



SMARTBEAM®

"We saved over \$300,000 and considerably lowered our lifecycle cost by choosing SMARTBEAM® over concrete in our corporate parking facility."

—Nathan Laws, Facilities Manager, Lowe's Companies, Inc.



Ideal for parking structures, the SMARTBEAM® from CMC Steel Products is an innovative alternative to concrete. SMARTBEAM's® architecturally flexible design provides excellent light transmission qualities where safety and visibility are critical. Choose from a sophisticated paint system or galvanized coating for low lifecycle cost. The SMARTBEAM® is the right choice for parking garage structures—don't take our word for it...

Take it from the people who count—the professionals using it.



Presenting projects by Tekla customers worldwide:

Structures that Stand Out

- 1: Swan Bell Tower, Australia
- 2: Torre Agbar, Spain
 3: Hotel Hilton, Finland
- 4. II. T. LICA
- 4: Hearst Tower, USA
- 5: "The Tower", United Arab Emirates
- 6: Panorama Tower, Finland

- 7: Financial Center, China
- 8: Khalifa Sports City Tower, Qatar
- 9: Burj Dubai, United Arab Emirates
- 10: 30 St Mary Axe, United Kingdom
- 11: Menara Telekom, Malaysia
- 12: Rose Rotana Suites, United Arab Emirates
- 13: Willis Building, United Kingdom
- 14: Finnforest HQ, Finland
- 15: China Central Television Building, China
- 16: Padua NET Center building, Italy
- 17: Denver Art Museum, USA

Tekla Structures is Building Information Modeling (BIM) software that streamlines the delivery process of design, detailing, fabrication, and construction organizations. The software easily integrates with other systems such as architectural, MEP process layouts as well as analysis and design solutions. Use the same model to save time and ensure quality projects. Thousands of Tekla Structures Users have successfully delivered BIM-based projects in more than 80 countries around the world. For more information call 1.877.TEKLA.OK



www.tekla.com

MODERN STEEL CONSTRUCTION

April 2009







project features

24 Physically Fit

BY MARK TAMARO, P.E., MATTHEW HORNE, P.E., AND CALVIN AUSTIN A new home for Navy athletics.

30 Drop it in the Slot

BY MICHAEL A. MOORE
Perfect placement of a 100-ton truss tops
off a new arts and athletics facility.

36 Shopping Around

BY STEPHEN V. DESIMONE, P.E., LEED AP, JAMES BONANNO, P.E., AND KAREN WU Full-story transfer trusses separate retail from residential in an outer-borough highrise.

40 Focal Point

BY LAWRENCE D. MCDOWELL, P.E. A movie theater is the headliner at a new Florida retail complex.

44 Chrome and Steel

BY DALE WILLIAMS

The two metals are on full display at the Harley-Davidson Museum.

columns

steelwise

49 The Sounds of Silence

BY ROB KINCHLER, P.E.
Dispelling the myths about steel and sound transmission.

business

55 Grow Your Career—Right Now

BY ANNE SCARLETT
The down economy is the perfect
time to give your career a stimulus
package.

quality corner

57 A Better Tomorrow

BY DENNIS ARTER Quality auditors don't just assess organizations; they also help them plan for a more prosperous future.

regional connections

60 Notes from the West

BY NINA KRISTEVA, P.E., LEED AP Now is the time to tap into the available resources to make informed—and creative—material decisions on your next project.

topping out

66 Greenwashing the Construction Industry

BY GRAEME SHARPE, P.E., LEED AP Talking the green talk without walking the green walk misses the whole (green) point.



departments

- 6 EDITOR'S NOTE
- 9 STEEL INTERCHANGE
- 12 STEEL QUIZ
- 16 NEWS & EVENTS

resources

- 62 NEW PRODUCTS
- 64 MARKETPLACE
- 65 EMPLOYMENT

ON THE COVER: Wesley A. Brown Field House, U.S. Naval Academy, Annapolis, Md. (Photo: Blake Marvin Photography, HKS, Inc.)

MODERN STEEL CONSTRUCTION (Volume 49, Number 4). ISSN (print) 0026-8445: ISSN (online) 1945-0737. Published monthly by the American Institute of Steel Construction (AISC), One E. Wacker Dr., Suite 700, Chicago, IL 60601. Subscriptions: Within the U.S.—single issues \$6.00; 1 year, \$44; 3 years \$120. Outside the U.S.—single issues \$9.00; 1 year \$88; 3 years \$216. Periodicals postage paid at Chicago, IL and at additional mailing offices. Postmaster: Please send address changes to MODERN STEEL CONSTRUCTION, One East Wacker Dr., Suite 700, Chicago, IL 60601.

AISC does not approve, disapprove, or guarantee the validity or accuracy of any data, claim, or opinion appearing under a byline or obtained or quoted from an acknowledged source. Opinions are those of the writers and AISC is not responsible for any statement made or opinions expressed in MODERN STEEL CONSTRUCTION. All rights reserved. Materials may not be reproduced without written permission, except for noncommercial educational purposes where fewer than 25 photocopies are being reproduced. The AISC and MSC logos are registered trademarks of AISC.







...To Quality, Strength, Reliability.



HSFDB-2500

- High Speed Drilling, Tapping, Part Marking, Countersinking, and Thermal Cutting
- 8 tool changer travels with spindle
- Drills 2250 RPM
- Automated Material Dimensioning
- 48 HP / 36 kW Spindle Motor



BDL-1250/9D

- High Speed Carbide
 Drill Line
- Patent Pending Smart Spindle II Technology
- Drills 1800 RPM with Siemens spindle specific motor
- New and Improved Roller Measurement
- Peddi-Cool Eco Friendly
 Tool Lube



• A true "All in One" machine

- Utilizes plasma cutting in a 400° motion
- Cuts, bevels, splits, and creates AISC approved bolt holes with ease
- Go from fabricating columns to detail parts -

ON ONE MACHINE IN A SINGLE PASS

Thank You for visiting Peddinghaus at the NASCC in Phoenia!

Say Yes to Peddinghaus.

Peddinghaus

WWW.PEDDINGHAUS.COM

editor's note



ONE OF THE AXIOMS OF JOURNALISM IS: "IF YOUR MOTHER SAYS SHE LOVES YOU, CHECK IT OUT." So when I recently heard an account of someone mentioning Comcast on a tweet and getting an immediate response from the company, I knew I had to check it out for myself.

But before I get into the details of my test, I guess a little explanation is in order. An increasing amount of communication and social interaction is occurring online. And while probably every reader has sent an email, fewer have sent a text message, joined Facebook or Linkedin, or sent a tweet through Twitter. And if you're saying "Huh?" right about now, you're not alone; here are some definitions for you.

According to Wikipedia (an online encyclopedia created by its own users), "Text messaging or texting is the common term for the sending of 'short' (160 characters or fewer, including spaces) text messages from mobile phones using the Short Message Service (SMS)." If your cell plan doesn't include unlimited texting, you'll probably be charged something like \$0.20 for each incoming or outgoing text. If you're like my niece Beth Ann, you might send 4,000 texts a month (including texting her boyfriend when he's sitting right next to her!). And if you're under 30, this is pretty common.

Facebook is a social networking site that used to be open only to students but has since expanded to just about everyone (since joining the free service, I've reconnected with many old high school friends – nothing monumental, but kind of fun). You post a profile on the site and can be found by "friends." Fortunately, you get to accept, reject, or ignore those who want to be your friend. (Feel free to search for me on Facebook!)

Linkedin is a business-oriented social networking site mainly used for professional networking. Again, you post a profile and as others link to your profile, you can expand your professional network by seeing who they link to. Kind of like playing Kevin Bacon and six degrees of separation. (Yes, I'm on Linkedin too.)

Twitter is the strangest of them all. It's a social networking and micro-blogging service. Essentially, people write 140 character tweets that can be viewed by anyone (though some people actively follow the messages written by certain people). Lately, some people have been using Twitter for business purposes, which is the whole point of this story.

So as part of my test, I tweeted "Why can't Comcast get it right? They offered me digital, I accept, and they say they've twice sent me a digital box, but..." Within three minutes (three minutes!) I had a reply from Comcast (remember, I didn't send a message to Comcast; I simply mentioned Comcast in a message sent to no one in particular). When I then emailed them my contact info, they called me within a day and actually resolved the issue with an even better result than I asked for. And apparently Comcast isn't alone in monitoring Twitter messages; rumor is that GE and several other big corporations do it too (you'll have to run your own test).

Another use for Twitter is at conferences. I've been to a couple now where there was both an official Twitter stream (we'll have one at NASCC: The Steel Conference) to give announcements about room changes, when lunch is being served, etc., to attendees as well as where attendees will be tweeting about the conference (we're asking people who write about the conference to reference #nascc to make it easier for people to find their messages). You can receive tweets on your laptop, as text messages, or, if you have a Blackberry, through the free Twitterberry service.

Does any of this have a professional application? Who knows. But now might be the time to expand your professional network so when the economy begins to recover, you'll be better positioned. Facebook, Linkedin, Twitter. They're all free. And if nothing else, familiarity with them will better help you understand the people you'll soon be hiring.

SCOTT MELNICK
EDITOR

Scott Met



Editorial Offices

1 E. Wacker Dr., Suite 700 Chicago, IL 60601 312.670.2400 tel 312.896.9022 fax

Editorial Contacts

EDITOR & PUBLISHER Scott L. Melnick 312.670.8314 melnick@modernsteel.com

SENIOR EDITOR
Geoff Weisenberger
312.670.8316
weisenberger@modernsteel.com
DIRECTOR OF PUBLICATIONS
Areti Carter
312.670.5427
areti@modernsteel.com
GRAPHIC DESIGNER
Kristin Egan

AISC Officers

egan@modernsteel.com

312.670.8313

CHAIRMAN Rex I. Lewis

VICE CHAIRMAN David Harwell

TREASURER Stephen E. Porter

SECRETARY & GENERAL COUNSEL

David B. Ratterman PRESIDENT

Roger E. Ferch, P.E. VICE PRESIDENT AND CHIEF STRUCTURAL ENGINEER Charles J. Carter, P.E., S.E.

VICE PRESIDENT John P. Cross, P.E.

VICE PRESIDENT Louis F. Geschwindner, Ph.D., P.E.

VICE PRESIDENT Scott L. Melnick

Advertising Contact

Account Manager Louis Gurthet 231.228.2274 tel 231.228.7759 fax gurthet@modernsteel.com

For advertising information, contact Louis Gurthet or visit **www.modernsteel.com**

Address Changes and Subscription Concerns

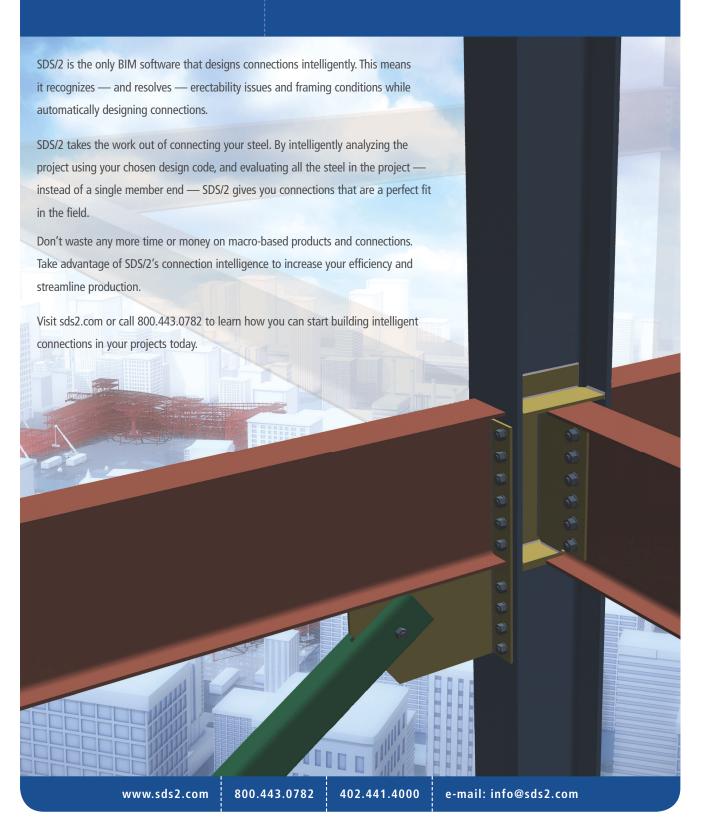
312.670.5444 tel 312.893.2253 fax admin@modernsteel.com

Reprints

Betsy White The Reprint Outsource, Inc. 717.394.7350 bwhite@reprintoutsource.com



BUILDING INTELLIGENT CONNECTIONS.



Stimulate Your Infrastructure

With Steel Curved by Chicago Metal Rolled Products



Highland Bridge Denver. CO

This award-winning bridge is both dramatic and economical. Chicago Metal Rolled Products' Kansas City facility was able to curve 153 tons of 18" outside diameter tubing up to 100' long, which reduced splicing costs.

Nichols Bridgeway, Millennium Park Chicago, IL

Designed by starchitect Renzo Piano, this bridge required high-quality, precise fabrication. Chicago Metal Rolled Products economically curved 212 tons of plate to a 10' radius for the bottom sections of the 620' long bridge.



17-92 Pedestrian Bridge Longwood, FL

It doesn't matter how complex the curve is. For this project Chicago Metal Rolled Products curved 66 tons of 14" square tubing up to 70' long with both sweep and camber.

Our nation needs infrastructure improvements. Let Chicago Metal Rolled Products help you build bridges, tanks, tunnel supports, cofferdams, culverts, man ways, guard rails, viaducts, reinforcing columns and other structures.

Contact us when you need high-quality, high-value curving of steel.



steel interchange

IF YOU'VE EVER ASKED YOURSELF "WHY?" about something related to structural steel design or construction, *Modern Steel Construction's* monthly Steel Interchange column is for you! Send your questions or comments to solutions@aisc.org.

C, for HSS Beams?

Are C_b values permitted in the design of HSS beams? Are C_b values greater than 2.3 permitted, in any case, in ASD? Is there an instance where C_b = 4.7 for an unbraced square HSS cantilever with a concentrated load at the end is justifiable?

The amplification of beam strength by C_b cannot result in a value that is larger than the full yield strength of the member (F_yZ) – that is, C_b can only be applied to the lateral-torsional buckling portions of the beam curve up to the value of full yield of the section. This is demonstrated graphically on page 3-4 of the 13th edition AISC *Manual*. Since HSS beams are not subjected to lateral-torsional bucking and are always controlled by the yield or local buckling strength of the member, C_b does not apply.

Speaking more generally, the upper limit on C_b is 3.0, as given by formula F1-1 of the 2005 *Specification*. So yes, a value greater than 2.3 is permitted. However, there is no case where C_b = 4.7 can be used.

Chris Hewitt, S.E.

ASTM F1554 vs. ASTM A449 Anchor Rods

I am trying to better understand when to specify F1554 vs. A449 for anchor rods. Table 2-5 in the *Manual* does not indicate a preferred material specification for high-strength anchor rod. Is there a reason for this? Is there a preferred material for anchor rods?

ASTM F1554 and ASTM A449 refer to specific material types that meet specific ASTM Standards. Both of these material types are permitted for use as anchor rods under the auspices of the AISC *Specification*. Table 2-5 in the 13th edition *Manual* shows ASTM F1554 grade 36 as the usual grade for the general case. If you are specifically going to use a high-strength anchor rod, ASTM F1554 is the preferred type, since this is a standard specifically developed for anchor rods.

The ASTM F1554 anchor rods are available in three grades of 36, 55, and 105 ksi minimum yield stress material, and are available in specified lengths, with threading lengths as specified. ASTM A449 is a general material standard that is applicable to other applications of bolts, screws, and studs as well as for anchor rods. ASTM A449 does not have stipulated minimum yield strength; however, the material exhibits tensile strengths similar to some of the ASTM F1554 grades. Since the nominal tensile stress listed in Table J3.2 is determined based on the F_u of the material, the EOR is able to assess the tensile capacity of the ASTM A449 rods.

Kurt Gustafson, S.E., P.E.

Reuse of ASTM A325 Bolts

ASTM A325 bolts have been specified to connect lifting lugs to column cap plates. After the columns are loaded onto trucks, the lifting lugs need to be removed due to shipping height restrictions. Can these bolts be reused at the job site to lift the columns again, if the bolts are just snug-tight previously?

Bolts can be reused if they have not been pretensioned. ASTM A325 bolts that are not galvanized can be reused even if they have been pretensioned. ASTM A490 bolts and galvanized A325 bolts cannot be reused once they have been pretensioned.

The Commentary to Section 2.3.3 of the RCSC *Bolt Specification*, which can be downloaded for free from **www.boltcouncil.org**, states:

Pretensioned installation involves the inelastic elongation of the portion of the threaded length between the nut and the thread run-out. ASTM A490 bolts and galvanized ASTM A325 bolts possess sufficient ductility to undergo one pretensioned installation, but are not consistently ductile enough to undergo a second pretensioned installation. Black ASTM A325 bolts, however, possess sufficient ductility to undergo more than one pretensioned installation as suggested in the Guide, which can also be downloaded from www.boltcouncil.org (Kulak et al., 1987). As a simple rule of thumb, a black ASTM A325 bolt is suitable for reuse if the nut can be run up the threads by hand.

Larry S. Muir, P.E

Brace Stiffness

I have been questioned about calculations for a stability bracing member per AISC 360-05 Appendix 6, Equations A-6-7 and A-6-8. I can calculate the required brace stiffness, but how do I calculate the actual brace stiffness provided?

The required brace stiffness from Equation A-6-8 in the AISC *Specification* represents the required axial stiffness of the brace. The actual brace stiffness provided can be calculated using the relationship $\Delta = PL/AE$.

Kurt Gustafson, S.E., P.E.

Fire Rating of Concrete-Filled HSS

Where can I locate fire rating information for concretefilled HSS?

There is a method of determining the fire rating of concrete-filled HSS columns shown on page 28 of AISC *Design Guide 19*, which is available for free download by AISC members at **www.aisc. org/epubs**. This discussion is based on research conducted at the National Research Council of Canada and presented in ASCE/SFPE 29-99.

Amanuel Gebremeskel, P.E.

Welding or Bolting?

Does welding steel decrease the strength as opposed to bolting? What are the benefits/pros to bolting versus welding?

Welding does not reduce the strength of steel.

The choice between welding and bolting is often driven by economics and shop and field preferences. It is common to try to limit welding to the shop and provide bolted connections in the field. However, even these preferences can vary by application, contractor preferences, and regional conditions. Ask the fabricator on your project what details will be best for the project. They will probably be more than happy to help.

Larry S. Muir, P.E.

steel interchange

Design Guide 11—Walking Speeds

I could not find information in AISC Design Guide 11 whether to assume "fast," "moderate," or "slow" walking speed criterion when designing for sensitive equipment. The remainder of the criteria for sensitive equipment vibration calculations seems rather straightforward. My problem is that I can easily achieve good results for walking speeds of 75 steps per minute (moderate) or less, but it's nearly impossible to achieve this for fast walking speeds of 100 steps per minute. The examples indicate that fast walking speeds are generally conservative, but I could use additional direction. The moderate criterion for 75 steps per minute seems reasonable to me, but I have no reference. Do you know of any additional sources of information that provide guidance as to where fast, moderate, and slow walking speeds should be used?

