V-Lite Formliner Application Guide STY/ABS

customrock FORMLINER

General

To insure proper use and installation, all personnel working with Customrock V-Lite formliners should read this application guide and become familiar with its content.

Customrock V-Lite formliners are available in single use STY (white) and multi-use ABS (grey) plastic. Both STY and ABS are ideal for tilt-up, cast-in-place, or precast architectural concrete and are interchangeable on the same job.

Handling and Care

Customrock V-Lite formliners are nested and shipped on pallets approximately 4' wide by 10' long. Proper equipment should be used when moving pallets to avoid personal injury or damage to the product. Gloves should be worn when handling the formliner as trimmed edges can be sharp.

Customrock V-Lite formliners are sensitive to the effects of the sunlight, ultraviolet rays and extreme weather conditions. Store indoors or cover the formliners with a tarpaulin or black plastic to protect the forming surfaces whenever it is not in use. This will prolong the life of the formliner material and keep the forming surfaces clean.

Formliners should never be exposed to temperatures in excess of 140 degree Fahrenheit. Excessive temperatures can cause permanent deformation.

Once attached to formwork, formliners should be stored on edge. Care should be taken to avoid striking the face with heavy, sharp or heated objects that could cause permanent damage.

Test Pour

Before actual construction, a test pour is recommended to demonstrate the results on the finished concrete surface. The test pour should simulate as many phases of the actual construction as possible and include typical tie holes, boxouts, corners, reveals, wall intersections and joints. The test pour should be the height of the maximum wall to be produced.

Upon approval, the actual construction should proceed using the same methods and materials to assure uniformity throughout the entire project.

Trimming

Customrock V-Lite formliners may need to be trimmed or modified to fit the formwork and conditions found on many architectural concrete projects.

Thermal expansion and contraction should also be considered. The size of the formliners will expand or contract approximately 1/16" in 10' with each 10˚ F temperature change. Formliners should be trimmed and installed at about the same ambient temperature as expected during placement of concrete, preferably during the coolest part of the day.

Trimming should be performed on formliners that are securely clamped to a work bench or surface with a cutting guide. The work pace should be steady to prevent any “chatter” that can fracture the formliners. A circular saw with a fine tooth panel blade is recommended.

Formliners with minimal relief may be trimmed by scoring with a sharp knife and then breaking off the excess.

If a formliner butts against a chamfer or reveal strip, miter the edge of the formliner on the same angle for proper fit.

Rough or uneven formliner edges can be dressed with a sander and/or hand planer.

Attachment to Formwork

When attaching the formliners, make sure that the correct side goes toward the formwork or casting bed. The slick side of the formliner is placed against the formwork or casting bed and the concrete is poured against the textured (haircell) side.

Level and square the formwork to ensure proper alignment of the formliners. Dimensions should be marked to square edges, patterns and joints. Working with one sheet at a time, position the formliner against the formwork so that edges and joints are square.

Screws or nails should be spaced approximately 6” to 12” on center around the perimeter of the formliner and 18” to 24” in the center. Tek drywall screws work very well, as they are self-drilling and easy to install.

Pneumatic staplers are also easy to install. However, they do not hold as well as screws or nails and should be spaced closer together.

In tilt-up wall applications, a common method of attachment is to place the formliner on the slab, drill a hole through the formliner and into the concrete, place a wooden dowel into the drilled hole, break the dowel off flush with the surface, and then use a large-headed roofing nail to hold the formliner in place. The dowels are drilled out and the holes are patched after the job is complete.

On tilt-up jobs, double-coated foam tape provides an easy way to secure the formliner to the casting bed. On most patterns the tape should be centered on the formliner seams. Carpet tape 1/32” - 1/16” is recommended. Both formliner and concrete must be clean and dry.

When adhering plastic formliners to metal forms, use “Formica Top” adhesive or an adhesive for bonding plastic to metal. As a rule, glues and adhesives are not recommended. Some have excellent holding power, but are difficult to work with on the jobsite.

To prevent deflection from the pressure of the concrete, some formliner patterns will require additional support. Generally patterns with ribs wider than ¾” or a depth greater than ¾” should have backing strips installed. The need for backing strips should be confirmed from the test pour. Wood or styrene foam insulation board should be used between the formliner and the formwork.

