Amant's Floor Care

A Guide to the Maintenance, Care & Cleaning of Natural Stone

Amant's Floor Care - Serving the St Louis Metro Area Since 1969

The natural stone that you have invested in your property is an investment that will give you years of beautiful service with simple care and maintenance that will help preserve your stone's beautify for years to come.

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Definitions

FINISHES: There are three stone finishes:

1. A "***polished***" finish has a glossy surface that reflects light and emphasizes the color and markings of the stone.
2. A "***honed***" finish is a satin smooth surface with relatively little reflection of light. Typically, a honed finish is preferred for floors, stair treads, thresholds and other locations that heavy traffic will wear off the polished finish. A honed finish may also be used on furniture tops and other surfaces.
3. A "***flamed***" finish is a rough textured surface used typically on granite floor tiles.

Other finishes are used and available throughout the industry worldwide. Consult a stone professional if your finish doesn't match these three types.

Lippage: A condition where one edge of a stone is higher than adjacent edges, giving the finish surface an uneven appearance.

Maintenance: Scheduled cleaning, specific procedures, inspections performed on a regular basis will keep the stone in proper condition.

Poultice: A liquid cleaner or chemical mixed with a white absorbent material to for a thick, stain removing paste.

Refinishing: Re-polishing or honing of dull, once-polished marble, limestone or granite floors and walls

Renovation: Cleaning and re-polishing of neglected dimension stone surfaces.

Restoration: Large –scale remedial actions taken to restore a structure or area to its original or near original condition. Typically, applies to historic structures.

Historical Structures *– in the case of historical buildings or landmarks, many of the cleaning, maintenance and restoration procedures are established by historical preservation committees and/or other agencies/departments of the state for federal government. We recommend that you consult with these organizations when developing your normal maintenance procedures.*

Know Your Stone

Stone can be classified into two categories according to its composition: *siliceous stone* or *calcareous tone*. To know the difference is important when choosing the proper cleaning procedures.

Siliceous Stone - is composed mainly of silica or quartz-like particles. Typically, it is very durable and relatively easy to clean with "mild" acidic cleaning solutions. Types of siliceous stone include: granite, slate, sandstone, quartzite, brownstone and bluestones.

Calcareous Stone – is composed primarily of calcium carbonate. It is sensitive to acidic cleaning products and requires different cleaning products and requires different cleaning procedures than siliceous stone. Types of calcareous stone include: marble, travertine, limestone and onyx. What may work on siliceous stone will most likely NOT be suitable on calcareous surfaces.

Cleaning Agents – are liquids, powders, sprays or granules that are used to remove dirt, including dust, stains, bad smells and clutter on surfaces. Purposes of cleaning agents include health, beauty, absence of offensive odors, avoidance of shame and avoiding the spreading of dirt and contaminants to oneself or others. Some cleaning agents can kill bacterial and clean at the same time.

Acidic Cleaners – used for removal of inorganic deposits like scaling. The active ingredients are normally strong mineral acids and chelants. Often there are added surfactants and corrosion inhibitors. One common mineral acid is Hydrochloric Acid (aka Muriatic Acid), is typically used for cleaning swimming pools and concrete. Vinegar can also be used to clean hard surfaces and aid in the removal of calcium deposit buildup. Sulfuric Acid is added into domestic acidic drain cleaners to unblock clogged pipes by dissolving grease, proteins and even carbohydrate-containing substances like tissue paper.

Alkaline washing agents contain strong bases like sodium hydroxide or potassium hydroxide. The alkali also dissolves grease, oils, fats and protein-based deposits. Often there are added dispersing agents to prevent re-deposition of dissolved dirt and/or chelants to attach rust on metal parts. Bleach – pH 12 – and Ammonia – pH 11 are also common Alkaline cleaning agents. While many people believe that mixing cleaning agents together will create a compound that is more powerful, this is false. **Mixing cleaning agents such as bleach and ammonia are dangerous or even fatal.**

Neutral Cleaners – are pH-neutral and based on non-ionic surfactants that disperse different types of dirt.

