

A Framework For GROWTH

BY WILLIAM A. WOLFE

**More Than
Ever, Steel
Pipe and
Tube
Producers
Rely
on ASTM
Standards
As They
Look to
Grow
Worldwide**

For nearly 90 years, ASTM has provided a framework for the growth of the North American pipe and tube industry. Beginning with standard pipe in 1915, the great majority of the products produced by our industry have been to ASTM standards, benefiting tubular producers, customers and suppliers alike. And going back even further, to the early 1900s, our principal raw material—steel—conformed to a number of ASTM's initial standards.

STEEL TUBE INSTITUTE OF NORTH AMERICA

Before discussing our long and mutually beneficial relationship with ASTM, however, you may be interested in a few basics about the organization I'm privileged to head, the Steel Tube Institute of North America (STI).

The STI was founded in 1930, when electric welding was in its infancy as a production process for steel tubular products. Our goal was, and continues to be, to mount a cooperative effort that improves manufacturing techniques and informs customers, fabricators and others about the utility and versatility of our products.

At present, STI has more than 36 active members in three countries—companies that produce tube or pipe—and 25 associate members—companies that supply us with raw materials, equipment and other products. In addition, the STI has formed strategic alliances with a number of well known organizations including ACSA, AIA, AISC, ASCE, AISI, AWS, CISC-ICCA, SRI and SMA.

Our best estimate is that STI member companies account for roughly 90% of the North American production of steel tubular products.

Steel tubular products play a vital role in virtually every segment of North American industry. Let's look briefly at the range of applications in which they're used, according to the five basic product groupings of STI.



- *Mechanical Tubing*

Manufactured by three different methods, seamless, as-welded and drawn-over mandrel (DOM) tubing is used in a wide range of products touching almost every facet of our daily lives. These include autos and trucks, farm and construction equipment, air and hydraulic cylinders, steel furniture, bicycles, recreation equipment, boats, airplanes and many others.

- *Structural Tubing*

Also known as Hollow Structural Sections (HSS), this product is high-strength welded steel tubing used as structural elements in buildings, bridges, highway signage, transmission towers and a variety of manufactured products. It is produced in round, square and rectangular shapes and in a broad range of sizes by one of three welding processes.

- *Stainless Pipe and Tubing*

Stainless pipe and tubing is produced by one of several seamless and welding processes in sizes ranging from needles up to 96" OD pipe. Because of its inert properties and superior surface finish, it is used in processing food and pharmaceuticals, in applications requiring resistance to corrosive materials or atmospheres, in transporting and processing fluids and gases, and in architectural applications.

- *Standard Pipe*

This product is produced by one of several seamless or electric weld processes, typically in diameters up to 24 inches. It provides safe, reliable conveyance of various liquids and gases, is the major component of fire protection systems and is used in oil and gas drilling operations.

- *Steel Conduit*

Made by the ERW process, steel conduit provides physical and mechanical protection for the electrical distribution systems of industrial, commercial and retail buildings, as well as manufacturing, warehousing and institutional facilities. It also provides a grounding function for these electrical systems and shields sophisticated electronic equipment from electromagnetic interference caused by power



distribution systems that could otherwise disrupt the proper operation of the equipment.

A MATURE INDUSTRY, BUT NOT COMPLACENT

While our industry is, by anyone's standards, a mature business, we're proud of the fact that we continue to develop a number of improved products, production methods and product applications.

For example, some of our members produce structural and mechanical tubing that's cleaned and pre-primer coated, in line, offering customers significant time and cost savings in their manufacturing operations. And advanced metallurgical studies have led to the development of mechanical tubing that's particularly suited for hydraulic and other high load-bearing applications and has the ability to withstand severe stress or low temperatures. Hydroforming technology is being applied to the manufac-

ture of tubular assemblies for the auto industry, saving weight and reducing the number of components required to make a complete assembly.

Modern production methods are continuously improving standards of product quality and productivity while reducing cost. Examples include laser welding, quick-change-over systems, in-line cutting and bundling systems and in-line nondestructive testing methods to ensure product quality.

All pipe and tube applications require a specified degree of product quality. ASTM standards serve a vital function in that regard by allowing our customers to communicate their quality needs and our industry to have specific guidelines that enable us to meet customer expectations..

PARTNERSHIP WITH ASTM IS MUTUALLY BENEFICIAL

I noted earlier the fact that the pipe and tube industry and ASTM have been "partners" for many years now. And that partnership has been mutually beneficial.

