

A

abrasion resistance - How well a concrete surface or decorative coating resists being worn away by friction or rubbing.

abrasive blasting - Propelling an abrasive medium (such as sand or steel shot) at high velocity against concrete to roughen, clean, or profile the surface in preparation for decorative coatings or overlays. Methods include **sandblasting, shotblasting, bead blasting, and sand brushing.**

accelerator - An admixture used to shorten the set time of concrete and/or speed strength development. Accelerators are also used to speed the chemical reaction and shorten the curing time of resin-based coatings.

acetone - Common solvent. Often used as a carrier for solvent based sealers. Considered an exempt solvent from VOC regulations.

acid etching - Application of muriatic or phosphoric acid to clean or **profile** a concrete surface. Used as an alternative to **abrasive blasting** for **surface preparation.** (Also see **neutralize.**)

acid stain - (or chemical stain) A stain containing inorganic salts dissolved in an acidic, water-based solution that reacts chemically with the minerals in hardened concrete to produce permanent, transparent color that will not peel or flake. Gives concrete an attractive variegated or **marbleized** appearance. Colors tend to be earth tones, such as tans, browns, reddish browns, and greens. (Also see **polymer stain.**)

adhesive stencils - Adhesive-backed masking patterns made of vinyl or plastic used for creating **stenciled concrete** effects. The adhesive keeps the patterns firmly in place on the concrete surface while the decorative treatment of choice is applied, such as **acid stains, dyes, spray-down systems, etching gels, or sandblasting.** (Also see **sandblast stenciling.**)



Glossary of Terms- Concrete Decorative

admixture - An ingredient in concrete other than water, **portland cement**, and **aggregate** used to modify the properties of concrete in its freshly mixed, **setting**, or hardened states. May be added to concrete at the batch plant or on the job site. **Prepackaged admixtures** are available for convenient job site addition, giving contractors the ability to modify the concrete they receive when necessary, such as extending the amount of time available for decorative stamping.

aggregate - A granular material such as sand, rock, crushed stone, gravel, or other particles added to concrete to improve its structural performance. (Also see **decorative aggregate**.)

air content - The amount of entrained or entrapped air in concrete, usually expressed as a percentage of total volume.

air entrainment - Adding an air-entraining **admixture** to fresh concrete to cause the development of microscopic air bubbles. Helps to improve the freeze-thaw resistance and durability of hardened concrete.

alligating - Surface imperfections in a coating resulting in a wrinkled appearance. Usually caused by incompatibility of a newly applied coating with an existing surface coating or **sealer**. Also known as orange peel or fish eyeing.

antiquing - A **color layering** technique for giving **decorative concrete** surfaces an aged or mottled appearance.

B

bleed through - Color change caused by the diffusion of color from an underlying surface.

bleed water (bleeding) - Water that rises to the surface of freshly placed concrete due to **segregation**. Bleeding may interfere with **finishing** operations. If a **dry-shake color**



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hardener is being applied to the concrete surface, some bleed water is needed to wet out the hardener sufficiently so it can be floated into the surface.

blistering - The formation of blisters in toppings or coatings and the loss of adhesion with the underlying substrate. On concrete surfaces, this is often caused by moisture or **moisture vapor transmission** problems.

bond - The degree of adhesion or grip of a material (such as coatings, toppings, repair mortars, or **sealers**) to an existing surface.

bonding agent - An adhesive agent used to increase the adherence of coatings or toppings to the existing surface. Also used to bond new concrete to old. Also known as a primer.

bond breaker - A material that prevents adhesion of materials to a concrete substrate.

broadcast - To hand toss a **dry-shake color hardener**, **decorative aggregate**, or other dry material in a uniform layer over fresh concrete, **overlays**, or coatings to add color or traction. (Also see **seeding**.)

broom finish - Surface texture obtained by pushing a broom over freshly placed concrete.

build - The wet or dry thickness of a coating or topping. (Also see **high-build coating**)

bull float - A tool with a 3- to 4-foot rectangular blade made of wood, resin, aluminum, or magnesium. Used to eliminate high and low spots in freshly placed concrete slabs, embed large **aggregate** at the surface, bring a layer of paste to the surface needed during final **finishing**, and float in **dry-shake color hardener**. Long handles either clip on or screw into the float head so it can be pushed out onto the slab while the user stands at the perimeter. (Also see **hand float**.)

bush hammer - A percussive hammer with rows of pyramid-shaped points used to roughen or **profile** a concrete surface.