What type of stone is it?

We recommend that you maintain detailed records about the type, name and origin of the stone existing in your property. If such records do not exist, you should explore the following before determining a cleaning or maintenance program.

Consult with a professional – stone supplier, installer or a restoration specialist to help determine whether your stone is siliceous or calcareous.

Conduct a visual identification – of the stone. While there are exceptions to every rule, the following characteristics are normal:

- ***Marbles*** *– are usually veined, fine-textured materials that come in virtually unlimited color sections.*
- ***Granite*** *– has a distinct crystal pattern or small flecks; very little veining.*
- ***Limestone's*** *– widely used as a building stone. A distinguished characteristic of many limestones is the presence of shell and/or fossil impressions.*
- ***Sandstones*** *– vary in color due to different minerals and clays founds in the stone. Sandstone is light gray to yellow or red.*
- ***Slates*** *– dark green, black, gray, dark red or multi-colored. They are most commonly used as a flooring material and for roof tiles and are often distinguished by distinct cleft texture. Some notable cladding projects have also included slate.*

Conduct a simple acid sensitivity test to determine if your stone is siliceous or calcareous. You will need:

- *4 ounces of a 10% solution of muriatic acid or household vinegar*
- *Eyedropper*

Because the test may permanently etch the stone, select an out-of-the-way area several inches away from any mortar joint. Apply a few drops of the acid solution to the stone surface on an area about the size of a quarter. Two possible reactions will occur:

- *Acid drops will bubble or fizz vigorously, a sign that the stone is calcareous.*
- *Little or no reaction occurs, stone can be considered siliceous.*

Rinse the areas thoroughly with clean water and wipe dry.

NOTE: this test may not be effective if surface sealers or liquid polishes have been applied. If an old sealer is present, chip a small piece of the stone away and apply the acid solution to the fractured surface.

CAUTION: muriatic acid is corrosive and is considered to be a hazardous substance. Proper head and body protection is necessary when acid is used. Again, it is always wide to consult with a stone professional if you are unable to visually identify the stone and/or are uncomfortable using the acid test.

Determine the Stone's Current Condition

Knowing the current condition of the stone is another critical step. We recommend that you develop a checklist of questions to use in your routine examination of the current condition. Your checklist should include questions such as:

- *Are the tiles flat or even?*
- *Are there any cracked lines?*
- *What type of stone finish exists?*
- *Has the stone been coated with any waxes, acrylics, enhancers or other coatings? If so, which type and manufacturer?*
- *Is there any evidence of staining? What type?*
- *If the stone has been sealed with a topical sealer, are there any signs that the sealer has worn off?*

Your answers to these and other questions will help you pinpoint your next step. For example;

Uneven tiles are a sign of lippage and may result in the floor need to be ground flat, honed and then polished.

Cracked tiles will allow dirt and other debris to accumulate in the cracks. This may require that the tiles be replaced or at a minimum, filled.

Knowing the types of stain, organic, oil-based, etc. will help identify the proper stain removal technique necessary. Also, the level of stains or spills the stone can be exposed to will play a role in determining if an application of a sealer is appropriate.

Care and Precautions

Countertops - General guidelines for both siliceous and calcareous stones: Use coasters under all glasses, particularly those containing alcohol or citrus juices. Don NOT place hot items right off a stove or out of the oven directly on the stone surface. Use trivets or mats under hot dishes and placemats under china, ceramics, silver or other objectives that can scratch the surface.

For calcareous stones, many common foods and drinks contain acids that will etch or dull the stone surface.

Flooring Surface – many flooring surfaces can become slippery when wet. When wet conditions occur, reduce potential hazards by doing the following:

- Spread carpeted runners from each outside door into lobbies and corridors to help dry shoe soles.
- Place bright-colored "slippery when wet" pylons on walking surfaces in conspicuous places.
- Mop or shovel walking surfaces as often as necessary to remove standing water, ice, and/or snow.
- Issue standard instructions to building maintenance personnel and prominently post at all janitorial workstations.
- Follow local building and safety codes.

