

THE STAINLESS REBAR STANDARD



Kevin Cornell, Editor September 2014

Key elements of Kenaston Overpass in Winnipeg reinforced with stainless steel rebar



400,000 pounds of stainless steel type 2304 rebar used for the deck, barrier walls approach slabs and abutments.

[The Kenaston Overpass](#) in the southwest corner of Winnipeg, Manitoba has been constructed as part of the Waverly West Arterial Roads Project (WWARP). The overpass extends Kenaston Boulevard from Bishop Grandin Boulevard to the Perimeter Highway (PTH 100). The new portion of Kenaston Boulevard will connect the residential areas of Waverly West and serve as the principal route for traffic in southwest Winnipeg.

The Kenaston Overpass is a two-lane structure (single direction) with two spans and a length of 104 metres. The substructure consists of reinforced concrete abutments and piers which are supported on steel H piles to bedrock. The superstructure consists of two trapezoidal box girders with a 225mm reinforced concrete deck and 90mm asphalt wearing surface. The overpass has mechanically stabilized earth (MSE) walls on either side for accommodating the

extension of Bishop Grandin Boulevard to the Perimeter Highway.

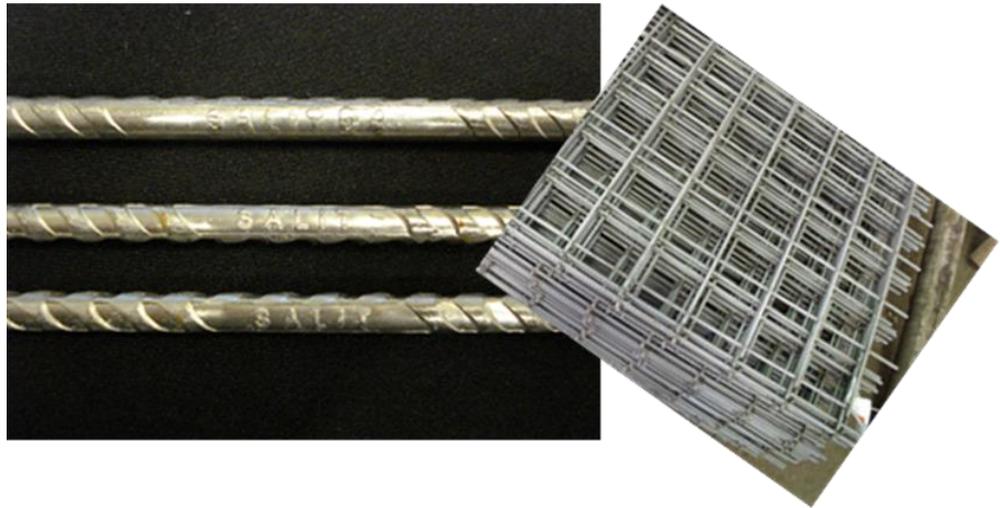
The City of Winnipeg Public Works Department specified stainless steel rebar reinforcement because of the heavy volume of traffic that would use the overpass, and to minimize long-term downtime of the structure for road repair. [Salit Specialty Rebar \(SSR\)](#) supplied close to 400,000 pounds of stainless steel type [2304 rebar](#) which was used in the road deck, barrier walls, approach slabs and abutments. SSR supplied steel according to [ASTM A955-14 - deformed and plain stainless steel bars for concrete reinforcement proposed to be used in applications requiring corrosion resistance or controlled magnetic permeability](#).

Construction challenges included a tight schedule to align completion of the overpass with the other contracts of the WWARP project, poor subsurface soil conditions requiring removal/replacement prior to MSE wall construction, use of lightweight cellular concrete to further reduce ground bearing pressures under the MSE walls, and significant road closure related restrictions, due to the high volume of traffic in the area. The General Contractor was [M.D. Steele Construction Limited](#). [Cowin Steel Co. Ltd.](#) of Winnipeg contracted with SSR to supply the stainless steel, and supplied the remaining steel reinforcement for the project.

Stainless Steel Welded Wire Mesh Mats – a new product introduced by Salit Specialty Rebar and StelCrete

Standard-sized stainless steel mats are the latest product introduced by Salit Specialty Rebar <http://stainlessrebar.com/> to the poured-in-place and precast concrete markets in the USA and Canada.

The new product is available in two different styles of mesh produced using two different alloys. One product is 6X6 D2.9/D2.9 (gage) that would be assembled in 6-foot x 12-foot mats. The



other product is 4X4 D4/D4 (gage) available as 6-foot x 12-foot mats. These sizes are the most popular in carbon mesh. All stainless wire mesh is branded with “SALIT” so buyers know that the wire mesh they are using is from a source in the Salit Group of Companies.

The mats are being produced as SS type 316LN (UNS-S31653) <http://www.azom.com/article.aspx?ArticleID=8261> and 2205 Duplex (UNS-S31803) [http://www.azom.com/search.aspx?q=2205%20Duplex%20\(UNS-S31803\).&site=all&fsb=1](http://www.azom.com/search.aspx?q=2205%20Duplex%20(UNS-S31803).&site=all&fsb=1). The 316LN is non-magnetic, and can be used where a non-magnetic environment is required, such as MRI chambers or sensitive electronic equipment facilities. The 2205 Duplex is a stronger material in both tensile and yield. This is used where greater strength, as well as corrosion resistant material is required.

