

NORCAL VDV Sound & Communications—

Union Contractors Wire Cache Creek Casino Resort



PHOTO BY JIM THIELEMAN

The 600-seat lounge at Cache Creek Casino Resort was wired by Ceitronics for cutting-edge entertainment.

Cache Creek Casino Resort, California's largest Indian gaming casino, wanted its recent expansion and renovation to provide customers with the ultimate gaming experience, highlighted with glamour and excitement. Union contractors brought that vision to life with an installation of state-of-the-art voice/data and audio/visual

sort turned to NORCAL VDV contractors Cupertino Electric (CEI), River City Communications, and Ceitronics to wire the resort. Cache Creek, located 50 miles northwest of Sacramento in Brooks, features over 2,400 slot machines, a luxury hotel, spa, entertainment venue, eight restaurants, and a 20,000 square foot event center. This 415,000 square foot mega-resort was originally a small bingo hall, opened in 1985 by the Rumsey Band of Wintun Indians.

Planning the Job on a Fast Schedule

The contractors began the job with custom planning and careful coordination. Keeping to a fast paced schedule was one of the major goals. "The challenge of a project like this is making sure you are giving the owner what they

want," said CEI Project Manager Rich Lehnert, who supervised the electrical portion of the project. "Coordinating with the owner is a lot of it. There are a lot of meetings and teamwork involved, and a lot of design/build elements."

River City Communications of Sacramento, which specializes in structured cabling systems and system integration, installed the voice and data structured cabling systems for Cache Creek. River City Communications also completed the voice/data work for Thunder Valley Casino. Ceitronics, a VDV contractor in San Jose, installed the \$2 million audio-visual portion of the project.

The resort's wiring "brain centers" include eight telecommunications rooms, with one main room for voice and another for data.

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PHOTO BY JIM THIELEMAN

Ceitronics completed the A/V work for the casino. River City Communications installed the voice/data systems.

equipment throughout the casino and supporting facilities.

With time, space, and security a concern, Cache Creek Casino Re-



Current High Profile
NORCAL VDV Projects



The Making of a
State-of-the-Art Casino



Consultant Tom Corbett
Answers Your A/V
Questions

And
more...

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International Brotherhood of Electrical
Workers of Northern California.



