



## THE SPEC-DECK SYSTEM

Spec-Deck consists of: Spec-Deck Powder (dry bag mix) and Spec-Deck Resin (liquid polymer). The specially formulated powder is mixed with a polymer and then trowelled or sprayed on the surface, the cured surface is then sealed using an acrylic concrete sealer.

Existing cracks in the concrete surface should first, prior to acid wash, be repaired according to industry guidelines. New expansion joints if required are installed prior to surface cleaning.

The concrete surface to be covered with Spec-Deck is first prepared by acid washing. Wash, using a dilute muriatic acid solution then rinse thoroughly. High pressure washing is recommended.

As a result of the acid wash, low spots in the surface will be identified. Installation begins by leveling these areas with Spec-Deck using a straight edge and then feathering down the edges with a rubbing brick. A prime coat of Spec-Deck resin is then applied

Spec-Deck powder is then mixed proportionately with the resin in a pail using a drill and paddle. Colouring, if selected, is added to the wet mix at this time.

Spec-Deck is usually sprayed using an air compressor and a texture hopper gun. Suggested air pressure is between eight (8) to twenty-seven (27) psi. Since the air pressure setting can be regulated and the nozzle on the hopper gun face is variable, various designs and patterns can be achieved.

As the material begins to dry, the surface can be trowelled lightly using a "straight lace" technique. Other trowelling methods may be employed to create other styles; hand crafted brick, keystone, natural stone, and tile designs, patterns are created using tape or stencils. Several finished styles can be achieved simultaneously.

TRUSeal High Gloss Sealer is applied, after the surface dries. Multiple colouring effects, using chemical stains, can be used allowing for a unique installation.

After the sealer dries, usually 4 hours, you are free to walk on the surface. Vehicles may be driven on, and the furniture can be placed on the surface after a 48 hour cure. Spec-Deck's final curing, to reach maximum effectiveness is similar to all other cement products and will take place over twenty-eight days.

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# SPEC-DECK INSTALLATION GUIDE

## **SURFACE PREPARATION:**

It cannot be said too often. No matter how good a floor coating system is, if the floor surface is not properly prepared, the coating system will fail. All contamination must be removed, including efflorescence, dirt, paints and coatings, hardeners, sealers, grease, and oil.

Too often, floors are prepared only by mechanical means because many contractors are reluctant to pay the cost or take the time to perform additional and necessary, chemical cleaning. Often an owner or engineer specifies only mechanical cleaning. Or a narrow time frame is allotted for the floor to be cleaned, coated, and put into service, leaving only enough time for one surface preparation method.

In many cases, mechanical scarification is the best first procedure for removing a thick buildup of contaminants that have been ground into the concrete by vehicle traffic. In extreme cases, this buildup can be as thick as  $\frac{3}{8}$  inch. Scarifiers have round, pointed teeth mounted on a rotating drum that can cut through the thick buildup.

Shotblasting or diamond grinding the floor is an excellent way to roughen the surface and open the pores of the concrete. If the floor contaminants contain little oil and grease, the floor may be ready for coating after the mechanical surface preparation.

However all hard trowelled surfaces or very smooth surfaces must be roughened up mechanically prior to application. This includes the steel trowelled edges and control joints.

If a concrete floor has been exposed to any type of oil or grease, chemical cleaning methods must be used. This is the only way to remove the oil and grease from the pores of the concrete. If the floor contains only light saturation of oil and grease, scarifying is not recommended, but we do recommend shot blasting or a diamond grind to provide a surface on which the chemical cleaners will perform better.

## **Chemical cleaning**

In extreme cases, the buildup of contaminants is so hard and compacted that you may want to use Con-Spec Grease & Spot Remover (GSR) to soften the contaminants before scarifying the floor. Pour a thin layer of GSR on the floor, scrub it into heavily soiled

areas, and allow it to sit for 15-30 minutes before power washing. Do not allow cleaner to dry on the surface.