Rustications

Rustications or reveal strips are recommended at formliner butt joints when stacking formliner on tall pours. It is very difficult to match and align ribbed and vertical patterns. A properly sized rustication will complement the pattern and can enhance the overall appearance of the structure.

Ties and Bar Supports

Tie spacing should be a multiple of the formliner pattern repeat. Tight fitting tie holes may be drilled or cut with a hole saw. Ties located in the ‘‘valley’’ of the concrete (“peak” of the formliner) may be less obvious. Patching tie holes located in the ‘‘peak” of the concrete (“valley” of the formliner) is easier.

Bar supports or spacers should always rest against the portion of the formliner that is in contact with the formwork or casting bed. The leg spacing of the bar supports should match the pattern repeat of the formliner. Supports and spacers should be plastic or plastic tipped to minimize rust stains on the finished concrete.

Some deeper patterns may deform when walked on in pre-cast and tilt-up work. When placing the bar mat, workers should walk on strips of ¼” plywood to distribute the load on the formliner. The thin plywood strips are flexible enough to pull out through the bar mat. The concrete itself distributes the load during placement. If permissible, walk on the reinforcing steel rather than the liner surface.

Sealing

All formliner joints and tie holes should be sealed to prevent localized water loss and subsequent discoloration of the concrete. It is important that the formliner is contained on all sides so that concrete cannot move under it. Any leakage will make stripping difficult and may damage the formliner.

Form Release

Formliners should be sprayed with a form release before each use and within the same day, as close as possible, of the concrete placement time. A form release sprayer should be used and the spraying angle varied to insure complete coverage of all pattern featured. For best results, the formliner should be cleaned before spraying with form release and after each use.

Solvent and petroleum-based form releases can attack plastic formliners. It is recommended that the form release be tested against a small area on the formwork (slick) side of the formliner for compatibility. Should the test area become tacky, the form release is not compatible with the formliner material and cannot be used. Consult with your form release manufacturer for specific information, such as coverage rates, drying time and compatibility.

Placing Concrete

Architectural concrete requires mix designs that provide maximum workability consistent with strength requirements. A workable mix combined with proper vibration will reduce the risk of air bubbles, honeycombing and surface blemishes.

Inspect forms and formliner to make sure all joints are sealed. Remove any dirt, debris or standing water prior to placing concrete.

Use an elephant trunk or tremie for placing concrete to minimize aggregate separation, splatter and trapped air. Dropping the concrete directly against the formliner may cause surface abrasion or deformation and result in a defect in the finished concrete. Some formliners can withstand very heavy form pressures, but most cannot withstand a rate of pour in excess of 4 to 5 feet per hour. Generally, the more texture or relief on the formliner, the slower the concrete must be placed. If a plasticizer is used, the rate of pour may have to be reduced to limit form pressure. Place architectural concrete in two foot continuous lifts and do not move concrete horizontally. If horizontal movement is employed, flow lines and

sand streaking will be evident in the finished surface. Do not stop concrete placement part way up the pattern; the resulting cold joint will be very apparent in the finished surface.

Internal vibration is the most common method of consolidated architectural concrete. Proper vibration will reduce air voids, lift lines and surface blemishes. To avoid damage, do not allow vibrator to contact the formliner. Follow ACI recommendations for the vibration of concrete.

In tilt-up wall applications, place concrete onto the formliner from the center, moving the concrete towards the outside perimeter with rakes. Do not allow concrete to be pushed under the formliner.

Stripping

If possible, strip forms with formliners within 24 hours of placing concrete. Tilt-up panels should not be lifted until the concrete has reached the specified concrete compressive strength. To avoid variations in concrete color, it is important to maintain consistency from time of placing concrete to time of stripping throughout the entire project.

Formwork should be stripped at 90-degree angles to the concrete surface if possible. The force required in stripping forms with architectural formliners is greater than smooth formwork. When applying the extra force needed, care should be taken so that the textured surfaces and formliners are not damaged. High profile patterns are harder to strip than low profile patterns.

Cleaning

Customrock V-Lite formliners are easily cleaned with household detergent and a stiff brush.