NECA/IBEW VDV Contractors in High-Profile Buildings thro

Stockton's New Arena Receives Sound System from Pro Media

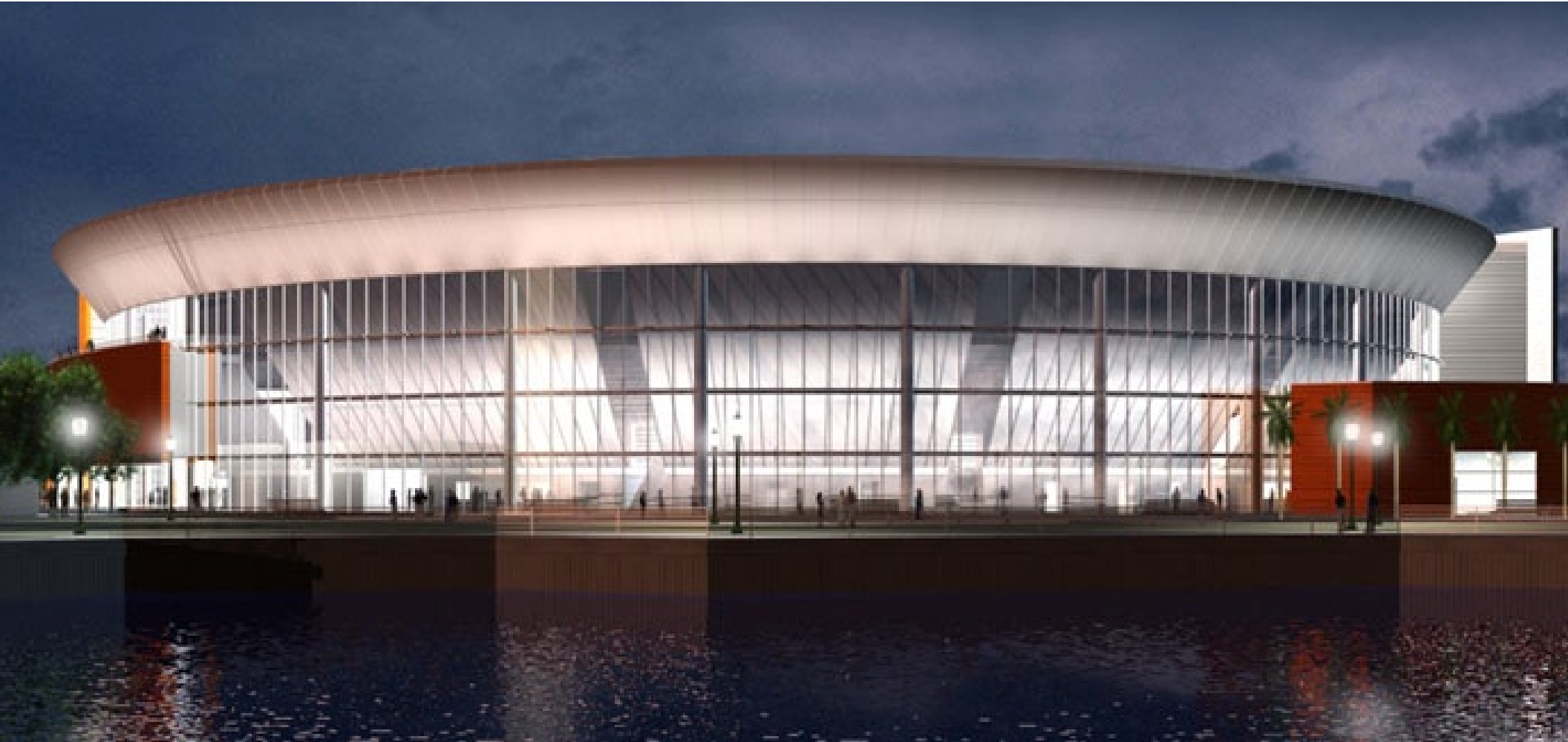
Stockton's waterfront received a major boost this winter with the opening of a new 220,000 square foot arena which will accommodate various sporting events, concerts

facility from one main point, the speakers in the Stockton Arena are distributed throughout the facility to provide consistent sound coverage. Pro Media used a variety of JBL speakers, depending on their position. "The most interesting portion

Pro Media also wired the MATV system, the in-house cable distribution that links all of the televisions throughout the facility and assures that they are properly calibrated. There are approximately 200 MATV drops allocated for televisions throughout the

broadcasting cabling. According to Palavos, this involved placing the cabling and plating requirements for remote television trucks, such as those from ESPN or FOX Sports, to hook up and transmit signals. They also established in-house video production, which

COURTESY OF CITY OF STOCKTON



The new arena on Stockton's waterfront is designed to be a symbol of the city's downtown rebirth.

and conventions. VDV Union Contractor Pro Media of Hercules recently completed the sound system, MATV system, and broadcast cabling for the facility. Pro Media worked with 10 members of IBEW Local 302 of Martinez and was a subcontractor for Collins Electric of Stockton. The Pro Media project took two months to install.

The Arena, which boasts 10,000 seats, will be the home of the California Cougars Major Indoor League Soccer Team, Stockton Thunder Minor League Hockey Team, and Stockton Lightning Arena Football Team.

The sound system for the main bowl area is a traditional distributed system in which the loudspeakers hang from an I-beam structure off the main roof support. In contrast to a point source system, where sound is provided to the entire

of the job was probably rigging the loudspeakers, heavy masses that weigh between 600 and 2,000 pounds," said Demetrius Palavos, Design and Sales Engineer for Pro Media. "And you are working 70 to 100 feet above the floor, walking on a beam to attach the loudspeakers." The company also installed a sound system for the restrooms, concourses, and back-of-house meeting rooms.