After scarifying, shotblasting or diamond grinding the surface and removing all dust and debris, degrease the floor with Grease & Spot Remover. This solution penetrates the pores of the concrete and emulsifies the oils. Use hot water if it's available. Pour the solution onto the floor and spread it with a squeegee. The coverage rate depends on the amount of contaminants on the floor, but 100 to 400 square feet per gallon is usually suitable. Use a rotary scrubber to work the solution into the concrete. Allow 15 to 30 minutes for the solution to emulsify the oils before flushing the surface with water and removing the solution with a wet vacuum.

Next, acid etching of the concrete floor is required. Mix one part muriatic acid with two parts water. Always add the acid to the water - never add water to the acid. Adding water to the acid generates too much heat. Apply the acid solution evenly over the surface. A coverage rate of 100 square feet per gallon of solution should be adequate. When bubbling of the acid stops, flush the floor surface with clean water and remove the solution with a wet vacuum.

If working where food may be subjected to the vapours of the hydrochloric acid or where the acid may come in contact with metal, use a solution of one part 85% food grade phosphoric acid instead of hydrochloric acid, and mix it with two parts clean, potable water. Follow the same procedure that is used with the hydrochloric acid.

Following the acid wash, remove the remaining water with a squeegee or wet vacuum. If hot water or steam cleaning has been used throughout, the floor should be clean. However, if there are areas of the floor where contaminants have not been removed or where water continues to bead, repeat the acid wash procedures. If the problem persists, propane torching of the areas may be needed. Propane torching requires special equipment that draws oils and other impurities to the surface and incinerates them. When using this equipment, take all the precautions necessary when working with open flames, including having a fire extinguisher nearby. After propane torching the area, spot clean the area by repeating the hydrochloric acid cleaning procedures.

The last step is to neutralize the remaining acid with diluted TSP or baking soda. Thoroughly scrub the neutralizing solution into the surface, then flush the floor with clean water and remove the solution with a wet vacuum.

### **Employee safety**

The chemicals described above are all hazardous to varying degrees. Hydrochloric acid, and phosphoric acid are very dangerous. Before using the chemicals, study all Safety Data Sheets and bring them to the jobsite. Protective clothing to be worn by all employees includes a respirator, goggles, rubber gloves and boots, and chemical resistant clothing. Proper ventilation of the work area is mandatory, stress the importance of safety to all employees.

### **Disposing of the chemicals**

Do not flush solvents, caustics, and acids into the public sewer system. Nontoxic, biodegradable industrial detergents can often be flushed into the sewer system, but take nothing for granted. Remove all chemicals from the floor with a wet vacuum and consult with the safety personnel or local authorities to find out the proper disposal methods.

### **CRACK REPAIR:**

Crack repair is crucial to the success of your job. If all else is done properly but crack repair is not completed correctly then cracks may appear and ruin a great looking job.

The first step is to ascertain if the crack is a moving or non-moving crack. If it is a non moving crack caused by shrinkage or the concrete sinking then cracking it can be repaired. If the crack is a moving crack then it can not be "repaired", but must be left "open". If the crack is a random moving crack then you may have to create a moving control joint before "repair" this type of crack. If possible try to incorporate any moving joints into your pattern or design.

### **Non-Moving cracks**

Pressure wash or use a crack chaser to clean the crack. Ensure the crack is clean and dry before continuing. Use a low modulus epoxy material to fill the crack. Do not apply the epoxy to wet surfaces. **The concrete must be dry** for proper adhesion to take place.

Allow the epoxy to cure to a slightly tacky state before applying the Spec-Deck powder. Skim over top of tacky

not wet epoxy material to create a chemical and mechanical bond. Skim coat will crack, this is normal.

After skim coat has dried use a rubbing brick to stone smooth any rough spots and edges.

