

DECOFLAKE FLOORING SYSTEMS

Definition of a DecoFlake Floor System

A unique decorative seamless flooring surface which incorporates colored acrylic chips or flakes randomly broadcast (Random Flake] or fully broadcast to rejection (Full Flake) into an epoxy resin basecoat. A clear topcoat locks in the flake and provides a durable protective wear surface. DecoFlake can be installed in an almost unlimited combination of colors and variety of slip resistant textures to match virtually any decorating motif.

The following is intended as a general-purpose guide **only** and may not provide an appropriate installation method for every specific project. Please contact Thermal-Chem Corporation with specific questions regarding product application and recommendations.

Applicable Products

This **Installation Guide** outlines application procedures for DecoFlake Plus 1.5, DecoFlake 3.0 and DecoFlake and DecoChip acrylic flakes. Applicable topcoats include DecoTop Clear (epoxy), DecoTop P92 (Polyurea) and DecoThane E56, E54 (Urethanes). Always refer to the individual Product Description Sheets and/or chemical resistant chart for the appropriate product selection or contact Thermal-Chem for addition information

Typical Spread Rates

NOTE: All coverage rates are theoretical. No guarantee of results is possible due to the specific nature and numerous variables present in individual projects. Variables include, but are not limited to: substrate conditions, installation techniques, material temperature, surface temperature and air temperature at the time of application.



Surface Preparation

Refer to *Installation Guide 2001-G* for recommended substrate preparation and cleaning procedures for concrete, or contact Thermal-Chem directly.

Temperature - Ambient, Substrate and Material

Temperature is critical for a successful application when using 100% solids epoxies. Material, ambient and substrate temperatures directly impact the spread rate and workability of the material as well as cure time. A 20°F decrease in temperature can result in a doubling, or tripling in some cases, of material viscosity, entirely changing spread rates and coverage. More importantly, cure times will almost double. One additional factor, material thickness (mass), also directly impacts cure time. As a general rule, the warmer the temperatures and the thicker the material, the faster the cure.

Concrete is a cold sync material and will assume the lowest temperature to which it is exposed. Always determine the substrate temperature, particularly for slab-on-grade installations, and do not assume that an ambient temperature of 70°F will produce a substrate temperature of 70°F. In most cases, substrate temperatures are cooler than ambient air temperatures.

For installations where the substrate and ambient temperatures are below 65°F to 70°F, it is best to pre-condition the epoxy material to approximately 80°-85°F. Aggregate should be preconditioned to the same temperature as the epoxy.

NEVER GUESS AT TEMPERATURE! RECORD IT WITH A THERMOMETER!



Refer to individual Product Description Sheets for basecoat and topcoat recoat information

Random DecoFlake Installation

Typically three-to-five flake colors are incorporated into a color blend. Always blend the flakes before applying the epoxy base coat. Keep the flakes covered after blending to prevent the settling of surface preparation dust and debris.

A primer is not required when applying a Random DecoFlake system but it is highly recommended. A prime coat will help eliminate bubbles due to substrate out-gassing and help level out an uneven substrate. It is always easier and more efficient to correct a substrate or prevent problems at the prime or base coat level rather than the top or finish coat level. A prime coat should be considered as good insurance for this type of application. If the substrate is moderately to very rough, add 5 to 12 lbs of TC #4 Slurry sand to the prime material and apply using a flat squeegee to fill the gouges and dings before applying the DecoFlake System.

Always use a pigmented DecoFlake, DecoFlake 1.5 or DecoFlake 3.0 base coat unless the application is in an area subjected to sunlight. If an ultra violet exposure exists, apply a pigmented DecoThane E-54, E-56 or DecoTop P (Polyurea) as the base coat. Typically, the urethane and Polyurea products are placed directly over the primer coat. If a DecoThane E-54 or E-56 is selected as the base coat, the prime coat must be applied at least 16 mils in thickness.

After the substrate has been thoroughly cleaned and primed, mix component A, then pour A and B components of the selected base coat product together in a clean mixing vessel and mix for approximately 2 minutes. Mix only the material that can be placed in approximately 30 minutes.

CAUTION: Thermal-Chem rapid cure materials such as DecoFlake 1.5, DecoFlake 3.0 and DecoTop P will have a reduced pot life of less than 15 minutes and must be mixed and placed more quickly than normal cure materials. For more specific information, refer to individual Product Description Sheets for product being installed or contact Thermal-Chem Corporation prior to mixing and application.



NOTE:

When cutting-in or applying resin in restricted areas, mix smaller quantities and utilize smaller containers. Mixed material in larger masses will generate heat and gel or cure prematurely. In some instances material in larger masses may smoke and exotherm.

