Stephen E. Porter Named AISC Board Chairman

Stephen E. Porter, president of Indiana Steel Fabricating in Indianapolis, was sworn in as AISC's Chairman of the Board in September. Porter will serve a two-year term.

He replaces James A. Stori, president of STS Steel, Inc. in Schenectady, NY. Stori served as chairman from 2003 to 2005. At that time, Porter was vice chairman.

Porter has been a member of the AISC Board of Directors since 2000. He is a former Board Oversight of the Steel Solutions Center and has served on AISC's Chairman's Advisory Committee, Audit Committee, and Technical Activities Committee.

As AISC Chairman, one of Porter's main goals is increasing steel's market share. He also plans to promote the successful launch of the new AISC *Steel Construction Manual*, increase AISC membership, and maintain AISC's leadership in the technical field.

Porter is a past president of the Central Fabricators Association, as well as the Indiana Fabricators Association.

He graduated from Ball State University in 1970 with a degree in business administration. With a background in marketing and accounting, Porter began working that year for Indiana Steel Fabricating, which his father, Errol Porter, founded in 1959. In 1989, he became the company's president.

Porter and his wife of 36 years, Sharon, live in Indianapolis. They have two children and two grandchildren.

Adopt-A-School

Invest in the future of steel design and construction—adopt a school. With the 2005-2006 academic year underway, AISC will provide again its successful Adopt-A-School program. The program matches fabricators with universities offering steel design courses.

Fabricators may offer shop tours to student groups, NASCC sponsorship for faculty, internships or co-ops, or ASCE chapter involvement, among other assistance. In the past, participating fabricators also have provided their "adopted" universities with Student Steel Bridge Competition assistance and steel teaching aids (sculptures).

To find out more about the program, please visit the Learning Opportunities section of **www.aisc.org**. Information is also available by contacting Fromy Rosenberg at 312.670.5408 or by e-mail at rosenberg@aisc.org; or by contacting Megan Maurer at 312.670.5418 or by e-mail at maurer@aisc.org. ★

AISC Steel Solutions Center Seeks Structural Engineer

As the result of an internal promotion, the AISC Steel Solutions Center is looking to hire a structural engineer with a minimum of three years' experience as a Solutions Center Advisor.

Steel Solutions Center advisors work with design and construction industry professionals in identifying and proposing innovative steel solutions for real-world projects. Using technical design experience and skills, Steel Solutions Center Advisors create conceptual solutions and identify ways of lowering costs and accelerating project schedules.

"This isn't a job for a timid engineer who is comfortable spending months on a single project," explained Jason Ericksen, Director of the Steel Solutions Center. "In the Steel Solutions Center, you will regularly be exposed to dozens of projects. You also need to be comfortable and able to develop professional contacts with industry leaders."

Steel Solutions Center advisors also are given the opportunity to develop expertise in a wide range of systems (such as Girder-Slab™, staggered truss, mixed-use structures, castellated beams, and steel plate shear walls) and processes (including seismic systems and fire codes and protection systems) while utilizing the latest design and fabrication industry software. For more information, e-mail ericksen@aisc.org. ★

Public Review of 2005 *Seismic Provisions* Supplement No. 1

Supplement No. 1 to the 2005 AISC *Seismic Provisions for Structural Steel Buildings* (ANSI/AISC 341-05) is now available for public review. This is a limited supplement that affects only the design provisions for ordinary concentrically braced frames.

The draft supplement, along with a draft version of Part I of the 2005 AISC *Seismic Provisions for Structural Steel Buildings*, is available to download free from the AISC web site at **www.aisc.org**. Copies of the supplement are also available free of charge by calling 312.670.5411.

To submit comments on the supplement, please contact Cynthia J. Duncan, Director of Specifications, at duncan@aisc.org to request a public review form. The form is also available to download from the AISC web site. Comments must be received by October 17, 2005 for consideration. ★

Steel Bridges Secure Provisions in SAFETEA-LU

The National Steel Bridge Alliance was successful in adding three provisions for the steel bridge industry in the recently passed Safe, Accountable, Flexible, and Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU).

