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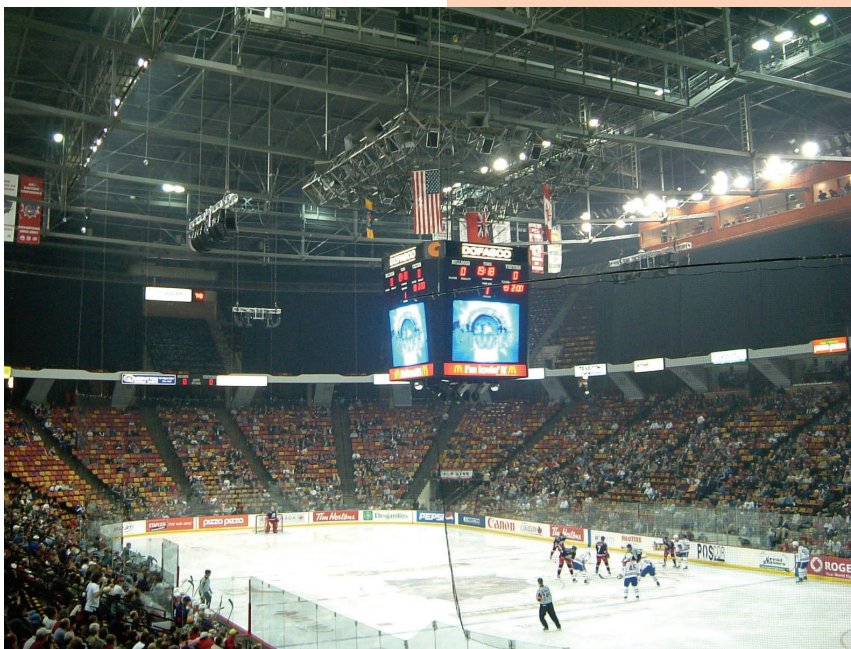
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Forty-four TOA HX-5B speakers are rigged from trusses around Copps Coliseum, home of the AHL's Hamilton Bulldogs.



INSTALL OF THE MONTH: COPPS COLISEUM, HAMILTON, ONTARIO

Out of the Penalty Box

At Copps Coliseum in Hamilton, Ontario, hockey fans were getting frustrated. The American Hockey League's Hamilton Bulldogs, who play their home games at Copps and own the building's sound system, were getting complaints that the previous PA system rendered the game announcers unintelligible. The music didn't sound much better.

In place was a "really old, antiquated system, with some horn tweeters up there," according to Rob Tiller, sales representative with FFP Laser Systems in Mississauga, Ontario.

FFP Laser Systems acted as the liaison between Copps Coliseum and the eventual equipment suppliers. The company hosted a demo at the arena, and out of three manufacturers, it chose TOA Electronics for the quality of the sound the manufacturer produced in Copps, which has a capacity of 20,000.

The Bulldogs, a minor-league farm team for the NHL's Montreal Canadiens, were working with a pretty tight budget. Moreover, because the Bulldogs share

the arena with touring attractions such as the Ice Capades that bring in their own gear, sound equipment couldn't be dead-hung in Copps. It needed to be mounted on trusses so that it could be flown up to the ceiling. That created extra costs in terms of rigging and labor.

So working with a budget of about \$50,000 Canadian, TOA designed a system that would cover the lower bowl of the arena and could be expanded to cover the upper bowl in the future. (Counting the labor and rigging involved, the cost of the entire installation was closer to \$100,000 Canadian, and the Bulldogs received a discount from TOA.) Paul Rennick, an audio technician at TOA, designed the system on site.

"Our biggest challenge wasn't really the cost," says Tiller. "It was more the rigging issues within the building. The building was concerned with sight lines and the ability to move equipment in and out."

Copps was very specific about where FFP Laser could place the rig, and in the end the company installed four 25ft. trusses, one on each side of the ice. Each truss was rigged with a one-ton motor. Bunning Splicing & Rigging was tapped as the rigging supplier, and Nedco for power equipment.

TOA supplied all audio equipment, including speakers, subwoofers, amplifiers, and a D901 digital mixer with internal DSP. Rennick of TOA designed the system so that the east and west trusses (behind either goal) each have four pairs of HX-5B variable-angle speakers, and the north and south (center ice) each have six pairs. Around the score clock above the ice is a permanent truss, where four cabinets were rigged—that's a total of 44 HX-5B speakers around Copps. (The score clock speakers deliver announcements to players on the ice.) Rennick says that the biggest challenge in designing the system was dealing with the speakers' 100-degree dispersion

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INSTALL OF THE MONTH *continued from p. 14*

pattern—he had to ensure that their lines didn't cross.

