



Date: August 16, 2022  
To: All Vendors  
Subject: Addendum #3

REFERENCE: **B058-22 WPT1 Train A and Train C Concrete Structure Repair Project**

This Addendum forms part of the contract and clarifies, corrects or modifies original bid document.

**See attached document for additional product information.**

The signature of the company agent, for the acknowledgement of this addendum, shall be required. **Complete information below and return via e-mail to: [dsolitaire@brownsville-pub.com](mailto:dsolitaire@brownsville-pub.com).**

I hereby acknowledge receipt of this addendum.

**Company:** \_\_\_\_\_

**Agent Name:** \_\_\_\_\_

**Agent Signature:** \_\_\_\_\_

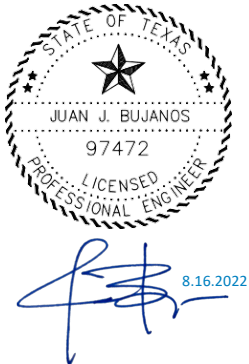
**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_ **E-mail address:** \_\_\_\_\_

If you have any further questions about the Bid, call 956-983-6366.

BY: ***Diane Solitaire***  
Purchasing



## Addendum

Date:	08.16.2022	Distribution:
Project:	BPUB Train A/Train C Concrete Repairs	Marie Leal, PE (BPUB) Diane Solitaire (BPUB) Hugo Lopez (BPUB)
Project No.:	B058-22	
Addendum No.:	Three (3)	

### Notice to All Bidders

This Addendum forms a part of the Contract Documents and modifies the original Specifications and Drawings, issued 11 March 2022, to the extent noted hereinafter.

All parties of interest shall take careful note of this Addendum so that proper allowance is made in all computations, estimates and contracts and so that all trades affected are fully advised in the performance of work that will be required by them.

This Addendum supersedes all previous Drawings, Specifications, and instructions pertaining to these items.

### Submitted request for additional products to be used on the project:

1. The following Sika concrete restoration products are approved for use:

- SikaQuick VOH
- SikaQuick FNP
- Sikacrete 211 SCC Plus

I hereby certify receipt of this addendum and have incorporated its information or changes in preparation of my bid submittal.

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Company Name

**Complete information above and return via e-mail to: [dsolitaire@brownsville-pub.com](mailto:dsolitaire@brownsville-pub.com), and submit a Copy of the Addendum with your bid submittal !!**

**Product Data Sheet**

Edition 4.23.2018

SikaQuick® FNP

**SikaQuick® FNP**

Fast-setting, one-component, polymer-modified, self consolidating, structural repair mortar with fiber and integral corrosion inhibitor for form and pour/pumpable applications

<b>Description</b>	SikaQuick FNP is a self consolidating mortar for form and pour/pumping in concrete repair applications. It provides high pumpability for structural repair of columns and beams.
<b>Where to Use</b>	<ul style="list-style-type: none"> <li>■ Horizontal, vertical and overhead repairs</li> <li>■ Parking garages, bridges, beams, columns, tunnels, building facades, retaining walls and other structural applications</li> <li>■ Pre-placed aggregate applications</li> <li>■ Marine structures such as piers, dams, sea walls, etc.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>■ High fluidity for ease of pumping and pouring in congested repairs</li> <li>■ Fiber reinforced</li> <li>■ Integral corrosion inhibitor</li> <li>■ One-component for easy mixing</li> <li>■ Up to 8" (203mm) in thickness with aggregate - 3" (76mm) neat</li> <li>■ Freeze/Thaw resistant</li> <li>■ Extremely low shrinkage</li> <li>■ Excellent bond strength</li> </ul>
<b>Coverage</b>	~0.5 cu.ft. per 55 lb bag.
<b>Packaging</b>	55 lb bag; 48 bags per pallet

**Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)**

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

<b>Shelf Life:</b>	1 year in original, unopened packaging.
<b>Storage Conditions:</b>	Store dry at 40°-95°F (4°-35°C).
<b>Condition material:</b>	Condition material to 65°- 75°F before using.
<b>Pot Life</b>	60 minutes
<b>Initial Set (ASTM C 266)</b>	70-100 min
<b>Final Set (ASTM C 266)</b>	2-3 hours
<b>VOC (Method EPA 24)</b>	0 g/L

