



LITHOTEX® Pavecrafters® PROFESSIONAL GRADE IMPRINTING TOOLS

A system of mat-type imprinting tools for texturing freshly placed architectural concrete and SCOFIELD® Texturetop® Stamp Grade System toppings.

TECH-DATA BULLETIN T-404.06

1. Product Description:

LITHOTEX® Pavecrafters® Professional Grade Imprinting Tools are a system of matched tools used to transform the surface of freshly placed architectural concrete flatwork and SCOFIELD Texturetop Stamp Grade System toppings into patterns that mimic other building materials. By combining the structural strength and wear resistance of concrete with the look of other paving materials, they create natural appearing, low-maintenance, textured surfaces in a wide variety of imprinted patterns.

2. Limitations:

For best results LITHOTEX Pavecrafters Professional Grade Imprinting Tools should be used to texture plastic concrete color-hardened with LITHOCHROME® Color Hardener or EMERCHROME® Floor Hardener or to imprint SCOFIELD Texturetop Stamp Grade System cementitious toppings.

Producing imprinted architectural concrete requires skill and practice. Choice of imprinting pattern, layout and joint placement, concrete mix design and installation, experience in use of the materials, choice and color of coloring agent(s), color-hardener coverage and application procedures, weather, imprinting texture and techniques, choice and color of bond-breaking materials, use of chemical stains and color combinations, curing, antiquing-release removal techniques, sealing materials, and other factors will each affect the final performance and appearance of the imprinted concrete.

A texture should be chosen that will provide adequate slip resistance for the area's intended use. Layouts should be carefully planned and thoroughly checked. Representative jobsite samples must be produced and approved as described in section 8. *Jobsite Samples* prior to concrete installation.

Variations in color and texture should be expected and are normally desired, since they increase the natural appearance of the surface.

The use of a bond-breaking agent is required so that tools will not stick to the surface of the plastic concrete, tearing it when the Pavecrafters tool is lifted. The use of LITHOCHROME® Antiquing Release, LITHOTEX® Liquid Release, or SCOFIELD® Liquid Release SG is recommended. Solvent-based liquid release agents other than those produced by Scofield may cause LITHOTEX Pavecrafters Professional Grade Imprinting Tools to deteriorate over time and their use will void the warranty.

When using LITHOCHROME Antiquing Release, enough material must be applied so that moisture does not migrate to the surface, causing the texturing tool to stick. However, avoid application of an excessive amount or texture detail may be diminished.

LITHOTEX Pavecrafters Professional Grade Imprinting Tools are designed for imprinting plastic architectural concrete flatwork and, though they may be used on the surface of freshly stripped and plastered vertical concrete, such as risers, they are not intended for extended use on vertical surfaces.

For a longer work life, LITHOTEX Pavecrafters Professional Grade Imprinting Tools should be used on concrete that is in the proper stage of plasticity and after each use, should be cleaned and stored as described in section 13. *Tool Maintenance* and section 7. *Storage and Work Life*.

3. Tool Descriptions:

LITHOTEX Pavecrafters Professional Grade Imprinting Tools are the primary tools in a system designed for ease of use and the highest productivity. When used in conjunction with companion accessory tools, they form a complete set of texture-matched tools, allowing design placement under a variety of job conditions.

LITHOTEX Pavecrafters Professional Grade Imprinting Tools are used to produce the main pattern. Single-design tools may produce the entire pattern, or several different tools may be required, each forming a variation of the pattern. Depending on the design, Professional Grade Imprinting Tools may be used to form repeat patterns or rotated or staggered to vary the design. LITHOTEX Pavecrafters Professional Grade Imprinting Tools provide a rigid working surface, are equipped with handles for ease of placing, and normally include grout or joint lines. Irregularly shaped tools are designed with markings on the top of the tool to aid in pattern alignment.

Border tools are used to form borders around or bands through the design, and may complement or contrast with the texture and pattern of the Professional Grade Imprinting Tool. They are equipped with handles and normally include grout or joint lines.

Floppy tools are used to complete sections of a design in areas where a more pliable tool is required. They are extremely flexible and are matched in texture, pattern, and size to the LITHOTEX Pavecrafters Professional Grade Imprinting Tools and border tools.

