

CUSTOMER SUCCESS STORY | SUFFOLK-YATES

# VIRTUAL REALITY AND THE CREATION OF A 450-FOOT GUITAR



Image Courtesy of Theia Interactive



# SUFFOLK-YATES BUILDS ICONIC DESTINATIONS WITH VR

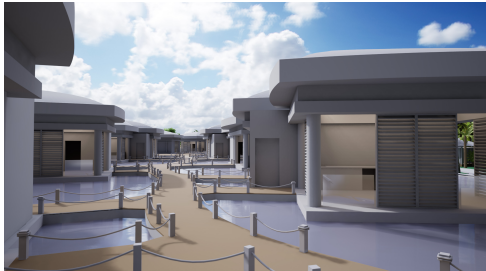


Image Courtesy of Theia Interactive


## REASONS FOR NVIDIA QUADRO P4000

- > Low latency, even with large models with millions of polygons
- > Designed for creating detailed, lifelike VR experiences from anywhere
- > Fueled by NVIDIA® Pascal™, NVIDIA's state-of-the-art GPU architecture
- > 1,792 NVIDIA CUDA® parallel-processing cores, 8 GB GDDR5 VRAM, with a PCI Express 3.0 x16 interface

## REASONS FOR NVIDIA QUADRO GV100

- > The most powerful computing platform for VR, AI, high performance computing, and graphics workloads on professional desktop workstations
- > Based on NVIDIA Volta GPU architecture that delivers extreme memory capacity, scalability, and performance
- > 32 GB HBM2 GPU memory with 5,120 NVIDIA CUDA cores and 640 NVIDIA Tensor cores

## CUSTOMER PROFILE

	Organization	Industry	Location	Founded	Employees	Website
	Suffolk-Yates	Architecture, engineering, and construction	Headquartered in Boston, MA (Suffolk) Headquartered in Philadelphia, MS (Yates)	1982 (Suffolk) 1964 (Yates)	1,200 (Suffolk) 9,000 (Yates)	<a href="http://www.suffolk.com">www.suffolk.com</a> <a href="http://www.wgyates.com">www.wgyates.com</a>

## A COMMITMENT TO INNOVATION

When Suffolk-Yates was awarded the contract to build the stunning, \$1.5 billion expansion of the Seminole Hard Rock Hotel & Casino in Hollywood, Florida, the firm's executives knew they'd have to approach the project with their best people, innovative processes, and cutting-edge technologies.

The far-reaching project, scheduled for completion in late 2019 in advance of Super Bowl LIV at nearby Hard Rock Stadium, includes the following iconic elements:

- > An expanded gaming floor with 3,000 slot machines, 193 table games, and new Hard Rock Live entertainment venue with 6,500 theater-style seats
- > An elaborate pool complex that delivers a "Bora Bora Experience," with private villas surrounded by water and waterfalls
- > A first ever, guitar shaped hotel tower, featuring 638 luxury guest rooms designed to resemble back-to-back guitars, with guitar faces, necks, and brightly lit guitar strings reaching 450 into the sky on both sides

To accelerate schedules, eliminate costs, and minimize waste, the Suffolk-Yates team called on Theia Interactive, a virtual reality (VR)-based creative studio in Chico, California. "As projects become more complex and the need for accountability increases, we see significant value in leveraging virtual reality technologies," says Christopher Mayer, Executive Vice President and Chief Innovation Officer at Suffolk-Yates. "VR enables us to deliver the kind of predictable and efficient results our clients really appreciate."

Suffolk-Yates' partnership with Theia Interactive is one manifestation of the construction company's "build smart" credo, the driving force behind a commitment to continuous improvement. Because of the complexity involved in creating the new flagship property for Hard Rock International—the hotel tower alone has more than 60 different room configurations and no two floors are the same—VR wasn't just nice-to-have, it was a necessity.



