

# HC BRIDGE COMPANY, LLC

1521 Lake Avenue Wilmette, IL 60091  
(312) 616-7495

**FOR IMMEDIATE RELEASE**

## **HC Bridge Company, LLC Signs License Agreement with Innovative Infrastructure Solutions Canada Ltd.**

(Chicago, IL – Nov. 15, 2008) -- HC Bridge Company, LLC – a firm specializing in the development of hybrid-composite structural alternatives that can be used for accelerated bridge construction and offer a long service life -- recently entered into a licensing agreement with Innovative Infrastructure Solutions Canada Ltd. (IISC).

This partnership will allow IISC Ltd. exclusive rights to sell, distribute and fabricate HC Bridge Company's Hybrid Composite Beam (HCB) technology as well as other hybrid composite bridge components to be developed in the future in Canada, excluding Maritime Provinces, and all 27 European Union member states. The collective goal is to provide infrastructure owners a pre-fabricated advanced composite bridge system. Although there are several applications for the HCB, IISC's primary focus will center on the transportation infrastructure markets to include highway, rail and marine sectors.

The HCB represents a unique application of fiber reinforced plastic (FRP) and composite bridge technology in that it incorporates several different materials in an embodiment of a beam that exploits and optimizes the inherent qualities of each of the different materials. HCBs are comprised of three main sub-components – an FRP shell, compression reinforcement and tension reinforcement. The compression reinforcement consists of self-consolidated concrete (SCC) that is pumped into an arch conduit within the beam shell. The tension reinforcement consists of high-strength steel prestressing strands that run along the bottom flanges of the beam shell. All of this is encapsulated in a fiber reinforced plastic shell protecting the beam from salt corrosion and provides added structural capacity. Despite the unusual embodiment of

the HCB, the result is a bridge framing member that is simple to design, manufacture and construct and that is cost competitive with conventional building materials.

“Since its inception more than a decade ago, HCBs have been exhaustively tested, validated and further refined,” said Glenn Burkett, President Innovative Infrastructure Solutions Canada Ltd. “The HCB is in a class by itself as it is ultra light-weight and incredibly strong. Further, HCBs provide extended service life, lower life-cycle costs and also provide considerable cost reduction benefits related to shipping, material handling, as well as faster and more efficient installation as compared with precast concrete or steel beams of the identical specification. We are honored to have the opportunity to bring this technology to the marketplace.”

Although the technology is new to the market, it is proven. Two U.S. federally funded bridges were built in the last year using HCB technology. The first permanent highway installation of HCBs -- the High Road Bridge over Long Run Creek in Lockport Township, Ill. -- opened to traffic in August 2008. The superstructure for this 57-foot (17.4 m), single-span bridge is comprised of six 42-inch (1.067 m) deep HCBs spaced at 7-foot-4-inch (2.23 m) centers, supporting a conventional 8-inch (200 mm) thick reinforced concrete deck.

In November 2007, the first live load test of a full scale HCB Bridge was conducted at the Transportation Technology Center, Inc. (TTCI) near Pueblo, Colo. During these tests, a prototype HCB Bridge was subjected to a battery of tests consisting of a full-size locomotive pulling 26 heavy axle load coal cars. The loads used in the railroad bridge were approximately seven times as heavy as the design loads for the High Road Bridge. After carefully studying the data collected from these tests, the Association of American Railroads is currently conducting continued endurance testing at TTCI.

### ***Understanding the Technology***

The lightweight and corrosion-resistant properties of FRP materials are well known in the industry. Although these materials are very strong, they are also very flexible and somewhat costly. Several attempts have been made in recent years to construct bridges using more homogenous embodiments of FRPs. Although these are sound solutions from a structural standpoint, bridge girders constructed of purely FRP materials have never been able to compete on a first cost basis with conventional concrete and steel materials.

Similar to other building materials, FRPs are not lacking for function, but merely need to find an efficient form. It wasn't until 1879 that Francois Hennebique developed concrete structures with steel tension reinforcement. Up until that time, concrete was only effective as a building material in compression. In 1907, Eugene Freyssinet designed the first concrete bridges to employ prestressed steel reinforcement. Each of these advances in structural engineering sought to employ a more efficient use of building materials, generally through a combination of building materials. Further, these innovations have always been predicated on simple fundamental principals of structural behavior and willingness by the designer to deviate from traditional form in an effort to push the envelope of structural efficiency.

In its most simplistic embodiment, the HCB is simply supported and the profile of the compression reinforcement follows a parabolic curve, emulating the funicular shape of the applied dead load and live load moment envelope. The vertical component of the thrust in the compression arch also results in a dramatic reduction in the amount of shear that has to be carried by the webs of the FRP shell. In this simplest embodiment, the beam essentially functions like a tied-arch in a glass box. Although this is the simplest form of the beam, the same technology can be employed to manufacture beams with variable depths or widths using the same closed-mold, Vacuum Assisted Resin Transfer Method (VARTM). The beams can also be manufactured and made continuous over several supports as is the case with the 8-span Knickerbocker Bridge currently under design for Maine Department of Transportation. Regardless of the variation, the HCB completely opens up the possibilities for advancing the science of deployment of bridge technology. The HCB essentially allows the FRP materials to find their form for transportation structures.

According to John Hillman, President and Founder of HC Bridge Company, "The HCB provides a revolutionary bridge technology that demonstrates a commitment to not only rectify the state of the decaying infrastructure worldwide, but also to provide a sustainable solution to this problem that will reduce the burden of decaying infrastructure for future generations. We are very excited about our new partnership with IISC. They have demonstrated a commitment to introducing value added products in other sectors of the transportation industry in both Canada and the European Union, and we are confident that they will provide the leadership necessary to do the same with HCB technology."

“With more than 25 years of experience introducing new high-tech road/highway related products to many parts of the world, HCB is one of the most dynamic, unique technologies that I have had the pleasure of introducing to our associates,” said Burkett. “In a recent meeting with one of the largest road construction companies in Canada, I was asked if there was any down-side to this business, and to be completely honest, I could not come up with one.”

Innovative Infrastructure Solutions Canada Ltd. is a Canadian federally incorporated company. IISC Ltd. has been established and incorporated for business development and operations related to the HCB technology and the partnership with HC Bridge Company LLC under an exclusive licensing agreement. The licensing agreement grants IISC Ltd. the right to sell, distribute and fabricate the HCB technology and future developed related technology in the licensed territory to include Canada (excluding the maritime provinces) and the 27 member states of the European Union. For more information, contact Ian Anderson or Glenn Burkett at Innovative Infrastructure Solutions Canada, Ltd., (905) 377-0356 or [Innovative.global@sympatico.ca](mailto:Innovative.global@sympatico.ca).

HC Bridge Company LLC specializes in the development and commercialization of composite bridge technology that accelerates bridge construction and provides structures designed to offer service lives beyond 100 years.

###