**Compressive Strength (ASTM C 109)**

Day 1	<b>psi (MPa)</b> 3,500 (24.1)
Day 7	6,000 (41.4)
Day 28	7,500 (51.7)

**Flexural Strength (ASTM C 293)**

Day 1	<b>psi (MPa)</b> 700 (4.8)
Day 7	1,300 (9)
Day 28	1,500 (10.3)

**Modulus of Elasticity (ASTM C 469)**

Day 28	<b>psi</b> 5x10 <sup>6</sup> psi
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**Chloride Perm. (ASTM C 1202/ AASHTO T277)**

&lt; 750 coulombs

**Freeze Thaw Resistance (ASTM C 666)**

98%

**Scaling Resistance (ASTM C 672)**

0 (No Scaling)

**Shrinkage (ASTM C 157 modified per ASTM C 928)**

&lt; 0.06%

**Direct Bond Strength (ASTM C 1583)**

500-600 psi (3.4 - 4.1 MPa)



PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.

## How to Use

### Surface Preparation

Remove all deteriorated concrete, dirt, oil, grease, and all bond-inhibiting materials from surface. Be sure repair area is not less than 1/4 in. in depth. Preparation work should be done by high pressure water blast, scabbler, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of  $\pm 1/8$  in. (CSP-7-8). Saturate surface with clean water. Substrate should be Saturated Surface Dry (SSD) with no standing water during application.

**Reinforcing Steel:** Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming and protection of reinforcing steel use Sika® Armatec® 110 EpoCem (consult Product Data Sheet).

### Mixing

Start with 7/8 gal of water and add up to 1 gal per 55lbs bag in a mixing container. Add SikaQuick® FNP while continuing to mix. Mix to a uniform consistency, maximum 3 minutes. Mechanically mix with a low-speed drill (400-600 rpm) a mud paddle.

### Application

- Pre-wet surface to SSD.
- Ensure good intimate contact with the substrate. To accomplish this, material should be scrubbed into the substrate or other suitable means should be employed such as vibration of the material or pumping under pressure.
- Vibrate form while pouring or pumping.
- Pump with a variable pressure pump. Continue pumping until a 3 to 5 psi increase in normal line pressure is evident, then STOP pumping.
- Form should not deflect. Vent to be capped when steady flow is evident and forms stripped when appropriate.
- For applications greater than 3" in depth, add 3/8" coarse aggregate. The addition rate is 25 lbs. of aggregate per bag of SikaQuick® FNP. (25 lbs. of 3/8" aggregate is approximately 2.0 gallons by loose volume of aggregate). The aggregate must be non-reactive (reference ASTM C-1260, C-227 and C-289), clean, well graded, saturated surface dry, have low absorption and high density, and comply with ASTM C-33 size number 8 per Table 2. Variances in aggregate may result in different strengths. No additional mix water is required.

### Curing

As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based\* compatible curing compound. Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. Protect newly applied material from direct sunlight, wind, rain and frost. \*Pretesting of curing compound is recommended.

### Limitations

- Application thickness recommended:

	Min	Max
Neat	1/4"	3"
Extended	1"	8"

- Minimum ambient and surface temperatures 40°F (4°C) and rising at time of application. Refer to the American Concrete Institute (ACI) for cold-weather or hot-weather application guidelines.
- Do not add any additives (plasticizers, accelerators, retarders, etc.) or cement to SikaQuick® FNP
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts, with an appropriate epoxy such as Sikadur® 32 Hi-Mod.
- Egg beater paddle type is not recommended for SikaQuick® FNP as it will introduce a lot of air into the mix

**PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.**

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**LIMITED WARRANTY:** Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

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C.P. 76920  
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# SikaQuick® VOH

Fast Setting, one component, cementitious vertical and overhead repair mortar with superior high build properties

