

A cut above: The stone that built Paris also building Stanford

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Stanford's latest institutions of stone

Buildings at Stanford University that feature imported white limestone from France:



- | | |
|---|---|
| 1999 | 2009 |
| 1 David Packard Electrical Engineering | 7 Kavli Institute for Particle Astrophysics and Cosmology |
| 2 William R. Hewlett Teaching Center (Pei Cobb Freed) | 2010 |
| 2000 | 8 Jen-Hsun Huang Engineering Center |
| 3 Gordon and Betty Moore Materials Research | 9 Center for Nanoscale Science and Technology |
| 2003 | 10 Lorry Lokey Stem Cell Research Building |
| 4 Clark Center for Bioengineering and Biosciences | 11 Li Ka Shing Center for Learning and Knowledge |
| 5 Lokey Chemistry-Biology Laboratory | 2011 |
| 2008 | 12 William H. Neukom Law School |
| 6 Jerry Yang and Akiko Yamazaki Environment and Energy Building | Not yet built |
| | 13 Bioengineering and Chemical Engineering Building |

Source: Stanford University; map courtesy of Stanford

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This is a close up of the white Lutetian limestone on the David Packard Electrical Engineering Building on the campus of Stanford University on Wednesday, Oct. 20, 2010. (Karen T. Borchers/Mercury News)

The warm glow of Stanford sandstone is as much a part of campus identity as its church mosaics and Rodin statuary.

But a different rock — an elegant white limestone, excavated from a single French quarry — defines the contemporary Stanford, cladding a dozen of its newest high-tech buildings.

This latest campus building block has long illuminated Paris, “*The City of Light*,” in such landmarks as the Louvre, the Place de la Concorde, Bourbon Palace and Notre Dame Cathedral. In more recent years, the limestone has become a statement for the rich and famous, used in the mansions of eBay founder Pierre Omidyar and basketball superstar Michael Jordan, as well as the shops of Giorgio Armani.

On Wednesday, it will be a prime feature at the dedication of Stanford’s new Lokey Stem Cell Research Building, the largest stem cell facility in the nation, along with a 2-ton, 33-foot glass chandelier by artist Dale Chihuly.

So special is Stanford’s rock, called Lutetian limestone, that the university has reserved a corner — Section 8 — of a specific quarry for exclusive use in future construction.

“*It is a very interesting limestone, used in Paris for years and years and years and years*,” said Stanford chief architect David Lenox, who soon will depart for another trip to France, where he inspects each panel for color and quality before it is shipped nearly 6,000 miles to Palo Alto.

Decorated with thousands of “coquillages,” or traces of shellfish fossils, it once covered the floor of a warm but now-vanished sea that filled the Paris Basin. Author Rebecca Solnit calls the stone, 45 million years old, “a coral reef of high culture.”

Unbeknown to Leland and Jane Stanford, the school’s 1860s-era sandstone — shipped to Palo Alto from South San Jose’s former Greystone Quarry, on the southwest flank of the Santa Teresa Hills — isn’t very durable.

“Sandstone is very hard to take care of,” said Lenox. *“It’s porous. When the irrigation system hits it, it starts to disintegrate, then you have to repair and patch. And in the winter, water gets behind it.”*

In contrast, *“limestone is pretty hard,”* he said, capable of being sliced by machine into thin, flat and durable sections — and enduring for centuries.

Stanford won’t disclose the cost, though prices reportedly range from \$235 to \$3,200 a cubic yard, depending on quality. The Saint-Maximin quarry offers 12 grades in a wide range of hardness and color, from bright white to yellow-gold.

First introduced to Stanford in its Hewlett and Packard buildings, it has since become the unifying theme for all structures in the dazzling new eight-acre Science and Engineering Quad, as well as medical research and education buildings.

A new law school, currently under construction, also uses the rock.

The bright color, crisp detailing and sharp edges *“make it clean and fresh,”* said Lenox.

The rock, quarried 30 miles north of Paris, was first used by the Romans to build the baths at Cluny and the Roman Forum. It is now in global demand, said Mélanie Baticle of the Maison de la Pierre in Saint-Maximin, which promotes stone tourism.

“Other countries want the stone that built Paris!” she wrote in an e-mail. *“It comes in several qualities of stone — tender to extra hard, such as the Saint-Maximin layer”* used at Stanford.

Even its dust has value, she said, used in construction of elite tennis courts such as Roland Garros, home of the French Open. Buoyed by the recent surge in the stone’s popularity, the quarries have applied to the French government to be granted an *“Appellation Controllee,”* like the designations given to areas known for special wine or cheese. *Foreign orders have increased fivefold in three years, according to the Rocamat quarry.*

Lenox has visited the Stanford section of the quarry four times, traveling by train from Paris to the village of Saint-Maximin.

The campus saves money by examining each slab on site, so inferior rock is not shipped all the way to California then rejected, he said. Europeans are superior to Americans in stone fabrication, he added, so individual pieces are cut on site.

“We say ‘This piece is as dark as we want to go — don’t go any darker than that.’ Or we reject pieces with fossils on the edges, because we don’t want it to chip,” said Lenox.

The school says it also economizes by assembling large panels of stones in France, rather than securing each piece, one at a time, on campus.

The precious rock is then shipped across the ocean in the bottom of a ship’s hold, as ballast, and delivered to Fremont for storage.

“It’s a very good investment, in terms of its quality,” Lenox said. *“The best buildings are those you don’t have to tear down. Let’s put it in the right place — with the right materials.*

“And in another hundred years, it will still be there.”

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- The orange rock used to construct the original quad dates to the Eocene epoch, 58 million to 37 million years ago, when the Bay Area was deep under water. Over time, as sediments accumulated, the layers of ocean floor became compressed. Then seismic uplift raised a piece of this sandstone, creating a dry and high ridge — now the Santa Teresa Hills, nine miles south of San Jose.
- At the base of the exterior walls of the Green Earth Sciences building is green and gray rock, created during the Ordovician period, 430 million to 500 million years ago. Once it lay at the bottom of a shallow marine sea in southern Minnesota. The mottled texture was created when burrowing creatures, perhaps clams or shrimp, moved through the soft mud.
- The new white French limestone was deposited in the warm sea that once covered northern France, a shallow bowl known as the “Paris Basin,” about 45 million years ago during the Eocene epoch. Nineteenth-century geologists named it Lutetian limestone, from the Roman name for Paris: Lutetia. Underground quarries still exist deep below modern Paris. Used for 20 centuries in the creation of France, it is excavated from more than 100 quarries in a region north of Paris, and featured in a museum called “House of Stone” in [Saint Maximin](#). In an exhibition hall and on quarry tours, visitors learn about the geology, mining and the underground cultivation of mushrooms. An adjacent village is built completely of stone.