

# SALIT SPECIALTY REBAR

SALIT GROUP OF COMPANIES



November | 2020

## Stainless Steel Reinforcing

SSR products are in demand for building and repairing concrete structures impacted by catastrophic weather

Conversations about critical infrastructure suggest that not only should materials and products be sustainable, they must also be resilient to both natural and man-made catastrophic events in the context of changing climate and weather patterns, carelessness, vandalism and deliberate attacks on a system. Reasons that impact the specification of poured and precast concrete structures are wide and varied. The constant however, is that concrete used for critical infrastructure performs for a long service life with little unplanned maintenance and low professional and corporate risk to designers, specifiers, and contractors.



A long service life of concrete structures can be reassured when the reinforcement is stainless steel. Considering bridge decks for example, deterioration is a primary factor limiting the lifespan of bridges especially in cold climates where deicing salts are commonly used. Frequent harsh winter storms in certain areas of the USA like Upper New York State are followed by the application of tons of de-icing salt. In coastal areas, bridges and ramps affected by high winds and sea spray may now be at greater distances from the shore. The use of corrosion-resistant reinforcement is essential to mitigate deterioration of many concrete structures in the northeastern states and transportation assets along the Atlantic seaboard.

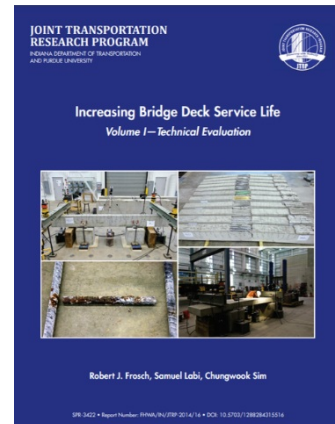
[Email Kevin](#)



# Increasing bridge deck service life

Technical Evaluation: Indiana Department of Transportation and  
Purdue University 2014

Deterioration of bridge decks is a primary factor limiting the lifespan of bridges especially in cold climates where deicing salts are commonly used. While controlling deck cracking or decreasing the permeability and porosity of concrete can improve performance and service life, chloride and moisture ingress as well as cracking cannot be eliminated. Full-depth cracks which are caused by restrained shrinkage allow for corrosive conditions at early ages for both the top and bottom reinforcement mats. Therefore, the use of corrosion-resistant reinforcement is essential to mitigate deterioration of bridge decks. The objective of the Purdue research was to examine the efficacy of using alternative materials in a bridge deck from both technical and economic perspectives.



For the **technical evaluation (Volume 1)**, a three-phase experimental investigation was conducted considering a wide range of corrosion-resistant reinforcing materials. These materials included stainless steels, microcomposite steel, and coated steels considering a variety of metallic and nonmetallic coatings. The first phase evaluated the bond between corrosion-resistant reinforcement and concrete using lap splice tests. The second phase evaluated the cracking behavior of slabs reinforced with corrosion-resistant reinforcement. Finally, the third phase evaluated corrosion resistance under uncracked and cracked conditions using macrocell test specimens. Transverse steel was also tied to the longitudinal steel to simulate actual bridge deck conditions.

Recommendations are provided on development and splice lengths for both conventional black and corrosion-resistant reinforcing steel, control of cracks widths, as well as the selection, design, and construction of corrosion-resistant reinforcement.

[Click here to download summary](#) | [Click on image to view research](#)

## Stainless steel rebar specified for Kew Garden Interchange

Phase 3 of the multi-phase Kew Garden Interchange (KGI) is replacing the existing deteriorated two-lane Van Wyck Expressway southbound viaduct over the





Photo Source: <https://www.dot.ny.gov/kgi/photos>

Grand Central Parkway with a continuous three-lane viaduct. The phase includes constructing new exits to the westbound Union Turnpike. The three lanes from the Van Wyck Expressway will merge with two lanes from the Grand Central Parkway over a longer distance.

Salit Specialty Rebar is supplying 800 tons of Grade XM-28 stainless steel rebar to Brooklyn Rebar for the reconstruction of 1.2 km of the I-678 Van Wyck Expressway (VWE) Southbound mainline and ramps from 72nd Avenue to Hoover Avenue. The new structure has a 215mm (8.5-inch) stainless steel reinforced concrete deck sitting on steel girders spanning up to 86m between supports.

## Stainless steel rebar specified for private seawall



The Florida Department of Transportation Structural Design Guidelines recommend that structures over or within 2,500 feet of a body of water with chloride concentrations more than 6000 ppm, both superstructure and substructure will be classified as extremely aggressive. In such aggressive environments such as seawalls, stainless steel reinforcement is an appropriate choice of structural reinforcing.