The following response was offered by Dr. Thomas Murray, lead author of AISC *Design Guide 11*:

To my knowledge there is no hard-and-fast guidance for when the various walking speeds are to be used. I recommend the following:

- For laboratories with one or two technicians, use slow walking.
- For laboratories with three and more technicians, use moderate walking.
- For laboratories adjacent to corridors using the same framing, and with high traffic, use fast walking.

Design Guide 11 recommends 100 steps per minute for fast walking, and as you said, that results in very stiff floor requirements. Many designers use 85 steps per minute for fast walking situations, which results in more reasonable requirements.

Thomas M. Murray, Ph.D., P.E.
Emeritus Professor of Structural Steel Design
Department of Civil Engineering
Virginia Tech

Column Leveling Plate

For column bases, what is the relationship between the base plate size and leveling plate size?

Use of leveling/setting plates is one method of column erection that can be selected at the option of the erector. There are no specific requirements listed in the AISC *Specification* as to when this method (or another) is to be used or as to the size of the plates required. When the method is used, setting plates are usually about ¼ in. thick and slightly larger than the base plate, and they are grouted in place in advance of column erection. A plate this thin has a tendency to warp when fabricated and thus, this method is typically limited to a maximum plate dimension of about 24 in. Individual preferences on this limit—and the column erection method in general—will vary. See AISC *Design Guide 10* at www.aisc.org/epubs for a discussion of the various column erection methods that are commonly used.

Kurt Gustafson, S.E., P.E.

Round HSS or Pipe?

What is the difference between round HSS and pipe shapes?

Round HSS most typically are manufactured in the U.S. to the ASTM A500 Standard. Pipes covered under the AISC *Specification* are manufactured to the ASTM A53 Grade B Standard. The materials have different minimum specified yield strengths but similar dimensional characteristics in the cross-sections that match between these different products. $F_y = 42$ ksi for ASTM A500 Grade B Round HSS, whereas $F_y = 35$ ksi for ASTM A53 Grade B Pipe. For further information about differences and similarities, see "Are You Properly Specifying Materials?" in the January 2009 issue of MSC (available online at www.modernsteel.com).

Kurt Gustafson, S.E., P.E.

Extended Single-Plate Shear Connection

I have a question pertaining to Example IIA-19 (Extended Single-Plate Connection—Beam-to-Column Web) from the Design Examples CD that is issued with the 13th edition AISC *Steel Construction Manual*. Why is e = 10.5 in. used for calculating shear strength of the bolt group, while a = 9 in. is used to calculate the required strength of the plate? Should we use a = 10.5 in. in this case?

The design example is correct. An eccentricity measured from the face of the support to the center of the bolt group is used to check the bolts, but an eccentricity measured from the face of the support to the first line of bolts is used to check bending on the plate. This is done to account for the fact that some of the load has been transferred out of the plate through the bolts at that first line of bolts.

Larry S. Muir, P.E.

The complete collection of Steel Interchange questions and answers is available online. Find questions and answers related to just about any topic by using our full-text search capability. Visit Steel Interchange online at www.modernsteel.com.

Kurt Gustafson is the director of technical assistance and Amanuel Gebremeskel is a senior engineer in AISC's Steel Solutions Center. Larry Muir and Chris Hewitt are part-time consultants to AISC. Thomas Murray is lead author of AISC Design Guide No. 11.

Steel Interchange is a forum to exchange useful and practical professional ideas and information on all phases of steel building and bridge construction. Opinions and suggestions are welcome on any subject covered in this magazine.

The opinions expressed in Steel Interchange do not necessarily represent an official position of the American Institute of Steel Construction, Inc. and have not been reviewed. It is recognized that the design of structures is within the scope and expertise of a competent licensed structural engineer, architect or other licensed professional for the application of principles to a particular structure.

If you have a question or problem that your fellow readers might help you solve, please forward it to us. At the same time, feel free to respond to any of the questions that you have read here. Contact Steel Interchange via AISC's Steel Solutions Center:



One East Wacker Dr., Suite 700 Chicago, IL 60601 tel: 866.ASK.AISC • fax: 312.803.4709

solutions@aisc.org

Ready to roll past your competitors?



Kickstart projects and outpace the competition with FabTrol MRP software

Gain the competitive advantage that will keep you winning

Steel fabricators that use FabTrol MRP software are often the first choice of general contractors. The steel package is destined for gold and glory when the fabrication is managed with FabTrol MRP because it is proven to help produce accurate bids quickly, lower material and labor costs, improve quality and efficiency, and shorten project schedules-everything a contractor wants in the race to the finish line.

- **Kickstart projects** by importing the bill of materials, producing efficient purchase orders quickly, and planning the production of material on order.
- Roll with the changes by instantly detecting changes in drawing revisions and trusting you always fabricate to the right drawing.
- Run projects full throttle by increasing throughput, maximizing capacity, and keeping projects on track to finish in record time.

A better way to manage steel

To learn more about how FabTrol MRP can help you gain the advantage, visit

www.fabtrol.com or call 800-FABTROL.



FabTrol Systems, Inc. • 1025 Willamette St., Suite 300, Eugene, OR 97401 • (888) FABTROL • Fax: (541) 485-4302 • www.fabtrol.com

steel quiz

LOOKING FOR A CHALLENGE? Modern Steel Construction's monthly Steel Quiz tests your knowledge of steel design and construction. Most answers can be found in the 2005 Specification for Structural Steel Buildings, available as a free download from AISC's web site, **www.aisc.org/2005spec**. Where appropriate, other industry standards are also referenced.

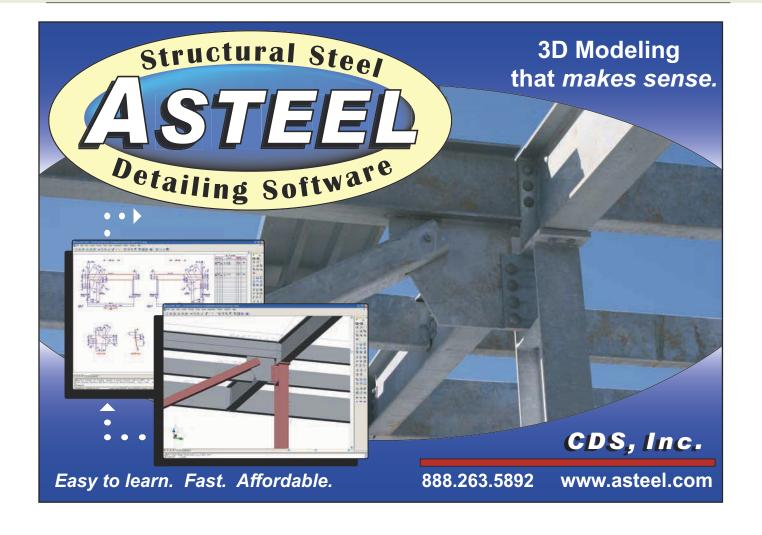
This month's Steel Quiz was developed by AISC's Steel Solutions Center. Sharpen your pencils and go!

- 1 In which of the following standards are minimum radii for cold bending of plates specified? (a) ASTM A6 (b) ASTM A992 (c) AISC 360 (d) All of the above
- To what dimensional tolerances are welded built-up members fabricated? How about bolted members?
- True/False: The fabricator is required to maintain an identification process for mill material until the entire project is complete.
- What is a good rule of thumb for a practical thickness up to which steel can be cut using a plasma cutting process? (a) Gauge thicknesses only (b) ¼ in (c) ¾ in (d) 1¼ in

- True/False: Steel to receive sprayapplied fire protection should not be primed or painted.
- For the seismic force resisting system in high-seismic applications (that is, those that must comply with AISC 341), where can one find the requirements for technician qualification and testing protocols for non-destructive testing? (a) AISC 360 and AISC 341 (b) AWS D1.1 and AISC 341 (c) AISC 341 and AWS D1.8 (d) All of the above
- 7 A fillet weld on the acute side of a skewed plate is prequalified and fully effective as long as the skew angle is at least equal to: (a) 15° (b) 30° (c) 45° (d) 60°

- Can beams with moment connected ends be cambered?
- 9 True/False: The connection of all beams and girders to columns in structures over 125 ft in height is required to be slip-critical bolted.
- 10 True/False: The cut surfaces of beam copes that are specified to be galvanized must be ground.

TURN TO PAGE 14 FOR ANSWERS











The worlds' most advanced steel fabrication equipment manufacturer happens to be the most eco-friendly.

Voortman Corporation designs and manufactures CNC controlled equipment and systems for the structural steel fabricators throughout he world. Voortman strives to engineer all systems to be the most eco-friendly machines on the planet. Voortman uses less hydraulics and replaces them with state-of-the-art servo drives and drill spindles creating unmatched precision and the use of far less cooling oil.

Voortman's fully automated equipment allows unmanned operation for a cost saving lean manufacturing environment.

For a free DVD video and brochure, contact us at 1-815-468-6300 or visit www.voortmancorp.com

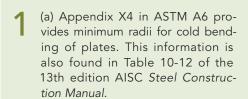
ECO-Friendly Benefits:

- Servo Driven
- Low use of Hydraulics
- Low Electrical Power Consumption
- . No Spraying of Coolant
- Ball Screw Positioning-Non Hydraulic
- 100% Vegetable Oil Mist "Razer-Cool" Lubricant
- Automatic Nesting On All Machines Reduces Scrap Content
- Networking Of Machines to MRP/Detailing Systems for a paperless environment



steel quiz

ANSWERS



- Por welded built-up members, dimensional tolerances are given in AWS D1.1 Section 5.23 (and primarily relate to distortional control for the welding operations). For bolted built-up members, however, no similar provisions exist in another standard. When desired, the EOR can specify tolerances, and it is common to use tolerances that are similar to those found in ASTM A6 or ASTM A500.
- 3 False. According to Section M5.5 in the 2005 AISC Specification, "The fabricator shall be able to demonstrate by a written procedure and by actual practice a method of material application and identification, visible at least through the 'fit-up' operation, for the main structural elements of each shipping piece."
- 4 (c) Plasma cutting is very efficient for plates up to ¾ in. thick. This is not a thickness limit, and larger thicknesses can be cut with a plasma process. However, the oxy-acetylene cutting process usually becomes more efficient above a thickness of ¾ in.
- True. Steel that is to be fire protected should not be primed or painted, because the coating decreases the adhesion of the fire protection. When such steel must be painted, additional measures must be taken to ensure adhesion. See FAQ 11.1.7 at www.aisc.org/faq for more on this topic.
- 6 (c) These requirements currently exist in similar form in two places: AISC 341 Appendix W and AWS D1.8. This overlap exists because AISC 341 was published before AWS D1.8 existed. The 2010 revision of AISC 341 will incorporate these requirements in AWS D1.8 by reference.

- (d) Note that an acute angle as low as 30° is still prequalified per AWS D1.1. However, a reduction to the effective throat must be made for angles of less than 60° to recognize that the weld cannot reliably penetrate to the root.
- No. The usual intent of camber is to accommodate deflection during concrete pours. Cambering usually occurs after the beam is fabricated. At that point if using end plated moment connections, the end plates will not be parallel to the column flange. If using top and bottom plates welded to the column and bolted to the flanges of the beam (paddle plates), the bolts will not be aligned in the connection. If using a welded moment connection, the root opening at the bottom flange will exceed AWS tolerances. If the connections are fabricated to accommodate these problems, the camber will never come out of the beam during concrete pours.
- Palse. According to Section J1.10(2) of the 2005 AISC Specification, pretensioned joints, slip-critical joints, or welds shall be used for beams and girders that connect to columns in multi-story structures that are over 125 ft in height.
- 10 True. Section M2.2 of the 2005 AISC Specification requires that beam copes (and weld access holes) in shapes that are to be galvanized must be ground.

Anyone is welcome to submit questions and answers for Steel Quiz. If you are interested in submitting one question or an entire quiz, contact AISC's Steel Solutions Center at 866. ASK.AISC or at solutions@aisc.org.





We're saving you a seat.



Register today at **www.sdi.org** to learn more about specifying and designing with steel deck and joists.



LEADER IN CONNECTION DESIGN SOFTWARE SINCE 1984

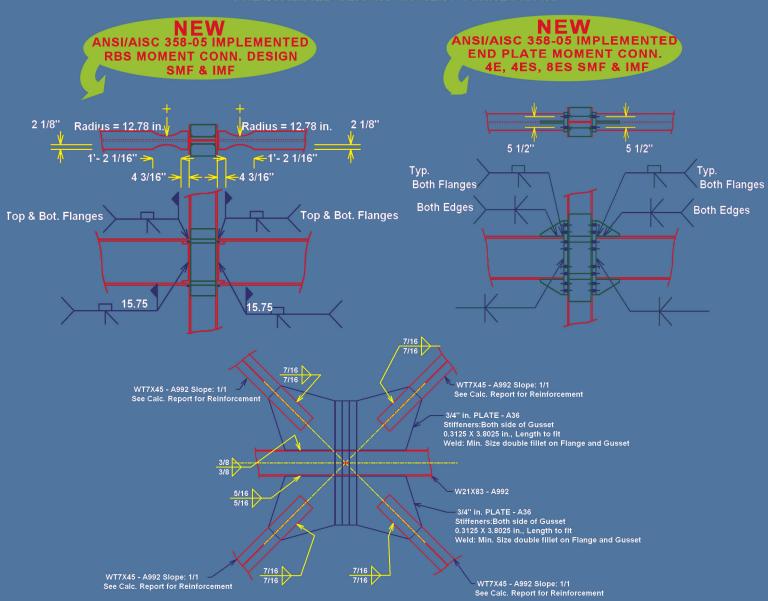
The Ultimate Advantage in Connection Design

Excellent Quality * Easy to Learn * Simple to Use * Outstanding Technical Support

DESCONWIN * DESCONBRACE
AISC SPECIFICATION 2005 * SEISMIC PROVISIONS 2005
ASD * LRFD * METRIC (SI) * IMPERIAL

SHEAR AND MOMENT CONNECTIONS * COLUMN AND BEAM SPLICES * BRACED FRAME CONNECTIONS

PREQUALIFIED SEISMIC MOMENT CONNECTIONS





Omnitech Associates, Inc.

www.desconplus.com

news

INDUSTRY PROMOTION

Reaching Future "Tinkerers"

A new entity dedicated to inspiring America's youth to consider careers in manufacturing has been created through the partnership of two leading foundations—one of which was founded by Cliff Clavin of *Cheers*.

The Nuts, Bolts and Thingamajigs Foundation (NBTF), founded by actor John Ratzenberger, has joined with the Fabricators and Manufacturers Association (FMA) Foundation to create a charitable organization: Nuts, Bolts and Thingamajigs, the Foundation of the Fabricators and Manufacturers Association, Intl. (NBT). The new organization will feature an 18-member board of directors; six members from the former NBTF will join the 12 former FMA Foundation board members.

The initiative allows NBT to broaden operations and increase charitable activities that include providing grants to educational institutions offering manufacturing camps and awarding scholarships to students pursuing manufacturing careers.

Former FMA Foundation executives

Gerald Shankel and Terrence Egan will direct the new organization, serving as president and director, respectively, and John Ratzenberger will continue to serve on the governing board and lead the Foundation's national public policy and media campaigns.

"This partnership combines John Ratzenberger's voice and passion on an issue so dear to his heart with FMA's infrastructure and resources to spread the message that manufacturing is a viable career option," said Shankel. "We will be even more effective working together to spark interest among young people in the industry and help revitalize the future of manufacturing in America."

"As a champion of manufacturing, John Ratzenberger will have a great impact on fostering media coverage on this quest and help us spread the word that it's honorable to work with your hands," said Egan. "The focus is on inspiring young people to ultimately explore the manufacturing career path by getting them to tinker, fix,

and make stuff, and dream about inventing things. The groundwork we've laid and the programs we've implemented in the past will continue to be the core of our work."

Ratzenberger will contribute his extensive experience with American manufacturers and valuable relationships in the entertainment, political, social and corporate arenas.

"I can think of no enterprise more worthy than one devoted to inspiring the next generation of engineers, builders and manufacturers," said Ratzenberger. "I am proud to join forces with FMA and know that with each child who attends one of our camps or receives one of our scholarships, we are rebuilding America's foundation one tinkerer at a time."

Visit www.fma-foundation.org/nbtf for more information.



BRIDGES

Steel Bridge Kicks Off Infrastructure Stimulus Program

The first infrastructure project to move forward under the new federal economic stimulus package was recently announced. The project, a replacement bridge in Miller County near Tuscumbia, Mo., was approved for construction as a top priority for the State of Missouri at a cost of \$8.5 million, which will be funded by the stimulus plan. Because of the desire for rapid and economical construction, steel was selected for the bridge's main span.

"Today, the Show Me State again showed the nation we are leaders in transportation by having the first economic recovery act project in the country under construction," said Missouri Department of Transportation director Pete Rahn. "We promised we would be ready to go to make the best use of every dollar we receive through the economic recovery act to create jobs and make our highways safer. We delivered on that promise and then some."

The new 1,000-ft long, 28-ft-wide steel bridge will replace the existing 75-year-old Osage River Bridge, which is the same length and just 20 ft wide. The bridge crosses a Missouri River tributary near the middle of the state, where the average daily traffic is more than 1,000 cars per day. However, it has been off-limits to large trucks since 2007 because of its poor structural condition.

The new bridge, built by general contractor APAC of Kansas City, will use 395 tons of structural steel for the 570-ft main span and will be positioned just upstream from the existing bridge. The steel is scheduled to be delivered by DeLong's, Inc. (an AISC/NSBA Member and AISC Certified bridge fabricator) this fall.

"We're pleased to have a project so close to home—only about 35 miles from our fabricator shop—close enough for our employees to be able to see and use," said Gary Wisch, DeLong's vice president of engineering. "We're also proud to be the steel fabricator for the first project built with funds made available by the federal stimulus bill."

Roger E. Ferch, P.E., president of AISC, said, "The speed of construction and longer term benefits of flexibility and durability from using fabricated structural steel in this project provide Missouri residents with a bridge that will serve extremely well for a long time."

STANDARDS

New Coatings Standard from ASTM

American Society for Testing and Materials (ASTM) International Committee A05 on Metallic-Coated Iron and Steel Products has approved a new standard, ASTM A1059/A1059M, Specification for Zinc Alloy Thermo-Diffusion Coatings (TDC) on Steel Fasteners, Hardware and Other Products. The new standard is under the jurisdiction of Subcommittee A05.13 on Structural Shapes and Hardware Specifications.

The technology described in ASTM A1059/A1059M has, over the last 15 years, become a popular means for providing an environmentally friendly way to replace toxic materials, such as cadmium and chromium compounds, used for corrosion protection.

Visit www.astm.org for more information.

IN MEMORY

Long-Time Certification Committee Member Bill Ashton Dies



William Ashton with his wife, Judy.

William Ashton, 65, died peacefully at Dougherty Hospice House in Sioux Falls, S.D. on February 13, from complications from ALS (also known as Lou Gehrig's Disease). He had been diagnosed with the disease just last October.

Bill was born in St. Paul, Minn. on July 14, 1943. Upon graduating high school, he joined the U.S. Navy, where he served until he was 21. His career in the steel industry began in July of 1964, when he joined steel fabricator St. Paul

Structural Steel in the sales department. Shortly thereafter, he enrolled at the University of Minnesota to pursue an engineering degree. After many years of attending late-afternoon and night courses, he received his Bachelors of Civil Engineering degree in 1983.

