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A Surface Fit for a King

Solid Surface Makes Royal Debut in Versailles

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A SURFACE FIT FOR A KING

CREA Diffusion Installs Solid Surface in the Palace of Versailles

By Kevin Cole, Editor

The project of renovating a portion of Versailles into a history gallery was broken into three portions, all three of which involved solid surface.

When one thinks of the Palace of Versailles, royalty and opulence often come to mind. Over time it has not only been the seat of power in France, but also the home to several of France's kings. However, "contemporary" is not a word traditionally associated with it — until perhaps now that a portion of it has been made over using DuPont Corian solid surface.

Eleven rooms covering more than 7,500 sq. ft. were recently transformed into the new Palace of Versailles History Gallery, which focuses on the history of the palace from its beginnings in 1624 to its renovation by Louis-Philippe I, who founded the Museum of the History of France within Versailles in the 19th century.

The design, which was developed by the Paris-based Projectiles Architectural Studio, is a unique blend of the classical and contemporary that mingles old-world style with cutting edge materials, technologies and techniques to create a stunning upgrade to this treasure of European art and history. Internationally renowned fabrication firm CREA Diffusion, based in Solgne, France, was hired to handle the fabrication and installation of the 16,000 sq. ft. of solid surfacing used in the venture.

The project basically divided the rooms into three areas: the lower, middle and upper sections, each of which solid surface had a role (**see Lead-in Photo**).

The Lower Section

For the lower section of the rooms, the original wall paneling that dates back to the 1800s was repainted and remains in place. However unique solid surface boxes are attached to the panels in a variety of sizes based on the area of the paneling to which they are assigned (**see Figure 1**). These boxes house lighting that both illuminate the paintings they are under and also backlight information inscribed in them about each of the exhibits. "All of the boxes are of different dimensions," explained Thierry Delles, owner of CREA. "This gives an impression of volume and also prevents visitors from getting too close to the paintings.

The Middle Section

The main section of walls is now clad in 8-mm-thick (about 1/3-in.) Pearl Grey Corian that was engraved with a different pattern for each room corresponding to a different historical period, which replaces the tapestries that used to cover the walls.

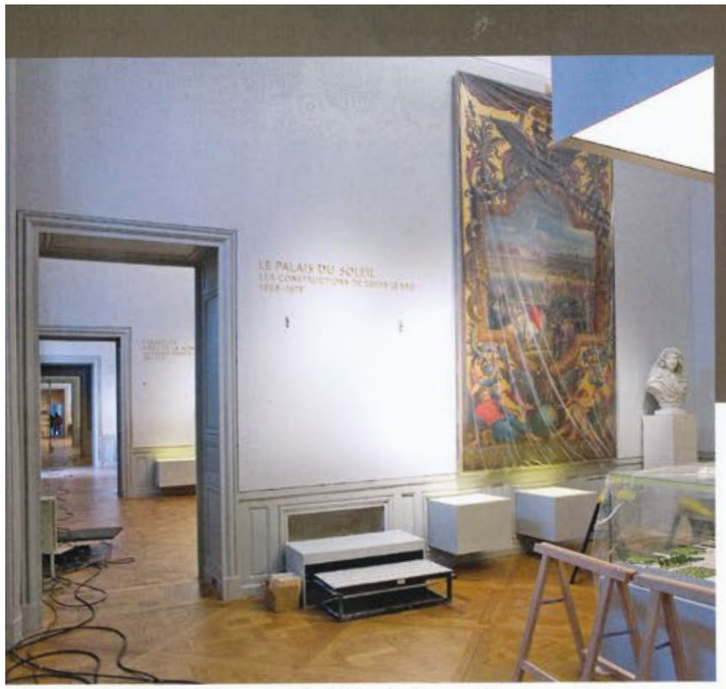


***Figure 1** – Solid surface light boxes were installed on the lower wall to accomplish 3 main objectives; Illuminate the paintings; offer information about the exhibits via backlit inscriptions; and serve to prevent the public from getting too close to the priceless works of art.*

The patterns have been slightly reinterpreted in order to create a sort of continuous wall painting, and a whole new style of engraving was created by the Change Is Good graphic studio just for this project. The engraving starts at the top, and both the depth of the engravings and the width of them diminish as it moves down the walls (**see Figure 2**). And while the engraving technique affords precise splendor, it makes for a very slow process for the fabricator.

***Figure 3** – Installing panels with such intricate and exact patterning without damaging the engraving was a bit of a challenge. CREA Diffusion overcame that by cutting the panels into sections with "puzzle-shaped" edges.*

To engrave a single linear meter of the wall (about 3 ¼ ft.) using CNC machinery took half a day. The time to engrave all of the wall material, if the process ran nonstop, would take four months. And beyond this, installing the paneling with such intricate and exact patterning also posed something of a challenge. "The engraving's depth is not the same from the beginning to the end,"

***Figure 2** – All of the wall panels were engraved with different patterns corresponding to different historical periods based on what room they were in. The engraving began at the top of the wall and diminished in depth as it went lower.*

explained Delles. "We started with a depth of 3 mm until the graphic disappears. So we had to find some technique to assemble the panel without destroying the engraving. To do that, we cut the panel into puzzle-shaped sections (**see Figure 3**)."

Another challenge was to actually hang the 1- by 2-meter (about 3 ¼- by 6 ½-ft.) panels firmly on the walls once they were engraved and cut. Thankfully, CREA Diffusion has vast experience with exterior cladding, so came up with a solution by using a system of aluminum frames that were affixed to the palace walls (**see Figure 4**).

