

# S L U T I O N S



## PROJECT:

*Penobscot Narrows Bridge*

**OWNER:** *Maine DOT*

**YEAR:** *July 2008*

## The Details

PROJECT CONTRACTOR:

Cianbro/Reed & Reed LLC

PROJECT ENGINEER:

Maine DOT & FIGG

MARKET/ENVIRONMENT:

Post-tensioned cables on bridge

SUBSTRATE:

Steel strands

PRODUCT USED:

**Five Star® Special Grout 400**

SIZE OF PROJECT:

More than 6,000 50 lb. bags

**The Challenge** — The Penobscot Narrows Bridge is a 2,120 foot (646 meter) cable-stay bridge that spans the Penobscot River near Bucksport, Maine. It is considered one of the most advanced superstructure designs of our modern day. In order to maintain a corrosion-free environment and protection of its post-tensioned cables, a superior product was required.

**The Solution** — After rigorous testing, Five Star® **Special Grout 400** was selected for use on this project based upon outstanding field mock-up test results when compared to competitive materials, as well as its specialized ability to protect against corrosion when applied to bridge cables. The product's effectiveness was determined by pumping grout through a 150-foot transparent pipe containing steel strands to evaluate shrinkage and encapsulation rates around the strands. These tests were done to ensure the ideal high performance grout was utilized on this project. Outstanding protective properties and on-site support from Five Star irrefutably made Five Star® **Special Grout 400** the complete solution.



**FIVE STAR**  
Specified by the World's Best™

**FiveStarProducts.com**

# SPECIAL GROUT 400

## Fluid Precision Non-shrink Cable Grout

### PRODUCT DESCRIPTION

Five Star® Special Grout 400 is a cement-based, non-metallic, non-shrink, fluid grout specifically formulated for grouting of cables and tendons requiring corrosion protection. When tested in accordance with ASTM C 827, Five Star® Special Grout 400 shows positive expansion. Five Star® Special Grout 400 meets the performance requirements of ASTM C 1107-02 Grades A, B and C, ASTM C 1107-07, CRD-C 621-93 specifications for non-shrink grout, and Post Tensioning Institute specifications for grouting post tensioned structures.

### ADVANTAGES

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"><li>• Air Release technology per ACI 351.1 R</li><li>• Pumpable fluid grout for very tight clearances</li><li>• Non-bleeding</li></ul> | <ul style="list-style-type: none"><li>• Permanent filling of voids</li><li>• Extended working time</li><li>• Pumpable up to 2 hours at 90 °F (32 °C)</li></ul> | <ul style="list-style-type: none"><li>• Non-shrink from the time of placement</li><li>• Does not contain aluminum powder</li></ul> |
|--|--|--|

### USES

- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"><li>• Provides corrosion protection of bridge cables</li></ul> | <ul style="list-style-type: none"><li>• Non-shrink grouting between precast panels, walls and beams</li></ul> | <ul style="list-style-type: none"><li>• Pressure placement into tendon ducts</li></ul> |
|--|---|--|

### FIVE STAR® SERVICES

- Design-A-Spec™ engineering specification assistance
- Technical on-call center with field and project experienced staff
- Field support representatives for on-site consultation
- Corporate research laboratory available to customize products for unique applications



For worldwide availability, additional product information and technical support, contact your local Five Star® licensee, distributor, local sales representative, or you may call the Five Star Products' Engineering and Technical Service Center at 1-800-243-2206 (from the U.S.) or +1 203-336-7900 (outside the U.S.).



#### Five Star Products, Inc.

60 Parrott Drive • Shelton, CT 06484-4733 USA  
Phone: +1 203-336-7900 • Fax: +1 203-336-7930

FiveStarProducts.com



© 2016 Five Star Products, Inc.  
Printed in the U.S.A. | Lit No. 12619 Rev. A