### **Moving Cracks**

If necessary cut a relief joint in the concrete to take the movement of the crack. Then fix the crack as above. For control joints or moving cracks power wash clean to full depth of slab. Seal with a urethane sealant and backer rod or bond break tape. When applying Spec-Deck along the control joint round off corners with a brick tool. By hand remove skim coat out of control joints, gently scrape and blow off.

**Do not guarantee any crack repair**, or cracking due to concrete substrate cracking.

### **PRIMING:**

Prime concrete floors using Spec-Deck Resin, apply at 200 square feet per gallon. Allow material to dry clear before application of the Spec-Deck. Do not allow to dry hard. If primer dries hard apply a second coat of primer. If surface is porous apply a second coat.

### **MIXING:**

Add six (6) liters of the Spec-Deck Resin to each 50 lbs (1 bag) of Spec-Deck powder in mixing pail. After thoroughly mixing, allow material to fatten for five (5) minutes in mixing pail. Agitate the material, adding small amount of Spec-Deck Resin to obtain consistency for spreading or spraying. If adding colour, carefully measure each colour by weight to ensure uniform amount of colour is incorporated into each batch of Spec-Deck. Even small variations in colour volume may cause noticeable colour variations in the finished product.

### **SKIM COAT:**

After power washing, mark any low spots where water pools. Squeegee water off concrete. Using a thicker consistency of material, fill the low spots, using a straight edge and then feathering down the edges. Allow to cure, until you can walk on the patch without leaving any marks. Stone the edges to remove any rough spots or ridges that may have been created.

After priming apply the Spec-Deck. Using a trowel spread the skim coat evenly over the surface. Coverage should be approximately 125 square feet per 50 lbs of Spec-Deck grout. Pot life is approximately 1 hour.

When applying Spec-Deck against a building. Do not allow product to bind against building, which may then chip off. Scrape edge with edge of trowel to a vee shape at the building slab joint.

By hand remove skim coat out of control joints, gently scrape and blow off.

**CREATING A TAPE PATTERN:**

After the skim coat has taken a final set you can use a variety of methods to create any pattern you desire. These patterns can be created with filament tape or stencils.

Always measure out the distances to ensure that a uniform and square pattern is created.

If installing a logo or art work into the design apply a second skim coat where the art work will be created, using the colour or colours that you wish the art work to appear in. After the second skim coat has dried place the art work stencils on the selected area and use small weights to hold the stencil in place for the spray coat.

**SPRAY COAT:**

The second and subsequent coats may be applied by spray. A trowel, roller or squeegee can also be used for different textures.

Always paper and protect all wall surfaces or greenery from any over spray. Cover the inside edges of the floor area also to protect from over spray. Start by spraying the brick edges first. Spray the material using a drywall hopper gun. The air pressure should be between 8 to 27 psi. Since the air pressure and spray nozzle on the hopper gun are variable, many alternate design techniques can be achieved.

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After spraying and once the material begins to dry, a steel trowel can be used to create a "straight lace" effect.

After the spray coat(s) have been applied, and dried enough that you can walk on the material without leaving any marks, you may apply any highlights. Always apply the highlights from lightest to darkest; usually a minimum of two will be used.

After the Spec-Deck has taken its initial set and you are able to walk on it without leaving any marks remove any tape and stencils, revealing the pattern created.

**SEALING:**

Allow a minimum of 24 hours, before application of the first coat of sealer.

**Low Traffic Areas**

Con-Spec TRUSeal High Gloss sealer should be used on residential projects and other areas that are not submitted to high traffic volumes and abuse. Apply the first coat of Con-Spec TRUSeal High Gloss sealer at a rate of 200-400 square feet per gallon. Allow a minimum of 4 hours after the first coat before the application of the second coat, using a rate of 100-200 square feet per gallon. Let cure for 24 hours before opening to light foot traffic, 72 hours for heavy traffic.

