

NorCal VDV Sound and Communications—

Outperforming the Competition



Pro Media equipped the new Stanford Stadium with a state-of-the-art sound system featuring JBL loudspeakers, Crown amplifiers, and BSS Soundweb processing

Take me out to the ballgame... but make sure there is a distributed sound system, a 100-foot video screen, and television at all the concession stands, please.

According to Pro Media's Demetrius Palavos, a ball game isn't as simple as it used to be.

"Today, our lives are much more media-driven," said Palavos. "With videos on phones, iPods, and various entertainment systems at home and in the car, our

expectations at sports venues have changed. A traditional PA system doesn't necessarily meet those expectations, especially with the big dollars you pay for a ticket."

Sports facility owners have turned to union contractors to install cutting-edge voice/data/video components in sports venues throughout Northern California.

Stanford University

Pro Media, based in Hercules, was the Audio/Visual contractor for the new Stanford Stadium,

installing the audio system, cable pull, and broadcast cabling system.

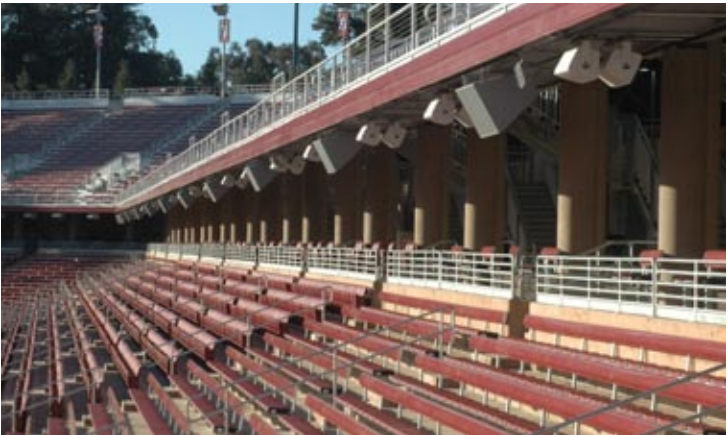
The old stadium, which was built in 1921 to accommodate 85,500 fans, was demolished after the final game of the 2005 season in favor of a smaller, more fan-friendly stadium. The \$100 million renovation was completed in time for the 2006-2007 season, resulting in a 50,000 seat, two-tiered bowl that brings viewers 70-100 feet closer to the field. Pro Media installed the state-of-the-art sound system featuring JBL loudspeakers, Crown amplifiers, and BSS Soundweb processing.

The distributed sound system is divided between the two tiers of the new stadium. The upper bowl is covered with 43 poles, each holding a long throw loudspeaker and a down-fill loudspeaker underneath. The pressbox also features nine loudspeakers. The lower bowl consists of an alpha

distributed system with 36 front firing loudspeakers and about 100 down and rear firing loudspeakers for even coverage.

Pro Media's \$1.4 million work on the stadium also included the cabling infrastructure for in-house video production, broadcast truck docks for national and local broadcasters, and an in-house cable television system to broadcast at various locations in the facilities. Pro Media completed all the MATV and a 500 megahertz distributed CATV system located throughout the concourses, restrooms, press box, suites, and broadcast booths.

All the cabling in the facility was manufactured by Beldin and included twisted pair, Cat5, 10 gauge and 12 gauge for all the loudspeakers, multi-conductor audio cable, 6 pair, 8 pair, and 12 pair to various locations, video cabling and triax cabling for the broadcast trucks, and AES digital

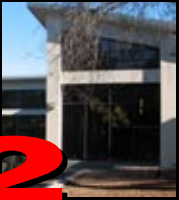


Stanford Stadium, Palo Alto

PHOTO COURTESY OF PRO MEDIA

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more...

IBEW/NECA Contractors Install Cutting-Edge Wiring for Projects of All Sizes in California



The Belmont Library got a recent face lift from local contractors Paganini Communications (voice and data) and ICS (audio and visual)

Belmont Library

Paganini Communications, Inc. recently completed the voice and data cabling infrastructure for the Belmont Library, located at 1110 Alameda De Las Pulgas in Belmont.

Voice and Data

The project was a new ground floor build out replacing the previously demolished Belmont Library. The new building is over 20,000 square feet.

The new library will accommodate a children's area, staff area, a community room, and an adult wing. All staff and visitors now have access to networking capabilities as well as wireless user points.