Do's & Don'ts

General Guidelines for Stain Removal

1. *Remove any loose debris.*
2. *Blot spills; wiping the area will spread the spill.*
3. *Flush the area with plain water and mild soap and rinse several times.*
4. *Dry the area thoroughly with a soft cloth.*
5. *Repeat as necessary.*
6. *Is the stain remains; refer to the section in this guide on stain removal.*
7. *If the stain persists or for problems that appear too difficult to treat, call your stone care professional, installer or restoration specialist.*

Cleaning Do's & Don'ts

When discussing care and cleaning procedures with your maintenance staff, there are recommended **Do's** and **Don'ts** that should always be followed.

DO dust mop floors frequently.

DO clean surfaces with mild detergent or stone soap.

DO thoroughly rinse and dry the surface with clean, clear water after washing.

DO blot up spills immediately.

DO protect floor surfaces with non-slip mats or area rugs and countertops surfaces with coasters, trivets or placemats.

DON'T use vinegar, lemon juice, or other cleaners containing acids on MARBLE, LIMESTONE, TRAVERTINE OR ONYX surfaces.

DON'T use cleaners that contain acid such as bathroom cleaners, grout cleaners or tub & tile cleaners.

DON'T use abrasive cleaners such as dry cleaners or soft cleaners.

DON'T mix bleach and ammonia; this combination creates a toxic and lethal gas.

DON'T ever mix chemicals together unless directions specifically instruct you to do so.

DON'T use vacuum cleaners that are worn. The metal or plastic attachments or the wheels may scratch the stone's surface.

Sealing Natural Stone

Several factors must be considered prior to determining if the stone should be sealed.

- What is the hardness, density and durability of the stone?
- How porous is the stone and how fast will it absorb a liquid, also referred to as the absorption coefficient?
- Is the stone expected to be frequent contact with a staining agent?
- What type of finish was applied to the surface? For example, a polished surface is more resistant to staining than a honed surface.
- Will the sealant affect the color or other aesthetics of the stone?
- If a resin was applied to the stone, how will the sealant react with the resin?
- Where is the stone is located, e.g. countertop, floor, wall, foyer, bathroom, etc.? Residential or commercial?
- What type of maintenance program has the stone been subjected to?

The type of stone, its finish, its location and how it is maintained all need to be considered when determining how to protect the stone.

Occasionally, it makes sense to seal the stone. Once properly sealed, the stone will be protected against everyday dirt and spills. In other words, it is best to leave the stone untreated. Topical sealers can alter the surface texture and finish as well as build up on the surface, creating a layer that is less durable than the stone. Typically, topical sealers are NOT recommended in exterior applications because they can trap moisture within the top layer of the stone, which may lead to surface deterioration during freeze/thaw cycles.

If you decide to treat your stone, make sure you understand the difference between the types of sealers available on the market:

Topical Sealers – coatings designed to protect the surface of the stone against water, oil, and other contaminants. They are formulated from natural was, acrylic and other plastic compounds. When a topical sealer is applied compounds. When a topical sealer is applied, the maintenance program often shifts from a program focused on stone care to a program focused on the maintenance of the sealer.

Impregnators – are water or solvent based solutions that penetrate below the surface and become repellants. They are generally hydrophobic (water repelling). Impregnators keep contaminants out, but do not stop the interior moisture from escaping. These products are considered "breathable," meaning they have vapor transmission.

Vanity tops and food preparation areas may need to have an impregnator applied. Check with your installer for recommendations. *If an impregnator is applied, be sure that it is safe for use on food preparation surfaces*. If there are questions, check with the product manufacturer.

Before sealing, always:

- Read the Manufacturer's Warranty and Instructions.
- Contact the manufacturer prior to application. If you are unsure or need clarification. The wood working analogy of "measure twice, cut once" applies.
- Consider the life span of the application (1 year, 2 year, 5 years, etc.) – keep a log on each application.
- Don't switch from one product to another without fully understanding any potential issues. Not all products are alike, again, consult with the manufacturer.
- Consult with your stone professional as necessary.
- Ask yourself, does the stone need to be treated in the first place?