C

calcium chloride vapor-emission test - An [ASTM test](#) used to measure the volume of moisture vapor released from a concrete substrate over time (typically 24 hours). Too much moisture emitted from a slab can affect the performance and bonding of overlays, coatings, and sealers. [Moisture vapor test kits](#) are available that include small containers of preweighed, unhydrated calcium chloride.

cast in place - Concrete placed and finished in its final location.

cement replacement - (or **supplementary cementitious material**) A material used in concrete as a partial replacement for **portland cement**. Includes **pozzolans**, **fly ash**, and **granulated blast furnace slag**. Can have positive effects on **decorative concrete** by improving finishability, reducing **permeability**, and reducing **efflorescence**.

cementitious - A material containing **portland cement** as one of its components or having cement-like properties.

chalking - Loose, powdery substance caused by deterioration of a concrete surface or degradation of a coating or overlay.

coating system - A complete system requiring a number of coats of material to be applied separately in a predetermined order and at prescribed intervals to allow for sufficient drying and curing. May include a **primer**, one or more intermediate coats, and a topcoat.

compressive strength - The maximum compressive stress concrete or **cementitious** overlay materials are capable of sustaining, expressed as pounds per square inch (psi).



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color chips - Plastic chips, available in various colors and sizes, for **broadcasting** onto freshly placed **epoxy resin** flooring systems, such as **epoxy terrazzo**, to produce multicolored effects.

color layering - Applying layers of color to achieve variegated or faux finish effects, such as **antiquing** or **marbleizing**. For example, a **dry-shake color hardener** may serve as the base color, accented by a pigmented powdered or liquid **release agent**, followed by additional accenting with **acid stains**, **dyes**, or **tints**.

concrete countertops - A handcrafted alternative to manufactured countertop surfaces. Can be precast in a shop in molds built to the customers specifications or cast onsite, by setting a mold on top of the base kitchen cabinets and then filling with concrete. The use of stains, pigments, **decorative aggregates**, and epoxy coatings can give concrete countertops the look, texture, and feel of quarried stone such as marble, granite, and limestone.

concrete surface profile (CSP) - The degree of roughness of a concrete surface achievable with various **surface preparation** methods. The [International Concrete Repair Institute](#) has identified nine distinct roughness profiles considered to be suitable for the application of **sealers**, coatings, and **polymer-modified overlays**.

consistency - The ability of fresh concrete to flow. The usual measure of consistency is **slump**.

control (or contraction) joint - Sawed or tooled groove in a concrete slab used to regulate the location of cracking.

coverage rate - The area that a specified volume of coating will cover to a specified thickness upon drying.

crack chasing - Routing out cracks in concrete with a saw or angle grinder before filling with a repair material.

crack stitching - A method of repairing cracks that involves drilling holes on both sides of the crack and grouting in wire or U-shaped metal strips that span the crack.

cracks, moving - Cracks in concrete that are still moving, or active. Often they are structural in nature and continue through the entire depth of the concrete.

cracks, static - Random, non-moving hairline cracks that only affect the concrete surface (also see **craze cracks** and **plastic shrinkage cracks**).

craze cracks - A series of fine, random cracks caused by shrinkage of the surface mortar.

crusting - A condition that occurs when the surface of freshly placed concrete dries too quickly, often due to exposure to direct sun, wind, or high temperatures.

curing - Action taken to maintain favorable moisture and temperature conditions of freshly placed concrete or **cementitious** materials during a defined period of time following placement. Helps to ensure adequate **hydration** and proper hardening.

curing compound - A liquid that, when applied to the surface of newly placed concrete, forms a membrane on the concrete or penetrates the concrete to retard the evaporation of water.

D

darby - A longer version of a **hand float**, ranging in length from 2 to 4 feet. Useful for leveling problem areas.

decorative aggregate - Richly colored natural stones, such as basalts, granite, quartz, or limestone, used to enhance **exposed-aggregate concrete** or decorative toppings.



