

## Each month MSC's product section features items from all areas of the steel construction industry.

In general, these products have been introduced within the past six months. If you're looking for a specific product, visit MSC's online product directory at [www.modernsteel.com/products](http://www.modernsteel.com/products). You can browse by product category or search on any term to help find the products you need, fast.

### Making a Mark

SKM Industries introduces the Metal-Pro Galvanized Steel Marker. This new and unique formula was developed specifically for galvanized steel, with the help of some of the largest galvanizers in the industry. Marks made by this new marker stay on during fabrication, withstand weather exposure, come off completely in the galvanizing tank, do not leave shadows or bleed through, and are available in several colors

**For more information, visit [www.skmproducts.com](http://www.skmproducts.com) or call 800.851.8464.**



### Wires, Re-Wired!

ESAB Welding and Cutting Products has released a new multipurpose welder, the MultiMaster 300X, a ready-to-weld package that offers superior welding performance for Mig, DC Tig, and stick electrode welding. Optimized for use with ESAB's Dual Shield X series of flux cored wire, this machine is ideal for welders currently using stick welding who would like to use flux cored wire. Dual Shield X, ESAB's newest family of flux-cored wires, offers advancements that make this new series much more forgiving than traditional flux cored wires, especially for less experienced welders, and give the welder a wider range of operating parameters, high deposition rates, fast travel speeds, flat bead profile, limited spatter, and extremely easy slag removal. The package includes power source, built-in four-roll wire feeder, factory-installed undercarriage and cylinder rack, torch, contact tips, regulator/flowmeter, electrode holder and plug, and all necessary hoses and cables to make the machine ready to use right out of the box.

**For more information, visit [www.esabx.com](http://www.esabx.com) or call 800.ESAB-123.**



All products submitted are considered for publication, and we encourage submittals related to all segments of the steel industry: engineering, detailing, fabrication, and erection. Submit product information via e-mail to Geoff Weisenberger ([weisenberger@modernsteel.com](mailto:weisenberger@modernsteel.com)). To be included in MSC's online products directory, contact Louis Gurthet ([gurthet@modernsteel.com](mailto:gurthet@modernsteel.com)).

## Stacker Crane

The new rail-guided stacker crane system from Diamond Phoenix is a high-speed storage/retrieval unit that moves items swiftly and accurately to support high-volume picking operations. The system is designed to help companies reduce overhead costs while improving productivity, inventory control, worker fatigue, and floor space usage. Effective in forward-pick operations, the rail-guided stacker crane is well suited for applications that include the buffering and storage of raw materials, work-in-process, and/or finished goods. The fast, high-density system can replace conventional static rack or carousels to maximize vertical storage space within a minimal footprint.

For more information, visit: [www.diamondphoenix.com](http://www.diamondphoenix.com)



continued from page 74

**IT IS EASY TO RECOGNIZE** that the world of codes and analysis is getting more complex. New codes, with increasingly intricate provisions, often require more and more computer analysis. It is perhaps ironic that the computer has served a pivotal role in making this possible; without computing power, the simple rules of yesterday would still be required. While a computer also can be used to simplify analysis, most “old-time” engineers can create an appropriate scheme “on the back of a napkin,” as they say; the rest is detail.

While no modern engineer really wants to go back to the “good old days” before computers, it seems increasingly difficult to teach engineering interns that “statics” still live somewhere in that big pile of computer output. My engineering professors at the University of Illinois wouldn’t grade a problem if it didn’t have an accompanying sketch, and usually expected a

$N$ # of bolts	$\gamma N$	$Z$	$\delta Z$	$h$ inches
2	1.96	3.00	3.00	3.0
3	2.89	6.00	6.00	6.0
4	3.77	12.00	11.94	9.0
Etc.				

second sketch summarizing the results. Sketching reveals a thought process and frames a problem graphically.

Change is not just happening in engineering either. As a dad, my daughter and I are challenged by “new math.” New math is “old math” in a new wrapper of more conceptual thinking. My daughter, Kelsey, and I can sketch out our new math of how many cow feet and how many chicken feet there are in her barnyard problem from math class, and we sometimes solve the problem just in our discussion of the picture.

So it still remains that structural engineering relies on a combination of test results, design rules, experience, intuition, and common sense to foster the creation of simple solutions from complex problems. The practice of engineering is a combination of both “art” and science; experienced engineers know solutions “by feel.” Calculations and analysis often prove that intuitive feeling is correct.

A while ago, when working on a master’s degree at Colorado State University, I used my thesis research to develop a simple formula that can be used to efficiently determine the coefficients  $C$  for