

# ELECTRICAL CONTRACTOR

POWER AND INTEGRATED BUILDING SYSTEMS

THEME PARK JOBS  
CONTRACTORS  
AND COMPUTERS

SPECIAL NECA SHOW ISSUE



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FOCUS

By Susan Casey

# The Magic Behind

## WIRING A ROLLER COASTER IS A FAR CRY FROM RESIDENTIAL WORK

“IT’S NOT LIKE BUILDING A SCHOOL or a classroom. It’s a vision put on paper. And when you see the theme come to life, you get engrossed in it, feel the whole thing, live it—the design, the purpose and the outcome,” said Andy De La Parte, president, A & A Electric Services Inc.

of Tampa, Fla., a company whose credits include the roller coasters Gwazi and Kumba; the Rhino Rally off-road adventure and R.L. Stine’s Haunted Lighthouse theater—all at Busch Gardens, Tampa Bay. “You can see the intent on the blueprints but you don’t know the outcome until it is finished. It’s not only interesting, it’s fun. It’s not normal construction.”

Do his comments make you want to bid for theme park work? Or run screaming from the possibility? Theme park work is different. Just ask electrical contractors seasoned by their experiences constructing and maintaining rides, attractions and hotels in Florida, home to a host of theme parks. If you want to embark on it, be ready for the unexpected, for unusual challenges. Practice being flexible and estimating without the book. Be ready to quadruple your work force in short order to handle changes. Get set for a rigid deadline—and for the ups-and-downs of the business.

What’s the unexpected? “You have areas like the animal ex-

**ERMCO of Florida’s electricians, trained and certified in high-access rappelling, tied off points made specifically for rappelling to maintain the light bulbs that make up the word “EPCOT” and other lighting associated with the EPCOT wand next to Spaceship Earth.**

hibits, the pens and cages, and you look at the plans and constantly ask yourself, “Why do they have this here?” said De La Parte. “Then you find out the reason. You can’t get in a cage with a tiger or push an elephant out of the way. It’s not your standard set up. When you build an elephant display you have to bury the conduits very deep—up to four feet—because if the elephant can feel or hear vibrations, they’ll dig it up. Tigers are are different. You have to make sure that there’s nothing in the cage that will prompt the tiger to start thinking, ‘What is that thing there?’ You can’t have anything in the cage that the tiger could use to hurt himself.”

How about unusual challenges? “Every job is a whole new concept. You have to be a problem solver as well as a problem finder,” said Scott Maddox, president, Ermco of Florida. Ermco’s work includes Buzz Lightyear’s Space Ranger Spin and the Many Adventures of Winnie the Pooh at Disney’s Magic Kingdom; the Twi-

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light Zone Tower of Terror, Rockin' Roller Coaster and the Sorcerer's Hat at Disney-MGM Studios; Mission: SPACE at Epcot (a project with a total construction budget of \$100 million) and attractions at Disney's Animal Kingdom Park. "We arranged a series of light bulbs to spell out the word 'Epcot' on a 150-foot tower that arches over a giant ball. Whenever the light bulbs burn out or need changes, we have to do it. I could rent a lift for \$3,500 a day every time. Instead, I got a group of our guys trained in high-access rappelling. The guys strap themselves in, swing down and change light bulbs, put conduit in or whatever is required."

On another job Ermco of Florida was asked to run 12-inch PVC

conduit underground and bend it. Not your usual conduit size—or work order. Their solution? Fill the pipe with water, plug it on both ends, attach a pressure gauge on one end, heat the water, and presto: the pipe became pliable enough to bend. "I can't stress enough that what makes us successful at theme parks," said Maddox, "is that our people come up with resourceful ways to get jobs done."

The degree of detail called for in the work also affects the number of work hours. "If you take some of the intricate systems in-

# Theme Park Jobs

cal blacksmiths. Again, nothing could prepare you to build a light that looks like a campfire in an African plain." Consolidated's Vice President Byron Griffin added, "We remade the lights many times to get them right." Additionally, on the ceiling in the lobby of the Lodge, Consolidated was asked to install one-of-a-kind light fixtures to look like an African ceremonial structure consisting of shields surrounded by a ring of actual spears with hidden lights and multiple dimming circuits. "There are no standard work units for installing these," said Griffin.

