

RAPENBURG PLAZA

lighting design & show control

Press Release

Rapenburg Plaza Helps National Military Museum Unfold The Story of the Forces

Amsterdam, Netherlands, 12 January 2015 - Expert systems designer, Rapenburg Plaza saw an intensive year of meticulous planning, design and integration come to fruition on 13 December 2014, when the National Military Museum, Europe's biggest military museum opened to the public.

Designed as a fully integrated entity, the new museum uses technology on an unprecedented scale across its expansive 20,000-metre exhibition area located in the former Soesterberg airbase in the Netherlands. His Majesty, King Willem Alexander opened the museum at a spectacular ceremony with the Royal Military Band, cannon shots and loud shouts of military commands.

Leading the project team was Heijmans, one of the largest construction companies in the Netherlands. The building architect was Felix Claus Dick van Wageningen. Main contractor for the museum interior, Bruns was responsible for process and project management, development, engineering, production and installation of all the exhibitions. The project includes lighting, hardware and software - animations, short movies, games and a mobile application. Bruns subcontracted Rapenburg Plaza to work with exhibition architect Kossmann.dejong on the project.

"Rapenburg Plaza was brought in at the beginning of the project to develop a wholly integrated lighting design, multimedia, audio and show control system that would add great value to the National Military Museum. It needed to be simple to use, maintain and deploy combining all media together over an IT infrastructure. We have worked with Rapenburg Plaza before on several award winning international projects so knew their capabilities," said Maarten Taborsky, Project Director at Bruns B.V.

"Rapenburg Plaza has an intensive way of looking at hardware and designing systems. Their complexity of integration was vital to telling the museum story. Our unique working partnership and cooperation will continue for ten years after the museum's official inauguration," added Taborsky.

"All 17 museum environments use technology in an iconic, integrated and interactive way. Visitors can interact with technology either by accessing information or by gaming – so there really is something to engage everyone who visits."

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Lighting design, control and networking

The client wanted the audiovisual system to have a minimum lifespan of 15 years. Rapenburg Plaza brought several design considerations to life including a sophisticated technical lighting bridges installed in the high ceilings for access to equipment for maintenance as well as long distance cable runs and multiple server rooms. The lighting design by Rapenburg Plaza's in-house Lighting Designer, Pelle Herfst consisted of more than 3,900 energy efficient LED lighting sources.

To control all exhibition components, Rapenburg Plaza designed, installed and programmed a network-based show control system. This system gives complete control over the lighting and AV equipment and allows the Rapenburg Plaza programmers to manage and monitor the entire installation remotely – a valuable tool. This system comprises Medialon show control software, Pharos show controllers, KissBox data communication interfaces and industrial network hardware and software.

"Rapenburg Plaza proved again the ability to achieve the requested high-quality standards for technology and show control. They used a well-thought-out system design and cable plan," added Mark de Jong, creative director at Kossmann.dejong.

Touring military history

Exhibition areas are split into two concepts. The 'Daylight Museum' on the ground floor gives a chronological overview of military technology over 1,000 years. The second concept 'Black Box' comprises seven exciting theatrical environments.

The new site includes many places where digital media, lighting and audio play a key role in educating and informing the public.

Highlights include:

Pre-show area

Greeting visitors is a 7.5-minute presentation about the museum introducing its people as well as a moving and compelling insight into the social aspects of warfare, history and its future.

For the giant tiled and curved projection surface, Rapenburg Plaza integrated three Digital Projection International projectors with Dataton WATCHOUT™ multi-image display and presentation software.

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Hall 1: The Netherlands and the World

This first exhibit comprises 25-metre wide panoramic projection positioned above a 7 x 10-metre giant projected map. Cantilevered above the floor, the map is integrated with projected video, surround audio and lighting providing a stunning presentation of the tactical and strategic posts in the Netherlands. Four custom designed telescopes at the foot of the giant map, zoom into the map positions providing information about weapons used and map locations.

