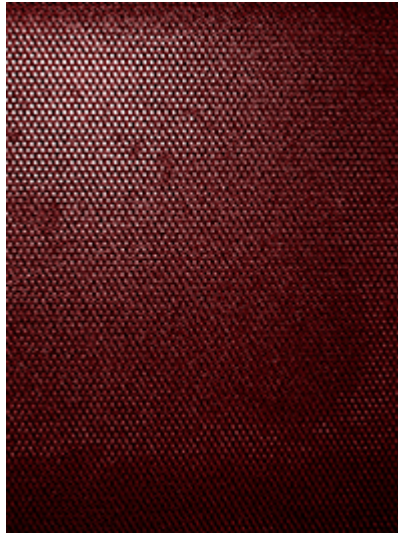


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By: Steven A. Etkin

In just the past five years, the steel stud industry has undergone a fundamental change. Where once the "generic" steel stud reigned as king, it is rapidly being dethroned by the expanding use of proprietary products with unique profiles, varying stud thicknesses and mechanical properties, and even with specialized coatings. Proprietary studs, also referred to as equivalent (EQ) studs, have certainly helped make steel framing more cost competitive with wood, although such a substantial change also creates new pressures on the supply chain.

Steel framing product manufacturers have the technical staff and information needed to track market trends and understand the myriad codes and standards that govern the steel framing industry. However, it is not likely or reasonable to expect contractors and suppliers to have the same detailed understanding. Adding to the contractor's difficulty in comparing products are the varying literature presentations, specifically regarding code compliance, physical properties and test data; information regarding limiting heights varies substantially from manufacturer to manufacturer. For the contractor, these variations make comparisons between products less than straightforward and compliance with codes and standards even more difficult. For the most part, suppliers and contractors rely on relationships, company reputation and product labeling when estimating, ordering, receiving and installing materials.



This lack of certainty is a cause for unease among contractors who are facing increasing scrutiny from building inspectors and for everybody else in an environment where product liability lawsuits, according to a study from RAND Corporation, have increased nearly eight-fold in the past decade. In fact, the legal risk from using the non-code compliant products can have a long life as the statute of limitations in most states allows lawsuits to be filed up to 10 to 15 years after the project is substantially complete.

Compliance Certification Works

With the volume of marketing and technical information pushed in the marketplace and the difficulty in figuring out the code compliance of products, the leadership of the Association of the Wall and Ceiling Industry saw the need for a system that gives suppliers and contractors assurances as to the quality and code compliance of the products they deliver and install. Product certification programs are common in the construction industry and in any other industry where a failure can have serious consequences, affecting the health and welfare of the buildings' occupants. AWCI, working with a broad coalition of its members, conceived an approach to give suppliers and contractors a seal of approval backed by a rigorous independent testing program.

In 2007, AWCI asked the Steel Stud Manufacturers Association leadership to create an independent program to certify code compliance of structural and nonstructural cold-formed steel studs. In 2009, the SSMA introduced a compliance program for structural products, followed by a nonstructural program that went into effect Jan. 1, 2012. In 2011, the Steel Framing Industry Association was formed and introduced a second code compliance program that includes structural and nonstructural products. Earlier this year, the three companies that make up the Certified Steel Stud Association introduced their own program for verifying code compliance.

While the proliferation of code compliance certification programs has created some confusion in the

marketplace, AWCi expects that the majority of its members will begin demonstrating a preference for products that are certified by an independent third party. Reduced risk of litigation is a clear incentive to make that choice, but another benefit is now becoming apparent: more compliant, higher quality products. One of the major steel stud certification program testing laboratories saw test sample failures fall from 134 to only 21 one year later. Subsequent audits have demonstrated further compliance. There is no doubt that code compliance certification programs are working!

Quality Assurance or Quality Control? Or both?