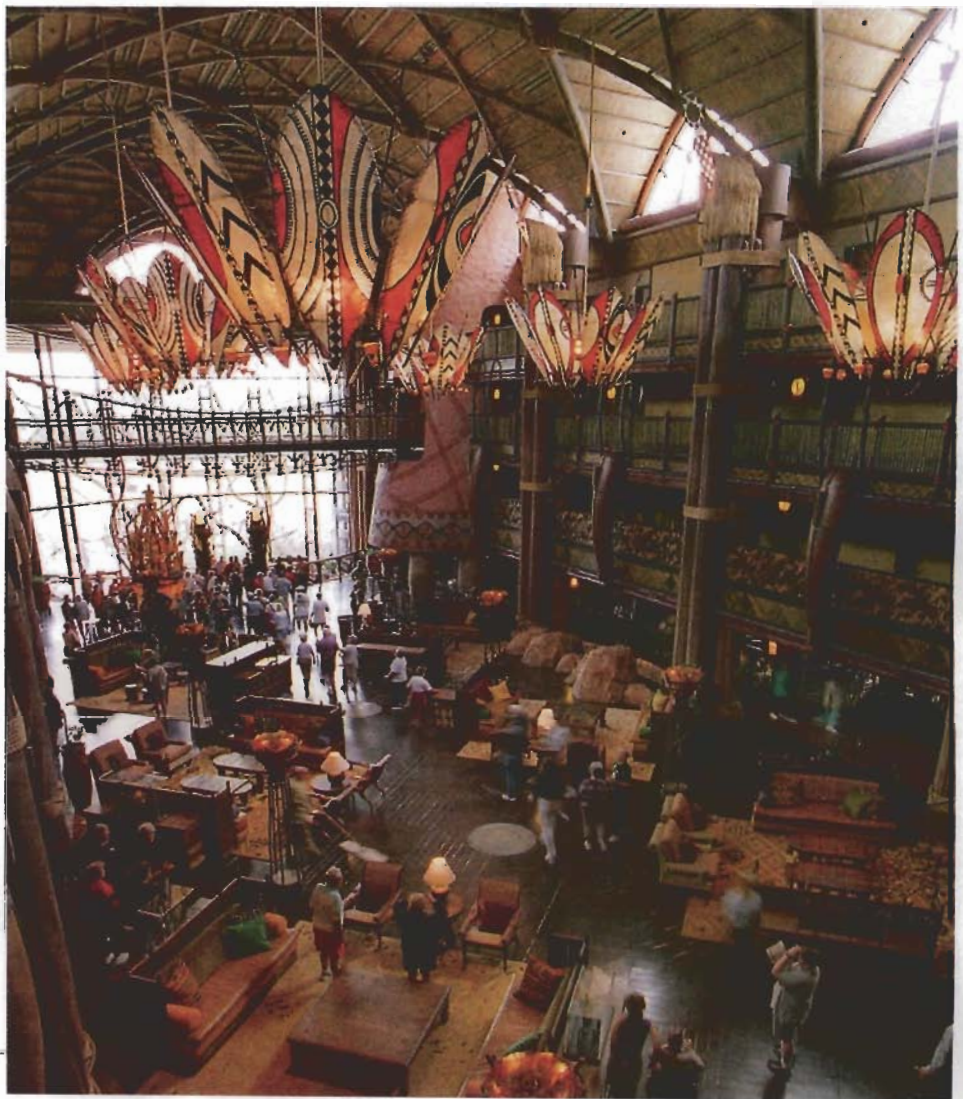
Estimating the work requires creative thinking. "When dealing with theme parks the work is very different than what a normal electrical contractor sees in his everyday commercial and industrial job. There are no estimating units," said Terry Wallace, president of Consolidated Electrical Contractors & Engineers Inc., whose credits include Disney's Animal Kingdom Lodge, Universal CityWalk, the studio store at Universal Orlando and Jimmy Buffet's Margaritaville. "Most things are prototypes, something built for that park that you may never have built before. Very little goes from point A to point B. You constantly have to be willing to make a change, modify equipment or the way things are being wired."

For Disney's Animal Kingdom Lodge, Consolidated helped create the illusion of campfires on an African plain in a large field outside the hotel, a scene hotel guests would see at night. "We installed light fixtures out there to represent that same glow," said Wallace. "While the lights were installed underground, the parts resembling the glow of fire were handmade by lo-

cal blacksmiths. Again, nothing could prepare you to build a light that looks like a campfire in an African plain." Consolidated's Vice President Byron Griffin added, "We remade the lights many times to get them right." Additionally, on the ceiling in the lobby of the Lodge, Consolidated was asked to install one-of-a-kind light fixtures to look like an African ceremonial structure consisting of shields surrounded by a ring of actual spears with hidden lights and multiple dimming circuits. "There are no standard work units for installing these," said Griffin.