<b>Description</b>	SikaQuick VOH is a fast setting, one component, ready-to-use repair mortar for vertical and overhead applications using specialty cement blends.
<b>Where to Use</b>	<ul style="list-style-type: none"> <li>■ Fast repairs to overhead and vertical concrete and mortar surfaces on grade, above and below grade.</li> <li>■ As a repair material for building facades, parking structures, industrial plants, bridges, etc.</li> <li>■ As a fast setting repair material for new construction defects.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>■ Minimal time required between lifts.</li> <li>■ Fast finishing time</li> <li>■ Time/labor-saving material; application up to 3 inches on vertical surfaces in one layer</li> <li>■ Easy to use; just add water</li> <li>■ High bond strength ensures excellent adhesion</li> <li>■ High early and ultimate strength</li> <li>■ Increased freeze/thaw durability and resistance to deicing salts</li> <li>■ Suitable for exterior and interior applications.</li> <li>■ Not a vapor barrier</li> <li>■ Overhead thickness up to 2"</li> <li>■ Fiber reinforced and polymer modified</li> <li>■ Contains corrosion inhibitor</li> </ul>
<b>Coverage</b>	~.44 cu. ft.
<b>Packaging</b>	44 lb bag

## How to Use

**Surface Preparation** **Concrete/Mortar:** Remove all deteriorated concrete, dirt, oil, grease, and all bond-inhibiting materials from surface. Preparation work should be done by high pressure water blast, scab-ber or other appropriate mechanical means to obtain an exposed aggregate surface profile of +/- 1/16 in. (CSP-5). After preparation, substrate strength should be verified prior to patch placement. Substrate should be saturated surface dry (SSD) with no standing water during application.

### Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS. THIS DATA REFLECTS MATERIAL TESTED AT A MIXING RATIO OF 6.25 PINTS/UNIT.

<b>Shelf Life:</b>	One year in original, unopened bags.			
<b>Storage Conditions:</b>	Store dry at 40°-95°F (4°-35°C).			
<b>Product Conditioning:</b>	Condition material to 65°-75°F before using.			
<b>Color:</b>	Concrete gray.			
<b>Mixing Ratio:</b>	6 - 6.5 pints/unit			
<b>Density (Wet mix):</b>	~ 125 lbs. / cu. ft.			
<b>Application Time:</b>	Approximately 20 minutes.			
<b>Finishing Time:</b>	20-30 minutes			
<b>Lift Height:</b>	Max: 3"	Min: 1/8"		
<b>Time Between Lifts:</b>	After final set			
<b>Splitting Tensile Strength, psi (ASTM C-496)</b>		<b>1 day</b>	<b>7 days</b>	<b>28 days</b>
		200	250	500
<b>Compressive Strength, psi (ASTM C-109):</b>	<b>3 hrs</b>	<b>1 day</b>	<b>7 days</b>	<b>28 days</b>
	>2000	>3000	>4500	5500
<b>Flexural Strength, psi (ASTM C-293):</b>		<b>1 day</b>	<b>7 days</b>	<b>28 days</b>
		400	600	1000
<b>Bond Strength*, psi (ASTM C-882 modified):</b>		<b>1 day</b>	<b>7 days</b>	<b>28 days</b>
		1000	1600	2000
<b>Modulus of Elasticity, psi (ASTM C-469)</b>			<b>7 days</b>	
			>2.2 x 10^6	
<b>Bond Strength, psi - Direct Tensile (ICRI No. 210.3):</b>	Substrate failure >250			
<b>Shrinkage (50% R.H.) (ASTM C-157; ICRI protocol):</b>	<.05%			
<b>Initial Set, min. (ASTM C-266)</b>	20-25			
<b>Final Set, min. (ASTM C-266)</b>	30-40			

\*Mortar scrubbed into substrate

Construction



**Reinforcing Steel:** Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high pressure washed with clean water after mechanical cleaning.

**Priming:**

**Reinforcement Steel:** For priming of reinforcement steel use Sika Armatec 110 EpoCem (Consult Technical Data Sheet).

**Concrete Substrate:** A scrub coat of SikaQuick VOH should be applied prior to placement of mortar. The repair mortar has to be applied into the wet scrub coat before it dries. The use of Sika Armatec 110 EpoCem as a bonding agent for concrete is not recommended.

**Mixing**

Wet down all tools and mixer to be used. Mix mechanically with a low-speed drill (400 - 600 rpm) and mixing paddle or mortar mixer. Mix to a uniform consistency, maximum 3 minutes. Manual mixing can be tolerated only for less than a full unit. Thorough mixing and proper proportioning of the powder and liquid is necessary. Inaccurate proportioning of the powder to liquid will result in a finished product that may not conform with stated properties.

