

SECTION 09220 - DIRECT APPLIED EXTERIOR FINISH SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Direct applied finish system at exterior soffits and parapet walls.
- B. Related Sections include the following:
 - 1. Division 7 Section "Joint Sealants" for perimeter sealant seal and other penetrations.
 - 2. Division 9 Section "Gypsum Board Assemblies" for exterior gypsum panels installed as substrate for direct applied finish system.

1.3 DESIGN REQUIREMENTS

- A. Continuous expansion joints shall be installed at the following locations:
 - 1. Where expansion joints occur in the substrate system.
 - 2. Where building expansion joints occur.
 - 3. Where the system abuts other materials.
 - 4. Where the substrate changes.
 - 5. Where any significant structural movements occur.

1.4 SUBMITTALS

- A. A manufacturer's product data sheet shall be submitted. Include manufacturer's specifications, surface preparation and application instructions, and protection of adjacent surfaces.
- B. A trained applicator shall prepare a minimum 4-foot by 4-foot test panel of the system as a submittal for approval of texture, color, uniformity, adhesion, etc.
- C. The trained applicator shall submit to the specifier a list of five projects of systems of a similar nature that he has completed within the last five years, exhibiting the applicator's skills. The list shall include project name, location, description of work and the date.

1.5 QUALIFICATIONS

- A. The system shall be installed by a trained applicator with a minimum of two years experience and shall meet the approval of the specifier.
- B. During start-up of all phases of work, an authorized representative shall be present to inspect the job conditions and work being executed and to provide written reports of inspections.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver all products and all accessories in original labeled, sealed, and undamaged containers or bundles.
- B. Store all products off the ground, under cover, and protected from moisture.
- C. Protect all liquids from freezing by storing at 40°F or above.

1.7 JOB CONDITIONS

- A. 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 Conproco products from weather and other damage for a period of 24 hours after installation. Do not apply Conproco products to frozen surfaces.
- B. Install all material in strict accordance with all safety and weather conditions required by product literature, in accordance with ASTM C-926, paragraph 7, ANSI 42.3, and as modified by the applicable standards of the authorities having jurisdiction.

1.8 COORDINATION AND SCHEDULING

- A. The work requires close coordination with related sections and trades.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturer: Subject to requirements, manufacturers offering direct apply exterior finish system that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Conproco Corporation

2.2 MATERIALS

- A. Structural Skin: a fiber reinforced base coat which shall be modified with 1 gallon of K-88 Admix per 50-lb. bag.
- B. Conpro-Flex: a factory mixed, trowel applied, synthetic stucco with integral color.
- C. Water: shall be clear, potable and free of all foreign matter.

2.3 ACCESSORIES

- A. Open Weave Mesh - 3/8-inch open weave fabric mesh (acrylic coated) as specified by Conproco.
- B. Trim Accessories: expansion joints, corner beads and casings shall be rigid, PVC exterior grade as manufactured by Plastic Components, Inc., Miami, Florida.
- C. Fasteners: Corrosion resistant.

2.4 PERFORMANCE CHARACTERISTICS

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

1. Structural Skin (with 2 quarts K-88 Admix per 50 lb bag):

| | |
|---|---|
| Physical State | Gray or white powder with fibers |
| pH (wet) | Highly Alkaline |
| Base | Portland Cement |
| Water/Cement Ratio | 0.48 - 0.57 |
| Vicat Set Time | Initial: 60 mins. Final: 270 mins. |
| | |
| Test | Result |
| Compressive Strength (ASTM C-109, Modified with 2 qts. K•88) | 7 days 5000 psi 14 days 5290 psi 28 days 6300 psi |
| Tensile Strength (ASTM C-190, Modified with 2 qts. K•88) | 7 days 600 psi 14 days 600 psi 28 days 635 psi |
| Hardness (unmodified, ASTM D-2240) | 60-70 (Shore D) |
| Wind Driven Rain (ASTM E-514, without K•88) | Class E; 100% reduction of concrete block |
| Water/Cement Ratio (Section 14.5, ASTM C- 494) | unmodified: 0.60% 2 qts K•88: 0.49% |
| Ultimate Shrinkage (ASTM C-596) | unmodified: 0.03% |

2 qts. K•88: 0.05%

2. 3/8-inch Open Weave Mesh:

| | |
|----------------------------|---|
| Weight | 4.5 oz/sq yd |
| Tensile Strength | 160 psi (fill direction) |
| Elongation | 4.2% (fill direction) |
| Alkali Resistance | Maintain 60% of strength (min) 28 day soak in 5% NaOH solution |
| Gardner Impact EIMA 101.86 | 90 in/lbs (min) embedded in 1/4 inch of Structural Skin |