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decorative concrete - Concrete that has been enhanced by color, pattern, texture, or a combination of ornamental treatments.

degreaser - A chemical solution for removing grease, oils, and other contaminants from concrete surfaces.

delamination - A separation of a coating or topping from a substrate or the layers of a coating from each other due to poor adhesion. Or in the case of a concrete slab, a horizontal splitting or separation of the upper surface.

densifier - A penetrating liquid chemical hardener applied to concrete to help solidify and densify the surface and provide extra protection from water penetration and staining. Often recommended for **polished concrete**, because hard concrete produces a better polish.

diamond grinding - A multistep grinding procedure for producing **polished concrete** surfaces. Contractors use a **floor polisher** equipped with diamond-segmented abrasives, progressing from coarser to finer grits until the desired level of sheen is achieved. (Also see **dry polishing, wet polishing.**)

dry polishing - The method most commonly used for **polished concrete**. The **floor polisher** is hooked up to a dust-containment system that vacuums up the dust from **diamond grinding** of the surface. (Also see **wet polishing.**)

dry-shake color hardener - A mixture of coloring pigments, cement, aggregates, and surface conditioning agents. Applied as a dry shake to **stamped concrete** or **stamped overlays** to produce a colorful, wear-resistant surface.

drying shrinkage - A decrease in the volume of concrete as it dries, due to loss of moisture. See also plastic shrinkage cracks

dyes - Translucent color solutions containing very fine pigments that penetrate into the concrete surface. Will not chemically react with concrete (like acid stains will). Both water-and solvent-based dyes are available, with colors ranging from soft pastels to bolder hues such as red, blue, and orange.

E

edger - A tool used on the edges of fresh concrete to provide a clean, finished edge.

engraving - The use of special tools and equipment to cut or route out patterns and designs in hardened concrete. Usually the concrete is stained first to give it color, so the routed areas look like grout lines.

efflorescence - A crystalline deposit of salts (usually white in color) that forms on the concrete surface when soluble calcium hydroxides leach from the concrete and combine with carbon dioxide in the atmosphere. On colored concrete, especially darker tones, these white deposits can be particularly unsightly.

epoxy injection - A method for sealing or repairing cracks in concrete by low-pressure injection of an epoxy adhesive.

epoxy resins - Organic chemical bonding systems used in the preparation of protective and decorative coatings for concrete, adhesives for injection of cracked concrete, or as binders in epoxy mortars.

epoxy terrazzo - A poured-in-place topping for concrete substrates that goes on at a thickness of 1/4 to 3/8 inch. The epoxy resin matrix can be pigmented to achieve an unlimited spectrum of colors and is often seeded while still wet with decorative aggregates or color chips.

etching gel - A gentle etching medium often used with adhesive stencils to lightly etch designs in concrete surfaces. The material is thick enough to be applied by brush, permitting controlled application.

evaporation retarder - A waterborne, spray-applied film that temporarily reduces moisture loss when applied to the surface of freshly placed concrete.

expanded metal lathe - A sturdy but flexible diamond mesh often used as a framework or support system for concrete sculptures, **faux rock**, and **vertical stamped concrete**.

exposed aggregate - A decorative surface formed by removing the surface mortar from a concrete slab (either by scrubbing, pressure washing, or **abrasive blasting**) to expose the underlying aggregates. (Also see **surface retarder**.)

F

faux rock - An artificial rock formation sculpted or molded from concrete and then textured and colored to replicate the look and feel of natural rock. Popular applications include waterscapes, zoo exhibits, landscaping, and theme parks. (Also see **glass-fiber reinforced concrete**.)

feather edge - To smoothly, seamlessly blend the edge of a topping or repair material into the existing concrete.

fibers - Tiny filaments made of polypropylene, polyolefin, nylon, polyethylene, polyester, or acrylic used alone or in conjunction with rebar or welded wire mesh to reinforce concrete.

finishing - Leveling, smoothing, compacting, and otherwise treating the surface of newly placed concrete or concrete **overlays** to produce the desired appearance and service properties.



