

Most construction jobs don't involve interactions with grizzly bears or mating moose. Most don't involve calling twice daily for a snow plow. Most don't involve maneuvering a 40-foot lift around the floor of a 100-year-old hotel to install feature lighting. Most don't grab the hearts of a community. Yet the 2016-17 rehabilitation of the national historic landmark Many Glacier Hotel in Montana's Glacier National Park included all of that and more.

Set near the Canadian border on the shores of Swiftcurrent Lake, the hotel was built in 1914-15 by the Great Northern Railway as a way to attract riders for its trains. These days, hotel guests arrive in all sorts of vehicles during the summer tourist season, and construction crews arrive just after a snow plow when the weather is foul. Due to the weather—and per the federal government—the hotel is open for motorized access only from April 1 to Dec. 30. Tourist season starts in June. The hotel has created generations of loyal customers.

The electrical contractor on the rehab project was Electrical Systems Inc. (ESI) of Kalispell, Mont. The hotel's strict calendar affected the construction schedule and required that it be done in phases.

"This job was a high priority," said Colby Miller, project manager and co-owner of ESI with Mel Medhus. "We were dealing with the local park service, road people, the concessionaire Xanterra, and the Denver Service Center of the National Park Service. You can't even build an outhouse in Glacier Park without going through a lot of hoops. That added a difficulty because there were a lot of people who needed to be pleased with the outcome, but all the entities worked together for the benefit of the park."

ESI electricians have worked on phases of the hotel rehabilitation dating back to 1995.



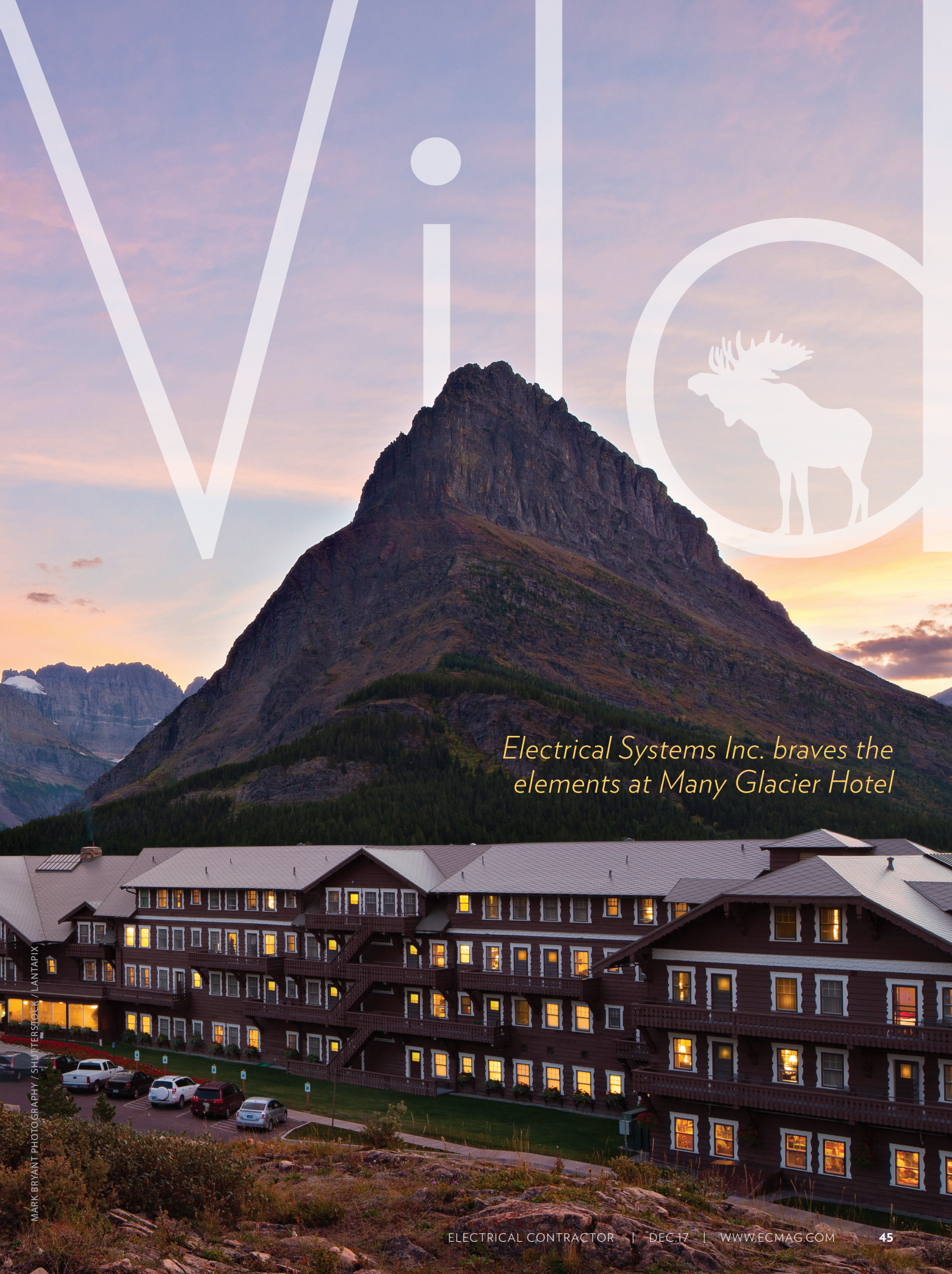
Left, Many Glacier Hotel lobby, circa 1930.