Larry Andrini, Vice President of Paganini Communications, said the cable installation began in November of 2005 and was completed March of 2006. With upwards of five Paganini Communications technicians from both Locals 617 and 6 sharing in the cable build-out, the project was completed on time for the official opening. "As all Paganini Communications installations, particular care was taken to provide the most aesthetically pleasing and performance-oriented cable build-outs possible," said Andrini.

The cabling infrastructure was built to accommodate approximately 130 workstation drops with two to four Category

6 cables to each, as well as a number of CATV locations. The product used was CommScope Uniprise 4 pr. Category 6 cable accompanied by the CommScope Uniprise product line of jacks, patch panels, horizontal wire minders and an array of other required materials. Testing of the facilities cable infrastructure was done to Category 6 specifications using Flukes top of the line DTX-1800 cable analyzer.

Paganini Communications performs cable installations throughout the Bay Area and specializes in all low voltage cabling systems.

Audio/Visual

In addition to the voice and data work, San Jose's Integrated Communication Systems (ICS) installed audio/visual systems at four locations in the

library. The primary system applied to the Oak Room and included audio reinforcement and front projection video with a local equipment rack and control. This multi-purpose room is used for presentations, town meetings, and audience participation meetings.

In the Technology Learning Room, set up as a classroom for instruction on PC or software use, a teacher's curriculum is displayed as a front projected video. The teacher also has the ability to switch the projection content to display the PC display of a classroom participant. The third room is the Homework Room, which features computer and video content on a plasma display, while the fourth is the Lobby Vestibule which displays video content, bulletin board

information relating to special events at the Library, and pre-recorded media published and broadcasted from a City Hall feed. The Designer on the project was Auerbach-Pollock-Friedlander of San Francisco.

For more information contact Larry Andrini at larrya@pagcos.com, or Aaron Colton at aaron.colton@ics-integration.com.

Walker Comm Wins Award for the Solano County Government Center

NECA Contractor Walker Comm, based in Fairfield, was awarded the Project of Excellence Award by the Northern California Chapter of NECA for their work on downtown Fairfield's new six story, 300,000 square foot government center. General Contractor Clark Construction brought Walker Comm on board for design/build assistance. The company was able to see through completion all the low voltage work in the building, including the paging system, voice over IP, data system, CATV, and video. The company also ran cable for the security and fire alarm systems.

International Brotherhood of Electrical Workers Local Union 180 assisted in the \$1.3 million job, which spanned several years. At peak, there was a crew of 45.

The building is used for all of Solano County's government services and houses the District Attorney, the Board of Supervisors, the County Assessor, and the Registrar of Voters. Previously, government employees were scattered throughout various locations.

Work in the state-of-the-art conference rooms included projectors, plasma screens, recording systems, sound systems, and video conferencing capabilities. TV broadcast abilities are available in the Board of Supervisors Chambers. Walker Comm also installed the computer system used for voting.

The site also features a parking structure and separate probation building. "We were able to sit down at the beginning and plan for the total need," said Gary Walker. "We designed it, and after approval, saw it through completion. We are from here and know a lot of the people who were involved, so that was fun."

For more information, contact garyw@walkercomm.com.



The new, 300,000 square foot Solano County Government Center in Fairfield was wired by Walker Comm

**VOICE
DATA
VIDEO**

**SOUND AND
COMMUNICATIONS**
of Northern California



IBEW-Donated Scoreboards in the Bay Area Grows into a National Campaign

Community parks, local school ball parks, and college campuses are getting a facelift, thanks to a recent group of scoreboards donated by the International Brotherhood of Electrical Workers. Over forty scoreboards have been installed in the last several years through the program, which was started by IBEW Local 617 under the guidance of Michael Meals.

According to Frank Aguerre, current Business Manager of Local 617, the donations began with a few local baseball fields and quickly took off on its own. "Once people saw one or two, they started calling. We get more requests now than we can process."

The International Brotherhood of Electrical Workers and the National Electrical Contractors Association logos appear on the donated scoreboards. "It is a form of advertising for us, but the bigger part is the ability to give back to the community," said Aguerre. It is common that these venues do not receive the funding that they need, and often the sports programs suffer the most.

Three college campuses in San Mateo County are involved in a Project Labor Agreement with the IBEW, so the donation was a natural fit. In addition, Aguerre points to other commonalities shared with the venue owners. "The school districts understand the importance of having a living wage and health and welfare benefits. They embrace a lot of the same core values that we do."