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film-forming sealer - A type of **sealer** that blocks the penetration of water and contaminants by forming a barrier on the concrete surface. May also impart a gloss or sheen, which enhances colored or **exposed aggregate** concrete. See also **membrane**.

film thickness - The depth of the film when wet (wet film thickness) and the final depth when dry (dry film thickness).

flashing (or flash broadcasting) - A technique for applying accent colors of **dry-shake hardener** to concrete surfaces before stamping. Results in subtle, natural-looking color variations.

flexural strength - The ability of hardened concrete or an **overlay** to resist failure in bending.

float finish - Surface texture (usually rough) obtained by **finishing** with a **bull float** or **hand float**.

floor polisher - A walk-behind machine used in the production of **polished concrete**. Most machines are equipped with a planetary drive system a large primary polishing head (from 17 to 36 inches in diameter) fitted with three or four smaller satellite heads that hold the diamond abrasives. When the machine is operating, the satellite heads rotate in the opposite direction of the primary head to eliminate linear grinding marks in the floor. (Also see **diamond grinding, dry polishing, wet polishing**).

fly ash - A byproduct resulting from the combustion of ground or powdered coal; sometimes used as a **cement replacement** in concrete.

form liner - Material used to line the interior face of formwork in order to impart a smooth or patterned architectural finish.

fresno - A large **trowel**(about 2 to 4 feet in length) used for final **finishing** after bull floating. Long handles (like those used for **bull floats**) either clip on or screw into the blade.

G

gauge rake - A tool with an adjustable depth gauge designed for application of **high-build coatings** or **cementitious** toppings at a preset, uniform thickness.

glass-fiber reinforced concrete (GFRC) - A **portland cement** - based composite containing glass fibers for reinforcement. Substantially lower in weight than plain concrete, with higher **flexural** and **compressive strengths**. Often used in the production of **faux rock** formations and **concrete countertops**.

granulated blast furnace slag - A glassy, granular material formed when molten blast furnace slag is rapidly chilled. Ground granulated slags are sometimes used in concrete mixtures as a **cement replacement** to help reduce **permeability** and improve durability. May also slow **setting** and extend the **working time** of the concrete.

grinding - A mechanical surface preparation method using rotating abrasive stones or discs to remove thin coatings and mastics or slight flaws and protrusions.

groover - A tool with a V-shaped bit used to create **control joints** in **plastic** concrete.

grout - A mixture of **cementitious** materials and water, with or without **aggregate**, proportioned to produce a creamy consistency. Can be purchased preblended in a multitude of colors to define **joints** and sawcuts in **decorative concrete** slabs or walls, especially those with stone, brick, or tile patterns.

H

hand float - A smaller handheld version of the **bull float**, ranging in length from 12 to 18 inches. Especially useful for floating along the perimeter of forms or to work in tight spots.

hard-troweled finish - Surface finish obtained by using a **trowel** with a steel blade for final **finishing** of concrete. Often used where a smooth, hard, flat surface is desired.

high-build coating - A protective or decorative coating that produces a thick film (usually greater than 10 mils) in a single coat.

high-pressure water blasting - A process for cleaning or roughening concrete surfaces using a stream of water delivered at high pressure.

high-volume low-pressure (HVLP) sprayer - A spraying device that applies high-solids paints and coatings at low pressure and low velocity, to reduce overspray.

hopper gun - A gravity-fed system for spray application of **coatings** or **toppings**. The material is placed in a hopper attached to a spray gun, which is powered by an air compressor. Often used to apply **spray-down systems**.

Hover Trowel - A patented lightweight power trowel developed specifically for precision finishing of epoxy, **polymer modified**, and **cementitious** overlay systems.

hydration - The chemical reaction between cement and water that causes concrete or other cement-based materials to harden.

I

integral color - A coloring agent premixed into fresh concrete or **cementitious** toppings before placement.

iron oxide - An inorganic pigment often used to color decorative coatings and toppings.

J

joint (control, expansion, or isolation) - Formed, sawed, or tooled groove in a concrete slab used to regulate the location of cracking (**control joint**) or to allow expansion or movement of adjoining structures. In decorative concrete, joints can also double as delineating design elements in a pattern.

joint filler - A compressible material used to fill a **joint** to prevent the infiltration of debris.

K

kerf - A cut in a concrete surface made by a saw or router. (Also see **sawcutting**.)

kneeboards - Boards used by concrete finishers to kneel on when hand floating or troweling concrete flatwork. (Also see **spiked kneeboards**.)

knock-down finish - Achieved by applying a decorative topping with a **hopper gun** and then using a **trowel** to knock-down the material to produce a smooth or lightly textured surface.