Pro Media used three major types of cabling for the sound system, as many signal types are involved in a system such as this. The standard analog signals are transmitted on a multi conductor, twisted pair standard audio cable that runs throughout the facility. CAT5 cabling is used for a proprietary protocol, and a standard, two-pair audio cabling system is used with the loudspeakers.

arena. The bulk of this cabling was hard line, supplemented by RG 6 and RG 11 cable. The cables are terminated in the head-end room, which distributes to the various MATV drop locations in use.

Pro Media also installed

runs the various cameras shots to the video control room.

For more information, contact Demetrius Palavos at Demetrius@ultrapromedia.com.



PHOTO BY LAURA WINDISCH

The loudspeakers installed by Pro Media weighed between 600 and 2,000 lbs each.

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Rosendin Electric Connects 100 Windmills at Altamont Pass

Union Contractor Rosendin Electric, along with IBEW Local 595 of Alameda and Local 332 of San Jose, recently completed pulling 12-strand fiber to 100 windmills at the Altamont Pass, located in eastern Alameda and Contra Costa Counties. The windmills are used to power the adjacent cities locally.

The wind farm, one of the earliest in the United States, was established after the 1970's energy crisis in response to favorable tax policies for investors.

"Before this project, most of the windmills were monitored on old and outdated systems," said Rosendin Electric Project Manager Ron Clarkson. "The problem was that they weren't able to monitor the efficiency of the towers. If the tower isn't producing, if something is wrong with it, they want to know right away so they can get it fixed because of lost money." According to Clarkson, the 100 towers with the new, high speed bandwidth can power up 4,000 homes.

The project was completed for use with the Scada Monitoring System energy management system as well as directional turning, which is done remotely from Florida and allows controllers to direct the windmills via a computer (for example, direction could be logged in to turn a specified number of windmills 20 degrees south).

Along with the Altamont Pass, Clarkson said Rosendin has worked on Windmill projects throughout the country—"basically, wherever there is wind." Each location, including the Altamont Pass, Palm Springs, Texas, Wyoming, and New Mexico, is met with similar challenges. "The environment plays a big role in these projects because of the wind, the rain, the snow—here at Altamont, there are dirt roads, so if it's raining it's going to be muddy," Clarkson said. "To be able to get back and forth on these projects, with the terrain and the

environment, is a huge challenge."

Because of these elements, it was difficult for Rosendin to complete a hand-polished type connector. Instead, said Clarkson, the company fused two pieces of glass together. "We actually have a fusion splicing vehicle that will pull right up to the tower, pull the cables into the van and fusion splice them—it takes a few minutes versus the normal anaerobic cable."

**For more information,
contact Ron Clarkson at
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Oakland Airport's Fire Alarm System Installed by Intrepid Electronic Systems, Inc.

NORCAL VDV Union Contractor Intrepid Electronic Systems, Inc. of Emeryville is currently completing an expansion and renovation of Terminal 2 at the Oakland International Airport, including a new fire alarm system. Local 595 is assisting on the job.

The existing network throughout the airport will be upgraded and brought up to current codes. There is also an expansion portion at Terminal 2, which has a number of new gates.

Intrepid Electronic Systems, Inc. designed and programmed the fire alarm systems. According to Norman Clevenger, Project Manager for Intrepid Electronic Systems, Inc., the project includes a great deal of integration. "In the event of a fire evacuation signal, we control the HVAC system, the baggage handling system, the elevators, the emergency power off system (EPO), and the doors for all the gates to the planes," Clevenger said. "We also override the background paging system so emergency evacuation and voice messages can be heard by all airport travellers."

The main challenge for Intrepid Electronic Systems, Inc. is the "zero outage" element – working at a fully operational airport with no leeway for downtime. A problem



COURTESY OF ROSENDIN ELECTRIC

The 100 towers at the Altamont Pass can power up to 4,000 homes.

has the potential to result in flight delays at the specific terminal, impacting many other airlines and carriers.