**High Traffic Areas**

In areas of high traffic volumes or areas subject to abuse a clear non-yellowing epoxy sealer is recommended with a top coat of high solids non-yellowing urethane for its superior abrasion and mar resistance. The number of coats of epoxy sealer is dependent upon the surface and what type of finish the customer is looking for. Two coats of epoxy is recommended. Apply the epoxy sealer at a rate of 300 square feet per gallon as the prime coat. Allow to dry for 12 hours before applying a second coat of epoxy (at 160 ft<sup>2</sup>/gal) or a polyurethane topcoat.

**TYPICAL PROPERTIES:**

	<b>Unmodified Cement</b>	<b>Spec-Deck Modified Cement</b>
<b>Tensile Strength, MPa (PSI)</b>		
28 Day Air Cure	2 (295)	5.7 (825)
28 Day Wet Cure <sup>1</sup>	3.7 (535)	
<b>Compressive Strength, MPa (PSI)</b>		
28 Day Air Cure	16.5 (2390)	55.7 (8100)
28 Day Wet Cure <sup>1</sup>	40 (5795)	
<b>Flexural Strength, MPa (PSI)</b>		
28 Day Air Cure	4.2 (610)	14.2 (2060)
28 Day Wet Cure <sup>1</sup>	7.4 (1070)	
<b>Shear Bond Adhesion, MPa (PSI)</b>		
28 Day Air Cure	0.3 (45)	4.6 (670)
28 Day Wet Cure <sup>1</sup>	1.3 (185)	

<sup>1</sup>Wet Curing Conditions:  
 1 Day at 25°C & 90% relative humidity  
 6 Days water immersion at 25°C  
 7 Days at 25°C & 50% relative humidity  
 7 Days water immersion at 25°C  
 7 Days at 25°C & 50% relative humidity

# SPEC-DECK

## STEP BY STEP MANUAL

### SURFACE PREPARATION:

**Overview:** The surface to be coated must be structurally sound and clean. As a rule, always repair unsound substrates before applying materials. The surface must be thoroughly cleaned of oil, grease, dirt, paint, and any loose material or other foreign matter.



1) A thorough shot blasting, diamond grind or other mechanical means of cleaning the floor is highly recommended. This will open the pores of the concrete surface for a proper bond.



2) After the initial mechanical cleaning a proper degreasing of the concrete surface may be required if there is any grease or oil in the concrete. Prior to crack repair a proper acid etch and power washing of the concrete may be necessary to remove any left over contaminates and ensure the concrete is clean to accept the Spec-Deck coating. In cases with adhesives on the surface, as above, it must be degreased and cleaned before the mechanical cleaning procedures.



3) Before application of the Spec-Deck apply the Spec-Deck resin and allow to dry clear. On porous surfaces a second application may be necessary. If allowed to dry hard apply a subsequent coat.



## CRACK PREPARATION:

**Overview:** "Vee" out cracks, then fill with an epoxy and chopped fibre. Apply Spec-Deck powder over the slightly tacky resin to create a chemical and mechanical bond, (skim coat will crack but this is normal).



1) "Vee" out crack  $\frac{3}{4}$ " wide by  $1\frac{1}{2}$ " deep as a minimum. Pressure wash crack with a high powered pressure washer with tip at bottom of the vee to ensure that the crack is clean and washed to the bottom of the concrete slab. Torch crack to allow faster drying.



2) Use a low modulus epoxy to fill the crack and add chopped fibre. Do not apply to a wet surface. The Concrete **must** be dry for proper adhesion to take place.



3) Allow the epoxy to become slightly tacky. Apply the Spec-Deck by skimming over top of the crack. This will create a chemical and mechanical bond.



4) The skim coat of Spec-Deck will crack, but is normal. Grind the skim coat with a rubbing brick to remove any edges and rough spots so that the crack will not show through the main Spec-Deck coating.

