TRANSLATION

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Lime

History of Lime

Excavations in Yiftah (Israel) have proven that floorings with polished surfaces were being formed from approximately 7000 BC and China has provided similar proof approximately 5000 BC. In Mesopotamia between the Euphrates and the Tigris, watertight plaster made of lime and tile dust (so called man-made pozzolana) was already being used in the construction of cisterns and water channels. It is assumed that this technique was developed by the Phoenicians, adopted by the Greeks and passed on to the Romans.

Lime was used worldwide for masonry and plaster work until the end of the 19th century. In order to make mortar and plaster more watertight, pozzolana, tile dust and, increasingly over approximately 2000 years, trass found application as latent hydraulic aggregates for exterior sections and water works. Concrete only came into use in 1825 and began its triumphal procession at the beginning of the 20th century.

However, it can be stated that for the most part, lime mortar and mainly lime plasterings have been proven to be the healthiest and most natural materials for human beings. Lime is the most versatile medium. It can be found not only in plaster but in all areas of life; road construction, soil stabilisation, natural fertiliser, water treatment, sewage treatment, plastic manufacturing, pharmaceuticals, cosmetics, paper manufacture, amongst many others.

Gypsum Plaster versus Lime Plaster

Starting approximately 1965, gypsum plaster has partially superseded the previously common lime plaster in the construction trade. This has been possible through the use of existing cost-effective machine production. It was produced according to the principle "quick and cheap".

Over time however it was recognised that gypsum is not always the best solution. Structural deterioration of the gypsum plaster has been found mainly nearby coastal areas of the Mediterranean and tropical climates but also in poorly ventilated rooms. This is because gypsum is susceptible to reaction under conditions of humidity. In addition, gypsum is a clean medium and enjoys great popularity with fungi and spores. Gypsum plaster in combination with humidity forms the perfect nutrient solution for these hazardous organisms. Infestation in a building can result in serious respiratory disease.

This is also a reason why responsible architects will allow under no circumstances the installation of gypsum plaster in granny-flats and moisture-prone rooms (toilet, bathroom, kitchen).

Furthermore, current machine made gypsum plasters are much more dense than previous hand-made plasters and are being made even more so through the standard smoothing process. This permits only a minimum amount of moisture absorption and emission and therefore prevents them from contributing to a healthy atmospheric environment. Moreover, if a coating of steam-tight emulsion paint is applied then the climatic conditions of a laundry are established. These are the ideal qualification for rheumatic illnesses. Furthermore, most gypsum plasters cause a level of exposure to radiation that, while within the legal limits, is there nonetheless.

Lime plaster does not have all these problems. A building interior finished with lime plaster basically has

an automatic air conditioning system. Lime takes up excessive airborne environmental moisture very quickly and is also able to release it under drier air conditions later on. This permanent cycle between hydration and dehydration is very positive for the plaster because lime is subject to a constant regeneration within the plaster.
Harmful organisms such as spores or fungi have no chance of survival as lime is not acid but alkaline.
A lime plaster which has been applied properly, not in thick coats and with pure mineral or lime colours has a steam diffusion resistance factor of $\mu = < 10$. This means that it poses no vapour barrier for the wall.
Lime plaster is ideally coated with lime colour, pure silicate colour or with lime milk using the fresco technique. These excellent coatings are not suitable for use on gypsum.
Nowadays lime plasters are machine made and can be used economically and on a par with gypsum plasters. Less water is brought into a building with lime plaster. Lime plaster needs approximately 20% mixing water and gypsum plaster approximately 40%. Half will be bound chemically while the other half is freed into the building.

Example:	1 tonne gypsum plaster	= 40% water	= 400 litres of water in the building
	1 tonne lime plaster	= 20% water	= 200 litres of water in the building.

Double the quantity of water must be dried out of the construction when gypsum plaster is used.

When construction steel, metal sheeting, building components, tools (exception: stainless steel) make contact with gypsum (sulphate), they start to rust immediately. Lime protects from rust, and also protects construction steel in concrete from corrosion.

Because the dimensions of the lime in plaster cycle through constant changes from carbonate to hydroxide and back, it can only be damaged if it is given an airtight coating. Lime must always be able to absorb and emit at least a small amount of moisture in order to attain its expected lifespan in a "healthy" fashion. And in so doing, the building's occupants also enjoy a healthy lifestyle as well.

Lime is life – Lime is healthy.

PS: Pure silicate plaster and colours must not be applied onto lime plasters. They will not bond.

I have perused a German copy and certify that this is a true translation of the same into English.

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