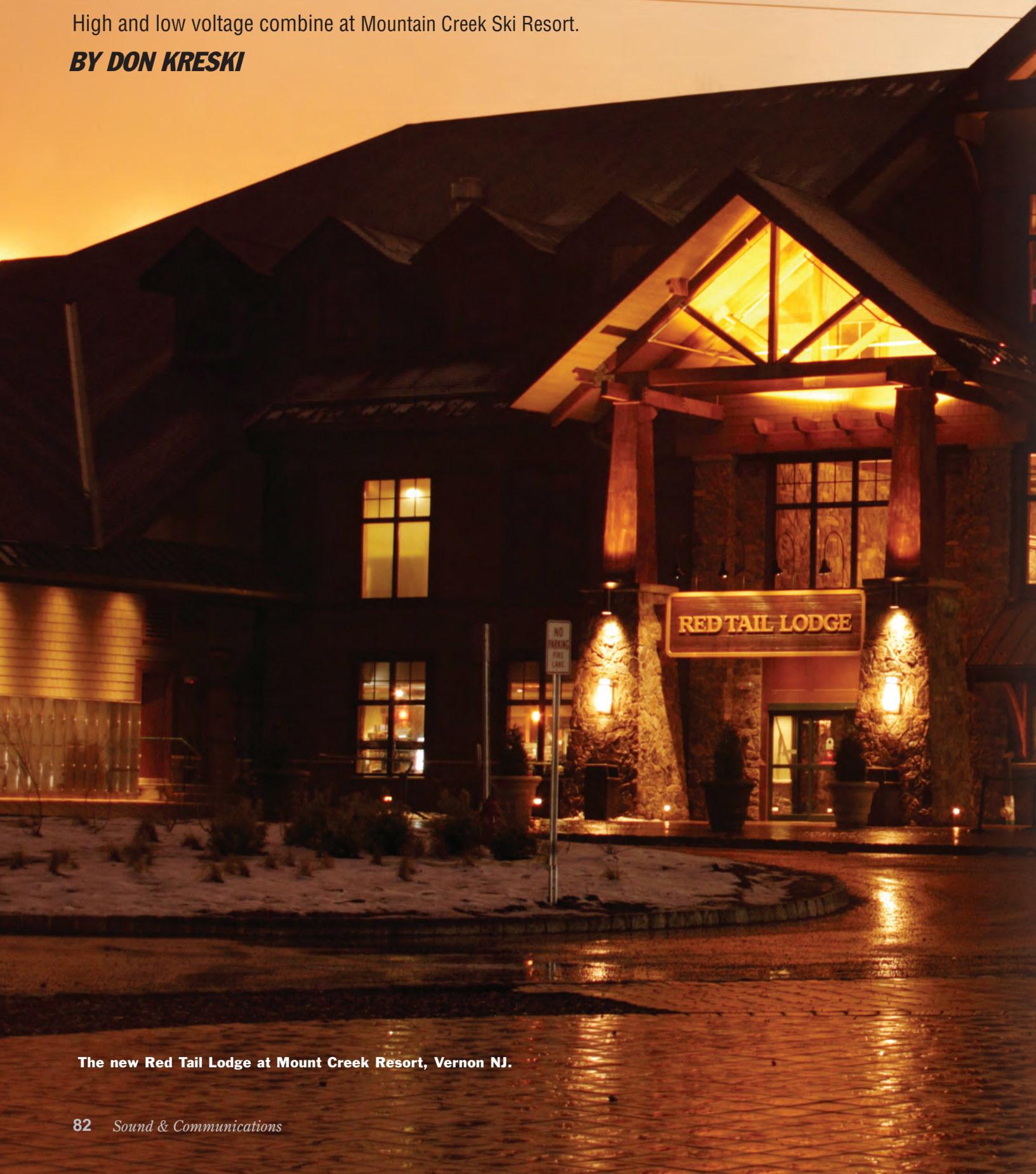# SKI LIGHT

High and low voltage combine at Mountain Creek Ski Resort.

BY DON KRESKI

The new Red Tail Lodge at Mount Creek Resort, Vernon NJ.

How much can your customers benefit from automating their lighting and other electronic systems? The Mountain Creek Ski Resort (www.mountaincreek.com) in Vernon NJ expects to save about $35,000 in energy costs each year. Given the $38,000 cost for their new lighting and AV automation system, that's roughly a single-year return on investment.