Airports have a number of other unique needs that were accounted for. "We had to match

Intrepid Electronic Systems, Inc. is a subcontractor for Contra Costa Electric, another member of NORCAL VDV.

**For more information,
contact Kurt Brinkman at
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COURTESY OF OAKLAND INTERNATIONAL AIRPORT

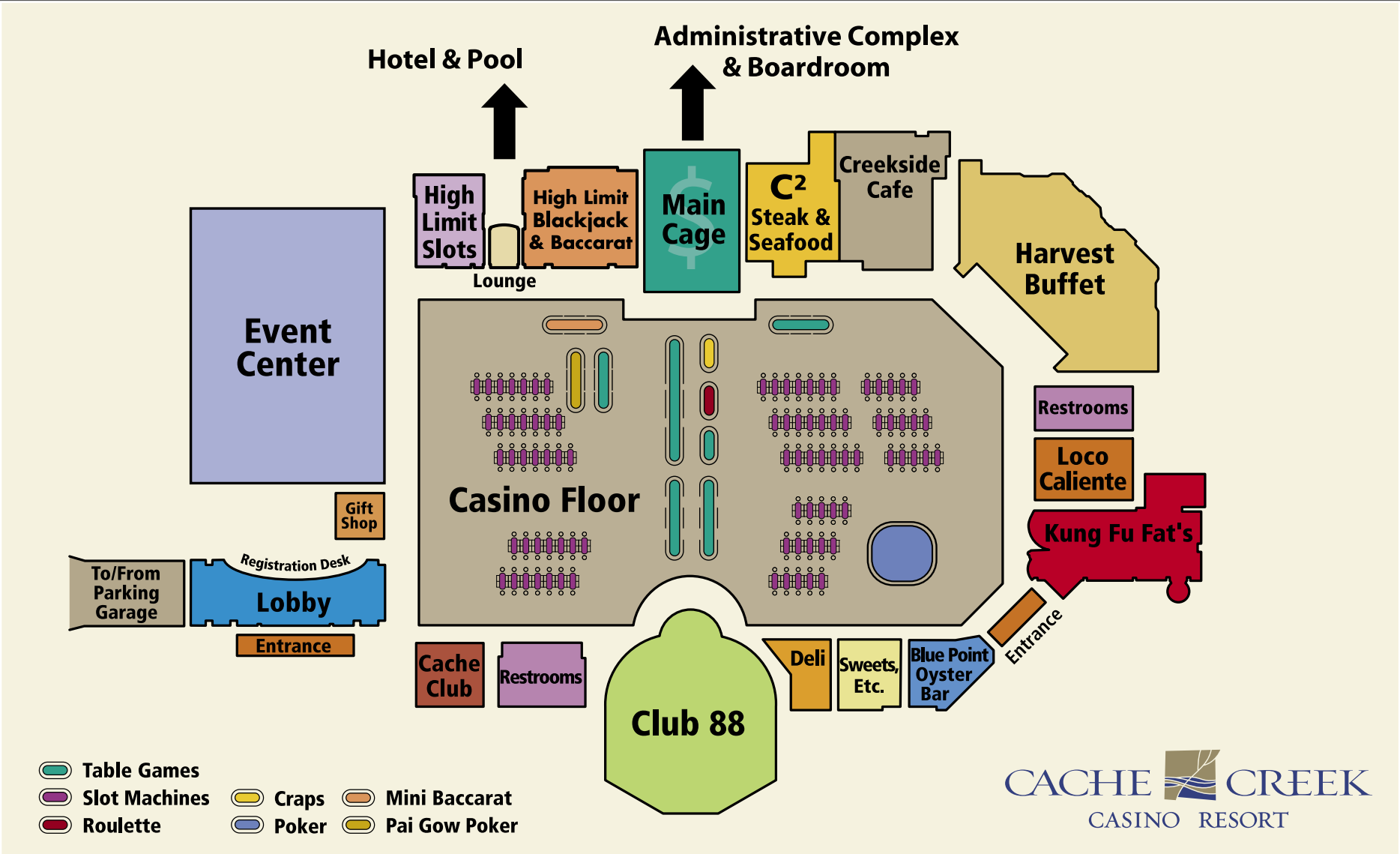
our flame detectors to specific infrared spectrums of the aviation fuel," said Clevenger. "There are pre-action systems and cross-zone detection. We had also had deluge systems in areas where planes are close to the jetway."