Over the 19 years he spent working at St. Paul Structural Steel, Bill moved up the ladder to one of the top positions in the company and served as project manager on several notable projects in the Twin Cities, including the IDS Tower and the Hennepin County Government Center. As with many other steel companies, St. Paul Structural closed in 1983 and that September, Bill accepted a position as production manager for fabricator Egger Steel Company (AISC Member) in Sioux Falls. He was eventually promoted to vice president of production for the company. After 20 years with Egger Steel, he started his own structural steel detailing business, which grew into a highly successful company.

Bill was also heavily involved with AISC. He was a member of the Certification Committee for more than 20 years and was recently honored with the Special Citation Award for his key role in developing standards that ensure safe steel structures.

With twinkling blue eyes and an engaging smile, Bill was easy to get to know and often had interesting stories of travel and recreational adventures to share. One of his many proud accomplishments was the hole-in-one that he hit on July 7, 2005 on the 17th hole at Prairie Green Golf Course in Sioux Falls.

Bill is survived by his wife, Judy, his sons William Jr. and Steven (Kristine), his siblings Richard, Carol Ashton McMahon, Charles (Jeanne) and Michael, and his stepchildren Chad (Nicole) Schilmoeller and children Luke and Brooklyn, and Nicole (Thomas) Benning and children Ashley and Austin.

IN MEMORY

Certification Innovator Farnham Jarrard Dies



C. Farnham Jarrard, Jr.

Charles Farnham Jarrard, Jr. died March 8, 2009 at his home in Bristol, Va. after a battle with cancer.

Farnham was born April 8, 1933 in Berwyn, Ill. During his youth, his family moved to Lake Geneva, Wisc., where he

attended schools and graduated high school. Upon graduation, he attended the University of Wisconsin, served two years in the Army, and graduated from Lawrence University in Appleton, Wisc. in 1958.

He entered the steel business shortly after college and eventually became president and CEO of fabricator Allied Structural Steel in Hammond, Ind. Following his career at Allied, he spent 16 years as a senior vice-president at fabricator Bristol Steel and Iron Works

in Bristol, Va. He also served a term as Bristol's mayor.

Farnham served as the first president of Quality Auditing Company, the precursor to AISC's Quality Management Company. In that role, he initiated the hiring and activities of the company, participated with the Certification Committee, and was instrumental in initiating the Erector Certification Program. He was also the first chairman of AISC's Quality Criteria and Inspection Standards Committee.

He was made an honorary life member of AISC in 1989—one of only 11 to achieve this dinstinction—and received an AISC Special Achievement Award in 1999 for his advancement of the AISC Certification program.

"Farnham helped get the quality assurance program started and was instrumental in its success," said former AISC Board president Bob Stupp, chairman of fabricator Stupp Bros., Inc. (AISC Member) in St. Louis.

"Farnham encouraged, took time to

teach, and cared about everyone he was in contact with," said Sandi McCracken, formerly of Quality Management Company and Allied. "His kindness and willingness to give a female a chance in the auditing of steel construction has enhanced my life beyond my biggest dreams."

Prior to his involvement in Certification, Mr. Jarrard was a leader on the committee that wrote the Quality Control and Inspection Criteria, a document which has now evolved into some of AISC's original FAQs. He is also a past president of the Central Fabricators Association.

He is survived by his wife, Amelia Osborne Jarrard, two sons—Charles Farnham Jarrard, III, his wife Geri, and their daughter, Kaysa; and David Stewart Jarrard—step-daughter Amelia Stone Rose, her husband, Scott and their son Will; and a step-daughter in-law, Teresa Stone, and her children Farnham and Evelyn Stone.

news & events

EVENTS

Sawing Symposium and Exhibition

Behringer Saws is inviting professionals involved in metal cutting and fabrication operations to its Morgantown, Pa. headquarters May 12-14 for a sawing symposium and exhibition. The free event will feature practical technical seminars while also spotlighting an extensive offering of product introductions. Attendees will learn about the latest trends in metalworking during daily seminars, and live cutting demonstrations will also be presented, using sawing technologies developed from interaction with customers and real-world applications.

Seminar schedules are staggered across all three days to accommodate visitors' schedules. For more information visit www.behringersaws.com or call 888.234.7464.

AutoSD STEEL DETAILING

Create shop fabrication & field erection drawings using AutoCAD $^{\circledR}$ 14 - 2009, LT 2000 - LT 2009 and IntelliCAD $^{\circledR}$.

For detailing structural and miscellaneous steel, door & roof frames, embeds, beams, columns, bracing, stairs, stair rails, wall rails, ramp rails, ladders, hip and valley, and general editing using AISC or CISC shapes.

Beam to Beam, Beam to Column and Vertical brace to Column connection matching. Extract CNC data to DSTV files. Extract BOM for import into Fabtrol and E.J.E. material manager.

Five packages to choose from. Select the ones right for you.

Visit Our Website at www.autosd.com
For more information or To download Free demo.



- * No Maintenance Fees
- * Free Technical Support
- * Money Back Guarantee

AutoSD, Inc.

8203 Lizelia Rd Meridian, MS 39305 601-679-5800 E-mail: ray@autosd.com **FVFNT**

2010 Structures and Analysis Conferences: Call for Proposals

AISC and the Structural Engineering Institute (SEI) of ASCE are joining forces in 2010 to host the first-ever combined Structures Congress/North American Steel Construction Conference (NASCC) May 12-14, 2010 in Orlando, Fla. Technical programs are being developed for each, with close coordination between the program committees.

Proposals are currently being accepted for complete sessions and individual papers to be presented in the Structures Congress section of the program. Presentations will be selected from the open call and by invitation. For more details on how to submit a proposal to the Structures Congress, visit www.seinstitute.org.

The event will also include the 19th Analysis and Computation Specialty Conference, and presentation proposals are also currently being accepted for this event. Visit www.asce.org.

Proposals for both conferences are due June 10, 2009.

EVENTS

Hong Kong to Host 2010 Tube Symposium

The University of Hong Kong will host the 13th International Symposium on Tubular Structures in Hong Kong, December 15-17, 2010. Held in a different international city every year, the symposium is a showcase for tubular structures and an international forum for the discussion of research, developments, and applications in the field of hollow steel. Attendees include manufacturers of hollow sections or related construction products, architects, trade associations, design engineers, steel fabricators, owners or developers of tubu-

lar structures, researchers, academics, and postgraduate students.

Prospective authors of papers and presentations are invited to submit abstracts of 300 to 400 words (in English) before August 15, 2009 on the following topics: Tubular Structures, Static and Fatigue Behavior of Connections, Earthquake and Dynamic Resistance, Specification and Standard Developments, Fire Resistance, and others. Authors will be notified of provisional acceptance on November 30, 2009. For more information visit www.hku.hk/civil/ISTS13.



SPECIFICATIONS

Public Review of 2010 AISC Specification

The 2010 draft of the AISC Specification for Structural Steel Buildings will be available for public review until May 4, 2009. This specification will be available for download on the AISC website at www.aisc.org/AISC360PR1 along with the review form during this time. Copies

are also available (for a \$12 nominal charge) by calling 312.670.5411.

Please submit comments using the form provided online to Cynthia J. Duncan, AISC's director of engineering, at duncan@aisc.org by May 4, 2009 for consideration.



The RPK container
Exclusively from
St Louis Screw & Bolt

RPK = **Rigid Polyethylene Keg**

All of our structural hex bolts come packed in these kegs, if requested your entire order can be packed in these versatile containers



- ► Easy On & Off Lids
- ► Repurposed, lots of uses
- ► No sharp edges
- Recyclable
- Durable
- Seamless
- ► No Rust

St. Louis Screw & Bolt

2000 Access Blvd • Madison, IL 62060

Phone: 800-237-7059 Fax: 314-389-7510

Email: sales@stlouisscrewbolt.com Web: www.stlouisscrewbolt.com



news

CONSTRUCTION MARKET

It's not All Doom and Gloom

The Fabricators and Manufacturers Association, International's (FMA) economic analyst is painting a slightly rosier picture of the economy than we've been hearing lately—or at least is offering some perspective.

"Unless the current doom and gloom becomes something of a self-fulfilling prophecy, the recession is on a par with past downturns, and real improvement will start to manifest itself in 2010," said Chris Kuehl in the latest FMA economic update newsletter *Fabrinomics*.

Kuehl bases his assertions on how the National Bureau of Economic Research (NBER) defines recessions. "The NBER has a reputation as being pretty conservative and reacts to factors beyond GDP to declare a recession," Kuehl explained. "It uses six criteria to determine when a recession has started and when it ends. These are GDP, real income, employment, industrial production, wholesale sales, and retail sales."

After an analysis by Kuehl of government charts that track GDP, income, unemployment and production since 1970, he concluded that "it is pretty apparent the recession of 2008-09 is not worse than those in the past four decades. In fact, the recessions of the 1970s and 1980s were arguably more painful on almost every level."

Kuehl acknowledged many U.S. businesses are suffering despite the numbers. "To those who are frantically trying to hold their business together, the recession is as bad as it gets," he said. "But for those who are trying to decide how radical they need to get to protect their business, a realistic assessment is needed. At this stage, the recession is on a par with what has been endured previously, which means it can and will be survived."

"The strategy now should be to hunker down and wait out the downturn—without taking steps that gut a company's ability to react to the turnaround," Kuehl said. "This means hanging on to valued employees who soon will be needed again. It means making those investments in capital goods that keep a company competitive, and it means staying true to strategic goals in marketing.

"If this is a normal recession people can overcome, a wait-and-see attitude is more palatable than if the conclusion is that we are facing the end of the economic world. According to the numbers, we are not facing the latter situation."

letters

Where's the Weak Link?

In Benjamin Baer's article "Holding On" (02/09, p. 44), Figure 3 on page 46 shows a post-to-stringer connection, with a full penetration weld on two sides of the post to the flange of the stringer channel.

Shouldn't the weak link in this system be considered to be the web of the channel? I don't see how a thin web can adequately resist the bending imposed by horizontal guardrail forces.

Edward J. LeNormand, P.E.

Response from Benjamin R. Baer:

To answer your question, I'll start with something I included near the end of the article: "Each handrail is unique, and each requires architectural and structural design by licensed professionals." There are a lot of factors that can affect stair and handrail design including the type of treads and risers, how these are connected to the stringer, the floor construction, the stair opening and how it is framed (including the type of pour stops), and, of course, aesthetic considerations.

For a very common concrete-filled metal pan stair, there are two situations that have some similarities. The first is for the sloping stringer, where the treads and risers are connected to the inside of the stringer (back side of the channel). In this case, tread/riser pan is welded to the carrier angle, which is welded to the stringer. The tread/riser pan provides resistance for lateral load from the handrail (sort of a diaphragm on a very small scale). At the other end of the spectrum, bolted grating treads may not provide enough resistance, and local stiffeners could be necessary.

The second situation is a horizontal railing around a stair opening. In some cases, the railing is attached to the floor slab, the pour stop (should be headed studs on the inside), or other parts of the structural framing. In other cases, the same stringer channel is used for appearance purposes, and the railing is attached to the top of the channel. This case is similar to the sloping stringer; how the channel is attached to the structure determines if there will be local bending of the channel.

More than Math and Science

In response to Tom Schlafly's January Topping Out article titled "SteelWize" (p. 66):

• The plural of "you" is "you," although

- the plural of U is W—but it looks more like a double-V!
- Also, two wrongs don't make a right, but three rights make a left!
- How many "vaganzas" does it take to have an "extravaganza?" (I'm guessing at least two!)

I enjoy MSC every month. English is a difficult language and takes a lifetime to learn. When I was in high school, I blew off English class because I was planning on being an engineer and I thought all I needed was math and science. Boy, was I wrong!

Patrick M. Petrone, P.E., S.E.
In-house Design Unit Chief
Illinois Department of
Transportation
Bureau of Bridges and Structures

Credit where Credit is Due

I have a couple of corrections regarding Keith Grubb's February 2009 article "Out in the Open" (p. 57):

- Metals USA policy stipulates that we share no specific numbers. Circumventing this restriction, we currently have possibly the largest inventory of A588 products in the U.S. The A588 and A572 Steel Co. is not an AISC member and has a limited range of A588 products. Metals USA inventories flats, rounds, angles, channels, miscellaneous channels, squares, wide-flange, and standard beams and plate. One could easily argue that Metals USA is the first call for rare A588 shapes. Non-stock items are routinely supplied from rolling or outsourcing and include all products listed above including HSS tubing.
- While we cannot quote tonnage linked to our name, we inventory 5,000 tons.

Jim Collins Vice President, Metals USA

Not Quite the Whole Story

The July 2008 article "The Hole Story" (p. 46) was a well-written and very useful summary of the AISC 360-05 requirements. However, the article should have also addressed AISC 341-05, which requires that bolted joints that are part of the SLRS must be installed as pretensioned, even though they are designed as bearing-type. In addition, the article should have clarified that detailing of steel structures in accordance with AISC 341-05 is required whenever prescribed by the applicable building code. Although it is always

required when *R* is greater than three, there are four examples in ASCE 7-05, Table 15.4-1 that require seismic detailing in accordance with AISC 341-05 when *R* is less than three.

As a suggestion, you might consider devoting some future SteelWise articles to "clarifying the mystery" of seismic detailing for those Midwest and East Coast engineers who now find themselves designing structures for seismic considerations.

Rick Drake, S.E. Director, Design Engineering Civil/Structural/Architectural Fluor Enterprises, Inc.

Response from AISC:

We did focus on AISC 360 requirements in the article. However, questions about bolts in high-seismic connections are relevant, and hopefully this response will serve to expand a bit on the original article.

Regarding the design and detailing of bolted joints in an SLRS, ANSI/AISC 341-05 Seismic Provisions for Structural Steel Buildings, the Commentary to Section 7.2 indicates the following:

"The potential for full reversal of design load and the likelihood of inelastic deformations of members and/or connected parts necessitates that pretensioned bolts be used in bolted joints in the SLRS. However, earthquake motions are such that slip cannot and need not be prevented in all cases, even with slip-critical connections. Accordingly, the Provisions call for bolted joints to be proportioned as pretensioned bearing joints but with faying surfaces prepared for Class A or better slip-critical connections... The resulting nominal amount of slip resistance will minimize damage in more moderate seismic events... Where the faying surface is primarily subject to tension or compression, for example in bolted end-plate connections, the requirement on preparation of the faying surfaces may be relaxed."

Thus, the resulting joint will resist slip in smaller earthquakes that may occur with a greater frequency than the design-level earthquake. Furthermore, this approach recognizes that slip cannot be prevented in the design-level seismic event.

Regarding seismic detailing requirements, ASCE 7-05 Chapter 14, Material Specific Seismic Design and Detailing

Requirements, outlines the seismic design and detailing requirements for structural steel buildings. Section 14.1.2 indicates that if the structure is assigned to seismic design categories B or C the system can be designated as a structural steel system not specifically detailed for seismic resistance and designed with R=3. For seismic design category A, an R factor is not used in the seismic force calculation. Ultimately, normal detailing practices corresponding to the traditional designs associated with the requirements in ANSI/AISC 360-05 are used in these cases.

AISC 341 requirements are applicable, however, in the following cases:

- 1. For seismic design category B or C systems for which an R > 3 is used.
- 2. For structures assigned to seismic design categories D, E, or F (Section 14.1.3).

It also should be noted that ASCE 7-05 Chapter 15, Seismic Design Requirements for Non-Building Structures, outlines the seismic detailing requirements for non-building structures. If the non-building structure is determined to be similar to buildings, the seismic detailing requirements are found in Table 15.4-1: Seismic Coefficients for Non-Building Structures Similar to Buildings. This table illustrates whether the seismic detailing requirements for specific SLRS are found in ANSI/AISC 360-05 or ANSI/AISC 341-05. And as you pointed out, there are a number of framing systems with R values less than 3 that are required to be detailed according to ANSI/AISC 341-05. These systems include:

- Ordinary steel concentrically braced frame with permitted height increase (R = 2½)
- Intermediate steel moment frames with permitted height increase (*R* = 2)
- Intermediate steel moment frames with unlimited height (*R* = 1)
- Ordinary moment frames of steel with permitted height increase (*R* = 2)
- Ordinary moment frames of steel with unlimited height (R = 1)

Jacinda L. Collins AISC Steel Solutions Center Advisor

Thomas J. Schlafly AISC Director of Research

Charles J. Carter Vice President and Chief Structural Engineer

Protectionism not the Answer

As a Canadian, I was disappointed to see your Buy America pitch ("Made in America," 02/09, p. 23). While I personally was opposed to both the Free Trade Agreement and NAFTA, this is not the time for protectionism. If you want to scrap these agreements, wait until times are good. Look at history; the Depression was made worse by a wave of protectionism. Do not think that the U.S. can unilaterally apply protectionist measures and everyone else is just going to sit by and do nothing. Once you start, the wave will spread around the world and things will go from bad to worse.

We already have unions in Canada pushing for a made-in-Canada clause. Our military has just ordered trucks, which are to be built in Texas; they could be built in St. Catherines, Ontario. Just last month, Canada lost twice as many jobs per capita than the U.S. lost. We are all hurting and quite frankly, I expect it will be tough for a few more years.

Despite being registered in the U.S., I have never done any work in the U.S., so per se, I am not going to lose any work directly whether a Buy America strategy is adopted or not.

Ralph Watts, P.Eng., P.E. North Island Engineering Ltd.

Response from author Angela R. Stephens:

Contrary to Mr. Watts' assertions, we are not asking for protectionism. Instead, we want the laws and regulations that are currently on the books to be enforced as they were intended to be enforced.

Furthermore, Section (d) of the Buy American provision, Section 1605, contained in the American Reinvestment and Recovery Act of 2009 (ARRA) provides that "this section shall be applied in a manner consistent with United States obligations under international agreements." This means that companies from countries like Canada, who have signed trade agreements with the U.S., will be treated similarly to U.S. companies when the government is purchasing products over the dollar value thresholds outlined in those trade agreements.

Perhaps someday our two governments will enact and enforce coordinated laws that will make our shared border less relevant and our combined economy appreciably stronger.

> Angela R. Stephens Civil Engineer and Lawyer Stites & Harbison, PLLC



All the experience you need!

Fabrication Information Modeling (FIM) from AceCad Software enables vital retention of key business skills in hard times and accelerated scale up in boom periods.

With AceCad Software's experience you can prepare for the future – **today!**

- Retain specialist knowledge
- Increase profitability/productivity
- Deliver projects rapidly
- Reduce costs/overheads
- Improve cash flow lower stocks
- 100% materials traceability
- · Monitor production in real-time
- Control project budgets



AceCad is a leading supplier of software solutions to the international structural steel industry since 1986. With core business areas in the Building and Construction, and Process and Power industries, AceCad products have consistently transformed its customers' business in the steelwork fabrication supply chain.