Many members of the union have children in the schools and have expressed appreciation of having a functioning scoreboard at the game. On the high school level, it has helped the IBEW develop a relationship to attract recruits for the training program. It has also had a positive effect on developing relationships with the city.

The success of this campaign has spread well beyond Northern California. The local scoreboard program has spurred an international campaign that International Brotherhood of Electrical Workers national has embraced. Translux Fairplay is the scoreboard supplier, and through the span of this campaign, all Translux workers have become IBEW recognized union members.

Pro Media Creates an Audio Experience

The Stanford Stadium has been home to Stanford Football for over 84 years. Since 1921, the stadium has seen World Cup games, a Super Bowl win for the 49ers, Olympic matches, a presidential nomination acceptance speech, first daughter Chelsea Clinton's graduation, and decades of memorable Big Games.

The stadium was rebuilt for the 2006-2007 season. Pro Media was responsible for creating an audio experience that would allow Stanford Football traditions to continue.

Broadcast Truck Docks are available for national and local broadcasters.

Loudspeakers are mounted on 43 poles around the upper perimeter of the stadium. Each pole features one JBL PD5322/64-WRX weatherized loudspeaker and one down firing AM6212/126-WRX weatherized loudspeaker.

Additional loudspeakers are mounted to the front of the press box building.

Loudspeakers mounted to the bottom of the upper deck bleachers include 36 AM6315/95-WRX loudspeakers, 10 AM6212/126-WRX loudspeakers, and numerous Control 29AV loudspeakers.

In-house and national broadcast boxes are located throughout the facility. Cables run to the truck dock or to a room in the press box building, which transmits the signal via fiber to a facility a quarter-mile away.

ce at Stanford's New Football Stadium

Project Team List

Electrical Contractor: Redwood City Electrical

Audio/Visual Contractor: Pro Media

Stadium Facts

Old Stadium	New Stadium
Stadium Built in 1921	Rebuilt in 2006
85,500 seats	50,000 seats
67/67 disabled seats	502/502 disabled seats
Companion seating	Companion seating
17 in. seat width	20 in. seat width
24 in. leg room	30 in. leg room

Closed Circuit Televisions are located at all concession stands.

All restrooms have universal speakers.

MATV drops are located through the concourse, concessions, and press box building.



ABOUT NECA

The National Electrical Contractors Association is the voice of the \$100 billion industry responsible for lighting, power, and communication systems in buildings and communities across the United States. NECA's national office and 120 local chapters advance the electrical contracting industry through advocacy, education, research, and standards development. NECA celebrated its 100th anniversary in 2001.



ABOUT IBEW

The International Brotherhood of Electrical Workers (IBEW) represents approximately 750,000 members who work in a wide variety of fields, including utilities, construction, telecommunications, broadcasting, manufacturing, railroads, and government. Founded in 1891, the IBEW is one of the oldest, largest, and most respected unions in the world.

WJHW Senior Consultant Mark Graham Outlines Trends in Athletic Facilities



Texas A&M (Pro Media and Mitsubishi)

Founded in 1990, Wrightson, Johnson, Haddon & Williams, Inc. (WJHW) of Dallas, Texas, has become a leader in providing clients with consulting and technical system design for a wide variety of systems found within sports/entertainment venues, performing arts facilities, public assembly spaces, corporate, and educational facilities. Their projects include Candlestick Park, AT&T Park, HP Pavilion, the Honda Center, Qualcomm, Fresno State arena and recreation center, and stadiums at UC Davis and Cal Poly, to name a few. Senior Consultant Mark Graham spent 15 years on the contracting side of the industry and now designs audio systems for some of the nation's top sports venues. He outlines for us some current audio trends in sports/entertainment venues.

Q: When you get a call from an owner who wants to update their audio system, what are the first steps?

A: The most important planning component is meeting with the people who are using the system and establishing the operation goals and what the facility

is trying to do with the system. What is becoming more and more the norm are elaborate productions with music, halftime shows, video support, and audio support for the video. Gone are the days of just an announcer and a "PA" system. We then complete an Ease Model, a computer modeling program developed specifically for the industry to allow us to select different loudspeakers, place them virtually in a 3D scaled model, and predict the performance of that given system or loudspeaker.

Q: What are some of the current technology trends in sports venues?

A: The big thing we are seeing in just the last couple of years or so is the use of Digital Signal Transport to route signals from various pieces of equipment in the

digital realm. This technology is not new, although now when the audio signals enter a digital audio snake or the digital mixing console, they often remain in the digital realm until they get to the amplifiers. So really the only analog links in the systems are from the microphone to the snake or console, and from the amplifier to the loudspeakers.