## MIXING:

**Overview:** Add six (6) litres of Spec-Deck Resin to each 50 lb bag of Spec-Deck powder in mixing pail. After thoroughly mixing, allow material to induct for five (5) minutes in mixing pail. Agitate the material, adding small amount of Spec-Deck Resin to obtain consistency for spreading or spraying. If adding colour, carefully measure each colour by weight to ensure uniform amount of colour is incorporated into each batch of Spec-Deck. Even small variations in colour may cause noticeable colour variation in the finished product.



## SKIM COAT:



1) After power washing, mark any low spots where water pools. Squeegee water off concrete. Using a thicker consistency of material, fill the low spots, using a straight edge and then feathering down the edges. Allow to cure, until you can walk on the patch without leaving any marks. Stone the edges to remove any ridges that may have been created.



3) Using a trowel spread the skim coat evenly over the surface.

**Overview:** Using a thicker consistency of material, use a trowel to fill in any low spots. Allow to cure until you can walk on the patch. Apply first coat by trowel. Coverage should be 125 square feet per 50 lbs of Spec-Deck powder.



2) Apply the first coat with a trowel. Coverage should be approximately 125 square feet per 50 lbs of Spec-Deck grout. Pot life is approximately 1 hour.



# CREATING TAPE PATTERN:

**Overview:** After first coat has taken a final set use filament tape to create the desired pattern.



1) Measure out area that will be taped to ensure a uniform and square pattern is created. Any pattern may be created, only time and imagination is required.



2) Stencils may also be used to create many different patterns such as Brick, Cobblestone, Keystone, Ashlar, Herringbone, European Fan, Circles, Diamonds and may others.



3) If installing a logo, apply a second skim coat in the area where the logo will be, using the colour that the logo will appear in.



4) Use small weights to hold the logo in place for the spray coat.



## SPRAY COAT:

**Overview:** Apply the second and subsequent coats, by spray. A trowel, roller or squeegee may also be used for different textures. Steel trowelling may be used after material begins to dry creating a "straight lace" effect.



1) Always start spraying brick edges first. Make sure to cover up inside edges for the over spray.



2) Spec-Deck is generally sprayed on using an air compressor and drywall hopper gun. Suggested air pressure is between 8 to 27 PSI. Since the air pressure and spray nozzle on hopper gun are variable, many alternate designs and techniques can be achieved.



3) After spray coat has dried and able to walk on. Colour highlights can be sprayed on. Always highlight from lightest to darkest. Usually a minimum of two colours are used for highlighting.



4) After Spec-Deck has taken its final set and you are able to walk on without leaving any marks remove tape to reveal the pattern created. Allow a minimum of 24 hours before applying a sealer.

# SEALING:

**Overview:** After surface is dry, allow a minimum of 24 hours, before application of the first coat of the sealer apply as per manufacturers recommendation. Let cure for 24 hours before opening to light foot traffic, 72 hours for heavy traffic.



1) On exterior applications the use of TRUSeal Acrylic Sealer is recommended. Apply the first coat at rate of 200-400 ft<sup>2</sup>/gal using a roller. If Spec-Deck will be used indoors or in a high traffic area use a 100% non-yellowing epoxy sealer, at a rate of 300 ft<sup>2</sup>/gal. Always follow the manufactures recommendations for installation of the coating system used.



2) On the application of the 2<sup>nd</sup> coat of sealer, for exterior continue with TRUSeal at a rate of 200-400 ft<sup>2</sup>/gal. If indoors use an epoxy coating or urethane coating system. The epoxy is typically applied at 160 ft<sup>2</sup>/gal. Again follow the manufacture's recommendation for installation of the coating system used. If desired a third coat of sealer can be used typically a urethane coating or a non-burnishing floor wax. Allow a minimum of 24 hours before opening to light traffic and 72 hours for vehicle traffic. Spec-Deck will continue to cure and reach its ultimate strength after 28 days.



**BEFORE**



**AFTER**