According to the Federal Transit Administration (FTA), SAFETEA-LU will guarantee $286.4 billion in funding for federal surface transportation programs over six years through fiscal year 2009. The bill also includes a requirement for value engineering analysis on major bridge projects with an expanded definition of the analysis, a clarification from Congress on the interpretation of the Buy America transportation assistance act for bridge projects, and $20.4 million in funding for a high performance steel research program.

The value engineering analysis requirement is intended as a cost control measure on major bridge projects of more than $20 million. It expands the definition of analysis to require analysis at the concept and design phases. The requirement also calls for outside review and the possibility of project redesign and life cycle cost analysis.

The Buy America clarification is a response to the practice of breaking bridge projects into contracts for component parts. Buy America requires the purchase of domestic raw and fabricated products for bridge projects unless a 25% or more savings can be found internationally. The test was often being applied to a project's individual components rather than to the project as a whole. With SAFETEA-LU, Congress made clear that the intent of the original Buy America law is that the 25% test applies to the overall bridge project—from shore to shore—and not the component contracts.

Finally, the bill includes a dedicated research program funded at $4.1 million for each year of the bill's duration that will focus research efforts on high performance steel bridges. The intent of the program is to expand and concentrate research efforts on extending the life of steel and reducing the maintenance costs through longer lasting coatings and affordable corrosion resistant steels. ★

2005 World Steel Bridge Symposium

Pre-registration discounts for the 2005 World Steel Bridge Symposium (WSBS) are available now through November 25. This year's symposium, themed "Time for Steel, Steel for Time," will be held November 29 through December 2 at the Hyatt Grand Cypress hotel in Orlando, FL.

Registration may be completed by phone at 734.572.4705 or online at www.aisc.org/nsbawsbs. Registration forms, available online, also may be faxed to 734.572.4715. (After November 25, registration must be presented in person at the Hyatt Grand Cypress and discounts will no longer apply.)

The WSBS gathers steel bridge owners, designers, contractors, and others from around the world to discuss all aspects of steel bridge design and construction.

WSBS attendees come to the symposium to learn about the latest innovations in steel bridges. The symposium's exhibit hall is full of products and services to advance the state of the art of the steel bridge industry.

This year's symposium program includes half-day workshops on accelerated bridge construction technology; the new AISC Sophisticated Paint Endorsement (SPE) standard; AISC fabricator certification criteria for bridges and buildings; and pre-fabricated bridge elements and systems.

Focus areas of the symposium's many sessions will include, but will not be limited to: short span bridges; intermediate span bridges; case studies featuring the use of high performance steel; restoration, rehabilitation, and reuse; fabrication, construction, and erection; innovative bridge designs; and inspection and maintenance.

The highlight of the symposium's banquet will be the presentation of the 2005 Prize Bridge Awards.

For general information, contact Kristin LaPlaca at 312.670.5421 or laplaca@aisc.org. For exhibit and sponsorship information, contact Jody Lovsness at 402.758.9099 or lovsness@nsbaweb.org. And be sure to watch NSBA's web site for more information, coming soon: **www.nsbaweb.org**. ★

AISC Seminars

Be sure to check out the remaining 2005 AISC seminars and mark your calendar to attend the next seminar in your area.

AISC continues to offer its popular seminars, *Field Fixes* and *Steel Design After College*, and has introduced one new seminar, *Seismic Braced Frames—Design Concepts and Connections*. As always, leading industry experts will serve as featured speakers for each of the seminars.

Continuing a long tradition of providing cutting-edge education courses at reasonable prices, AISC offers the successful Bring a Buddy program—each paid registrant can bring one colleague for only $100 more. Register online and save $5 off the registration fee.

For detailed information regarding each of the seminars or to register, visit the Continuing Education area of AISC's web site at **www.aisc.org/seminars**. ★

Ronald Hamburger Wins 2006 T.R. Higgins Award

Ronald Hamburger, P.E., S.E. has been named the 2006 recipient of AISC's T. R. Higgins Award. Hamburger is a principal and regional head of structural engineering for Simpson Gumpertz & Heger, Inc. consulting engineers in San Francisco.

