The Manufacture of Engineered Stone and Installation of Quartz Surfacing Countertops

Quartz surfacing is the most widely engineered stone, but engineered marble has also been developed for surfacing use. However, engineered marble is more suitable to bathroom countertops than it is for kitchens, because it is a softer porous material, more prone to scratching and staining, much like its natural counterpart.

The process of manufacturing engineered stone was developed by the Italian company Breton in the 1960s and the Breton process is used by most every manufacturer of quartz countertops today, including Silestone, Cambria, CaesarStone, Hanstone, Radianz, Viaterra and DuPont Zodiaq, among others.

Raw quartz, which is a very common stone, is quarried in mines worldwide. This type of stone is very hard, with only a few gemstones surpassing it in terms of hardness. The process to turn that quartz into quartz surfacing begins in the plant by crushing the quartz into more uniform particles ranging in size from small grains to pellets and mixing it with a resin binding agent and color pigments. Additional aesthetic materials may also be added such as glass and mirrored particles or semi-precious stones.

Once the aggregate is uniformly mixed, it is poured into a mould. Engineered marble is often made in blocks and cut into slabs, but most engineered quartz is manufactured by the slab. In the mould, the compound is leveled and is then typically sent into a “vibrocompression vacuum” chamber where it is compressed into a solid slab while all air is removed and sent on to a pressurized high-heat kiln for final setting and hardening.

The slabs are commonly around 10 feet by 5 feet in size but can be slightly less wide at 52 to 55 inches. They are finished by grinding the slab to the required thickness, with 2 or 3 cm being the average. The engineered quartz is then honed, trimmed and polished before it is shipped off to various distribution centers, where it waits for a buyer.

Quartz surfacing is a bit heavier than granite and as such, installation should be left to professionals. Many, if not most, manufacturers will not even sell this material directly to a consumer, requiring that the material be properly used and constructed by a certified fabricator. The installation process itself is similar to that of natural stone. An installer will first come out and take exacting measurements of the kitchen and cabinetry that the material will sit on. This can be done either using manual methods, such as a tape measurer or using newer advanced templating systems. As with granite, topmount or undermount sink designs must be specified at this time and usually backsplash treatments must be known as well.

The slabs are then cut to specification using expensive specialized equipment made specifically for fabricating the material. Edge styles and sink cut-outs will be made in the fabrication shop rather than on in the consumer’s home.

When the final product is ready, the countertop will be delivered by and installed by the two or more people required to handle the weight. Depending on the cabinetry and space, plywood subtops, metal rods and/or shims will be set to level and support the quartz surfacing. Seams between slab sections should be tight, level and inconspicuous.

In all, the process will require at least two visits, including the initial measurement and the actual installation. The installation itself can take from 6 to 8 hours or more depending on the amount of surface to be installed.

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