







CORSPACE

Sn-Added Advanced Weathering Steel

Any steel structure exposed to a corrosive environment, such as salt laden air, must be designed to give optimum long term performance with a minimal level of normal maintenance. Conventional steel used in corrosive environments requires a protective coating to be applied in accordance with AS/NZS 2312. Bridges are commonly designed for a 100 year service life. In coastal environments with salt laden air, corrosion is accelerated, requiring higher maintenance levels and regular repainting over the service life.

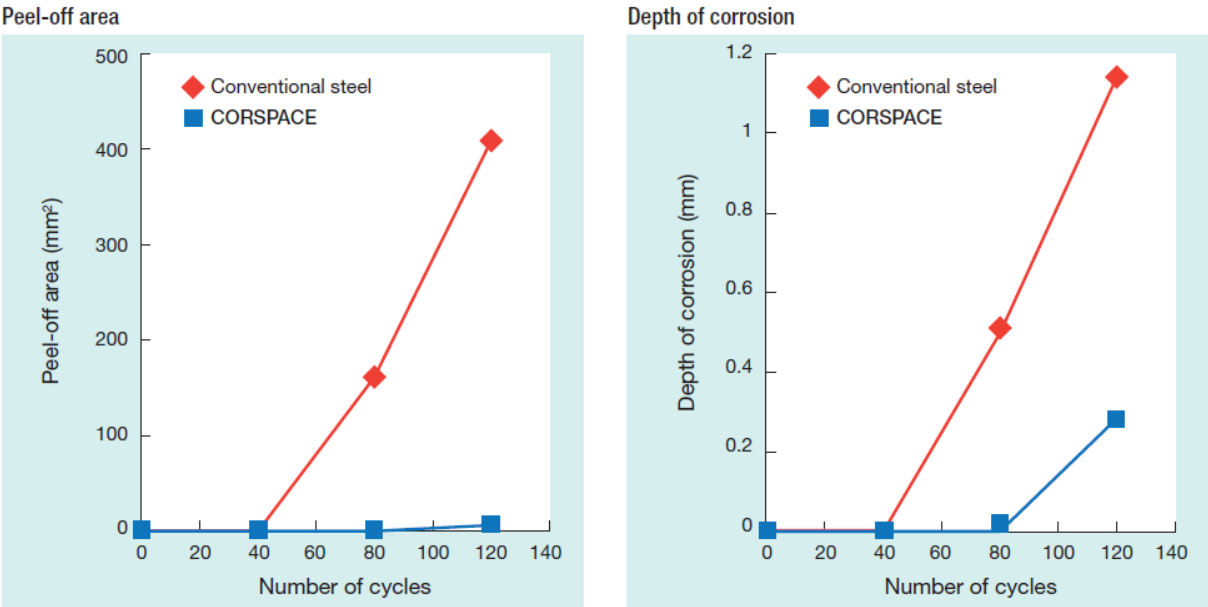
CORSPACE is very similar to conventional steel, the notable difference is the addition of Tin (Sn) in its formulation. CORSPACE requires protective coating in high corrosion environments with the same coating systems as apply to conventional steel. However, the modified chemical composition of CORSPACE extends the period before repainting is required by suppressing corrosion in areas where flaws or defects in the coating occur. This applies when heavy duty zinc coating systems are used as well as regular paint coatings.

Fig. 1. Appearance of coated samples of Steel & CORSPACE after severe corrosion laboratory test.

	40 cy.	80 cy.	120 cy.
Conventional			
CORSPACE			

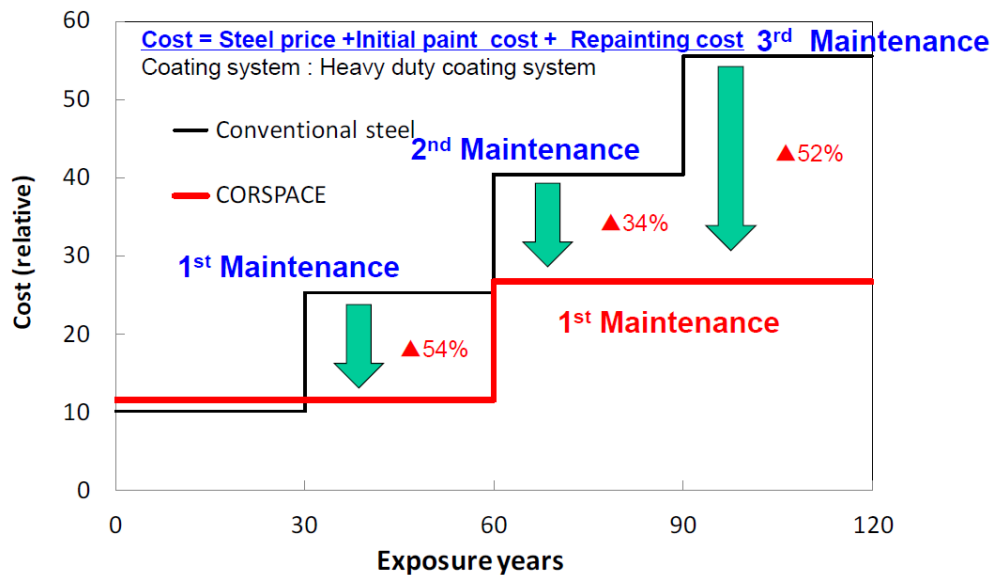
Zinc coating systems have the best performance in high corrosion zones. Testing with repeated salt washing shows the significant extra corrosion resistance of CORSPACE compared to conventional steel with the same zinc coating system applied.