Right, the new LED and fluorescent lighting fixtures made with 3form resin were designed to echo the lobby's original Japanese paper lanterns.

into the



LEFT, COURTESY OF GLACIER PARK CONSERVANCY
RIGHT, COPYRIGHT MARK BRYANT PHOTOGRAPHY



*Electrical Systems Inc. braves the
elements at Many Glacier Hotel*

ESI's difficulties ranged from dealing with wildlife to inclement weather to the eccentricities of an old structure and the challenge of installing a unique lighting design. During the different phases, ESI's construction crew were visited daily by the four-legged residents of the area.

"Last fall, we watched bull moose swimming, pursuing the cows and pushing them around, swimming across the lake trying to mate," Miller said. "Another time, we watched as a moose had her calves. Grizzly bears passed by the hotel for weeks on end, and we dealt daily with black bears as well as bighorn sheep. They would come out and molest our vehicles, lick the road salt on our cars. You definitely don't just go walking around outside during the closed part of the year."

ESI's crews also couldn't rely on timely delivery of supplies.

"It's on the far side of the moon sometimes when trying to get materials to the project," Miller said.

For example, the lamps for the feature lighting were delivered to an open field—not to the hotel—a reality the crew discovered when the delivery service sent a photo of a lone tree in an open field as the drop point. The lamps were never found, which prompted a last-minute spending spree in neighboring towns as the deadline loomed.

"The weather is temperamental; there are still blizzards in May," Miller said. "There are very few days when the wind is not howling. We weren't out in the weather doing the work, but the building was barely tolerable because trying to heat a 100-year-old, leaky building with the wind whipping through it was definitely a challenge. In spring and fall, we

relied on the park service to plow the road out—sometimes twice a day for us—so that we could get in and out of the job. It got real dicey. Sometimes there comes a point when they say, 'We give up. We're not going to keep plowing. You guys have two hours to load up your stuff and get out.' That's how the last day of work—Dec. 27, 2016—went that year."

On the last phase of the project, ESI used a crew that peaked at 10 but was usually seven to eight workers. They sometimes worked seven days a week, and long days were required. ESI rewired sections of the hotel: the south bridge, the lobby and annex two. This work also included new telecommunications and fire alarm systems and installed custom feature lighting.

"We wanted to reinterpret the original appearance of the lobby as it looked in the 1920s and 1930s, when it had wonderful Japanese paper lanterns, and to capture the spirit of that design with LED technology and with recyclable, sustainable materials," said Nan Anderson, Anderson Hallas Architects, Golden, Colo. "We worked from historical black-and-white photos of the lobby as it appeared in the early 1900s. The whole idea was that these lights were supposed to look like they were floating there, a look created by suspending the fixtures via cables so one could not see how they were wired."

Lynn Redding of Lynn Redding Lighting Design, Missoula, Mont., collaborated with Anderson on the project.

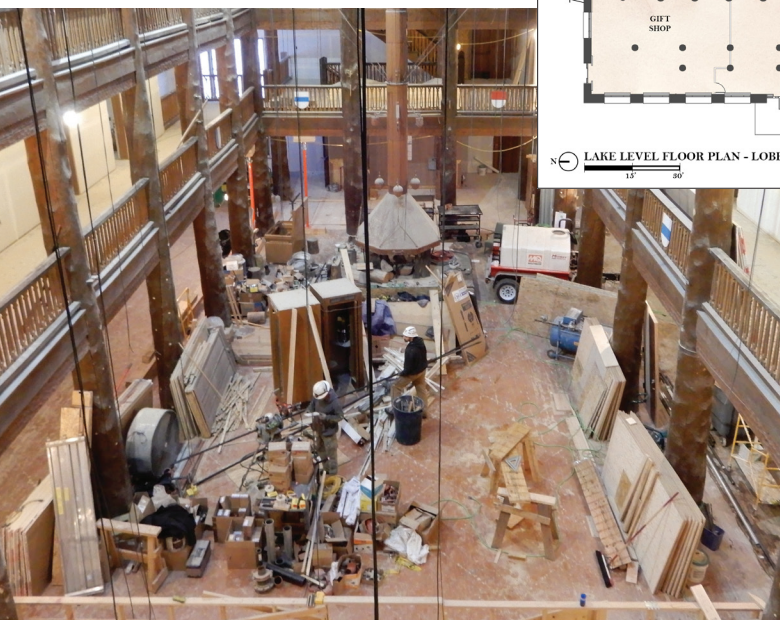
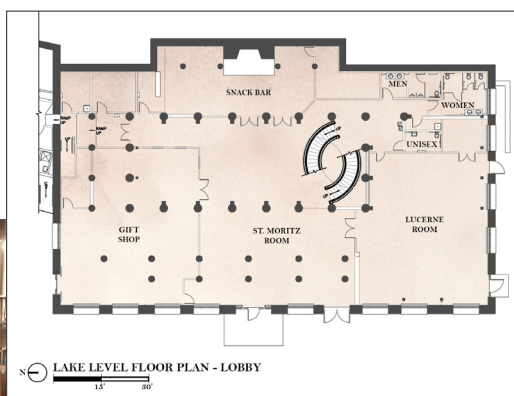
"Since the photos we were referencing were black and white, we couldn't determine the color of the lanterns, but we wanted to create a liveliness and aimed for an echo of the original look," Redding said.