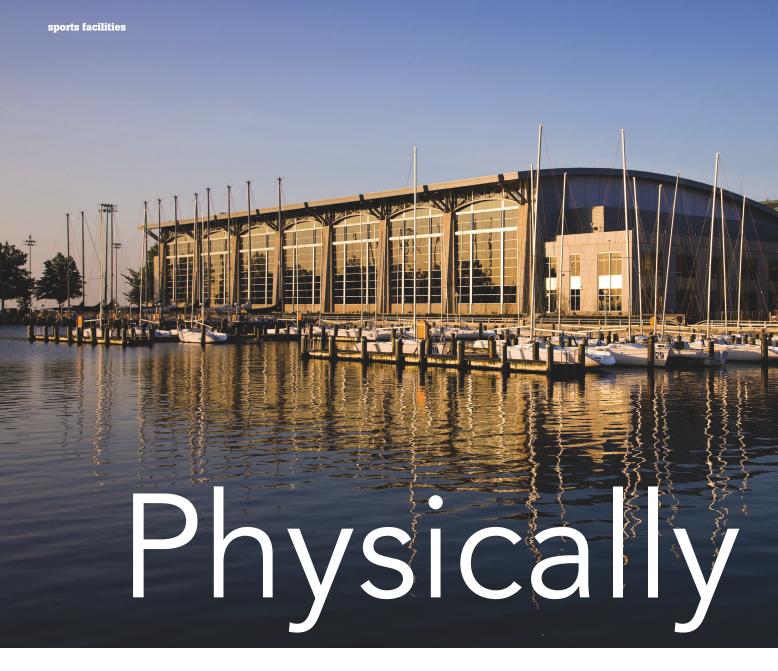
AceCad has customers in 80 countries, with 26 offices, supporting a global network of sales, support and services.











The sleek, new Wesley A. Brown Field House does its part to keep the U.S. Naval Academy strong.

THE PHRASE "PHYSICAL FITNESS" is likely to conjure up memories of high-school P.E. However, it's a concept that is often cast aside in the transition from high school to college.

Of course, this isn't the case at the United States Naval Academy in Annapolis, Md., where high standards for physical and mental fitness are givens. This commitment to strength of body is evident with the completion of the Wesley A. Brown Field House, which opened at the Academy last spring and will be used for varsity and intramural athletics.

The design-build contract for the project was administered and managed by the Naval Facilities Engineering Command (NAV-FAC) in Washington, D.C., which conducted a design-build competition between four short-listed teams. The turnkey project was awarded to Hensel Phelps Construction Co., whose bid proposed delivering the project one month ahead of the originally proposed

schedule and presented a world-class design that incorporates a 400-ft-long glass façade, providing views of the Severn River.

The steel mill order package was developed prior to completion of the design in order to ensure a May 2006 construction start. Construction took 22 months and was completed last March, and the building was dedicated in May, with the attendance of the building's namesake, Lieutenant Commander Wesley A. Brown (ret.), the first African American midshipman graduate of the U.S. Naval Academy.

In the House

The Wesley A. Brown Field House includes several unique structural features. The barrel-shaped roof of the building was created with cambered box trusses that span 200 ft over the playing field/floor below. As an architectural feature, truss depths taper from 12 ft to 9 ft







Photos: Blake Marvin Photography, HKS, Inc.

opposite page: The Wesley A. Brown Field House's 400-ft-long glass facade offers views of the Severn River.

this page: The building's barrel-shaped roof was created with cambered box trusses that span 200 ft over the floor below.

over the length of the span. Steel columns support the trusses at the south end, while 60-ft-tall cast-in-place concrete pylons support them at the north end. The roof between trusses is supported by open web joists, and their design was controlled by wind uplift and antiterrorism force protection (ATFP) requirements.

Coordinating with the general contractor and the steel sub-contractor, the design engineers established a truss system that could be prefabricated and shipped in three pieces. As with any long-span roof system, stability during construction was a major concern. The use of box trusses instead of planar trusses allowed the contractor to use only one shoring tower during erection without any additional stability bracing. Furthermore, the inherent stability of the box trusses in the erected condition enabled infill roof construction to begin after only two trusses had been installed. As a result, complete roof construction pro-

gressed uniformly instead of in stages. One truss was erected per week, and shortly after the last truss had been set, the roof was closed in.

The arched profile of the trusses produced lateral translation at the steel column-supported end. The dead load portion of this displacement was accommodated through the use of long slotted horizontal holes at the supports. Once the full dead load was applied, these connection bolts were then tensioned, and the subsequent live load horizontal displacement imposed an acceptable level of inter-story drift on the supporting columns above the roof. The metal panel cladding along this side of the building was detailed to accommodate the associated column rotation.

Low Seismicity

The building's lateral system is a combination of braced



The building's lateral system is a combination of braced frames and moment frames that function as a steel lateral system not specifically detailed for seismic resistance.

frames and moment frames that function as a steel lateral system not specifically detailed for seismic resistance (commonly called the R = 3 lateral system). The low

seismicity associated with the site made this system an efficient choice from both constructability and cost standpoints. The R = 3 system does not require seis-

mic detailing of connections, which saved material, fabrication time, and erection time.

The use of both braced frames and moment frames eliminated the common difficulty of coordinating lateral element locations with program requirements. To further expedite detailing, structural engineer Thornton Tomasetti designed all of the bracing connections in-house. The braced frames use hollow structural sections (HSS) for the diagonals. The brace connections consist of single-gusset plates that were shop welded to the beams and field bolted to the columns. Oversized holes and fillet welded connections to HSS diagonals with slotted ends allowed for accommodation of field tolerances without schedule delays

Having a Blast

The broad glass façade along the Severn River posed a challenge for the design-build team because the façade was required to meet ATFP requirements. Second-order time-dependent analyses were performed by the team's blast engineer to verify that the HSS steel frame supporting the high-performance glass façade had sufficient ductility and ultimate strength to meet the blast requirements. Several design iterations were



www.steelplusllc.com

NUMBERS ARE IN YOU

- · Outstanding member networking opportunities
- Leading-Edge Technology Solutions
- Exclusive Volume Rebate Programs
- Long-Term Competitive Advantage
- Best in class supplier partners

The bottom line is Steel Plus membership will grow your bottom line.

USA

Bob Winchester (816) 623-3271 bob.winchester@steelplus.com

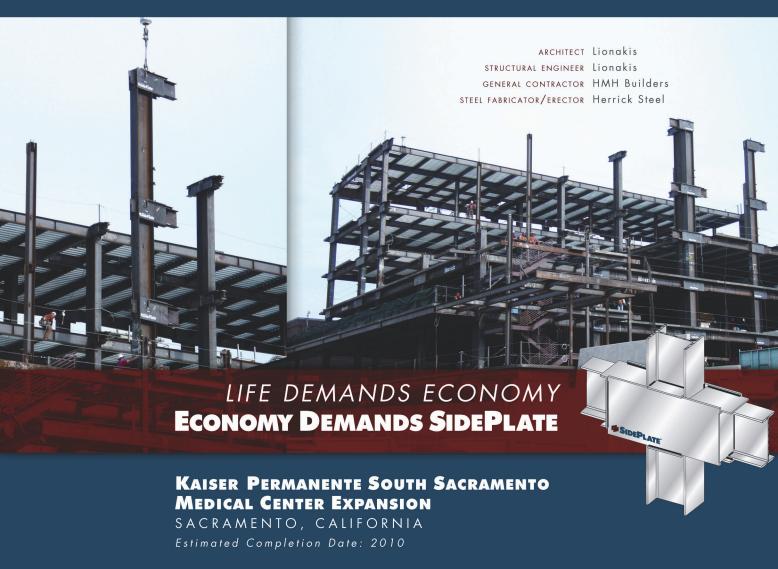
Canada

Matt Chapman (780) 271-3366 matt.chapman@steelplus.com

Quebec

Guy Cyr (450) 629-6363 guy.cyr@steelplus.com

Continued on page 28.



During the past decade, California's South Sacramento community has grown dramatically, putting a strain on the region's ability to deliver quality, affordable medical care. To meet increasing demand, Kaiser Permanente—the area's largest not-for-profit health care provider—launched an ambitious, \$300 million expansion of Kaiser Permanente South Sacramento Medical Center. The centerpiece of the project: a new, five-story, 158,074 sq. ft. tower.

As a nonprofit organization, controlling costs was a top priority for Kaiser Permanente. After a careful cost analysis, **SidePlate demonstrated significant savings over a Buckling Restrained Braced Frame (BRBF).** While the cost of steel was slightly higher with SidePlate, the savings in foundation costs more than offset these expenses. In fact, the cost efficiencies were so significant that Kaiser Permanente waived its usual restriction of moment frames to accommodate SidePlate technology. With SidePlate, Kaiser Permanente was able to meet window size code requirements and gain the greatest design versatility by eliminating diagonal braces. Most of all, maximizing economy helped ensure better patient care and future growth. Now that's a hospital of the future!

SidePlate Systems, Inc.
Setting the Steel Frame Standard for
Performance, Security and Economy















Photos: Blake Marvin Photography, HKS, Inc.

Continued from page 26.

performed until a suitable combination of structural performance and aesthetic quality was achieved.

In addition to the "hardened" structural steel frame on the east façade, (facing the river), the south façade is supported by a horizontal truss spanning the concrete pylon and the line of steel bracing along the conventionally framed two-story bay of the building. This horizontal truss, 200 ft long by 15 ft wide, resists lateral loads on the façade and braces the top of the precast cladding, while it is vertically suspended from the southernmost box truss and bears on W24 column sections at 20 ft on center. The W24 columns also function as flexural elements to support the lateral and blast loads on the glass and precast south façade.

Magic Carpet Ride

The speed of the steel erection and rapid building close-in provided critical time for the field construction. The field house floor is supported by a concrete-framed two-way slab on piles with recesses for the multiple sports surfaces. The slab also has a 4-ft-deep trench following the profile of the running track and is designed to support the loads from a hydraulic track system, which can be raised and lowered to create an angled "super-elevation" along the curved portions of the track. The structure also accommodates the 76,000-sq.-ft "Magic Carpet" retractable synthetic turf system. This system is stored in 200-ft sections on a spool and is regularly set up and then retracted with a combination of nine electric winches and an 18-port infloor air blower system.

The framing system ultimately gave the design-build team the tools and versatility necessary to fast-track the design and construction of this long-span, multi-purpose facility. Incorporating the scenic waterfront views with an elegant steel framed façade also helps ensure that this \$51-million project maintains the world-class standards of the U.S. Naval Academy.

Mark Tamaro is a principal, Matthew Horne is a senior engineer, and Calvin Austin is a senior engineer, all with Thornton Tomasetti.

Executive Architect

HKS, Inc., Richmond, Va.

Design Architect

Shalom Baranes Associates, Washington, D.C.

Structural Engineer

Thornton Tomasetti, Inc., Washington

Steel Fabricator and Detailer

Covenant Steel Warehouse, Inc., Dothan, Ala. (AISC Member)

Steel Erector

Williams Steel Erection Company, Inc., Manassas, Va. (AISC Member)

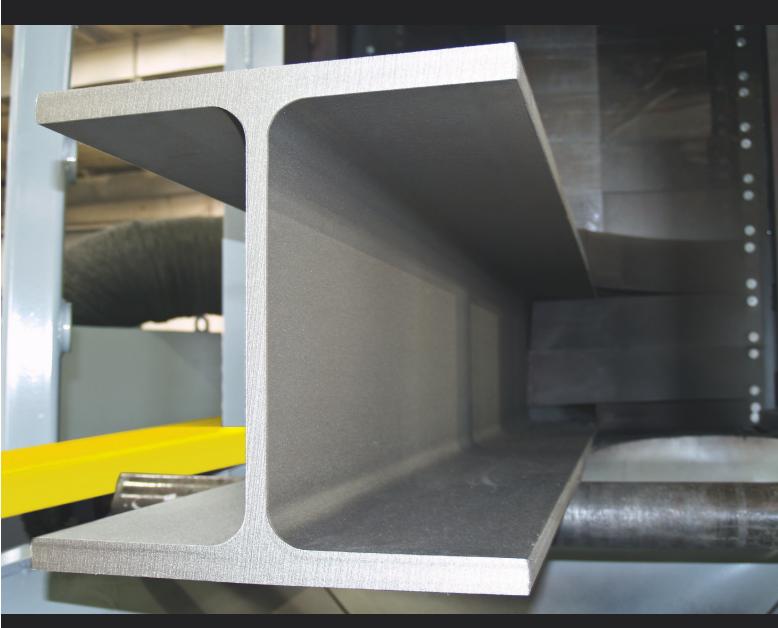
General Contractor

Hensel Phelps Construction Co., Chantilly, Va.

Blast Engineer

Applied Research Associates Inc., Vicksburg, Miss.





LS INDUSTRIES' METAL CLEANING SOLUTIONS

For more than three decades LS Industries has engineered and built metal cleaning and surface preparation systems that increase productivity through automation. Integration of our automated shot blasting systems, support and services are growing businesses. We focus on understanding and providing the alternatives needed for your ideas to grow.

See the solutions at www.lsindustries.com.

710 E. 17th St. ■ Wichita, Kansas 67214 Phone: 316-265-7997 ■ Fax: 316-265-0013 TF: 800-835-0218 ■ www.lsindustries.com





YOU KNOW IT'S A GREAT DAY when you top out a 4,600-ton structural steel project by dropping a 260-ft-long, 100-ton truss into place with 6 in. of clearance on either end, the client and other project big-wigs are watching, and the whole operation not only goes off without a hitch, but almost looks easy.

SME Steel Contractors' field manager, Mark Mundy, held his breath and watched as the two cranes lifted the giant truss at a twisted angle above the



BYU-Idaho's upcoming sports and performing arts facility uses 4,600 tons of structural steel. The facility will open in 2010.

roof line. Project ironworkers gently guided the 260-foot truss into alignment, as the cranes lowered it into place between a 120-ft-long king truss on one end and slots in pre-cast walls of the multi-use domed sports auditorium on the other. Mundy let out a big sigh of relief.

"That pick started months ago when the building was still in pre-design," he explained. "If we hadn't been working with the AEC team from the beginning, this topping out probably would not have happened today and it might not have gone as smoothly."

Complications, Above and Below

The story of the pick started several months before, when SME was asked by the design team to participate in the design and construction of a major sports/performing arts facility for Brigham Young University - Idaho's campus in Rexburg. Erection began

in June of 2008 and will finish up this June; the project will open in 2010.

"We got involved when the structural drawings were still in the conceptual stage," said Jeremy Stam, SME's project manager for the Rexburg project. "This was not a normal fab and erect job."

According to Stam, space at the site was tight and SME had to deal with getting the trusses set before winter hit. In addition, a further complication came in the form of a set of tunnels that needed



Two dozen roof trusses were used in total for the gym and auditorium portions of the project.

to be put in place under the building. "If we had followed the normal ground-up construction sequence, we would have started hanging iron at the beginning of winter," he said.

"The decision was made that the sequence should be turned upsidedown—that we build from the top to the bottom. That way we would have the concrete walls and steel trusses in place with a roof so that Okland [the contractor] could do their tunnels and concrete pours in a covered environment when the snow hit. And, it allowed us to maintain the tight temperature tolerances we needed for the trusses to fit into their slots in the concrete walls."

SME's contribution to the design process focused on how to streamline structural fabrication and erection from a field operations standpoint. Decisions on whether connections should be bolted or welded, fabrication and erection sequencing, optimization of material shapes, and how to best use scarce lay-down room that would get progressively smaller, were all made during the design and pre-construction phases, when it was possible to make changes

without incurring major costs in time and money.

"Our involvement from the beginning definitely helped expedite the schedule," said Stam. "We even had our detailers share a Tekla Structures model with the precast guys so that everybody was working off the same page during the design phase."

A Tale of Two Fab Shops

SME made full use of their two major fabrication facililties in making the project happen on time. The home shop in West Jordan, Utah handled the job of fabricating the challenging trusses for the auditorium, which were to be totally field assembled. This meant that the proper angle of camber had to be built into each segment at the shop and then maintained during the field welding process.

Further north, SME's Pocatello, Idaho shop built the trusses for the gymnasium part of the building. Those trusses were built in three sections and pre-painted at the shop, then assembled on site by field ironworkers.

"Our detailers had to detail the field splices to create camber in the finished

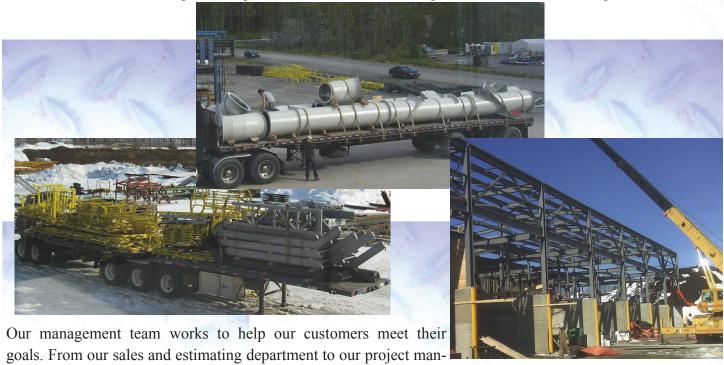
Continued on page 34.





LET'S BE PARTNERS

For over twenty years, Metal Perreault Inc. has been partnering up with fabricators all over North America so they can meet their deadlines. We are involved in different projects from simple beams to heavy columns and from a curved stairs to complex canopies. We are renown for our professionalism and our expertise.



agers, we reflect the philosophy of our President Mr. Gerald Perreault, Precision, Flexibility and Quickly. In today's economy, each customer needs to get all the information on time without loose ends to tie up later on.



167, Armand-Bombardier, C.P. 4029 Donnacona, QC, Canada

G3M 2X2

Phone: (418) 285-4499 Fax: (418) 285-4490

documents@metalperreault.com www.metalperreault.com



PRECISION, FLEXIBILITY, QUICKLY



4 lines running around the clock.

Shipping and receiving around the clock.

Environmentally friendly galvanizing.

Upon request we will provide certification that your project or component was galvanized without producing **ANY** hazardous waste.

If you have a job in the southeast or transiting through the S.E.
Tennessee Galvanizing will unload your steel, run it, and reload while your driver waits.

Saturday runs with notice.



Alloy Zinc to threaded rods and fasteners using HOT DIP GALVANIZING for time proven protection.

www.tennesseegalvanizing.com 1535 Industrial Blvd • PO BOX 609 Jasper, TN 37347 (423) 942-1020

TOLL FREE (877) 242-5848

Continued from page 32.

piece," Stam said. "The detailer provided check dimensions so the field crews could check to make sure that the proper camber was maintained throughout each piece."

Stam also said that on-site quality control was a challenge, especially when the days and nights started to get cold. "If the camber had been out of tight tolerance, those trusses would not have fit into place, and you don't want to be making field corrections on a 260-ft-long truss hanging up in the air," he explained.

The day of reckoning for the SME team came on an overcast, cold day this past October when the 260-ft-long truss was carefully lifted high into the narrow slot of space remaining in the nearly finished roof of the gymnasium side of the project. Ironwokers walked the narrow top of the hanging truss, making last-second adjustments before signaling the crane operators to make the last short drop into the waiting slots of the concrete walls that had been designed and placed in perfect position and angle months before. When the signal came, the huge truss slipped smoothly into its new home.

Architect

FFKR Architects, Salt Lake City

Structural Engineer

TSBA Engineers, Centerville, Utah

Steel Fabricator and Erector

SME Steel Contractors, West Jordan, Utah (AISC Member)

Steel Detailer

Global Structural Detailing Ltd., Edmonton, Alberta, Canada (AISC Member)

General Contractor

Okland Construction, Salt Lake City



Michael A. Moore has written about and photographed construction for more years than he cares to remember. He has also worked as a structural steel expediter and helped sell structural projects.

