PROJECT PROFILE

St. Johns Bridge Repairs

Contractor: Oregon DOT Maintenance
Distributor: Williams Form Engineering
Date of Completion: Summer 2011

Portland's northernmost Willamette River bridge, the St. Johns, was finished in 1931. The bridge replaced the city's last ferry, linking the communities of Linnton and St. Johns. Designed by internationally renowned engineer, David B. Steinman and Holton D. Robinson of NY, the St. Johns was the longest suspension-type bridge in the Willamette Valley and one of only three major highway suspension bridges in Oregon. The four lane structure features lofty Gothic arch towers of steel, Gothic-inspired steel frame piers of reinforced concrete, and the longest "prestressed" steel cable rope strands designed up to the time of construction.

When repairs needed to be made to the bridge, contractors were looking for a workable mortar that met specific requirements. The engineer required that our STR Mortar be tested to determine if it is compatible with embedded galvanic anodes. Resistivity measurements determined that STR Mortar was below the stated threshold of 15,000 Ohm•cm and is suitable for use with embedded galvanic anodes, when mixed and used as directed.

Crews removed loose and inferior concrete and exposed rebar. A wire mesh was attached to provide extra cohesion. Prior to placement of the STR Mortar, the contractors ensured the surface was saturated surface dry (SSD). Areas were then formed so STR Mortar could be pumped in.

STR Mortar is a slow setting, pumpable, structural concrete repair mortar that exhibits excellent flexural properties, shear bond strength and compressive strength. It also contains Ferrolok™, an integral corrosion inhibitor. STR Mortar is ideal for form and pour applications, such as this project, that require extended working time, high fluidity and added depth requirements.

SUBMITTED FOR ODOT APPROVAL

US SPEC STR Mortar

Flowable, Shrinkage Compensate Structural Repair Mortar w/ Ferrolok Integral Corrosion Inhibitor

Uses:

STR Mortar is ideal for a wide variety of formed concrete repairs:

- Bridge Decks
- Tunnels
- Pavements
- Piers, docks and dams
- Warehouse floors and industrial plants
- Horizontal, vertical and overhead formed concrete

Standards:

STR Mortar meets and exceeds the requirements of ASTM C928 R1.

Properties:

Compressive Strength (ASTM C-109*)

SET	3 HOURS	1 DAY	7 DAYS	28 DAYS
NORMAL	600 psi	4,000 psi	6,700 psi	9,000 psi

Rate of Set (ASTM C-266*)

SET	INITIAL	FINAL
NORMAL	:25	1:45

*Notes: 73ºF (22.8ºC) 55% humidity 3.25 qts. water

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