

Work Instructions for Installation of Delcrete 4.0

Responsibility

- It is the responsibility of installer to understand all the requirements of this document before attempting to install Delcrete Elastomeric Concrete (the product).
 - Failure to perform any of the steps outlined in this document will result in underperformance or failure of the product.
 - Failure to perform any of the steps outlined in this document shall void any warranties, either expressed or implied, regarding the product.
 - Proper application is the responsibility of the user.
- The following guidelines are recommendations. These recommendations are not intended to supersede or replace any existing requirements set forth by local laws or policies set forth by owners of a project.
- It is the responsibility of The D.S. Brown Company to provide written instructions regarding the proper installation and handling of Delcrete Elastomeric Concrete.
- It is the responsibility of The D.S. Brown Company to provide technical support, training, and quality control testing as requested by the installer, contractor, or owner of the project.
 - Technical support, training, and quality control testing are available for a fee.

Product Description

- Each unit of Delcrete/Del-Agg makes 4.0 ft³ (30.0 gallons/Mixed) of elastomeric concrete material. (2.5-Gallons per mixed batch)
- A unit consists of the following:
 - Two 5-gallon buckets of Part A resin.
 - One 5-gallon bucket of Part B Iso (cure).

- Twelve bags of aggregate.
- One quart of Delcrete primer.

Product Safety

- Delcrete Elastomeric Concrete is an MDI based polyurethane system. Please review each component's SDS before installation to fully understand the safety concerns related to this system. Failure to do so could result in severe injury or death.
- The following guidelines are recommendations consistent with the SDS literature. These recommendations are not intended to supersede or replace any existing requirements set forth by local laws or policies.
 - **Personal Protective Equipment (PPE)**
 - Use approved respiratory protection equipment when airborne exposure is excessive.
 - Consult SDS for exposure limits.
 - Operators shall be properly trained in the use of a respirator.
 - OSHA's Respiratory Protection Standard sets forth requirements for a facility Respiratory Protection Program (29 CFR §1910.134).
 - MDI-resistant chemical gloves (e.g., nitrile)
 - Eye protection consisting of safety glasses with side shields or tightly sealed goggles.
- Workers not wearing the correct PPE should not enter the application area.

Material Storage

- Material storage recommendations apply for all components of the system.
- Shelf life is approximately one year in factory sealed containers.
- Store unopened containers between 50°F and 90°F. Do not allow materials to get wet.
 - When storing materials on a jobsite, protect the buckets from direct sunlight. This may cause the product to overheat.

Delcrete 4.0 | Work Instructions for Installation

2 of 3

- If the components are stored below 45°F they will freeze. Frozen product cannot be used.
- Opened containers should be consumed entirely as the product will react with air and moisture once the seal has been broken.
 - Material stored in opened containers should be evaluated before use later.
 - Opened containers of material cannot be returned.

Equipment

- Equipment requirements for the mixing and placement of the Delcrete Elastomeric Concrete is as follows:
 - ¾" Heavy duty, slow speed, high torque drill or ¾ hp power mixer with mixing paddle.
 - One clean 5-gallon bucket.
 - Two 5,000 ML measuring beakers with screws at measuring points.
 - Two-inch hand margin trowels.
 - Notched trowels for finishing.
 - Paint brushes or spray bottle for primer.
 - Duct tape or other suitable masking material.
 - Formwork for maintaining proper joint opening.
 - Mold release for formwork and tools.

Pre-Application Inspection and Prep Work

- Visual Inspection of the bridge deck is the first task to be completed by the installer.
- New concrete shall have a minimum of 14 days of cure. Placement of the Delcrete material on day fifteen.
- Moisture content of the concrete shall be below 5%.
- Substrate temperature and air temperature must be above 45°F and rising.
 - Do not attempt to install material if the temperature is expected to drop below 45°F within 2 hours of the expected completion of the pour.
 - Alternate heat sources may be used to warm the joint area above 45°F, but this temperature must be held while the material cures.