In addition, according to Dan Murphy, Project Manager for the resort, the new system will save labor, address long-standing safety concerns and help improve the satisfaction of its customers. "It fits in well with our focus on the guest experience," he explained. Given the fact that lighting and energy management are well within the capabilities of the AV control that commercial systems integrators supply already, if you're not offering these types of systems to your customers, maybe it would make sense to start.

A Larger Scale

The new energy systems at Mountain Creek are part of a $20 million upgrade the resort completed recently, which includes the construction of a new 50,000-square-foot ski lodge and automated control of the lighting of all of the 16 miles of ski trails on the property. Part of the savings comes from almost total automation of the lighting, background music and distributed television systems in the new lodge.

Bill Schafer, Principal of New York City-based Assurity Design Group (www.assuritydg.com), explained, "When the manager unlocks the building at 7:30am, just a few lights come on. But more kick on throughout the morning, as people come to work in the kitchens, ticket and rental areas." As guests begin to arrive, the music and video systems power on, as well.

Because one entire side of the building is glass, engineers at Assurity Design included photo sensors to dim or turn off electric fixtures, depending on the intensity of the sunlight. The building normally closes at 10:00pm, and the system shuts down much of the lighting plus the audio and video systems. But at that point, a cleaning mode takes over for staff who work after closing. When they leave, oc-cupancy sensors recognize that no one is in the building and the system makes sure that the remaining lights shut down.

"The big thing with this system is that it's hands off," Schafer added. "We've completely eliminated the need for staff to run around and flip switches. We don't waste time by taking people away from their work, and we don't waste energy when they forget to shut things down."

Common Components

It's important to note that Schafer was able to design these systems with components available to most AV integrators. For the lighting, he used a Crestron Green Light dimming system together with Crestron GLS-ODT-C-1000 occupancy sensors and GLS-LCL photo sensors. There are no light switches or keypads. All of the lights are controlled by the same touchscreens used to control the AV: two TPMC-6X panels at the employee entrances, a TPMC-4SM panel in each of the restaurants, plus several Apple iPads outfitted with the Crestron Mobile Pro G app.

Savings on the mountain are on a larger scale. The resort has 41 ski trails lit by 2400 high-pressure sodium or metal halide light fixtures on poles. Scattered across the four peaks that make up the resort are 10 power distribution shacks: small buildings that house the breaker boxes and control points for the lighting.

"Let's say it gets dark at 5:00pm," Schafer explained. "For safety reasons, you want the lights on at 4:30. So, under the old system, an employee had to start out at 3:30 on a snowmobile, driving from shack to shack to get the lights on in time. That process would reverse when the slopes closed at 10:00pm.

"Of course, when they made snow, they needed lights on after 10. They would leave the whole resort lit up overnight, even though they could run the machines only on a few slopes at a time. Then they would send a man out on a snowmobile at 8:00am. It was a huge waste of energy and manpower."

Today, the lighting is fully automated and turns on and off at once as needed. When crews make snow, they can turn on

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just the lights they need using the iPad app loaded onto their smartphones.

Schafer stated that they were able to set up master controls in each of the 10 power shacks using GL-PACK mini lighting control systems, each of which is tied into the master processor in the lodge using fiberoptic network wiring. "Using one GL-PACK in each of the 10 power shacks, we were able to break the lighting of the ski trails into 80 zones."

"Improving safety was an important goal, as well," Murphy explained. "There's no longer any question whether the lights will turn on on-time. The new system is much more reliable than the seasonal employees we, like other ski resorts, must hire."

"We also added a service mode," Schafer said. To change a lamp under the old system, a maintenance worker would have to drive a snowmobile to a power

Bill Schafer of Assurity Design Group demonstrates how Mountain Creek Resort staff can now control the lighting of 16 miles of ski trails from Apple and Android smartphones and tablets, providing dramatic energy and labor savings while improving safety.

The Mountain Creek project includes distributing satellite and cable TV to seven 55-inch flat panels mounted in the restaurants, bars and other public areas of the new lodge.

Two small theaters introduce first-time customers to the resort, with safety and courtesy tips plus instructions on how to order ski and snowboard rentals.