L

laitance - A thin layer of fine, loosely bonded particles on the surface of fresh concrete, caused by the upward movement of water. Laitance must be removed before application of a decorative coating or topping.

M

marbleize - To give concrete surfaces the look and gloss of marble, through a combination of **color layering** and **finishing** techniques.

margin trowel (also pointer or pointed masons trowel) - A steel trowel with a small, rectangular flat blade about 5 to 8 inches in length and a short handle. It has multiple uses, including scraping off concrete from finishing tools and applying patching materials.

masking - Covering select areas of a concrete surface with an **adhesive stencil**, tape, or other medium before applying a decorative treatment that will affect only the exposed areas.

material safety data sheet (MSDS) - Information sheets containing pertinent chemical ingredients, product handling and safety guidelines.

membrane - Formed over a concrete surface to provide protection and enhance color. Typically clear plastic like acrylic, polyurethane or epoxy.

microtopping - An ultra-thin polymer-based decorative **topping**, generally less than 1/4-inch total thickness. Typically applied by **trowel** or squeegee, and given a texture or smooth finish. **Pigments** can be incorporated into the mix or **broadcast** onto the surface for a **marbleized** appearance. (Also see **skim coat**.)

mil - A measurement equal to 1/1,000 (0.001) inch. Commonly used to denote coating thickness.

mix design - Specific proportions of ingredients (cement, aggregates, water, and admixtures) used to produce concrete suited for a particular set of job conditions.

mixing station - A designated work area outfitted with all the equipment and supplies needed to mix materials properly and efficiently.

mockup - An architectural concrete sample made using the same materials and methods proposed for an actual project. Often required for quality assurance on large projects, to ensure that architectural requirements and industry tolerances are met. The size should be sufficient to adequately demonstrate all decorative treatments.

moisture vapor transmission - The migration of moisture vapor to the surface of a concrete slab, caused by vapor pressure differentials in the concrete and the surrounding atmosphere. Can contribute to the failure of impermeable coatings or other floor toppings that do not permit moisture to escape. (Also see **calcium chloride vapor-emission test**.)

N

neutralize - To return concrete to the proper pH after **acid etching**, generally by washing the surface with a mixture of water and ammonia or sodium carbonate. Ideal pH is 7.0 (neutral), but a pH range of 6.0-9.0 is acceptable for most coatings. [ASTM D 4262, "Standard Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces,"](#) covers the procedure for determining the acidity or alkalinity of concrete surfaces prepared by chemical cleaning or etching prior to coating application. **See pH test.**

notched-squeegee - A rubber squeegee with notches or serrations on one or both edges. Used for smooth and consistent spreading of **epoxy resin** products or other low-**viscosity** coatings.

O

opacity - The ability of a coating to hide the color of the underlying surface. See **translucent**.

overlay - A bonded layer of material, ranging from 1/4 to 1 inch or more in thickness, placed on existing concrete surfaces to beautify, level, or restore. (Also see **polymer-modified overlay, self-leveling overlay**.)

P

patterned concrete - [See stamped concrete](#)

penetrating sealer - A **sealer** with the ability to penetrate into the concrete surface to increase water repellency and resist stains. Often used on **decorative concrete** to provide invisible protection without changing the surface appearance.

permeability - The degree to which a **membrane** or coating will allow the passage or penetration of a liquid or gas.

pH Test - A test performed on the concrete surface to determine the level of acidity or alkalinity. Typically performed prior to applying sealers or coatings.

pigment - A finely ground natural or synthetic particle adding color and **opacity** to a coating or topping.

pin holing - A defect in a coating characterized by pinhead-sized holes that expose the underlying substrate.

plastic - A condition of freshly mixed concrete indicating that it is workable and readily moldable.

plastic shrinkage cracks - Irregular cracks that occur in the surface of fresh concrete soon after it is placed and while it is still **plastic**.

plasticity - Property of freshly mixed concrete, cement paste, or mortar which determines its ease of molding or resistance to deformation.

platform tools - Rigid stamps made of plastic or metal that leave deep grooves in freshly **stamped concrete**, which can later be grouted or left open.

polished concrete - A high-gloss finish attained by using special **floor polishers** fitted with diamond-impregnated abrasive disks (similar to sandpaper) to grind down surfaces to the desired degree of shine and smoothness. The resulting surface is very low-maintenance and can be stained to replicate the look of polished stone. (Also see **dry polishing, wet polishing, diamond grinding**.)

