

Work Instructions for Installation of Delpatch 3.7

Responsibility

- It is the responsibility of installer to understand all the requirements of this document before attempting to install Delpatch 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 Delpatch 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 is available for a fee.

Product Description

- Delpatch 3.7 is a two-part MDI based polyurethane material mixture.
- Each unit of Delpatch 3.7 Sand & Fiberglass makes 3.7 ft³ (27.7 gallons/Mixed) of elastomeric concrete material. (2.31-Gallons per mixed batch)
- A unit consists of the following:
 - Two 5-gallon pails of Part A resin.
 - One 5-gallon pail of Part B Iso (cure).

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

Product Safety

- Delpatch 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 serious 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 pails from direct sunlight. This may cause the product to overheat.

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- 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 tested before use later.
 - Opened containers of material cannot be returned.

Equipment

- Equipment requirements for the mixing and placement of Delcrete/Delpatch 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 pail.
 - Two 5,000 mL measuring beakers.
 - 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/airport runway is the first task to be completed by the installer.
- New concrete shall have a minimum of 14 days of cure.
- 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 45oF, 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 ¼" profile for concrete surfaces. If water blasting is used as a cleaning solution, there must be a 12-24 hour drying time on the concrete slab before proceeding with the Delpatch 3.7 installation.
 - 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 with a minimum of 2" of depth as the standard. Depth of the Delpatch 3.7 material placement comes down to getting 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/Delpatch over 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/Delpatch Primer can be applied using a pressurized sprayer, spray bottle, or brush.
 - Never dip brushes into the 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.

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- Avoid pooling of primer. Brush out any accumulated primer before it dries.
 - Primed surfaces should be lightly coated and not heavy coated.
- Allow primer to dry a minimum of 30 minutes and no longer than 4 hours before installation of Delcrete/Delpatch materials.
- Re-apply primer after 4 hours or rain occurs.

Mixing and Installing Delpatch

- One mix of Delpatch 3.7 Sand & Fiberglass material will make approximately (2.31 gallons/Mixed) material.
- Note: Make sure to keep the Delpatch 3.7 material in a cooler area until needed. Delpatch 3.7 material that has been setting in direct sunlight for a while will heat up and set that Delpatch 3.7 mixture off faster, making it harder to work with.
- Determine the proper amount of Delpatch material needed for your application.
 - Make sure that you have enough material available to complete the full pour before starting your mixing.
 - 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.
- Delpatch must be installed in a continuous pour. (No Layering!) Note: The only layering allowed is during the mixing procedure when the Delpatch material is still in a liquid state.
 - For large pours it may be necessary to have multiple sets of beakers, mixing pails, and mixers.
 - Any work stoppage must occur at formwork or at a joint termination. Do not stop mixing/pouring material until all areas are completely to the required level and even with the existing concrete surface. (Again, no layering is permitted after cure time has started.)
- 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 15-30 seconds, dependent on weather. Cooler weather, longer mixing time.
 - A Delpatch mixture (3.7) will turn gray when fully mixed.
- Add the full bag of aggregate while running the mixer.
- A minimum of 60 seconds per mix. The mixture should have an even consistency with no dry aggregate or black streaks visible at the end of each mix.
- Immediately pour the mixture in the block-out/patch area, starting at one end of the joint/patch area and filling the joint/patch area as you go. Starting at one end of the block-out/patch area and finishing at the other.
 - Do not pour material in lifts, (Do not start in the middle of the block-out/patch area.) level as you go across the block-out/patch area.
 - Use margin trowels to completely remove excess material from buckets.
- Poured material shall be troweled smooth as it is poured. Do not wait for the entire joint to be poured before finishing. Finish as you go!
 - 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.
- Delpatch will take an initial set after approximately 12-20 minutes. Weather related.
 - At this time notching or grooving for surface texture can be performed.
 - Fine aggregate (by others) can be applied for additional surface texture at this time if needed. IE-Sand mixture.
- Formwork can be removed after the material has been allowed to cure for a minimum 4 hours.

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Clean Up

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

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