of AISC Certification on projects requiring AISC Certification. The Customer or Engineer of Record must approve (in writing) any subcontracted fabricator that is not an AISC Certified Fabricator on a project*




*requiring AISC certification."*

Inspection and certification are different. Certification looks at processes and procedures, while inspection looks at product. Inspection requirements are based on the engineer's project specific quality needs—maybe the geometry is unique or the connections are difficult to make. Some engineers specify both when working with a fabricator they haven't used previously, or when their project is particularly complex such as a high-rise or a stadium.

***"Some engineers specify both when working with a fabricator..."***

Carrie Warner, S.E., P.E. with Halvorson Kaye Structural Engineers in Chicago recently specified an AISC Certified fabricator as well as random testing and inspection both in the field and in the fabrication shop for a high-rise office building. Warner said, "The owner's testing agency appeared to be doing little to no inspection at the fabricator's shop. However, the fabricator's own internal quality control program and documentation from their AISC Certification alleviated a lot of our concerns in the end."

The special inspection requirements are outlined in IBC 2003 Section 1704. While special inspection is required per code, a steel inspector will likely not be required for most projects. Per 1704.2.1: *The special inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to approved construction documents and referenced standards.* Further, in Section 1704.2.2: *Special inspections required by this code are not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency.* AISC Certified fabricators meet this requirement. When in doubt be sure to check with the local building authority before the permitting process for the project begins.

ISO only covers management systems. The AISC Certification program specifically focuses on the structural steel industry and includes criteria such as adherence to AWS and RCSC specifications. AISC Certified fabricators must demonstrate capability and knowledge and proper use of equipment, which you would never see in an ISO audit. AISC's third party auditors are trained within the industry, so they can audit an industry specific quality management system, but they can also audit the fabricator with the owner and structural engineer's best interests in mind.

***"The special inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures..."***

Just as experienced builders measure twice and cut once, experienced engineers specify quality going into a project rather than inspecting for it afterwards. As stated previously, you can only build quality in, you can't inspect it in.

For example, some contractors will ask for a waiver with the rationale that they'll "just hire an inspector later for a couple of thousand dollars." But finding, and fixing, mistakes after they're made is expensive and time consuming. And just because it looks good when it gets to the site doesn't mean it will work. Welding is a good example; appearance alone does not insure that proper procedures were followed in making the weld; nor does it ensure the performance in years to come. Using an AISC Certified fabricator increases the likelihood of getting a product that doesn't require rework. The fabricator with a quality management system is more likely to catch the error before it leaves the shop. It's important to remember that special inspection costs are covered directly by the owner. Often the increased costs of using non-certified fabricators can sometimes be overlooked, resulting in bid comparisons that are not accurate.

***"...just because it looks good when it gets to the site doesn't mean it will work."***

Another common rationale for requesting a waiver is the mistaken belief that certified fabricators are more expensive. In reality, a good quality program will actually make a fabricator more efficient and can often result in more competitive bids. And while a lot of effort is required to measure up to the standards of the AISC Certification program, the actual fee for certification is typically only $5,000, which equates to less than half-a-percent of total sales for a mid-sized fabricator.

A third myth used to justify asking for a waiver is the claim that "there are no certified fabricators in the area." Today, most fabricators work in a multi-state region. So just because there are no certified fabricators in the same city as the project, there are usually plenty among the more than 600 AISC Certified fabricators who perform work in that city. Remember, AISC Certified fabricators are typically located proportionally to areas of population and construction activity. So while there is only one AISC Certified fabricator in South Dakota, there are over 25 in Eastern Pennsylvania.

Finally, contractors occasionally have a favored fabricator that happens not to be certified. And while there are some good

## The New Building Standard

After more than a quarter century of certifying steel fabricators, last year AISC revised and revamped its certification program. The new *Certification Standard for Steel Building Structures* provides fabricators and specifiers with a written description of the certified Quality Management System that AISC Certified Fabricators maintain.

Prior to issuing the new Building Standard, the program relied on a checklist system. While easy for auditors to use, the system did not adequately communicate to building owners and specifying engineers exactly what the program provided. The Building Standard is more descriptive than a checklist, and it is in a language more familiar to engineers. When an engineer specifies an AISC Certified Fabricator, it is clearer what they will receive and how it will contribute to the quality of their project.

The new Building Standard also reflects how the program has evolved beyond being simply a shop certification program. While many engineers believe that certification focuses on the fabrication processes occurring on the shop floor, in reality the program looks at the fabricators complete quality management system approach—a process that applies uniformly to all fabricators, regardless of size and complexity of product. In addition to examining fabrication processes, equal emphasis is now placed on all of the fabricator's business processes, including:

Management responsibility, Contract & Project Specification review & communication, Detailing, Document and Data Control, Purchasing, Material identification, Calibration of inspection, measuring & test equipment, Control of non-conformances, Corrective action, Handling, storing & delivery of product &materials, Control of quality records, Training, Internal audits,

In adition, the program now requires a written Quality Manual that meets the requirement of the Standard and includes all aspects of the fabricator's quality management system. In essence, a fabricator is required to "say what you do" and then assure that they "do what you say."

All Certified Building Fabricators will be certified to the new Standard by the end of 2005. During the transition period, engineers should continue to specify AISC Certification. A copy of the *Certification Standard for Steel Building Structures* can be downloaded for free from **www.aisc.org**.

fabricators who are not certified, it is very difficult for an individual engineer to assess and evaluate a specific specialty steel contractor. The AISC Certification program audits against real codes and contracts, and requires the fabricator to demonstrate that they can follow current code and contract requirements. AISC Certification ensures that even a good firm doing quality work for 60 years is up to date, a positive for both the fabricator and the customer.

## More about certification waivers

In late 2003, AISC instituted a program to educate contractors seeking to waive AISC Certification. If you are being pressured to waive the Certification requirement, you can contact AISC. We can provide you with the facts and support you need to support specifying AISC Certification. AISC doesn't lobby for any one fabricator; we simply support the need for the fabricator to be AISC Certified. We can help you find out how many AISC Certified fabricators can service you project's location. In addition, we will come to your area and educate anyone in the construction food chain regarding the AISC Certification program. Hearing it from AISC tends to be more credible than hearing it from the fabricator who is trying to get a million dollar contract!

Specifying an AISC Certified fabricator for your project signals to other companies your concerns for high quality on your projects. In construction time is of the essence… firms that have standardized processes are more likely to get it right the first time. ▪

**If you would like more information about the AISC Certification program, please send an e-mail to certinfo@aisc.org or call 312.670.7520.**

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