polyaspartic - An aliphatic polyurea coating that is very fast-curing and that can be applied to concrete over a wide range of temperatures. Seamless polyaspartic floors are typically applied in two or three coats with embedded vinyl or quartz chips to form a highly stain- and abrasion-resistant coating.

polymer-modified overlay - A cement-based overlay with polymer resins added to improve performance, wear resistance, and aesthetic qualities. Overlay manufacturers use different types of polymer resins, often blending them to produce proprietary products with unique characteristics. Many of today's decorative overlays use acrylics or vinyl blends because these resins provide excellent bond strength and UV resistance.

polymer stain - An acrylic-urethane based stain available in a broader palette of colors than **acid stains**. Very low in **volatile organic compounds**, with **workability** characteristics similar to latex paint. Can be applied to concrete surfaces by brush, roller, sponge, cloth, or commercial sprayer.

popout - A pit or crater in the concrete surface, ranging in size from 1/4 inch to several inches in diameter, that results from the fracturing of unsound **aggregate** particles due to expansion pressure. Usually caused by porous aggregate having a high rate of absorption.

pot life - The length of time a material is useful after its original package is opened or a catalyst is added.

profile - The act of preparing a concrete surface to achieve the necessary degree of roughness (also see **concrete surface profile**).

portland cement - A hydraulic product that sets and hardens when it chemically interacts with water. Made by burning a mixture of limestone and clay or similar materials. (Also see **white cement**.)

pozzolan - A siliceous and aluminous material that, in the presence of moisture, chemically reacts with calcium hydroxide to form compounds possessing **cementitious** properties. (Also see **cement replacement**).

primer - The first coat of material applied to a concrete surface to improve bonding or adherence of subsequent coats. See also bond coat.

pump-up sprayer - An airless sprayer often used to apply **sealers** and liquid **release agents**.

R

raveling - The dislodging of **aggregate** at the edges of **joints** or scored patterns in concrete, generally caused by **sawcutting** joints too soon after concrete placement.

ready-mixed concrete - Concrete that's batched or mixed at a central plant before delivery to the job site for placement.

rebar (or reinforcing bars) - Ribbed steel bars installed in cast-in-place concrete to provide **flexural strength**. Rebar come in various diameters and strength grades.

reentrant corner - An angle in a concrete slab that points inward. Often vulnerable to cracking, unless a **control joint** is installed.

reflection cracking - The occurrence of cracks in overlays and toppings that coincide with the location of existing cracks in the substrate.

reinforced concrete - Concrete construction that has steel **rebar** or **welded wire mesh** embedded in it to provide greater tolerance to tension and flexural stress.

release agent - A powder or liquid parting agent applied to **stamping mats** or **texturing skins** before stamping to keep the mats from sticking to fresh **overlay** or concrete surfaces.

rustication strip - A strip made of wood, polystyrene, or plastic that's fastened to forms or **form liners** to impart architectural details to wall surfaces.

S

sacrificial coating - A final floor finish or wax designed to protect the **sealer** or topcoat from wear. Usually applied by mop or floor buffer in several coats to act as a shock absorber to scuffs, scratches, and grime.

salt finish - A textured, decorative finish obtained by **broadcasting** rock salt onto fresh concrete and then using a roller or **float** to press the salt particles into the surface. After the concrete sets, the salt is washed away to reveal a speckled pattern of shallow indentations.

sample (or sample board) - A small (generally 2x2-foot) representation of a **decorative concrete** installation, used as a selling tool or to experiment with various decorative treatments and techniques for applying materials.

sandblast stenciling - A technique for patterning existing concrete surfaces by applying resilient **adhesive stencils** followed by **sandblasting** to lightly remove concrete in only the exposed areas. (Also see **stenciled concrete**.)

sandblasting - A method of abrading or **profiling** a surface with a stream of sand ejected from a nozzle at high speed by compressed air. (Also see **abrasive blasting**.)

saturated surface dry (SSD) - Condition of concrete when the permeable voids are filled with water but no water is on the exposed surface.

sawcutting - Using a concrete saw with abrasive blades or disks to cut **joints** or score patterns into hardened concrete.