- The block out/repair area must be abrasive blasted to a minimum of SP10 for steel and between coarse sandpaper and a 1/4" profile for concrete surfaces.
 - If a curing membrane was used with new concrete, abrasive blasting must be used to remove this layer.
- The block out/repair area shall be free of all moisture, dust, debris, and laitance.
- All concrete in the block out/repared areas must be down to sound concrete.
- The minimum application depth for joint headers is 2 inches. The minimum application depth for enclosed patches is 1 inch squared.
 - Tapered edges must be chiseled/hammered to a square edge to meet the minimum depth requirement.
- Loose, contaminated, weak, spalled, deteriorated and/or delaminated concrete must be removed to sound concrete.
 - Any spalls, voids, or structural cracking at joint interfaces must be repaired.
- Formwork shall be placed to maintain even joint spacing through the block-out/patch area.
 - Do not pour Delcrete material over expansion joints with the intent to saw cut them after the material has cured.
- Mask off edges of the block-out and patch areas to create a clean edge.

Primer Application

- Delcrete primer can be applied using a spray bottle, or brush.
 - Never dip brushes into the primer container that the material was supplied in unless you expect to use all the primer in one application.
 - Never return unused portions of primer to the can that the material was supplied in. Concrete contaminates will ruin the good material.
- Avoid pooling of primer. Brush out any accumulated primer before it dries.
 - Primed surfaces should be lightly coated and not heavy coated.



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Delcrete 4.0 | Work Instructions for Installation

3 of 3

- Allow primer to dry for a minimum of 30 minutes and no longer than 4 hours before installation of Delcrete materials. After 4 hours, primer area must be re-cleaned and primer reapplied.

Mixing and Installing Delpatch

- One mix of Delcrete with Sand & Fiberglass material will make approximately (2.31 gallons/Mixed) material per batch.
- One mix of Delcrete with Del Agg material will make approximately (2.5 gallons/Mixed) material per batch.
- Determine the proper amount of Delcrete material needed before placing any material.
 - Make sure that you have enough Delcrete material available to complete the full poured block-out area before starting to mix.
 - Delcrete/Delpatch Part B 1494 contains pigments that settle to the bottom of the can. To achieve consistent color throughout your pours, Part B 1494 must be agitated prior to mixing. Note: Following this recommended step ensures consistent product color appearance but has no bearing on the overall performance of the product.
- Delcrete must be installed in a continuous pour. (No Layering!) Start at one end of the block-out and finish at the other end.
 - For large pours it may be necessary to have multiple sets of beakers, mixing buckets, and mixers going, with the right amount of crew. (Suggest crew, minimum 4 people per set up.)
 - Any work stoppage must occur at formwork or a joint termination. Do not stop mixing/pouring material until all areas are to the required level and even with the existing concrete surface.
- Using the beakers, measure out 3,000 ML of Part A and 1,500 ML of Part B.
- Empty the beakers into the mixing bucket and mix for 10-15 seconds, moving paddle all around container.
 - A Delcrete mixture (4.0 or 3.7) will turn black when fully mixed.
- Add the full bag of aggregate while mixing the batch.
- Total mixing time is between 60-70 seconds. The mixture should have an even consistency with no dry aggregate or black streaks visible.
- Immediately pour the mixture in the block-out/patching area, starting at one end of the joint area/patch, and filling/leveling the joint area/patch as you go.
 - Do not pour material in lifts, level as you go.
 - Use margin trowels to completely remove material from buckets.
- Poured material shall be troweled smooth as it is poured, taken the high and low spots out of the material. Do not wait for the entire joint to be poured before finishing.
 - Move excess material down the block-out or across the patch area.
 - Any areas not meeting poured height requirements need to be addressed immediately. If low spots are allowed to remain after cure the material will need to be cut out and replaced at the proper level.
- Delcrete will take an initial set after approximately 15-20 minutes.
 - At this time notching or grooving the surface texture can be performed.
 - Fine aggregate (by others) can be applied for additional surface texture at this time if required.
 - Note: Delcrete is designed for compressive strength, the Delcrete material isn't designed for elongation purposes.
- Formwork can be removed after the material has been allowed to cure for a minimum 4 hours.

Clean Up

- All masking and protective materials shall be removed after the installation is completed.
- Small tools and mixer paddles should be wiped clean and immediately soaked in a suitable solvent to remove the Delcrete polymer material.
- Material waste should be disposed of according to local laws and regulations. Consult SDS for proper handling of waste.



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