THE COST DYNAMIC

Understanding the cost components for fabricated structural steel is the key to accommodating price changes in a global economy.

BY JOHN P. CROSS, P.E.

THERE CAN BE NO DOUBT that the most talked-about topic relating to structural steel over the past four years is cost. Even discussions regarding material availability pale in comparison to discussions about the price of structural steel. Interestingly, the focus changes depending on where the individual doing the talking is located along the structural steel supply chain. Owners and general contractors grumble about increases in the fabricated and erected cost of structural steel. Fabricators are concerned about what the price of the steel they ordered will be when it is actually shipped from the producer. And producing mills focus on increasing costs for scrap, electricity, and raw materials.

Global Change

The fact is that the economics of all construction materials, not just structural steel, changed in November of 2003. At that point the economic mechanism that determined the price for raw materials, producer products, and products installed at a job site for all construction materials, changed from being controlled by domestic supply and demand to being driven by the global market. This economic paradigm shift has significantly impacted the structural steel industry in several ways.

At the producer level, structural mills found themselves in competition with foreign buyers for scrap and raw materials. In November of 2003, the price of a ton of shredded automobile scrap was $162, and the typical cost of a wide-flange beam was $380 per ton. By April of 2008, the cost of that same ton of scrap had climbed 243% to $555 per ton. A ton of scrap today costs more than rolled wide-flange section just four years earlier! It must be noted that this phenomena is not just a product of China entering the world market; the largest net importer of ferrous scrap in 2006 was Turkey! Paralleling the increase in scrap costs have been similar increases in energy and other materials used in the production process.

At the same time, the global demand for structural steel has increased rapidly, outstripping increases in global production. The result is that the average global cost of structural steel has also increased dramatically. The global long products price index has moved from 114 at the end of 2003 to a current value of 251. While this index includes rebar and wire rod as well as structural products, it documents a 120% increase in the global price of structural products. Domestic mills compete in a global market from both the perspective of competition with imports entering the U.S. and a growing amount of exports leaving the U.S. In fact, U.S. exports of structural steel grew by 23% in 2007 over 2006 and account for 9% of domestic production.

Also impacting the global cost equation is the loss of value in the U.S. dollar compared to other currencies, particularly the Euro. In July of 2001, $0.84 would buy €1.00; in mid-2003, it reached parity with the U.S. dollar; and today it takes $1.50 to purchase €1.00. It is difficult to quantify specific cost increases because of timing differences between different trends. However, if the selling price of structural steel in 2003 is factored by the loss of value of the dollar over that same period, and then the increase in scrap price is added to the adjusted value, the result projects a typical mill price of $963 per ton. This is remarkably close to the current typical domestic price of $1,007 per ton.

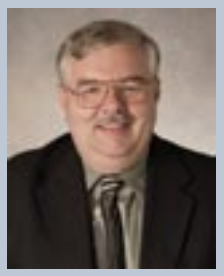
Shifting Risks

While the entire project team has been impacted by both the magnitude and lack of predictability in the price of mill material, it's the fabricator that has become the default holder of the risk. Initially, many fabricators responded by asking their clients for adjustments to fixed-price contracts—and in most cases this relief was denied. As time went on, some fabricators sought to include escalation clauses in new contracts (which would allow for increases or decreases in material cost to be passed on to the project owner). And while many owners were open to discussing escalation clauses, few financial institutions were willing to proceed with what were perceived to be open-ended contracts.

As fabricators assumed this greater risk, they needed to adjust their pricing to accommodate volatility in the market (both the possibility of rising or falling prices). They needed to factor in the possible changes in material costs by providing a contingency against price increases and using declining prices as a buffer to carry them through unexpected price increases.

Unfortunately, in mid-2005 when material prices temporarily fell, some owners, developers, and general contractors did not realize that fabricators had built the potential for both material increases and decreases into their bid. So the same owners, developers, and general contractors who denied relief to steel fabricators when prices escalated were now asking for price cuts when material prices temporarily declined.