scaling - The flaking or breaking away of a hardened concrete surface, often due to exposure to freezing and thawing.

scarifier - Milling equipment used to clean and **profile** concrete surfaces or to remove existing coatings. Uses rotary impact cutters held at a right angle to the surface.

sealer - Solvent- or liquid-based material used to protect and enhance the appearance of decorative concrete. (Also see **film-forming sealer** and **penetrating sealer**.)

seeding - Broadcasting **decorative aggregates** on the surface of freshly placed concrete or toppings.

segregation - The separation of the components of wet concrete caused by excessive handling or vibration.

self-leveling overlay - A flowable, polymer-modified cementitious topping with the ability to self level without troweling. Used to smooth and level existing concrete surfaces. Can also be enhanced by staining, dying, or **saw cutting**.

set - The condition reached by concrete when **plasticity** is lost, usually measured in terms of resistance to penetration or deformation. Initial set refers to concrete that has reached first stiffening. Final set occurs when concrete attains full rigidity.

setting - The chemical reaction that occurs after the addition of water to a **cementitious** mixture, resulting in a gradual development of rigidity.

scratch coat - A base coat used to improve the rigidity and/or bonding of subsequent topcoats. A scratch coat is often required for **vertical stamped concrete**.

screed box - A walk-behind applicator, similar in appearance to a lawn fertilizer spreader, designed to put down epoxy coating systems at a specific depth.

shotblasting - An **abrasive blasting** method using round iron shot to clean and **profile** concrete surfaces.

skim coat - An overlay layer applied very thinly with a squeegee or trowel. (Also see **micro topping**.)

Solvent - Liquid typically used as a carrier for sealers and curing compounds.

spalling - A breaking away of concrete at **joints** in floors or slabs. Typically occurs at joints that are installed improperly or don't adequately support the loads applied to them. (Also see **raveling**.)

spray-down system - A decorative **overlay** applied as a **splatter coat** or a **knock-down finish** to a thickness of about 1/8 inch. Often used in conjunction with paper or **adhesive stencils**. Available precolored or can be integrally colored during mixing.

slump - A measure of consistency of freshly mixed concrete, as determined by the distance the concrete slumps after a molded specimen is removed from an inverted funnel-shaped cone.

spiked kneeboards - **Kneeboards** with spikes on the bottom that elevate finishers off floor surfaces to permit easier finishing of toppings and overlays.

spiked roller - A cylindrical tool similar in appearance to a paint roller, but with rows of polypropylene spikes. Used to roll across the surface of freshly applied epoxy coatings to release trapped gas bubbles and to assist in leveling.

splatter coat - A coating or topping applied by splattering it onto the surface, typically by dipping a brush into the material and then flicking it.

stamped concrete - Concrete flatwork that is patterned with **platform tools**, **stamping mats**, or seamless **texturing skins** to resemble materials such as brick, slate, stone, tile, and wood planking. (Also see **vertical stamped concrete**.)

stamped overlay - Similar to conventional **stamped concrete**, but can be applied to existing concrete. A cementitious topping is applied at a thickness of 1/4 to 3/4 inch and then stamped to mimic brick, slate, and natural stone. Color options include **dry-shake color hardeners**, colored liquid or powdered **release agents**, **acid stains**, **dyes**, and tinted **sealers**.

stamping mats - Rigid or semi-flexible polyurethane tools for imprinting stone, slate, brick, and other patterns in **stamped concrete** surfaces. Stamping mats usually imprint a shallower pattern than **platform tools**.

static cracks - Random, non-moving hairline cracks that only affect the concrete surface (also see **craze cracks** and **plastic shrinkage cracks**).

stenciled concrete - A decorative surface treatment using heavy-duty paper stencils with stone, tile, or brick patterns that are lightly pressed into fresh concrete, followed by the application of **dry-shake color hardeners**. When the stencils are removed, the uncolored concrete mimics mortar joints. Another technique, for use on existing concrete, is to apply **adhesive stencils** and then color, etch, or sandblast the surface. (Also see **sandblast stenciling**.)

straightedge - A rigid, straight piece of wood or metal used to **strike off** a concrete surface to proper grade before the floating operation.

strike off - To level off freshly placed concrete to the correct elevation.

substrate - An existing concrete surface that receives an **overlay**, decorative or protective coating, repair procedure, or other resurfacing treatment.

surface preparation - Preparing concrete surfaces prior to resurfacing or application of a decorative coating to remove contaminants and minor defects or to obtain the necessary degree of roughness for adequate bonding. (Also see **abrasive blasting**, **acid etching**, and **grinding**.)

surface retarder - A chemical applied to the surface of newly placed concrete to delay setting of the cement paste so it can be removed easily later by scrubbing or power washing to produce an **exposed aggregate** finish.