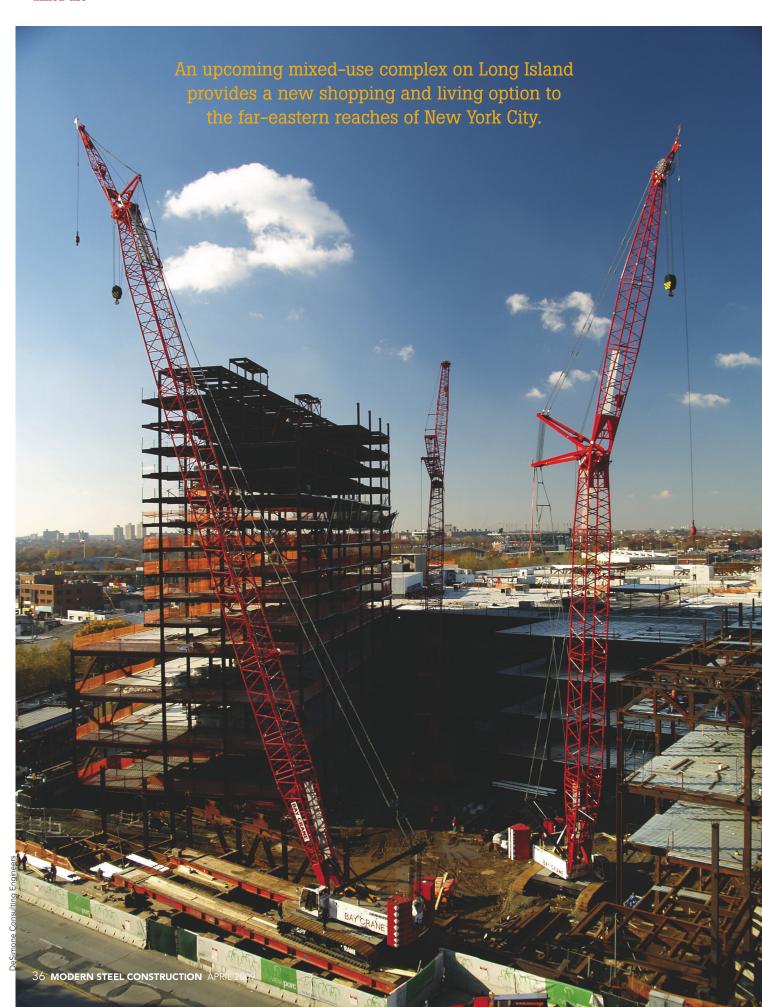


Innovative shot blasting equipment & preservation line systems from the world's leader in surface finishing!

RÓSLER® finding a better way ...

ROSLER Metal Finishing 401 Miles Drive Adrian, MI 49221 ROSLER Metal Finishing 1551 Denso Road Battle Creek, MI 49037

Phone: (269) 441-3000 - Fax: (269) 441-3001 - info@rosler.us - www.rosler.us



Shopping Around

BY STEPHEN V. DESIMONE, P.E., LEED AP, JAMES BONANNO, P.E., AND KAREN WU

WHILE CONSTRUCTION OF RETAIL SPACE has slowed down across the country, there are some positive signs. One of them—and not a small one—is located in Flushing, N.Y. on the east side of Queens, where a \$1 billion mixed-use project remains on schedule to be completed this fall.

Sky View Parc boasts 3.3 million sq. ft of space including 800,000 sq. ft of retail floor area, 1,100 residential condominium units, and sufficient parking for both shoppers and residents. The final piece of structural steel—there are approximately 17,000 in all, comprising 16,000 tons—was erected in February.

The complex consists of two steel-framed podium buildings, each with three levels. Above the east podium retail base, an 11-story steel-framed residential building and two additional 11-story concrete-framed residential towers were constructed on top of story-high transfer trusses. At the steel-framed tower, three rows of columns were arranged along the building length, allowing column bay sizes of 34 ft by 26 ft. Along with the use of

18-in.-deep girders and shallow 16-in. filler beams, large column-free bays were created to allow maximum flexibility for residential unit layouts as well as generous clear heights of 9 ft below the framing members. Transfer trusses were also used on the roof level of the west podium building, where they will support three future 14-story concrete residential buildings. The retail podium buildings flank a 900,000-sq.-ft precast concrete garage with space for 2,600 cars.

Mixed-Use, Mixed Requirements

The design of large mixed-use projects presents several challenges due to the different tenant requirements within one building. Since the project was conceived as a retail project with residential buildings constructed on top, retail column bays of 36 ft by 32 ft controlled the layout of the steel framing.

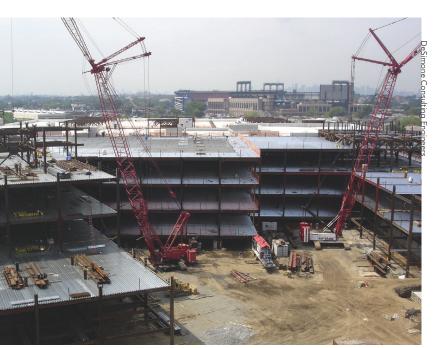
Since retail column grids cannot be modified due to merchandising fixture layouts and the stores' aisle plans, the columns from



The project is expected to increase commerce in Flushing, N.Y., which is also home to the New York Mets' new Citi Field Stadium.



Full-story transfer trusses support residential towers above retail space.



In all, the mixed-use complex is comprised of 3.3 million sq. ft of space, including 800,000 sq. ft of retail floor area and 1,100 residential condominium units.



The complex's three-story retail podium transitions to multiple residential towers above.

the residential towers could not penetrate into retail spaces. Welded steel transfer trusses and girders were used to transfer residential tower columns out to retail column grid locations below, thereby preserving the regular, long-span retail merchandising bays. This structural transfer was accomplished at a full-floor-height interstitial level directly below the residential towers, space that was eventually allocated to mechanical rooms and residential storage.

During the early stages of the project, the developer wished to build retail space that would attract national retailers and produce an upscale shopping environment in the Flushing area. With that in mind, a higher-than-code-required live load was used for the structural design of the floor framing systems. In addition, the developer wanted to offer floor plates that could be retrofitted easily as leases expired and new ones were signed. The use of structural steel and a composite concrete on metal deck floor system provided the structural capacity to not only support the heavy loads but also maintain the large retail bay dimensions, while at the same time maintaining an absolute minimum floor-to-floor height, keeping the overall building height to a minimum; one of the flight paths for LaGuardia Airport passes directly over the project, and thus the overall height of the rooftops of the residential towers was restricted.

Less Piling Pressure

Yet another challenge faced on the project was the poor geotechnical conditions found across the complex's 14-acre site. Since Sky View Parc is located adjacent to the Flushing River, the subsurface conditions are a combination of soft clays and sands with little if any bearing capacity. Because of such conditions, the building foundation systems consist of approximately 5,500 driven H-piles and Monotubes varying in length from 60 to 120 ft. In order to minimize the building weight and the corresponding pile count and pile driving time, structural steel framing offered the best and lightest solution.

It also afforded the design architect the greatest degree of flexibility in the design of exterior canopies and sidewalk overhangs at the retail entrances. The large, monumental, curved glass structure at the main entrance to the retail plaza cantilevers 14 ft beyond the building's column lines and provides a three-story atrium behind the glass wall system. Cantilevered structural elements, moment connected to the roof framing, provide the structural system from which the hanging glass wall system will be supported. The stringent deflection requirements of the glass wall were achieved through the use of stiff cantilever elements, and the curved wall edges were formed with the use of curved steel edge members.

Although the current economic conditions may be daunting, Sky View Parc is a step in the right direction, as new, highprofile retail spaces tend to generate interest and activity. In a city of options, people are always looking for new ones. Beyond offering a new shopping and residential opportunity, the complex also offers a bright spot in the current downward trend in both of these markets—and perhaps hopes of a not-too-far-off economic recovery.

Stephen V. DeSimone is president and CEO, James Bonanno is an associate principal, and Karen Wu is a project engineer, all with DeSimone Consulting Engineers.

Owner/General Contractor

Muss Development, Forest Hills, N.Y.

Architect

Perkins Eastman, New York

Structural Engineer

DeSimone Consulting Engineers, New

Steel Fabricator

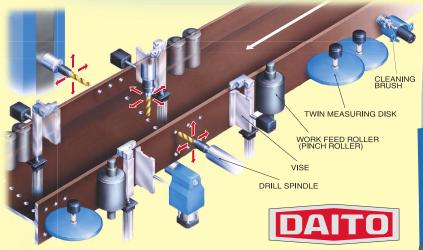
MRP LLC, South Plainfield, N.J. (AISC Member)

DAITO IS DIFFERENT!

The drilling machine of "X-Y positioning 3 drills" method

Three drills (left/right/top) travel 2 dimensionally while the workpiece is firmly held by vises...this original method of Daito enables unrivaled speed and accuracy.

Beam Wic	dth	CSD 11050	1350	1570
<u> </u>	Мах.	40	51 1/2	59
	Min.	6		8





DAITO U.S.A., INC.

1470 Elmhurst Road, Elk Grove Village, IL 60007 Tel: 847-437-6788 http://www.daitousa.com

Versacope

DAITO

VERSATILE COPING ROBOT for Structural Steel

CR4816

"Versacope" makes the difference!

DAITO's Versacope CR4816 coping robot is the most versatile/efficient partner of your business.

The distinctive features:

- Six [6] axes Robotic Arm
- Hypertherm HPR-260 Plasma
- Three [3] axes Oxy
- Rapid material feed system by pinch roller
- Precise material measurement by touch probe

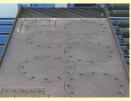


Bevelling Web Coping









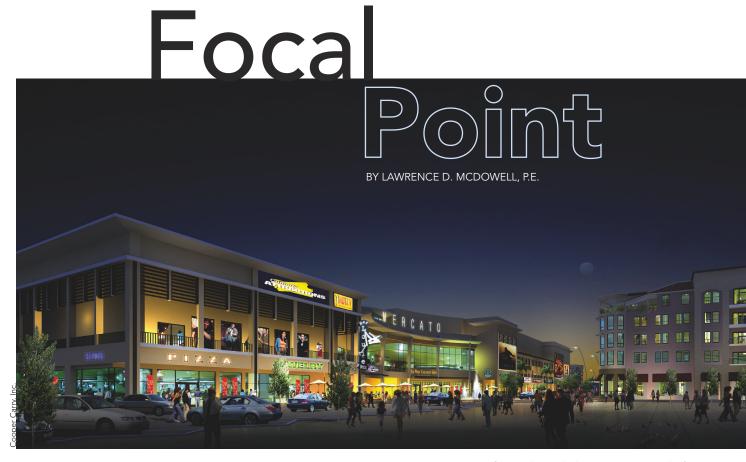
Haunching

Plate Processing



DAITO U.S.A., INC.

1470 Elmhurst Road, Elk Grove Village, IL 60007 Tel: 847-437-6788 http://www.daitousa.com



Mercato is a 760,000-sq.-ft mixed-use devlopment comprised of 12 buildings containing retail space, restaurants, offices, and condominiums.

IN THE HIGHLY COMPETITIVE RETAIL MARKET, movie theaters can be a lucrative magnet for developers, providing steady stream of patrons from morning until late at night. And in many retail developments, the theaters become the star attraction.

Such was the case with The Mercato, a mixed-use devlopment near Naples, Fla., which attracted international theater firm of Cines Unidos to be its centerpiece. The 760,000-sq.-ft. complex is comprised of 12 buildings containing retail space, restaurants, offices, and condominiums. One of the buildings, Building 8, is situated at the main intersection of the streetscape and provides the high visibility essential for the theater, as well as easy access for its patrons.

Inherent in the master planning for The Mercato, the design of Building 8 needed street-level retail and restaurants to provide the proper mix for the building, with the movie theater and a future comedy club located above. The two-story structure has floor plates of approximately 50,000 sq. ft per floor. The theater, with 11 separate seating houses as well as a projection and office mezzanine, originally had a column grid of its own-tailored to fit standard theater modules-and bore no practical relationship to the proposed retail demising walls below. To complicate matters, none of the retail leases had been executed at the time of the structural design, so maximum tenant flexibility below the theater was paramount.

Thus the structural engineer was faced with a myriad of framing issues:

- Column grid alignment between the theater and the retail
- The high story height of the theater (35 ft) and large open volumes for the stadium seating.
- Lateral load resistance framing. Although seismic design is not a code issue in Florida, the high hurricane-force wind loads in south Florida are formidable. Like the column grid, the potential locations for lateral bracing in the theaters tended not to align with optimum locations in the retail portion.
- Virtually all of the storefront exposure along three sides of the building was required to be free of bracing, walls, and other encumbrances for the high street visibility that retail construction requires.
- Each theater's stadium seating had to be structured independently such that sounds (particularly low-frequency) were not transmitted from theater to theater.
- The structure needed to have a degree of flexibility for revisions during the design and construction process as leases developed.

Structural steel became the practical and logical solution for Building 8. After a two-month negotiation with the shell architect and the theater designers, the structural engineer



Entrance framing for Mercato's Building 8. Bracing locations were carefully coordinated with the theater above and retail below, placing most lateral resistance inboard of the façade to facilitate retail storefront exposure.

Cooper Carry, Inc





Each theater's stadium seating (seen left and above) had to be structured independently such that sounds (particularly low-frequency) were not transmitted from theater to theater.



was successful in securing a column grid that provided one-piece, full-height columns with virtually no column transfers. Even more importantly, bracing locations were carefully coordinated with the theater layout and retail below, locating most lateral resistance inboard of the façade to facilitate retail storefront exposure.

Composite floor slabs supported the intricate framing for the over-built stadium seating and mezzanines. The stadium seating rakers were constructed of steel framing members with cast-inplace concrete treads, carefully coordinated with the theater geometry and low-headroom clearances associated with the theater entranceways and mezzanines. Gaps were provided between each theater seating frame to provide the acoustic separation required. In addition, several minor floor and roof modifications were required throughout construction to accommodate architectural and mechanical revisions, but these were easily achieved in the field.

In the case of The Mercato's Building 8, structural complexity was met with structural flexibility, culminating in a framing system that could be easily redesigned and detailed to accommodate two such different tenants as a theater and retail shopping on successive floors. The building is on scheule to open in May.

Lawrence D. McDowell is a senior principal with Uzun and Case Engineers, LLC.

Developer

Lutgert Companies and Barron Collier Company

Architect

Cooper Carry, Inc., Atlanta

Theater Architect

Gould Evans Associates, Tampa, Fla.

Structural Engineer

Uzun and Case Engineers, LLC, Atlanta

Steel Fabricator

Steel Service Corporation, Jackson, Miss. (AISC Member)

Steel Erector

John Bowman, Inc., Naples, Fla. (SEAA Member)

Steel Detailer

Pacific Drafting, Inc. (AISC Member)

General Contractor

Hoar Construction, Orlando, Fla.

Now available the DRL-348TC with 48" material capacity and automated tool changer.



DRL-344
Beam Drilling
Line



DRL-336
Beam Drilling
Line



BFC-530 Beam Punching Line



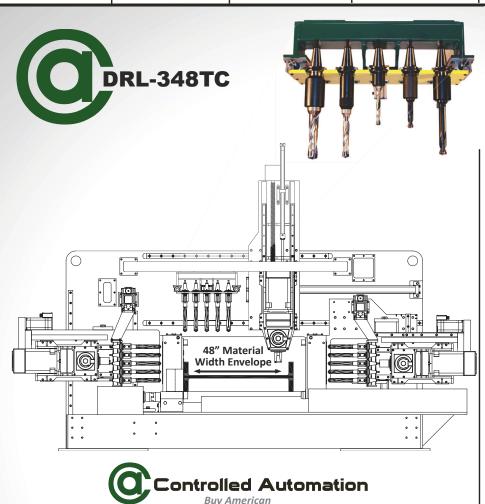
GPD-144
Plate Drilling &
Surfacing Machine



Plate Drilling &
Cutting Machine



MultiMAX
Plate Processing
Machine





Controlled Automation DRL-348TC

High speed production drill line with fully automated tool changer

Introducing the *DRL-348TC* high speed production drilling line with a 48" material width capacity, 15 or 20 hp spindle motors, 3-spindle high speed carbide drilling, integrated automatic tool changer on all spindles, 1000 lb/ft material handling, Controlled Automation's time-proven drilling technology including *Soft-Touch Material Sensing, Bit Breakthrough Technology, Overthrust Protection, Drill Tool Database, Partial Hole Feed Correction and <i>Tip Anale Compensator.*



Controlled Automation specializes in the manufacture of automated structural steel drilling, punching, and shape cutting machinery. Material handling systems are also available to complement each type of machine we offer. As well as new machinery, we are the industry leader in retrofitting control systems and remanufacturing existing structural steel fabricating machinery. All machines and controls are designed and manufactured entirely in the United States of America.

All software is developed in and supported from the United States of America.

PlasMAX Plate Processing Machine



ProMAX

Plate Processing Machine



ABL-100

Angle and Flat Bar Processing Line



ABL-86T

Angle and Flat Bar Processing Line



ABL-74T

Angle and Flat Bar Processing Line



2AT-175

Plate Punching Machine



Cheme BY DALE WILLIAMS

C+S

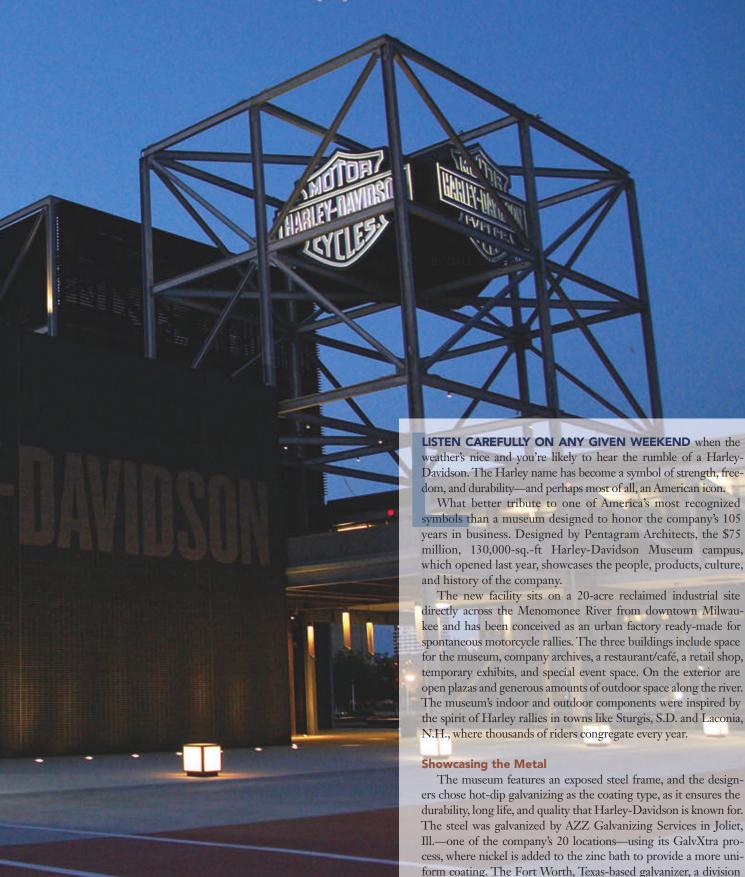






Photos: © Paul Warchol

Harley-Davidson puts its history—and plenty of galvanized steel—on display in its new museum.



of AZZ, incorporated., is the largest in America.



The industrial quality of galvanizing is not added on but literally becomes part of the support and long life of the structure. When it came to the façade of the buildings, the designers turned to the motorcycles themselves for inspiration and developed an exoskeleton of exposed supports in a frame of galvanized steel. Like Harley-Davidson bikes, where the glistening chrome draws the eye, the steel is not concealed behind plastic or metal but is put on display for all to see. Pentagram was able to capture the maximum potential offered by galvanizing, using the changing zinc patina to aesthetically represent the long life of the coating—and again, of Harley-Davidson itself.

