



# A link between design and reality!

Architects have hardly any limits in putting their imagination on paper to create an environment or atmosphere to amplify a certain message to the world. On the other hand, there are contractors who need to actually build that imagination in known materials at the lowest possible cost. These are two worlds constantly moving due to technology with new process technologies and new materials available; the architects counting on the new technology to be applicable immediately and the contractors struggling to keep up with all developments in the world.

By



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**N**edcam is a young Dutch company active in the process range between the design of any object and the feasibility to actually create it. For this JEC Europe with the Netherlands as country of honour, Nedcam chose to highlight two special projects performed over the last year in Paris.

## Five petals in the Museum Les Arts Decoratifs in Paris (next to the Louvre)

Commissioned by the museum Les Arts Decoratifs (for their customer Van Cleef & Arpels), Nedcam turned the design of Agence Jouin Manku into tangible objects.

The original design by Jouin Manku was digitally visualized in the museum room to persuade Van Cleef & Arpels of the extra exposure it could generate. For the execution of the huge hanging petals, Nedcam was contracted to create the best feasible solution within the limited budget in cooperation with Jouin Manku. First of all, the side entrance of

the museum was 3D-digitalized in order to simulate the process of bringing the petals in, in one piece, by hand. A size reduction of 10% was performed and thus the petal dimensions were defined. The best suitable material for the petals appeared to be a glass-reinforced polyester sandwich construction in order to create the slim shape with very low weight (max. 650 kg). During the engineering stage, it appeared that a support construction was necessary on the back of the petals to take up the stresses to the fixation points. In conjunction with Jouin Manku, a visual spider web was designed to take in the visible LED

cablings of the 40 LED lights in each petal. The desire of Jouin Manku was to have all LEDs placed semi-randomly, differently in each petal, according to their drawings; but this was a very cost-intensive demand. They agreed that Jouin Manku would create the LED placement within certain rules (not too

**Architect/designer:** Agence Jouin Manku (Paris, France)  
**Co-creator:** Nedcam BV (Duiven, the Netherlands)  
**Partners of Nedcam:** Solico, Fatol Muller, VABO Composites, Van Wieren



Petals in Museum Les Arts Decoratifs

## The Netherlands: country guest of honor

close to the spider web and away from the hoisting points) and Nedcam would place the LEDs manually according to the spider web reference. In short: a great cooperation with an excellent end result in products as well as in timing and budget.

Finally, Nedcam hired engineering company Solico to calculate and define the final design in terms of strength, deflection and materials to be used. The shape was created by Nedcam in a direct mould consisting of Styrofoam covered with accurately machined seamless model paste. Fatol Muller recommended their Marbocote release system for easy usage in the mould used by VABO Composites to produce the five petals. In close cooperation with transportation company Van Wieren, Nedcam assembled 3D transport frames on trailers to carry the five petals to the centre of Paris. On site, 15 people carried the petals, weighing roughly 650 kg each, inside and hoisted them halfway in the room. A fairylike result!

### 4500 LED lights under a monumental roof

What if an old museum at Rue de Volnay (Paris) with a dome roof containing 2400 small windows wants to install LED lights to modernize with fantastic visual effects?

In cooperation with Nedcam and Dupolco, Maramoja Projects created a new invisible ceiling to modernize the museum, a protected historic work where all changes to the existing construction are prohibited.

Maramoja Projects designed a plan to install a false ceiling containing holes to keep the small existing windows visible but at the same time hold the 4500 interspersed LED lights. Nedcam scanned the existing roof and hired Solico to engineer a low-weight solution. As the roof is slightly bulged, a very stiff carbon-reinforced laminate appeared to be necessary. Nedcam machined a very accurate mould in which 12 parts were produced by Dupolco. The parts were re-positioned on the Nedcam machines to CNC machine all windows and LED holes.

On site, Maramoja Projects and Dupolco assembled the ceiling and hoisted it in place. It was a very complex and very innovative mission with an astonishing result. ■

More information: [www.nedcam.com](http://www.nedcam.com)



4500 LEDs pimp monumental roof

**Designer:** Maramoja Projects BV  
**Co-creators:** Nedcam BV and Dupolco