

Cleaning Advice for natural stone surfaces.

Supplies you should have on hand:

Stone Cleaner in spray bottle	Plastic bucket	Large sponge
Stone Detergent concentrate	Plastic squeegee	Soft bristle brush
Old towels or wet vacuum*	Mop, no metal parts*	White scrubbing pad

*note: do not use mops or vacuums with metal parts that could scratch stone.

Apply Cleaner or Detergent according to bottle directions to dirty surface: spray cleaner on counters and walls; sponge or mop diluted detergent on floors, walls and counters. Do not flood stone; use just enough moisture to lift soil. Gently scrub accumulated soil. Squeegee, mop, sponge or towel dry the stone. Rinse entire surface and dry. Apply a little dilute cleaner or detergent to remaining soil; allow to penetrate soil; gently scrub with brush or white pad; rinse and dry.

DO (and why)

- Clean stone frequently with a pH neutral cleaner formulated to protect natural stone. Clean terra cotta with mild cleaner formulated for unglazed tile. Clean heavily used bath and kitchen areas twice a week or daily. Clean less heavily used areas once a week. Accumulated dirt and bathroom hazards such as soap scum and lime deposits can stain stone and concrete. Frequent cleaning reduces lime and rust deposits, delaying the need for professional restoration.
- Sweep and vacuum frequently, the grit that accumulates from foot traffic is very abrasive and quickly scratches and dulls stone and tile.
- Put mats at every entry to catch foot dirt and clean them frequently.
- Keep stone dry. Squeegee shower areas and wipe up splashes around sinks. Moisture carries stains into the pores of natural stone, terra cotta and into grout. Moisture deposits lime, soap scum and body oils on the stone and tile surface. Moisture feeds mildew.
- Wipe up spills, promptly. In addition to colored stains that penetrate stone and terra cotta, acidic carbonated beverage and fruit juice spills will dissolve marble, limestone and concrete, leaving a dull, etched spot.

- Use cutting boards or disposable plastic cutting surfaces. Knives will nick stone and tile, and food will leave stains.
- Use non-metal trivets or pads under hot pans; the uneven, rapid heat can loosen crystals in granite and marble.
- Use coasters under beverage glasses and cups. Condensation and small drips will stain stone, tile and concrete.
- Use a tablecloth or placemat under dishes and cutlery. Dishes, utensils and glassware can scratch stone, tile and concrete.
- Put plastic cups under furniture feet and plastic trays under potted plants. Moisture in the air and periodic exposure to cleaning water will cause metals to rust and leach tannic acid from wood furniture. Moisture in the planting pots will leach staining compounds from the potting soil and pot. Any rust and stain in contact with the stone will be transferred to it. Metal feet will scratch stone and tile, put plastic pads under metal feet.

DON'T (and why)

- Avoid all harsh cleaners: ammonia, alcohol, foaming and citrus smelling. Acids dissolve marble, limestone and concrete. Alkaline cleaners can react with minerals in the stone.
- Don't flood areas with cleaning solution or rinse water. Use just enough water to lift dirt, and dry thoroughly. Water carries stains into stone and concrete. Water dissolves supporting mortar. Embedded moisture expands when frozen, cracking stone, terra cotta and concrete.
- Avoid cream cleaners and polishes. The abrasive scratches the stone and the cream residue is trapped in the pores of the stone, tile and concrete.
- Don't use abrasive cleaning pads (green nylon, steel wool etc.) they will scratch stone, tile and concrete.
- Don't use metal objects on stone and tile (metal squeegees, metal vacuum parts, razor blades, knives, etc.). Metal is harder than stone and it will leave scratches.
- Don't leave metal objects on stone, tile and concrete, it will rust and leave a stain.
- Don't use trivets with metal feet; they can scratch.

- Don't put wet clothes on stone or concrete surfaces. The fabric dyes will stain the stone.
- Don't walk barefooted on stone floors. The stone will absorb the body oil from the skin and eventually there will be a discolored path on the floor. For the same reason, wash hands before touching stone counters.
- Don't apply make-up, hair spray, hair coloring etc. near natural stone, terra cotta, and concrete. Cosmetics stain and are very difficult to clean. Most hair spray is a varnish and the solvents that will remove it will also damage natural stone.