**With water:** Start mixing with 6 pints of water per 44 lb. bag. Adjust the water dosage by a maximum amount of +/- 1/2 pint, if necessary, to achieve the desired consistency. Do not over-water. Over-watering may result in difficulty handling and/or not meeting stated property values.

**With Latex R:** Start mixing with 6 pints of Sika Latex R per 44 lb. bag. Adjust the Sika Latex R dosage by a maximum amount of +/- 1/2 pint, if necessary, to achieve the desired consistency.

**Application**

The mixed SikaQuick VOH must be worked well into the prepared substrate, filling all pores and voids. Compact well. Force material against edge of repair working towards the center. Thoroughly compact the mortar around exposed reinforcement. After filling repair, consolidate, then screed. Finish with steel, magnesium, wood, plastic floats, or damp sponges, depending on the desired surface texture. Where multiple lifts are required, score top surface on each lift to produce a roughened substrate for next lift. Allow preceding lift to harden before applying fresh material. Saturate surface of the lift with clean water. If previous layers are over 6 hours old, mechanically prepare the substrate and dampen.

**Tooling and Finishing**

Curing: As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based\* compatible curing compound. Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. Protect freshly applied mortar from direct sunlight, wind, rain and frost.

\* Pretesting of curing compound is recommended.

**Removal**

Cured product must be removed mechanically.

**Over Painting**

Acrylic waterbased systems - 4 hrs

Epoxy/PU based systems - 6 hrs

Compatibility and adhesion testing is always recommended.

**Limitations**

- Application thickness: Minimum: With water: 1/8 inch (3 mm). Maximum in one lift: 3 inches (75 mm) vertical, 2 inches (51 mm) overhead.
- Minimum ambient and surface temperatures 45°F (7°C) and rising at time of application.
- To control setting times, cold water should be used in hot weather and hot water used in cold weather.
- Do not use solvent based curing compounds. As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur Hi-Mod 32.
- Remixing product after it begins to set is prohibited.
- Do not use Sika Armatec 110 EpoCem as a bonding agent with SikaQuick VOH.

**Caution**

**WARNING: IRRITANT.** Contains quartz (CAS:14808-60-7), calcium carbonate (CAS:471-34-1), portland cement (CAS:65997-15-1), cement, alumina, chemicals (CAS:65997-16-2), and magnesium carbonate (CAS:546-93-0). Causes severe eye irritation. May cause eye injury, effects may be delayed. May cause respiratory tract/skin irritation. May cause gastrointestinal disturbance if swallowed.

**WARNING!** This product contains a chemical known in the State of California to cause cancer and birth defects or other reproductive harm.

# Construction

<b>First Aid</b>	<b>Eyes</b> – Hold eyelids apart and flush thoroughly with water for 15 minutes. <b>Skin</b> – Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. <b>Inhalation</b> – Remove to fresh air. <b>Ingestion</b> – Do not induce vomiting. Dilute with water. Contact physician. <b>In all cases contact a physician immediately if symptoms persist.</b>
<b>Handling and Storage</b>	Avoid direct contact. Wear personal protective equipment (chemical resistant goggles/gloves/clothing) to prevent direct contact with skin and eyes. Use only in well ventilated areas. Open doors and windows during use. Use a properly fitted NIOSH respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing and launder before reuse.
<b>Clean Up</b>	Use personal protective equipment (chemical resistant gloves/goggles/clothing). Without direct contact, sweep up spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable local, state, and federal regulations.



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## Sikacrete® 211 SCC Plus

One-component, cementitious, polymer-modified, self consolidating concrete mix with an integral migrating corrosion inhibitor

<b>Description</b>	Sikacrete 211 SCC Plus is a one-component, self consolidating concrete containing factory blended coarse aggregate. This self consolidating concrete bag is silica fume and polymer modified and also contains a migrating corrosion inhibitor.
<b>Where to Use</b>	<ul style="list-style-type: none"> <li>■ Full depth repairs.</li> <li>■ On grade, above and below grade on concrete.</li> <li>■ On horizontal surfaces.</li> <li>■ Vertical and overhead surfaces when formed and pumped or poured.</li> <li>■ As a structural repair material for parking facilities, industrial plants, walkways, bridges, tunnels, dams, and balconies.</li> <li>■ Filler for voids and cavities.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>■ Self consolidating concrete - excellent placement characteristics.</li> <li>■ Polymer-modified.</li> <li>■ Integral penetrating corrosion inhibitor.</li> <li>■ Silica fume enhanced.</li> <li>■ Prepackaged coarse aggregate. Eliminates the need to extend material in the field. Eliminates the risk of reactive aggregate.</li> <li>■ Can be pumped or poured into forms and gets excellent consolidation without vibrating.</li> </ul>
<b>Yield</b>	Approximately 0.50 ft. <sup>3</sup> /bag. Actual results on site may vary.
<b>Packaging</b>	65 lb. multi-wall bag.

### Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

<b>Shelf Life</b>	1 year in original, unopened packaging.						
<b>Storage Conditions</b>	Store dry at 40°-95°F (4°-35°C). <b>Condition material to 65°-75°F (18°-24°C) before using.</b>						
<b>Initial Spread</b>	SCC, 27-33 in. approx.						
<b>Spread @ 30 min.</b>	> 15 in.						
<b>Application Time</b>	60 minutes						
<b>Flexural Strength (ASTM C-78)</b>	<table> <tr><td><b>1 day</b></td><td>500 psi (3.4 MPa)</td></tr> <tr><td><b>7 days</b></td><td>750 psi (5.2 MPa)</td></tr> <tr><td><b>28 days</b></td><td>1,000 psi (6.9 MPa)</td></tr> </table>	<b>1 day</b>	500 psi (3.4 MPa)	<b>7 days</b>	750 psi (5.2 MPa)	<b>28 days</b>	1,000 psi (6.9 MPa)
<b>1 day</b>	500 psi (3.4 MPa)						
<b>7 days</b>	750 psi (5.2 MPa)						
<b>28 days</b>	1,000 psi (6.9 MPa)						
<b>Splitting Tensile Strength (ASTM C-496)</b>	<table> <tr><td><b>7 days</b></td><td>750 psi (5.1 MPa)</td></tr> <tr><td><b>28 days</b></td><td>1,000 psi (6.9 MPa)</td></tr> </table>	<b>7 days</b>	750 psi (5.1 MPa)	<b>28 days</b>	1,000 psi (6.9 MPa)		
<b>7 days</b>	750 psi (5.1 MPa)						
<b>28 days</b>	1,000 psi (6.9 MPa)						
<b>Slant Shear Bond Strength* (ASTM C-882 modified)</b>	<table> <tr><td><b>1 day</b></td><td>1,000 psi (6.9 MPa)</td></tr> <tr><td><b>7 days</b></td><td>1,500 psi (10.3 MPa)</td></tr> <tr><td><b>28 days</b></td><td>2,500 psi (17.2 MPa)</td></tr> </table>	<b>1 day</b>	1,000 psi (6.9 MPa)	<b>7 days</b>	1,500 psi (10.3 MPa)	<b>28 days</b>	2,500 psi (17.2 MPa)
<b>1 day</b>	1,000 psi (6.9 MPa)						
<b>7 days</b>	1,500 psi (10.3 MPa)						
<b>28 days</b>	2,500 psi (17.2 MPa)						
<b>Direct Tensile Bond (ACI 503)</b>	<table> <tr><td><b>1 day</b></td><td>250 psi (1.7 MPa)</td></tr> <tr><td><b>7 days</b></td><td>300 psi (2.1 MPa)</td></tr> </table>	<b>1 day</b>	250 psi (1.7 MPa)	<b>7 days</b>	300 psi (2.1 MPa)		
<b>1 day</b>	250 psi (1.7 MPa)						
<b>7 days</b>	300 psi (2.1 MPa)						
<b>Compressive Strength (ASTM C-39)</b>	<table> <tr><td><b>1 day</b></td><td>2,000 psi (13.8 MPa)</td></tr> <tr><td><b>7 days</b></td><td>5,500 psi (37.9 MPa)</td></tr> <tr><td><b>28 days</b></td><td>6,500 psi (44.8 MPa)</td></tr> </table>	<b>1 day</b>	2,000 psi (13.8 MPa)	<b>7 days</b>	5,500 psi (37.9 MPa)	<b>28 days</b>	6,500 psi (44.8 MPa)
<b>1 day</b>	2,000 psi (13.8 MPa)						
<b>7 days</b>	5,500 psi (37.9 MPa)						
<b>28 days</b>	6,500 psi (44.8 MPa)						
<b>Shrinkage (ASTM C-157)</b>	<b>28 days</b> <0.05%						
<b>Chloride ion permeability (ASTM C-1202)</b>	<b>28 days</b> <650 Coloumbs						
<b>Freeze Thaw Resistance (ASTM C-666)</b>	<b>300 cycles</b> > 99%						
<b>Scaling Resistance (ASTM C-672)</b>	<b>50 cycles</b> 2						
<b>Sulfate Resistance (ASTM C-1012)</b>							
Length change after 6 months	0.006						