Hamburger was selected for his paper, "Design of Steel Structures for Blast-Related Progressive Collapse Resistance." The paper originally appeared in the *Steel Building Symposium: Blast and Progressive Collapse Resistance* proceedings.

Each year the T.R. Higgins Lectureship Award recognizes an outstanding lecturer and author whose technical paper or papers, published during the eligibility period, are considered an outstanding contribution to engineering literature on fabricated structural steel.

Hamburger will present his paper at the 2006 North American Steel Construction Conference, February 8–11 in San Antonio, TX. For more information about the T.R. Higgins Award, visit **www.aisc.org/higgins**. For more information about the 2006 NASCC, visit **www.aisc.org/nascc**. ★

Structural Steel Industry Responds to Katrina

By Lena Singer

Reporting for this story took place between September 6 and 12, 2005. Hurricane Katrina, a Category 4 storm on the Saffir/Simpson hurricane scale, struck the gulf coast of Louisiana and Mississippi on Monday, August 29.

In the days following Hurricane Katrina, AISC member fabricators, structural steel mills, and service centers responded to the destruction with trucks delivering supplies, programs to match employee contributions to hurricane relief funds, and job offers to the storm's evacuees. Also, structural steel suppliers offered to complete special steel orders for emergency rebuilding efforts that would take place in the months—if not years—to come. Here are some of their stories:

Adding Employees

In Houston, steel service center Triple-S Steel Supply Company created approximately one dozen job openings to employ evacuees from New Orleans said Gary Stein, Triple-S CEO. More than 22,000 residents of New Orleans were evacuated to Houston in the week following the storm, according to the Houston Chronicle.

"It's more than our budget would normally call for, but we want to help give some of the people work to [help them] find some kind of semblance of an ordinary life," Stein said.

Triple-S also provided cash donations to food banks in Houston and San Antonio.

Helping Dislocated Employees

Fabricator and steel service center Steel Service Corporation is located in Jackson, MS, approximately 160 miles northwest of Gulfport, MS, a gulf coast city that was flooded and heavily damaged by hurricane winds. Despite its inland location, many of Steel Service Corporation's employees suffered extensive damage to their homes, according to Lawrence Cox, the company's president.

The company allowed employees to take vacation time and sick time to be able to recover without losing pay, Cox said. Some were paid early.

"We're one of the ones who've suffered so much and these employees have had about as much as they can take," he said. "They're giving up their time and talents to help each other out rather than their dollars."

According to the National Weather Service, the area surrounding Jackson experienced 75 mph winds from the storm. Downed power lines left Steel Service Corporation without full power, phone, and internet service for several days after the hurricane hit, according to Cox.

A little over one week following the storm, he said utilities had been restored and communications systems, many headquartered in Gulfport, were running on generators.

"It's put together with a band-aid right now, but it's working fine," he said.

Making Deliveries

FABARC Steel Supply, Inc. in Anniston, AL delivered 52 portable toilets and 150 gallons of water to Picayune, MS, according to Gene Heathcock, FABARC president. Heathcock and three employees transported the toilets, donated by a private company, approximately 360 miles to the coastal town with four FABARC trucks and trailers on September 2, the Friday following the storm. The delivery was in response to a request from FEMA that had been relayed to the company.

"It's mind boggling how strong the storm was that came through, and the trees and the homes that were down," Heathcock said.

On September 4, A FABARC vice president and truck driver drove a company truck to Bogalusa, LA to deliver 40,000 lb (4,800 gallons) of water that had been donated by a church in the Anniston area, Heathcock said. FABARC also established an employee contribution program to gather relief funds.

"We've asked everyone to consider donating to the Red Cross or Salvation Army [and] FABARC will match what the employees give," Heathcock said.

After two weeks of collecting funds, the company and its employees pledged $15,000.