**Intrepid Electronics is completing a renovation and expansion
for Terminal 2 at Oakland International Airport.**

How can I find a contractor?

Visit the Northern California Voice-Data-Video website at www.norcalvdv.org to view over 125 qualified contractors in the Sound and Communications industry. The large number of companies can be narrowed down to fit your specific needs by utilizing the search options, which are available alphabetically, by county, by specialty, and by zip code.

Cache Creek Casino Resort Brought Alive with



NORCAL VDV Contractors Cupertino Electric, River City Communications, and Ceitronics created a state-of-the-art gaming experience for visitors to Cache Creek Resort. Highlights include:

Casino Floor, High Limit Slots, High Limit Blackjack & Baccarat

The 415,000 square foot casino features 1,900 slots wired by River City Communications and 45 gaming tables the company equipped with data connections. All the new slot machines operate on an Ethernet backbone.

Telecommunication Rooms/Casino Floor

Eight telecommunications rooms in the rear of the casino house the wiring closets. There is one main room for voice and another for data.

Administrative Complex

About 400 stations are wired in the administrative complex. Telephone systems, computer systems, and ATM connectivity were also completed by River City Communications.

Club 88

Ceitronics wired the lounge for cutting-edge entertainment. The 600-seat facility includes a two sided stage. The system consists of various input sources, eight wireless microphones, a Yamaha

DM2000 console, a BSS 9088 DSP processor, two subwoofers, five speakers, five speakers on delays, and eight stage monitors. An AMX touch panel controls system automation. The lounge also features four 42-inch plasmas mounted on a custom ribbon lift over the bar. One LCD projector sits on each side of the lounge and projects onto a 120-inch screen mounted above the stage.

Plasma Screens/Club 88

There are 45 plasma and LCD displays installed throughout the facility—including 10 in Club 88—used as TV sets or digital signage displays to convey information. They are all controlled through IP using the casino network. Content is uploaded to local streaming computers for display.

Event Center

River City Communications installed voice and data outlets in the event center. Ceitronics wired a unique system for playing bingo. Two satellite equipment racks feed signals into the local amplifiers, which are also attached to the main program and paging system through a BSS 9088. The local racks have wireless microphone, VCR, PC, and remote control systems.

Boardroom

Ceitronics upgraded the audio/video conferenc-

ing capabilities of one boardroom. The primary display device is a 61" plasma screen.

Hotel

River City Communications wired the hotel's administrative offices for data connectivity, and each room for at least one telephone and a high speed data port.

Pool

The pool area features outdoor speakers and 13-inch televisions with RF signals at a number of the cabanas. The audio system uses BSS BSB processors for single processing and routing. River City Communications installed a Point-of-Sale system by the swimming pool.

Restaurants

Ceitronics installed four satellite music receivers to provide different content to the various areas.

Paging System Throughout Cache Creek

The paging system of 950 Tannoy ceiling speakers is divided into 36 zones. Input sources include 20 PBX zone paging outputs, two 400 disk CD changers, nine channels of DMX music, a wireless microphone, and a message player. Signal processing and routing are done by five BSS 9088 DSP Processors and a BSS 900 hub.

High Tech Wiring by NORCAL VDV Contractors



In total, Cache Creek Casino Resort offers 2,456 slot machines and 111 table games.



The Audio/Visual work for the casino took Ceitronics ten months to complete.



Several of the casino's 45 plasma and LCD screens are seen above in Club 88.