Around the perimeter of the exhibit are eight electronic information points looking into war history and how the world has changed within the last few centuries, including 9/11 events.

"By giving visitors the opportunity to use big gestures over the map, they are able to access the story of the Netherlands in a phenomenal way," added Maarten Taborsky, Project Director at Bruns.

Hall 2: World of the Armed Forces

Rapenburg Plaza designed a synchronized film across ten screens using projection. This uses the proprietary 'Raapu' custom designed high-performance media players, designed by Tony ter Neuzen, Network and Systems Engineer at Rapenburg Plaza. Footage and sound can be checked, updated and maintained at any time.

A large touchscreen comprising three 55-inch monitors is integrated with an infrared bezel that allows the audience to interactively access information about the categorization of awards and medals.

Showpiece room: Glory

Integrated audio and lighting are a highlight in this room focusing cabinets and art collections in a boardroom environment.

Hall 3: Soldiers in the Spotlight

Located throughout this exhibit are interactive seated cabins that tell personal stories of veterans and soldiers. Here, Rapenburg Plaza has integrated audio into each of the seated cabins along with exhibit-wide lighting and video. 42-inch monitors and 'Raapu' players are located around the edge of exhibits to tell the stories about survival!

Introduction to The Equipment Hall, Daylight Museum

For this curved screen projection, Rapenburg Plaza has integrated five Panasonic projectors and Dataton WATCHOUT multi-image display and presentation software.

Hall 5: Operations

One of the only specially designed 360-degree tilted immersive floor to ceiling dome projection systems in Europe, visitors are immersed in a narrated high-resolution film about warfare throughout the centuries. The steel dome measures 14-metres wide.

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A 7thSense Delta Media Server is integrated with nine Digital Projection International projectors. An immersive audio system sits behind the perforated aluminum dome screen.

"The immersive dome system is really unique and we understand that it is the only one of its type in Europe," said Maarten Taborsky, Project Director at Bruns. "The technology and its architecture designed by Rapenburg Plaza allowed us to make it a system that met the client budget and is the best of its kind!"

Around the outside of the dome are five missions showing command on the field and tactical games. These include four 55-inch foil touch screens showing information and digital photographs.

"We wanted to provide the highest-quality projections and immerse the audience in storytelling," added Jansen.

Hall 6: Society and the Armed Forces

Fourteen old-fashioned TV screens show content from society. A ultra-compact 'Pico' projector is built into the rear of each screen. Lighting is designed to use a day and night experience on a giant scale-model garrison. This exhibit highlights how people look at the Army. It uses six television cameras integrated with 17-inch monitors where the audience can listen to a film about the Netherlands, can deactivate a military device and zoom into the Netherlands showing its unique military heritage.

Exit Hall: Present, Historical and Future

Rapenburg Plaza ensures that light plays a dynamic role in this room in combination with video projections. Taking visitors on a journey into the future, this exhibit comprises 360° projection onto various surfaces.

"Rapenburg Plaza installed the world's first 1.2-metre diagonal multi-touch interactive spheres from Pufferfish Displays. The two spheres are suspended from the ceiling. This exhibit looks into the future of technology, defense and warfare," said Maarten Taborsky, Project Director at Bruns.

In the centre of the room is a 4.5 metre diameter projected sphere. The sphere uses four Panasonic projectors integrated with Dataton WATCHOUT multi-image display and presentation software.

F16 Theatre

Designed as a presentation space, this area uses Europe's first ever installation of Meyer Sound CAL Line Array audio. The technology was supplied by Audio Electronics Mattijssen (AEM) and integrated with a giant 6 by 3.4-metre high screen using Digital Projection International projectors. The presentation showcases a film about modern weapons and sits amongst weapons, tanks and planes suspended from the ceiling.

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Additional exhibit areas and children's Interactive Zone

Moveable LED lighting and information points using touch screens are installed throughout exhibit areas. Interactive gaming is designed in the children's Interactive Zone.

