Desinologists call it the OMG moment. It’s the big reveal, a jaw-dropping, stop-and-stare sliver of time when a theme-park visitor gets swept away with a carefully planned effect meant to be so dramatic, so memorable, as to be utterly captivating.

For the designers at PGAV Destinations, a St. Louis firm that has built some of the world’s largest and most spectacular zoos, aquariums, museums and theme parks, the OMG moment is the climax of a narrative carefully crafted to guide their own design of these multimillion dollar “destinations” and to shape the experience of the paying customers into something more memorable than simply a day at the park.

At the Space Shuttle Atlantis exhibition, which opened in June 2013 at NASA’s Kennedy Space Center on Merritt Island, Florida, the buildup to the big payoff starts outside the multistory complex, where life-size replicas of the craft’s twin solid rocket boosters and towering 15-story fuel tanks give visitors a feel for the immensity of the shuttle’s launch apparatus. Inside, in a unique, immersive theatre, a film projected on the walls and ceiling depicts the history of Atlantis and the shuttle program. At the conclusion, a floor-to-ceiling screen lifts to reveal the shuttle itself just a few feet away, banked as if on mid-turn, payload bay doors open, robotic arm outstretched just out of reach of exhibitgoers on the viewing floor.

For Jayhawk architects who design summer fun, the creative journey is all about the destinations

by Steven Hill

Portrait by Kevin Lowder | Destination photographs by PGAV
The intent is to showcase the shuttle in its active, working mode, suspended in space,” Diane Porthouse Lochner, a’91, says of the design process behind the $100 million exhibit. The design team wanted visitors’ first glimpse of the shuttle to be a close-up—a tricky proposition for a 120-foot-long craft housed in a building that’s visible for miles—and they wanted it to pack an emotional punch. “The flyway screen accomplishes both, hiding the star of the show until the dramatic reveal delivers the climax to a story that has been steadily building since visitors stepped through the door.

“A lot of people cry, a lot of people clap and cheer, and some people gasp like they’re watching fireworks,” Lochner says. “The reveal puts them in a different position than just walking up and seeing something. The idea is to script the experience.”

One of four School of Architecture, Design and Planning alumni at PGAV, Lochner, a vice president, specializes in culture and heritage projects but also works in the firm’s other four sectors: zoos and aquariums, themed attractions, brand and hospitality and gaming. As a project manager on some of PGAV’s biggest design jobs, she oversees teams of architects, landscape architects, graphic designers, sculptors, artists, storytellers, copywriters and scriptwriters. All put their particular skills to work in the interest of destinology—a term PGAV coined to describe the multidisciplinary “art and science” of planning, designing and constructing not just buildings and rides, but entire destination experiences.

Destinology, Lochner explains, isn’t all about “splash rides and roller coasters.” It’s way more complicated than that. “We really talk about creating the experience from the inside out. We don’t want to build a shell and fill it. We want to put the premier artifact—in this case the Space Shuttle Atlantis—in the center and build the experience around that.”

At the Space Center, that meant constructing three walls of the Atlantis complex, then moving the shuttle into the building before completing the fourth wall. The multistory design guides exhibitgoers up to the theatre for the big reveal, then allows them to filter down several levels at their own pace. One option for the descent: a slide that allows the adventurous to feel firsthand the shuttle’s unique glide path, which is much steeper than the landing angle passengers experience on a commercial airliner.

“You move them through the exhibit and prepare them, emotionally, to see this fabulous artifact,” Lochner says. “You don’t want them to just walk in the door and see it; you want to start to tell its story.”

The genius of PGAV’s Space Center exhibit—the key element that most distinguishes Atlantis from the other three shuttles held in museums around the United States—is the decision to display the craft afloat. “That decision was made very early on, as it is in all our projects,” Lochner says. “The team realized that we wanted to show the shuttle not as a static element, but as the workhorse that it was.” Playing with 3-D modeling and other design tools, the PGAV team determined the precise angle that’s visible for miles—and they wanted it to be the best view of the shuttle, and only then did they begin to design the building that would house the exhibit. Everything else—from the architecture of the hall to the script for the film to the design and placement of individual exhibits—flowed from that decision.