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New Audio/Visual Tips and Trends: An Interview with A/V Pro Tom Corbett



Charles M. Salter Associate's projects include the Annenberg Conference Center at the Hoover Institute at Stanford University.

Thomas J. Corbett, CTS, is a Principal Audio/Visual/Telecommunications Consultant with Charles M. Salter Associates. In his 24 years of experience in the audio/visual field, Mr. Corbett's projects have included classrooms and training rooms, theaters, corporate auditoria and public assembly installations including churches, conference rooms and ballrooms. Charles M. Salter Associates, headquartered in San Francisco's financial district with a branch office in San Jose, was founded in 1975 and currently has a staff of over 40 who consult on over 700 projects annually.

Mr. Corbett discusses with VOICE readers what is new in Audio/Visual.

Q: In terms of A/V systems and presentation systems, what are some of the current trends for corporations?

A: It's not necessarily just corporate because what happens in one domain happens in a lot of domains. One of the big shifts going on in our industry now is that a lot of the backbone, which used to be analog, is going digital and it is going onto the network. So whereas skill sets were distinct before, (you had your IT and voice/data guy over here, and your A/V guy over there with different hardware) they are now

struggling to coexist in the same area. One of the most direct places this happens is in the network room, the teledata room.

Q: Does this mean that people are going to be converting their systems, or is this strictly for new systems?

A: Sometimes a system wants to be analog, and sometimes it wants to be digital. Finding the spot for which fits best where is part of our role as consultant. The digital revolution is actually challenging some baseline assumptions. I can put in a little digital system, no knobs on



Thomas J. Corbett, CTS, with Charles M. Salter Associates

the front, one switch on the side to turn it on and off, maybe a volume control, and that's all you need. Less is more, like great art. You start to give people a lot off knobs and they will turn them. And then you are in trouble.

Q: What about video conferencing? Is that something you are seeing more of lately?

A: Absolutely. I attribute that to 9/11. Now more and more people are turning to video conferencing because people are reluctant to travel. Travel is costing more and taking more time. If you video-conference, you pull an hour or two out of the day and you are back to doing what you need to be doing.

Q: What are you seeing in terms of use for video conferencing?

A: I am seeing people use it for Monday morning corporate meetings- weekly meetings and quarterly meetings, as well as interviews and presentations. The internet has had a big impact on how people communicate. You can now capture information easily at multiple locations, but facial intent is a large part of the message. And as we know, soft signals are very important.

Q: As a consultant, if you were to get a call from a Fortune 1000 company who wanted to update their system, what are the steps that you go through to get them into a plan?

A: The first thing I do is to find out what they do. What are they, as a company? Product? Service? Then

I find out what they are doing with the system. There is more and more streaming going on. That may take some of the business away from video conferencing because you can now do streaming two-way. Streaming puts your computer right in the middle of the system.

Q: What are the elements of the streaming system?

A: It is a camera and microphone, and it goes to a computer that is dedicated as a streaming source. Some will come with software that will allow you to manage conferencing and do reference look up. An example is streaming that is occurring within some local council chambers. The software allows the agenda items to be identified, so when you want to know an agenda item, the streaming server will not only be the place to find the agenda item, but the software can also stream out the meeting live.

Q: If you had some messages you could give to facility managers today for them to think about, what would those be?

A: Know what you want to do. It all comes from that. I think there is a place for people like myself, consultants, and there is a place for design/build contractors, and there is a place for contractors, and a place for user groups. I think users should be looking toward the people that can give them the best help.

Q: In terms of working with IBEW technicians vs. non-union, do you see a difference in the training that shows up on the job?

A: The IBEW technicians know what they are doing. If I hire a casual and say "put the yellow wire on the yellow post," I can expect the yellow wire on the yellow post. But if I hire someone who knows what he is doing, I don't have to tell him all that. I say, this signal goes here and this signal goes there and then I can move on to something else.

For more information about Charles M. Salter Associates, please visit www.cmsalter.com.