Product certifications can be divided into two kinds—Quality Assurance and Quality Control. To the uninitiated observer, there might not appear to be a big distinction. However, to those who take the time to understand, the differences are very significant. You know the old fable: Which animal makes more of a commitment to an egg-and-ham breakfast: pig or chicken? Well that touches on the differences between Quality Assurance and Quality Control.

A Quality Assurance certification program is process/document based and reviews plans for all relevant manufacturing processes, including training, sales, raw material ordering, fabrication, packaging, and generally every step that is necessary to ensure the customer gets what he's paying for.

A Quality Control certification program is Quality Assurance plus physical testing of the finished product.

Physical testing is the only valid certification process that actually evaluates if the product performs as advertised. In the steel stud industry, it would seem logical that a "prime steel" coil with a mill certificate would meet manufacturer and building code requirements for mechanical properties and coating, and not need to be tested. However, the common testing laboratory administrator for most of the steel stud certification programs reports that more than 50 percent of the samples that fail during an audit are sourced from a "prime steel" coil. This is why AWCi requires a program to include physical testing to receive their endorsement.

Be an Educated Contractor

The AWCi believes that the most reliable and thorough code compliance program requires the following physical tests:

Third-party audits. A viable compliance program must be managed by an independent ISO 17020 certified auditor and must include:

- Random unannounced visits of a minimum two times per year

- Destructive Physical Testing per ASTM A370 of Mechanical Properties for Yield, Tensile and Elongation
- Destructive Physical Testing per ASTM A90 or ASTM B117 of Coating Properties Performance to ensure compliance to ASTM C645, G40 minimum, or an equivalent corrosion resistance.

Nominal bending moment is a measurement of the member's inherent strength and a critical component to ensure life safety. EQ products must have a nominal bending moment equal to or greater than the similar traditional product.

Screw performance requirements provide the contractor assurance that the product will perform in the field when hanging board. EQ products must provide third-party verification that they pass the requirements of ASTM C645, which requires that the screw penetrate the board and steel in less than 2 seconds and cannot strip out.

Screw strength is another critical life-safety issue. Heavy equipment, such as medical devices, televisions, etc. in hospitals and other types of occupancy structures can pull away from the wall and cause injury if the architect has designed the connection based on a traditional product and the EQ does not have equivalent screw strength. For this reason, EQ products must provide tabulated data, calculated per the AISI S100 Specification, verifying that screw shear, pullout and pull over are equal to or greater than the similar traditional product.

Composite limiting heights are the values that contractors use every day to select the required member to build their walls. Composite Limiting Heights can be manipulated by altering construction details in the test program, resulting in greatly varying results. The test criteria developed by the SFIA and SSMA reflect actual installation practices, and it is essential that EQ products have published allowable composite heights that are developed according to this criteria. There is no requirement that the values in the tables for an EQ product to be identical to traditional studs, but the data are essential to giving a designer and contractor a true understanding of how the product will perform in the field.

CSSA, SFIA and SSMA Certification Programs

AWCi places a higher level of confidence in a certification when it is publicly available for review.

Programs that are not publicly available have to be considered questionable because their sponsors are

unwillingly to expose the documents to public scrutiny. The only certification program that is publicly available belongs to SFIA. Since the SFIA program is publicly available and is a Quality Control program with physical testing, it is eligible for endorsement by AWCI. Having met the physical testing criteria required by AWCI, the SFIA program is endorsed by AWCI.

Each code compliance program issues product labels for those products that have received independent certification. The appearance of these labels means the manufacturer has complied with the code certification program represented by the label.

The SFIA code compliance certification program labels are shown in the table on page 48. They are included because the program meets the endorsement standards of AWCI and the program is publicly disclosed.

While the bureaucracy of improving the quality of steel products has been a little messy, the good news is that contractors and suppliers now have the opportunity to choose steel studs that are independently tested by a third party and verified that they meet code requirements. Looking down the road, AWCI's leadership continues to believe that the industry is best served with one, and only one, steel stud association to unite the entire industry, to provide R&D funding for product improvements and advocacy, and to provide resources to market against the wood and masonry competition.

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