The site design required interior connections between the various buildings, so glass-enclosed bridges were used, maintaining the factory aesthetic. Like the buildings, the bridges reveal their structure on the outside, holding the glass to the interior. Both the inside and outside of the structure are simple and bold, using wide-flange beams and columns, exposed gusset plates, and crossbracing to stiffen the frame. The project incorporates a total of 2.5 million lb of structural steel, 2.3 million lb of which is galvanized. The galvanized steel is not the typical painted finish, but rather an honest, hardy expression of the industrial process.

Cost Factors

While the initial cost of the project was important, the designers took the life-cycle cost of galvanizing into consideration as well. According to a study from KTA-Tator, Inc. (an engineering firm specializing in coating consulting) recently published in NACE Paper #06318, Expected Service Life and Cost Considerations for Maintenance and New Construction Protective Coating Work, the initial cost of galvanizing the steel was competitive with paint systems, and

the life-cycle cost associated with a 50-year project life is substantially less with galvanizing vs. paint. In addition, using hot-dip galvanizing as the corrosion protection system means there will be little, if any, maintenance for several years, thus avoiding future maintenance costs.

Speaking of the future, perhaps one of the best words to describe Harley-Davidson is "enduring." It applies to the company's brand, its bikes, and its existence. The new Harley-Davidson Museum pays homage to all of these, and thanks to its zinc-coated, exposed steel structure, is yet another of the company's holdings that can be classified as enduring.

Dale Williams is AZZ's marketing manager. James Biber, FAIA, was Pentagram Architects' partner in charge for the Harley-Davidson Museum project and contributed to this article.

Architect

Pentagram Architects, New York

Structural Engineer

HGA Architects and Engineers, Milwaukee

Steel Fabricator and Detailer

Merrill Iron and Steel, Schofield, Wisc. (AISC Member)

Steel Erector

Area Erectors, Inc., Rockford, Ill. (TAUC Member)

Steel Galvanizer

AZZ Galvanizing Services, a division of AZZ, incorporated., Fort Worth, Texas (AISC Member)

General Contractor

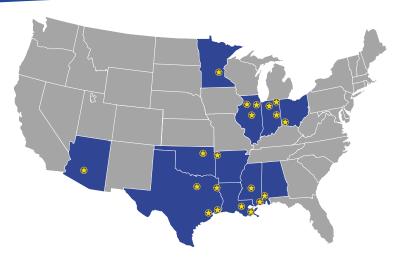
Mortenson Construction, Milwaukee



A TRADITION OF SUCCESS

Engineered Solutions to Real-World Corrosion Problems from America's Largest Galvanizer





20 Locations to Serve You!







You've Designed it. Fabrication is Complete. Now Protect it!

Today's Marketplace demands that valuable steel products last longer than ever before. Protect your reputation: deliver a preferred, value-added product to your quality-conscious customers with the help of America's largest galvanizer.

AZZ Galvanizing Services' expertly applied hot-dip galvanizing creates a protective zinc barrier to the surface of steel assuring decades of protection from costly maintenance, downtime and system failures.

As always, AZZ is fully committed to protecting the environment. Thirty percent of our zinc inventories are produced from recycled zinc. Please visit our web site to learn which of our 20 locations can serve you!

Looking for someone

who can satisfy your

Detailing needs



- INTERNATIONAL STEEL DETAILIT
- > 3D Modeling and BIM services.
- > Complex and Large projects capacity.
- > Over 20 years of experience including mining, oil and gas, industrial facilities, commercial buildings and schools.









www.isd.cl



The Sounds of Silence

BY ROB KINCHLER, P.E.

Dispelling the myths about structural steel and sound transmission.

GETTING A GOOD NIGHT'S SLEEP at a hotel can be tough if you have a noisy neighbor. Many of us have experienced this problem at one time or another, faced with the dilemma of making the complaint call to the front desk or suffering through a restless evening.

The same can be said for the owner of a condominium trying to enjoy a peaceful night at home when the party next door sounds like it's in their own unit. Owners, developers, and architects are thus keenly aware of how important it is to prevent objectionable sound transmission in residential buildings.

A myth exists that a residential building, such as a hotel or condominium, framed in structural steel will be noisier than one framed in concrete or masonry. In fact, it is the characteristics of the separating elements—not the beams and columns—that make or break sound transmission performance. Thus, a successful acoustic design of wall and floor systems between units is what matters.

The August 2006 SteelWise article "Can You Hear Me Now?" (available at www.modernsteel.com) explored the issue of sound transmission in buildings. The article explained that sound energy is measured in decibels (db), how the suitability of a structural assembly to block sound transmission is rated via Sound Transmission Class (STC) and Impact Insulation Class (IIC) ratings, and how different products can help alleviate acoustical problems. I'd like to further explore the topic of sound transmission, particularly addressing STC ratings of wall and floor assemblies.

Making Sound Comparisons

STC ratings measure how well a sound barrier blocks airborne sound transmission. However, these ratings only address airborne sound in the medium- to high-frequency range (125 Hz to 4,000 Hz), which corresponds to normal and amplified speech. A wall assembly with an STC rating of 50 db can reduce 110 db of airborne sound on one side of the wall to 60 db airborne sound on the other. This is the equivalent of reducing the noise level of a rock concert to the level of normal speech. (We'll stay focused on the medium- and high-frequency range, but it should be noted that low-frequency sounds, such as bass from the subwoofer in a home theater system, cannot be addressed by STC ratings; acoustical drywall, constrained layer damping, and mechanical decoupling can be used to reduce low-frequency sound transmission.)

Impact Isolation Class (IIC) ratings measure structureborne sounds resulting from sound producers like washers and dryers, exhaust fans, or footsteps. Most floor assemblies need additional enhancements, such as carpets and underlayment, to raise the IIC rating of a floor assembly to code-required minimums. Table 1 (Assembly Ratings) on page 52 shows IIC ratings for the various floor/ceiling assemblies.

In residential applications, Section 1207 of the 2006 *International Building Code* requires a minimum STC rating of 50; minimum requirements in other major building codes are similar. However, high-end properties may be constructed to achieve STC values greater than 60 to provide better reduction levels. The STC rating then has great influence on the construction of walls and floors.

STC ratings for different wall and floor assemblies are dependent on such factors as the material types used, their mass, and air space included in the assembly, if any. Some common assembly ratings are shown in Table 1. When details in the actual construction differ, the rating may be improved. For example:

- 1. Doubling the mass of the assembly will add 5 points.
- 2. Including an airspace will add 2 points per inch of thickness.
- 3. Adding insulation in the airspace will add 5 points.

Note also that cold-formed steel studs typically will have higher STC ratings than wood studs due to flexibility. Since wood studs are more rigid, they transmit sound more easily because they dissipate less sound energy than flexible cold-formed steel studs, and therefore have a lower STC rating. (Again, see Table 1.)

One challenge that arises in sound design is that these STC ratings are for wall or floor assemblies that were tested in a laboratory in accordance with the requirements in ASTM E90. In real construction, it is important that the assemblies are built consistent with the details as tested. Even more important, flanking paths that allow sound to travel



Rob Kinchler is AISC's South Central regional engineer. He can be reached at kinchler@aisc.org.

unimpeded through air around the assembly (see Figure 1 below) can quickly compromise the performance of even the highestrated barrier assembly. The elimination of flanking paths requires careful attention, especially at mechanical ductwork, piping runs and other penetrations, door and window openings, electrical switches and outlets, and barrier edge treatments at intersections with structural elements and other barriers.

Micro vs. Macro

Acoustical consultant Alan Burt of SSA Acoustics in Seattle (www. ssaacoustics.com) points out that the designed airborne sound transmission of an assembly is a function of how the assembly itself is put together, and not the building's structural framing. In other words, all other variables being equal, the frame choice—whether steel, concrete, or masonry—is not the driving factor in achieving the desired STC ratings. Rather, the important questions to consider in designing for the acoustical quality of a building include:

- 1. Are the selected wall and floor assemblies appropriate for the reduction of noise required?
- 2. How well are the selected wall and floor assemblies constructed in the field?

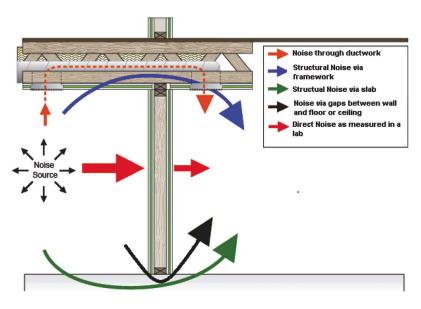
- 3. Are the alternate flanking paths being addressed?
- 4. How does the framing affect other noise or vibration issues (i.e., mechanical equipment, instrumentation affected by vibration, floor response, etc.) and how does this need to be addressed?

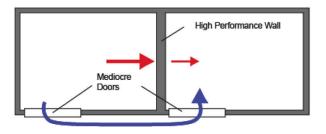
For example, in a high-end condominium, the demising walls may be built with cold-formed single-row studs, two layers of drywall, and insulation (option 6 in Table 1). This assembly has an STC value of 56, which is marginally below the STC rating of 60 recommended for high-end properties. Increasing the airspace or using resilient channels will increase the STC rating to 60. The Fire Resistance Design Manual, published by the Gypsum Association, and USG's Drywall Steel Framed Systems guide have other generic and proprietary wall and floor systems to further improve STC ratings.

Option 6 also provides a two-hour fire-rated wall when used with drywall. If the wall encapsulates the structural steel framing, then no cellulose or cementitious spray-on fire protection is required. Thus, the steel structure is fire protected at no additional cost with higher STC requirements. On the other hand, if masonry walls like option 1 or option 3 are selected, the STC ratings would be comparable to insulated cold-formed stud walls, but

Continued on page 52.

Figure 1: Flanking Paths





Reprinted with permission from The Green Glue Company.

BEAUTYTHATLASTS



"Zinc Protects Steel"

For over two centuries **Hot Dip Galvanizing** has performed on bridges, utility stations and stadiums. (to name a few) V&S is now supplying under-water protection for steel with our "scuba" line.

There is nothing made of steel we cannot protect! Give us a call on your next corrosion-free, worry-free steel project.



Beauty will last.
She uses
galvanized steel.
Do you?

1-800-801-3648 | www.HotDipGalvanizing.com
Columbus, OH | Redford, MI | Jonestown, PA | Perth Amboy, NJ | New Castle, DE | Taunton, MA

Table 1: Assembly Ratings

Table 1: Assembly Ratings		
Tested Wall or Floor	Rating	
Assembly	STC	IIC
1. 8" CMU Wall (Exposed)	48	NA
8" CMU Wall 2" Z-Bars (Each Side) ½" Drywall (Each Side)	52	NA
8" CMU Wall (Covered) 35%" Steel Studs (Each Side) 1 Layer Drywall (Each Side) 1 Layer Insulation (Each Side)	64	NA
4.	39	NA
35%" Steel Studs 1 Layer Drywall (Each Side)		
35/6" Steel Studs 1 Layer Drywall (Each Side) Batt Insulation	45	NA
35%" Steel Studs 2 Layers Drywall (Each Side) Batt Insulation	56	NA
7. 6" Concrete Floor Slab	53	27
8. Concrete Floor Slab	55	30
bu did wid	43	20
4" Concrete Floor Slab on Metal Deck (1½" Metal Deck, 2½" Conc.)		
10.	51	21
6" Concrete Floor Slab on Metal Deck (3" Metal Deck, 3" Conc.)		
11. 8" Hollowcore Precast Plank	53	28

Images in table reprinted with permission from stcratings.com.

Continued from page 50.

the masonry options would weigh considerably more than option 6 and require a larger overall wall thickness, encroaching on valuable real estate.

When attempting to meet certain STC rating requirements, one must keep in mind that the in-field construction of the wall assembly should be as similar as possible to the tested conditions; any openings in the wall assembly should be properly sealed off (electrical outlets, plumbing penetrations, etc.). If the ductwork in the unit is connected in some fashion with other units, acoustic consideration needs to be addressed to prevent sound emanating from one unit to the next via the ductwork. The location and quality of doors and windows within a wall assembly can greatly compromise the actual STC rating achieved.

From Walls to Floors

From Table 1, an 8-in. concrete floor slab (option 8) has an STC rating of 55. With option 10, a concrete floor slab on metal deck (3-in. metal deck with 3-in. concrete topping), an STC rating of 51 can be achieved. Additionally, for an 8-in. hollow-core precast plank (option 11), the STC rating is 53. These options are not based on the building framing, whether steel or concrete, but on the STC rating desired.

All of these options meet the typical STC rating requirement in the building code of 50; however, additional measures are required to bring the STC rating up to 60 for more stringent requirements. Options to achieve this rating include providing a drywall ceiling suspended with resilient channels, sound insulation, and/or an underlayment product.

SSA Acoustics' Alan Burt describes the performance of floor/ ceiling assemblies in a luxury-grade condominium project on which he recently consulted. The assemblies between living areas were constructed with hardwood floors installed on an acoustical underlayment over a 3-in concrete slab on metal deck. The metal deck supported a ceiling below, which consisted of two layers of 5/8-in. drywall backed by 3½-in. fiberglass insulation connected to the deck with resilient channels. The tested STC rating of this assembly was 69. Thus, an STC rating greater than 60 was achieved with a 3-in. concrete slab on metal deck as the structural basis for the assembly.

Sound Advice

There are many variables that must be considered when designing a quiet building, and it may be wise to enlist the services of an acoustical design professional. This type of consultant can provide options and help to determine the best assembly for a particular application, give guidance on construction practices to be implemented as well as avoided, and help to avoid and address problems that occur when trying to achieve that rating in the field, such as location and isolation of sound leaks in the specified wall assembly.

Dispelling myths and false perceptions is always a challenge. But it would appear that sound transmission problems based upon the choice of structural framing material alone seem to have become a well-established myth with no basis in fact. Armed with this "sound advice," you can educate your clients and work with them to make decisions—based in fact, not myth—to help them achieve the acoustical performance they desire.

Did YOU know...

- → that you can now design without worrying about determining the effective length factor? Attend this seminar and learn about the use and misuse of K factors, and the how and why of design without the need for K.
- → that second-order effects have been required by AISC specifications since 1961? Attend this seminar and learn the basic differences between first-order analysis and second-order analysis, when and why second-order analysis must be used, and how to use the various methods provided for in the 2005 AISC Specification.
- → that attendees at the AISC Design Steel Your Way II seminar will learn how common software incorporates the new provisions of the 2005 AISC Specification? This seminar includes checklists for assessing what factors your software includes.

The NEW Design Steel Your Way II—Efficient Analysis for Steel Design Using the 2005 AISC Specification seminar will cover all of this and more! Extensive analysis and design examples will be provided so that attendees have guidance to follow when approaching their own projects.

Author Louis F. Geschwindner, P.E., Ph.D.



is Vice President for Special Projects of AISC and Professor Emeritus of Architectural Engineering at The Pennsylvania State University. He received his Bachelor's degree in building science from Rensselaer Polytechnic Institute and both his Master of Science in architectural engineering and his Ph.D. in civil engineering from The Pennsylvania State University. He is a Registered Professional Engineer and was a faculty member at Penn State for more than 35 years, teaching and conducting research in building structures. Geschwindner is past chairman of the Committee on Design of Steel Building Structures of the Structural Engineering Institute of American Society of Civil Engineers (SEI/ASCE) and is currently a member of the AISC Committee on Specifications, Chairing its Member Design technical committee. Geschwindner has been an author and presenter in many of the American Institute of Steel Construction lecture series.

Coming to a location near you!

NEW! Practical Connection Design for Economical Steel Structures

- ☐ 4/21 Des Moines, IA
- ☐ 4/23 Louisville, KY
- ☐ 5/12 Tampa, FL
- ☐ 5/14 Detroit, MI
- ☐ 5/19 Birmingham, AL
- ☐ 5/19 Indianapolis, IN
- ☐ 5/21 Atlanta, GA
- ☐ 5/28 Buffalo, NY
- ☐ 6/4 Dallas, TX
- J 6/4 Dallas, IX
- ☐ 6/9 Omaha, NE ☐ 6/11 Washington, D.C.
- ☐ 6/18 Providence, RI

NEW! Design Steel Your Way II

Efficient Analysis for Steel Design Using the 2005 AISC *Specification*

- ☐ 4/16 Kansas City, MO
- 4/23 Oklahoma City, OK
- □ 4/28 Harrisburg, PA
- ☐ 5/5 Houston, TX
- ☐ 5/7 Cleveland, OH
- ☐ 5/19 Seattle, WA
- ☐ 5/21 Nashville, TN ☐ 6/2 Raleigh, NC
- ☐ 6/9 Baltimore, MD
- ☐ 6/11 Billings, MT
- ☐ 6/11 Boston, MA
- ☐ 6/16 Jackson, MS
- ☐ 6/16 Sacramento, CA

Seismic Connections/

Manual Seminar Practical Applications of the

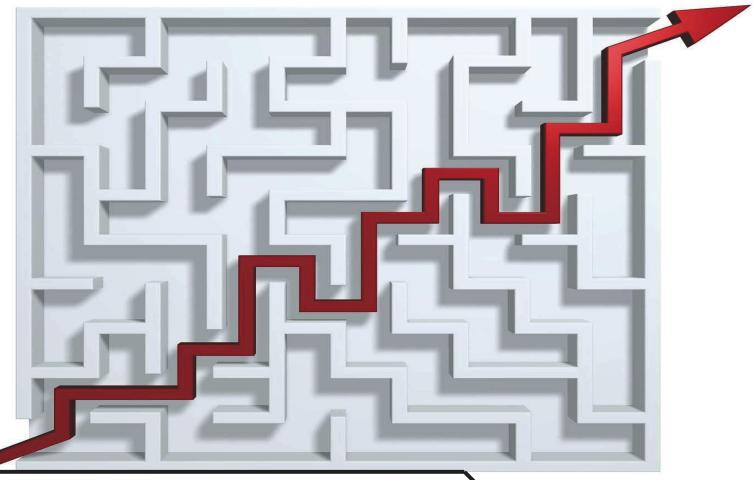
2005 Seismic Provisions

- 4/16 Columbia, SC
- 4/28 Portland, OR
- ☐ 4/28 St. Louis, MO
- ☐ 5/12 Pasadena, CA
- ☐ 5/14 Oakland, CA
- ☐ 5/28 Anchorage, AK
- ☐ 6/4 Milwaukee, WI

Register today!

www.aisc.org/ seminars

UNFAIR ADVANTAGE?



Our Customers Think So... (And... Less Than HALF The Price)

FabSuite gives you the edge you need to get and stay ahead. Whether you are backlogged with jobs or looking to win your next bid, FabSuite gives you the power to become more **accurate**, **efficient and organized** at every stage of the steel fabrication process - giving you a leg up on your competition. FabSuite is proven to save you time and money on everyday procedures by minimizing wasteful steps and work flows. FabSuite acts as your own personal efficiency consultant!

In today's fierce competitive market, can you afford the status quo?

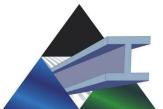
"FabSuite has allowed FSP to manage and fabricate material at an optimum and has supported our record growth. We have set continuous production records." Fabricated Steel Products, Inc.

"FabSuite saves time and money in a world with very little of either."

Delta Steel

- Estimating
- Production Control
- Inventory
- Project Management
- Purchasing
- Combining (Mult/Nest)
- Bar Coding Interface
- Order Entry

Check us out at www.FABSUITE.com



FABSUITE
Steel Fabrication Management Software

Grow Your Career—Right Now

If you find yourself in a career rut, don't blame it on the dismal economy.

