

The *Musée de l'Ordre de la Libération* military museum: Mermet's expertise in the support of excellence

Mermet, a market leader in the design of technical fabrics for solar protection, once again confirms its expertise in terms of the control of light.

Its know-how was brought to bear during the renovation of the *Musée de l'Ordre de la Libération* military museum, which is set to open its doors during the first half of 2016, and for which the fabrics Satiné 5500, SV 10% and Kibo 8500 were selected for their performance, elegance and harmonious integration within a historic listed building.

From shadow into light, a technical solution for a public building

Closed for 4 years for renovation throughout, the building by the architect Robert de Cotte houses the *Musée de l'Ordre de la Libération* military museum and is located in the west wing of the *Hôtel des Invalides* complex in an east-west orientation.

In addition to new design and being brought up to contemporary standards, notably in terms of fire safety regulations for public buildings, it was vital to improve the preventive conservation conditions for the collections exhibited to the public (display cases, humidity control and lighting). Accordingly, the main solar protection objectives were as follows:

- To reduce the lighting ambiance to 50 lux;
- To balance out the morning and afternoon sunlight.

Transparency, control of natural light, glare and heat; and also to protect sensitive exhibits and manage the energy performance of the buildings. Mermet's fabrics meet all these constraints and were the natural choice.

The principle of interior roller blinds was favoured in order to maintain the integrity of the facades of this historic monument. In accordance with the specific needs of each space, a combination of 2 fabrics was developed to adjust the level of transparency or to offer total blackout for sensitive exhibits. A total of 160 blinds were manufactured by the company Franciflex and installed by SFP, part of the *Storistes de France* network.

Aesthetic and decorative solutions

Depending on the orientation of the facades of each of the 3 themed spaces, namely *France Libre* (Free France), *Résistance Intérieure* (French Resistance) and *Déportation* (Deportation), a variety of fabric combinations was employed.

On both the east and west facades, the transparent fabric **Satiné 5500** is installed directly against the glass of each window. 78 blinds provide a view with subdued lighting of the dome of the building, and also ensure:

- Excellent glare control thanks to its diagonal satin weave, while optimising the influx of natural light: up to 96% of the light is filtered ($T_v = 4\%$);
- Excellent transparency with clear vision to the outside.

Among the 50 available colours in the largest range on the market and the 6 width sizes of between 1.60m and 3.20m, the colour 1006 Sable Bronze was selected for its harmonious integration with the facade as seen from the outside. This colour offers good protection against heat when installed on the interior: it reflects back 71% of solar energy ($g_{tot} = 0.29$ / glazing $g = 0.32$ and $U = 1.1$). In exterior applications the Satiné 5500 fabric reflects back up to 92% of solar energy ($g_{tot} = 0.08$).

The **superimposition of a second independent blind** enables light to be regulated in line with the seasons. Also installed were:

- **On the eastern side** in visitor circulation areas, the blackout fabric **Kibo 8500**, placed directly opposite the display cases.

Totally opaque and ideal for protecting sensitive exhibits, this top-of-the-range solution blocks out 100% of light rays and UV light (blocks more than 150,000 lux), while its screen finish is perfectly coordinated with other interior screens.

It also offers exceptional thermal comfort thanks to its white acrylic reverse side facing the glass which eliminates 76% of the sun's rays ($g_{tot} = 0.24$ / glazing $g = 0.32$ and $U = 1.1$).

Among the 9 colours of the range available in a large width size (2.50m), the colour 2020 Lin was selected for 31 blinds.

- **On the western side** in the exhibition halls opposite the gardens and its topiaries, the Screen Vision **SV 10%**.

The open basket weave (openness factor 10%) of these 51 blinds offers the benefits of:

- optimum transparency in order to give excellent vision to the outside;
- unrivalled intake of light which enhances the building's energy performance levels;
- glare control: up to 91% of light rays are filtered out ($T_v = 9\%$).

Although the range consists of 14 different colours of which 8 are available in the large width size of 3.20m, 2 colours were selected:

- 0210 Blanc Sable for rooms with sand-coloured render;
- 0707 Perle for rooms with grey-coloured render.

Benefiting from the Greenguard® label (guaranteed interior air quality) and with M1 fire safety classification, these fabrics also offer excellent durability which has been verified by a mechanical endurance test over 10,000 cycles (Class 3 according to NF EN 13120) and remarkable dimensional stability.

Mermet's fabrics now enable the *Musée de l'Ordre de la Libération* military museum to welcome its visitors in optimum conditions by providing perfect control of natural light and by protecting the exhibits. There's no doubt that this "army in the shadows" appreciates being brought into the light.

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