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**Consolidated's first challenge in installing fixtures in the lobby of Disney's Animal Kingdom Lodge was in estimating units. Special support brackets and safety cables were items that had to be accounted for in the bid.**



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And the job doesn't end with installation. "In a theme park, when they come into a building and turn the light on, you have to plan to spend time doing fine tuning to create a mood, a feel," said De La Parte. "When we do a gift shop, the theme park people know exactly how much light should be on clothing or knickknacks. The lights are spaced so the merchandise has more appeal to customers walking into the store."

All the changes take time, lots of it at odd hours. "As a contractor you have to provide service 24 hours a day," said Gordon Mark, president of GMI Construction Services Inc. and a former Disney employee. Mark now has his own company, whose credits include Discovery Cove Park at Sea World, America's Health Network at Universal Studios and the General Electric exhibit at Walt Disney World's Epcot Innoventions. "Most work is done at night, from 11 p.m. to 7 a.m. That's a huge thing most people don't understand. Disney doesn't want their guests complaining about construction workers. So unless you can do your work behind the scenes, a lot of it is done at night."

When work is done during the day, the crew has to be aware of the customer at all times. "We built a 140-foot-tall sorcerer's hat for the 100th anniversary of Walt Disney's birthday," said Maddox. "It was in the middle of the park and we had a tight schedule. So when we are working in the eyes of the customers, the workers have to be polite, can't talk to the guests or gawk at women. The workers are representing the theme park as much as our company," he said. "Since we have guys working 24 hours a day, we put in trailers with restrooms, TV, microwaves, so they can go there and eat, take a shower, get a rest and then go back to work."

And every detail of theme park work is closely scrutinized. Walt Disney Imagineering (WDI) also has its own set of inspectors. "An inspector looks at what is code," continued Mark. "WDI people look at it totally differently. They look at it in terms of show quality, guest enhancement."

Even with planning, theme park jobs are complicated by the fact that all the tradespeople are working side-by-side, working to adhere to a strict timeline. "We did CityWalk," said Wallace. "On that job there were 2,000 RFIs [requests for information]—questions about how to do or make something, how to make it fit. No matter who asks the questions, it affects everybody. So the steel contractor needs to change how the steel goes together and changes the size of the room. If we start roughing in for our switchgear and he changes the size of the room, it won't fit. This happens because a lot of times you're building something that has never been built before. So you start off with 200-300 days to do the job and after the design corrections are made you might end up having only 180 days to do it."

So how does this figure in the bid? "There's no way you can put it in the bid to start," said Wallace, "but you can't stop the job to make the changes. You have to hire additional staff to get that job done while other staff goes on with the job. We can go from 30 to 200 workers in a short period of time because everything is being modified, but the opening date never changes. When we were doing a job at Universal, it went from 70 to 300 workers in a week and a half. And you have to have a good relationship with the owner to know that he's going to handle it and pay and that you'll treat



**The complexity of the systems incorporated in The Sorcerer's Hat required 22,000 feet of PVC conduit and 7,500 feet of EMT conduit and took 17,000 man-hours to complete.**

him right as well. You can't plan for it going in because you don't know how it's going to be. We never envisioned having that many changes, but we still opened on time."

Opening on time is the biggest challenge for theme park contractors. It affects every aspect of every job. Changes can mount on an ordinary job, but the deadline may be extended. Not so with theme park work. Millions of dollars are spent on advertising and marketing the opening date of a park or an attraction.

"So many people want to work for Disney, Sea World and Universal," said Mark, "and they come in, and think they don't have to meet the deadline. I've learned to respect what theme parks want. They hold the money and contract. If you don't meet the schedule, they'll roll over you and bring in someone else to finish the job and back charge you. As a contractor, I make money by the failures of other companies. They don't make the schedule. The parks call me in, pay me and back charge the other companies."

Accessibility to the job site can also be an unexpected challenge. "Most of the time we have to put our guys in a van or bus and transport them to the job site," Mark said.

Having access to a trained work force is a big element of success for theme park contractors. "I got a call from a contractor doing a job at Universal who said, 'Can you get me 80 guys in 48 hours?' We pulled it off," said Maddox. "That's the advantage of being a union contractor. All we had to do was call the hall. IBEW has been a real partner, a real asset."

However, amusement park work has dropped off post-Sept. 11. Is there a silver lining to the downturn? "Theme park business is a tough business because it depends on the economy and tourism," said De La Parte. "It relates to the construction spectrum because when there are no revenues, then the construction money is not there. But on the maintenance end, they have to maintain the park," he said. "That part never changes." **EC**

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