Countertop Surfaces

Clean stone surfaces with a few drops of neutral cleaner, stone soap or a mild dishwashing detergent and warm water. Use a clean soft cloth for best results. Too much cleaner or soap may leave a film and cause streaks. DO NOT use products that contain lemon, vinegar or other acids on marble or limestone. Rinse the surfaces thoroughly after washing with the soap solution and dry with a soft cloth. DO NOT use scouring powders or creams; these products contain abrasives that may scratch the surface.

Floor Surfaces

Dust mop interior floors frequently using a clean, non-treated dry dust mop. Sand, dirt and grit do the most damage to natural stone surfaces due to their abrasiveness. Mats or rugs inside and outside an entrance will help to minimize the sad, dirt and grit that will scratch the stone floor. Be sure that the underside of the mat or rug is a non-slip surface.

Normally, it will take a person about eight steps on a floor surface to remove sand or dirt from the bottom of their shoes.

Normal maintenance involves periodic washing with clean potable water and neutral (pH 7) cleaners. Soapless cleaners are preferred because they minimize streaks and film. Mild, phosphate free, biodegradable liquid dishwashing soaps or powders or stone soaps are acceptable if rinsing is thorough.

Wet the stone surface with clean water. Using the cleaning solution, wash in small, overlapping sweeps. Work from the bottom up if it is a vertical surface. Rinse thoroughly with clean, potable water to remove all traces of soap or cleaner solution. Change the water in the rinse pail frequently. Dry with soft cloth and allow to thoroughly dry.

Bath and Other Wet Areas - Soap scum can be minimized by using a squeegee after each use. To remove soap scum, use a non-acidic soap scum remover or a solution of ammonia and water, about ½ cup ammonia to a gallon of water. Frequent or over use of an ammonia solution may eventually dull the surface of the stone.

Outdoor Pool and Patio Areas - In the outdoor pool, patio or hot tub areas flush with clear water and use a mild bleach solution to remove algae or moss.

Exterior Stone Maintenance - The large expanses of stone generally found on exterior applications may make it impractical to perform normal maintenance on a frequent basis. Large installations, however, should be given periodic overall cleaning as necessary to remove accumulated pollutants. Easily accessible stone surfaces such as steps, walkways, fountains, etc., should be kept free of debris and soiling by periodically sweeping and washing with water. Normal maintenance should include periodic inspection of stone surfaces for structural defects, movement, deterioration or staining.

Moisture Damage

Water penetrating exterior wall cavities through defective flashing or unsealed joints can cause efflorescence, a mineral salt residue left on the surface condensation in wall cavities prevented from reaching the exterior surface because of blocked weep holes can dislodge masonry in a freeze-thaw climate. Look for a darkening affect of the stone.

Moisture coming up through a floor slab seeks the easiest possible pathway to evaporate into the atmosphere. Often, the veining or micro-cracks in the structures of some stone provide that path. The moisture dissolves all the salts from the ground, the substrate and the stone, carries them to the surface and deposits them as the moisture evaporates, giving the appearance of a faulty stone.

For more information please contact ***Amant's Floor Care*** at **(636) 458-2500**.

Identifying & Removing Stains

Oil-Based Stains (grease, tar, cooking oil, cosmetics) - will darken the stone and normally must be chemically dissolved so the stain's source can be rinsed away. Clean gently with a soft liquid cleanser, household detergent, ammonia, mineral spirits or acetone.

Organic Stains (coffee, tea, fruit, tobacco, paper, food, urine, leaves, bark, bird droppings) - may cause a pinkish-brown stain and may disappear after the source of the stain has been removed. Outdoors, with the sources removed, normal sun and rain action will generally bleach out the stains. Indoors, clean with 12% hydrogen peroxide and a few drops of ammonia.

