

People have been plastering for a very long time. Plasters have been found in Mesopotamia dating from around 9000 BC. Around 7500 BC people used lime mixed with crushed limestone for covering walls, floors and hearths in their homes. I, on the other hand, have been playing with plaster for a VERY short time. I became enamored with the process some ten years ago when I was finishing up my strawbale house. Ever since, I have been applying plasters and renders to strawbale walls, conventional walls, showers, and a variety of unique applications.

Line  
is the  
binder.

# Scratching



Usually the term “plaster” refers to use on interior walls and stucco or render is used on the exterior surfaces. Plasters/Renderers can be made from a variety of raw materials, consisting of a binder, a filler and water. They may or may not also contain fiber and /or additives or admixtures. The binder gives the different plasters their names, i.e., clay, lime, gypsum, cementitious, etc. When mixed with water these binders become the adhesive which holds the different ingredients together and allows the mixture to be workable until it cures or hardens.

These days with such “green awareness” people ask about the environmental and health implications of using plasters. The plasters I use all have virtually no VOCs (Volatile Organic Compounds) once applied to the wall. There are no dangerous fumes emanating from the walls. However, there are differences in causticity to the skin when applying. Clay is gentle to the body as compared to the highly alkaline quality of the lime, which can dry and burn the skin. Lime has the beneficial quality once it’s on the wall, of being anti-bacterial. Another environmental difference is the amount of embodied energy involved, meaning the amount of energy it takes to manufacture the

products which range from the simple earthen plasters to the more extensive materials which need to be mined and fired as with gypsum, lime and cement. This means clay has the least embodied energy of them all.

Recently we covered a strawbale house up in north Routt with clay from the north Routt Pit. We mixed the clay with sand along with chopped straw or cat tail fiber, depending on which coat we were working on. I found this mixture wonderful to work with, whether we were spreading the fill-coat by hand or the cattail-mix with tools. Another variation of this clay render is bagged clay which can be more convenient at times, mixed with sand and the fiber.

“American Clay” is a product which has become quite popular and it is even easier yet. This is a bagged product which comes pre-mixed, taking the guess work out of the job. It can be very easy and forgiving to use as you simply add the mix to water along with pre-measured doses of earthen pigments for the different colors. These clay plasters are “easier” to work with as they don’t take a chemical set as other plasters do allowing them to be worked for a much longer time.

# the Surface

STORY BY JAN COHEN, EFFE DESIGNS PHOTOS BY M. SASAK



Exterior clay render over strawbale construction (facing page). And interior clay plaster over strawbale construction (this page).

Another beautiful plaster I use is a lime plaster in which lime is the binder. This has a higher embodied energy due to the process in which limestone is fired to 2000 F degrees. Firing drives out carbon dioxide and water. This is then re-mixed with water and aggregate, and spread on the wall where it takes a set. The plaster then reabsorbs carbon and turns back into limestone. I have gone to the quarry in Marble, Colorado, picked up their marble "dust" (the waste from cutting the marble slabs out of the mountain) and sifted it to produce the most beautiful polished Venetian plaster ever. "Venetian" plaster

pigmented in the wet plaster stage, eliminating the need to paint and becoming a very beautiful finish after it is troweled and compressed. When this plaster has set it is finished as is. This can be a very attractive wall, either very smooth or with a variety of textures.

Plasters or stucco made from Portland cement will also have a rapid and complete set time and are some of the harder renders available. They also have the highest embodied energy due to the intensive manufacturing process. As with lime and gypsum, limestone is burned,

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Exterior clay render with earthen pigment (left). Interior clay plaster and custom concrete countertop accent the deep window sill of this strawbale wall (right).

refers to a lime plaster application and the many faceted look rather than being a particular product. There are many products, from paints to lime mixtures, on the market these days with added acrylics and polymers which call themselves "true Venetian." Lime was also used as a common plaster mixed with sand and horse hair over wood or metal lathe for interior walls until the advent of drywall.

Gypsum veneer plaster has become popular as a decorative finish for drywall. Gypsum is a natural occurring mineral which is mined, crushed and fired but not to the extent of lime or cement. This is

but it is brought to a much higher temperature, (2700 F), and is a more involved processing endeavor. Bagged Portland cement is then mixed with sand and fiber to produce a very strong exterior stucco.

Different materials have different challenges and different beauties to be coaxed out. Some plasters are structural, adding to the integrity of the building while others have a purely decorative finish. The earth provides such a vast variety of plaster materials, each has its own temperament, timing and look.



Photos Courtesy of M. Sasak

**effe**designs  
extra fine finishes etc.

Exquisite Straw Bale Homes  
Earthen Renders  
Clay / Lime  
Gypsum Plasters  
Concrete Countertops

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