LISTEN, THESE ARE TOUGH TIMES for all of us. But if you are still employed, believe it or not, now is a time when you can shine in your professional role. You have opportunities to be a hero even if you don't directly close new business—provided that you take charge and get creative with your ideas and execution.

Many people are discouraged this year. Rise above it, keep your chin up, and stand out. Here are five ways to make it happen:

1. Stay visible—internally and externally. Internally, make sure your boss sees your efforts often. Don't try to be invisible, with the hope that they won't notice your limited billable workload. Rather than shuffling through drawing sets and reports to appear busy, remember how project managers struggle every week to balance the workload.

Regardless of your experience level, make it crystal clear that you are open to doing unconventional, non-billable things during slower times. Suggestions might include: market research, gathering information regarding a current project pursuit, writing a white paper, creating a blog to strengthen your firm's website and search results, and conducting face-to-face satisfaction surveys with existing clients.

Yes, all of these efforts are marketing-related and will require the guidance of the firm's marketing leadership to get the most out of your contributions. Why am I focused on the marketing aspect? Because your firm needs to book more quality business, plain and simple. The closer you are to the revenue stream, the more likely you'll be one that survives—perhaps even thrives—during this economic turbulence.

Externally, review your network of contacts—professional and personal. Touch base with them. Perhaps your firm will create a campaign to mine everyone's individual networks; they may equip you with a message regarding a special service, a hot relevant trend, or even a direct request for new business. But even if there's no formal process in place for mining your network, still do it. Reach out with a call (yes, a call). Feel free to leave a solid, concise, friendly voicemail. Express your hope that their year is going well thus far, and reflect upon a time when they did something kind for you, or a

time when they did something notable. That sort of positive check-in may not glean an immediate response of new business, but it will most certainly paint you in a favorable light. Right now, we're all welcoming positive sentiments.

- 2. Don't be downer. While it may be neither credible nor sincere to walk around with rose-colored glasses pretending everything is bright, you do need to maintain a positive attitude—one that makes you part of the solution rather than the problem. Over the years, I have encountered many grumpy, cynical engineers especially when I worked in-house at a firm as a business development director. When times were good, I would reluctantly accept their cynicism as an inherent personality trait. But the minute things got rough for the firm, those same people became toxic to the company's health, and I found myself isolating them rather than including them in strategic efforts to turn things around. If you are a downer, don't expect the leadership to consider you a part of the solution, much less vie to keep you on board during layoffs.
- 3. Keep your cool and behave like a pro. In times when employees at all levels are jockeying to keep their jobs, there are two routes: increasing your own value or bashing the other guy. The latter is not only unproductive and unprofessional, but it's also going to come back to bite you down the road. People have long memories when it comes to destructive, inappropriate behavior in a business environment. Further, maintain a healthy lifestyle; if you feel good, you'll look good—plus your head will be clear and your mind sharp.
- 4. Stretch and invest in yourself. Whether or not your company has a reimbursement program for continuing education, you must invest in yourself to add value to your skill sets. One of the most accessible value-added routes is to become LEED Certified. Before you say "Sustainable design is not a necessary pursuit for structural engineers," check out an article that I believe provides a forward-thinking, long-term argument on environmentally-savvy structural engineers: "Moving beyond the LEED checklist" (visit www.go-structural.com; while you're at it, also check out



BY ANNE SCARLETT

Anne Scarlett is President of Scarlett Consulting in Chicago. She can be reached at anne@annescarlett.com or 773.251.8132.



"Going Beyond Material Issues" and "Full Potential" at www.modernsteel.com for more on sustainability and steel). In the meantime, you can also stretch yourself by seeking out internal resources—other professionals with whom you could learn from. And remember to remain keenly aware of any "white spaces"—duties or roles in the firm that are needed but are currently being neglected due to distractions and limited resources.

5. Recreate an environment where you've previously excelled. I read something recently by life coach Martha Beck. She suggested documenting a "lifeline" that tracks highs and lows that you've experienced over time from any particular "vice" or challenge. While her suggestions were primarily focused on personal life, I believe they can be applied to your career as well. Here's a simplified description of how it could

assist in your career evaluation:

Draw a chart with the years of your career (year 1, year 2, etc.) on the x-axis, and a scale of 1-10 on the y-axis. Then, think about years when you felt you had a great handle on your career—where you were productive, recognized, rewarded, satisfied, and perhaps even proud. Rank each year's overall performance, with 10 being the highest/"excellent" and 1 being the lowest/"unsatisfactory." What happened during those low years? Have you been able to overcome the challenges? Even more important, can you recreate elements from the years where you most excelled? These might include:

- ✓ A strong relationship with your boss
- ✓ Completing continued education/training
- Having control or autonomy over decisions within your realm
- ✓ An attentive mentor
- ✓ Having a realistic alignment between the expectations of your work and your actual capabilities

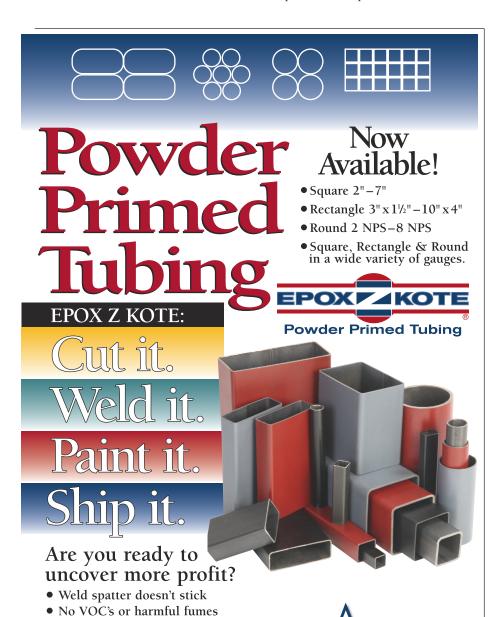
Perhaps when your career was lackluster, or even suffering, these things might have occurred:

- ✓ Personal loss (divorce, death of family member, etc.)
- ✓ Health issues
- ✓ Negative work environment/culture
- ✓ Poor relationships with coworkers

Some things are within your control; others are not. Motivation and initiative are essential ingredients to excel in your career as a professional engineer. When, during the course of these years, were you most motivated? What triggered that motivation?

Once you've done an analysis of "the ideal working environment" for you to shine in, assess what you can change and what you simply cannot. For those unchangeable conditions, try to adjust your attitude, if possible (i.e., try to overlook certain irritations or challenges in the work environment in order to rise above and move forward in your own rite).

One thing is for certain: Once we weather this tough economic climate, we'll all want to come out stronger, with valuable lessons learned. In the meantime, why not make a personal commitment to approach the present climate as an opportunity to grow and excel?



DIVISION OF THE JOHN MANEELY COMPANY

MADE WITH PRIDE - IN AMERICA -

USA 800-733-5683 CANADA 800-265-6912 SALES@ATLASTUBE.COM WWW.ATLASTUBE.COM

• No special welding procedures

• Reduces cleaning & preparation

• Compatible with powder & paint systems

• Save space, store EPOX Z KOTE outdoors!

A Better Tomorrow

BY DENNIS ARTER

Quality auditors don't just assess organizations; they also help them plan for a more prosperous future.

LET US CONSIDER A FUNDAMENTAL QUESTION:

Why do we audit? The short answer is: We audit to provide information.

Auditors examine existing conditions and match them to requirements. In process language, we have two inputs: objective evidence and requirements.

Now you might be thinking, "But wait; that sounds like inspection." It's true, auditors always start with inspection-like facts: conforming or nonconforming data. In the early days of auditing, when the focus was primarily financial, such data were called observations. They are statements of fact and cannot be challenged.

But there's more: We also audit to provide information about the future. Auditors are forward-looking, whereas inspectors look back. That's not to say inspectors are "backwards" or in any way inferior. It means that inspectors tell folks what was, whereas auditors tell folks what will be. As auditors, we take a slice of recent time and project it forward—i.e., "Based on what I see now, this is what I expect to see six to nine months from now."

That means auditors must take objective facts (or observations) and turn them into subjective opinion. Yes, auditors are required to form conclusions, whereas inspectors are limited to go or no-go.

This forward-looking concept can be seen in all audit applications. Government inspectors must evaluate a regulated firm's controls and decide if the public is protected from harm. Financial auditors examine year-end reports, looking for truthfulness. Business managers and stockholders use those reports to make financial decisions. Supplier auditors evaluate current shipments as a measure of future performance. Before AISC can issue a certificate, for instance, Quality Management Company must decide if its clients are conforming—and will continue to conform—to a set of requirements. Internal auditors—whether they're looking at quality, environmental considerations, safety, operations, or security—all examine current practices to judge future risk.

Here's the final part: We audit to provide information about the future to those who can change that fu-

ture. It does little good to assess the risks or benefits of the future if we can't do anything about them. Audit customers control the future. Whether they are managers, regulators, purchasers, structural steel fabricators, erectors, or engineers, they can effect change. They're called stakeholders. If the future looks good, they can devote finite energy and resources elsewhere. If the future is full of doom and gloom, stakeholders can work to change things.

Stimulating Change

So, how do we get stakeholders in an organization to do anything? Here's once scenario: As an internal auditor for your organization, you can go through all your notes and pick out the really juicy problems in the shop and label them "major nonconformities." Then, select the small problems and label them "minor nonconformities." What's left can't be called nonconformities, because there really isn't a requirement to do it another way. However, everyone knows it should be done differently, so you label these leftovers "observations." You present your six-page list of problems (never mentioning anything good) at the closing meeting of your internal audit, along with 10 to12 corrective action requests. Another audit is in the bag.

Dennis Arter is an ASQ Certified Quality Auditor and a quality auditing consultant and trainer with Columbia Audit Resources. He is the author of Quality Audits for Improved Performance and co-author of ISO Lesson Guide 2008 and Auditing the Process-based QMS, all published by ASQ Quality Press. Catch his blog at auditguy.blogspot.com.



HELP IS HERE.

Get the 80-year Steel Joist Manual, the current Specs and Loads Catalog and comprehensive technical digests on steel joist construction at steeljoist.org/pubs



The four rules of the audit:

- **1.** Auditors provide information about the future.
- 2. Auditors must be qualified.
- **3.** Auditors examine activities against requirements.
- **4.** Auditors form conclusions based on facts.

Or, you could *really* help your organization by analyzing the data. You could show how the lack of system controls is harming the business—higher costs, lower production, and increased risk. It's all business pain. Perhaps you can actually cause improvement through your audit actions.

Here's how it works: First, you perform a "data dump." As the internal audit progresses, the audit team meets periodically to gather and discuss facts and opinions. They develop a master list of good (conforming) facts and bad (nonconforming) facts.

Take a sheet of paper, draw a line down the middle, and label one side *good* and the other side *evil*. Everyone opens up their field notes and calls out the good (conforming) facts and bad (non-conforming) facts. The scribe, usually the team leader, writes it all down. It is important that there be no analysis, sorting, or deep understanding of the data yet. This is called a data dump, as there is no intent to analyze the information. We just need to get it all in a central location.

Next is the "data chunk." The data are now examined to detect patterns. Go down the list of bad facts and find those that are similar. They are variations of the same thing or they point to a common weakness. Identify related facts by a graphic symbol, such as circle, box, triangle, star, etc. You will generally have two or three big "piles" of related facts. This is called data chunking. Facts, both good and bad, will always cluster. As quality industry pioneers Deming and Senge taught us, rarely is there only one instance of a conforming or nonconforming condition. Systems analysis shows us

that only one or two issues are common to the majority of the gathered facts. We focus on those common issues.

Next, state the problem, followed by several factual examples of that problem, all on one sheet of paper. This is called a "finding sheet." Rather than reporting each nonconforming item, we show how the several nonconformities are the result of a system issue. We show the disease, supported by several individual symptoms.

If we are really good, we can also show business pain: cost, production, or risk. Putting the problem and pain together at the top of the finding sheet will nearly always convince the stakeholders to change. It becomes a causeand-effect statement: "Because of this problem, this pain exists." And no one wants pain (business or otherwise) to continue!

Seeking Truth

Here's where auditors use another important management system—corrective action—to get the problems analyzed and the underlying conditions fixed. For adverse findings, an audit's output becomes the input to corrective action. Rather than just write up a problem and throw it across the table, we have actually begun an analysis of that problem. We are not performing true root-cause analysis. That is the auditee's responsibility. But we are helping our stakeholders find the truth.

This is why it's so important for auditors to focus on what drives change when they report problems. People don't change because auditors tell them to; they change because they want to. They want to when the common business drivers of cost, production, and risk stand to benefit. These three forces drive every organization—public or private, government or industry, for-profit or non-profit.

In the end, an audit should provide processed information about the future to those in a position to do something about it. As internal auditors, you examine controls, both as they exist now and as they will be in the future. Using systems-based thinking, you identify underlying problems and provide incentives for true change.



The organizing committee of the 2009 NASCC: The Steel Conference gratefully acknowledges the support of our sponsors.

PLATINUM SPONSOR

Nucor Corporation

CONFERENCE BAGS SPONSOR

AceCad Software Inc.

KEYNOTE SPEAKER SPONSOR

DesignData

PROGRAM BOOKS SPONSOR

AISC Certification

HOTEL KEY CARDS SPONSOR

Schuff Steel Company

GOLD SPONSOR

Peddinghaus Corporation

BOXED LUNCH SPONSOR

Steel Systems Engineering, Inc.

BADGE LANYARDS SPONSOR

Tekla, Inc.

FINAL PROGRAM BANNER WRAP

Bentley Systems, Inc.

SILVER SPONSORS

4D Steel Detailing

American Metal Market

ESAB Welding and Cutting Products

Holtec Private Consulting Limited

I.M.P.A.C.T.

North American Galvanizing Company

Plas-Tal Steel Construction

Prodraft, Inc.

V&S Galvanizing

BRONZE SPONSORS

ACC Machinery

American Punch Company

Buckner Companies

Canam Steel Corporation

Commercial Metals Company

Ficep Corporation

Gooder-Henrichsen

Omnitech Associates

Radley Corporation

Steel Business Briefing

Voortman Corporation

regional connections

Notes from the West

BY NINA KRISTEVA, P.E., LEED AP

On the West Coast and throughout the country, now is the time to tap into the available resources to make informed—and creative—material decisions on your next project.

IT IS TIME OF SERIOUS CHALLENGES for the domestic and global economy, which in turn creates challenges for the domestic steel construction industry. The turmoil in the

financial markets, accompanied by credit freezing up, is the major risk facing the construction industry. McGraw-Hill Construction is projecting another drastic decline in the level of construction starts for 2009 nationally, following a 12% decline for 2008. This forecasted drop is directly related to the tough funding environment, cancelled/postponed construction projects, and the financial stress in the economy.

How has the steel construction industry in the U.S., and in particular the West Coast region-my region as an AISC regional engineer (RE)—reacted to the trends in the market? Steel market share in the prime construction market that AISC tracks (non-residential and multi-residential construction greater than four stories) continues to maintain the momentum, as it was up nationally to 55% for 2008 com-

pared to 53% for 2007. This represents an over 2:1 advantage over the closest competing construction material, concrete.

OR

The steel market in the West Coast—which, in RE terms, includes the states of California, Oregon, Washington, Alaska, and Hawaii-mirrors the national trend of increase, being

> up 5% in 2008 to 41% from 36% in 2007. The interesting point of this steel statistic is that during the same time, the concrete industry experienced a dip form 25% to 22% nationally and from 34% to 28% in the West Coast region.

We are very optimistic that steel's market share is still rising in a time of decreased construction activity. One of the largest reductions in construction remains for the 20+ story building market, which directly correlates to the residential real estate market crash. On the national scale the percentage of construction starts for this type of construction is at 3% of all projects, which is half the 2006 level of 6%. The West Coast statistics are confirming the same trend, from 6% in 2006 to 4% in 2007 to 2% in 2008. However, the schools/ libraries/labs market appears to be

picking up, indicated by the increase in construction starts from 9% in 2007 to 15% in 2008 for the region, and from 13% in 2007 to 16% in 2008 nationwide.

LA Live

A major, recent steel highlight for the region was the LA Live Hotel and Residences Breakfast Presentation and Tour sponsored by AISC Member fabricator Herrick Corp., AEG, and AISC late last year. Nearly 200 people attended the event, including engineers, architects, developers, members of the steel industry, local officials, and the media.

The project's innovative steel-plate shear wall solution, which substituted



Nina Kristeva is AISC's West Coast regional engineer and can be reached at kristeva@aisc. org. You can also visit www. aisc.org/myregion and click on West Coast to find out more about Nina's activity in her region.



the 30-in. concrete steel walls with ¼-in. to ³/8-in. steel-plate walls, led to a 30% reduction in building mass, lighter foundations, and elimination of multiple caissons. This helped the building gain more than 20,000 sq. ft of floor space, which equates to an additional \$20 million of real estate available for sale.

Simon Schusteman, president of the project's steel detailer, Steel Systems Engineering, Inc., called the project one of the most satisfying of his career. "It is not that often that a bold design coincides with a great execution," he said. "It was a pleasure to watch this marquee building going up—well ahead of the deadline."

For more on the project, visit **www. aisc.org/LA-Live**.

Tapping into the Resources

Given the current economic circumstances, selecting and designing framing systems—and properly managing the acquisition of these systems—demands even more careful attention than usual. Luckily, the steel fabrication community provides material and industry expertise to bring the greatest possible value to any building project. In addition, AISC's Steel Solution Center (SSC) can assist with developing conceptual studies of innovative steel solutions for any project and design and development team.

Exploring the use of innovative, if unfamiliar, systems is also important. For example, steel-plate shear walls (SPSW) and buckling restrained brace frames (BRBFs) have been successfully used throughout the West Coast for their unparalleled performance under moderate and severe seismic loading. Considering steel for building types that are typically framed with other materials is another option. Structures like parking garages, which are often framed in concrete, can easily benefit from steel construction and accommodate the new aggressive demands on cost, schedule, availability, and sustainability.

Regarding the latter attribute, project designers are increasingly concerned with the impact of their work on energy use and the environment, especially as certain aspects of construction and building envelope designs are becoming mandated by government codes, such as the California Title 24 Energy Code. In addition, change is being pro-

moted through voluntary green building guidelines, such as the U.S. Green Building Council's LEED program. Once an emerging trend, green building has become a routine—if not fully implemented-idea in today's construction industry. With the down market, it has become even more important for industry players to capture the opportunity created by the demand for more sustainable buildings. The key-on the West Coast and throughout the country—is to help building professionals realize that steel is not simply the material of choice but the optimal material of choice for meeting the new demands of the construction market, such as sustainability, once the economy starts turning its wheels again.

Up and Down the Coast

Another resource to consider? A visit from your RE. Over the past several

months I have been visiting all of the AISC Member Fabricators in my region. I've just wrapped up California and will be concentrating on Oregon during the second quarter of 2009. Further north, in Washington, I am in the process of coordinating joint events between the Pacific Northwest Steel Fabricators Association (PNSFA) and the Structural Engineers Association of Washington (SEAOW) as a platform for establishing ongoing communication and close business relationships between the design and fabrication communities in the region. (Check my page for more updates on these events.) I am also planning to exhibit at the AIA 2009 National Convention and Design Exposition in San Francisco April 30-May 2 and the SEAOC 2009 Convention in San Diego in September.

Bar Grating Attachment MADE EASY!



shown above

G-Clips[™] attach grating materials to structural members. Installed with simple hand tools, G-Clips are a low cost, fast and dependable way to fasten grating.