SSR supplied 2304 Duplex and two of rolls of 16 gage stainless steel tie wire for the reinforcing of a privately-owned seawall in Cocoa Beach. The owner said, "The rebar was bent and cut to spec by SSR and that service made it really easy to assemble."

Duplex 2304 is a 23% chromium, 4% nickel, molybdenum-free duplex stainless steel whose structure is a balance of ferritic and austenitic. It has general

## SSR supplies stainless reinforcing steel for the deck of N.C. 12 Rodanthe Bridge



Salit Specialty Rebar supplied 1,850 tons of Grade Enduramet 32 / XM-28 (UNS24100) stainless reinforcing steel for the deck of N.C. 12 Rodanthe Bridge. Enduramet 32 / XM-28 is a high-manganese, low-nickel, nitrogen strengthened austenitic stainless steel.

By means of solid solution strengthening, the nitrogen provides significantly higher yield and tensile strength as annealed without adversely affecting ductility, corrosion resistance or non-magnetic properties. Because of its low magnetic permeability, it may also be considered for concrete rebar applications in close proximity to sensitive electronic devices and magnetic resonance medical



equipment.

# Duplex 2304 Technical Sheet

SSR uses a Bruker XRF scanner to verify the alloy and chemical composition of all incoming and outgoing material. Scanning ensures that customers receive exactly what they ordered and verifies that stainless steel from the mills meets industry standards.

Alloy analysis using a handheld analyzer has become standard practice at SSR. They provide an easy-to-use, rapid, and non-destructive analysis of any metal. The XRF scanner identifies most alloys and performs a complete chemical analysis in a few seconds.



The photo shows employee Ryan Peters, Operations Coordinator, verifying the grade of material on an order about to be shipped.

## Stainless Steel Welded Wire Mesh Mats

Mats are being produced in two styles using one alloy. 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 316/316L (UNS-S31603). The 316/316L is non-magnetic, and can be used in an environment where a controlled magnetic permeability is required, such as MRI chambers or sensitive electronic equipment facilities. 316/316L is strong and corrosion resistant for specification



### Stainless Steel Welded Wire Mesh Mats

The mats are being produced in two styles using an alloy. One product is 848.02/50.29 (gauge) that would be assembled in 10' x 12-foot mats. The other product is 404.04 (32 gauge) available in 4' x 12-foot mats. These sizes are the most common in current job work. All stainless steel mesh is branded with "SAUT" so buyers know that the wire mesh they are using is from a source in the Salt Gorge Company.

The mats are being produced in 55 type 316L (UNS-531603). The 316/316L is non-magnetic, and can be used in an environment where a certified magnetic permeability is required, such as SAR facilities or sensitive electronic equipment facilities. 316/316L is strong and corrosion resistant for specific use under all conditions.

The stainless steel mats are defined because there is a marked performance for defined use over smooth. The mats meet ASTM standard A312/A312M-58b, the standard for welded austenitic stainless steel pipe and pipe fittings. For more information on the Salt Gorge Company's products, visit our website at [www.saltgorge.com/Standards/A312/A312M-58b](http://www.saltgorge.com/Standards/A312/A312M-58b). This specification covers stainless steel wire and welded wire reinforcements from hot-rolled stainless steel not to be used as concrete reinforcement with corrosion

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- 608-012-012-3 (page) that would be assembled in 6-foot x 12-foot mats.
- 608-04/04 (page) available as 6-foot x 12-foot mats.
- 316/316L has a low magnetic permeability.
- ASTM Standard A3021/A3021M-05, the Standard Specification for Deformed and Plain Stainless Steel Wire and Welded Wire for Concrete Reinforcement.



under all conditions.

DOWNLOAD the Tech  
Sheet

SS Type 316/316L  
UNS Number: 316/31603  
316/31603

Stainless steel type 316 is an Austenitic Chromium-Nickel type of stainless steel. It contains the alloy molybdenum (at 2-3%) which ensures that 316 offers better resistance to pitting and localized corrosion than stainless steel type 304 or 304L. It has a higher tensile strength at elevated temperatures than conventional mild steel.

Type 316L stainless steel is the low carbon modification of Type 316. Both 316 and 316L, being austenitic, display very low magnetic permeability in the annealed condition. The corrosion resistance of the 316/316L alloy is similar to that of the stainless alloy 321/321L which is certified as tested under the stainless steel reinforcement Standard ASTM A305/A305M.