There appears to be greater demand in the U.S. for stainless steel products such as standard mat sizes, perhaps in part due to the rebuilding of the nation’s infrastructure, especially bridge structures, with material that is resilient. By building structures that outlast the design life of structures, there is great value added to the asset management plans of public sector agencies.

The stainless steel mats are deformed because there is a marked preference for deformed wire over smooth. The mats meet ASTM Standard A1022/A1022M-13, the *Standard Specification for Deformed and Plain Stainless Steel Wire and Welded Wire for Concrete Reinforcement* <http://www.astm.org/Standards/A1022.htm> . This specification covers stainless steel wire and welded wire reinforcements from hot-rolled stainless steel rod to be used as concrete reinforcement with corrosion resistant and magnetic permeability properties.

Salit Specialty Rebar partners with StelCrete <http://www.stelcrete.com/> on projects that require pre-assembled cages and mats. The pre-assembled mats for the Canadian market are supplied to SSR from StelCrete’s Fort Erie facility. Fabrication for U.S. markets is carried out through SSR’s plants in Niagara Falls and Buffalo, New York.



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Stainless Steel in major improvements to Daniel Hoan Bridge



Contractor prepares for bridge deck pour over the #HoanBridge.
<https://twitter.com/WIHoanBridge>

Salit Specialty Rebar (<http://stainlessrebar.com/>) contracted with CMC of Kankakee IL (<https://www.cmc.com/en/americas/ourcompany/Pages/overview.aspx>) to supply 5,000 tons of 2304 Duplex Stainless Rebar much of it in 60-foot lengths for the deck of the Daniel Hoan Bridge (<http://projects.511wi.gov/web/hoan-bridge-project/overview#>) that connects downtown Milwaukee and Bay View across the Milwaukee River inlet. The bridge runs through the downtown area of Milwaukee and improvement work was on a very tight schedule so as not to disrupt commerce, commuter travel and the daily routines of residents.

The bridge is a major element of America’s Interstate highway network. Hoan Bridge and I-794 are responsible for hundreds of millions of dollars of south shore community development, including Milwaukee’s South Side/Bay View, St. Francis, Cudahy, South Milwaukee and Oak Creek.

An inspection in 2010 determined that although the structural integrity of the bridge remained intact, a long-term solution was needed to keep I-794 open. The contractor was contracted to remove and replace the existing bridge deck and make structural modifications.

Introducing Shari Powley and David Peters



Shari Powley joined Salit Specialty Rebar as its Office Administrator. Shari’s responsibilities include invoicing, inventory receiving, backlog, ISA reporting and entering small orders, deposits, answering the phones, and keeping the office running smoothly. She works closely with the shipping department at Salit Steel in Niagara Falls, Canada. Shari commented; “I’ve found that the “Salit family” has been extremely welcoming and helpful while I’ve made the transition from a teacher’s assistant for 15 years to the wonderful world of rebar.” Contact Shari at spowley@stainlessrebar.com.



David Peters joined Salit Specialty Rebar as Manager of Operations at both their Niagara Falls and Buffalo facilities. David holds a Bachelor of Science, Mechanical Engineering, Material Management from SUNY College at Buffalo, and is a member of the Certified National Association of Safety Professionals. Peters previously was a Plant Manager for Linde, and Operations Manager for Aurubis Buffalo. Contact David at dpeters@stainlessrebar.com

Delivering standard and innovative products from a new facility

[Salit Specialty Rebar](#) is supplying clients in Canada and the United States from its new facility at 1050 Military Road, approximately 6 km from the Peace Bridge linking Fort Erie, Ontario, and Buffalo, New York. The 40,000 square-foot facility was opened in October, 2013 to run two 10-hour shifts, six to seven days each week.

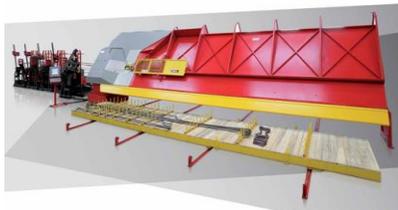
SSR's facility on Military Road includes a new RMS Shearline that can be operated conventionally, or controlled by computer software. Integrated with the Shearline is a RMS 611 Hydraulic Guillotine Shear, which is a completely automated Shearing System. The 611 Shear can substantially increase productivity while reducing shearing costs compared with conventional shears. The unique design of the 611 Shear makes it virtually impossible for an operator to place fingers or hands anywhere near the moving parts of the shear. The RMS station has double loading tables and double discharge.



RMS Shearline



RMS 611 Hydraulic Guillotine Shear



MEP Planet 20 Plus coil machine

Another feature of the facility is a new [MEP Planet 20 Plus coil machine](http://www.youtube.com/watch?v=5mLPSDVcfGs) (<http://www.youtube.com/watch?v=5mLPSDVcfGs>) used for coil processing, straightening and shaping. The high productivity of the [Planet 20](http://www.retecon.co.za/retecon/reinforcing-steel/stirrup-shape-benders-coil/mep/planet-20-plus/) (<http://www.retecon.co.za/retecon/reinforcing-steel/stirrup-shape-benders-coil/mep/planet-20-plus/>) is for serial production (same diameter with two wires up to 16 mm) and “classified” production, when processing individual building elements such as beams and columns (variable diameters with single wire up to 20 mm).



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