

products

BRIDGE PRODUCTS

	Company	Products Offered	Product Description
	American Galvanizers Assn. www.galvanizeit.org 800.HOT.SPEC	Industry association	Get free downloads of technical publications from AGA's web site, including a specifiers' guide to galvanized rebar, bridge project application reports, hot-dip galvanized steel design guides, and more. Get toll-free technical support for all of your specifying needs. Get information on all types of hot-dip galvanized bridge products, such as fasteners and reinforcing steel.
WSBS	Applied Bolting Technology www.appliedbolting.com 800.552.1999	ASTM F959 direct tension indicators	Made for use with A325(M), A490(M), and non-structural applications. DTIs are designed to indicate minimum required bolt tensions regardless of torque. Bolt tension is checked with a feeler gage.
		Squirter DTIs	Made in accordance with ASTM F959. Resolve bolting issues once and for all. All by eye, know the bolts are tight without match-marking, torque wrenches, or feeler gages. Ironworkers know the bolts are tight by squirt alone.
		Field bolting technical services	Start your next job off right with a proactive approach to field bolting. Job-site training covers storage, pre-installation verification, installation means, and inspection. Keep bolting off the critical path.
WSBS	Atema www.atemainc.com 312.861.3000	Quality assurance programs	Atema provides detailed, custom supply chain management assessment programs for bridge owners to ensure quality of fabricated structural steel products.
WSSES	BendTec www.bendtec.com 218.722.0205	Various products and services	Services: engineering, hot and cold bending, welding, machining, blasting and painting, and non-destructive examination. Products: roof trusses, parabolic arches, Vierendell trusses, long-radius bends, light/power poles, signs, bridge arches, and window mullions.
WSSES	Bridge Diagnostics, Inc. www.bridgetest.com 303.494.3230	Testing and analysis	In addition to testing and analysis services, we supply bridge testing hardware such as the new STS WiFi Wireless Structural Testing System, the BDI Long-Term Monitoring System, the BDI Bridge Fatigue Monitoring System, and the BDI ClearanceMaster—which is designed for automatically measuring overhead clearances.
WSSES	Bridge Grid Flooring Manufacturers Association www.bgfma.org 877.257.5499	Industry association	The Bridge Grid Flooring Manufacturers Association (BGFMA) is an industry group comprised of companies who fabricate steel grid deck systems for bridges and other companies with an interest in this market. The role of the BGFMA is to promote the use of steel grid decks through data collection, research/development, and education to bridge design engineers and owners as a time-tested, prefabricated deck solution that accelerates construction.
WSSES	Bocad Service International S.A. www.bocad.be +32.86.34.91.91	Software	Bocad is a 3D CAD/CAM solution dedicated to the structural steel and other material industries. It is able to answer all demands within designing, detailing, and manufacturing of steel structures.
WSBS	Clodfelter Bridge www.cbsiusa.com 713.675.1180	Castings, sockets, cable clamps	Alloy steel bridge castings, structural strand sockets, main cable clamps, tower saddles, special designed castings, bridge forgings, etc.
WSSES	CMC Joist and Deck www.cmcd.com 908.277.1617	Bridge form deck	2-in.- and 3-in.-deep steel deck with various pitches and yield strengths, 16 ga maximum thickness. Some profiles are available with factory-closed ends. Galvanized finishes are G165 and G235.
		Long-span bridge deck	Deep bridge steel deck profiles in 4.5-in., 6-in. and, 7.5-in. depths. Finishes include G165 and G235 galvanizing, 10 ga maximum metal thickness, and 40 ksi yield strength.
WSBS	Computers & Structures, Inc. www.csiberkeley.com 510.649.2200	SAP2000 Bridge Modeler	The SAP2000 Bridge Modeler offers sophisticated 3D parametric bridge modeling tools seamlessly integrated with SAP2000's comprehensive analysis and design software, allowing for the rapid generation of large and complex bridge models.
	CONTECH Bridge Solutions, Inc. www.contechbridge.com 800.526.3999	CONTECH Bridge Plank	For deck rehab and new construction, CONTECH Bridge Plank is available in 6-in. x 2-in., 9-in. x 3-in., and 12-in. x 4-1/4-in. corrugations. CONTECH Bridge Plank serves as the structural members supporting the asphalt concrete paving. Positive welded connections provide a rigid panel construction that helps stiffen the entire structure. The deck becomes an integral part of the bridge. Rattling of loose members under traffic is eliminated.
WSBS	The D.S. Brown Company www.dsbrown.com 800.848.1730	Steelflex, Versiflex, Cableguard, Fiberbond	D.S. Brown's extensive product line includes: Steelflex Modular Expansion Joint Systems, Versiflex Bearing Assemblies, Cableguard Elastomeric Wrap, Exodermic Bridge Deck, Fiberbond FRP (Fiber Reinforced Polymer) System, and other specialty products.
WSBS	IMPACT www.impact-net.org 202.393.1147	Industry association	The Ironworker Management Progressive Action Cooperative Trust is a Labor-Management Taft Hartley Trust whose primary mission is to expand opportunities for union ironworkers and their signatory contractors through progressive and innovative labor management cooperative programs.
WSSES	LeJeune Bolt Company www.lejeunebolt.com 800.872.2658	Structural fasteners	The largest inventory of structural fasteners including A325/A490 tension control bolts (plain, MG, Type 3), A325/A490 heavy hex bolts (plain, MG, Type 3), A307 hex bolts, DTI washers, and nuts.
		Tools and equipment	New and rental tools for steel fabrication and erection including electric and pneumatic shear wrenches, Torgon wrenches, Pro-Weld stud welding equipment, Mag drills, parts, accessories, and repair services.
		Stud welding products and equipment	Headed weld studs, deformed bar anchors, threaded studs, electric arc and capacitor discharge stud welding equipment, rental equipment, parts, and accessories.
		Anchoring products	Redhead and Powers anchoring systems in stock. Mechanical anchors include wedge and sleeve anchors, HD screw anchors, and bent anchor bolts. Chemical anchors include acrylic and epoxy adhesives, capsules, dispensing tools and accessories, and threaded rod cut to length.
WSSES	Lincoln Structural Solutions www.lincolnstructural.com 800.571.6884	Commercial grade structural fasteners	ISO 9001:2000 certified distributor of structural bolts, nuts, washers, load indicating washers, tension control bolts, expansion anchors, and all-thread rod. Available plain, Type 3, mechanically and hot-dip galvanized, and zinc plated.
		Nuclear certified structural steel and fasteners	Steel pipe, bar, tubing, sheet, plate, rod, shapes and fasteners compliant to NQA-1, ASME Section 3 NCA-3800, ANSI N45.2, 10 CFR Appendix B, and 10 CFR 21.
WSSES	LUSAS www.lusas.com 800.97.LUSAS	LUSAS Bridge	Finite element software for the analysis, design, and load rating of all types of bridges. Used on major structures worldwide, LUSAS Bridge solves all types of linear and nonlinear stress, dynamics, composite, fatigue, buckling, thermal, or soil structure interaction analysis problems.