Q: What are the main benefits of Digital Signal Processing (DSP)?

A: You maintain a higher integrity on the signal itself, not to mention the ease of routing and controlling the signal. DSP has been implemented to a high degree for over 10 years in these systems, but it has just been recently that we have been able to provide and keep that signal digital for a much longer path through all the equipment. That reduces the number of conversions you are making from analog to digital and vice versa.

Q: Are there any other new regulations or trends?

A: The trend of going digital has brought fiber optic cabling and the implementation of a substantial Ethernet network into the systems. To some A/V firms, that is fairly new territory.

Q: What challenges do you face in installing audio systems?

A: On the design side of it, the acoustics are a big factor for the indoor venues. That is something we spend a lot of time with the owner on: how to improve or to provide the proper acoustics right from the start.

wrapping around the buildings on some of the deck faces, a prime speaker location, has now become sellable advertising space. They are also adding more suite and club levels to stadiums, so the distance between the seats and the deck overhead is much less than before. This height reduction has been a big challenge in how we place speakers in a distributed stadium system.

Q: Are there any tips for planning sound systems to reduce future upgrade costs?

A: We tend to design with proven reliable equipment. We look for equipment that will last them a good 10+ years, with relatively minor service requirements (to the best of our ability to predict that). The other thing is to look at how the infrastructure and cable routing is done—leaving room for future expansion and looking at signal transport over fiber optics so that when it is time to upgrade with new technology the cabling can be reused. We typically provide extra fiber stands strategically across the building, extra pathways or capacity within the conduit system to build onto in the future. We try to look at this upfront and provide a means for upgrading without redoing all of it.

Q: What is your opinion of the quality of the installations of the IBEW technicians that you work with (versus their non-union counterparts)?

A: We have had successful installs with both union crews and non-union based crews. From job to job, contractor to contractor, those that have been union



WJHW worked with Pro Media on a new sound system for the 2007 Stanley Cup Champs, the Anaheim Ducks

For the outdoor venues, the first question is "Where are the speakers going to go?" The challenge is putting speakers where they do not affect signage, sight lines, etc. and still provide the performance we need. With the trend now of LED signs

have been typically more consistent in the quality of the installation.

For more information, contact mgraham@wjhw.com or www.wjhw.com.



WJHW Senior Consultant Mark Graham

Security Trends: IP Camera Systems Bring More Security to Buildings

Chances are the camera looking at you from the office security system is a new generation device. Security systems are moving toward the installation of IP (Internet Protocol) cameras, and away from analog cameras, according to Craig Jarrett of Integrated Communication Systems, a NECA contractor based in San Jose.

It's a trend that's happening quickly. In 2006, the majority of new security installations were analog. In 2007, however, 70-80% of new Bay Area installations have been IP based, Jarrett said.

The two cameras deliver the video signal differently; an IP-based camera sends the signal to an on board web server, allowing images to be viewed on the existing network and accessed over the internet; analog-based systems send the video into a receiver such a television, VCR or monitor. Both analog and IP-based can transmit video signals through Cat-5 cables or wirelessly.

IP cameras have an encryption built right into them, providing a more secure network. Because they have their own network device, they can be integrated with the existing wiring in an office or home.

Jarrett says that IP based systems are more expensive, although recordings are less expensive (digital recordings are about half the cost of analog recordings).

IP based systems allow for the flexibility of off-site recorders. "One recorder can serve to collect data from any location on the globe," Jarrett explains. "The advantage would be that you could use one recorder to collect data from cameras in as many buildings you want, instead of having separate recorders on each location."

The visual quality is highly detailed in digital cameras. Megapixel cameras came out in 2007. A standard IP resolution is 640 x 480, and some are in the 2,000 x 1,280 range. "That gives you the ability to zoom into a picture and pull out items like license plate numbers or facial features," Jarrett says. Analog-based systems don't have the same advanced zoom options. Both IP and analog systems can be set to record only when movement happens.

IP technology has been available for half a decade but originally people were wary of the high bandwidth IP cameras require on their servers. "The technology has changed so rapidly that now the bandwidth is no longer an issue," Jarrett explained.

When deciding what type of system to install, a building owner should look at their current system. "If an owner is installing something new, IP is probably the way to go," Jarrett said. "If they are adding a few cameras, they might stay with what they have. If they are adding 50% or more they should switch."