Presently there are more than 500 ASTM standards dealing with steel products in 18 product groupings. Roughly 100 of these standards deal with tubular products, half covering products made with carbon steels and the other half alloy and stainless grades.

ASTM A-53, Standard Pipe, was published in 1915 and has been in continuous use ever since. Thanks to that standard, if a pipeline laid in the 1920s was to be expanded today, the pipe would be available in the same size, steel grade and other particulars as it was 80 years ago.

The 1930s and 40s were a busy period for our industry as the electric resistance welding method of manufacturing pipe and tubing was developed and became the principal production method. A corresponding rise was experienced in the development of ASTM standards dealing with welded pipe and tubular products.

Another defining moment in our industry's relationship with ASTM came in 1964, with the publication of Standards A-500, A-513 and A-519, which cover virtually all the nation's production of structural tubing, welded mechanical tubing and seamless mechanical tubing, respectively.

NEED FOR NEW AND UPDATED STANDARDS: CONSTANT

The beat goes on today. Most recent has been the development of standards for laser-welded products. And, of course, all of the existing standards for tubular products are continually updated to reflect advances in technology and equipment.

The member companies of STI are firm believers in the value of ASTM standards. Our benefit, I believe, is two-fold.

First, ASTM standards provide a basis for trade between buyers and sellers. They allow our customers to accurately specify what they want. And they allow us, as producers, to understand the work we're quoting on, and to quote intelligently. We don't have to sit down together with a clean sheet of paper and hope either party didn't forget anything important in reaching the contract.

Equally important is the fact that requirements are standardized. As producers, our member companies can establish the types of capabilities they need in their processes. They know what dimensional tolerances, strength levels and special requirements are needed. This information allows them to capitalize and build their business in a logical manner.

Certainly the majority of the products made by STI member companies conform to ASTM standards. A notable exception is steel conduit, which is manufactured to standards of insurer organizations and to the National Electrical Code®. Some other products will meet both an ASTM standard and supplemental requirements developed by a particular customer or industry.

QUALITY TESTING STANDARDS: AN IMPORTANT FUNCTION

Equally important to our member companies are the ASTM standards that have been established for testing the quality of steel tubular products. Nondestructive mechanical testing and hardness testing, for example, are done almost exclusively to ASTM standards. Other types of nondestructive testing must conform to particular customer testing requirements, but almost always will include the basic ASTM standard.

I've been talking about our organization's reliance on ASTM standards. The relationship is a two-way street, however, and there's no doubt that ASTM derives a major benefit from our member companies—the talents and experience of their people.

It's not something we keep records on, but I'd estimate that at any one time, more than ___ key employees of our members are serving on various ASTM committees. On some they represent their company as a producer of steel tubular products. On others, they represent it as a purchaser of steel, zinc, mill lubricants or other raw materials and services used in its business.

Their contributions are a vital part in reaching a consensus on standards and on keeping them continually updated.

GLOBAL RELIANCE ON ASTM STANDARDS A MAJOR BENEFIT

In concluding, I'd like to mention another benefit to STI members that's been increasingly evident as they build their businesses internationally. That is the universality of ASTM specifications.

Traditionally ASTM and the Canadian Standards Association (CSA) have cooperated in the area of standards. Often, if there is an ASTM standard in existence, the CSA will simply adopt it by reference. In other instances, though, it may add particular requirements. Our members on both sides of the border need to be able to produce to both sets of standards if they are to sell in both countries, but this has seldom been a major issue.

Our other NAFTA trading partner, Mexico, has its own steel standards, that are modeled after ASTM standards but not totally identical. We're hoping that the current talks between ASTM and CANACERO will lead to the extension of ASTM standards for steel and for steel tubular products to Mexico.

Likewise, STI member companies are encouraged by ASTM's success in



spreading its standards worldwide. This is reflected in the membership of the Steel Committee, which has active participants from 28 countries from Europe, the Middle East and Asia in addition to North America.

English poet John Donne once wrote that "No man is an island, entire of itself." That truism applies to nations and regions as well. More and more, North American businesses are finding their successes and failures are dependent upon their ability to exist in an international marketplace.

If our STI member companies are to succeed in the years ahead, we'll need all the support we can get from ASTM through the expansion of its standards worldwide.//



William A. Wolfe spent 30 years in the steel and tubular products industries before becoming Executive Director of the Steel Tube Institute of North America in September 2002. Most of his career was with Copperweld Corporation, where he rose to the position of Vice President of Materials and Services. He holds Bachelor's and Master's degrees from Youngstown State University.