Exterior Wall Systems

Section 09220 or 09 24 23 STRUCTURAL SKIN
Direct Applied Base Coat

PART I: GENERAL

1.01 DESCRIPTION

Provide labor, materials, equipment and supervision necessary to complete the application of product to the substrate.

1.02 QUALITY ASSURANCE

Products shall be installed by a trained applicator with a minimum of five years experience and meet the requirements of the specifier.

1.03 SUBMITTALS

A. Manufacturer's current product data bulletin.

B. The trained applicator shall prepare a test panel of the repair installed on the actual building as a submittal for approval of proper application and adhesion.

C. The trained applicator shall submit to the specifier a list of five projects that he has completed within the last five years, exhibiting the applicator's skills. The list shall include project name, location, and description of work and completion date.

1.04 PRODUCT DELIVERY, STORAGE & HANDLING

A. Deliver all products and all accessories in original labeled, sealed, and undamaged containers or bundles.

B. Store all products in accordance with manufacturer's printed instructions.

C. Handle products in accordance with manufacturer's printed instructions.

1.05 JOB CONDITIONS

All products shall be applied at substrate and ambient temperatures of 40°F or above. A minimum temperature of 40°F shall be maintained 24 hours after completion of work. Protect products from weather and other damage for a period of 24 hours after installation. Do not apply products to frozen surfaces.

1.06 COORDINATION & SCHEDULING

The work requires close coordination with related sections and trades.

PART II: PRODUCTS

2.01 MANUFACTURERS

The following manufacturers are approved for the project.

Conproco Corporation

2.02 MATERIALS

A. Conpro Start: A water-based consolidant, used to stabilize and strengthen concrete, masonry and stone.

B. Structural Skin: Fiber-reinforced cement coating for vertical interior and exterior surfaces.

C. K-88 Admix: An acrylic admix designed to enhance the performance of cement-based products.

2.03 PERFORMANCE CHARACTERISTICS

General Physical Properties: The products shall meet or exceed the following performance standards:

Conpro Start:

Physical state and appearance		Slightly clouded liquid	
Base		Aqueous	
Odor		Slight alcohol	
pH		>12	
Actives type		Inorganic mineral silicate	
Solvent system		Water	
Percent solids by weight		8.35%	
Flash point	ASTM D56	>200°F Seta cc	
Density of liquid coatings	ASTM D1475	8.4 lbs./gal.	
Gain on mortar:		**psi**	**% gain**
Compressive strength	ASTM C109		
Prior to treatment		990	
After treatment		1700	71
Gain on old concrete:		**psi**	**% gain**
Compressive strength	ASTM C109		
Prior to treatment		3700	
After treatment		3900	8

Structural Skin:

Physical state and appearance		Gray or white powder		
Base		Portland cement		
pH		>12		
Water/cement ratio		0.6 – 0.49 with 2 quarts K-88 Admix		
Setting time by vicat needle	ASTM C191	Initial 60 minutes – Final 270 minutes		
Durometer hardness	ASTM D2240	60-70		
Water penetration and leakage	ASTM E514	100% reduction in leakage		
Carbon-arc weathering	ASTM G152	2000 hours - no effect		
Length change	ASTM C157	300 µstrains @ 28 days		
		7 Days	**14 Days**	**28 Days**
Compressive strength – psi	ASTM C109	4150	4400	5100
With 2 quarts of K-88 Admix		5000	5290	6300
Flexural strength – 3 point loading - psi	ASTM C78			1100
Tensile strength – psi	ASTM C307	400	430	430
With 2 quarts of K-88 Admix		600	600	635

Allowable design stress based on gross area of the CMU (IBC) for mortar-less wall construction

Compressive stress – psi	
Standard block	45
Ground block	85
Shear stress	10
Tensile stress in flexure, vertical span - psi	18

K-88 Admix:

Physical state and appearance		Milky liquid		
Base		Aqueous		
Polymer		100 acrylic		
Odor		Ammoniacal		
pH		>8		
Percent solids by weight		27%		
Density of liquid coatings	ASTM D1475	8.4 lbs./gal.		
Results typical for 3/4 – 3 inch mix		**7 Days**	**14 Days**	**28 Days**
Compressive strength	ASTM C109			
Design mix without K-88 Admix – psi		2725	3375	3725
Design mix with K-88 – psi		3400	4150	4700
Percent increase - %		25	23	26
Tensile strength	ASTM C307			
Design mix without K-88 – psi		95	360	360
Design mix with K-88 Admix – psi		385	390	400
Percent increase - %		30	8	11

PART III: EXECUTION

3.01 GENERAL

A. Installation shall be performed strictly in accordance with manufacturer's current product data bulletin.

B. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

C. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing, handling and application of materials.

3.02 SURFACE PREPARATION

A. Remove loose and deteriorated material, laitance, dirt, dust, oil and any surface contaminants that will inhibit proper bond

B. The substrate shall be flat, having no plane irregularities greater than 1/4".

3.03 MIXING

A. Conpro Start: Mix until homogenous.

B. Structural Skin:

1. Place one 2 quarts of K-88 Admix and 2 to 3 quarts of water in a clean mortar mixer.
2. Add one 50 lb. bag of Structural Skin and mix for one to two minutes. Avoid over mixing.
3. Add up to 1-pint water as need to obtain desired consistency.
4. Allow to breath for 1 minute and remix for 1 minute.
5. Apply immediately after mixing. DO NOT retemper material once mixed.

3.04 APPLICATION

A. Conpro Start:

1. All surfaces to be repaired shall be consolidated with Conpro Start by applying with brush, roller, or sprayer.
2. Surface should be saturated, but not flooded.

3. Allow approximately 12 hours for Conpro Start to cure. Refer to data sheet for detailed instructions.

B. Structural Skin (with 2 quarts of K-88 Admix)

1. Dampen substrate and keep moist prior to application.

2. Trowel Structural Skin to a minimum of 1/8". Apply with sufficient pressure to form a good key with the substrate.

3. Whenever possible, the entire wall panel shall be covered without stopping. Interruptions of work will only be made at control joints, corners, and wall stops.

4. Trowel smooth to provide a surface receptive to the finish coat.

5. Allow Structural Skin approximately 24 hours to cure before subsequent finishes.

3.05 CURING

A. Keep Structural Skin damp with a fine mist of water for 24 hours when temperatures exceed 75^0 F.

B. Protect from direct sunlight, wind, rain, and frost during the curing period.

3.06 JOB SITE CLEANUP

A. Material left over at the job site by the approved applicator shall be removed.

B. All adjacent surfaces and materials shall be cleaned.

C. Any foreign material resulting from the work of the approved applicator shall be removed.

*****END OF SECTION*****