Equipment

Lighting Control
1   Crestron GL-Green Light power dimming system (lodge)
10 Crestron GL-PACK Mountain Lighting (ski trails)
1   Crestron PAC2 processor
1   Crestron Xpanel software
5   Crestron GLS-LOL open lighting level sensors
7   Crestron GLS-DTOCCS occupancy sensors
11 Crestron GLS-SIM sensor integration modules
2   Crestron TPS-6L touchscreen
    Crestron Mobile Pro apps for iPad, iPhone, Android

Audio, Video Components
Control, Signal Transport
1   Biamp Nexia PM Audio DSP mixer, processor
1   Crestron AV2 control processor
1   Crestron BIPAD-8 audio router
1   Crestron C2ENET Ethernet card
1   Crestron c-com card
1   Crestron CEN SW POE power over Ethernet switch
1   Crestron CEN UPWS-1275 uninterruptable power supply
2   Crestron CEN-Dock iPod docks
1   Crestron DM8x8-RPS matrix switcher
3   Crestron DMC-DVI DVI cards
1   Crestron DMCO-50 1 out HDMI cards
1   Crestron DMCO-55 2 out HDMI cards
6   Crestron DM-RMC-100-C room controllers
8   Crestron HD-EXT HDMI extender w/RS232, IR control
8   Motorola HDTV cable TV tuners

User Interface
1   Crestron TPMC-4SM in each: VIP Bar, Shussh Bar, Training Room
        Theater Entrance area (audio, video, flat screens, lighting control)
2   Crestron TPMC-6X at employee entrances
    Crestron iPhone, iPad control for specified management employees
        (all AV functions, lighting in lodge and on ski slopes)

Audio
1   Bryston Audio 4B stereo amp
1   Crestron AUDIONET internet radio tuner card
2   Crestron AUDIONET SM/XM cards
1   Crestron Cen-Track tuner
1   Crestron iPod dock in each: Shussh Bar, mezzanine level; VIP Bar
1   Crestron QMAMP 3-zone audio amp
3   Furman pm-8 line voltage power conditioners
1   Middle Atlantic ERK-3525-AV equipment rack
6   QSC 500ti amps
1   Shure PGX24/SM58 wireless RF system w/SM58 mic
(Sources: Sirius, XM, Pandora, 15,000 internet radio stations, AM/FM, cable TV audio stations, Mt. Creek internal radio station)

Video Distribution
1   LG 55" LK-520 LCD HDTV (VIP Bar)
4   LG 55" LK-520 LCD HDTVs (Shussh Bar)
2   LG 55" LK-520 LCD HDTVs (Shussh Fireplace Lounge)
(Wiring in place for outdoor TVs; none currently installed)

Video Sources
8   Motorola HDTV cable TV boxes
1   Sony BDP-S580 Blu-ray player w/wireless WiFi, internet
        streaming
    In-house PC network servers

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ing their skis. After they check out, they walk out onto the snow, where one of our people meets them with their equipment and helps them put it on."

The theaters are fully automated. The lights dim, the instructional video plays and then the lights come up again. "We included occupancy sensors in the video rooms, as well," Schafer added. "If it's a slow day and they're using only one room, the system will see that and shut down the second."

shack, turn off a section of lights, drive up to change the lamp, then go back to turn the power on again to test the system. There was always a risk of someone restoring the power while he was at work. "Now he can power down the lights from the fixture using his iPhone, and that locks everyone else out. It saves a massive amount of time plus any risk of injury."

Automated Training

In addition to the lighting systems, Assurity Design Group planned and commissioned two unique video rooms for the ski rental business.

Mountain Creek is only an hour's drive from New York City, so thousands of people rent skis and snowboards each day. "One of the complaints we always had," said Murphy, "is that rentals took too long. So, as we planned the new facility, we decided to change the whole process."

Now, when first-time renters come into the resort, staff usher them, in groups of up to 30, into one of two small theaters, each outfitted with three Sharp 52-inch LCD displays and five Proficient Audio C660 ceiling speakers fed by a Crestron QM-AMP 3x80SR amplifier. They watch a brief video with an introduction to the resort, safety and courtesy tips and an explanation of the rental process. From there, they go to a kiosk where they enter their name, height, weight and shoe size into a PC, then swipe their credit card.

"As soon as they press enter," Murphy explained, "someone starts build-

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Schafer said that Assurity was hired originally to design only the rental video systems, "but once the resort saw what we were doing, they told us we needed to talk to the general contractor about the lighting." Murphy had visited Crestron's headquarters in Rockleigh NJ before starting on the project. "As we talked, we realized we could use their equipment to control everything in the lodge plus the lighting on the trails with a single system," he explained.

John Toomey of JMT Media Group (www.jmtmediagroup.com) of Little Falls NJ designed an audio and video distribution system for the lodge, with 12 different zones of audio, 58 indoor and 14 outdoor speakers and seven 55-inch LG LK-520 HDTV monitors. Audio sources include iPod, cable, satellite and internet radio plus local AM/FM stations. Video sources include eight cable TV boxes, a DVD player and the resort's in-house video server (which also provides the video for the two training theaters). All video signals are distributed via a Crestron DigitalMedia network with a DM8x8 switcher. JMT handled audio processing and distribution with a Biamp Nexia PM DSP and a Crestron BIPAD-8 audio router.