***Figure 4** – A system of aluminum frames were affixed to the palace walls to hold the panels in place.*

***Figure 5** – One wall included an engraving of the family tree of the Burbons, which contained 15 portraits backlit to allow the faces of each to be seen in a sort of 3-D effect.*

***Figure 6** – Creating the engraved family tree took 165 hours, not counting sanding and installation time.*

Fifteen portraits are engraved in Glacier Ice Corian and attached to a panel of Pearl Grey Corian. Backlighting behind the panels allows the faces of each to be seen in a sort of 3-D effect.

After the solid surface panels were put in place and seamed together, the paintings and other displays are then affixed directly to them. One characteristic of solid surface that made it particularly suited for the application was the ability to invisibly repair holes in it when paintings were to be replaced or rearranged.

One wall also included an engraving of the family tree of the Burbons, which was even more complex, and significantly slower, than the patterns (**see Figure 5**). Fifteen portraits are engraved in Glacier Ice Corian and attached to a panel of Pearl Grey Corian. Backlighting behind the panels allows the faces of each to be seen in a sort of 3-D effect. Thanks to a light put behind each portrayal we can see properly the face. "The time to program [the CNC machine] to do just one portrait was very long," said Delles. "We needed five hours for the programming and another eight hours to perform the actual machining."

That adds up to 45 hours of programming time and another 120 hours of machine time in total. And that doesn't account for the time to sand and seam the engravings into the main panels or install them (**see Figure 6**).

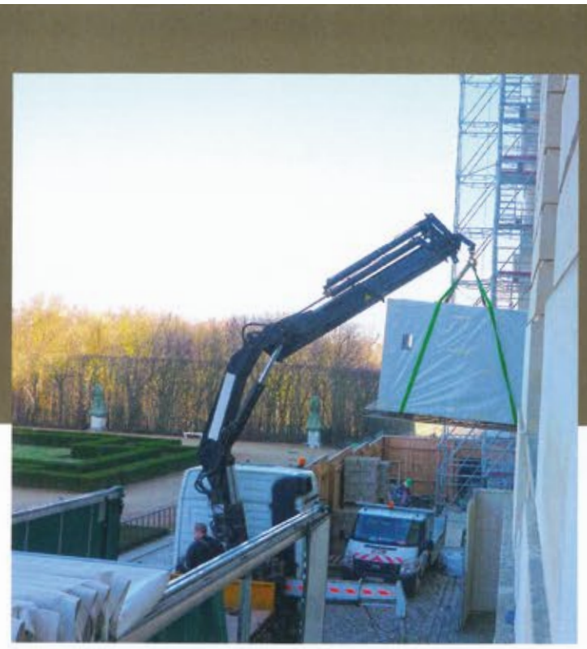
The Lighting

The third and final section of the project was the creation of large chandelier-like housing for the lighting in each room. These were also made of Corian using the same pattern for the specific room in which they were to hang (**see Figure 7A**). "We used the same process to engrave the lights, which hang in the center of the room by the aid of four cables," Delles explained. "But for the design of the lights we used 6-mm-thick (about ¼-in.) solid surface, so it was more difficult to engrave."

The lights are of different sizes, based on the size of the room in which they are hanging and the contents of that room, but on average weigh

***Figure 7A** – Large chandeliers made of solid surface engraved in the same patterns as the wall panels hang from each of the rooms. On average they weigh about 1,100 lbs.*

***Figure 7B** – The chandeliers not only house lighting, but in some cases also contain audio/video projectors and security equipment. Additionally, a portion of them is motorized to slide down and open up so that maintenance can be performed on them.*



"It was very strange to work alongside other work that was several centuries old. Our employees felt the history of their ancestor craftsmen."

Figure 8 – *The immense project used 16,000 sq. ft. of solid surface, which had to be hoisted into the building using a crane system. When completed, the solid surface portion of the project took more than 12,000 man-hours.*

about 500 kg (about 1,100 lbs.) They are designed to allow more light to come from the top of the fixtures, roughly equivalent to daylight, while light flowing downward passes through a screen on the bottom softening it.

And while the chandeliers appear to be relatively simple boxes to the casual observer, there is much more to them than meets the eye. Not only is there lighting housed within the body of the chandelier; in some cases there are parts of the security system and, in the multimedia rooms, audio/video projectors. "These are not just simple lights," said Delles. "Thanks to a motorized system, the interior portion of the light slides down to allow the maintenance of the parts located inside (**see Figure 7B**)."

All of the lighting is wired into a central digital control unit that can allow them to be brightened or dimmed manually. However, thanks to a series of photovoltaic cells discreetly integrated into the facade, the lights also automatically adapt to the natural light variations entering the rooms through large windows overlooking the garden, keeping a constant level of illumination.

Working Alongside History

In June of 2012 the facility opened to the public, and millions are expected to visit in the years ahead.

All in all, the entire project, not just the solid surface portion, cost 1.5 million euros (more than $1.9 million). In terms of just the solid surface work, 16,000 sq. ft. of solid surface was used, and it took 2,150 planning/study hours, 5,850 fabrication manpower hours and 4,200 installation manpower hours — an immense project for any fabricator (**see Figure 8**).

But time and effort weren't the only things that determined the immensity of this work; working in a place of such historical and cultural significance to the entire world also carried a lot of gravity.

"It was very strange to work alongside other work that was several centuries old," relayed Delles. "Our employees felt the history of their ancestor craftsmen. They thought if they had lived during the building of the castle maybe they could be chosen by the king...." ISFA

For more information, visit www.crea-diffusion.com. Editor Kevin Cole can be reached at kevin@isfanow.org.