\* Mortar scrubbed into substrate.

### How to Use

**Surface Preparation** Remove all deteriorated concrete, dirt, oil, grease, and all bond-inhibiting materials from surface. Be sure repair area is not less than 1 in. in



depth. Preparation work should be done by high pressure water blast, scabbler, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of  $\pm 1/8$  in. (CSP-7-8). Saturate surface with clean water. Substrate should be saturated surface dry (SSD) with no standing water during application.

**Reinforcing Steel:** Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming and protection of reinforcing steel use Sika Armatex 110 EpoCem (consult Technical Data Sheet).

<b>Mixing</b>	Start mixing with 5.5 pints of water. An additional 0.5 pint can be added if needed. Do not overwater as excess water will cause segregation. Add Sikacrete 211 while continuing to mix. Mix to a uniform consistency, maximum 3 minutes. Mechanically mix with a low-speed drill (400-600 rpm) and paddle or in appropriate-size mortar mixer or concrete mixer.
<b>Application</b>	Pre-wet surface to SSD (Saturated Surface Dry). Ensure good intimate contact with the substrate is achieved. To accomplish this, material should be scrubbed into the substrate or other suitable means should be employed such as vibration of the material or pumping under pressure. Vibrate form while pouring or pumping. Pump with a variable pressure pump. Continue pumping until a 3 to 5 psi increase in normal line pressure is evident then STOP pumping. Form should not deflect. Vent to be capped when steady flow is evident, and forms stripped when appropriate.
<b>Curing</b>	As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based* compatible curing compound. Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. Protect newly applied material from direct sunlight, wind, rain and frost. *Pretesting of curing compound is recommended.
<b>Limitations</b>	<ul style="list-style-type: none"> <li>■ Application thickness: Minimum 1 in. (25 mm); Maximum 8 in. (200 mm)</li> <li>■ Minimum ambient and surface temperatures 45°F (7°C) and rising at time of application.</li> <li>■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur 32 Hi-Mod.</li> </ul>
<b>Warning</b>	<b>IRRITANT, SENSITIZER.</b> Contains Portland Cement (CAS 65997-15-1), Silica Quartz (CAS: 14808-60-7). Causes eye irritation. May cause skin/respiratory irritation. Prolonged and/or repeated skin contact may cause an allergic reaction/sensitization. May cause delayed lung damage (silicosis). May be harmful if swallowed.
<b>Handling &amp; Storage</b>	Avoid direct contact with eyes and skin. Wear chemical resistant gloves/goggles/clothing. Avoid breathing vapors. Use with adequate general and local ventilation. In absence of adequate ventilation, use properly fitted NIOSH approved respirator. Wash thoroughly after handling product. Store in a cool, dry, well ventilated area. Keep containers tightly closed.
<b>First Aid</b>	<b>Eyes</b> – Hold eyelids apart and flush thoroughly with water for 15 minutes. <b>Skin</b> – Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. <b>Inhalation</b> – Remove to fresh air. <b>Ingestion</b> – Do not induce vomiting. Dilute with water. Contact physician. <b>In all cases contact a physician immediately if symptoms persist.</b>
<b>Clean Up</b>	Wear chemical resistant gloves/goggles/clothing. In absence of proper ventilation use properly fitted NIOSH respirator. Confine spill, collect using absorbent material and place in properly sealed container. Dispose of excess product in accordance with applicable local, state and federal regulations.

**KEEP CONTAINER TIGHTLY CLOSED • KEEP OUT OF REACH OF CHILDREN • NOT FOR INTERNAL CONSUMPTION • FOR INDUSTRIAL USE ONLY**

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