Other fabricators around the country also have made significant contributions to the Red Cross. The Steel Fab, Inc. family of companies donated $21,000, according to the company's president, Stuart R. Sherrill. Fritz Structural Steel, Inc. in Valley Head, AL donated $4,000, said general manager Stephanie Fritz. And FabSouth, LLC pledged $25,000, according to Skip Burdette, president of Steel, Inc. in Scottsdale, GA, a FabSouth company (other FabSouth companies include Fabco Metal Products in Daytona Beach, FL; Steel Fabricators, LLC of Fort Lauderdale, FL; and Lyndon Steel Company of Winston-Salem, NC).

FABARC also planned to offer employment to evacuees staying in the Anniston area. Heathcock admitted that finding people with fabrication experience could be difficult, so the company planned to offer positions in clean up, maintenance, and yard work, as well.

"Just anything to help them earn some money," he said.

Rebuilding

As the rescue effort continued, plans to rehabilitate and rebuild areas destroyed by the storm and flooding began. In the week following the hurricane, Nucor-Yamato Steel Company, a leading U.S. structural steel mill in Armorel, AK, contacted the Army Corps of Engineers through its dealer network to offer special rolling services for the rebuilding effort within the mill's capabilities, according to Mark Petitgoue, sales manager for Nucor-Yamato.

"Nucor-Yamato would do everything we could do to accommodate an emergency like this," Petitgoue said.

Petitgoue said the company had not yet been contacted with requests at that time. He believed this was because rebuilding efforts had not begun—residents were still waiting to be evacuated from New Orleans and buildings were flooded or in flames throughout the city. "It's in the recovery stage at this point, not the rebuilding stage," Petitgoue said.

Two weeks after the storm, emergency requests for structural steel were starting to come in, according to Jim Wroble, sales and marketing manager for Steel Dynamics, Inc., a flat-rolled

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structural and bar steel producer in Indiana.

"We have already worked with customers in getting steel for critical projects," Wroble said.

According to Wroble, Steel Dynamics coordinated with one of its customers to provide steel for an emergency rehabilitation of a hurricane-damaged bridge in Biloxi, MS. Wroble said the steel was procured by "cutting into" an already closed rolling.

"We turned our schedule upside down to get the steel produced because of the circumstance," said Wroble.

Beyond its ready availability, Wroble pointed out that steel's strength would be advantageous for rebuilding in the storm-damaged coastal areas. "Steel can be a large part of the solution," Wroble said. ★

Efficiency, Sustainability a Priority for Steel Industry

By Lena Singer

In order to further decrease emissions, increase efficiency, and promote sustainable operations, Nucor Corporation, the largest steel producer in the United States, incorporated three "green" production processes in 2005: HIsmelt direct iron making technology, strip casting, and eucalyptus tree-derived, charcoal-based pig iron production.

These improvements are leading an industry-wide trend toward more environmentally sound operations. According to a forthcoming report of the U.S. Environmental Protection Agency, the steel and iron industry achieved a 37.7% reduction in greenhouse gas emissions from 1990 to 2002, exceeding the Kyoto Protocol six-fold and a decade early. The protocol, if it had been adopted by the United States, would have required U.S. industries to show a 5.2% reduction of emissions by 2012.

"For Nucor, we certainly feel like the momentum is continuing," said Steve Rowlan, Nucor's General Manager of Environmental Affairs. According to Rowlan, a combination of factors contributes to reduction of emissions and increased efficiency at Nucor.

"There is no one thing that we do," he said. "It's a plant-wide effort to be more efficient."

Strip casting, a method of directly casting molten steel into sheet steel, is already in operation at the Nucor Steel plant in Crawfordsville, IN. According to the U.S. Department of Energy, strip casting can reduce energy, process steps, manpower, investment, and operating costs.

Strip casting requires only one mill roll stand, while other casting methods require a minimum of four. Decreasing the number of roll stands results in a 75% reduction of electrical energy used, according to Rowlan. Strip casting also eliminates the requirement of an equalizing furnace, which is used to further heat cast steel before it is rolled. Elimination of this furnace results in a 100% reduction of the natural gas consumption required to cast and roll sheet steel.