Filler tools are used to fill in small sections of the design, such as a single masonry unit or a corner. They normally include grout or joint lines and are matched to the texture and pattern of the LITHOTEX Pavecrafters Professional Grade Imprinting Tools and border tools.

Texturing tools are designed for applying surface texture only, without grout or joint lines. They are primarily used in hard-to-reach areas, for touching up damaged surface sections, and to texture adjacent vertical surfaces such as risers and retaining or planter walls. Matching the texture of the LITHOTEX Pavecrafters Professional Grade Imprinting Tools and border tools, they are very flexible with a maximum size of 1 square foot (305 mm²).

4. Textures and Patterns:

LITHOTEX Pavecrafters Professional Grade Imprinting Tools are available in a wide variety of textures and patterns. For many individual patterns, a pattern detail sheet is available which shows tool dimensions, the completed pattern, and information about companion tools and products. Please contact Scofield for available patterns and to request specific pattern detail sheets.

5. Sizes:

The length and width of individual Pavecrafters tools varies depending on the type of tool and the pattern. Tool dimensions are shown on the Scofield *Pattern Detail Sheet* for many patterns and are given on the *LITHOTEX Pavecrafters Professional Grade Imprinting Tools Price List*.



6. Custom Tools:

Pavecrafters tools in custom textures, patterns, and sizes can be manufactured to meet individual design requirements. Custom tools can be created from samples, or from drawings showing accurate dimensions, elevations, and cross sections. Custom tools require the creation of a new master and a charge for designing the master will be incurred. Contact Scofield about the manufacture of specific custom tools.

7. Storage and Work Life:

LITHOTEX Pavecrafters Professional Grade Imprinting Tools are factory-packed so that they remain flat during transportation. To prevent deformation during storage and between uses, Pavecrafters tools must be stored flat, textured face up, with no objects resting on top. Storage should be under roof in a cool, clean area out of direct sunlight (UV) and away from excessive heat. All surfaces should be kept clean and covered. Covering with opaque plastic sheeting or tarpaulins is recommended. Work life depends on the amount of use, care taken of the tool during use, tool maintenance, and storage conditions.

8. Jobsite Samples:

Prior to concrete placement, a sample slab, and if included in the design, vertical surfaces such as risers and retaining walls, must be produced and approved for each pattern and layout specified. Samples must be of representative size, a minimum of 100 square feet (10 m²), so that the color combinations, pattern layout, installation techniques, and timing can be confirmed and approved. All procedures should be performed by the same workers that will produce the project imprinted concrete, using the same techniques, materials, Pavecrafters tools, and other required tools or equipment.

Producing imprinted architectural concrete requires skill and practice. Jobsite samples allow selected colors, materials, tools, and construction techniques to be evaluated and approved, or adjusted when needed. Jobsite samples are especially important when the imprinted surface is antiqued or is to be chemically stained later.

For safety considerations, the entire surface of the jobsite sample must be inspected after completion to verify and approve the adequacy of wet and dry slip resistance.

9. Layout Considerations:

Since the size of each Pavecrafters tool will vary depending on the texture and pattern, the layout should be determined in advance for each area to be imprinted. Area dimensions and tool placement should be planned to produce an optimum appearance from the specified pattern.

Areas to be imprinted must be designed so that their dimensions are in multiples of those of the imprinting tools plus approximately $\frac{1}{16}$ inch (2 mm) per tool to allow for movement during imprinting. Since variations occur in straightness, pattern placement should not directly follow walls, but start at the form lines.

Imprinting installations normally follow straight lines, even when the substrate concrete does not, as often happens when imprinting curved walks and drives. When possible, place patterns to avoid looking down long grout or joint lines, making minor straight-line placement errors more noticeable. The best appearance will be obtained if long grout or joint lines are at an angle to the primary line of sight.

Elements that break or interfere with the pattern such as columns, walls, steps, planters, and drains should be considered and their placement or the pattern placement planned so that natural stopping points are formed. When possible, construction joints should be placed so that they are masked in the pattern, usually along pattern grout lines or boundaries.