Chemical Composition		Mechanical Properties	
Element	Typical	Property	Value
Iron	Balance	Tensile strength	515 MPa
Chromium	16.0-18.0	Yield strength	205 MPa
Nickel	10.0-13.0	Modulus of elasticity	193 GPa
Molybdenum	2.0-3.0	Poisson's ratio	0.27-0.30
Carbon	0.02	Elongation at break (in 50 mm)	40%
Manganese	0.10		
Phosphorus	0.010-0.020		
Sulfur	0.005		
Si	0.03-0.10		
Aluminum	0.005		
Copper	0.05		
Other	0.005		

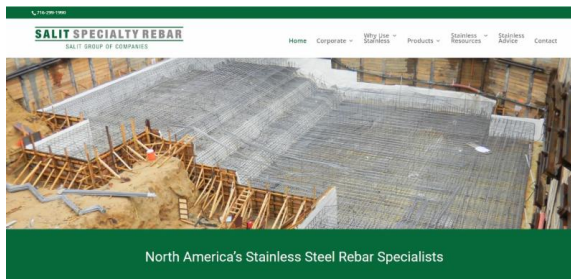
Other Designations				
ASTM A305	ASTM A305M	ASTM A305	ASTM A305M	ASTM A305
ASTM A305-03	ASTM A305M-03	ASTM A305	ASTM A305M	ASTM A305
ASTM A305-03	ASTM A305M-03	ASTM A305	ASTM A305M	ASTM A305
ASTM A305-03	ASTM A305M-03	ASTM A305	ASTM A305M	ASTM A305
ASTM A305-03	ASTM A305M-03	ASTM A305	ASTM A305M	ASTM A305

Source: https://www.salit-specialty-rebar.com/316/316L-03/

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Bookmark SSR's Website for  
Tech Info

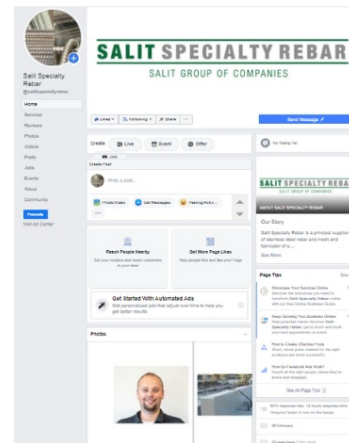
LIKE SSR's Facebook Page to  
be connected



The SSR website builds a case for specifying stainless steel reinforcement through archived technical information, listing of SSR services and products, and providing links to engineering services for designers who may wish to consult with SSR's specialists during the planning stage of a project.

The site archives photos and videos highlighting SSR's fabrication equipment, facilities, projects, and people who work with clients daily.

WEBSITE



SSR is building a community of followers by encouraging clients, past clients, prospects, Salit family staff, and people interested in the stainless steel reinforcement industry to LIKE the SSR Facebook business page.

When a person LIKES the SSR page, they automatically opt into following the page.

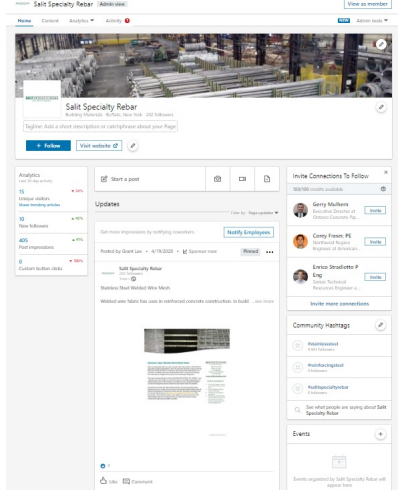
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SSR Company LinkedIn Page  
reserved for Technical  
Papers and Professional  
Development