Once the material has been mixed, pour the entire contents of mixed epoxy, urethane or Polyurea resin on the substrate in a ribbon and spread, at the rate of approximately 100 to 150 square feet per gallon using a flat squeegee using overlapping two directional squeegee passes. Back roll using a lint free 1/2 inch nap mohair roller to eliminate any squeegee marks. Let the material flow-out and self-level and while the material is still wet, RANDOMLY broadcast the entire surface with the selected blend of DecoChips (flakes). It is best to try and plan the application so the use of spike shoes is not required. They may leave imperfections that will be seen through the clear topcoat. There is no correct rate or amount of flakes to broadcast into the floor as the cosmetic appearance is strictly an individual preference. Typically 1 to 2 pounds are broadcast per 100 square feet, which will leave approximately 70% to 90% of the pigmented background exposed. Separation will be approximately 1/2" to 1" between each flake.

Allow the random broadcast basecoat to cure and very lightly sand, if required, to knock-off the tips of exposed or high flakes and to make any cosmetic repairs before applying the topcoat.

After the cosmetic repairs are complete and all dust and debris has been removed, mix the clear topcoat material as described above, pour the entire contents on the substrate in a ribbon pattern and spread using a squeegee using overlapping two directional squeegee passes. Back roll using a lint free 1/2 inch nap mohair roller to eliminate any squeegee marks. Mix only the amount of material that can be placed in approximately 15 to 20 minutes. Select one of the following clear topcoat materials and apply at the recommended rate.

- **DecoTop Clear - #748 (Epoxy)**
 - 1st coat @ approximately 120 sq. ft./gal.
 - Optional 2nd coat @ approximately 160 sq. ft./gal.
- **DecoThane E-56 or E-54 - #1056 (Urethane)**
 - 1st coat @ approximately 300 sq. ft./gal.
 - 2nd coat @ approximately 300 sq. ft. /gal.
- **DecoTop P - # 1060 (Polyurea)**
 - 1st coat @ approximately 120 sq. ft./gal.
 - Optional 2nd coat @ approximately 170 sq. ft./gal.

NOTE:

DecoTop Clear should be used on only interior applications. If a urethane or Polyurea was used as the base coat then use a clear urethane or Polyurea as the topcoat.

Random Flake floors without the addition of skid resistance materials are typically very smooth. White aluminum oxide may be lightly broadcast into the clear topcoat and back rolled to lock it into the system. Aluminum oxide in three grit sizes, 36 (coarse), 40 (medium) and 60 (fine) is available from Thermal-Chem.

Full Broadcast DecoFlake Installation

Full Broadcast DecoFlake systems can be applied as a single broadcast or a double broadcast; however a double broadcast system is highly recommended. It provides an additional coat to make cosmetic repairs and will provide a thicker and longer wearing floor. If a single broadcast system is chosen, pigmented DecoFlake, DecoFlake 1.5 or DecoFlake 3.0 should be selected as the base coat to prevent shadowing from heavily stained concrete and in the event any portion of the base coat is not completely covered by flakes. Typically the base coat of a single broadcast system should be applied 25% thicker than the first coat of a double broadcast system to insure proper hide without evidence of substrate show through. Even though a prime coat is not required when applying a single broadcast, it is recommended to help prevent potential bubbles and or out-gassing. Unless other situations dictate, a prime coat is not required for double broadcast systems.

The following installation apply to a double broadcast system:

Mix the epoxy material as described in the Random Flake section pour the entire contents of mixed resin on the substrate in a ribbon and spread, at the rate of approximately 100 to 150 square feet per gallon using a flat squeegee using overlapping two directional squeegee passes. Back roll using a lint free 3/4 inch nap mohair roller to eliminate any squeegee marks. Let the material flow-out and self-level and while the material is still wet, FULLY broadcast the entire surface, to the point of rejection, with the selected blend of DecoChips (flakes). If spike shoes are required, do not walk into the areas that have been broadcast with flakes. They may leave imperfections that will require repair before the second broadcast is applied. Typical application rates are 8 to 10 pounds of flakes per 100 square feet per broadcast. Once the entire surface has been broadcast, it should appear dry with no wet or shiny spots.

Allow the base coat material with full broadcast to cure, and then remove all excess flakes by broom or vacuum. The excess flakes may be recycled for future use if properly cleaned by removing dirt and debris. Be sure to fully inspect the flakes before use a second time, as they may be smaller due to abuse during the broadcasting, sweeping and vacuuming process. Next, lightly sand the surface with a floor-sanding machine to knock off high spots and to correct irregularities before applying the second coat of epoxy and flakes. Once the surface has been sanded, remove any loose flakes or debris by vacuum or broom and discard.

Apply the second coat of epoxy and broadcast to rejection in the same manner as the first coat described above. Be sure and not leave any spike shoe marks, as they will be visible once the topcoat has been applied. Mix only the amount of material that can be placed in approximately 15 to 20 minutes.