The tilt is essential, Lochner says, because it puts visitors in space alongside Atlantis, with an astronaut’s-eye view that makes it easy to imagine clambering into the payload bay or floating above the craft on a space walk. By firing the imagination, it brings the story alive.

“You can touch lives in a lot of different ways, and we can do it by creating these experiences that allow people to connect to something that interests them,” she says. “It can be life-changing, I think, for some people.”

Suddenly finding yourself nose-to-nose with a space shuttle is a goose bump moment that shows theme-park thrills can not only churn the stomach, but also move the heart. It never occurred to you that someone had to design the Magic Kingdom, that Busch Gardens didn’t just unfurl in one piece, like a giant pop-up book on roller coasters and water slides, that’s OK with John Kemper.

Close to 300 million people visit the more than 400 amusement venues in the United States each year, according to the International Association of Amusement Parks and Attractions, the industry’s largest international trade association. But it’s a safe bet that few of us heading out for a fun-fair joyride this summer have given much thought to the immense brainpower and creative energy that go into producing the thrills we seek.

Kemper didn’t—even though he was studying architecture and had spent four summers working at a St. Louis theme park.

He discovered PGAV during an internship with an engineering firm after his sophomore year. “I learned they designed animal exhibits,” recalls Kemper, a’83, z’84, who enjoyed a strong childhood interest in the natural world. “I never knew somebody actually designed those things. It just never occurred to me.”

Excited by the prospect of combining his personal and professional interests, he landed a summer internship at PGAV, followed that with an eight-month internship, then joined the firm after graduation. Now a vice president and an industry leader in zoo and aquarium design, he has spent his entire 31-year career at PGAV.

Destinology, according to Kemper, is about thinking of ways to engage people during a visit, and to make sure they take something away after they leave. “We do that often through storytelling. We do that through immersion, and we do...
that through proximity, in some cases, when it comes to animals.”

In 1997 Kemper was lead architect on the Edge of Africa exhibition at Busch Gardens Tampa. Rather than attempt to simulate a totally wild habitat, the PGAV team created a safari camp scenario: Exhibitgoers cast in the role of safari participants encounter lions that have taken over their camp. The big payoff in the attraction comes as visitors sit in the cab of a Land Rover just inches from a lion resting in the truck’s bed.

“It was my job to deliver that,” Kemper says. He took a plastic model of a Land Rover into the shop and worked with band saw and balsa wood to mock up a design that threaded glass through the vehicle to provide close-up views at multiple angles.

Having taken care of the visitor, he turned his attention next to the lions.

“We had to figure out, ‘OK, how do we know a lion is going to be there?’”

The solution: Replace the vehicle engine with a hidden fan that blows air.

“This is Florida. Lions are programmed to sleep in the middle of the day in a cool spot, and the dominant male or female always gets first pick. So we made sure the coolest place was in the bed, not under a tree 40 yards away.

“We were very proud that we figured out how to deliver that OMG moment.”

More than merely engineering the thrill of a close encounter with the king of the jungle, the exhibit also checks another of PGAV’s boxes: “We want people to have something more than just a pass-by experience,” Kemper says. Framing the encounter as a safari adventure gives viewers a chance to consider not just the lion in its habitat, but the effect that human intrusion has on that habitat.

“You see a lion in a truck, and you think, ‘That’s not right!’ You dig a little further, discover the cues, and realize, ‘Oh, I’m on safari and this camp is where I belong’; but the lions are saying, ‘no, we belong here, too.’

Architects, it seems, have their own OMG moments. Inspiring people to dig a little further—to move from imagining themselves on safari or floating through space to exploring a subject in greater depth—is the payoff for the people who design these destinations.