Fig. 2. Comparative Results of Changes to Defects on Zinc System coatings on Steel & CORSPACE after Repeated Washing Cycles.

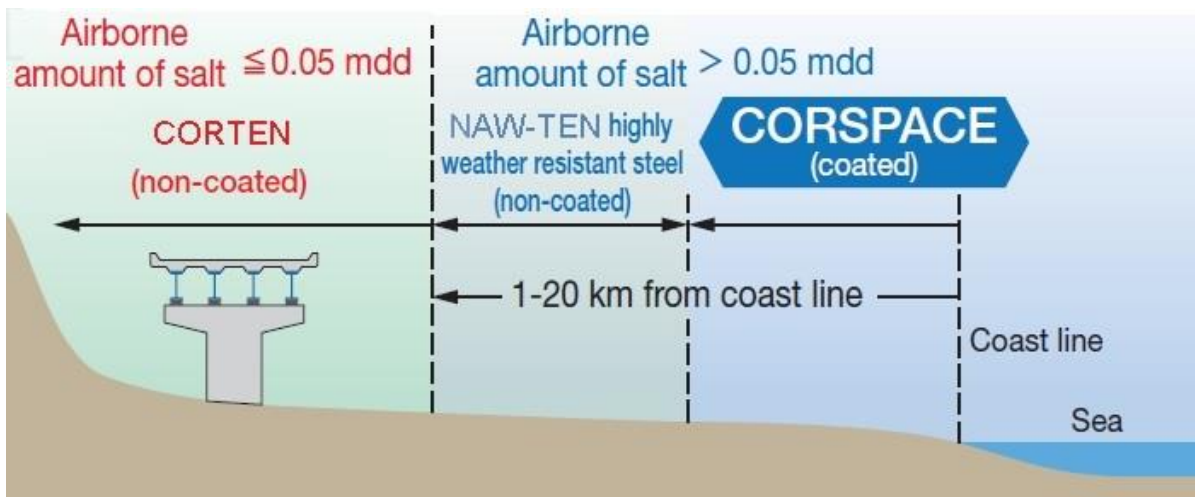


The use of CORSPACE can extend the coating cycle to about double that of conventional steel under the same coating/installation environment. So, while conventional steel requires re-painting usually three times over its serviceable life, CORSPACE can reduce the re-coat to once and approximately halve the life maintenance costs.

Fig. 3. Protection and Maintenance Costs for a Bridge constructed with CORSPACE compared to Conventional Steel over Serviceable Life.



As a general guideline, **CORSPACE** is most suitable for use in New Zealand's Corrosion Zones C4 and C5 in areas which are not suitable for NAW-TEN coastal weathering steels, or if a painted surface is required for aesthetic reasons.



CORSPACE Classification

CORSPACE complies with the JIS standards required for steel used in bridge fabrication, corresponding to the tensile strength of class 400-570 N/mm², as follows. Note: **SBHS** are Steels for High Performance Bridge Structure.

Type/Brand	Plate Thickness (mm)	JIS Classification
SM400 - CORSPACE	6 - 200	JIS G3106
SM490 - CORSPACE	6 - 200	JIS G3106
SM520 - CORSPACE	6 - 100	JIS G3106
SM570 - CORSPACE	6 - 100	JIS G3106
SBHS400 - CORSPACE	6 - 100	JIS G3140
SBHS500 - CORSPACE	6 - 100	JIS G3140

CORSPACE Connections - Welding & Bolting

Welding consumables and high strength bolts with matched chemical compositions are specified by Nippon Steel Corporation to prevent different corrosion rates and appearances of weld metal to parent metal.

Steel Material	Type of Steel (Tensile Strength)	Covered Arc	Solid Wire	Flux Cored Wire		Welding Material for	
		All Positions		All Positions	Fillet	Butt	Fillet
CORSPACE	SM400	L-55·PX	YM-26·PX	SF-1·PX	SM-1F·PX	YF-15 × Y-D·PX	YF-800 × Y-D·PX
	SM490						
	SBHS400						
	SM520	-	YM-55C·PX	-	-	YF-15B × Y-	NF-820 ×
	SM570 SBHS500	L-60·PX	YM-60C·PX	SF-60·PX	SM-60F·PX	YF-15B × Y-DM·PX	NF-820 × Y-DM·PX

CORSPACE can prolong the life of, and reduce the lifetime costs of, large steel structures used in coastal areas including bridges, industrial buildings or large equipment.



Higashiharima–Nanboku Road (Mizuashi Shintsuji No. 5 Elevated Bridge) built in 2012.



Unloader, Japanese Port.

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