Rowlan predicts even more environmental gains through incorporation of HIsmelt technology, a process developed by the Australian HIsmelt Corporation, into part of Nucor's operations. HIsmelt technology injects iron ore fines, a by-product of iron ore production, and coal into a molten iron bath. This innovative process creates pig iron to be used in Nucor's EAF operations. HIsmelt eliminates the need to manufacture coke to make iron and consequently all of the emissions associated with that process.

The availability of scrap metal has led steel makers to look in other places for iron units, according to Rowlan. The HIsmelt project will increase the amount of iron units in the market and will hopefully make more scrap metal available for structural shape production, he said.

Presently, most structural shapes are produced with recycled material. The recycled content of beams produced by Nucor-Yamato Steel Company is usually in the mid-90% range.

Extending efficiency and production efforts beyond domestic borders, Nucor will begin production of pig iron made with eucalyptus tree-derived charcoal at the Ferro Gusa Carajás pig iron plant in Maraba, Brazil in a joint venture with Brazilian mining company Companhia Vale do Rio Doce (CVRD).

While Nucor owns 22% of the plant, with CVRD owning the remaining share, the company is expected to purchase at market price 100% of the plant's output.

"In order to produce our products with limited raw material availability, we are actively looking for environmentally sound options to scrap metal," Rowlan said. "Bio-sustainable pig iron in Brazil is one way to help meet that demand."

The eucalyptus trees, grown on a Brazilian plantation, take in carbon (as carbon dioxide) from the atmosphere and emit oxygen through photosynthesis. The rapidly growing trees are regularly harvested, and their wood is used to produce charcoal for blast furnace iron production.

"The trees use carbon from the atmosphere, rather than from land-fixed carbon sources like coal," he explained. "Every ton produced reduces the amount of carbon in the atmosphere, unlike the option that only increases the amount of carbon dioxide in the atmosphere."

According to Rowlan, the project will require in excess of 40,000 hectares (462 sq. miles) of trees to produce the charcoal needed. The environmental gains, theoretically, will include around 2,400 lb of carbon dioxide removed from the atmosphere for every ton of pig iron produced.

The trees grow to approximately 70 feet in seven years—a rate that allows them to be cut three times over 21 years without having to be replanted. The project also has other reforestation benefits: For every hectare (2.471 acres) of monoculture planted, two hectares of virgin forest also must be restored.

"Not only are we able to produce pig iron in a bio-sustainable manner, but we also are contributing to reforestation, which amounts to a win-win situation for Nucor and the environment," Rowlan said. "When we say at Nucor, 'It's our Nature,' we take that literally." ★

A Small Change to Big Sections

Changes in the depth and internal depth of the W36×16 series of wide-flange sections will take effect January 1, 2006.

Wide-flange sections are defined dimensionally in ASTM A6. The dimensions are selected to optimize engineering properties of the product and to optimize production needs. Section sizes with the same nominal depth usually have the same internal depth, or depth between inside flange surfaces. Until now, one exception to this "rule" was the W36 series.

Dimensions for the W36×16 series of wide-flange shapes will be changed so that the internal depth will be the same as the W36×12 series.

In the past, W36×12 sections had an internal depth of 33.97" and W36×16 sections had an internal depth of 33.39". The distance between flanges for both series is now 33.97". A new section, W36×487, was also added to the W36×16 series.

Table 1. Properties of Existing W36 Series

Shape	Area A	Depth d	Flange		Web Thickness t_w
			Width b_f	Thickness t_f	
	in.^{2}	in.	in.	in.	in.
W36×798	234.6	41.97	17.990	4.290	2.380
×650	191.0	40.47	17.575	3.540	1.970
×527	154.7	39.21	17.220	2.910	1.610
×439	129.0	38.26	16.965	2.440	1.360
×393	115.6	37.80	16.830	2.200	1.220
×359	105.4	37.40	16.730	2.010	1.120
×328	96.4	37.09	16.630	1.850	1.020
×300	88.3	36.74	16.655	1.680	0.945
×280	82.4	36.52	16.595	1.570	0.885
×260	76.5	36.26	16.550	1.440	0.840
×245	72.1	36.08	16.510	1.350	0.800
×230	67.6	35.90	16.470	1.260	0.760

The changes were approved by ASTM International in June 2005 and have been included in the updated listing of wide-flange shapes in ASTM A6-05e1.

