

Miscellaneous Metals: The Devil is in the Details

BY TED HAZLEDINE

Miscellaneous steel is an intricate but necessary component of buildings—and requires intricate and necessary communication and documentation.

“ALL REQUIRED HANGARS, BRACING, SUPPORTS, and related metals, whether shown on drawings or not, shall be furnished by this contractor.”

This and similar specification language has actually appeared in contract documents. Couple this potentially disastrous requirement with the occasional stipulation that the “contractor’s bid shall conform to the prepared contract documents with no qualifications allowed” and you have a catastrophe-in-waiting. One attorney I’ve spoken with commented, “If you sign a contract with those terms and conditions, you don’t need a lawyer—you need a psychiatrist.”

Welcome to the everyday world of “Miscellaneous Metals.” During the development of the architecture and structural frame of a building, additional framing, embedded items, and other metal items are added to complete the details of the project. These include steel items such as stairs, handrails, curb angles, hangars, ladders, mansard frames, and supports for mechanical units.

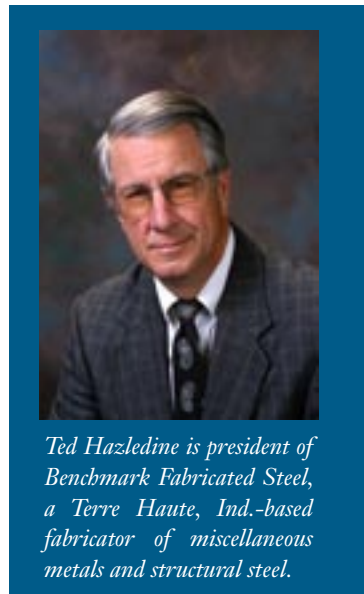
These items define the scope of work that will forever be known as miscellaneous steel or miscellaneous iron or miscellaneous metals. Regardless of the name, this scope of work includes the details sometimes identified and sometimes not, sometimes real and sometimes imagined, and can appear on any construction sheet of any document at any time throughout the project. Very often, the quoted scope is several pages long and usually includes the phrase “including and limited to.”

Miscellaneous History

The miscellaneous metals specialty has been in existence as long as construction in general but began in earnest with the development of cast iron at the beginning of the industrial revolution. Indeed, the first iron bridge built in the world, in 1779 in Coalbrookdale, England—which still exists today and is a national monument (now called Ironbridge)—is a large ornamental iron structural frame comprised of castings produced by the Darby Iron-



The word “miscellaneous” encompasses several types of steel, including shop-assembled stairs (left) and custom ladders (right).



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Photos by Ted Hazledine

works. These craftsmen, artisans known as blacksmiths, also developed their forgings into handrails, gates, ladders, stairways, structural columns, and related ornamental metals. This craft, while shrinking, is still in existence and produces magnificent structures and artistic creations very much in evidence in virtually every city in the world.

As technology improved from iron to steel, the craftsman was now able to provide a wider range of structural materials, and many of the ornamental iron shops developed into providers of miscellaneous metals. Architecturally exposed structural steel (AESS) is an extension of the ornamental concepts that are now being applied to large structural frames.

Miscellaneous steel fabricators can probably claim to have the most widely varied experience of any construction professional. They touch virtually every aspect of the construction project, from embedded items in footings and slabs, to supports for doors, frames, and countertops, to supporting members from the framing system for overhead doors and mechanical and electrical units—plus, roof opening frames and miscellaneous materials required for the roof and the myriad of structural and bracing members required for mansards and other architectural creations as well. The list is considerable.

Miscellaneous Challenges

Very often, poor construction documentation places a large burden on the miscellaneous fabricator. Construction details are often lacking and it is apparent, in coordinating the scope of work for the structural and miscellaneous packages, when the engineer and architect did not coordinate the details and intent. Often, architectural details show a structural member or bracing component with a reference to the structural drawings that does not appear on those drawings or is different from the architectural detail.

Specifications are often vague and redundant. Specific directions on finishing are usually generic in nature and sometimes have no relevancy to the project at hand. Also, the language of specification in miscellaneous steel often refers to the need to provide supports, holes, and accommodations for other construction specialties whether directly indicated or required, even if not shown on the draw-

ings. Clearly, this adds to the burden and risk of the miscellaneous fabricator. The quoted and defined scope of work and subsequent detailing can serve to identify where conflicts occur and the proposed solution.

Miscellaneous steel detailing can also be a challenge—as well as a huge expense, whether planned or unplanned. It is good construction practice to develop placing drawings (aka erection plans) showing the fabricator's understanding of intent, as well as solutions to conflicts for submittal and review by the designers. At the very least this generates discussion, which should lead to conclusions and decisions. Once approval of the placing documents is provided, piece detailing may commence. Sometimes, this is delayed by the need for field dimensions, which may be required to protect the fabricator as well as establish any conditions that were unknown.

An equal burden is placed on the erector of miscellaneous materials. Miscellaneous steel erection can be a risky and often complicated affair, and the erector must understand the intent and scope to accommodate the subsequent construction. The erector must be in the loop early in the project, including during shop drawing review. This advance knowledge will expedite erection and help avoid delays, inefficient use of site labor, and expensive multiple mobilizations.

Miscellaneous fabricators must understand and interface with virtually all of the contractors on the project if miscellaneous framing is required (a situation that can contribute to the depth of knowledge of miscellaneous fabricators). Like any other construction specialty, the level of expectation must be established between the miscellaneous fabricator and his or her customers—the architect, engineer, and owner—to avoid and hopefully eliminate misunderstanding and conflict.

Frankly and fortunately, the future is very bright for quality miscellaneous metal providers, as there will always be a need for the skill and knowledge required to provide this specialty. It is up to the industry to embrace the technology and innovations that have been developed—and those that will be implemented in the future—in order to compete in the market and provide the materials required.

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