However, it's important to remember that the fabricator was still being asked to assume the cost risk of upwardly volatile prices, so it was only right that they would accrue the potential reward from a price reduction; alternatively, owners can offer escalation clauses (again, which allow for increases or decreases in material prices). In other words, if the steel fabricator assumes the risk, then compensa-



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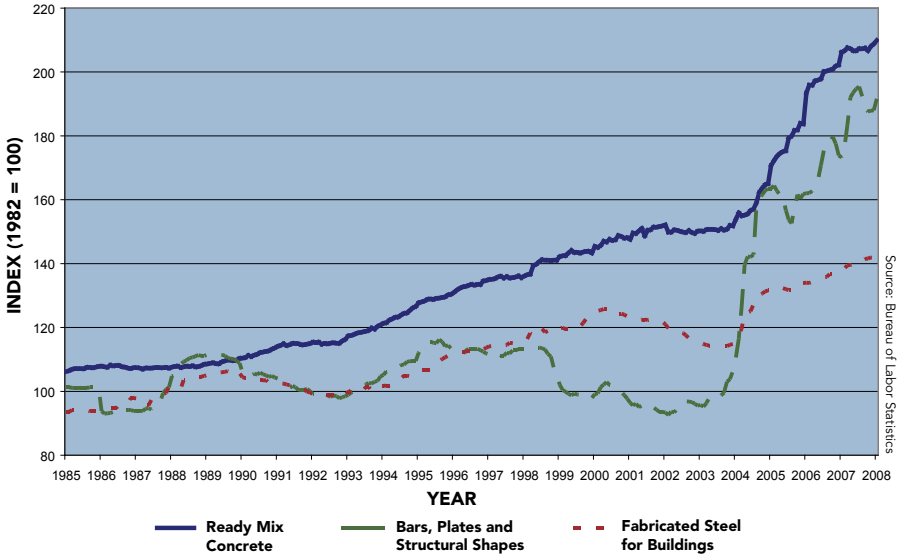
COMPARATIVE PRICE INDEXES



tion for that risk must be factored into the price for the fabricated material.

Big Picture

So what does this all mean on a relative scale? The U.S. Department of Commerce, through the Bureau of Labor Statistics (BLS), tracks the cost of materials used in the construction process. Using an index system where the cost in 1982 is defined as 100, a monthly index for the relative cost of the material is developed. In January of 2008, the index for structural mill products stood at 191.6 and the index for fabricated structural steel was 141.9.

Interestingly, the index for ready-mix concrete was 209.9! The concrete industry has a habit of adjusting the starting point of this study to lower their number below that of steel, but the actual BLS data consistently shows ready-mix concrete above structural steel.

In November of 2003, the BLS index for structural mill products was 103.8 and was 114.6 for fabricated material. What this indicates is that while mill products increased by 88%, the increase for fabricated material was only in the range of 27%. This is consistent with the percentage mill material represents of the fabricated cost of structural steel, increases in fabrication and transportation costs, and the cost for the fabricator assuming the risk of price volatility.

The cost dynamic of structural steel or any construction material will never return to the steady predictability of the past. Even as mills and fabricators continue to make every effort to gain a level of stability in their pricing practices, there will continue to be periods of price increases and decreases. The key question is: how should the construction market manage this new global scenario? AISC's message over the past four years has centered on five major points:

1. There must be a clear understanding of the supply chain and pricing dynamic for structural steel.
2. Structural steel fabricators that deal with the materials on a daily basis must be engaged early in the design process.
3. The process of material acquisition must be defined early in project's life cycle and should emphasize the early reservation or purchase of the construction materials and the compensation of the fabricator for the purchase and storage of the material.
4. Risks related to material acquisition should be defined, assigned, and accepted by the appropriate party, with appropriate compensation for the assumed risk.
5. As market conditions change during the life of the project, the project team must be willing to make appropriate adjustments in the design of the project to ensure an adequate flow of material. MSC

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