- G-Clips are available in galvanized carbon steel, stainless steel, copper-nickel alloy or aluminum.
- → G-Clips do not damage structural members, paint or coating systems.
- → G-Clips resist more vibration than other fastening methods.
- → G-Clips make installations easy, fast and economical.

Model GG: This galvanized carbon steel grating fastener is economical and easy to install. It fastens bar grating to structural members with the structural flange in a horizontal plane.

Call Toll-Free: 800-227-9013



P.O. Box 6438, New Orleans, LA 70174 www.gclips.com • Email: sales@gclips.com

new products

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**. You can browse by product category or search on any term to help find the products you need, fast.



One Pinch, Two Pinch

Ercolina's new double-pinch ring rollers, according to the company, feature bending speeds 20% faster than competitive machines. Forged roll shafts are precision ground and fitted for maximum performance and minimal deflection, and the machine's heavy-duty structure and rigid components provide high section modulus ratings. The dual-axis movement reduces tag end length material scrap, and simultaneous downfeed and roll movement minimize deformation. A programmable touch screen controls the process with digital readouts of each shaft position. The machine also features memory storage with multiple programs and unlimited passes, and a remote control with low-voltage controls and joystick deadman control. The unit's threaded roll shafts with micrometric flange adjustment help eliminate spacer usage, and each shaft has its own individual drive motor with-auto speed compensation. Horizontal or vertical operation are both possible, and an optional three-axis hydraulic anti-twist system is available. A universal tooling set is included with each machine.

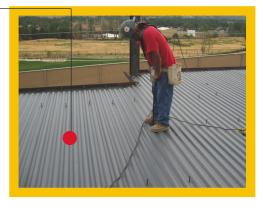
For more information visit www.ercolina-usa.com or call 563.391.7700

A Greener Flooring System

The EcospanTM Composite Floor System from Vulcraft provides the advantages of ease of installation, sustainability, and cost-effectiveness. Made with 99% recycled steel in the joists and 70% recycled steel in the decking, Ecospan provides all-steel, open-web structural components with a lighter weight com-



posite design for elevated floor construction, while also incorporating the benefits of lighter weight composite design. Ecospan is ideal for a wide range of project types including condos, apartments, senior living and care facilities, dorms, hotels and resorts, office buildings, and medical facilities. A safe, innovative new choice for



floor systems, Ecospan helps cut building costs while offering the advantages of green building materials that can help projects qualify for LEED certification.

For more information visit www.ecospan-usa.com or call 800.361.2604.

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). To be included in MSC's online products directory, contact Louis Gurthet (gurthet@modernsteel.com).

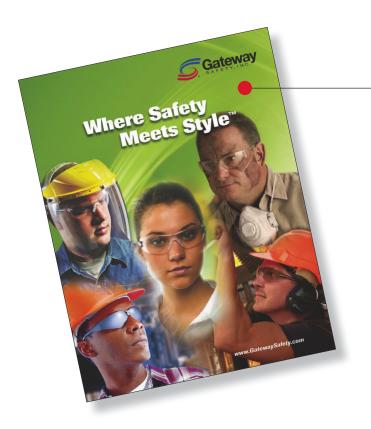


Tubular Coating

The Epoxzkote high-performance epoxy powder coat primer line is designed to be recoated, accepting powder, liquid, and two component primers and topcoats with ease. The Epoxzkote powder coating process begins with a high-pressure iron phosphate pretreatment system that removes production oils and debris and deposits an iron phosphate conversion coating that aids in adhesion and increases corrosion and chemical resistance. Stringent controls throughout the entire process ensure that Epoxzkote powder primed tubing is consistent and meets or exceeds today's demanding coating requirements. Atlas Tube customers are finding that Epoxzkote offers tremendous resistance to rust and corrosion, and is easy to weld through, as described in the AWS D1.1 structural welding pre-qualified procedure. Epoxzkote powder primed tubing doesn't require any special procedures or breathing apparatus during its handling or use. Independent industrial air hygienist monitoring determined that welding through Epoxzkote produced no additional fumes and didn't produce additional exposure of

workers to airborne contaminates above and beyond those that exist with the use and fabrication of regular tubing goods. As lasers gain in popularity across North America, Atlas enlisted the help of laser machine manufacturers so that Epoxzkote can be processed in a single pass on traditional tube lasers. Available in the short lead times, the coating greatly reduces the variable costs associated with welding cleanup, oil and rust removal, and surface preparation time and materials for the priming and painting functions.

For more information visit www.atlastube.com or call 800.733.5683.



Safety Styles

Gateway Safety, Inc.'s 2009 product catalog is a complete sourcing guide for more than 60 styles of safety eyewear, respiratory, headgear, and face-and hearing-protection products. Consisting of 32 full-color pages, the catalog includes eight product sections with comprehensive ordering information. An exclusive feature of the new catalog is the safety certification information; specially designed icons provide easy, "at-a-glance" confirmation of the appropriate safety certifications for each safety product, including ANSI, CSA, UV-A and UV-B, and Underwriters Laboratories Certifications for eye and face protection and independently tested Noise Reduction Ratings (NRR) for hearing protection.

For more information visit www.gatewaysafety.com or call 800.822.5347.

marketplace

AISC Building-Bridge-Component Certification Training

Get prepared for the stimulus package

with the newly released Component Standard and Bridge Certifications!

AISC Building, Bridge & Component Certification Criteria May 18, 19, 20, 2009 Chicago, IL

> AISC Sophisticated Paint Endorsement May 20, 21, 2009 Chicago, IL

*These courses are a good choice for companies who are certified and considering certification.



Call: 312.861.3000 Email: Information@atema.com www.atema.com



The Northwest's Premier Rolling House

MARKS METAL TECHNOLOGY

10300 SE Jennifer Clackamas, OR 97015 Info@MarksMetal.com www.marksmetal.com 800.526.1031

We Bring Metal To Life

Structural Steel Detailers • www.gihde.com



972.964.3310

QPP Firm • Competitive Rates • Professional Engineer & NISD Cert. Detailers • Quick Turnarounds • Equipment Control Data • All Sizes & Types of Project Fabrication • Electronic Drawing File Transfers . Staffing to Meet Project Requirements

Have TEKLA Detailing Software experience? We want you! Contact: glenn@gihde.com



AISC Quality Certification

Now more than ever, Certify!

- On-site guidance and training
- Increase productivity
- Reduce drawing and shop errors
- Reduce/eliminate field back charges
- No hidden charges
- Maximize Profit



JAMES M. MOONEY & ASSOCIATES

Call 941.223.4332 or 941.485.7172

immoon94@aol.com

Quebec Detailing Connection Detailers available Stations of 3D modelers for:

Superior management from "Old School" veterans, combined with the latest technology for simple to complex projects, with tight delivery schedules.

Contact Robert Beauchamp at 866.677.6161

info@quebecconnection.com

Web Site: www.quebecconnection.com

CURVED METAL DECK



Floline Architectural Systems, LLC www.flolinesystems.com (866) 356-5463

Commercial Projects

• Schools • Malls • Casinos • Stadiums • Churches

100 TEKLA Structure Licenses

WITH TECHFLOW **Accelerating Detailing Revolution**

- Office Buildings Hospitals Airports Hotels
- Car Parking Structures

Industrial Projects

- Petrochemical Refineries Duct Work Conveyors
- Offshore Structures Power and Process Industry
- Cement Plants

3820 Satellite Boulevard, Suite 100, Duluth, Georgia, USA

Phone: 770.495.1446 Fax: 770.495.1448 Email: techflowus@techflowengg.com Website: www.techflowengg.com

HOLTEC

STRUCTURAL STEEL DETAILING

International Engineering & Detailing Company with over 600 Professionals.

Extensive experience in Commercial, Industrial & Institutional structural steel detailing projects of up to 30,000 tons for leading U.S. fabricators.

Tekla, SDS/2 & AutoCAD Platforms

ISO 9001 Certified, Member of AISC, NISD, Steel Plus Network

Phone: (832) 455-6071

+91-124-4693200

Email: rsa@holtecnet.com

Web: www.holtecnet.com/ssds



employment

Structural & Misc. Steel Fabrication

Our organization has been recruiting for the Structural and Misc. Steel Fabricating industry for over 20 years. Current positions include:

- Project Manager
- Project Manager
 General Ma
 Plant Superintendents
 Estimators
- Chief Draftsman
- General Manager
- Quality Control
- Detailers
- Checkers

Please send resume to: Richard Stauffer

United Employment Associates, P.O. Box 8, East Texas, PA 18046 phone: (610) 437-5040 fax: (610) 437-9650

e-mail: rstauffer@unitedemployment.com www.unitedemployment.com

RECRUITER IN STRUCTURAL/MISCELLANEOUS STEEL FABRICATION

ProCounsel, a member of AISC, can market your skills and achievements (without identifying you) to any city or state in the United States. We communicate with over 3,000 steel fabricators nationwide. The employer pays the employment fee and the



interviewing and relocation expenses. If you've been thinking of making a change, now is the time to do it. Our target, for you, is the right job, in the right location, at the right money.

PROCOUNSEL

Toll free: 866-289-7833 or 214-741-2014 Fax: 214-741-3019 mailbox@procounsel.net

Structural Detailing Opening

Gibson Industrial is a growing structural fabricator and erector in Richmond, VA. We are currently searching for an experienced detailer to join our company.

Must have knowledge of SDS2 and Autocad.

We perform work in both the commercial and industrial sector.

Send resume to: callen@gibsonindustrialinc.com

Regional Engineer: Mid-Atlantic

Are you an engineering professional looking for a new challenge that is different and exciting? Are you good at promotion, overcoming roadblocks, working with diverse teams, juggling multiple tasks and managing numerous high level relationships? Are you ready to take the lead in growing the construction market in the Mid-Atlantic for structural steel?

The American Institute of Steel Construction, Inc., founded in 1921 as the trade association for the structural steel industry, is looking for the right person to take the lead in promoting the use of structural steel in New York Metro, New Jersey, Maryland, Delaware, District of Columbia, and Virginia. Your success will depend on your ability in developing and maintaining relationships with key influencers, pursuing and influencing projects, working with owners and architects, making presentations, conducting seminars, and assisting structural steel fabricators with promotional and business development programs. The ideal candidate will be a civil or structural engineer or one with an architecture background with a minimum of five years experience in building design, construction and/or fabrication and a passion for consultative marketing. Strong communication and computer skills are a must.

To submit your resume for consideration and request a full description of this position please contact AISC Human Resources at: *hr@aisc.org*

Advertise Your Job Openings in MSC!

MSC employment ads also appear online!

www.modernsteel.com/classifieds.php.

(Please note that these ads no longer appear at www.aisc.org.)

Contact: Lou Gurthet at 231.228.2274
or gurthet@modernsteel.com

STRUCTURAL ENGINEERS - UNIQUE OPPORTUNITIES

QUESTION: How would your life improve if you could find the perfect job that would help you achieve your professional as well as personal goals?

ANSWER: It's different for every person, but at SE Solutions, we help you find the answer so you can be PASSIONATE about your work and have a lot more FUN! We also specialize in helping structural engineers looking to use their background in unique and different ways.

WHAT HAVE OTHERS SAID? Please go to www.FindYourEngineer.com/casestudies to learn more on how we have helped other engineers find a great job that improved their quality of life. Their personal stories say it better than we can.

ABOUT SE SOLUTIONS: We are a specialty recruiting company run by structural engineers. In our 27 years of experience working with structural engineers, we have built relationships with companies all over the U.S. which allows us to match up your talents with the right company.

Call us TODAY to learn more about how we can help you find a job you will love!

Main Office *Brian Quinn, P.E.* (616) 546-9420 West Coast Office *Lisa Willard, EIT* (805) 482-8436

www.FindYourEngineer.com

Advertise in Steel Marketplace!

Contact: Lou Gurthet Gurthet Media Sales, LLC

telephone: 231.228.2274 *fax:* 231.228.7759

e-mail: gurthet@modernsteel.com

Detailing Manager

Carney Engineering Group is a growing and innovative engineering & detailing firm located in York, PA. We're looking for a Detailing Manager who has the insight and ability to change the way projects are delivered to our base of design/build and fabricator clients. The candidate will work with our team in the delivery of integrated contract documents and detail drawings. Carney Engineering Group operates in a Revit and Xsteel environment. The ideal candidate must have experience with Xsteel, be highly motivated and willing to develop new talent. Prior people & project management experience is preferable but not required. Come be a part of something different!

Send your resume to: Carney Engineering Group 215 N. Beaver Street, York, PA 17401 or

email to: jcarney@carneyengineeringgroup.com.

Have You Visited the

Modern Steel Construction

Online Product Directory?

www.modernsteel.com/products

Greenwashing the Construction Industry

BY GRAEME SHARPE, P.E., LEED AP

Talking the green talk without walking the green walk misses the whole (green) point.

BY CONSENSUS OF OPINION, "sustainability" means "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Everyone involved in the construction industry, including civil and structural engineers, has a major role to play in sustainability.

Every resource to which we have access is limited in some way, and misallocation of those resources can cause all sorts of environmental, social, and economic distress. The recent global spike in oil prices and resulting economic collapse should remind us that this is not an academic exercise, and governments do not foresee every problem nor do they act quickly enough to manage them. Just over the horizon we can easily guess there will be resource issues concerning water, energy (again), and agricultural products. There is a lot of work to be done in the coming years to figure this all out.

In Name Only

However, there are a lot of companies out there that are still interested in doing business as usual but making it appear as though they are taking steps towards sustainability. When a company puts out misleading information regarding its environmental policies, puts more emphasis on green marketing than sustainable development, or begins a marketing campaign about new sustainable initiatives before anything is done to support those initiatives, it is considered "greenwashing." A small percentage of greenwashing is due to honest misunderstandings, but the



Graeme Sharpe is a structural engineer with Silver Creek Engineering, Inc. in Indianapolis. He is also the author of the A/E-related blog "A Place of Sense" at www.aplaceofsense.com, where this article originally appeared. He can be reached at graeme. sharpe@gmail.com.

much larger share is deliberate and shameful (see "Greenwash Brigade" on NPR's website—www.publicradio.org/columns/sustainability/greenwash—for an anti-greenwashing group that deserves a bit of attention).

The most frustrating case I can think of is the attempt by some agricultural firms wanting to dilute the meaning of the term "organic." Agricultural innovators worked for decades to bring this term to public awareness and as soon as people began to see the benefits and began buying organic products, certain agricultural interests and marketers wanted to get in on the action. However, few were willing to invest the capital to create truly organic products and began to lobby the USDA to change the definition of organic so that it would include their offerings. The organic label largely survived the assault, but the threat still exists.

Eco-Friendly or Eco-Nuisance?

In the world of construction, similar greenwashing activities are growing more prevalent. The number of TV shows offering "green" construction products or advice is nauseating. Common sense should rule here, but I think there really is no way that gutting an existing house in good shape and replacing all the finishes with green products is going to be ecologically friendly. It's just thinly disguised consumerism and a poorly conceived advertisement.

Sustainability is not something you can purchase at your local home improvement warehouse. It involves a comprehensive plan that addresses many facets of environmental issues and the public welfare. But if you are looking for a shortcut, the old hierarchy of "reduce, reuse, recycle" still applies.

The proper way to spot construction greenwashing is to investigate whether a development has independent third-party credentials. The United States Green Building Council's LEED program, Energy Star homes, and other third-party certification programs are available. If a building development cannot show these credentials, do they at least offer data to the public so their claims can be evaluated? If none of this is available, it is likely that the development is being promoted as green but that no steps have actually been taken to promote sustainability.

Sustainability will be a key metric for construction projects of the future; don't let your standards lapse just because there is money to be made. If you are engaging in greenwashing, it is likely your sustainability credentials and your professional reputation will suffer.

Multiple Phases. Multiple Materials.

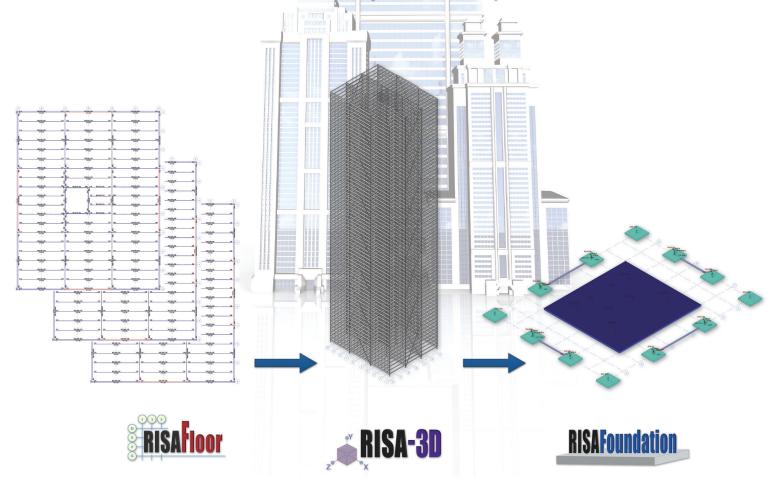
One Model.

Save time with the RISA Building System. RISAFloor, RISA-3D and RISAFoundation are fully and seamlessly integrated, making the design of the complete building system fast and efficient.

The RISA Building System eliminates the need for multiple models on one project; design multiple materials and multiple phases using one model.

No matter what size the structure, the unsurpassed integration of the RISA line of products gives you the flexibility to design your way.

There are no limits to what you can accomplish with RISA.







TECHNOLOGY FOR A BETTER WORLD - PUTTING AMERICA BACK TO WORK A message from Ashraf Habibullah



Computers & Structures, Inc.

1995 University Avenue • Berkeley, CA 94704 tel: 510/649-2200 • fax: 510/649-2299 info@csiberkeley.com • www.csiberkeley.com

JAP2000° ETABJ JAFE PERFORM JO

THE INFRASTRUCTURE REBUILDING PRODUCTS FOR THE 21ST CENTURY

Structural & Earthquake Engineering Software

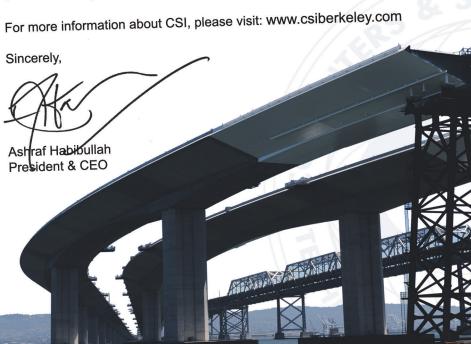
Proudly developed in the United States of America

February 2009

The San Francisco-Oakland Bay Bridge

For nearly 35 years, CSI software has been the universal choice of sophisticated engineering professionals for structural design and retrofitting. Today, as our nation enters this critical infrastructure-rebuilding era, CSI stands ready to deliver the most productive and practical software available in the market—as we have since 1975. Offering advances in every facet, from powerful information processing to efficient numerical simulation, CSI products offer unmatched technology for engineering modeling, analysis, design, and project documentation.

The structural engineering profession is being summoned to rebuild our nation's freeways, bridges, schools, hospitals, and the infrastructure that drives our economy—to create jobs and to put America back to work. CSI's commitment to the development of state-of-the-art structural engineering software has never been stronger. Reflecting more than three decades of development experience, CSI's innovations will continue to set the industry standard.



FECHNOLOGY FOR A BETTER WORLD
Berkeley • New York • Houston • New Delhi • Madrid • Santo Domingo • Pordenone