T

tack - The stickiness or adhesiveness of a material.

tamper (or pounder) - A handheld impact tool used to firmly press **stamping mats** or **texturing skins** into fresh concrete to ensure a complete imprint.

technical data sheet - Contains important specifications and manufacturer guidelines for product usage. Includes such data as **coverage rates**, recommended applications, product limitations, **surface preparation** guidelines, mix ratios and required mixing times, **pot life**, application procedures, cure times, performance data, and precautions.

texture roller - A cylindrical tool similar in appearance to a paint roller used to impart a stonelike texture to **stenciled concrete**. It is rolled over the stencil and the fresh concrete to texture only the exposed surfaces.

texturing - Giving concrete or **overlay** surfaces a texture without leaving deep pattern lines.

texturing skins - Flexible skins for adding seamless textures to concrete surfaces. Generally thinner and more pliable than **stamping mats**. Often used to texture slab perimeters and vertical faces, such as stair risers. Can also be used to fix blemishes from nonuniform stamping.

tint - A diluted color wash used to add hints of color to decorative concrete.

trowel - A flat, broad-bladed steel hand tool used to compact the paste layer at the surface and provide a smooth, flat finish. Also useful for applying topping or repair materials. Available in different shapes (with rounded or square edges) and lengths (ranging from 8 to 24 inches). Smaller trowels are useful for borders, work in restricted areas, or to work in **flashing** accents of **dry-shake color hardener**. (Also see **margin trowel, fresno**).

trowel finish - The smooth or lightly textured surface finish obtained by troweling.

Translucent - A type of finish where the coating has some level of transparency.

V

vapor barrier - A moisture-impervious material, such as plastic sheeting, placed on the subbase under a concrete slab to help prevent **moisture vapor transmission**.

vertical stamped concrete - A decorative finish for walls and other vertical surfaces using a lightweight **cementitious** overlay formulated to be applied at thicknesses of up to 3 inches without sagging. While the **overlay** is still **plastic**, it can be stamped or hand carved to produce deep-relief stone or masonry wall textures. After the material dries, **acid stains** or **dyes** can be sprayed or sponged onto the surface to give it the multi-toned look of natural stone.

viscosity - A measure of the fluidity of a liquid material. The more viscosity a material such as a **sealer** or coating has, the less it flows.

volatile organic compounds (VOCs) - Organic chemicals that readily vaporize at normal room temperatures. Concrete coatings, **sealers**, or cleaning materials that are solvent-based generally have higher VOC contents than water-based materials. Some VOCs can be hazardous when inhaled.

W

water-cement ratio - The ratio of the amount of water to the amount of cement in a concrete mixture. The key to producing high-quality decorative concrete is to keep the water-cement ratio as low as possible without sacrificing workability.

water plug - A hydraulic cement used to fill cracks and to prevent the migration of moisture.

water reducer - An **admixture** that either increases the **slump** of freshly mixed concrete without increasing water content or maintains **workability** with a reduced amount of water without affecting the strength.

welded wire mesh - A woven mesh of wire strands, welded at each intersection, used to reinforce concrete slabs. Also called welded wire fabric.

wet polishing - A method for **polished concrete** that uses water to cool the diamond abrasives and eliminate grinding dust. Not as commonly used as **dry polishing**, because the process creates a tremendous amount of slurry (a soupy mixture of water and cement dust) that must be collected and disposed of.

white cement - A **portland cement** with a low iron content that **hydrates** to a white paste. Often used in **integrally colored** concrete to produce pure, bright color tones, especially pastels.

workability - The ease with which concrete or other **cementitious** materials can be mixed, placed, and finished.

working time - The amount of time available for placing and **finishing** a cement-based material before it begins to **set**. Often depends on the ambient temperature and substrate temperature.

X

xylene - A common solvent. Used as a carrier for solvent based sealers. High in odor and flammability.