

## SECTION 03121

### ARCHITECTURAL CONCRETE FORM LINERS

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Rigid plastic and elastomeric form liners for texturing architectural concrete.
- B. Form liner accessories, including but not limited to fasteners, sealants, rustication and back-up strips, form release agents, and sealers.

##### 1.2 RELATED SECTIONS

- A. Section 03120 - Architectural Cast-In-Place Concrete Forms.
- B. Section 03330 - Architectural Concrete.
- C. Section 03350 - Concrete Finishing.
- D. Section 03450 - Plant-Precast Architectural Concrete.
- E. Section 03460 - Site-Precast Architectural Concrete.
- F. Section 03470 - Tilt-Up Precast Concrete.

##### 1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Show compliance with the Contract Documents. Include manufacturer's installation instructions.
- C. Shop Drawings: Show form liner layout and termination details. Indicate backup, rustication, reveal, and chamfer strip locations. Include jointing, form tie location and pattern of placement. Architect/Engineer's review will be for aesthetic criteria. Contractor is responsible for design of formwork and back-up of form liner for structural stability and sufficiency.
- D. Samples: 12 inches (305 mm) square, of each pattern indicated.

- E. Certification by release agent manufacturer of compliance with local regulations controlling use of VOC's.

#### 1.4 QUALITY ASSURANCE

- A. Mockup: Provide full scale mockup using actual specific materials, methods and workmanship to be used on the project.
  1. Materials and methods include concrete mix (cement type, aggregate gradation, slump, water/cement ratios, plasticizers and additives), forming system (ties, liner, and formwork), form release agents, placement rate, form pressures, joint sealing, vibrating and stripping practices.
  2. Select a convenient portion of the final work to construct as a mockup. Accepted mockup may remain in the completed work.
  3. Construct a separate mockup on-site. Remove mockup after completion of work.
  4. Mockup configuration: As indicated on drawings.
  5. Incorporate required formwork accessories and at least one vertical and one horizontal form liner joint.
  6. On mockup, demonstrate patching and repair procedures for spalled concrete, and voids caused by honeycombing or bugholes.
  7. Accepted mockup will be standard by which remaining work will be evaluated for technical and aesthetic quality. Submit variations from mockup materials or techniques for approval prior to use.
  8. Do not begin construction of formwork until mockup have been accepted.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Cover form liners to protect from oil, dirt and ultraviolet exposure.
- B. The rigid type of form liners will become more rigid and less impact resistant below 25 degrees F (minus 3 degrees C). Handle with extra care at low ambient air temperature conditions.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURER

- A. Provide products manufactured by Greenstreak Plastic Products Co., Inc., St. Louis, MO, 63122. ASD.  
Tel: (314) 225-9400 or (800) 325-9504. Fax: (314) 225-9854 or (800) 551-5145.

## 2.2 MATERIALS

- A. Form Liners: Thermoformed rigid polymer alloy sheets: Greenstreak "Uni-Cast", "Multi-Cast", or "Dura-Cast"; or urethane elastomeric form liners: Greenstreak "Super-Cast" or "Ultra-Cast", at contractor's option.
  - 1. For textured finish concrete: Provide special forming materials to produce form surfaces with face design, texture, arrangement, and configuration as shown on drawings; Pattern: \_\_\_\_\_
  - 2. Provide liners that accommodate form pressures up to 1000 pounds per square foot (478 kPa). Comply with manufacturer's recommendations for support of large or deep patterns that may deform under pressure.
- B. Accessories: Provide the following accessories manufactured by form liner manufacturer:
  - 1. Rustication strip with [1-1/2 inch (38 mm)][1-3/8 inch (35 mm)][2-1/8 inch (54 mm)] face; reusable ABS plastic.
  - 2. Radius chamfer; continuous PVC strip with [1/2 inch (13 mm)][3/4 inch (19 mm)][1 inch (25 mm)][1-1/2 inch (38 mm)] leg.
  - 3. Triangle chamfer; continuous PVC strip with [1/2 inch (13 mm)][3/4 inch (19 mm)][1 inch (25 mm)][1-1/2 inch (38 mm)] leg.
- C. Form Release Agent: Provide Greenstreak 7000 release agent verified to be compatible with form liner material. Barrier type release agents are not recommended for architectural concrete.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Before placing concrete, verify that lines and levels of formwork and form liner patterns are within allowable tolerances.
- B. On multiple use liners, clean liner before each use.

- C. Apply form release agent at rate recommended by manufacturer. Schedule concrete pour as soon as possible after application of release agent to avoid contamination by precipitation, dust, and debris. Protect reinforcing seal from exposure to release agent.

### 3.2 INSTALLATION

- A. Construct form liner and accessories to sizes, shapes, lines and dimensions shown.
- B. Provide openings, offsets, keyways, recesses, chamfers, blocking, and screeds as required to achieve architectural concrete textured finish.
- C. Provide solid butt form liner joints backed up to prevent deflection.
- D. Drill liner to accommodate ties.
- E. Anchor liner to form on centers not to exceed 18 inches (460 mm). Decrease anchor spacing as necessary to accommodate form stripping pressures without damaging liner intended for multiple use.
- F. Seal form liner joints, form liner accessories' joints, and tie holes to prevent cement paste from bleeding.

### 3.3 CONCRETE PLACEMENT

- A. Place concrete in manner required to avoid form exceeding 1000 pounds per square foot (478 kPa).
- B. Keep concrete lifts less than 24 inches (600 mm) high.
- C. Thoroughly vibrate concrete to achieve good consolidation, and eliminate entrapped air thereby minimizing voids. Internally vibrate through to previous lift to avoid lift lines. Avoid contact with the form liner.

END OF SECTION