How can I find a Security Contractor?

Briggs Electric, Inc.

Contact: Greg Dye
Gregdye@briggselectric.com
5138 Metric Way
Carson City, NV 89706
Tel: (775) 887-9901
Fax: (775) 887-9454

CAL Communication Service Co.

Contact: Randall J. Weber
randy@calcsc.com
525 Second St.
Rodeo, CA 94572
Tel: (510) 799-0300
Fax: (510) 799-0966
www.calcsc.com

Ceitronics

Contact: Scott Mitchell
Scott_Mitchell@cei.com
2460 Zanker Rd.
San Jose, CA 95131
Tel: (408) 435-0500
Fax: (408) 435-5423
www.ceitronics.com

Cochran, Inc.

Contact: Kurt Dickerson
info@cochraninc.com
12500 Aurora Ave. North
Seattle, WA 98133
Tel: (206) 367-1900
Fax: (206) 368-3218
www.cochraninc.com

Contra Costa Electric, Inc.

Contact: Chris Payne
chris_payne@emcorgroup.com
825 Howe Rd.
Martinez, CA 94553
Tel: (925) 229-4250
Fax: (925) 229-1672
www.ccelectric.com

Eilbacher Electric

Contact: William Eilbacher
Lectrospec@aol.com
41794 Vargas Rd.
Fremont, CA 94539
Tel: (510) 490-5530
Fax: (510) 651-7885

The Facilities Group

Contact: Thomas Ward
Tward@facilitiesgroup-sf.com
400 Brannan St., Ste. 7
San Francisco, CA 94107
Tel: (415) 284-1500
Fax: (415) 284-0984
www.facilitiesgroup-sf.com

Groseclose Electric Company, Inc.

Contact: George Yeager
Gyeager@redshift.com
231 Commission St.
Salinas, CA 93901
Tel: (831) 424-2791
Fax: (831) 424-6132

Harris Electric

Contact: Calvin Harris
Charris@harriselectric.com
6681 Sierra Ln. #A
Dublin, CA 94568
Tel: (925) 560-9880
Fax: (925) 560-9881
www.harriselectric.com

Integrated Communication Services (ICS)

Contact: Aaron Colton
aaron.colton@ics-integration.com
550 Parrott St., #40
San Jose, CA 95112
Tel: (408) 491-6000
Fax: (408) 998-0100
www.ics-integration.com

Intrepid Electronics Systems, Inc.

Contact: Kurt Brinkman
4377 Adeline St.
Emeryville, CA 94608
Tel: (510) 597-9966 x115
Fax: (510) 597-9980

Lloyd F McKinney Associates, Inc.

Contact: Rick McKinney
rick@mckinneyassoc.com
25350 Cypress Ave.
Hayward, CA 94544
Tel: (510) 783-8043
Fax: (510) 783-2130
www.mckinneyassoc.com

McMillan Security Systems

Contact: Mike Schimm
1515 S Van Ness Ave.
San Francisco, CA 94110
Fax: (415) 826-0142

Metropolitan Electrical Construction, Inc.

Contact: Nick Dutto
2400 3rd St.
San Francisco, CA 94107
Tel: (415) 542-3000
Fax: (415) 550-6515
http://www.metroelectric.com

Netversant- Northern California

Contact: Russell Hayslip
Rhayslip@netversant.com
1411 S Milpitas Blvd.
Milpitas, CA 95035
Tel: (408) 945-5700
Fax: (408) 945-2910
www.netversant.com

Paganini Communications, Inc.

Contact: Larry Andriani
larrya@pagcos.com
190 Hubbell St.
San Francisco, CA 94107
Tel: (415) 575-3900
Fax: (415) 575-3920
www.pagcos.com

Point One Electrical Systems, Inc.

Contact: Michael Curran
info@point1.com
24963 Huntwood Ave.
Hayward, CA 94544
Tel: (510) 259-0877
Fax: (510) 259-0876
www.point1.com

Red Top Electric Company Emeryville, Inc.

Contact: Michael Curran
Info@teamredtop.com
24967 Huntwood Ave.
Hayward, CA 94544
Tel: (510) 782-8600
Fax: (510) 786-1965
www.teamredtop.com

Steiny and Company, Inc.

Ssteiny@steinyco.com
27 Sheridan St.
Vallejo, CA 94590
www.steinyco.com

Walker Comm, Inc.