Sound & Communications: An A to Z Crash Course

ATM: Asynchronous Transfer Mode is a high bandwidth, low delay, packet-like switching and multiplexing technique. Usable capacity is segmented into fixed-size cells, consisting of header and information fields.

Bandwidth: The difference between the highest and the lowest frequencies of a transmission channel (path for information transmission). Identifies the amount of data that can be sent through a given channel. Measured in Hertz (Hz); higher bandwidth numbers mean higher data capacity.

Coaxial Cable: A cable composed of an insulated central conducting wire wrapped in another cylindrical conductor (the shield). The whole thing is usually wrapped in another insulating layer and an outer protective layer. A coaxial cable has great capacity to carry vast quantities of information. It is typically used in high-speed data and CATV applications.

Daisy Chain: In telecommunications, a wiring method where each telephone jack in a building is wired in series from the previous jack. Daisy chain is NOT the preferred wiring method, since a break in the wiring would disable all jacks “downstream” from the break.

Ethernet: A local area network used for connecting computers, printers, workstations, terminals, etc. within the same building. Ethernet operates over twisted pair wire and over coaxial cable at speeds up to 10 Mbps. Ethernet LANs are being promoted by DEC, Intel and Xerox. Compare with Token Ring.

FDDI: Fiber Distributed Data Interface. FDDI is a 100 Mbps fiber optic LAN. It is an ANSI standard. It uses a “counter-rotated” Token ring topology. An FDDI LAN is typically known as a “backbone” LAN. It is used for joining file servers together and for joining other LANs together.

Headroom (also called Overhead or Margin): The number of decibels by which a system exceeds the minimum defined requirements. The benefit of headroom is that it reduces the bit-error rate (BER), and provides a performance ‘safety net’ to help ensure that current and future high speed applications will run at peak accuracy, efficiency and through-put.

IDF: Intermediate Distribution Frame. A metal rack designed to connect cables and located in an equipment room or closet. Consists of components that provide the connection between inter-building cabling and the intra-building cabling, i.e. between the Main Distribution Frame (MDF) and individual phone wiring.

Jack: A receptacle used in conjunction with a plug to make electrical contact between communication circuits. Jacks and their associated plugs are used in a variety for connecting hardware applications including cross connects, interconnects, information outlets, and equipment connections. Jacks are used to connect cords or lines to telephone systems. A jack is the female component of a plug/jack connector system, and may be standard, modified, or keyed.

LAN Local Area Network: A short distance network (typically within a building or campus) used to link together computers and peripheral devices (such as printers) under some form of standard control.

MDF Main Distribution Frame: A wiring arrangement which connects the telephone lines coming from outside on one side and the internal lines on the other. A main distribution frame may also carry protective devices as well as function as a central testing point.

Network: A network ties things together. Computer networks connect all types of computers and computer-related things - terminals, printers, modems, door entry sensors, temperature monitors, etc. The networks we’re most familiar with are long distance ones, like phones and trains. Local Area Networks (LANs) connect computer equipment within a building or campus.

Outlet: A telecommunications outlet is a single-piece cable termination assembly (typically on the floor or in the wall), containing one or more modular telecom jacks. Such jacks might be RJ’s, coaxial terminators, fiber optic couplers, etc.

Patching: A means of connecting circuits via cords and connectors that can be easily disconnected and reconnected at another point, using modular cords connected between jack fields or by patch cord assemblies that plug onto connecting blocks.

RCDD The RCDD (Registered Communications Distribution Designer) title is a professional rating granted by BICSI (the Building Industry Consulting Service International). RCDDs have demonstrated a superior level of knowledge of the telecommunications wiring industry and associated disciplines.

Splice: The joining of two or more cables together by connecting the conductors pair-to-pair.

Twisted Pair: Two insulated copper wires twisted around each other to reduce induction (thus interference) from one wire to the other. The twists, or lays, are varied in length to reduce the potential for signal interference between pairs. Several sets of twisted pair wires may be enclosed in a single cable. In cables greater than 25 pairs, the twisted pairs are grouped and bound together.