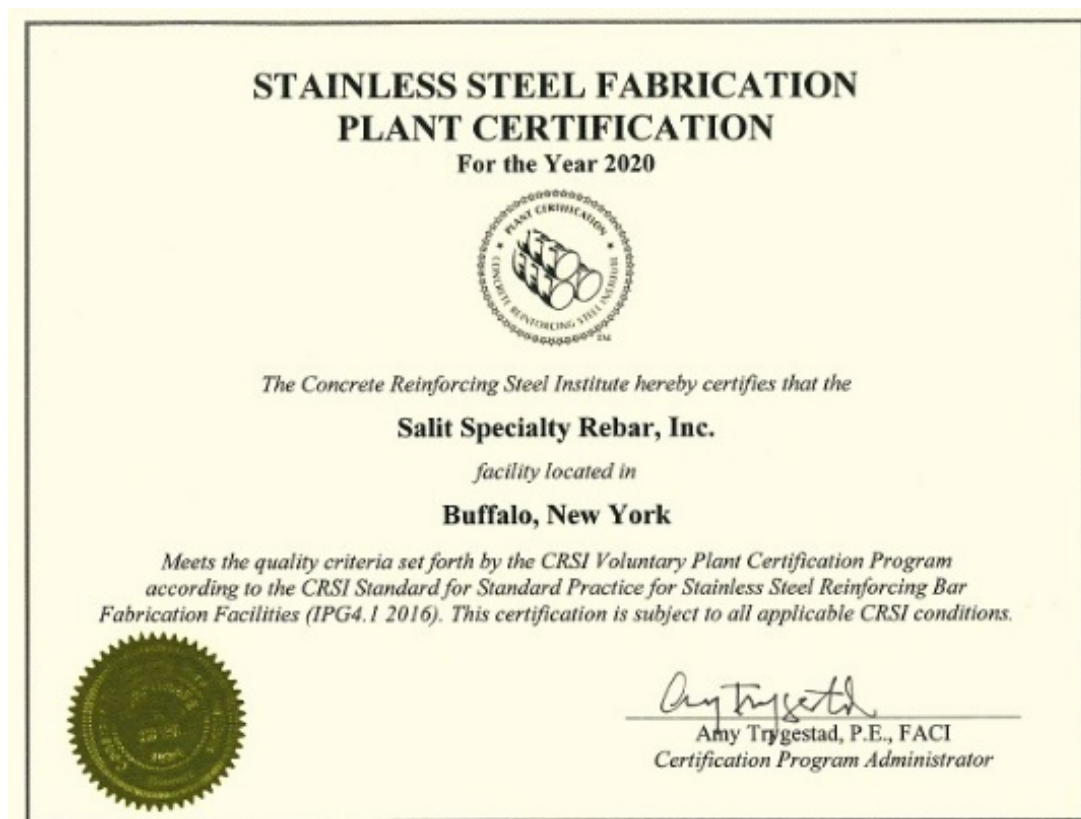
SSR's LinkedIn Page promotes the Salit Specialty Rebar and Salit Steel brands. By routinely populating the site with technical and professional opinions about stainless steel rebar and mesh, the site strengthens the positioning of



all divisions of Salit Steel.



FOLLOW



SSR ships products throughout the USA and Canada

SSR's 40,000 square-foot facility at 1050 Military Road, Buffalo easily supplies clients in Canada and the United States with an increasing range of stainless steel products. The facility is approximately 4 miles from the Peace Bridge - border crossing between Fort Erie, Ontario, and Buffalo, New York.



Buffalo Production Facility



Details





## New Orleans Ernest N. Memorial Convention Center

Feb. 25-27, 2021

The Precast Show is the largest precast-specific trade show in North America where the industry's most important suppliers and foremost equipment experts are under one roof. The show is sponsored by the National Precast Concrete Association and the Precast Prestressed Concrete Institute with additional collaboration from the Canadian Precast Prestressed Concrete Institute and the Cast Stone Institute.

SSR has tentatively reserved booth number 1855. The COVID pandemic is affecting trade shows throughout the country and there may be a late change to our booth location. Regardless, Michael, Kyle, and Kevin will be at the SSR booth.



## World of Concrete exhibits date change | June 8-10

World of Concrete is an annual international event that normally takes place in January or February. Along came COVID-19 and WOC is scheduled for June 7-10.

WOC features a week of exciting new products, cutting-edge technology, the latest equipment, spectator events and competitions, and more than 150 educational sessions including lunches, interactive workshops, and industry hands-on training.

SSR has reserved booth N3117 expecting the show to take place as planned. If all goes well despite the pandemic, please visit the booth and say hello to Kevin, Michael or Kyle. All are expected to attend.

## About Salit Specialty Rebar

Thank you for buying our products and enlisting our services. We appreciate your business.

With stainless steel rebar, mesh and mats in our product line, we look for the support of our clients to help build our brand as North America's specialist for stainless steel reinforcement.

Our corporate vision is one of leadership, innovation and consistently exceeding expectations. This vision is backed by extensive experience in the industry. As with all members of the Salit Steel family, we pride ourselves in providing unparalleled customer service.

### Team SSR

Kevin Cornell, Vice President Salit Specialty Rebar Sales  
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