Copps Coliseum also uses 19 IP-600D dual-channel 600W/channel amplifiers and 12 F-120B subwoofers from TOA Electronics.

The TOA D901 mixer is a 12-input, eight-output digital mixer that allows full DSP on all channels. Rennick did the DSP for the system within the D901. As the system is used not just by the Bulldogs but is also rented out, he created presets designed to suit outside operators who run the system.

TOA also supplied a D-911 remote controller for the mixer, which is key for the person running the D901. That's because he's typically also doing sound effects from a computer source, which introduces different levels from different files. The remote allows him to adjust levels while he's at the computer. The main source of music is a Tascam two-channel CD player.

Microphones are another important audio source for the arena. TOA supplied a total of eight wireless microphones, both WM-4210 handheld and WM-4310 lavalier models. The system employs WTU-4800 wireless receivers and YW-4500 UHF fixed-mount dipole antennas. There's also a wired mic in the scorekeeper's box.

Tiller says that there's a nice, even sound everywhere in the bowl of the arena, though in the corners there's a bit of a drop-off. "We knew from the start that they were going to stretch the system," he says. "At the end of the day we were 100 percent pleased with what TOA delivered. It's miles above what was there before."

— Trevor Boyer

20 YEARS AGO... *continued from p. 15*

Picking up on page 52 of the June issue was our 1986 Buyers' Guide, which was compiled by the *Sound & Video Contractor* staff. The guide occupied 87 of the issue's 154 pages.

Getting back to the issue topic, Tom Rosenberry's "A new approach to distributed sound" provided a technology profile on the Smart electronic system, which simplified system configuration changes.

And bringing it all home, Linda Zolet, a personnel administration professional, addressed the business aspect of "Handling customer/employee relations" and suggested that it was wise for companies to establish policies and training programs to guide employees' interactions with customers. That's still a very good idea.

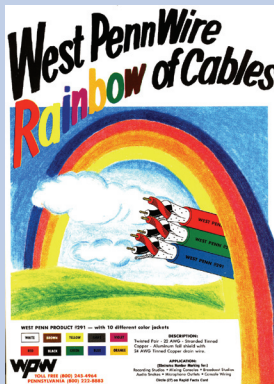
A sampling of business news items includes information on the relocation of Klark-Teknik offices in Farmingdale, N.Y. Additionally, *Sound & Video Contractor* magazine and other Intertec publications, including *Broadcast Engineering*, *Recording Engineer/Producer*, and *Video Systems*, became available in electronic form via the CompuServe information service.

David Scheirman's monthly contribution, "Reinforced audio," discussed processor-driven speaker systems and highlighted systems from ART, EAW, Electro-Voice, Meyer Sound, PAS, and Renkus-Heinz.

The June '86 issue featured amplifiers, EQs, crossovers, and compressor/gates from Biamp, as well as West Penn Wire's Rainbow of Cables—the company offered its 22 AWG twisted-pair cable with 10 different-colored jackets. Renkus-Heinz advertised its Smart Systems for When Their "Best" Isn't Good Enough. Valcom "broke the sound barrier" with its ad featuring Chuck Yeager. And Danish Interpretation Systems had an ad on the inside back cover featuring its Summit multi-mic system, which boasted "99 Mics. No Feedback!"

In Associations news, it was reported that NSCA Expo drew a record crowd, with 3,398 badges issued.

— Mark Johnson



UPCOMING EVENTS

June

11-14

HOW Design Conference
Chicago
www.howdesign.com

14-16

Flashbelt: Second Annual Midwest Flash Conference
Minneapolis
www.flashbelt.com

20

Digital & Mobile Licensing Summit & Licensing Show International
New York
www.hollywoodforum.com/licensing2005.htm

23

Digital Media Conference
McLean, Va.
www.digitalmediaconference.com

27-29

ETA Summit
New York
www.etaexpo.com

27-30

NECC
Philadelphia
center.uoregon.edu/ISTE/NECC2005

June 29-July 1

WICT Executive Management Symposium
Denver
www.wict.org/WICT/default.htm

July

10-12

Web Design World Seattle
Seattle
www.ftponline.com/conferences/webdesignworld/2005/seattle

10-13

VSDA's Home Entertainment 2006
Las Vegas
www.homeentertainmentevents.com

14-17

DV Expo East
New York
www.dvexpo.com

August

8-9

Worship Resource and Education Conference
Phoenix
www.merestoneonline.com