Predetermined measuring points should be included in the plans or drawings for use in the initial alignment of the pattern and to check alignment accuracy as imprinting proceeds.

10. Equipment and Materials:

When using equipment and materials during preparation and installation, suitable protective gear must be worn and government regulations, manufacturer's instructions, and all applicable safety requirements must be followed.

Depending on the pattern and layout, hand tools such as chisels for hand-placing joint and grout lines or brick-mason jointers for dressing joints may be required. All equipment and materials considered for use should be tested for suitability and appearance as described in section 8. *Jobsite Samples*.

The concrete coloring material for freshly placed concrete should be LITHOCHROME Color Hardener. It allows the production of sharp, clear, wear-resistant textures, and creates durable, dense and easy-to-maintain imprinted surfaces with excellent color intensity. EMERCHROME Floor Hardener is recommended for imprinted concrete when a heavy-duty surface is required in heavy traffic areas. Concrete integrally colored with CHROMIX® Admixtures for Color-Conditioned® Concrete can also be imprinted. When resurfacing and imprinting or texturing existing concrete surfaces, SCOFIELD Texturetop Stamp Grade System colored cementitious toppings should be used. SCOFIELD Texturetop Stamp Grade effectively performs at depths from $\frac{1}{8}$ inch (3 mm) to $\frac{3}{8}$ inch (10 mm), and can be imprinted with LITHOTEX Pavecrafters Professional Grade Imprinting Tools that have a profile depth that is half or less of the application thickness. Additional information is available in Scofield's Tech-Data Bulletins A-104 LITHOCHROME Color Hardener, A-204 EMERCHROME Floor Hardener, A-304 CHROMIX Admixtures for Color-Conditioned Concrete, or C-734 SCOFIELD Texturetop Stamp Grade System. The appropriate Tech-Data Bulletin must be read completely before using.

The bond breaker, LITHOCHROME Antiquing Release, LITHOTEX Liquid Release, or SCOFIELD Liquid Release SG helps prevent the imprinting tools from sticking to the fresh concrete and marring its fragile surface. For an antiqued effect, LITHOCHROME Antiquing Release in a different color than that of the colored surface should be chosen. After the antiquing release is applied, a portion of the colored material becomes embedded in the surface where it is trapped by the hardening concrete. When the surface is subsequently washed and sealed, an attractive, variegated, mottled, and antiqued appearance is obtained with colors ranging from that of the underlying concrete to that of the antiquing release, with mixtures of the two the most likely. If a more monochromatic color effect is desired, a color matching that of the colored surface should be used. When an antiqued appearance is not desired, colorless LITHOTEX Liquid Release or SCOFIELD Liquid Release SG is used to provide easy release of the tool and reduce surface marring. Scofield's Tech-Data Bulletin A-854 LITHOCHROME Antiquing Release, T-604 LITHOTEX Liquid Release, or T-614 SCOFIELD Liquid Release SG must be read completely before using.

11. Preparation:

Prior to placing concrete, representative jobsite samples must be produced as described in section 8. *Jobsite Samples*. Surrounding areas and adjacent surfaces should be protected, work areas roped off and appropriate sections closed to traffic. **For exterior hardscapes**, landscaping should be protected, parked vehicles removed, and doors and windows closed in nearby buildings to prevent colored dust from entering. **For interior floors**, walls should be protected and adjacent areas sealed off to prevent colored dust or construction contaminants from entering other sections of the building.

Weather conditions should be considered when planning installations. Professional practices as described in ACI standards 305R *Hot Weather Concreting* and 306R *Cold Weather Concreting* should be followed. Since the release agent is either a very finely ground powder or a liquid, wind conditions will severely affect their application.



Climatic conditions, experience in imprinted-concrete installation, and other factors will affect the size of the crew required. Smaller pours should be considered to allow adequate time for the imprinting procedure.

Reference points should be established and guidelines placed to serve as reference for pattern placement and to check alignment as installation proceeds. Walls are normally not used for aligning patterns. The pattern normally is started at the form line and is filled in at the wall by hand tooling with Pavecrafters filler tools or texturing tools. For most layouts, the corners of the forms must form exact right angles so that the pattern will not drift out-of-line as imprinting proceeds.