UL: Underwriters Laboratories, a privately owned company that tests to make sure that products meet safety standards. UL also administers a program for the certification of Category-Rated Cable.

Workstation: The working area in a building required by one telecommunications user. Industry standards call for one voice drop and one data drop for each workstation.

Where can I find a Audio/Visual contractor?

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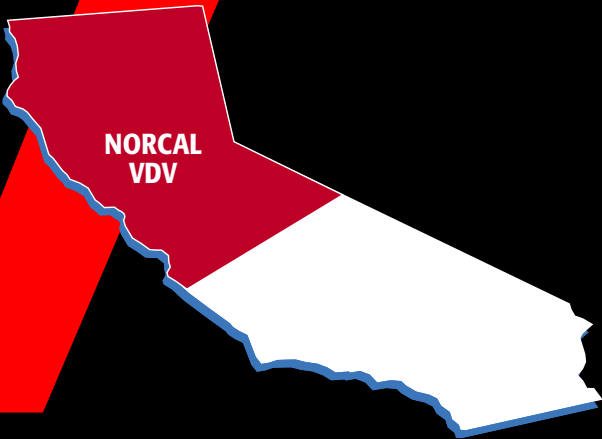
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norcalvdv.org

Cache Creek Casino *(continued from page 1)*

Voice/Data

Working with Local 340 of Sacramento, River City Communications installed the voice and data structured cabling systems for Cache Creek. River City wired 1,900 slots, and equipped 45 gaming tables with data connections. All the new slot machines operate on an Ethernet backbone.

Ben Wadsworth, President of River City Communications, said the company wired about 400 stations in the casino’s administrative complex, which is responsible for process monitoring. River City also installed telephone systems, computers systems and ATM connectivity. Voice and data outlets were installed in the event center and spa.

Wadsworth said River City Communication’s portion of the project was completed in six months. “Casinos are unbelievably fast paced. That is the excitement and the

challenge as well—keeping up with the rest of construction,” he added.

Audio-Visual

Ceitronics, working with Local 332 of San Jose as well as Local 340, completed the A/V portion of the project in 10 months.

Project manager Jim Thielemann said the biggest challenge of the project was the lounge, due to several upgrades and a unique architectural plan. The 600-seat facility includes a two sided stage, and Ceitronics wired the area for cutting-edge entertainment. The system consists of various input sources, eight wireless microphones, a Yamaha console, two subwoofers, five speakers, five speakers on delays, eight stage monitors, four 42-inch plasmas mounted on a custom ribbon lift, and one LCD projector on each side of

the lounge that project onto a 120-inch screen mounted above the stage. System automation is controlled through an AMX touch panel.

Ceitronics installed the backbone of Cache Creek’s proprietary antenna system, which consisted of a large, multi-zone paging system on the casino floor and separate systems for the Bingo/multi-purpose room and lounge. The paging system incorporated 950 ceiling speakers grouped into 36 zones.

Entertainment at Cache Creek Casino Resort goes well beyond gaming. The pool area features outdoor speakers and 13-inch televisions at a number of the cabanas. Four satellite music receivers provide different content to the various areas. River City Communications installed the point-of-sale system by the swimming pool.

There were 45 LCD and plasma screens

installed throughout the facility, used as TV sets or digital signage displays to convey information. The IP based tuners were set up so Cache Creek can monitor and change various TV channels through their web browser. Media streamers were used for the bulletin boards on the digital signage, so the user can create content for advertising purposes on a computer, and send that content to a local computer to feed to the plasma screen. A timetable may be established to have different programming playing at various times. For instance, the signage could change to greet a group of tournament players arriving at the casino at a specific time.

For more information, contact Rich Lehnert, rich_lehnert@cei.com; Ben Wadsworth, b.wads@rivercitycom.com or Jim Thielemann, Jim_Thielemann@ceitronics.com.



SOUND AND COMMUNICATIONS
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