

50300285 FORM LINER TEXTURED SURFACE (LCDOT)

Effective: January 1, 2007

Revised: October 9, 2018

Description: This work shall consist of providing a textured finish on exposed cast-in-place or precast concrete surfaces.

Materials: The materials shall meet the requirements of Article 503.02 of the "Standard Specifications" and the following:

The patterning of the form liner shall appear natural and non-repeating. Seam lines or match lines caused from two or more molds coming together will not be apparent when viewing the final wall.

The molds shall not compress more than ¼ inch when concrete is poured at a rate of ten vertical feet per hour. The molds shall be removable without causing any deterioration of the surface or the underlying concrete.

The forms shall be constructed so that the completed concrete structures conform to the shape, lines and dimensions of the components of the approved pattern. The forms shall be properly braced or tied together to maintain position and shape. The forms shall be made sufficiently tight to prevent leakage of the mortar. The formwork shall have the strength and stability to ensure the finished concrete dimensions are within the tolerances specified herein.

The Lake County Division of Transportation has pre-approved the following form liner suppliers and patterns for the textured surface:

Manufacturer	Pattern Number	Pattern Name
Custom Rock International 2020 West 7 th Street St. Paul, Minnesota 55116 (800) 637-2447 (651) 699-1345 www.customrock.com	Pattern Number 2208	Travis Dry Stack
	Pattern Number 12005	Bearpath Coursed Stone
	Pattern Number 12010	Minnehaha Blend
Fitzgerald Formliners 1500 East Chestnut Avenue Santa Ana, California 92701 (800) 547-7760 (714) 547-6710 www.formliners.com	Pattern Number 17910	Antietam Drystack
	Pattern Number 17911	San Diego Drystack

Greenstreak 3400 Tree Court Industrial Boulevard St. Louis, Missouri 63122 (800) 325-9504 www.greenstreak.com	Pattern Number 328	Dry Stack Random Stone
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The form ties shall be made of either metal or fiberglass. Metal ties, which result in a portion of the tie permanently embedded in the concrete, shall be designed to separate at least one inch back from the finished surface, leaving only a neat hole that can be plugged with patching material. The Contractor shall submit the type of form ties to the Engineer, for approval prior to use in this work,

Class SI concrete used for cast-in-place structures shall contain a high range water-reducing admixture meeting the requirements of Article 1021.03(c) of the “Standard Specifications” to obtain a 5” – 7” slump.

Sample Panel: The Contractor may select a form liner pattern from the pre-approved list above or the Contractor may propose an equivalent form liner. If the Contractor elects to propose an equivalent form liner it shall meet the requirements of Article 503.06(a) of the “Standard Specifications”. The Contractor shall submit the proposed form liner to the Engineer for approval as follows:

- The Contractor shall submit to the Engineer one specification and catalog cut sheet for the style(s) of architectural form liner proposed for use on the project. **Note that the same style of form liner shall be used on all surfaces within the project limits.**
- The submittal shall be made no later than 14 calendar days from the date of notification to proceed with the contract.
- Upon receipt of the information, the Engineer, in consultation with Lake County Division of Transportation (LCDOT) and other local government agencies will have 30 calendar days to approve and notify the Contractor of which style of form liner is to be used on the project.

Once the Engineer has approved the style of form liner to be used (pre-approved or proposed equivalent) the Contractor shall submit a proposed procedure to obtain the simulated finish using the approved architectural form liner style. The procedure shall include plans and details for the form liner pattern and dimensions. If the concrete structure will be stained according to the specification for STAINING CONCRETE STRUCTURES the procedure shall also include the process for the staining. The procedure shall be submitted to the Engineer for approval within 30 calendar days following the date of notification of approval of the form liner style. Plans and details not satisfactory to the Engineer and/or LCDOT shall be revised by the Contractor as required by the Engineer and/or LCDOT at no additional cost to the Department.