When adequate tools are available, installation becomes easier, faster, and more precise. Since imprinting normally proceeds in rows, a sufficient number of tools should be available to complete one row and begin placement of the next row before removing tools for reuse. Usually enough tools to form a row across the width of the installation plus two extra are supplied. The extras allow for replacements in case a tool is damaged during use.

Before the concrete is ordered, placing a trial layout over compacted, moist sand is recommended to reduce error. The position of each Pavecrafters tool should be marked by guidelines or by grease pencil on the forms for reference during imprinting.

■ 12. Imprinting:

Construction techniques, materials, and timing to produce the desired effect should be determined from the jobsite sample as described in section 8. *Jobsite Samples*. Equipment and materials as described in section 10. *Equipment and Materials* should be available and guidelines should be set. Dust masks, safety goggles, and gloves must be worn during imprinting.

Timing is critical since imprinting must be completed before the concrete hardens. The concrete must be plastic enough so that a sharp imprint can be produced but hardened enough to retain it. As a guide to determining when concrete is at the correct state of hardening, a finger pushed into the surface should leave a slight indentation. If the indentation keeps its shape, it is an indication that the concrete is at the proper stage to be imprinted and imprinting should start and proceed without delay.

If LITHOCHROME Antiquing Release is to be used, clean Pavecrafters tools should be preconditioned prior to use by coating them thoroughly with the antiquing release in the color specified. Excess antiquing release should be removed by shaking the tool gently or lightly brushing with a soft-bristle brush. The Scofield Tech-Data Bulletin A-854 *LITHOCHROME Antiquing Release* must be read completely before using.

If LITHOTEX Liquid Release or SCOFIELD Liquid Release SG is to be used, it should be sprayed in a fine misting spray evenly over the surface of the clean imprinting tool and the concrete surface. The appropriate Scofield Tech-Data Bulletin T-604 *LITHOTEX Liquid Release* or T-614 *SCOFIELD Liquid Release SG* must be read completely before using.

Imprinting installation is normally done in rows across the width of the area to be imprinted. Immediately prior to placing LITHOTEX Pavecrafters Professional Grade Imprinting Tools or border tools, a layer of LITHOCHROME Antiquing Release, LITHOTEX Liquid Release, or SCOFIELD Liquid Release SG should be applied over the section of color-hardened surface that will be covered by the first row of tools.

To prevent adhesion during imprinting, a complete and adequate layer of antiquing release or liquid release should exist between the concrete and the Pavecrafters tool. When using LITHOCHROME Antiquing Release sufficient material should be applied so that the sheen disappears from the surface of the concrete, but since texture detail may be diminished, the application of an excessive amount should be avoided.

When using LITHOTEX Pavecrafters Professional Grade Imprinting Tools or border tools, predetermined guidelines and reference marks on the forms must be followed. The first row of LITHOTEX Pavecrafters Professional Grade Imprinting Tools or border tools should be carefully positioned over the antiquing release or liquid release. Each successive Professional Grade Imprinting Tool or border tool should be placed tightly against the preceding tool, matching the alignment marks on the top of the tool and maintaining a straight pattern. After the first row is positioned, the concrete should be imprinted by applying pressure to the top of the tool. When the concrete is at optimum hardening for imprinting, a moderate amount of force is needed to form the imprint. Initially, stepping from one tool to the other should be sufficient to set the tools to the desired depth.

LITHOCHROME Antiquing Release, LITHOTEX Liquid Release, or SCOFIELD Liquid Release SG should be applied along the length of the next row. The first tool in the row should be set before lifting a tool in the preceding row. Tools should be lifted in the same order as they were placed, aligning them in the following row with the two previously placed, adjacent tools. Preplaced guidelines and alignment marks on the top of the Pavecrafters tools should be used to maintain straight pattern rows. Imprinting should continue in the same manner for following rows. As the concrete hardens, greater force will be needed to achieve a uniform impression depth and tampers may be required.