One highlight of the audio system was the use of two JBL CBT-70JE line arrays in the 50'x200' great room, which has a 75-foot vaulted ceiling with floor-to-ceiling windows. "I wanted to avoid placing standard speakers around the perimeter of the room," Toomey said, "because the speakers and conduit would have interfered with the amazing view. I found I could fit the line arrays within the budget, and the sound is amazing, better than anyone expected."

San-tec Electric of North Bergen installed the lighting hardware, but Schafer programmed the combined AV and lighting automation system and commissioned it, once it was installed. "Working together with Bill and Assurity, it was very easy to make the additional AV system integration seamless to the client," Toomey said. "It was a great team effort."

Tying all of the lighting and AV together with a single control system,

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Training Room Theaters
6   Sharp 52" LCD HDTVs
1   Crestron QMAMP 3-zone audio amp
10 Proficient Audio C660 in-ceiling speakers
(Video source: Mt. Creek internal PC
    network servers)

Speakers (72 total: 58 inside, 14 outside)
First Floor
6   Atlas Sound SD72W in-ceiling speakers
    (Retail Store)
6   JBL Control 23T-BL speakers
    (Ski Rental area)
4   JBL Control 28T-BL speakers
    (Outside Front Entrance area,
    ticket booths)
2   SpeakerCraft SP Pro Commercial
    6 in-ceiling speakers (Front Entrance
    Hallway)
Second Floor
2   JBL CBT-70JE 2-way line arrays
    (Grand Room, Rotunda)
4   JBL Control 23T BL speakers
    (Outdoor Bier Garten)
2   JBL Control 26T BL speakers
    (VIP Bar area)
4   JBL Control 28T BL/WH speakers
    (VIP Grand Dining Room)
4   Proficient Audio C610 in-ceiling speakers
    (Cafeteria area)
6   Proficient Audio C610 in-ceiling speakers
    (Large Dining Room)
2   Proficient Audio C610 in-ceiling speakers
    (VIP Private Locker Rooms)
6   SnapAV Episode ES-AW-6-BLK all-weather
    outdoor speakers (Outdoor Sundeck,
    fire pit area)
2   SpeakerCraft SP Pro Commercial
    6 in-ceiling speakers (VIP Private Men's,
    Women's Restrooms)
Mezzazine Level
4   SpeakerCraft MT6 Two in-wall/ceiling
    speakers (Shussh Bar Fireplace
    Lounge area)
4   Speco SP6MAT in-ceiling speakers w/fire
    retardant enclosure (Shussh Bar area)
Outdoors
4   JBL Control 23T BL speakers
    (Outdoor Bier Garten)
4   JBL Control 28T-BL speakers (Outside
    Front Entrance area, Ticket Booths)
6   SnapAV Episode ES-AW-6-BLK all-weather
    outdoor speakers (Outdoor Sundeck,
    fire pit area)

Digital Signage
    Sharp Electronics Digital Signage System
8   50" Sharp Commercial Digital Signage
    LCD monitors
Content shown is Mt. Creek in-house
marketing production video and information.
Control of this system is not currently
incorporated into Creston or AV system.

List is edited from information supplied by Assurity Design Group and JMT Media Group.

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according to Schafer, not only made operations easier than using separate systems, "but it turns out we were able to do it much more economically than with separate vendors." Murphy, for his part, said he is excited about the new capabilities of the resort's systems. "We've always done things the way everybody else did them, but in this case that didn't make sense."

Lower costs, safer systems, happier clients and a new source of revenue for the AV system designer: That's a win-win-win. ∎

AVent HORIZON

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competition (for now). And it's pretty likely that we'll see a 90-inch LCD monitor come to market this year, given the strong interest in the 80-inch product. (Don't be surprised to see one at Info-Comm, even if just a concept demo.)

From my perspective, 80-inch and 90-inch direct-view LCD displays are "projector killers." A 90-inch diagonal LCD display would measure about 80 inches across in a 16x9 aspect ratio. And 80-inch is a very common width for projection screens in conference rooms, classrooms and other meeting spaces.

Projector advocates will argue that the price differential between the $13K pro monitor and a $2K "hang-and-bang" projector still favors the latter product. But the anecdotal evidence shows that many dealers are installing the $5000 consumer TV instead and getting the extended, "no questions asked" warranty at little added cost.