Anderson and Redding worked with the National Park Service, Xanterra, and AE Design of Denver in creating the look. Then, they turned to ESI.

"It was definitely a collaborative effort, because the lighting designer and architect came up

with drawings and said, 'This is what we want. You tell us how to get it wired,'" Miller said. "Rewiring a 100-year-old building meant dealing with framing that isn't up to today's standards. It was very difficult to find pathways for our wiring so as to not destroy the structural integrity. All the existing doors had to be saved and reinstalled and the existing log work, beams [and] existing wainscot had to be retained. We came back to them with our suggestion of how we could route the conduit on the ceiling and through the log support structure to best conceal it, which required approval by the structural engineer when drilling through any of the support structures was necessary."

As part of the process, ESI installed all of the electrical and support components before the final installation of the lighting fixtures and included longer lengths than necessary of



Lobby of the hotel during rehabilitation



Many Glacier Hotel sits on the edge of Swiftcurrent Lake.

electrical and airplane cabling from the atrium ceiling, so the length of the wires and height of the hanging fixtures could be determined on-site during the final installation. Those varying lengths made the random arrangement of the fixtures possible. The fixtures also varied in shape, size and color, which was central to the character of the lobby's lighting design.

While the shades of the 1920s and 1930s were made of paper, more durable shades were necessary for the rehabilitation. Hammerton is a Salt Lake City-based custom lighting manufacturer that combines old-world artisan techniques with modern design and manufacturing. The Hammerton team used a heat-forming process to make the shades of 3form resin in a variety of shapes and colors. The look of the fixtures is similar to the earlier paper lanterns, but the laminate includes color and fine-spun wire, creating visual interest whether the lights are on or off. There also is a frosted interlayer for even more diffusion, so the lamps are not visible within the shades.

When the time arrived to attach the pendants to the support and power cables, general contractor Swank Enterprises, Kalispell, Mont., shored up the floor by putting beams and posts in the basement as support. This came prior to bringing in a 45-foot boom lift so ESI's Vince Dalimata and Matt Herreid could get up 40 feet to the roof, three stories above ground, to access the wires while also maneuvering the lift.

On the lift, it was Dalimata's task to attach the fixtures to the 44 suspended wires—each strung at a different elevation. This was per the instructions of Anderson and Redding, who were on-site for the first day of the fixture install.

"It was a process of specifying the height for each of the pendant lights above the finished floor and having the extra 6 feet of cable length that was critical to allow enough play to make the best field adjustments," Redding said. "All of the wiring and mounting hardware to attach the lanterns was in place by the winter closure. During the spring final installation, we made some significant height changes at the beginning near the stair and around the fireplace support structure that affected the relationships for all of the other lights."

ESI started on the boom lift on one side of the lobby and worked its way to the other end. As fixtures were attached to cables, Redding and Anderson made decisions on height.

"We could go up to the balconies and check views, so we would not only be looking at the composition from the floor; we also could get a sense of it from as many angles as possible to see how it was going to come together," Redding said. "While in the space, we were able to make a plan for the remaining pendant lengths. It was a labor of love for many, many people. The contractors did an amazing job working with unusual conditions and solving situations that you wouldn't normally encounter."

For example, as Dalimata and Herreid carefully worked off of the lift, they had to be mindful of the workers below who were installing a double helical staircase, a replication of the original one that had been removed in the 1950s, recreated by local craftsmen. They had to be careful not to drop anything on these workers.



A helical staircase that had been the centerpiece of the lobby of the Many Glacier Hotel was removed from the hotel in the 1950s. It was recreated and installed in the 2017 rehabilitation.

Anderson, Redding and ESI also had to modify the layout for field conditions that will give workers the ability to access the fixtures for future maintenance.

"The collaboration between ourselves and the architects and lighting designer was crucial to the success of the project," Miller said.

However, future crews will not be able to access the roof to change the placement of the hanging fixtures.

"As it is now, you can't bring in the lift and go up or maneuver because all the fixtures are floating in your way," Miller said. "We had to be sure that our wiring and everything we did was perfect, because there was no second shot at it. If they ever want to remodel, it's an all-or-nothing deal. You would have to go in there again with the lift and tear everything apart." ■

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