

## New applications for sprayed gypsum plaster for high-specification projects

'Plâtre' means gypsum plaster in French. Plâtre.com is specialised in customised plasters, for inside and outside, for spraying and moulding – even for floors. The company has designed more than 6000 different products in terms of composition, colour, aspect and skin. In this article, it presents three interesting, new techniques.



Above: Vieujo's mortar production anno 1880.

Vieujo company is a gypsum manufacturer created by Adolphe Vieujo in 1880. Since this time, Vieujo has been producing coloured mortars (see Figure 1, taken in 1899. 'Mortier coloré' means 'coloured mortar'). Today, Vieujo is the last independent gypsum producer in France.

### DécoSystème/Plâtre.com

DécoSystème was created in 1996 specifically to redevelop coloured, custom-made plasters and stuccos, both in decoration and renovation markets. The development has now become international with the creation of plâtre.com international in 2006, with 2 offices in New York and Dubai.

There are new ways of using sprayed gypsum plaster, with examples taken in high-specification projects where gypsum is in competition with painting, cement plaster or wallboard.

### Three techniques

We will present 3 different techniques, everyone using sprayed gypsum plaster:

- a 800m<sup>2</sup> 'stuc marbre' that is a marble-like stucco,
- a 4500m<sup>2</sup> hanging ceiling,
- a 3000m<sup>2</sup> Venetian-style stucco in only 2 steps.

In each example, gypsum plaster was in competition with more traditional techniques.

### Sprayed 'stuc marbre' (marble-like stucco)

The well-known architect Jean Nouvel wanted a marble-like stucco with sgraffitos carvings, in no time and on no budget.

The complete spraying of a 800m<sup>2</sup> stuc took 10 days to achieve the back face of the brand-new Quai Branly Museum in Paris, France.

The concrete wall was cleaned and coated with a primer. The first colour was sprayed. Right after then,

Right: The technique of 'stuc marbre' (marble-like stucco).

Below: The newly opened Quai Branly Museum by Jean Nouvel in Paris, France.



the second colour was sprayed. The 2 coatings were mixed in order to create the marble veins. Then the plaster was classically floated and the 'cut finishing' was made with the berthelet (a kind of sharp rake). Later, on this stuc, motifs, in positive on the median part of the wall and in negative on the left part, were carved out using a system of stencil key sets and refilled with a second tone of grey. The parts protected by the stencil key appear as the background, the marble-like stucco. The motifs were designed by Lena Nyadbi, an Australian artist.

This method was cost-saving compared to classical marble-like stucco due to the mechanised application. And, in comparison with painted faux-marbre, there



is no painting step and thus no waiting because of drying and painting before scaffolding removal. From the owner's point of view, bulk-colouring is not subject to sun-fading and the



**Above:** The production of landscape hanging ceilings.

**Left:** The 4500m<sup>2</sup> hanging ceiling under the Quai Branly Museum.

**Below:** Detail of the ceiling.

maintenance will be easier because the cut finish is very fine and less sensitive to pollution stain. Moreover, it will permit cleaning just by sanding.

### Landscape hanging ceiling

Jean Nouvel wanted to create a hanging ceiling with changing facets to evoke a 'reversed landscape.'

A 4500m<sup>2</sup> hanging ceiling in 162 facets, again under the Quai Branly Museum by Jean Nouvel, was built within four months with two spraying devices.

A metallic structure (Poutrafil®) was installed under the concrete structure. A Stucanet® wire-mesh layer was set, with the choice of a special reinforced type. Sprayed gypsum plaster was sprayed in once (3cm thick coating), with a smooth finish. After two to three weeks, the surface was painted with microporous painting.

The classical solution uses cement-based plaster of course. Gypsum-based plaster allowed a two times faster setting (one single layer, using back-reinforced wire-mesh) and faster drying and hardening. The weight of the ceiling was 2 times lighter, which permits important cost savings on the metallic structure (135t less).

Moreover, the architect has

appreciated the fact that the skin obtained was much finer than with cement-based plaster and edges were sharp and neat.

### Two in five Venetian stucco

A Venetian stucco both on old brickstone walls or new structures was built in the cheapest possible way.

This 3000m<sup>2</sup> Venetian stucco was made with only one spraying of one sole product : a coloured gypsum plaster. The place is the 'Mona Lisa'-room of the Louvre Museum. The technique had already been tested in an-



**Below:** The 'Mona Lisa' room in the Louvre Museum in Paris, France.



**Right:** The Venetian stucco in Mona Lisa's room in the Louvre.

**Below:** The production of two in five Venetian stucco (including a detail picture).



other room of the Museum, the 7m room, in 1997.

On the brickstone walls, a Nergalto® wire-mesh was directly fixed on rail. For new structures (alarm-secured support of the 'Mona Lis', grey concrete-like stucco frame made of light studs, ....), classical metallic structures were used.

At first a white gypsum coating was sprayed to reinforce the wire-mesh. Then the coloured gypsum plaster (in this case especially formulated in order to obtain the wanted cloudy aspect) was sprayed and directly smoothed.

Only two operations (white and coloured plaster floating) were necessary compared to four or five operations with the traditional technique (gypsum board setting, joints filling, prime coating, two top-finish coat-

ings). Moreover curved parts were thus also easier to realise.

**Conclusion**

Sprayed gypsum plasters can still be competitive solutions when specific decorative requirements or both technical and aesthetic considerations are involved, even in high-specification and cost-controlled projects, in comparison both with painting technique, cement-based plasters or wallboards.

But this requires custom-plasters especially developed, on a per project basis.