Images Courtesy of Theia Interactive

## PRODUCTS

NVIDIA Quadro® P4000  
Silverdraft Demon VR  
Workstations with NVIDIA  
Quadro GV100

**“With the scale of this project, getting spaces correct was critically important for the client. Having VR technology at our disposal really elevated us in their eyes.”**

Kyle Goebel  
Senior VDC Manager  
Suffolk-Yates

## NVIDIA-POWERED VR GIVES SUFFOLK-YATES ROCK-STAR STATUS

In planning meetings, stakeholders used VR to help visualize the design and construction of the hotel rooms, especially those in the guitar-shaped tower. The visualizations added an extra layer of design review, so decisions about furniture, fixtures, and equipment could be made prior to spending time and money on physical mockups. “We started using VR at a very high level,” says Kyle Goebel, Senior VDC Manager at Suffolk-Yates. “But it soon took on a life of its own as we opened up the virtual walkthroughs to input from key tradespeople and maintenance staff.”

To get the project into VR, the Suffolk-Yates team passed baseline Revit models, computer-aided design (CAD) files, and contract documents to Theia Interactive, which used Silverdraft Demon workstations powered by NVIDIA Quadro GV100 GPUs to create the immersive VR environment. “In addition to the GV100 being the fastest graphics card we’ve tested for VR, our Silverdraft Demons have substantially improved the efficiency of our production pipeline,” says Stephen Phillips, Theia Interactive’s co-founder and CTO. “We’re getting our fastest load times, our shortest Unreal Engine light build times, stability in our biggest datasets, nearly zero overhead for multitasking across multiple software packages, and, of course, excellent performance in VR executables.”

Once everything was translated to VR, it became possible to experiment with everything from wall coverings, textures, decorations, and the placement of items like thermostats, sprinklers, smoke detectors, and lights. “We went through a very detailed review about where to put the robes in the bathroom,” recalls Goebel.



Image Courtesy of Theia Interactive

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**“High visual fidelity VR reveals true scale and better actual sense of what the entire team is trying to accomplish.”**

Bill Fishkin  
President  
Theia Interactive

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**“The NVIDIA P4000 graphics cards... gave us higher-quality textures and lightmap resolutions for an incredible level of realism.”**

Kyle Goebel  
Senior VDC Manager  
Suffolk-Yates

Review meetings occurred on a biweekly basis in the trailer city that was set up at the construction site, with up to 20 people in the room and another five or six on the phone. While one person donned the VR headset, everyone else watched a video of the virtual walkthrough. “The NVIDIA P4000 graphics cards that powered our computers gave us higher-quality textures and lightmap resolutions for an incredible level of realism,” Goebel says. After the review meetings, stakeholders could review the video on Vimeo and insert comments at specific points in the footage.

According to Goebel, “VR helped us get all the details just right, which is especially important for customer-facing spaces. We were able to have rich, dynamic discussions about stone ledges behind the headboards, curtain mechanisms, and even the color of soap in the bathrooms.” Thanks to VR, backlit hallway panels were tweaked to make sure the hotel’s vacuum cleaners could reach behind them. Proper hoist sizes were determined to ensure that bathtubs could be installed in the rooms. And wands were added to make it easier for the housekeeping staff to keep shower areas sparkling. On a larger scale, a line-of-sight study in VR ensured that every view in the 13.5-acre resort pool complex was a spectacular one.

“With VR, you really understand what it’s like to be in a space,” says Bill Fishkin, president of Theia Interactive. “Even with smart, experienced designers, tradespeople, and builders, working with just 2D has a multitude of disadvantages. High visual fidelity VR gives you true scale and sense of what the entire team is trying to accomplish.”

While the construction team did build physical mockups for some of the room configurations, the changes made at that point were insignificant because of the VR walkthroughs. “We had nowhere near the number of iterations we would have had without VR,” asserts Goebel. “Each iteration we didn’t do saved the client hundreds of thousands of dollars.”

For more information, visit:  
[www.nvidia.com/AEC](http://www.nvidia.com/AEC)

[www.nvidia.com](http://www.nvidia.com)



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