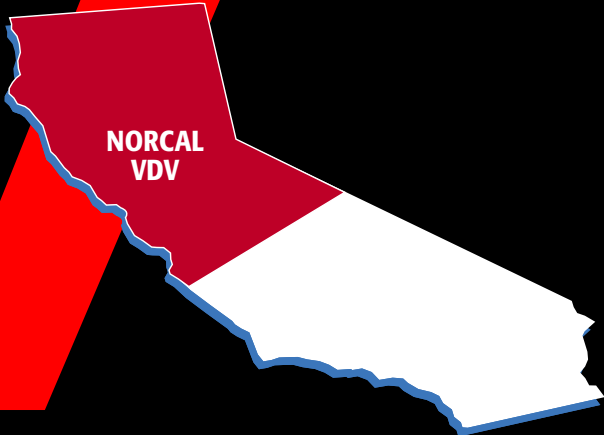
Contact: Gary and Donald Walker
donaldw@walkercomm.com
521 Railroad Ave.
Fairfield, CA 94533
Tel: (707) 421-1300
Fax: (707) 421-1359
www.walkercomm.com

**For a complete listing of over 125 qualified
Sound and Communications contractors,
please visit www.norcalvdv.org.**

REMINDER!

*Voice/Data/Video technicians working for C-10 Contractors
need to be certified by the State of California by January 1, 2008*

Union Contractors (IBEW/NECA) in Sound & Communications combine a skilled and trained work force with world class technology. For the best installations in voice/data/cabling, network systems, data center facilities, audio/video systems, sound systems, fiber optics, wireless, security systems, fire/life safety systems, and CATV, call a union contractor or visit www.norcalvdv.org.



Stanford Stadium (Pro Media)



AT&T Park (Mitsubishi Diamond Vision HD board)



Stockton Arena (Pro Media)



norcalvdv.org

Sports Arenas

(continued from page 1)

audio cable and high-resolution FDI cable.

International Brotherhood of Electrical Workers Local Unions 332, 302, 6, and 617 assisted on the project, which lasted about three months. “The timeline was the big challenge and uniqueness of this job,” said Palavos. “We lost two months for an already short schedule, so everything had to move fast. A great amount of coordination was required.”

Pro Media also completed work for the Stockton Arena, Honda Center, and Texas A&M, each with unique features.

Stockton Arena

The sound system for the main bowl area of the 22,000 square foot Stockton Arena is a traditional distributed system in which the loudspeakers hang from an I-beam structure off the main roof support. “Stockton Arena was unique because it was

a hybrid,” said Palavos. “The facility had such a shallow roof that it did not allow you to have traditional clusters in the middle of the facility.”

Honda Center

Pro Media recently completed a \$750,000 renovation of the sound system at the Honda Center, the Anaheim home to the National Hockey League’s Ducks. Again they faced a short schedule – this one between games.

Texas A&M

Pro Media connected loudspeakers to the colossal 100-foot video display board at the 97,000 seat stadium at Texas A&M.

Oakland Coliseum

Quality Sound of Oakland improved the decade-old sound system at the Oakland Coliseum, which, unlike the Stanford Stadium, is a single source point system, where the sound radiates from a speaker

cluster rather than in a distributed system.

“The sound system speaker cluster has quite a few components – what we ended up doing was replacing all of the drivers: the woofers, the mid-range cone speakers and the high frequency compression drivers,” said Don Otomo, the Audio/Visual Sales Manager for Quality Sound. “I like to keep the relationship between the drivers and the amplifiers down to two speakers per channel. We ended up adding quite a few more amplifiers to the system and redistributing power to the speaker.”

In addition, Quality Sound provided the venue with an emergency evacuation system. “Anytime you have that many people – 70,000 or 80,000 people congregated in a facility, it is extremely important that you are able to give them clear instruction on how to get out,” explained Otomo. As a result of NFL regulations, a microphone for the entire coliseum was implemented. All of the audio in the facility, including

radio playback in the restrooms, the referee mic, commercials on the TV screen, or the announcer’s voice- now have the ability to be converted to the emergency page microphone, which upon activation takes precedence over everything else.

An Audio Experience

According to Otomo, a patron’s audio experience at these venues is based on more factors than simply the sound system. “Sports venues are like any show—audio quality depends heavily on who is sitting on the mixing console. Temperature can also change the quality of audio, as temperature gradients affect the quality of audio but have nothing to do with the sound system.”

Contact Demetrius Palavos at Demetrius@ultrapromedia.com or Don Otomo at dotomo@qualitysound.net.

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of Northern California