Allow the second epoxy coat with full broadcast to cure, and then remove all excess flakes by broom or vacuum. Check for imperfections and correct as necessary. Depending upon the surface texture required, sanding may or may not be necessary. For aggressive texture do not sand, just apply the topcoat. For smoother textures lightly to aggressively sand using a floor-sanding machine. If the desired texture requires sanding, extreme care should be exercised when operating the sanding machine. Be sure and keep the machine moving and do not over sand resulting in smooth spots.

A drywall-type sanding-pole can be used if the size of the area permits. Another technique to insure a cosmetically desirable DecoFlake floor calls for applying a thin topcoat, allowing it to cure then sanding. The topcoat material combined with the flakes provides a tougher surface and sanding is less critical than sanding just the soft flake.

Remove all the dust and debris created by the sanding process and prepare to apply the first topcoat. Mix the Component A and Component B of the clear topcoat material and pour the entire contents on the substrate in a ribbon pattern and spread using a squeegee using overlapping two directional squeegee passes. Back roll using a lint free 1/2 inch nap mohair roller to eliminate any squeegee marks. Mix only the amount of material that can be placed in approximately 15 to 20 minutes. Select one of the following clear topcoat materials and apply at the recommended rate.

- **DecoTop Clear - #748 (Epoxy)**
 - 1st coat @ approximately 100 to 120 sq. ft./gal.
 - Optional 2nd coat @ approximately 120 to 160 sq. ft./gal.
- **DecoThane E-56 or E-54 - # 1056 (Urethane)**
 - Is not recommended as the only topcoat over a Full Flake system as the flake profile is typically aggressive and urethane at 3 to 4 dry mils per coat would require a minimum of 3 to 4 coats to adequately cover and lock-in the flakes. Also, due to the aggressive texture the first coat possibly could not be spread thin enough and bubbles or entrapped solvents could occur. It may be used as a topcoat over epoxy to give better gloss retention.
- **DecoTop P - #1060 (Polyurea)**
 - 1st coat @ approximately 100 to 120 sq. ft./gal.
 - Optional 2nd coat @ approximately 120 to 160 sq. ft./gal.

NOTE: DecoTop Clear should be used on only interior applications.



Once the first clear coat has cured, apply a second or finished clear topcoat as described above. Subsequent coats **MUST** be applied before the window of time for re-application has passed, or additional surface preparation will be required.

Re-application time is approximately 24 hours for normal cure materials. Rapid or Fast Cure materials such as DecoTop P have a shorter re-application time and may be as short as 4 to 6 hours. Check individual Product Description Sheets or contact Thermal-Chem directly for specific information

Texture and Slip-Resistance

Surface texture in a Full Broadcast Flake system is typically a function of the aggressiveness of the aggregate, flake in this instance, and the thickness and number of topcoats. Texture is difficult to describe but easy to understand if it can be seen. There are a number of different ways to produce a desired texture by sanding and applying topcoats. Slip resistance is typically a function of the size and amount of aluminum oxide placed and back rolled into the topcoat. White aluminum oxide may be lightly broadcast into the clear topcoat and back rolled to lock it into the system. Aluminum oxide in three grit sizes, 36 (coarse), 40 (medium) and 60 (fine) is available from Thermal-Chem.

Precautions, Limitations, and Notes

- To achieve optimum installation results, refer to individual Product Description Sheets for specific product limitations such as: application temperature, suitability for the application, chemical resistance, cure times, substrate requirements and available colors – or contact Thermal-Chem directly.

- No solvents of any kind should be used to place, mix, or thin any Thermal-Chem base coat materials. Solvents can adversely affect the overall integrity and/or performance of the finished product.
- Always refer to individual Product Description Sheets and/or the chemical resistant chart for product recommendations and for specific performance characteristics of each product.
- Caution should always be taken when applying this or any Thermal-Chem product over a substrate that may be subject to hydrostatic or moisture vapor transmissions. When in doubt, a quantitative moisture test should be taken to determine suitability.
- Always wear eye protection devices, non-absorbent gloves, and protective clothing when handling any of the products and/or chemicals referred to in this *Installation Guide*. Always read and refer to package labels, warning labels, and MSDS sheets carefully prior to use.
- In case of contact with skin by any Thermal-Chem products, immediately remove the material with soap and water; and follow all written instructions on the appropriate MSDS sheets for exposure to the material and with regard to any "Medical Emergency Procedures".
- Work areas should always be adequately ventilated, especially in low and confined spaces.
- It is the responsibility of the user to be aware of and comply with all the appropriate regulations for discarding of material waste and/or chemical waste; and further, it is the user's responsibility to handle and dispose of this waste within appropriate local, state, or federal guidelines.

Manufacturer

Any questions or comments regarding the contents of this *Installation Guide*, for technical questions or assistance, and/or questions with regard to specific installation procedures, contact the manufacturer:

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