Upon approval of the form liner plans and proposed procedure, the Contractor shall submit a 3’ by 3’ (minimum) sample concrete panel of the simulated stone masonry complete with form liner pattern. The sample panel shall be delivered to the job site and

positioned at a location to be determined by the Engineer. The sample shall also include the concrete stain if it is included in the contract.

General: The work shall be performed according to Article 503.06 of the “Standard Specifications” and the following:

The form liners shall be installed according to the manufacturers’ recommendations to achieve the highest quality concrete appearance possible. The form liners shall withstand the concrete placement pressures without leakage, physical or visual defects. The Contractor shall clean the form liners, removing any buildup prior to each use. The Contractor shall inspect each form for blemishes or tears and make repairs as needed following manufacturer’s recommendations.

The Contractor shall install the form liners with less than ¼ inch separation between them. The molds shall be attached securely to the forms following manufacturer’s recommendations. The panels shall be attached to each other with flush seams and the seams shall be filled as necessary to eliminate visible evidence of seams in the cast concrete.

The form liner butt joints shall be blended into the pattern so as to eliminate visible vertical or horizontal seams and conspicuous form butt joint marks. The liner joints shall fall within pattern joints or reveals. The finished textures shall be continuous without visual disruption and properly aligned over adjacent and multiple liner panels. Continuous or single liner panels shall be used where liner joints may interrupt the intended pattern. Panel remnants shall not be pieced together.

The Contractor shall notify the Engineer at least 48 hours prior to placing concrete. The concrete shall not be placed until the Engineer has inspected the formwork and the placement of reinforcing bars for compliance with the plans.

The Contractor shall apply a form release agent to all surfaces of the form liner which will come in contact with concrete. The releaser agent shall be applied according to the manufacturers’ recommendations.

The Contractor shall employ proper consolidation methods to ensure the highest quality finish. Internal vibration shall be achieved with a vibrator of appropriate size, set at the highest frequency, and low - moderate amplitude. The concrete placement shall be in lifts of not more than 1.5 feet. The internal vibrator operation shall be at appropriate intervals and depths and withdrawn slowly enough to assure a minimal amount of surface air voids and the best possible finish without causing segregation. An external form vibrator may be required to assure the proper results. The use of an external form vibrator shall be approved by the form liner manufacturer and the Engineer.

The Contractor shall coordinate concrete pours to prevent visible differences between individual pours or batches. Concrete pours shall be continuous between construction

or expansion joints. Cold joints shall not occur within continuous form liner pattern fields.

The form liners shall be stripped between 12 and 24 hours as recommended by the manufacturer. When stripping the forms the Contractor shall avoid creating defects in the finished surface.

Wall ties shall be coordinated with the liner and form to achieve the least visible result. The Contractor shall place form ties at thinnest points of the molds (high points of finished wall). The Contractor shall neatly patch the remaining hole after disengaging the protruding portion of the tie so that it will not be visible after coloring the concrete surface.

Where an expansion joint must occur at a point other than at mortar or rustication joints, such as at the face of concrete texture, which is to have the appearance of stone, the Contractor shall consult the manufacturer for the proper treatment of expansion material.

Curing methods shall meet the requirements of Article 1020.13 of the "Standard Specifications" and be compatible with the desired aesthetic result. The use of curing compounds will not be allowed. No rubbing of flat areas or other repairs should be required after the form removal. The finished exposed formed concrete surfaces shall be free of visible vertical seams, horizontal seams, and butt joint marks. Grinding and chipping of the finished formed surfaces shall be avoided.

Method of Measurement: The patterned concrete surfaces will be measured in place and the area computed in square feet. The area of the sample panel will not be included in the computed area.

Basis of Payment: This work will be paid for at the contract unit price per square foot for FORM LINER TEXTURED SURFACE. *The unit price shall include all materials, equipment, and labor required to complete the textured surface on the exposed concrete surface. The unit price shall include any costs associated with proposing an equivalent form liner and the preparation and submittal of the proposed procedure. The unit price shall also include the materials, equipment and labor required to construct, transport and dispose of the sample concrete panel.*