CASE STUDY

Morrison Planetarium, California Academy of Sciences
www.calacademy.org

global immersion
immersive theater. no limits.

The Morrison Moves Home

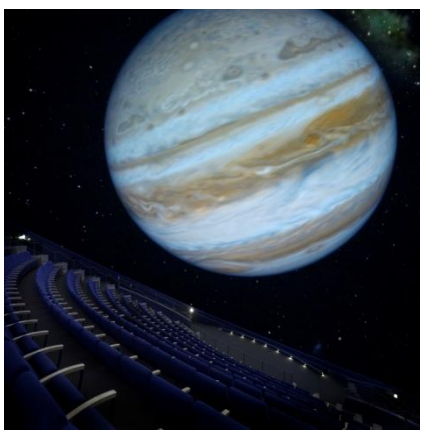
San Francisco's California Academy of Sciences has been rebuilt; choosing Global Immersion to help them raise the bar for visualization of earth and space sciences in one of the world's biggest and greenest digital fulldome theaters.

Morrison Planetarium at the California Academy of Sciences has recently undergone a large-scale relocation and eco-friendly upgrade - making it the largest all-digital planetarium in the world.

Situated in Golden Gate Park, San Francisco, the California Academy of Sciences is an international 'hub' for research, education, and scientific discovery, and has been dedicated to the Natural World since its establishment in 1853. One hundred and fifty-six years on, and the all-new Academy site has been re-designed and re-built in a $488 million redevelopment project – housing Steinhart Aquarium, the Kimball Natural History Museum and Morrison Planetarium; all under one roof.

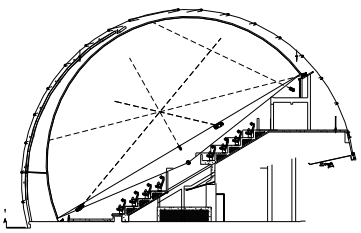
The Academy's Mission

The California Academy of Sciences has had a lifelong ambition of exploring, understanding and protecting nature and science. On September 14 2005, the three-year construction began on the new site in Golden Gate Park following the closure and demolition of the original Academy in 2003. Since then, prize-winning Italian architect Renzo Piano Building Workshop in collaboration with Stantec Architecture (formerly Chong Partners), have seen their innovative structural design take shape, finally opening to the public on September 27, 2008.



Ryan Wyatt, Director of Morrison Planetarium and Science Visualization said "Until recently, the Academy was based at a temporary location in San Francisco. The center has now returned to Golden Gate Park. This time around, it was carefully constructed to integrate more sensitively into its surroundings. The top of the planetarium Protrudes under one of seven hills on our innovative living roof which has been planted with 1.7 million native Californian plants – weighing more than 2.6 million pounds."

'...our visitors will become spectators of some of the greatest shows on Earth – and beyond.'
Ryan Wyatt, California Academy of Sciences



The Academy will continue its pioneering scientific research at the new headquarters. "We wanted a planetarium that would allow for data-based science visualization in a compelling immersive environment." Wyatt continued. "We carefully selected technologically advanced hardware from a number of suppliers - providing a platform for expert storytelling and ensuring that our visitors will become spectators of some of the greatest on Earth – and beyond."

High-end customization

The new Morrison Planetarium hosts a range of state-of-the-art equipment, including a Global Immersion Fidelity Bright™ display solution as one of the main focal points.

Renowned for having the first American-made star projector in 1952, the new planetarium is entirely digital. Six Fidelity™ projectiondesign® F30 projectors were integrated around the 22.8 meter (78-ft) dome, giving each of the audience members in the 300 seat theater a seamless immersive experience.

Alan Caskey, General Manager of the Americas at Global Immersion says "The projection system we designed for the

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Screenshot from Uniview™ displaying 100 brightest satellites visible with naked eye. Image © SCISS AB

F30 projector. Image © projectiondesign® as

Morrison produces ultra bright, razor-sharp, punchy and colorful results, with stunning contrast levels - the high-resolution nature of these projectors is perfectly suited to our proprietary server technology. In terms of performance, our Media Server input streams uncompressed content; which means that the number of pixels the show producer intended to be screened is the number of pixels being displayed on the dome. Unlike other industry solutions, our completely lossless server solution uses the proprietary file format of the show... not an MPEG in sight! It's been an ideal configuration for the Academy - allowing the team to display vivid, sharp recreations of the night sky".

"Once we had installed the media playback, server and video switching systems, the tilted dome screen was integrated. We also custom designed the video switching system to enable theater staff at the Academy to easily cross-fade and switch between the three server clusters – meaning that the solution is quick to change between real-time and pre-rendered content."

Collaborative project

New-media and visualization technology consultants, Visual Acuity Ltd, led and managed the design of the planetarium.

Swedish company SCISS, and New-England based Sky-Skan integrated their technologies into the Global Immersion Fidelity Bright display solution. "We currently run three separate clusters in the control room - the Global Immersion rack is holding seven Media Servers and a GUI machine and working alongside the SCISS Uniview cluster." Wyatt explained. "We use each platform to its strengths, offering both real-time data visualization and the highest-quality fulldome video playback. Diversifying our theater functionality with three separate vendor solutions allows us to enjoy the benefits of a broad scope of technologies."

Global Immersion also worked closely with the Academy's production team to produce the planetarium's first large-scale fulldome Presentation, *Fragile Planet*. "Jan Breens, our Media Integration Manager, was assigned to assist with Uniview production, rendering and the biggest names in the film animation industry to produce really stunning visuals for the dome" adds Caskey. "The new Academy really is going 'all out' to utilize its immersive space – incorporating shows, presentations and product launches from a wide scope of entertainment industries."

Theater capabilities

"All of our systems are linked to a UPS for power control within the Morrison so that all devices and applications can be controlled from one unit" Caskey explained. "The two boxes positioned within the planetarium monitor and maintain the status of all connected hardware within the theater and server room – reducing the risk of power or hardware failure."

"A couple of the standard features of our Fidelity Bright display solutions are low cost of ownership and low power consumption. These benefits were of real importance to the Academy in order for them to operate in an environmentally responsible manner, minimizing unnecessary consumption or loss of energy. All of the technologies are tried, tested, mature, and stable, meaning the risk of our Engineers having to travel out there to replace a lamp or repair a fault is hugely reduced – so at least our flight carbon emissions can be minimized!"

Building a sustainable future

The California Academy of Sciences was awarded the title of World's largest public LEED™ (Leadership in Energy and Environmental Design) Platinum certified building shortly after it opened. The Academy has also been awarded a Silver Holcim Award for Sustainable Construction.

'Our completely lossless server solution uses the proprietary file format of the show ... not an MPEG in sight!'
Alan Caskey, Global Immersion

"The Academy's mission to create an iconic venue that reflected its dedication and commitment to our planet has really come alive as a result of this redevelopment project" Caskey concluded. "By paying attention to every seemingly minor detail such as cable and fixture suppliers and contractor mode of transport through to material used to insulate the building – recycled blue jeans material (in case you were wondering), they have created an environmental masterpiece with a truly stunning planetarium – something that is sure to wow many audiences and visitors to come."