Inorganic Metal Stains (iron, rust, copper, bronze) – iron or rust stains are orange to brown in color and leave the shape of the staining object, such as nails, bolts, screws, cans, flowerpots or metal furniture. Cooper and bronze stains appear as green or muddy brown and results from the action of moisture of nearby or embedded bronze, cooper, or brass items. Metal stains must be removed with a poultice. Deep-seated, rusty stains are extremely difficult to remove and the stone may be permanently stained.

Biological Stains – (algae, mildew, lichens, moss, fungi) – clean with a dilute (1/2 cup in a gallon of water) ammonia, bleach, or hydrogen peroxide. WARNING: DO NOT MIX BLEACH AND AMMONIA! THIS COMBINATION CREATES A TOXIC GAS.

Ink Stains (magic marker, pen, ink) – clean light colored stones with bleach or hydrogen peroxide. Use lacquer thinner or acetone for dark-colored stones.

Paint Stains – small amounts can be removed with lacquer thinner or scraped off carefully with a razor blade. Heavy paint coverage should be removed with a commercial liquid paint stripper. DO NOT USE ACIDS OR FLAME TOOLS TO STRIP PAINT FROM STONE.

Water Spots & Rings (surface accumulation of hard water) – buff with dry 0000 steel wool.

Fire & Smoke Damage – older stones and smoke or fire stained fireplaces may require a thorough cleaning to restore their original appearance. Commercially available smoke removal products may save time and effort.

Etch Marks (calcareous stones) – caused by acids, typically, from milk, fruit juices, alcohol, etc, left on the surface of the stone, some will etch the finish but not leave a stain: others will both etch and stain. Once the stain has been removed, wet the surface with clear water and sprinkle with marble polishing powder. Rub the powder into the stone with a damp cloth or by using a buffing pad with a low speed power drill or polisher. Continue buffing until the etch mark disappears and the marble surface shines. Honing may be required for deep etching. This process may require for deep etching. This process may require the service of a stone maintenance professional.

Efflorescence – a white powder that may appear on the surface of the stone, it is caused by water carrying mineral salts from below the surface and evaporating. When the water evaporates, it leaves

the powdery salt residue. If the installation is new, dust map or vacuum the powder. Repeat as necessary as the stone dries out. **DO NOT** used water to remove the powder as adding water will only make the problem worse.

Using Stain-Removing Poultices

Materials: poultice materials include kaolin, fuller's earth, whiting, diatomaceous earth, powdered chalk, white molding plaster and talc. Approximately, one pound of prepared poultice material will cover on square foot. DO NOT use whiting or iron-type clays such as fuller's earth with acid chemicals; the reaction cancels the effect of the poultice. A poultice can also be prepared using white cotton balls, white paper towels, or gauze pads. Premixed poultices that require adding only water are also available from stone maintenance supply companies.

Preparing & Applying the Poultice

1. Prepare the poultice. If using powder, mix the cleaning agent or chemical to a thick paste the consistency of peanut butter. If using paper, soak the chemical and let drain. Don't let the liquid drip.
2. Prepare the stain area. Wet the stained area with distilled water.
3. Apply the poultice to the stained area about ¼" to ½" thick and extend the poultice beyond the stained area by about one inch. Use a wood or plastic spatula or scraper to spread the poultice evenly.
4. Cover the poultice with plastic and tape the edges to seal it.
5. Allow the poultice to dry thoroughly, usually about 24 to 48 hours. The drying process is what pulls the stain out of the stone and into the poultice material. After about 24 hours, remove the plastic and allow the poultice to dry.
6. Remove the poultice from the stain, rinse with distilled water and buff dry with a soft cloth. Use the wood or plastic scraper if necessary.
7. Repeat the poultice application if the stain is NOT removed. It may take five or more applications for different stains.
8. If the surface (calcareous stones) is etched by the chemical, apply polishing powder and buff with a polishing pad recommended by the polishing powder manufacturer.

It is possible that some stains may never be completely removed. Consult Amant's Floor Care to determine additional steps that might be taken.