Producers of hot rolled shapes commonly use the same rolls for different sizes with the same nominal depths. This not only reduces the cost of rolls, but also saves time in changing them. It may also permit minor improvements in rolling schedules.

Historically, the two W36 shape groups differed because of limitations in rolling equipment. Shape producers in the United States and Europe no longer have the same limitations.

In order to clearly indicate whether old or new shapes are being used, the mass/length designator changed by at least one lb/ft for each new shape. Dimensions for the old shapes are shown in Table 1. The dimensions and calculated properties for the modified series of W36×16 shapes are listed in Table 2. Calculations show that all new shapes are "compact" for design purposes and have slightly enhanced elastic properties and a higher plastic modulus in comparison to the older series.

The depth and internal depth dimensions increased from 1/2" to 5/8". The strong axis engineering properties increased from 1 to 4%. The weak axis properties are substantially the same.

As the inventory of old sections works through the industry, either old or new sections may be available. Engineers should be able to use either section interchangeably in most cases, but they should immediately begin to specify the new sections for projects in which steel will be procured after the first of the year. Detailers will need to know which sections are being used to assure that setbacks for connecting beams and stiffener dimensions are correct.

The new shapes will be available from three primary suppliers—Nucor-Yamato Steel, Arcelor, and Corus. Information on the availability of the discontinued W36×16 shapes after January 2006 will be available from individual mills. ★

Table 2. Properties of Modified W36 Series

Shape	Area A	Depth d	Web Thickness t_w	Flange		k	k_1	Elastic Properties						Plastic Modulus	
								X-X Axis			Y-Y Axis				
				Width b_f	Thickness t_f			I_x	S_x	r_x	I_y	S_y	r_y	Z_x	Z_y
	in.^{2}	in.	In.	in.	in.	in.	in.	in.^{4}	in.^{3}	in.	in.^{4}	in.^{3}	in.	in.^{3}	in.^{3}
W36×800	236	42.55	2.380	17.990	4.290	5.240	5.560	64 700	3 040	16.6	4 200	467	4.22	3 650	743
×652	192	41.05	1.970	17.575	3.540	4.490	4.810	50 600	2 460	16.2	3 230	367	4.10	2 910	581
×529	156	39.79	1.610	17.220	2.910	3.860	4.180	39 600	1 990	16.0	2 490	289	4.00	2 330	454
×487	143	39.33	1.500	17.105	2.680	3.630	4.000	36 000	1 830	15.8	2 250	263	3.96	2 130	412
×441	130	38.85	1.360	16.965	2.440	3.390	1.750	32 100	1 650	15.7	1 990	235	3.92	1 910	368
×395	116	38.41	1.220	16.830	2.200	3.150	3.430	28 500	1 490	15.7	1 750	208	3.88	1 710	325
×361	106	37.99	1.120	16.730	2.010	2.960	3.310	25 700	1 350	15.6	1 570	188	3.85	1 550	293
×330	97.0	37.67	1.020	16.630	1.850	2.800	3.120	23 300	1 240	15.5	1 420	171	3.83	1 410	265
×302	88.8	37.33	0.945	16.655	1.680	2.630	3.000	21 100	1 130	15.4	1 300	156	3.82	1 280	241
×282	82.9	37.11	0.885	16.595	1.570	2.520	2.870	19 600	1 050	15.4	1 200	144	3.80	1 190	223
×262	77.0	36.85	0.840	16.550	1.440	2.390	2.750	17 900	972	15.3	1 090	132	3.76	1 100	204
×247	72.5	36.67	0.800	16.510	1.350	2.300	2.620	16 700	913	15.2	1 010	123	3.74	1 030	190
×231	68.1	36.49	0.760	16.470	1.260	2.210	2.560	15 600	854	15.1	940	114	3.71	963	176