For Your Information

Anti-bacterial stone soap is formulated to clean stone without harsh chemicals and it has minerals that protect and supplement the stone. Dilute the stone soap according to the manufacturer directions. Usually a half strength solution is appropriate in a spray bottle for walls and counters. Apply just enough stone soap to coat the surface and allow the cleaner to penetrate the stone for 5 to 10 minutes. Too much cleaner will be difficult to rinse off and will leave a surface haze.

Most natural stone is an aggregate of many materials and contains many inclusions, some of which give it distinctive veining. Trace inclusions of minerals, such as iron, will rust in place as the mineral inclusions are exposed to the atmosphere and moisture; this oxidation of minerals is very noticeable in light colored marble and limestone, especially if there is little or no veining. Even the utmost care in selecting stone from quarries that have supplied stones without noticeable mineral inclusions in the past is not a guarantee, because there is significant variation within the same

quarry. When natural stone is installed in moist areas, it should be sealed to help protect it from moisture. Although flamed and honed surfaces reflect less glare and offer better slip resistance, they are also more open to the elements, which facilitates moisture penetration. Pure white marble in a bathroom will show a variety of problems and require more frequent professional restoration than a darker color.

Natural stone is composed of microscopic crystals tightly pressed together or bonded with an adhesive chemical. Even pure white marble contains some traces of impurities. The same geologic processes that compressed the calcium carbonate and magnesium carbonate into marble crystals and formed the veins of various colors also created structural weaknesses where the stone will fracture. All marble slabs should be well supported with sound mortar. Thin veneer slabs of stone are much more likely to crack and crumble than a thick architecturally sound column. Once the problem is installed, the only thing that the homeowner can do is call for professional restoration to reset loose pieces and fill cracks before the problem gets worse by allowing moisture intrusion to the supporting

mortar bed. Sharp 90-degree edges are very susceptible to nicks; projecting edges of walls, stairs, saddles and vanity tops should be rounded or beveled. Edges can be polished, but reattaching broken edges is mostly cosmetic, the underlying structural problems continue to exist.

The mortar bed in which the marble is set can also contribute to discoloration. Moisture behind or below the mortar will migrate through the mortar bed and into the marble. Usually iron deposits in the mortar are the most noticeable discoloration. Special white mortar with low mineral content is used to minimize this problem, but it requires a special order from the supplier and it is a little more costly, so many installers use common gray mortar suitable for dry conditions. Salts in the mortar are also carried through the marble by moisture from below slab floors and behind walls. Typically, the salts will evaporate on the surface of the marble, forming a haze or bloom. Depending on the amount of moisture, this condition lasts for about a year. A professional can scrub off the salts and restore the surface, after which the condition does not usually reoccur

unless there is a source of additional salt such as one may find in a cement slab floored beach house.

Moisture also tends to de-calcify mortar. Ideally the mortar is sandwiched between a waterproof surface of marble and grout and a waterproof structural support such as green wallboard or a floor set on a waterproof membrane. Water, especially slightly acidic water, will dissolve the calcium carbonate (lime) in the cement, leaving only loose sand. Whereas the cement adhered to the marble and the structural support, the sand by itself does not adhere to anything. One may notice a hollow sound when the marble is tapped, or the stone may become loose. Usually marble is set with very little grout between slabs; this makes it difficult to remove and reset individual pieces. The failure of the mortar to soundly support the surface marble also contributes to cracks. The homeowner should inspect for cracks in the stone and grout and have them repaired promptly to prevent moisture from entering the mortar bed.

Try to keep stone at a constant temperature or at least warm and cool the stone slowly. Stone absorbs heat slowly. In-floor heating, whether by hot water or electric wire, should be adjusted to warm the stone slowly so that the uneven heating and cooling does not cause cracks between the mortar bed and stone flooring, resulting in loose stone floor tiles.