Summing up the design and deployment of lighting, multimedia, audio and lighting control at the Sierk Janszen at Rapenburg Plaza concludes: "We wanted to use the latest technologies to bring military history closer to people, to immerse them and encourage them to participate, and to make them aware of their involvement. The results of our work is a fantastic museum which is unique in Europe and a pleasure to visit for the whole family."

Rapenburg Plaza's involvement with the project doesn't end with its opening. They will manage various elements of the facility well into its operation to make sure it runs smoothly.

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Project Credits

- Lead constructor: Heijmans
- Architecture: Felix Claus Dick van Wageningen Architects
- Landscape: H+N+S Landscape Architects
- Exhibition design: Kossmann.dejong
- Main contractor responsible for process and project management development, construction-engineering and the complete realisation: Bruns
- Lighting design and system integrator: Rapenburg Plaza
- Creation of Interactive Content - Animation, Film and Audio: Shosho, Fabrique & Aanpak film

About Rapenburg Plaza

Rapenburg Plaza is an international lighting design, audiovisual and show control company that creates solutions for a wide range of markets ranging from visitor attractions, museums, theatre and corporate meeting rooms. In a world where imagination is king, it's no accident that Rapenburg Plaza has its experience and roots in theatre. The company has built a solid reputation for working on creative and complex projects. More information about Rapenburg Plaza can be found at: www.rapenburgplaza.com

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Supporting Information about Lighting, Networks and Control

Museum wide installation

Rapenburg Plaza created a network based installation making it easy to replace, upgrade and maintain equipment, without needing to replace basic cabling and control infrastructures.

A self-designed monitoring system allows Rapenburg Plaza to communicate with each custom designed 'Raapu' device, show control systems and the lighting controllers via Wifi. Engineers are able to connect through laptop tablet or even a smart-phone.

Creating dramatic lighting

Rapenburg Plaza applied their extensive experience from the stage and live events industry to this project.

"An essential part of the technical infrastructure, was theatre like lighting-bridges. We used our own initiative and design. As such a lot of AV equipment and lighting is installed it has to be accessible for maintenance. All installed equipment is connected to the AV/Lighting intranet network, allowing direct monitoring and communication with each separate device in the system."

"Because of the sheer size of the building, the long distances of cable runs, and the fact that the equipment is mounted locally in exhibits, high ceilings or in one of the seven equipment rooms, it is a challenge to keep all of this under control," said Sierk Janszen, Partner, Rapenburg Plaza.

Rapenburg Plaza was responsible for this lighting control system and its programming. During planning, the lighting design by Rapenburg Plaza's in-house Lighting Designer, Pelle Herfst, consisted of more than 3,900 energy efficient lighting sources. Some of the basic principles behind this was to use individually controlled and theatre like fixtures and energy-efficient (LED) light sources.

In the theme halls and experience rooms, Rapenburg Plaza made extensive use of dynamic theatre lighting in order to reinforce the atmosphere in the room, to support the projected images or to enhance a story. The use of changing colour moods was made possible by RGB(W) light sources.

To enable this integration and to synchronise the light with all audio and video, almost all light is controlled using the DMX protocol. Additionally, an important part of the lighting design are the controllable 1519 DMX display spots with zoom lenses that were specially designed according to Rapenburg Plaza's specifications.

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"Lighting creates an exciting, theatrical experience and also to ensure the extremely low lux values. This enabled the collection to be precisely lit and the percentages could also be adjusted so that the objects were not exposed to more than the maximum permitted light levels," said Pelle Herfst.

Rapenburg Plaza in Control

To control all exhibition components, Rapenburg Plaza designed, installed and programmed a network-based show control system. This system not only gives the personnel complete control over the lighting and AV equipment but also allows the Rapenburg Plaza programmers to manage and monitor the entire installation remotely – a valuable tool.

This system comprises Medialon software, KissBox interfaces and industrial network hardware and software.

The lighting Control system is based on a network of 28 distributed Pharos controllers divided over the 7 equipment rooms controlling 8,000 lighting channels.

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