	Company	Products Offered	Product Description
WSBS	MDX Software www.mdxsoftware.com 573.446.3221	Bridge software	The MDX Software Curved & Straight Steel Bridge Design & Rating package for steel bridge girder design and rating according to AASHTO ASD, LFD, and LRFD specifications.
WSBS	Nucor Fastener Division www.nucor-fastener.com 260.337.1600	Structural bolts	Nucor Fastener manufactures high quality ASTM A325, A325M, A490, and A490M structural bolts from 100% domestically melted and rolled material with certifications provided from our A2LA accredited laboratory.
		Structural nuts	Nucor makes ASTM A563 Heavy Hex structural nuts from ½-in. to 1-in. sizes in Grades C, C3, DH, and DH3 from 100% made in the USA materials.
		Tru-Tension structural assemblies	Tru-Tension assemblies are made to meet dimensional requirements per ASME B18.2.6 and mechanical requirements per ASTM F1852 (A325) or F2280 (A490) specifications in 5/8-in. to 1 1/8-in. diameters.
		Type III structural fasteners	Nucor offers structural fasteners made from alloy steel containing copper, chromium, and nickel to provide the desired weathering properties—all 100% made in the USA.
WSBS	R.J. Watson www.rjwatson.com 716.691.3301	Bearings, expansion joints, bridge deck, etc.	R. J. Watson designs, manufactures, and markets bridge bearings, seismic isolation devices, expansion joints, waterproofing membranes, FRP bridge decks, FRP bridge girders, and externally bonded FRP systems.
WSBS	Robert W. Hunt Company, a Bureau Veritas Company www.us.bureauveritas.com 888.CWI.WELD	Inspection services	Robert W. Hunt Company provides quality assurance and inspection services associated with the procurement of engineered equipment and materials for the water industry.
WSBS	Stinger Welding www.deckjoint.com 520.723.5383 480.987.1630	Bridge components	Expansion members : strip-seal joints, compression-seal joints, modular joints, and finger joints. Bearings: rockers, slides, and pads. Railing: barrier, decorative structural, pedestrian, industrial, and commercial. Platforms, grates, frames, drains, etc.
		Bridges	Fracture-critical, vehicular, rail, light-rail, highway, community, utility, pedestrian, decorative, and specialty bridges.
		Bridge services	Design, fabrication, repairs, and upgrades.
WSBS	Structal-Bridges, a division of Canam Group, Inc. www.structalbridges.ws 877.304.2561	Bridges, bearings, expansion joints	Structal-Bridges is a leading manufacturer of steel bridges, structural bearings and expansion joints for the highway, railway, and forestry industries.
WSBS	Taylor Devices, Inc. www.taylorddevices.com 716.694.0800	Fluid viscous dampers	Supplemental devices used in structures to dampen the vibrations caused by earthquake shaking, wind vibration, or other structural excitation. Forces and deflections are simultaneously reduced by out-of-phase response of device.
		Shock transmission units (STU/LUD)	These devices are used in structures to transmit dynamic forces from one portion to another, by providing large resistance to dynamic input. They provide little resistance to slow inputs (thermal expansion). Units function like a seatbelt.
		Cable dampers	These devices are used to dampen cables on cable-stayed bridges from rain/wind induced vibrations. Dampers can be designed to provide hurricane protection for the cables supporting the deck.
		Tuned mass dampers (TMD)	Devices comprised of mass, springs, and dampers. These devices can counteract motion and provide damping in large span structures where there is no alternative to attach direct acting fluid viscous dampers to a fixed reaction frame.
WSBS	ThyssenKrupp Safway, Inc. www.safway.com 262.523.6500	Scaffolding	With more than 80 branch locations throughout North America, ThyssenKrupp Safway, Inc. has been an industry leader in scaffold services since 1936. As a one-stop supplier, we offer scaffold rental, sales, delivery, labor services, engineering, training, inventory, and project management assistance. Our QuikDeck Suspended Access System is a revolutionary product used on hundreds of bridges nationwide to provide access to unconventional locations. ThyssenKrupp Safway is a subsidiary of ThyssenKrupp AG, an international technology group with more than 184,000 employees in 70 countries.
WSBS	Voigt & Schweitzer www.hotdipgalvanizing.com 614.449.8281	Galvanizing services	Six galvanizing plants, all ISO 9002 certified. Specializing in corrosion protection of steel with zinc by hot-dip galvanizing. The DUROZINQ program of packaging, tagging, and galvanizing is popular with fabricators in the Midwest and Northeast.
		DUROZINQ	A hot-dip galvanizing system that encompasses the toughest abrasive-resistant surface to fight corrosion and includes the added benefits of on-time delivery, guaranteed service, packaging, and shipping.
		COLORZINQ	A system that adds brilliant color to a base of corrosion protection. Preferred by architects and fabricators for over 30 years.
WSBS	Voss Engineering, Inc. www.vosseengineering.com 800.323.3935	Expansion and fixed bearing products	Expansion and fixed bearing products. Specializing in SORBTEX-based (CDP/preformed fabric pad/ MIL-C-882E) structural bearing solutions.
WSBS	Westfall Co., Inc. www.westfallcompany.com 636.938.3113	Deck drains	Fiber-glass deck drains for bridges and elevated roadways.
WSBS	Wheeling Corrugating Co. www.wheelingcorrugating.com 304.234.2326	Metal deck	A leading fabricator of roll-formed products for residential, agricultural, construction, highway, and bridge building markets. Wheeling Corrugating offers bridge form, a heavy duty steel system for forming concrete bridge deck slabs quickly, safely, and economically. Permanent metal bridge forms from 2 to 4.5 in., accommodating girder spacings up to 14 ft, are fabricated to individual project specifications from high-strength, galvanized steel.
WSBS	Wire Rope Corp. of America www.wrca.com 816.233.0287	Wire rope structural assemblies	WRCA supplies the wire rope structural assemblies for bridges around the world. Suspension cables, hand ropes, and tie-down assemblies are but a few of the components available from WRCA to make today's bridges safer, longer lasting, and more economical.