Pavecrafters floppy and filler tools should be used to finish rows and fill in sections of the design where it is not convenient or possible to use rigid or border tools.

Regardless of which LITHOTEX Pavecrafters tools are used, the surface should be periodically inspected for damaged areas or areas where the imprinting depth requires correcting. Border tools or LITHOTEX Pavecrafters Professional Grade Imprinting Tools may be carefully replaced and the impression deepened by tamping, or floppy and filler tools may be used. Areas where the texture is torn or damaged should be repaired by use of Pavecrafters texturing tools. Hand chisels should be used, where needed, to deepen or create joint lines.

To prevent marring the texture of the pattern, tools should be periodically inspected and hardened concrete residue removed as described in section 13. *Tool Maintenance*.

■ 13. Tool Maintenance:

LITHOCHROME Antiquing Release, LITHOTEX Liquid Release, or SCOFIELD Liquid Release SG will not harm LITHOTEX Pavecrafters Professional Grade Imprinting Tools. LITHOCHROME Antiquing Release residue may be allowed to remain on the surface after excess material is removed by shaking or brushing with a soft-bristle brush. LITHOTEX Liquid Release or SCOFIELD Liquid Release SG will evaporate completely off the surface of the tools.

Prior to storage or when required to prevent color contamination, Pavecrafters tools should be cleaned of concrete residue, antiquing release residue if the product was used, and other foreign matter by scrubbing with a medium-stiff, nylon-bristle brush, warm water, and a suitable, high-quality liquid detergent. After rinsing, tools should be allowed to dry completely before storing as described in section 7. *Storage and Work Life*.

■ 14. Availability:

LITHOTEX Pavecrafters Professional Grade Imprinting Tools are marketed directly to the user from Scofield's Atlanta and Los Angeles warehouses as well as selected distributors nationwide. Not all textures and patterns are stocked. Contact Scofield's Customer Service Department for availability on patterns not in stock or to inquire about custom tools.



Scofield offers a complete line of engineered systems for coloring, texturing, and improving performance in architectural concrete. Scofield Systems address specialized requirements for interior, exterior and vertical uses with compatible systems of complementary products including coloring admixtures, color hardeners, colored cementitious toppings, stains, curing compounds, sealers, coatings, repair products and texturing tools. Visit the Scofield website at www.scofield.com for further information.

■ **15. Warranty Statement:**

Since no control is exercised over product use, L. M. Scofield Company (Scofield) represents and warrants only that its products are of consistent quality within manufacturing tolerances. NO OTHER ORAL OR WRITTEN REPRESENTATION OR STATEMENT OF ANY KIND, EXPRESS OR IMPLIED, NOW OR HEREAFTER MADE IS AUTHORIZED OR WARRANTED BY SCOFIELD, INCLUDING THOSE OF MERCHANTABILITY OR

FITNESS FOR A PARTICULAR PURPOSE. Liability for breach of contract, negligence, or on any other legal basis is limited to the lesser of refund or replacement of defective materials. SCOFIELD WILL NOT BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING FOR DELAYS OR LOST PROFITS. Communication of this warranty and its limitations to end users is not the responsibility of Scofield, but should be communicated by those in direct contract with the end user. Any claim regarding product defect must be received in writing within one year from the date of manufacture. No claim will be considered without such written notice or after the specified time interval. The end user shall determine the suitability of the products for the intended use and assumes all risks and liability in connection therewith.

Solvent-based liquid release agents other than those produced by Scofield may cause LITHOTEX Pavecrafters Professional Grade Imprinting Tools to deteriorate over time and their use will void the warranty.



1 800 800 9900 or www.scofield.com

SCOFIELD PRODUCTS ARE INTENDED FOR PROFESSIONAL USE ONLY

■ **L. M. Scofield Company customer service: 1 800 800 9900**

Western Headquarters: 6533 Bandini Blvd., Los Angeles, CA 90040 **voice:** 323 720 3000 **fax:** 323 720 3030

Eastern Headquarters: 4155 Scofield Road, Douglasville, GA 30134 **voice:** 770 920 6000 **fax:** 770 920 6060

www.scofield.com