

Plaster Man In the Lime Light

by Robin Raymer

Posted: July 1, 2004

This column is on hydraulic lime. I have found a good friend in Michel Couvreur, of TransMineral USA Inc., who has been able to share a wealth of knowledge on this topic. This company is located in Petaluma, Calif. Check out the Web site for this company, found at www.limes.us, as well as www.transmineralusa.com.

Q: Michel, start with a little background on yourself.

A: Here is the short version. I have a Masters degree in Architecture from Ecole d'Architecture, in Bordeaux, France. I practiced in France, and then from 1990 to 1997 in the United States. I dissolved my practice to try and reintroduce lime and its traditional values in the United States.

Q: Let's start with the basics. What is natural hydraulic lime?

A: This question is very important because there is a huge confusion in people's minds about lime. When they hear the word "lime," they immediately think of hydrated lime, such as Lime Type S, lime putties or quick lime, which needs to be slaked. Hydrated lime sets by carbonation (re-absorption of CO₂ when exposed to the air), therefore it cannot be used in its pure form but is commonly blended with cement for most building applications.

Lime putty and quick lime have basically the same problem and need very skilled people for their application. Natural hydraulic lime sets with water, exactly like Portland cement. This makes it user friendly and may be used by anyone who can follow instructions carefully. These instructions are very basic and are really just a reminder of the proper methods of plaster application very similar to the "Portland Cement Plaster Manual" instructions that too few contractors follow.

Q: You mentioned to me the "cycle of lime" and I wanted you to share a little more about this and where this can be viewed.

A: Well, to explain further, first, lime is calcium carbonate or limestone, which is mined, then burned at low temperatures (compared to cement), slaked with

water, etc. If you go on the Web site <http://www.limes.us/aboutlime-lifecycle.html>, you will find an animation that is pretty clear. What is amazing about the production is that you start from limestone and once the product is installed and fully cured, it goes back to its original state, which is limestone. This process can be done over and over with the same material with the same results. This is known as the cycle of lime.

Q: I'm curious to know if this type of lime is or has been mined in the United States?

A: The raw material for hydraulic lime is found in many locations, although pure calcium carbonate does not exist in nature. Depending on the other naturally occurring components in a limestone deposit, these components will decide the different qualities in your lime. Bad components will create bad lime and the same for good components creating good lime.

In the United States, to my knowledge, the last plant to produce hydraulic lime was in Riverton, Va. They have recently stopped production, after being bought out by Essroc. Essroc is now using the raw material that was used to produce hydraulic lime, to produce cement. This is the last episode of a story that has continually happened in the United States in the 20th century. The production of hydraulic lime is now mainly concentrated in Europe (Italy, Switzerland, Germany, Belgium, and mainly France, in its southwest region). Contrary to what has happened to hydraulic lime production in the United States, Europe's production is increasing at a steady rate.

Q: There has been a lot of interest in "green" products in the construction industry. NHL is such a product. Maybe you could explain a little about what is meant by a product being "green."

A: This question is a real challenge to define. I will try to keep it simple by saying that the life cycle environmental impacts of the material are essential and may be quantified in many ways. For example: The use of hydraulic lime versus cement saves about 80 percent of the release of carbon dioxide released during the burning of the product. As an example, we just completed a house where a three-coat system of hydraulic lime stucco was used instead of a three-coat system of cement stucco. We saved approximately 8,100 pounds of CO₂ released into the atmosphere. This is green.

A product is also green for what is not there. Natural hydraulic lime is just that. Natural. It doesn't contain any additives, or any pollutants. It is basically calcium carbonate and since it is such, can even be hypothetically ingested. One thing

that makes it green is that the product is recyclable. The easiest way to recycle it is to use it in a field as a fertilizer. A green product is also a product that contributes to a safe, healthy, indoor environment. Hydraulic lime doesn't release any pollutants and has what I would describe as negative volatile organic compounds by reabsorbing the carbon dioxide in the air in your home. Hydraulic lime is chemically neutral and is widely used in chemically sensitive areas such as wineries, homes, etc.

Q: What makes NHL plaster different from Portland cement plaster?

A: NHL plaster has a much higher degree of vapor exchange than Portland cement stucco and consequently it helps to dissipate interior wall condensation while keeping away water penetration and limiting the risk of mold development and dry rot. NHL also has much higher elasticity therefore is less prone to cracking than its cement counterpart.

Q: A strength of NHL is its breathability. Perhaps you can explain this.

A: Yes, the breathability of lime plaster is a great benefit. NHL is the product of choice in very sensitive applications such as strawbale or adobe, where the use of cement based products can be catastrophic. If NHL works under these extreme conditions think of how beautifully it would work on normal framed construction.

Q: And how does it compare cost wise with Portland products?

A: One question that I am asked all the time is the cost of material. Although it is more expensive than ordinary cement stucco (between 20 and 30 cents more a square foot), it remains affordable and competitive.

Q: Can NHL be used for interior work, and if so, what types of finish are possible?

A: Yes it can. Hydraulic lime is also used in the interior of homes and it can be used over most substrates, as long as they have a certain absorption rate. On the contrary, with a poor absorption rate, a bonding agent can be used. The texture of the finishes may vary from smooth to knockdown, the easiest being a sand finish. When used on the exterior it is used as a three-coat system, just like cement stucco, with the same detailing. One of the uses of hydraulic lime is also lime paint, which is more of a mortar than a paint that gives a wonderful, Old World finish to any interior or exterior project.

Q: Michel, there is a saying in the plastering industry that "stronger is better."

However, in talking with you, you have a different opinion on this. Maybe you can comment on this.

A: Another very controversial question is the strength of plaster material. Too often, professionals place too much importance on the strength of the plaster, thinking that stronger (higher psi) is preferable. This is a total misconception. A stucco or plaster should always be as weak as permissible. High compressive strength and elasticity are not compatible and a compromise must be found. Very hard stucco will shatter in all directions when hit while weaker stucco will only show a dent. This is much easier to repair. A common rule is the farther away from the building, the softer the plaster should be. NHL plasters are very versatile and it is very easy to have them very strong as well as very soft. We recommend the second solution.

Michel, I appreciate your sharing this information with us. I'm sure this information will be appreciated by many readers. To finish this column out, I want to congratulate Len Nealeigh as this month's winner of the Plaster Man/Walls & Ceilings T-shirt. Just e-mail me your company name, or contact me through this magazine to get entered in next months contest. Remember, your questions and comments are always welcome.

Finally, I'm flying out to Brooklyn, N.Y., to visit the neighborhood around 360 Furman, where I learned plastering. I'll be visiting with some plasterers out that way and will report back on that visit in an upcoming article. Until next time, Plaster On!

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