“It’s hoping that one person visiting one of these attractions is inspired to become a marine biologist or to serve their country or to learn more about history,” says Lochner, whose master plan for Patriots Point, the South Carolina site of the USS Yorktown, includes a museum honoring Medal of Honor recipients. “For me, as a mother, certainly the hope of inspiring a child to learn, to explore a topic deeper, is the greatest part of this whole thing.”

Noble goals, inspiration and education. But one thing trumps both.

“Fun.”

“Fun isn’t always the spoonful of sugar that makes the medicine go down. Sometimes it’s the whole point.”

At PortAventura, Spain’s first theme park and the third largest theme park in Europe, Kemper has been involved since the early 1990s, when he led initial construction of a section of the park; last year he helped design a new attraction called Angkor: Adventure in the Lost Kingdom. The world’s longest interactive boat ride, it was voted Europe’s Best Family Ride at the European Star Awards.

The freewheeling “splash battle” equips boaters with a sophisticated squirt gun...
and a variety of targets, including animatronic critters, other riders and spectators—all of whom can squirt back.

“There's no education or takeaway other than just have a lot of fun,” Kemper says. “It's totally immersive. Figuratively, but also literally.”

As a St. Louis firm, PGAV has played a dominant role in shaping the cultural life of its hometown. Lochner oversaw master planning for the Ridgway Visitor Center for the Missouri Botanical Garden, and Kemper directed the design of many exhibits at the St. Louis Zoo, including the McDonnell Polar Bear Point, Sea Lion Sound, Big Cat Country, and—with help from fellow alumnus Jim Dee—Penguin and Puffin Coast and Fragile Forest. Dee, ’99, has also worked on several of the firm's Anheuser-Busch projects, including recent renovations of the brewery's Tasting Room and Old Schoolhouse and construction of a new biergarten. Lindsey Evans, g’08, a member of the Studio 804 class that built the 547 Arts Center in Greensburg, Kansas, and an expert in LEED certification and green construction techniques, has also done work for Anheuser-Busch and was instrumental in the design of the recently opened St. Louis Cardinals Hall of Fame and Museum at Busch Stadium.

Dee still recalls one of his first ride projects—Journey to Atlantis at SeaWorld San Diego in 2001—as among the high points of his career. Journey to Atlantis combines a track coaster and a water ride, at one point secretly lifting riders 100 feet in an enclosed tower, then surprising them with the coaster's highest drop.

“I got to be out there from the time it was just a mound of dirt to the point where you could actually ride the ride,” he says. “It's really cool to work on the design and then see this thing come out of the ground and then finally get to experience it the way we all intended. It was one of my most incredible experiences. To see it go from lines on paper to concrete to a real project with all this rich detail—that's an amazing process.”

Demand for ever more daring rides and more fantastic adventure realms is growing, Kemper says, but increasingly that demand comes from overseas.

“It will keep growing because it hasn't arrived in all the countries that have lots of people with expanding middle-class incomes who want and deserve something to do with their free time,” he says. “So we have more and more work in places like China.” Setting the bar is the PGAV-designed Chimelong Ocean Kingdom, which broke five Guinness World Records, including largest aquarium, when it opened in 2014, and in March became the eighth PGAV project to win a prestigious Thea Award from the Themed Entertainment Association.

The U.S. market for zoos, aquariums, theme parks and other tourist destinations shows signs of becoming saturated, Kemper believes, but the most successful must continue to evolve or risk becoming old hat—good news for him and his colleagues.

One thing is clear: The world's appetite for distraction shows no signs of abating. If anything, it grows as the demands of modern life press ever more hotly at our heels.

“We don't just want our never-never lands, Kemper says. We need them. “We need them because we're human and we need to spend time in recreation in order to be good at what we do for a living. We've always had that need, but now we have more and more tools to have more and more fun. We can do more with technology, more with thrills, than we could 100 years ago.”

And the next 100? “The sky's the limit,” Kemper says. The journey continues, and the ride should be a lot of fun.