3. Conpro-Flex:

| | |
|-----------------------------|------------------------------|
| Physical State & Appearance | Coarse, tinted paste |
| Base | Water |
| Polymer Type | 100% acrylic |
| Density | 10.5 lbs./gallon |
| pH | 9.0-9.5 (approx.) |
| Aggregate | Iron-free, white quartz sand |

| Test | Result |
|------------------------------------|------------------|
| Surface Burning (ASTM E-84) | Flame spread - 5 |
| Accelerated Weathering (ASTM G-23) | 2000 hrs. - pass |
| Sand Abrasion (ASTM D-968) | Pass |
| Mildew Resistance (MIL STD 810 B) | Pass |
| WVT (ASTM E-96) | 7 perms |

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to the installation of the system, the substrate will be inspected as follows:

1. The substrate shall be approved by Conproco Corporation.
2. The substrate shall be free of foreign materials such as oil, dust, dirt, form release agents, paint, wax, glazing, water, frost, etc.
3. The substrate shall be examined for soundness, such as tightness of connections, unsound surfaces, voids and projections, etc.
4. The substrate shall be flat, having no plane irregularities greater than 1/4 inch.

B. The architect and general contractor shall be advised of all discrepancies. Work shall not proceed until the conditions are corrected.

3.2 MIXING

- A. No additives of any kind shall be added to any of the Conproco products, except for small amounts of clean, potable water as directed on package labels.
- B. Structural Skin:
 - 1. Place one (1) gallon of K-88 Admix and one to two 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 water as needed to obtain desired consistency, but do not exceed six (6) quarts of total mixing liquid.
 - 4. Wait two to five minutes, then remix for one additional minute.
 - 5. Apply immediately after mixing. DO NOT retemper material once mixed.
- C. Conpro-Flex:
 - 1. The Conpro-Flex shall be thoroughly stirred with a clean mixer, such as the Goldblatt Jiffy Mixer #1531118 or equivalent, powered by a 1/2-inch 400-500 rpm drill, until a uniform workable consistency is obtained. Do not over-mix, as this will entrain excess air.
 - 2. A small amount of water may be added to enhance workability. Maximum water addition not to exceed 4 ounces per 70 lbs pail of Conpro-Flex.
 - 3. Conpro-Flex shall be used immediately after mixing. The container shall be kept closed when not in use. Pot life depends on ambient temperature and humidity conditions.
 - 4. The mixing tool shall be cleaned with water immediately after use.

3.3 INSTALLATION

- A. Installation shall be performed strictly in accordance with Conproco's product instructions.
- B. Trim Accessories:
 - 1. Joint and trim accessories shall be attached to the substrate.
 - 2. Expansion joints shall be installed so that no panel is over 144 sq ft. The length to width ratio must never exceed 2.5 to 1. The insulation board must be routed out 1/2 to 3/4 the thickness of the board, wherever control joints are installed.
 - 3. Install expansion and control joints so that all vertical joints are continuous, and that where needed (such as T-intersections) the horizontal joint is broken.
 - 4. At joints in the trim, butt the joints. Do not overlap.
 - 5. All accessory butt joints shall be set in a silicone sealant.
- C. Open Weave Mesh:
 - 1. Cut the reinforcing mesh to full panel lengths being sure to overlap the flanges of trim accessories.

2. Hang the reinforcing mesh by installing mechanical fasteners through the mesh into the substrate. Use one mechanical fastener per 1 1/3 sq. ft. Space fasteners at 8-inch intervals around the perimeter of the system. Use of 12-inch spacing on each stud for 16-inch o/c framed structures will provide one fastener per 1-1/3 sq ft.
3. The lengths of reinforcing mesh should overlap each other by at least 2 inches.

D. Structural Skin with 2 quarts K-88 Admix:

1. Dampen substrate and keep moist prior to application.
2. Apply Structural Skin with a stainless steel trowel with sufficient pressure to form a good key with the fiberglass mesh.
3. Use sufficient material to thoroughly bed the open weave mesh and build the Structural Skin to a nominal thickness of 1/4 inch. Trim components can be used as a screed.
4. Whenever possible, the entire ceiling panel shall be covered without stopping. Interruptions in work will only be made at control joints, corners and wall stops.
5. Trowel smooth to provide a surface that is receptive to the finish coat.
6. Allow Structural Skin approximately 24 hours to cure before subsequent finishes.

E. Conpro-Flex:

1. Apply Conpro-Flex by troweling tight with a stainless steel trowel. Achieve final texture within 2-10 minutes after application by floating the material with a plastic or wood float. Do not over-float finish, as this alters the texture. Refer to Data Sheet C2403 for detailed instructions on the use of Conpro-Flex.
2. Apply in a single, continuous operation, maintaining a wet edge. Terminate coats at a natural break such as a corner or joint if a single continuous coat is not possible.
3. Sufficient manpower, scaffolding and equipment shall be provided to insure a continuous operation and a uniform appearance.
4. Until dry, Conpro-Flex shall be protected from airborne contamination, weather and other.

3.4 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 09220