WSBS denotes that the company is an exhibitor at the 2007 NSBA World Steel Bridge Symposium in New Orleans, December 4-7. Visit www.steelbridges.org for more information.

project case study

American Galvanizers Assn.—Churchill River Bridge, Goose Bay, Newfoundland, Canada

LONGEVITY IN THE SUB-ARCTIC ENVIRONMENT. No maintenance requirement for 50 or more years. A severely limited construction season. And the ability to withstand an abrasive installation technique. These are just four of the many reasons the Trans Labrador Highway chose hot-dip galvanizing to protect the Churchill River Bridge in Goose Bay Labrador, Newfoundland, from corrosion. Linking the giant hydroelectric projects in the interior of Labrador with the coast at the Strait of Belle Isle and the ferry connection to Newfoundland, the Bailey-style, cantilever bridge was assembled on land and then pulled over the river with special-purpose machinery. Only a hot-dip galvanized coating with intermetallic layers harder than the substrate steel is suitable to meet the demands of such assembly methods.

Over 2,000 tons of steel were galvanized in just over a month to meet the tight deliv-



ery and erection schedule. This includes the deck steel, railings, and structural steel. The bridge is comprised of three spans in excess of 400 ft each, as well as about one-half mile of approach causeways.

Significant in specifying hot-dip galvanizing was the desire for the bridge's appearance to complement the natural environment without compromising it. The naturally dulling and varied pattern of a galvanized coating blends much

better into the wild, natural environment than monotone paints, and since it requires no maintenance, there is no blasting medium and harmful paint chips to contaminate the waters of the pristine river below.

Hot-dip galvanizing is uniquely suited to protect the Churchill River Bridge and ensure this important facet of the Trans Labrador Highway will be functional and maintenance-free for many years.